

LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

ADMINISTRATIVE RECORD

Volume 32

2020

Bate Stamp Numbers

01004627 – 01006206

Prepared for

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

1976–2020

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

VOLUME 32

2020

- A. Title: Report – Draft Third Annual Remedial Action Operation Report, LHAAP-35B (37) (Chemical Laboratory), Longhorn Army Ammunition Plant, Karnack, Texas, November 2020
Author(s): Department of the Army
Recipient: Environmental Protection Agency and Texas Commission on Environmental Quality
Date: December 15, 2020
Bate Stamp: 01004627 – 01004968
- B. Title: (cont'd) Report – Appendix C to Approved DRAFT LHAAP-37 Third Annual Remedial Action Operation Report Final DOD IV, Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): Department of the Army
Recipient: Environmental Protection Agency and Texas Commission on Environmental Quality
Date: December 15, 2020
Bate Stamp: 01004969 – 01006206

From: [Foss, William A.](#)
To: [Mena, Kim](#)
Subject: FW: Nov 2020 Draft LHAAP-35B (37) Third Annual RA-O Report
Date: Wednesday, January 27, 2021 1:27:23 PM
Attachments: [image001.png](#)

FYI re: draft RAO Report for LHAAP-37 for Oct-Dec 2020 AR.

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Subject: RE: Nov 2020 Draft LHAAP-35B (37) Third Annual RA-O Report

EXTERNAL SENDER

Bill,

The EPA has no comments on the Nov 2020 Draft LHAAP-35B (37) Third Annual RA-O Report . Thx.

From: [Foss, William A.](#)
To: [Mena, Kim](#)
Subject: FW: Nov 2020 Draft LHAAP-35B (37) Third Annual RA-O Report
Date: Wednesday, January 27, 2021 1:26:33 PM
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FYI Re: Draft RAO Report for LHAAP-37 for Oct-Dec 2020 AR.

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Subject: RE: Nov 2020 Draft LHAAP-35B (37) Third Annual RA-O Report

EXTERNAL SENDER

Good afternoon. I've reviewed the Nov 2020 Draft LHAAP-35B (37) Third Annual RA-O Report and have no comments.

Thank you,

April

From: Foss, William A. <William.Foss@aptim.com>
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Subject: Nov 2020 Draft LHAAP-35B (37) Third Annual RA-O Report

Bill and April,

The *Draft Third Annual Remedial Action Operation Report, LHAAP-35B (37) (Chemical Laboratory)*, has been uploaded to a folder in the “[Documents](#)” folder of the project portal for your review and can be accessed directly via the links provided below. As recently agreed to in the October 2020 Monthly Managers’ Meeting, the laboratory data packages for Appendix C are included in Level II format. Please let us know if you need the Level IV packages to complete your review. The Level IV packages will be included in the Final Administrative Record version of the document. Comments for this draft report are requested by December 4, 2020.

The report has been separated into two files due to the file sizes. The first file contains the report text, tables, figures, and all appendices except Appendix C (Laboratory Data Packages) and is approximately 28 MB in size. The second file contains only Appendix C and is approximately 27 MB in size. Electronic copies of the transmittal letters are included in the report PDF and are attached to this email for your convenience.

November 2020 Draft Third Annual Remedial Action Operation Report, LHAAP-35B (37) (Without Appendix C)

[Nov 2020 Draft Third Annual Remedial Action Operation Report for LHAAP-35B \(37\) \(Without Appendix C\)](#)

November 2020 Draft Remedial Action Operation Report, LHAAP-35B (37) (Level II Appendix C Only)

[Nov 2020 Draft Third Annual Remedial Action Operation Report for LHAAP-35B \(37\) \(Level II Appendix C Only\)](#)

Please let us know if you have any questions or have any difficulty accessing the files. Thanks!

Bill

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DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
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November 4, 2020

DAIN-ODB-LO

Mr. William Rhotenberry
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
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**Re: Draft Third Annual Remedial Action Operation Report, LHAAP-35 B (37)
(Chemical Laboratory), Longhorn Army Ammunition Plant, Karnack, Texas,
November 2020**

Dear Mr. Rhotenberry,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your review:
(<https://docs.cbifederaleservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx>). An electronic copy of this letter and download instructions for the electronic file have been sent via email. Review comments are requested by December 4, 2020.

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

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

Sincerely,

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

Copies furnished:

- A. Palmie, TCEQ, Austin, TX (electronic/online)
- P. Bruckwicki, Caddo Lake NWR, TX (electronic/online)
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- A. Williams, USACE, Tulsa District, OK (electronic/online)
- A. Maly USAEC, San Antonio, TX (electronic/online)
- K. Nemmers, Bhate, Lakewood, CO (electronic/online)
- P. Srivastav, APTIM, Houston, TX (electronic/online)



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LONGHORN ARMY AMMUNITION PLANT
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November 4, 2020

DAIN-ODB-LO

Ms. April Palmie
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Superfund Section, MC-136
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Austin, TX 78753

**Re: Draft Third Annual Remedial Action Operation Report, LHAAP-35 B (37)
(Chemical Laboratory), Longhorn Army Ammunition Plant, Karnack, Texas,
November 2020**

Dear Ms. Palmie,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your review:

(<https://docs.cbifederaleservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx>). An electronic copy of this letter and download instructions for the electronic file have been sent via email. Review comments are requested by December 4, 2020.

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

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

Sincerely,

A handwritten signature in black ink, reading "Rose M. Zeiler", is positioned above the typed name.

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

Copies furnished (letter only):

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P. Srivastav, APTIM, Houston, TX



Draft
Third Annual Remedial Action
Operation Report, LHAAP-35B (37)
(Chemical Laboratory)
Longhorn Army Ammunition Plant
Karnack, Texas



Prepared for
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Contract No. W9128F-13-D-0012
Task Order No. W9128BV17F0150
Project No. 501032
Rev 0
November 2020

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Acronyms and Abbreviations

µg/L	micrograms per liter
J	estimated value
AECOM	AECOM Technical Services, Inc.
APTIM	Aptim Federal Services, LLC
Bhate	Bhate Environmental, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
COC	contaminant of concern
DCE	dichloroethene
DPT	direct push technology
DO	dissolved oxygen
LHAAP	Longhorn Army Ammunition Plant
LTM	long-term monitoring
LUC	land use control
MCL	maximum contaminant level
mg/L	milligram(s) per liter
MNA	monitored natural attenuation
MSL	mean sea level
mV	millivolts
No.	number
ORP	oxidation-reduction potential
PCE	tetrachloroethene
RA-O	remedial action operation
RACR	Remedial Action Completion Report
RAWP	Remedial Action Work Plan
RI	remedial investigation
ROD	Record of Decision
Shaw	Shaw Environmental & Infrastructure, Inc.
SU	standard unit(s)
TCE	trichloroethene
TCEQ	Texas Commission on Environmental Quality
TNT	trinitrotoluene
TOC	total organic carbon
U.S.	United States
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

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1.0 INTRODUCTION

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

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

LHAAP was established in December 1941 with the primary mission of manufacturing trinitrotoluene (TNT). Production of TNT began at Plant 1 in October 1942 through 1945, when the facility was placed on standby status until February 1952. In 1952 the facility was reactivated and production of pyrotechnic ammunition, such as photoflash bombs, simulators, hand signals, and tracers for 40-millimeter ammunition continued at Plant 2, northeast of Plant 1, through 1956. In December 1954, a third facility, Plant 3, began production of solid-fuel rocket motors for tactical missiles until 1965 when Plant 2 was reactivated for the production of pyrotechnic and illuminating ammunition. In the years following the Vietnam conflict, LHAAP continued to produce flares and other basic pyrotechnic or illuminating items for the U.S. Department of Defense inventory. From September 1988 to May 1991, LHAAP was also used for the static firing and elimination of Pershing I and II rocket motors.

Remedial action operation (RA-O) activities are required at LHAAP-35B (37) under the Record of Decision (ROD) issued for the site in June 2010 (USACE 2010). The Remedial Action Completion Report (RACR) (AECOM 2016) outlines the implementation of RA-O to address risks associated with contaminated groundwater at the LHAAP-35B (37) site. The RACR (AECOM 2016) was developed using the basis and details of the Remedial Design (USACE 2011) and the Remedial Action Work Plan (RAWP) (AECOM 2013) for LHAAP-35B (37), and included the installation of three wells, 35BWW24, 35BWW25, and 35BWW26, and their inclusion into the monitoring network.

A field demonstration pilot study of the bio-plug technology was conducted at the site during September 2012 through June 2014 (AECOM 2016). The purpose of the pilot study was to determine the feasibility of the bio-plug technology to accelerate the aerobic biological degradation of volatile organic compounds (VOCs) in the groundwater at the site. The pilot study commenced in September 2012 and concluded with the final groundwater sampling round in October 2014. Interpretation of data generated through these events indicated reduction of contaminant concentrations was not sufficient to justify continuation of the demonstration.

Groundwater monitoring at LHAAP-35B (37) is ongoing as described in the RACR (AECOM 2016). This report represents Year 3 of the RA-O implementation and summarizes the results of site inspections and sampling activities. Baseline sampling was conducted in October 2013. A Groundwater Geochemistry Rebound Evaluation Memorandum for Record was submitted February 2017, which determined that the aquifer is sufficiently recovered to its pre-bio-plug study geochemical state to begin implementation of the monitored natural attenuation (MNA) remedy (AECOM 2017). The first year RA-O report, representing sampling events conducted in November 2017, February, May, and August 2018, was submitted in March 2019 (Bhate 2019a). The second year RA-O report, representing sampling events conducted in November 2018, February, May, and August 2019, was submitted in April 2020 (Bhate 2020a). An evaluation of the effectiveness of the selected MNA remedy is presented in this Year 3 report and includes historical data from 1994 through May 2020.

1.1 Remedial Action Objectives

The remedial action objectives at LHAAP-35B (37) are based on protection of human health and meeting applicable or relevant and appropriate requirements. There are no ecological risks at the LHAAP-35B (37) site (USACE 2010).

The remedial action objectives for the LHAAP-35B (37) site, consistent with the reasonably anticipated future use as a national wildlife refuge, are:

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

1.2 Performance Objectives

The remedy selected for LHAAP-37 (USACE 2010) is land use control (LUC), MNA, and Long-Term Monitoring (LTM).

The remedy includes the following components:

- **LUC:** LUC in the impacted area ensures protection of human health by restricting the use of groundwater exceeding the applicable cleanup levels to environmental monitoring and testing only. The LUC will remain in effect until such time as the U.S. Army, U.S. Environmental Protection Agency (USEPA), and Texas Commission on Environmental Quality (TCEQ) agree that contaminants of concern (COCs) concentrations have met cleanup levels. As a component of the LUC implementation, the civil survey of the LUC boundary was conducted in January 2015 and recorded in the Harrison County Courthouse in March 2015.
- **RA-O:** An MNA program has been implemented as part of the RA-O to establish attenuation trends and verify that the VOCs plume is stable or shrinking and will not migrate to nearby surface water (Goose Prairie Creek) at levels that may present an unacceptable risk to human health or the environment. Natural attenuation is expected to return groundwater to acceptable quality over time. The MNA program performance objectives have been evaluated after three years of RA-O groundwater monitoring. During those three years, groundwater monitoring has been performed on a quarterly basis for the first two years and semi-annually for the third year. RA-O monitoring will continue semiannually for an additional two years.
- **LTM:** Following the completion of three years of semiannual monitoring, groundwater monitoring will be performed annually until the next Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Five-Year Review. RA-O associated with this remedy will be used to track the continued effectiveness of MNA. Further reductions in sampling will depend on the Five-Year Reviews, but sampling will be conducted at least once every five years until the cleanup levels are achieved.

According to the RACR (AECOM 2016), groundwater monitoring is being performed to evaluate remedy effectiveness and includes groundwater and surface water monitoring. The groundwater monitoring program is designed to evaluate and monitor natural attenuation of COCs in shallow zone groundwater, and the surface water monitoring program is designed to evaluate potential migration of contaminated groundwater to surface water.

The combined monitoring program shall meet the following objectives (AECOM 2013):

- Demonstrate that natural attenuation is effectively occurring
- Detect changes in environmental conditions (e.g., geochemical, hydrogeologic, etc.) that may reduce the efficacy of natural attenuation processes
- Identify potentially toxic and/or mobile transformation products
- Verify that the plume(s) is not expanding
- Verify no unacceptable impact to downgradient receptors
- Detect new releases of contaminants to the environment that could impact effectiveness of the natural attenuation remedy
- Verify attainment of the remediation objectives

Work completed as part of the Year 3 (2019/2020) RA-O consisted of the following:

- November 2019 groundwater monitoring event consisting of 22 planned wells
- May 2020 groundwater monitoring event consisting of 22 planned wells
- May 2020 surface water monitoring event consisting of 2 planned locations
- LUC inspection.
- Well maintenance activities

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

1.3 Site Description

LHAAP-35B (37) is located in the central portion of LHAAP, as shown on **Figure 1-2**, and covers an area of approximately 16.5 acres. The site topography is relatively flat. The nearest significant surface water body is Goose Prairie Creek, which runs through the site. Goose Prairie Creek eventually flows into Caddo Lake; however, it is often dry at LHAAP-35B (37).

At LHAAP-35B (37), a Chemical Laboratory and associated buildings were built during the construction of Plant 3 (1953–1955) and were originally used to support the production activities at LHAAP. These support activities included research and testing of materials used in the production processes and quality assurance testing. Also, one waste rack sump was located at the site. In 1998, the site was used as a staging area in support of investigation activities.

The LUC area associated with the groundwater use restriction at LHAAP-35B (37) encompasses the northern half of the site and extends beyond the historical site boundaries along the western, eastern, and northern boundaries of the site. The LUC area encompasses a total of 16.5 acres and has no known areas of archaeological or historical importance.

1.4 Conceptual Site Model

A detailed Conceptual Site Model of LHAAP-35B (37) was presented in the ROD (USACE 2010). Although the groundwater is not currently being used, nor is it expected to be used in the future, the groundwater pathway is being considered for remediation because it has the potential to present an unacceptable risk to a maintenance worker.

COCs identified in the ROD for LHAAP-35B (37) groundwater are tetrachloroethene (PCE), trichloroethene (TCE), and 1,1-dichloroethene (DCE). The historical presence of these COCs in the shallow groundwater zone represents the primary driver for remedial action as they are at concentrations above the human health standard for a hypothetical future maintenance worker under a non-residential exposure scenario. Although 1,1-DCE is a COC, this compound was not detected above the maximum contaminant level (MCL) of 7.0 micrograms per liter ($\mu\text{g/L}$) during the Year 2 or Year 3 RA-O.

Antimony and thallium were detected in groundwater at the LHAAP-35B (37) prior to the remedial investigation (RI) conducted in 2002, and the RI concluded that they are not considered to be COCs at this site (Jacobs 2002). The 2016 RACR stated that since the previous detections of antimony and thallium results were estimated value (J)-qualified results, samples were to be collected during the second quarter Year 1 RA-O sampling event to determine the need for further sampling. During the second quarter Year 1 RA-O sampling event in March 2018, concentrations of antimony and thallium were below their respective MCLs, and these analytes were excluded from the future sampling as approved in the Year 1 RA-O report.

Based on groundwater level data collected 2013 through 2020, the dominant shallow zone groundwater gradient is to the northeast. However, in 2019, the groundwater elevations increased significantly, and in the area to the west of the site boundary, but within the LUC boundary, the groundwater flow direction was to the north/northwest in Year 2. During the Year 3 RA-O the groundwater flow direction to the west of the site boundary was to the northeast in November 2019 and to the northwest in May 2020. In May 2020, the groundwater elevations were approximately two feet higher than they were in November 2019, which may indicate that the flow direction in the area west of the site boundary is more sensitive to fluctuations than areas to the east. The potentiometric data will continue to be evaluated to determine if the relationship between groundwater elevation and flow direction changes continues.

Groundwater monitoring has shown that contaminants are confined to the shallow groundwater. Monitoring well 35BWW03 is installed in the intermediate zone, and monitoring well 35BWW06 is installed in the lower portion of the shallow zone. The continued low levels of COCs, in well 35BWW06 in the lower portion of the shallow zone and in the intermediate well 35BWW03, indicate that the plume has been vertically delineated, with no intermediate zone impacts identified. As described in the RACR, direct push technology (DPT)-03 and DPT-06 were installed in the intermediate zone, and because groundwater samples from these DPTs did not indicate VOCs exceeding cleanup levels, no additional intermediate zone wells were installed. According to the RAWP (AECOM 2013), sampling of these two wells will be performed every five years to support the Five Year Review. Monitoring well 35BWW03 was last sampled in August 2016 and monitoring well 35BWW06 was last sampled in November 2018; the results at both wells were non-detect or below MCLs. These two wells will be sampled again in 2021 to support the next Five Year Review.

In the ROD (USACE 2010), contamination was known to be present only on the west side of the creek, and modeling calculations were completed (Shaw 2007) to assess the potential for the COCs present in shallow groundwater at LHAAP-35B (37) to migrate toward and discharge to Goose Prairie Creek. The modeling assumed contaminants were not leaching from vadose zone soil to groundwater. Based on the results of the model, PCE and 1,1-DCE would not appear at detectable levels where groundwater discharges into Goose Prairie Creek. Groundwater contamination was detected to the east of the creek during Year 1 RA-O monitoring. However, contaminants were not detected in the surface water sampling conducted in Year 1, Year 2, or Year 3. Monitoring well 35BWW01 is a shallow well and is the only well that has groundwater elevations observed above the creek bottom. Comparison of this well to others at the site suggests this water is likely to be perched. The lack of COCs at this well indicate that if the groundwater does reach the creek, the creek will not be impacted by COCs. A comparison of groundwater elevations in COC impacted wells near the creek with the elevation of the bottom of the creek indicates that COC impacted groundwater is not discharging to Goose Prairie Creek.

2.0 SITE ACTIVITIES AT LHAAP-35B (37)

This section describes the results of the Year 3 RA-O activities including the annual LUC compliance inspection, quarterly groundwater monitoring, and monitoring system repairs and/or maintenance performed at LHAAP-35B (37).

2.1 Annual Land Use Control Compliance Inspection

The annual LUC compliance inspection for LHAAP-35B (37) was performed on June 29, 2020. The LUC for this site is groundwater restriction, which prohibits water well installation for any purpose other than environmental monitoring and testing. Also, the LUC prohibits residential groundwater use until the levels of COCs in the groundwater allow unrestricted use and unlimited exposure. The restriction applies to groundwater underlying an approximately 16.5-acre area defined by the surveyed LUC boundary (AECOM 2016). The Annual LUC Compliance Certification Documentation Form for the Year 3 RA-O monitoring period is included in **Appendix A**. No non-compliance issues or concerns were noted during the annual inspection.

2.2 Groundwater Monitoring

The Year 3 RA-O monitoring is the first of three years of semi-annual monitoring. Groundwater sampling events were completed in November 2019 and May 2020. Prior to the Year 3 RA-Os groundwater sampling events, two years of quarterly sampling was conducted. In the RAWP (AECOM 2013), the lower shallow groundwater well 35BWW06 and intermediate well 35BWW03 were scheduled to be sampled during the baseline event and then once every five years to support the Five-Year Review. In the RACR (AECOM 2016), 25 wells were selected for sampling, which included wells 35BWW03 and 35BWW06, although these wells are scheduled to be sampled once every five years and will be sampled again in 2021. Also, 35BWW02 was not sampled because it was dry during two quarters in the Year 1 RA-Os (May and August 2018), as shown in **Table 2-1**. The Year 1 RA-O recommended that 35BWW02 be removed from the sampling list, and the recommendation was approved in March 2019. Monitoring well locations sampled for the November 2019 and May 2020 sampling events are depicted on **Figure 2-1**.

Prior to collecting groundwater samples, monitoring wells were gauged using a water level probe, and the depth to water was recorded to the nearest 0.01 foot from the top of casing. Depth-to-water measurements were used to calculate the groundwater elevations presented in **Table 2-2** and on the potentiometric surface figures (**Figures 2-2** and **2-3**)

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

2.2.1 Approved Modifications to the Groundwater Monitoring Program

Minor modifications have been made to the groundwater monitoring program, in coordination with USEPA and the TCEQ, since it was first developed in the RAWP (AECOM 2013).

- Monitoring well 35BWW02 was dry during each quarter of Year 1 RA-O groundwater sampling, and the Year 1 RA-O Report recommended that it be removed from the groundwater-monitoring program for Year 2 RA-O. The Year 1 RA-O Report was approved in March 2019 and monitoring well 35BWW02 was removed from the monitoring program at that time.
- The list of MNA parameters was reduced after the Year 2 RA-O Quarter 2 sampling event. The revised list of parameters includes nitrate, sulfate, chloride, methane, ethane, ethene, carbon dioxide, and total organic carbon (TOC) analyzed in an off-site laboratory, and dissolved iron measured in the field (Bhate 2019b).

2.2.2 Groundwater Elevations and Flow Direction

Potentiometric surfaces drawn based on water level data collected during the Year 3 RA-O are shown on **Figures 2-2** and **2-3**. Monitoring well 35BWW02 has been dry and was removed from the monitoring schedule as approved in the Year 2 RA-O Report. Therefore, monitoring wells 35BWW02 was not used to construct the potentiometric surface contour map. Also, the screened interval at 35BWW01 is located at a higher elevation than other shallow wells and is not representative of the shallow groundwater. The groundwater at 35BWW01 may represent a perched zone; therefore, the elevations measured there were also not used to create the shallow groundwater potentiometric maps. Based on the gauging data from the Year 3 RA-O semi-annual sampling events, groundwater within the site boundary flows primarily to the northeast from monitoring well 35BWW11, towards LHSMW58, 35BWW14, and 35BWW24. West of the site boundary, but within in the LUC boundary, the groundwater flows north/northwest when the groundwater levels are higher, as observed in the May 2020 and shown on **Figure 2-3**.

2.2.3 Groundwater Analytical Results

During the Year 3 RA-O, groundwater samples were collected and analyzed from 22 monitoring wells for VOCs according to SW-846 Method 8260. Samples from six monitoring wells were analyzed for MNA geochemical parameters as shown in **Table 2-1**.

During the Year 3 RA-O sampling events, monitoring wells 35BWW04, 35BWW05, 35BWW09, 35BWW10, 35BWW12, 35BWW14, 35BWW15, 35BWW16, 35BWW20, 35BWW25, and LHSMW58 contained VOCs above their respective MCLs. The highest concentrations of VOCs continue to be detected in well 35BWW09, with a TCE concentration of 47 µg/L in November 2019. Analytical results for Year 3 RA-O sampling activities are presented in **Table 2-3**. Historical COC results are presented in **Table 2-4**. **Figures 2-4** through **2-6** depict the VOC data in wells sampled in October 2013, November 2019 and May 2020, respectively. The trends of COC concentrations in monitoring wells with COC concentrations greater than the MCL are depicted in graphs presented on **Figure 2-7a** and **2-7b**. An expanded discussion on the VOCs and their distribution, including trend analysis is included in **Section 3.1**.

Groundwater monitoring well sample collection logs were completed for each monitoring well sampled and are included in **Appendix B**. The sample collection logs (SCLs) for the November 2019 sampling event have been revised to correct the screen interval and units. A Memorandum for Record has been prepared to address the issues identified with the database and the revision of previous SCLs (Bhate 2020b). The database was updated in January 2020 using well installation forms. The values written on the November 2019 forms were input from the database prior to the update. The May 2020 SCLs are correct and did not require any revisions. Laboratory analytical results are included in **Appendix C**.

2.3 Surface Water Sampling

As per the RACR, sampling of surface water from two locations, 35BSW01 and 35BSW02, in Goose Prairie Creek was conducted quarterly for the first year and then annually during the second and third years. Annual sampling at these locations will continue until the first CERCLA Five-Year Review. However, if the groundwater elevation is higher than the creek bottom elevation, during any sampling event, then a surface water sample will be collected. To determine if groundwater contamination may be contributing to the surface water during the Year 3 RA-O, the groundwater elevations at 35BWW05 and 35BWW12 were compared to the creek bottom elevations at 35BSW01 and 35BSW02, respectively. At monitoring well 35BWW01, groundwater elevations were observed above the creek bottom in May 2020 and could influence the creek. Comparison to other wells suggests this water may be perched and could potentially influence the creek. At this well, COCs continue to be below the detection limit; therefore, if the perched water influences the creek, the creek would not be impacted by COCs. Impacted groundwater from the shallow zone during the Year 3 RA-O is unlikely to be discharging to the creek based on the elevations in the other shallow zone monitoring wells near the creek, which were below the creek bed elevation.

During the first semiannual Year 3 sampling event, the groundwater elevation measured at 35BWW05 was 180.96 feet above mean sea level (MSL) and was below the creek bottom elevation of 191.49 feet above MSL at 35BSW01. The groundwater elevation at 35BWW12 was 180.96 feet above MSL, also below the creek bottom elevation of 189.16 feet above MSL at 35BSW02. The groundwater elevations at the two monitoring wells were below that of the creek bottom elevations; therefore, surface water samples were not collected.

Comparing the November 2019 and May 2020 groundwater elevations to the creek bottom elevations surveyed in January 2019, groundwater was not discharging to the creek during that time period. Annual sampling was conducted in May 2020 per the RACR, and surface water samples were collected from 35BSW01 and 35BSW02 and analyzed for VOCs using USEPA Method 8260B. **Figure 2-1** depicts the locations of the surface water samples. **Table 2-3** presents the surface water VOC data. No VOCs were detected at concentrations exceeding the laboratory reporting limits during the May 2020 sampling event.

2.4 Groundwater Monitoring System Maintenance

Inspections of the conditions/integrity of monitoring wells are conducted during each sampling event, and the information was recorded on the well inspection forms. **Appendix D** includes a photo log and well inspection forms completed for each sampling event, which shows the condition of the wells each sampling event. During the Year 3 RA-O reporting period, no damage to well bollards, pads, or protective well casings was observed. Maintenance, such as painting and replacement of well labels, is required and will be conducted during the Year 4 RA-O. Also, only minimal encroachment of weeds or brush on the well pads was observed. Mowing the area to control brush and weeds is conducted on a routine basis to allow access to the wells and was conducted at LHAAP-35B (37) on October 18, 2019. **Table 2-5** provides a summary of the maintenance activities that were performed at the site during the third annual RA-O period.

2.5 Groundwater Monitoring Optimization

Monitoring well 35BWW02 was removed from the groundwater monitoring program per the approved recommendations of the Year 1 RA-O. Monitoring wells 35BWW03 and 35BWW06 will be sampled once every five years to support the Five-Year Reviews; the next sampling event for these wells will be in 2021. The planned Year 4 monitoring program is presented in **Table 2-6** and **Figure 2-8**.

3.0 NATURAL ATTENUATION EVALUATION

The following sections present the results of the natural attenuation evaluation in accordance with the three lines of evidence discussed in the Final RACR for site COCs (AECOM 2016).

3.1 First Line of Evidence: Change in COC Concentrations

Natural attenuation is the combination of multiple mechanisms, including biodegradation, volatilization, dilution, advection, and absorption, that reduce contaminant concentrations. The decrease of COC concentrations over time and distance is evidence of natural attenuation, though the observed decrease may be influenced by potentially short-term fluctuations in groundwater elevations. The change in groundwater COC concentrations over time and with distance was evaluated at LHAAP-35B (37). COC concentrations for the third year of RA-O sampling events are provided on **Figures 2-5 and 2-6** as well as in **Tables 2-3 and 2-4**. COCs exceeding their respective MCLs are highlighted. To aid in evaluating COCs over time, concentration trends are provided on **Figures 2-7a and 2-7b**.

3.1.1 In Well COC Concentrations

In the 2016 RACR, six wells were discussed as the primary focus of analysis due to high COC concentrations: 35BWW04, 35BWW05, 35BWW08, 35BWW10, 35BWW14, and 35BWW15. During the Year 3 sampling events, all the COCs continue to be below the MCL at 35BWW08 and 35BWW10. Since 2016, additional wells have been sampled and elevated levels have also been observed in 35BWW09, 35BWW12, 35BWW15, 35BWW16, 35BWW20, 35BWW25, and LHSMW58. During the Year 3 sampling events, the highest levels were observed in 35BWW09 and 35BWW14.

At 35BWW04, PCE was detected at 66.5 µg/L during the 2013 baseline sampling event. TCE was detected at 11.4 µg/L in the 2013 baseline event. Since the baseline sampling, the only COC above the MCL has been PCE and concentrations have fluctuated near the MCL of 5 µg/L. PCE was detected at 8.3 µg/L and 6.4 µg/L in November 2019 and May 2020, respectively.

At 35BWW05, TCE was detected at 14 µg/L during the 2013 baseline sampling and has remained above the MCL, fluctuating between 5.5 µg/L and 12 µg/L. In November 2019 TCE was detected at 6 µg/L, and in May 2020 increased slightly to 7.3 µg/L. All of the other COCs at 35BWW05 remained below their respective MCL levels during the Year 3 sampling events.

At 35BWW08, TCE was detected at 150 µg/L in 2007, and the concentration declined to 43.8 µg/L in the 2013 baseline event. PCE and TCE concentrations have been below their

respective detection limits since February 2018 and remained below these levels during the Year 3 RA-O.

At 35BWW09, TCE increased to the highest level observed in this well at 580 µg/L in November 2018 and then reduced to the lowest level observed at this well in May 2019 at 20 µg/L. During the Year 3 RA-O sampling, TCE concentrations decreased from 70 µg/L in August 2019 to 47 µg/L and 42 µg/L in November 2019 and May 2020, respectively. The consistently lower levels of TCE during the Year 3 RA-O sampling indicate that although groundwater levels were elevated above the MCL during the May 2020 sampling event, these concentrations may not be affected by groundwater elevation changes observed during the year.

At 35BWW10, PCE and TCE concentrations have continued to reduce during the Year 3 RA-O and have remained below their respective MCLs. These data indicate that the decreasing trend in Year 2 RA-O continues into the Year 3 RA-O period and future data will determine whether levels remain below the MCLs.

At 35BWW12, PCE concentrations have fluctuated from 15.3 µg/L during the baseline sampling in 2013, down to 4.8 µg/L in November 2017, and back up to 8.5 µg/L in May 2020. During the Year 3 RA-O sampling event, PCE has increased slightly from 5.8 µg/L to 8.5 µg/L between November 2019 and May 2020.

At 35BWW14, PCE has fluctuated from the 19 µg/L detected during the baseline sampling in 2013. During the Year 3 RA-O, PCE concentrations have remained consistent since the Year 2 RA-O with levels ranging from 38 µg/L to 40 µg/L between August 2019 and May 2020. TCE concentrations have decreased since baseline in 2013 from 82.8 µg/L to 14 µg/L. During the Year 3 RA-O PCE concentrations have remained consistent, ranging from 16 µg/L to 14 µg/L between August 2019 and May 2020, as seen on **Figure 2-7a**. Also, low levels the degradation products cis-1,2-DCE and 1,1-DCE continue to be observed during the Year 3 RA-O sampling, indicating that limited reductive dechlorination is occurring at the site.

During the Year 3 RA-O sampling at 35BWW15, PCE concentrations have remained consistent between the 2017 (12 µg/L) and May 2020 levels (13 µg/L). TCE has decreased overall from 15 µg/L and 7.7 µg/L between the baseline in 2013 and 2020. Most recently, TCE has fluctuated and levels were observed at 7.7 µg/L and 7.8µg/L during the Year 3 RA-O sampling events.

At 35BWW16, PCE concentrations increased from 0.477 µg/L detected in the baseline sampling event in 2013 to 9.9 µg/L in May 2020. Since February 2018, PCE levels have fluctuated from 12 µg/L to 6.6 µg/L in August 2018 to 9.9 µg/L in May 2020. During the Year

3 RA-O sampling event, PCE has increased slightly from 8.1 µg/L to 9.9 µg/L between November 2019 and May 2020.

At 35BWW20, PCE concentrations have decreased from the highest level of 34 µg/L observed three times, in February 2018, November 2018, and February 2019, to 7.5 µg/L in August 2019. The lowest level of PCE observed in August 2019 also coincided with the highest groundwater level; however, during the Year 3 RA-O semi-annual sampling events the levels remained relatively consistent at 15 µg/L and 12 µg/L despite a 2.7 foot increase in groundwater elevation between November 2019 and May 2020.

The concentration of TCE in groundwater at the downgradient well 35BWW25 has a somewhat inverse correlation with groundwater elevations. TCE levels have increased when water levels are low and are lower when the water levels are high. Overall, an increase has been observed since 2016, increasing from 5.55 µg/L in August 2016 to 13 µg/L in May 2020.

At LHSMW58, PCE concentrations have fluctuated from the high of 20.3 µg/L detected in the baseline sampling event in October 2013 to 4.2 µg/L during the Year 3 RA-O sampling in November 2019. During the Year 3 RA-O, PCE has increased from 4.2 µg/L to 14 µg/L between November 2019 and May 2020.

3.1.2 COC Concentrations Based on Groundwater Flow

Based on the general direction of groundwater flow, monitoring well 35BWW11 is a consistent upgradient background monitoring well, and monitoring wells 35BWW23 and 35BWW24 are downgradient monitoring wells. Site COCs have not been observed in these wells and aid in delineating the plume configuration. Within the site boundary, the groundwater flows primarily to the northeast from monitoring well 35BWW11, towards LHSMW58, 35BWW14, and 35BWW24. During times of higher water elevations, west of the site boundary, but within the LUC boundary, the groundwater flows north/northwest, as observed in May 2020, as shown on **Figure 2-3**. At LHAAP-35B (37), contaminant concentrations decrease significantly as groundwater moves downgradient from the highest contaminant levels. In May 2020, PCE and TCE concentrations decreased from 40 µg/L and 14 µg/L, respectively, at 35BWW14 to below the detection limits at 35BWW24. Although groundwater flow contours do not show groundwater migrating directly from 35BWW09 or 35BWW14 to 35BWW25, it is the most impacted downgradient well (**Figure 2-6**). A decrease in TCE was observed between the upgradient wells 35BWW09 and 35BWW014, and the downgradient 35BWW25 suggesting that concentrations are decreasing with distance from the area of the highest concentration. On the west side of the site near the LUC boundary, in November 2019 TCE at 35BWW09 was observed at 47 µg/L and decreased to below the detection limit at 35BWW08. In May 2020, when groundwater on this west side was flowing more westerly, TCE concentrations also decreased from 42 µg/L to below the detection limits between 35BWW09 and 35BWW18.

3.1.3 Mann-Kendall Analysis

Mann-Kendall analysis for the Year 3 RA-O monitoring period was completed for PCE and TCE. The results are presented in **Appendix E** in graphical format with the statistical results presented on the bottom of the page. The GSI Mann-Kendall Tool Kit was used for this analysis. The concentrations of COCs are presented in $\mu\text{g/L}$. Half the reporting limit was used for non-detects. For locations with duplicate samples, the normal sample was used. The level of statistical significance is calculated for each analysis and is provided on the trend analysis sheet. It should be noted that the trends identified in the Mann-Kendall analysis may have been influenced by groundwater elevation increases during Year 3. Future RA-O sampling will determine if the trends persist.

A summary table of the Mann-Kendall results is presented in **Table 3-1**. Historical COC results for all wells are presented in **Table 2-4**.

Significant Decreases

During the Year 3 RA-O statistically significantly decreasing trends were observed at four monitoring wells. The four statistically significant decreases are an increase from only one significant decrease observed during the Year 2 RA-O. Mann-Kendall analysis identified statistically significant evidence of decreasing trends at the following:

- **Monitoring Well 35BWW14 – TCE.** At this well the trend has changed from probably decreasing in the Year 2 RA-O to a significant decrease following the Year 3 RA-O sampling events. Concentrations of TCE have decreased since October 2013 and have reduced to $14 \mu\text{g/L}$ in May 2020. An overall decreasing trend has been seen at this location and may be the result of natural attenuation (e.g., dilution from clean upgradient groundwater). Results from future sampling events will continue to be evaluated for COC concentration trends.
- **Monitoring Well 35BWW15 – TCE.** Concentrations of TCE have continued to decrease since 2014 to $7.7 \mu\text{g/L}$ in May 2020. The decreasing trends may be the result of natural attenuation (e.g., dilution from clean upgradient groundwater). Results from future sampling events will continue to be evaluated for COC concentration trends.
- **Monitoring Well 35BWW20 – PCE.** Concentrations of PCE have decreased from $34 \mu\text{g/L}$ in 2018 to $12 \mu\text{g/L}$ in May 2020. The decreasing trends may be the result of natural attenuation (e.g., dilution from clean upgradient groundwater). Results from future sampling events will continue to be evaluated for COC concentration trends.

- **Monitoring Well LHSMW58 – PCE.** Concentrations of PCE have decreased from 20 µg/L in November 2017 to 4.2 µg/L in November 2019. During the Year 3 RA-O an increase was observed between November 2019 and May 2020 from 4.2 µg/L to 14 µg/L; however, an overall decreasing trend has been seen at this location and may be the result of natural attenuation (e.g., dilution from clean upgradient groundwater). Results from future sampling events will continue to be evaluated for COC concentration trends.

Probably Decreasing

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

- **Monitoring Well 35BWW05 – TCE.** The TCE trend at this well has changed from stable in the Year 2 RA-O to probably decreasing. Concentrations of TCE have decreased from 14 µg/L in October 2013 to 7.3 µg/L in May 2020. An overall decreasing trend has been seen at this location and may be the result of natural attenuation (e.g., dilution from clean upgradient groundwater). Results from future sampling events will continue to be evaluated for COC concentration trends.

Probably Increasing

Mann-Kendall analysis identified statistically significant evidence of a probably increasing trend at the following:

- **Monitoring Well 35BWW16 – PCE.** Concentrations of PCE have fluctuated since November 2017 and increased to the highest level of 15.0 µg/L in November 2018. Since November 2018, concentrations have decreased to 8.1 µg/L and 9.9 µg/L in November 2019 and May 2020, respectively. Although the recent concentrations during this RA-O period have decreased, an overall probably increasing trend has been seen at this location, and results from future sampling events will continue to be evaluated for COC concentration trends.

3.1.4 Predictive Modeling

Calculation of time-based attenuation rates was performed as required by the RAWP (AECOM 2013). However, the trends for monitoring wells at LHAAP-37 were likely skewed significantly by the large changes in groundwater elevation that occurred during the Year 3 RA-O. Therefore, although estimates of the time to achieve the MCL have been provided in

the discussion below, the current trends are unlikely to accurately predict the future declines in COC concentrations.

As previously noted in **Section 3.1**, the Mann-Kendall analysis was used to determine that a statistically significant decrease in TCE concentrations over time was observed at monitoring well 35BWW15. To determine the estimated time to achieve the MCL at this well, a time-dependent attenuation rate was calculated and is provided in **Appendix F**. The first order rate constant is 0.0008 day^{-1} and the time to achieve the MCL of $5 \text{ }\mu\text{g/L}$ is estimated to be 1.5 years, which is a slight increase from 1.4 years predicted during the Year 2 RA-O.

A significant decreasing trend was determined by Mann-Kendall analysis at 35BWW14. A time-dependent attenuation rate was calculated to determine a time to achieve the MCL in the groundwater associated with this well and is provided in **Appendix F**. The first order rate constant for TCE at 35BWW14 was determined to be 0.0006 day^{-1} and the time to achieve the MCL of $5 \text{ }\mu\text{g/L}$ is estimated to be 4.7 years.

A significant decreasing trend was determined by Mann-Kendall analysis at 35BWW20. A time-dependent attenuation rate was calculated to determine a time to achieve the MCL in the groundwater associated with this well and is provided in **Appendix F**. The first order rate constant for PCE at 35BWW20 was determined to be 0.0004 day^{-1} and the time to achieve the MCL of $5 \text{ }\mu\text{g/L}$ is estimated to be 6.0 years.

A significant decreasing trend was determined by Mann-Kendall analysis at LHSMW58. A time-dependent attenuation rate was calculated to determine a time to achieve the MCL in the groundwater associated with this well and is provided in **Appendix F**. The first order rate constant for PCE at LHSMW58 was determined to be 0.0006 day^{-1} and the time to achieve the MCL of $5 \text{ }\mu\text{g/L}$ is estimated to be 4.8 years.

The Mann-Kendall analysis was used to determine that a probably statistically significant decrease in TCE concentrations over time was observed at monitoring well 35BWW05. To determine the estimated time to achieve the MCL at this well, a time-dependent attenuation rate was calculated and is provided in **Appendix F**. The first order rate constant is 0.0003 day^{-1} and the time to achieve the MCL of $5 \text{ }\mu\text{g/L}$ is estimated to be 3.5 years.

While these calculations provide an estimated time to achieve the MCL, given lithologic variability and significant groundwater elevation fluctuations at the site during Years 2 and 3, the time necessary to achieve the MCL may vary by an order of magnitude or more. Additionally, the rate of reduction could diminish over time as the residual concentrations decrease, and the timeframes to achieve the MCL may be longer than estimated by these calculations.

3.1.5 Plume Stability

COC plume maps have been completed for each of the third year RA-O sampling events and are presented on **Figures 2-5** and **2-6**. COC concentrations at perimeter wells 35BWW07, 35BWW08, 35BWW11, 35BWW18, 35BWW19, 35BWW23, 35BWW24, and 35BWW26 have remained below their respective MCLs during the third year RA-O. Monitoring well 35BWW06 is screened in the shallow intermediate and COCs have remained below the detection limits during the last time this well was sampled, in November 2018, which indicates that the contaminant plume is not migrating downward. As discussed above, 35BWW06 will be sampled once every five years to support the Five Year Reviews, and the next sampling event for this well will be in 2021.

During the Year 3 RA-O, groundwater level seasonal fluctuations were observed as elevations decreased in November 2019 and then increased in May 2020. The water level fluctuations may have aided in the increases and decreases in COC concentrations.

At the most northern impacted monitoring well, 35BWW25, TCE levels have decreased from the highest level observed, at 19 µg/L in November 2018 to 13 µg/L in May 2020. TCE has remained stable in Year 3 at 13 µg/L during the November 2019 and May 2020 sampling events, indicating that the plume is stable.

At 35BWW24, located to the northeast, TCE was observed for the first time during the Year 2, Quarter 1 sampling event in November 2018, at 2.9 µg/L, below the MCL of 5 µg/L. TCE continues to be observed and was detected at 1.8 µg/L and 2.3 µg/L during each of the Year 3 RA-O sampling events, below the MCL. TCE will continue to be evaluated further during the Year 4 RA-O to determine if the plume is migrating to the northeast.

The PCE and TCE concentrations have also fluctuated in the southwest part of the plume. At 35BWW10, PCE and TCE continue to be below their respective MCLs since August 2019.

At 35BWW09, TCE levels increased from 49 µg/L to 580 µg/L between the 2013 baseline and the November 2018 sampling event; however, concentrations have decreased since November 2018 and during the Year 3 RA-O TCE was detected at 42 µg/L in May 2020. PCE concentrations were detected above the MCL at 41 µg/L in May 2019. The PCE concentration only exceeded the MCL during the May 2019 event and has continued to be below the detection limit during the Year 3 RA-O. These data suggest that the plume is not moving further to the southeast.

3.2 Second Line of Evidence: Geochemical Indicators

Select monitoring wells were sampled for MNA parameters and are shown in **Table 2-1**. **Table 2-3** includes the geochemical data used to determine if the site groundwater conditions

are favorable for MNA biological degradation processes. The list of MNA parameters was reduced after the Year 2 RA-O Quarter 2 sampling event. The MNA parameters for LHAAP-35B (37) wells include nitrate, sulfate, chloride, methane, ethane, ethene, carbon dioxide, and TOC analyzed in an off-site laboratory, and dissolved iron measured in the field (Bhate 2019). The field parameters for LHAAP-35B (37) wells include dissolved oxygen (DO), oxidation-reduction potential (ORP), pH, conductivity, turbidity, and temperature.

Dissolved Oxygen

DO is the most thermodynamically favored electron acceptor used by microbes for biodegradation of organic carbon, whether natural or anthropogenic (USEPA 1998). Anaerobic bacteria, which are the primary microbes able to degrade the site COCs, may be inhibited at DO concentrations greater than 0.5 milligram per liter (mg/L). In monitoring wells where COCs are above the MCL, the DO concentrations ranged from 0.03 mg/L to 3.26 mg/L, with an average of 0.89 mg/L during the Year 3 RA-O. The low DO levels (<0.5 mg/L) observed in 6 of 10 impacted wells are favorable for reductive dechlorination.

Oxidation Reduction Potential

The ORP levels indicate the oxidative or reductive potential in the aquifer and provide real-time data to determine if conditions are conducive for biodegradation. ORP values less than 50 millivolts (mV) indicate that the aquifer is reaching anaerobic conditions and are favorable for biological reductive dechlorination of chlorinated ethenes and ethanes. During the Year 3 RA-O monitoring, the ORP measurements ranged from 79 mV at 35BWW05 to 308 mV at 35BWW25. These measurements indicate oxidative conditions which are not favorable for reductive dechlorination.

Nitrate

After DO has been depleted by microbes in the treatment zone, nitrate may be used as an electron acceptor and is reduced to nitrite. Nitrate levels above 1.0 mg/L may compete with reductive dechlorination (USEPA 1998). The nitrate and nitrite concentrations continue to be below 1.0 mg/L during the Year 3 RA-O sampling, indicating that nitrate will not inhibit anaerobic degradation of site COCs.

Iron Reduction

After nitrate is utilized, iron (III) (ferric iron) is used as an electron acceptor during anaerobic biodegradation of organic carbon. During this process, iron (III) is reduced to iron (II) (ferrous iron), which is soluble in water, and the presence of ferrous iron can indicate reducing groundwater conditions. During the Year 3 RA-O, ferrous iron continues to be observed at

each of the MNA monitoring wells, indicating that iron-reducing conditions exist in the site groundwater.

Sulfate

After DO, nitrate, and iron have been depleted in the groundwater, sulfate is used as an electron acceptor. Concentrations of sulfate greater than 20 mg/L may compete with reductive dechlorination of the site COCs. However, in many plumes with high concentrations of sulfate, reductive dechlorination still occurs (USEPA 1998). Sulfate was sampled in monitoring wells designated for MNA analysis during the Year 3 RA-O and ranged from 15.9 mg/L to 85.9 mg/L during the Year 3 RA-O sampling events. Sulfate levels are slightly elevated and may compete as an electron acceptor with site COCs.

Methane

Methanogenesis occurs in highly reducing conditions and generally occurs after oxygen, nitrate, iron, and sulfate have been depleted. Methane levels above 500 µg/L are considered indicative of methanogenic conditions (USEPA 1998). Methane concentrations were less than 0.93 µg/L during the Year 3 RA-O in wells that have COCs above their MCL, which suggests that methanogenic conditions are not present in the groundwater.

Total Organic Carbon

Regardless of the electron acceptor being used, organic carbon is a required source of reduced carbon and energy to sustain microbial activity. TOC is utilized as an energy and hydrogen source to support the reductive dechlorination of the chlorinated COCs. TOC concentrations greater than 20 mg/L are considered adequate to support microbial activity (USEPA 1998). TOC was less than 2.14 µg/L during the Year 3 RA-O sampling. This indicates that carbon concentrations in the groundwater are not supportive of reductive dechlorination.

pH

The pH of the groundwater has an effect on the activity of microbial populations. Microbes capable of degrading chlorinated aliphatic hydrocarbons generally prefer pH values from 6 to 8 standard units (SU) (USEPA 1998). The shallow zone groundwater pH during the Year 3 RA-O period ranged from 4.59 SU to 7.65 SU, with an average of value of 6.14 SU. The pH levels in 31 of the 44 samples are within the preferred range for dechlorinating bacteria.

Ethane and Ethene

Ethane and ethene are the two end products of the reductive dechlorination pathways for chlorinated ethanes and ethenes. During the Year 3 RA-O, ethane concentrations were below the laboratory reporting limits. Low levels of ethene were observed at each of the RA-O wells during the November 2017 sampling event; however, current levels indicated complete reductive dechlorination is not occurring at LHAAP-35B (37).

Geochemical Indicator MNA Parameter Summary

The qualitative assessment of geochemical indicators during the Year 3 RA-O period in the groundwater at LHAAP-35B (37) indicates current geochemical conditions are not favorable for MNA processes via biological reduction. The low DO and nitrate/nitrite concentrations, the presence of ferrous iron, and an average pH level are within the range for dechlorinating bacteria. The presence of the biological degradation product cis-1,2-DCE and the abiotic degradation product 1,1-DCE suggest that limited biological degradation is occurring; however, the primary MNA processes reducing concentrations are abiotic.

3.3 Third Line of Evidence: Microbial Analysis

Dechlorinating bacteria, *Dehalococcoides sp.*, were not analyzed during the Year 3 RA-O sampling event due to the reduction of MNA parameters after the Year 2 RA-O Quarter 2 sampling event (Bhate 2019). During the last sampling event in February 2019, *Dehalococcoides sp.* concentrations were 2.3 cells per milliliter and lower, indicating that the species required for complete reductive dechlorination is not present at levels favorable for complete reductive dechlorination.

4.0 SUMMARY AND CONCLUSIONS

The LUC for LHAAP-35B (37) is groundwater restriction, which prohibits water well installation for any purpose other than environmental monitoring and testing or the use of residential groundwater until COCs in the groundwater and soil allow unrestricted use and unlimited exposure. The annual LUC compliance inspection for the Year 3 RA-O was conducted on June 29, 2020. No non-compliance issues or concerns were identified during the annual inspection. No change in land use or groundwater use has occurred at the site during the Year 3 RA-O monitoring period.

Monitoring well 35BWW02 was removed from the monitoring program, as recommended in the Year 1 RA-O Report.

Inspections of the monitoring wells were conducted during each sampling event. Site monitoring wells were in good condition, and periodic clearing and mowing were conducted as needed. Continued maintenance, such as painting and replacing labels, is required and will be conducted during the Year 4 RA-O.

VOC data and geochemical indicators were collected over the course of the monitoring period to evaluate effectiveness of MNA as a site remedy. A tiered approach was used to evaluate the occurrence of natural attenuation in site groundwater. The first line of evidence evaluated reductions in COC concentrations. The second line of evidence evaluated geochemical indicators to aid in determining favorable groundwater conditions for COC degradation. The third line of evidence evaluates microbial populations in the aquifer and will be used again in the future, if the first two are not able to provide sufficient support of the MNA processes occurring at the site. Previous microbial data indicated that the reductive dechlorinating bacteria *Dehalococcoides sp.* are not present at levels expected to aid in biological degradation and were removed from the list of analysis as part of the reduction of MNA parameters after the Year 2 RA-O Quarter 2 sampling event. (Bhate 2019).

Groundwater elevations were compared to creek bottom elevations to evaluate if groundwater could impact the creek. Monitoring well 35BWW01 continues to be the only well that has groundwater elevations above the creek bottom. Comparison to other wells suggests that the water in 35BWW01 may be perched and could potentially influence the creek. The lack of COCs present at this well suggests that if this water does reach the creek, the creek will not be impacted by COCs. Groundwater elevations at 35BWW05 and 35BWW12 were below the creek elevation at 35BSW01 and 35BSW02, indicating that shallow groundwater is not expected to influence the creek. The annual groundwater sampling at the two surface water locations occurred in May 2020 and no VOCs were detected at concentrations exceeding the

laboratory reporting limits. In accordance with the RAWP these locations will not be sampled in the future unless the groundwater elevations are above the creek bottom elevations.

An assessment of the first line of evidence included an evaluation of the groundwater flow and COC degradation trends. Based on the Year 3 RA-O groundwater level measurements, the groundwater primarily flows to the northeast. On the west side of the site, within the LUC boundary, the groundwater flows in a north/northwest direction which may be dependent on groundwater elevation.

Reductions in COCs were observed over time during the Year 3 RA-O. The highest COC levels observed during the Year 3 RA-O were in well 35BWW09, with TCE detected at 47 µg/L and 42 µg/L in November 2019 and May 2020, respectively. At 35BWW10, PCE and TCE reduced to below the MCL between November 2018 and August 2019 and remained below the MCL during the Year 3 RA-O monitoring.

During the Year 2 RA-O, an inverse relationship between groundwater elevations and COC concentrations was observed at some wells; however, this trend was not observed to the same extent during the Year 3 RA-O. During the Year 3 RA-O, Mann-Kendal analysis was conducted to evaluate contaminant trends. A significant decreasing trend was observed at four wells, compared to only one in the Year 2 RA-O. The increases in groundwater elevations in the last two years and the seasonal fluctuations may have affected the observed trends in the COC concentration. The MNA mechanism of dilution is expected to continue aiding in the decreases in COC levels and future sampling events will determine if the downward trends persist.

At the downgradient northern monitoring well 35BWW25, TCE was first observed above the detection limit in 2016. The concentrations detected in Year 3 are below the November 2018 high of 19 µg/L and have remained relatively stable since February 2019. Concentration trends at this well will continue to be evaluated in the future to determine if plume expansion to the north is occurring.

TCE concentrations at 35BWW14 and 35BWW15, near the center of the plume, generally declined over the first 3 Years of RA-O; however, PCE concentrations have also increased slightly in both wells as compared to the 2013 baseline concentration. While the concentrations in 35BWW14 and 35BWW15 continue to show declining trends of some COCs during the Year 3 RA-O period, the results do not conclusively indicate that MNA is operating successfully. The results from the ongoing RA-O monitoring will determine if the trends observed continue.

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Decreases in contaminants were also observed along the flow path. Elevated levels of PCE and TCE concentrations decreased between 35BWW14 and 35BWW24. On the west side, near the LUC boundary, a decrease in TCE was also observed from elevated levels at 35BWW09 to below the detection limit at 35BWW08. In May 2020, when groundwater on the west side flowed northwesterly, the concentrations also decreased between 35BWW09 and 35BWW18.

The PCE concentrations at 35BWW16, located northeast of the main plume, increased from below the MCL (0.447 J $\mu\text{g/L}$) during the 2013 baseline sampling to a high of 15 $\mu\text{g/L}$ in November 2018. However, PCE concentrations decreased to 9.8 $\mu\text{g/L}$ during the Year 2 RA-O in August 2019 and have remained stable at 9.9 $\mu\text{g/L}$ in May 2020 during the Year 3 RA-O. This well is located northeast of the main plume, and in previous years was located downgradient of the higher concentration areas of the plume. It is possible that the more northerly flow observed in the area of this well during the Year 2 and Year 3 RA-O may have prevented further plume migration towards this well, or the PCE concentrations may have been influenced by the significant changes in groundwater elevation. Continued RA-O monitoring events will determine if plume migration towards this well continues in the future.

The COC data from the RA-O monitoring indicate that the plume has been relatively stable during the first three years of RA-O sampling. At 35BWW25, located on the northern side of the plume, TCE concentrations increased from 2016 to November 2018; however, they have decreased slightly and remained stable since February 2019, including the Year 3 RA-O sampling events. TCE levels at 35BWW24 have remained below MCL during the Year 2 and Year 3 RA-O suggesting the plume is stable to the northeast. The PCE and TCE concentrations have also fluctuated in the southwest part of the plume. At 35BWW10, concentrations of PCE and TCE decreased to below their respective MCLs during the Year 2 RA-O and have remained below the MCL during the Year 3 RA-O. At 35BWW09, PCE increased above the MCL in one sampling event during the Year 2 RA-O but has remained below the MCL during the Year 3 RA-O. TCE levels have increased during the RA-O, however in Year 3, the levels have decreased to baseline levels indicating the plume is stable to the southwest. These changes will be evaluated during the Year 4 RA-O to determine if the plume continues to be stable.

The qualitative assessment of geochemical indicators performed as the second line of evidence at LHAAP-35B (37) indicates current geochemical conditions are not optimal for biological degradation MNA processes. Although degradation products cis-1,2-DCE and 1,1-DCE have been detected in certain monitoring wells, groundwater conditions within the impacted area are not highly reducing in most areas, which is not favorable for biological degradation of site COCs.

The third line of evidence to assess MNA is to evaluate microorganisms that demonstrate biological degradation. Prior to the acceptance of the updated MNA analysis,

Dehalococcoides sp. was sampled during the Year 2 RA-O and levels were not favorable for reductive dechlorination.

The evaluation of MNA at LHAAP-35B (37) indicates that, based on the data collected thus far, decreases observed in COC are primarily due to MNA abiotic processes, including dispersion, dilution, sorption, and volatilization. The data also indicated that decreases in COCs are not likely to be associated with biodegradation. Increases in groundwater elevations during the Year 2 groundwater sampling and continued fluctuations in Year 3 may have potentially affected the observed trends in the COC concentration data. Three years of MNA data for these wells have been collected during a period with significant groundwater elevation fluctuations in Year 2 and 3, and future sampling events will determine if the COC trends continue. Semiannual sampling will be implemented for the fourth year of RA-O monitoring in compliance with the RACR (AECOM 2016).

5.0 REFERENCES

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Tables

Table 2-1
Groundwater RA-O Sampling – 2019 and 2020

Well ID	Groundwater Unit	Y3SA1 November 2019			Y3SA2 May 2020		
		VOC	Field Parameters	MNA	VOC	Field Parameters	MNA
35BWW01	Shallow	X	X		X	X	
35BWW02	Shallow	Removed from sampling schedule ^a					
35BWW03	Intermediate	Location is sampled for 5 year review - Next sampling will be Y5Q1 November 2021					
35BWW04	Shallow	X	X	X	X	X	X
35BWW05	Shallow	X	X		X	X	
35BWW06	Lower Shallow	Location is sampled for 5 year review - Next sampling will be Y5Q1 November 2021					
35BWW07	Shallow	X	X		X	X	
35BWW08	Shallow	X	X	X	X	X	X
35BWW09	Shallow	X	X		X	X	
35BWW10	Shallow	X	X		X	X	
35BWW11	Shallow	X	X		X	X	
35BWW12	Shallow	X	X	X	X	X	X
35BWW13	Shallow	X	X		X	X	
35BWW14	Shallow	X	X	X	X	X	X
35BWW15	Shallow	X	X		X	X	
35BWW16	Shallow	X	X		X	X	
35BWW17	Shallow	X	X		X	X	
35BWW18	Shallow	X	X		X	X	
35BWW19	Shallow	X	X		X	X	
35BWW20	Shallow	X	X		X	X	
35BWW23	Shallow	X	X	X	X	X	X
35BWW24	Shallow	X	X		X	X	
35BWW25	Shallow	X	X		X	X	
35BWW26	Shallow	X	X	X	X	X	X
LHSMW58	Shallow	X	X		X	X	
35BSW01	Goose Prairie Creek				X	X	
35BSW02	Goose Prairie Creek				X	X	

Notes:

Field parameters to be monitored for all wells: pH, temperature, conductivity, turbidity, oxidation-reduction potential (ORP), dissolved oxygen (DO), and ferric iron. MNA parameters include alkalinity, sulfate, sulfide, chloride, TOC, dissolved iron and manganese, total phosphorus, carbon dioxide, dissolved gases (methane, ethane, ethene) and total iron.

^a Location was removed from sampling list due to being dry during each quarter of Year 1 RA-O groundwater sampling and the first two quarters of Year 2 RA-O.

X well was analyzed for that parameter.

ID - identification

MNA - monitored natural attenuation

NS - not sampled

RA-O - remedial action operation

TOC - total organic carbon

VOC - volatile organic compounds

Table 2-2
Groundwater Elevation Data, LHAAP-35B (37)

Well ID	Sampling Date	TOC Elevation (ft MSL)	Ground Surface Elevation (ft MSL)	Depth to Water (ft TOC)	Depth to Water (ft bgs)	Screen Interval (ft bgs)		Screen Interval (ft MSL)		Water Elevation (ft MSL)
						Top	Bottom	Top	Bottom	
35BWW01	1/1/2013	202.42	200.31	Dry	Dry	9	19	191.31	181.31	Dry
	8/18/2016	202.42	200.31	17.00	14.89	9	19	191.31	181.31	185.42
	11/8/2017	202.42	200.31	15.42	13.31	9	19	191.31	181.31	187.00
	2/14/2018	202.42	200.31	14.80	12.69	9	19	191.31	181.31	187.62
	3/29/2018	202.42	200.31	12.94	10.83	9	19	191.31	181.31	189.48
	5/24/2018	202.42	200.31	12.28	10.17	9	19	191.31	181.31	190.14
	8/16/2018	202.42	200.31	14.22	12.11	9	19	191.31	181.31	188.20
	11/15/2018	202.42	200.31	14.15	12.04	9	19	191.31	181.31	188.27
	2/12/2019	202.42	200.31	8.11	6.00	9	19	191.31	181.31	194.31
	5/20/2019	202.42	200.31	7.18	5.07	9	19	191.31	181.31	195.24
	8/5/2019	202.42	200.31	11.93	9.82	9	19	191.31	181.31	190.49
	11/21/2019	202.42	200.31	14.35	12.24	9	19	191.31	181.31	188.07
	5/6/2020	202.42	200.31	8.28	6.17	9	19	191.31	181.31	194.14
35BWW02	1/1/2013	203.95	201.54	Dry	Dry	9	14	192.54	187.54	Dry
	8/19/2016	203.95	201.54	Dry	Dry	9	14	192.54	187.54	Dry
	11/7/2017	203.95	201.54	Dry	Dry	9	14	192.54	187.54	Dry
	2/13/2018	203.95	201.54	Dry	Dry	9	14	192.54	187.54	Dry
	3/28/2018	203.95	201.54	Dry	Dry	9	14	192.54	187.54	Dry
	5/24/2018	203.95	201.54	Dry	Dry	9	14	192.54	187.54	Dry
	11/16/2018	203.95	201.54	Dry	Dry	9	14	192.54	187.54	Dry
	2/14/2019	203.95	201.54	Dry	Dry	9	14	192.54	187.54	Dry
35BWW04	1/1/2013	202.11	199.26	23.50	20.65	20	30	179.26	169.26	178.61
	8/17/2016	202.11	199.26	22.00	19.15	20	30	179.26	169.26	180.11
	11/9/2017	202.11	199.26	23.80	20.95	20	30	179.26	169.26	178.31
	2/14/2018	202.11	199.26	23.53	20.68	20	30	179.26	169.26	178.58
	5/22/2018	202.11	199.26	22.55	19.70	20	30	179.26	169.26	179.56
	8/22/2018	202.11	199.26	24.09	21.24	20	30	179.26	169.26	178.02
	11/20/2018	202.11	199.26	23.02	20.17	20	30	179.26	169.26	179.09
	2/13/2019	202.11	199.26	21.75	18.90	20	30	179.26	169.26	180.36
	5/20/2019	202.11	199.26	19.07	16.22	20	30	179.26	169.26	183.04
	8/5/2019	202.11	199.26	20.78	17.93	20	30	179.26	169.26	181.33
	11/21/2019	202.11	199.26	22.95	16.22	20	30	179.26	169.26	179.16
	5/6/2020	202.11	199.26	20.59	17.93	20	30	179.26	169.26	181.52
35BWW05	1/1/2013	202.57	199.97	24.08	21.48	26	36	173.97	163.97	178.49
	8/18/2016	202.57	199.97	22.65	20.05	26	36	173.97	163.97	179.92
	11/8/2017	202.57	199.97	24.30	21.70	26	36	173.97	163.97	178.27
	2/16/2018	202.57	199.97	24.00	21.40	26	36	173.97	163.97	178.57
	3/27/2018	202.57	199.97	23.35	20.75	26	36	173.97	163.97	179.22
	5/21/2018	202.57	199.97	23.20	20.60	26	36	173.97	163.97	179.37
	8/21/2018	202.57	199.97	24.63	22.03	26	36	173.97	163.97	177.94
	11/18/2018	202.57	199.97	23.59	20.99	26	36	173.97	163.97	178.98
	2/13/2019	202.57	199.97	22.57	19.97	26	36	173.97	163.97	180.00
	5/21/2019	202.57	199.97	20.47	17.87	26	36	173.97	163.97	182.10
	8/6/2019	202.57	199.97	21.83	19.23	26	36	173.97	163.97	180.74
	11/25/2019	202.57	199.97	23.60	19.23	26	36	173.97	163.97	178.97
	5/6/2020	202.57	199.97	21.61	19.23	26	36	173.97	163.97	180.96

Table 2-2
Groundwater Elevation Data, LHAAP-35B (37)

Well ID	Sampling Date	TOC Elevation (ft MSL)	Ground Surface Elevation (ft MSL)	Depth to Water (ft TOC)	Depth to Water (ft bgs)	Screen Interval (ft bgs)		Screen Interval (ft MSL)		Water Elevation (ft MSL)
						Top	Bottom	Top	Bottom	
35BWW06	1/1/2013	203.04	200.01	24.70	21.67	42	52	158.01	148.01	178.34
	8/18/2016	203.04	200.01	23.27	20.24	42	52	158.01	148.01	179.77
	11/8/2017	203.04	200.01	24.50	21.47	42	52	158.01	148.01	178.54
	2/16/2018	203.04	200.01	24.70	21.67	42	52	158.01	148.01	178.34
	3/27/2018	203.04	200.01	24.80	21.77	42	52	158.01	148.01	178.24
	5/21/2018	203.04	200.01	24.02	20.99	42	52	158.01	148.01	179.02
	8/21/2018	203.04	200.01	25.30	22.27	42	52	158.01	148.01	177.74
	11/18/2018	203.04	200.01	24.34	21.31	42	52	158.01	148.01	178.70
35BWW07	1/1/2013	203.53	200.86	27.85	25.18	18	28	182.86	172.86	175.68
	8/18/2016	203.53	200.86	25.50	22.83	18	28	182.86	172.86	178.03
	11/8/2017	203.53	200.86	27.94	25.27	18	28	182.86	172.86	175.59
	2/13/2018	203.53	200.86	27.25	24.58	18	28	182.86	172.86	176.28
	3/29/2018	203.53	200.86	26.52	23.85	18	28	182.86	172.86	177.01
	5/23/2018	203.53	200.86	26.11	23.44	18	28	182.86	172.86	177.42
	8/20/2018	203.53	200.86	28.05	25.38	18	28	182.86	172.86	175.48
	11/18/2018	203.53	200.86	27.45	24.78	18	28	182.86	172.86	176.08
	2/14/2019	203.53	200.86	25.76	23.09	18	28	182.86	172.86	177.77
	5/22/2019	203.53	200.86	25.11	22.44	18	28	182.86	172.86	178.42
	8/5/2019	203.53	200.86	23.90	21.23	18	28	182.86	172.86	179.63
	11/25/2019	203.53	200.86	25.97	21.23	18	28	182.86	172.86	177.56
	5/11/2020	203.53	200.86	23.95	21.23	18	28	182.86	172.86	179.58
35BWW08	1/1/2013	204.12	201.4	25.10	22.38	22	32	179.4	169.4	179.02
	8/17/2016	204.12	201.4	23.74	21.02	22	32	179.4	169.4	180.38
	11/7/2017	204.12	201.4	25.40	22.68	22	32	179.4	169.4	178.72
	2/14/2018	204.12	201.4	25.07	22.35	22	32	179.4	169.4	179.05
	5/23/2018	204.12	201.4	24.43	21.71	22	32	179.4	169.4	179.69
	8/22/2018	204.12	201.4	25.73	23.01	22	32	179.4	169.4	178.39
	11/20/2018	204.12	201.4	24.54	21.82	22	32	179.4	169.4	179.58
	2/12/2019	204.12	201.4	23.67	20.95	22	32	179.4	169.4	180.45
	5/20/2019	204.12	201.4	21.40	18.68	22	32	179.4	169.4	182.72
	8/5/2019	204.12	201.4	20.50	17.78	22	32	179.4	169.4	183.62
	11/21/2019	204.12	201.4	24.75	17.78	22	32	179.4	169.4	179.37
	5/6/2020	204.12	201.4	22.63	17.78	22	32	179.4	169.4	181.49
35BWW09	1/1/2013	205.16	203.15	26.40	24.39	25	35	178.15	168.15	178.76
	8/16/2016	205.16	203.15	24.85	22.84	25	35	178.15	168.15	180.31
	11/7/2017	205.16	203.15	26.45	24.44	25	35	178.15	168.15	178.71
	2/16/2018	205.16	203.15	26.43	24.42	25	35	178.15	168.15	178.73
	3/27/2018	205.16	203.15	25.57	23.56	25	35	178.15	168.15	179.59
	5/21/2018	205.16	203.15	25.50	23.49	25	35	178.15	168.15	179.66
	8/16/2018	205.16	203.15	26.71	24.70	25	35	178.15	168.15	178.45
	11/19/2018	205.16	203.15	25.73	23.72	25	35	178.15	168.15	179.43
	2/13/2019	205.16	203.15	24.77	22.76	25	35	178.15	168.15	180.39
	5/21/2019	205.16	203.15	22.82	20.81	25	35	178.15	168.15	182.34
	8/5/2019	205.16	203.15	23.95	21.94	25	35	178.15	168.15	181.21
	11/26/2019	205.16	203.15	25.83	21.94	25	35	178.15	168.15	179.33
	5/11/2020	205.16	203.15	23.63	21.94	25	35	178.15	168.15	181.53

Table 2-2
Groundwater Elevation Data, LHAAP-35B (37)

Well ID	Sampling Date	TOC Elevation (ft MSL)	Ground Surface Elevation (ft MSL)	Depth to Water (ft TOC)	Depth to Water (ft bgs)	Screen Interval (ft bgs)		Screen Interval (ft MSL)		Water Elevation (ft MSL)
						Top	Bottom	Top	Bottom	
35BWW10	1/1/2013	203.79	200.79	24.97	21.97	18.23	33	182.56	167.79	178.82
	8/18/2016	203.79	200.79	23.47	20.47	18.23	33	182.56	167.79	180.32
	11/7/2017	203.79	200.79	25.50	22.50	18.23	33	182.56	167.79	178.29
	2/16/2018	203.79	200.79	24.87	21.87	18.23	33	182.56	167.79	178.92
	3/27/2018	203.79	200.79	24.21	21.21	18.23	33	182.56	167.79	179.58
	5/24/2018	203.79	200.79	24.17	21.17	18.23	33	182.56	167.79	179.62
	8/17/2018	203.79	200.79	25.43	22.43	18.23	33	182.56	167.79	178.36
	11/18/2018	203.79	200.79	24.34	21.34	18.23	33	182.56	167.79	179.45
	2/12/2019	203.79	200.79	23.31	20.31	18.23	33	182.56	167.79	180.48
	5/20/2019	203.79	200.79	21.02	18.02	18.23	33	182.56	167.79	182.77
	8/6/2019	203.79	200.79	22.68	19.68	18.23	33	182.56	167.79	181.11
	11/26/2019	203.79	200.79	24.45	19.68	18.23	33	182.56	167.79	179.34
35BWW11	5/6/2020	203.79	200.79	22.30	19.68	18.23	33	182.56	167.79	181.49
	1/1/2013	203.31	200.9	24.47	22.06	25	35	175.9	165.9	178.84
	8/18/2016	203.31	200.9	22.42	20.01	25	35	175.9	165.9	180.89
	11/8/2017	203.31	200.9	24.30	21.89	25	35	175.9	165.9	179.01
	2/12/2018	203.31	200.9	24.06	21.65	25	35	175.9	165.9	179.25
	3/27/2018	203.31	200.9	23.16	20.75	25	35	175.9	165.9	180.15
	5/21/2018	203.31	200.9	22.64	20.23	25	35	175.9	165.9	180.67
	8/17/2018	203.31	200.9	24.46	22.05	25	35	175.9	165.9	178.85
	11/18/2018	203.31	200.9	22.77	20.36	25	35	175.9	165.9	180.54
	2/13/2019	203.31	200.9	21.49	19.08	25	35	175.9	165.9	181.82
	5/21/2019	203.31	200.9	18.53	16.12	25	35	175.9	165.9	184.78
	8/7/2019	203.31	200.9	19.66	17.25	25	35	175.9	165.9	183.65
35BWW12	11/21/2019	203.31	200.9	23.28	17.25	25	35	175.9	165.9	180.03
	5/6/2020	203.31	200.9	20.13	17.25	25	35	175.9	165.9	183.18
	1/1/2013	201.17	198.52	22.55	19.90	20.3	35	178.22	163.52	178.62
	8/17/2016	201.17	198.52	20.86	18.21	20.3	35	178.22	163.52	180.31
	11/9/2017	201.17	198.52	22.75	20.10	20.3	35	178.22	163.52	178.42
	2/14/2018	201.17	198.52	22.40	19.75	20.3	35	178.22	163.52	178.77
	5/23/2018	201.17	198.52	21.34	18.69	20.3	35	178.22	163.52	179.83
	8/22/2018	201.17	198.52	22.96	20.31	20.3	35	178.22	163.52	178.21
	11/20/2018	201.17	198.52	21.86	19.21	20.3	35	178.22	163.52	179.31
	2/13/2019	201.17	198.52	20.52	17.87	20.3	35	178.22	163.52	180.65
	5/21/2019	201.17	198.52	17.78	15.13	20.3	35	178.22	163.52	183.39
	8/5/2019	201.17	198.52	19.54	16.89	20.3	35	178.22	163.52	181.63
35BWW13	11/25/2019	201.17	198.52	21.74	15.13	20.3	35	178.22	163.52	179.43
	5/6/2020	201.17	198.52	20.31	16.89	20.3	35	178.22	163.52	180.86
	1/1/2013	203.52	201.07	25.55	23.10	19.8	34.5	181.27	166.57	177.97
	8/19/2016	203.52	201.07	23.51	21.06	19.8	34.5	181.27	166.57	180.01
	11/7/2017	203.52	201.07	25.50	23.05	19.8	34.5	181.27	166.57	178.02
	2/13/2018	203.52	201.07	25.36	22.91	19.8	34.5	181.27	166.57	178.16
	3/28/2018	203.52	201.07	24.25	21.80	19.8	34.5	181.27	166.57	179.27
	5/24/2018	203.52	201.07	24.00	21.55	19.8	34.5	181.27	166.57	179.52
	8/21/2018	203.52	201.07	25.71	23.26	19.8	34.5	181.27	166.57	177.81
	11/16/2018	203.52	201.07	25.08	22.63	19.8	34.5	181.27	166.57	178.44
35BWW13	2/14/2019	203.52	201.07	22.75	20.30	19.8	34.5	181.27	166.57	180.77
	5/22/2019	203.52	201.07	20.17	17.72	19.8	34.5	181.27	166.57	183.35

Table 2-2
Groundwater Elevation Data, LHAAP-35B (37)

Well ID	Sampling Date	TOC Elevation (ft MSL)	Ground Surface Elevation (ft MSL)	Depth to Water (ft TOC)	Depth to Water (ft bgs)	Screen Interval (ft bgs)		Screen Interval (ft MSL)		Water Elevation (ft MSL)
						Top	Bottom	Top	Bottom	
35BWW13	8/6/2019	203.52	201.07	22.02	19.57	19.8	34.5	181.27	166.57	181.50
	11/25/2019	203.52	201.07	24.35	17.72	19.8	34.5	181.27	166.57	179.17
	5/7/2020	203.52	201.07	21.65	19.57	19.8	34.5	181.27	166.57	181.87
35BWW14	1/1/2013	201.26	199.55	23.15	21.44	25	35	174.55	164.55	178.11
	8/17/2016	201.26	199.55	21.65	19.94	25	35	174.55	164.55	179.61
	11/7/2017	201.26	199.55	23.40	21.69	25	35	174.55	164.55	177.86
	2/15/2018	201.26	199.55	23.11	21.40	25	35	174.55	164.55	178.15
	5/22/2018	201.26	199.55	22.20	20.49	25	35	174.55	164.55	179.06
	8/22/2018	201.26	199.55	23.67	21.96	25	35	174.55	164.55	177.59
	11/20/2018	201.26	199.55	22.83	21.12	25	35	174.55	164.55	178.43
	2/12/2019	201.26	199.55	21.54	19.83	25	35	174.55	164.55	179.72
	5/21/2019	201.26	199.55	19.30	17.59	25	35	174.55	164.55	181.96
	8/6/2019	201.26	199.55	20.57	18.86	25	35	174.55	164.55	180.69
	11/25/2019	201.26	199.55	22.52	18.86	25	35	174.55	164.55	178.74
	5/7/2020	201.26	199.55	20.41	18.86	25	35	174.55	164.55	180.85
35BWW15	1/1/2013	201.75	200.01	23.60	21.86	17.8	47.5	182.21	152.51	178.15
	8/19/2016	201.75	200.01	22.04	20.30	17.8	47.5	182.21	152.51	179.71
	11/7/2017	201.75	200.01	23.77	22.03	17.8	47.5	182.21	152.51	177.98
	2/13/2018	201.75	200.01	23.64	21.90	17.8	47.5	182.21	152.51	178.11
	3/29/2018	201.75	200.01	22.43	20.69	17.8	47.5	182.21	152.51	179.32
	5/21/2018	201.75	200.01	23.65	21.91	17.8	47.5	182.21	152.51	178.10
	8/20/2018	201.75	200.01	24.07	22.33	17.8	47.5	182.21	152.51	177.68
	11/16/2018	201.75	200.01	23.23	21.49	17.8	47.5	182.21	152.51	178.52
	2/14/2019	201.75	200.01	21.81	20.07	17.8	47.5	182.21	152.51	179.94
	5/22/2019	201.75	200.01	20.35	18.61	17.8	47.5	182.21	152.51	181.40
	8/7/2019	201.75	200.01	21.20	19.46	17.8	47.5	182.21	152.51	180.55
	11/25/2019	201.75	200.01	22.98	19.46	17.8	47.5	182.21	152.51	178.77
	5/7/2020	201.75	200.01	21.10	19.46	17.8	47.5	182.21	152.51	180.65
35BWW16	1/1/2013	201.2	198.34	23.36	20.50	18.8	33.5	179.54	164.84	177.84
	8/19/2016	201.2	198.34	21.71	18.85	18.8	33.5	179.54	164.84	179.49
	11/7/2017	201.2	198.34	23.51	20.65	18.8	33.5	179.54	164.84	177.69
	2/13/2018	201.2	198.34	23.33	20.47	18.8	33.5	179.54	164.84	177.87
	3/29/2018	201.2	198.34	22.25	19.39	18.8	33.5	179.54	164.84	178.95
	5/24/2018	201.2	198.34	22.28	19.42	18.8	33.5	179.54	164.84	178.92
	8/17/2018	201.2	198.34	23.70	20.84	18.8	33.5	179.54	164.84	177.50
	11/16/2018	201.2	198.34	23.09	20.23	18.8	33.5	179.54	164.84	178.11
	2/15/2019	201.2	198.34	21.57	18.71	18.8	33.5	179.54	164.84	179.63
	5/23/2019	201.2	198.34	20.15	17.29	18.8	33.5	179.54	164.84	181.05
	8/7/2019	201.2	198.34	20.86	18.00	18.8	33.5	179.54	164.84	180.34
	11/25/2019	201.2	198.34	22.65	18.00	18.8	33.5	179.54	164.84	178.55
	5/7/2020	201.2	198.34	20.70	18.00	18.8	33.5	179.54	164.84	180.50
35BWW17	1/1/2013	201.00	198.16	22.85	20.01	18.3	33	179.86	165.16	178.15
	8/19/2016	201.00	198.16	20.95	18.11	18.3	33	179.86	165.16	180.05
	11/7/2017	201.00	198.16	22.89	20.05	18.3	33	179.86	165.16	178.11
	2/13/2018	201.00	198.16	22.73	19.89	18.3	33	179.86	165.16	178.27
	3/29/2018	201.00	198.16	21.38	18.54	18.3	33	179.86	165.16	179.62
	5/24/2018	201.00	198.16	21.42	18.58	18.3	33	179.86	165.16	179.58
	8/17/2018	201.00	198.16	23.11	20.27	18.3	33	179.86	165.16	177.89

Table 2-2
Groundwater Elevation Data, LHAAP-35B (37)

Well ID	Sampling Date	TOC Elevation (ft MSL)	Ground Surface Elevation (ft MSL)	Depth to Water (ft TOC)	Depth to Water (ft bgs)	Screen Interval (ft bgs)		Screen Interval (ft MSL)		Water Elevation (ft MSL)
						Top	Bottom	Top	Bottom	
35BWW17	11/16/2018	201.00	198.16	22.33	19.49	18.3	33	179.86	165.16	178.67
	2/21/2019	201.00	198.16	20.12	17.28	18.3	33	179.86	165.16	180.88
	5/22/2019	201.00	198.16	17.95	15.11	18.3	33	179.86	165.16	183.05
	8/7/2019	201.00	198.16	14.63	11.79	18.3	33	179.86	165.16	186.37
	11/25/2019	201.00	198.16	21.85	11.79	18.3	33	179.86	165.16	179.15
	5/7/2020	201.00	198.16	19.18	11.79	18.3	33	179.86	165.16	181.82
35BWW18	1/1/2013	206.72	203.8	27.94	25.02	17.77	32.5	186.03	171.3	178.78
	8/16/2016	206.72	203.8	26.24	23.32	17.77	32.5	186.03	171.3	180.48
	11/7/2017	206.72	203.8	27.50	24.58	17.77	32.5	186.03	171.3	179.22
	2/13/2018	206.72	203.8	27.90	24.98	17.77	32.5	186.03	171.3	178.82
	3/27/2018	206.72	203.8	27.18	24.26	17.77	32.5	186.03	171.3	179.54
	5/21/2018	206.72	203.8	27.00	24.08	17.77	32.5	186.03	171.3	179.72
	8/16/2018	206.72	203.8	27.95	25.03	17.77	32.5	186.03	171.3	178.77
	11/19/2018	206.72	203.8	27.39	24.47	17.77	32.5	186.03	171.3	179.33
	2/14/2019	206.72	203.8	26.37	23.45	17.77	32.5	186.03	171.3	180.35
	5/20/2019	206.72	203.8	25.60	22.68	17.77	32.5	186.03	171.3	181.12
	8/5/2019	206.72	203.8	25.61	22.69	17.77	32.5	186.03	171.3	181.11
	11/25/2019	206.72	203.8	26.92	22.69	17.77	32.5	186.03	171.3	179.80
	5/11/2020	206.72	203.8	25.70	22.69	17.77	32.5	186.03	171.3	181.02
35BWW19	1/1/2013	206.66	204.1	27.75	25.19	18.75	33.48	185.35	170.62	178.91
	8/16/2016	206.66	204.1	25.82	23.26	18.75	33.48	185.35	170.62	180.84
	11/7/2017	206.66	204.1	27.20	24.64	18.75	33.48	185.35	170.62	179.46
	2/13/2018	206.66	204.1	27.48	24.92	18.75	33.48	185.35	170.62	179.18
	3/27/2018	206.66	204.1	26.99	24.43	18.75	33.48	185.35	170.62	179.67
	5/21/2018	206.66	204.1	26.70	24.14	18.75	33.48	185.35	170.62	179.96
	8/16/2018	206.66	204.1	27.55	24.99	18.75	33.48	185.35	170.62	179.11
	11/19/2018	206.66	204.1	27.21	24.65	18.75	33.48	185.35	170.62	179.45
	2/14/2019	206.66	204.1	26.19	23.63	18.75	33.48	185.35	170.62	180.47
	5/20/2019	206.66	204.1	25.66	23.10	18.75	33.48	185.35	170.62	181.00
	8/5/2019	206.66	204.1	25.42	22.86	18.75	33.48	185.35	170.62	181.24
	11/25/2019	206.66	204.1	26.50	22.86	18.75	33.48	185.35	170.62	180.16
	5/11/2020	206.66	204.1	25.63	22.86	18.75	33.48	185.35	170.62	181.03
35BWW20	1/1/2013	205.23	202.67	26.30	23.74	15.14	29.9	187.53	172.77	178.93
	8/18/2016	205.23	202.67	24.78	22.22	15.14	29.9	187.53	172.77	180.45
	11/8/2017	205.23	202.67	26.50	23.94	15.14	29.9	187.53	172.77	178.73
	2/12/2018	205.23	202.67	26.35	23.79	15.14	29.9	187.53	172.77	178.88
	3/27/2018	205.23	202.67	25.45	22.89	15.14	29.9	187.53	172.77	179.78
	5/24/2018	205.23	202.67	25.40	22.84	15.14	29.9	187.53	172.77	179.83
	8/20/2018	205.23	202.67	26.80	24.24	15.14	29.9	187.53	172.77	178.43
	11/18/2018	205.23	202.67	25.58	23.02	15.14	29.9	187.53	172.77	179.65
	2/13/2019	205.23	202.67	24.47	21.91	15.14	29.9	187.53	172.77	180.76
	5/22/2019	205.23	202.67	21.95	19.39	15.14	29.9	187.53	172.77	183.28
	8/6/2019	205.23	202.67	23.67	21.11	15.14	29.9	187.53	172.77	181.56
	11/25/2019	205.23	202.67	25.75	21.11	15.14	29.9	187.53	172.77	179.48
	5/11/2020	205.23	202.67	23.05	21.11	15.14	29.9	187.53	172.77	182.18
35BWW23	1/1/2013	205.37	202.74	27.03	24.40	20	30	182.74	172.74	178.34
	8/17/2016	205.37	202.74	27.03	24.40	20	30	182.74	172.74	178.34
	11/9/2017	205.37	202.74	28.56	25.93	20	30	182.74	172.74	176.81

Table 2-2
Groundwater Elevation Data, LHAAP-35B (37)

Well ID	Sampling Date	TOC Elevation (ft MSL)	Ground Surface Elevation (ft MSL)	Depth to Water (ft TOC)	Depth to Water (ft bgs)	Screen Interval (ft bgs)		Screen Interval (ft MSL)		Water Elevation (ft MSL)
						Top	Bottom	Top	Bottom	
35BWW23	2/15/2018	205.37	202.74	28.35	25.72	20	30	182.74	172.74	177.02
	5/22/2018	205.37	202.74	27.63	25.00	20	30	182.74	172.74	177.74
	8/22/2018	205.37	202.74	28.86	26.23	20	30	182.74	172.74	176.51
	11/20/2018	205.37	202.74	28.48	25.85	20	30	182.74	172.74	176.89
	2/12/2019	205.37	202.74	27.55	24.92	20	30	182.74	172.74	177.82
	5/21/2019	205.37	202.74	26.55	23.92	20	30	182.74	172.74	178.82
	8/6/2019	205.37	202.74	26.49	23.86	20	30	182.74	172.74	178.88
	11/25/2019	205.37	202.74	27.77	23.86	20	30	182.74	172.74	177.60
	5/7/2020	205.37	202.74	26.77	23.86	20	30	182.74	172.74	178.60
35BWW24	8/19/2016	206.64	203.82	27.89	25.07	19.9	29.6	183.92	174.22	178.75
	2/16/2018	206.64	203.82	29.37	26.55	19.9	29.6	183.92	174.22	177.27
	3/28/2018	206.64	203.82	28.83	26.01	19.9	29.6	183.92	174.22	177.81
	5/24/2018	206.64	203.82	28.65	25.83	19.9	29.6	183.92	174.22	177.99
	8/21/2018	206.64	203.82	29.80	26.98	19.9	29.6	183.92	174.22	176.84
	11/16/2018	206.64	203.82	29.41	26.59	19.9	29.6	183.92	174.22	177.23
	2/15/2019	206.64	203.82	28.27	25.45	19.9	29.6	183.92	174.22	178.37
	5/22/2019	206.64	203.82	27.53	24.71	19.9	29.6	183.92	174.22	179.11
	8/7/2019	206.64	203.82	27.45	24.63	19.9	29.6	183.92	174.22	179.19
	11/25/2019	206.64	203.82	28.77	24.63	19.9	29.6	183.92	174.22	177.87
	5/7/2020	206.64	203.82	27.22	24.63	19.9	29.6	183.92	174.22	179.42
35BWW25	8/19/2016	204.31	201.74	25.45	22.88	19.9	29.6	181.84	172.14	178.86
	11/8/2017	204.31	201.74	27.27	24.70	19.9	29.6	181.84	172.14	177.04
	2/16/2018	204.31	201.74	26.92	24.35	19.9	29.6	181.84	172.14	177.39
	3/28/2018	204.31	201.74	26.38	23.81	19.9	29.6	181.84	172.14	177.93
	5/23/2018	204.31	201.74	26.32	23.75	19.9	29.6	181.84	172.14	177.99
	8/20/2018	204.31	201.74	27.31	24.74	19.9	29.6	181.84	172.14	177.00
	11/16/2018	204.31	201.74	26.92	24.35	19.9	29.6	181.84	172.14	177.39
	2/15/2019	204.31	201.74	25.80	23.23	19.9	29.6	181.84	172.14	178.51
	5/22/2019	204.31	201.74	25.23	22.66	19.9	29.6	181.84	172.14	179.08
	8/7/2019	204.31	201.74	25.28	22.71	19.9	29.6	181.84	172.14	179.03
	11/25/2019	204.31	201.74	26.52	22.71	19.9	29.6	181.84	172.14	177.79
	5/7/2020	204.31	201.74	25.36	22.71	19.9	29.6	181.84	172.14	178.95
35BWW26	8/17/2016	205.86	230.41	26.13	50.68	25.2	34.9	205.21	195.51	179.73
	11/9/2017	205.86	230.41	27.71	52.26	25.2	34.9	205.21	195.51	178.15
	2/14/2018	205.86	230.41	27.60	52.15	25.2	34.9	205.21	195.51	178.26
	5/22/2018	205.86	230.41	26.97	51.52	25.2	34.9	205.21	195.51	178.89
	8/22/2018	205.86	230.41	28.07	52.62	25.2	34.9	205.21	195.51	177.79
	11/20/2018	205.86	230.41	27.48	52.03	25.2	34.9	205.21	195.51	178.38
	2/12/2019	205.86	230.41	26.50	51.05	25.2	34.9	205.21	195.51	179.36
	5/20/2019	205.86	230.41	25.31	49.86	25.2	34.9	205.21	195.51	180.55
	8/6/2019	205.86	230.41	25.60	50.15	25.2	34.9	205.21	195.51	180.26
	11/25/2019	205.86	230.41	27.07	50.15	25.2	34.9	205.21	195.51	178.79
	5/6/2020	205.86	230.41	25.75	50.15	25.2	34.9	205.21	195.51	180.11
LHSMW58	1/1/2013	203.56	200.78	24.77	21.99	21.4	31.4	179.38	169.38	178.79
	8/18/2016	203.56	200.78	23.26	20.48	21.4	31.4	179.38	169.38	180.30
	11/8/2017	203.56	200.78	25.05	22.27	21.4	31.4	179.38	169.38	178.51
	2/12/2018	203.56	200.78	24.87	22.09	21.4	31.4	179.38	169.38	178.69
	3/27/2018	203.56	200.78	23.95	21.17	21.4	31.4	179.38	169.38	179.61

Table 2-2
Groundwater Elevation Data, LHAAP-35B (37)

Well ID	Sampling Date	TOC Elevation (ft MSL)	Ground Surface Elevation (ft MSL)	Depth to Water (ft TOC)	Depth to Water (ft bgs)	Screen Interval (ft bgs)		Screen Interval (ft MSL)		Water Elevation (ft MSL)
						Top	Bottom	Top	Bottom	
LHSMW58	5/24/2018	203.56	200.78	23.87	21.09	21.4	31.4	179.38	169.38	179.69
	8/20/2018	203.56	200.78	25.21	22.43	21.4	31.4	179.38	169.38	178.35
	11/18/2018	203.56	200.78	24.13	21.35	21.4	31.4	179.38	169.38	179.43
	2/13/2019	203.56	200.78	22.98	20.20	21.4	31.4	179.38	169.38	180.58
	5/22/2019	203.56	200.78	20.22	17.44	21.4	31.4	179.38	169.38	183.34
	8/7/2019	203.56	200.78	22.12	19.34	21.4	31.4	179.38	169.38	181.44
	11/25/2019	203.56	200.78	24.22	19.34	21.4	31.4	179.38	169.38	179.34
	5/11/2020	203.56	200.78	21.48	19.34	21.4	31.4	179.38	169.38	182.08

Notes:

bgs - below ground surface

Dry - insufficient or no water in well

ft - feet

MSL - mean sea level

TOC - top of casing

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BSW01																35BSW02								
			Sample ID				35BSW01-021218		35BSW01-180327						35BSW01-181116		35BSW01-200511		35BSW02-101713				35BSW02-021218				
			Sample Date		10/17/2013		11/17/2017		2/12/2018		3/27/2018		5/25/2018		8/21/2018		11/16/2018		5/11/2020		10/17/2013		11/17/2017		2/12/2018		
			Sample Event		Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 3 Semiannual 2		Baseline		Year 1 Quarter 1		Year 1 Quarter 2		
			Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual			
ANIONS					Dry						Dry	Dry							Dry								
Bromide	mg/L																										
Chloride	mg/L																										
Fluoride	mg/L																										
Nitrate	mg/L	10																									
Nitrite	mg/L	1																									
Sulfate	mg/L																										
SULFIDE																											
Sulfide	mg/L																										
DHC																											
Dehalococcoides	cells/mL																										
FIELD TESTS																											
Conductivity	mS/cm							0.110		0.167						0.055										0.105	
Dissolved oxygen	mg/L							12.35		7.43						11.5										11.29	
Oxidation-Reduction Potential	mV							92.3		153.6						190.4										108.5	
pH	SU							7.20		6.34						5.95										6.78	
Temperature	C							5.48		23.95						9.63										5.47	
Turbidity	NTU							45.5		11.8						30.6										43.6	
Water Level at Reading Time	Ft BTOC																										
GASES																											
Carbon dioxide	µg/L																										
Ethane	µg/L																										
Ethylene	µg/L																										
Methane	µg/L																										
GEN CHEMISTRY																											
Ferrous Iron (Iron II)	mg/L																										
TOTAL ORGANIC CARBON																											
Total Inorganic Carbon	mg/L																										
Total organic carbon	mg/L																										
METALS																											
Antimony	µg/L	6								1	U																
Manganese	µg/L	14,000																									
VOLATILES																											
1,1-Dichloroethene	µg/L	7	1	U				1	U					0.5	U	0.5	U	1	U			1	U				
cis-1,2-Dichloroethene	µg/L	70	0.5	U				1	U					0.5	U	0.5	U	0.5	U			1	U				
Tetrachloroethene	µg/L	5	0.5	U				1	U					0.5	U	1	U	0.5	U			1	U				
Trichloroethene	µg/L	5	0.5	U				1	U					0.5	U	0.5	U	0.5	U			1	U				
Vinyl chloride	µg/L	2	0.5	U				1	U					0.5	U	0.5	U	0.5	U			1	U				

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BSW02										35BWW01														
			Sample ID						35BSW02-181116		35BSW02-200511		35BWW01-131007		35BWW01-110817		35BWW01-021418		35BWW01-180329		35BWW01-180524		35BWW01-180524FD				
			Sample Date		3/27/2018		5/25/2018		8/21/2018		11/16/2018		5/11/2020		10/7/2013		11/8/2017		2/14/2018		3/29/2018		5/24/2018		5/24/2018		
			Sample Event		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 3 Semiannual 2		Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 3		
			Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		FD
Parameter		Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual		
ANIONS						Dry		Dry																			
Bromide		mg/L																									
Chloride		mg/L																									
Fluoride		mg/L																									
Nitrate		mg/L	10																								
Nitrite		mg/L	1																								
Sulfate		mg/L																									
SULFIDE																											
Sulfide		mg/L																									
DHC																											
Dehalococcoides		cells/mL																									
FIELD TESTS																											
Conductivity		mS/cm		0.161						0.083						0.201		0.106		0.105		0.082					
Dissolved oxygen		mg/L		7.09						11.14						2.32		6		5.26		0					
Oxidation-Reduction Potential		mV		168.9						211.3						204.3		185.6		257.3		491					
pH		SU		6.09						5.16				-	-	6.60		5.46		4.49		4.03					
Temperature		C		21.17						9.75						18.13		15.5		18.21		19.08					
Turbidity		NTU		16.7						29.5				-	-	140.6		124.7		130.9		59.7					
Water Level at Reading Time		Ft BTOC														15.6		15.4		13.1		12.53					
GASES																											
Carbon dioxide		µg/L																									
Ethane		µg/L																									
Ethylene		µg/L																									
Methane		µg/L																									
GEN CHEMISTRY																											
Ferrous Iron (Iron II)		mg/L																									
TOTAL ORGANIC CARBON																											
Total Inorganic Carbon		mg/L																									
Total organic carbon		mg/L																									
METALS																											
Antimony		µg/L	6	1	U														1	U							
Manganese		µg/L	14,000																								
VOLATILES																											
1,1-Dichloroethene		µg/L	7							0.5	U	0.5	U			1	U	1	U			0.5	U	0.5	U		
cis-1,2-Dichloroethene		µg/L	70							0.5	U	0.5	U			1	U	1	U			0.5	U	0.5	U		
Tetrachloroethene		µg/L	5							0.5	U	1	U			1	U	1	U			0.5	U	0.5	U		
Trichloroethene		µg/L	5							0.5	U	0.5	U			1	U	1	U			0.5	U	0.5	U		
Vinyl chloride		µg/L	2							0.5	U	0.5	U			1	U	1	U			0.5	U	0.5	U		

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW01																					
			35BWW01-180816		35BWW01-180816-FD		35BWW01-181115		35BWW01-190212		35BWW01-190212-FD		35BWW01-190520		35BWW01-190520-FD		35BWW01-190805		35BWW01-190805-FD		35BWW01-191121		35BWW01-200506	
			8/16/2018		8/16/2018		11/15/2018		2/12/2019		2/12/2019		5/20/2019		5/20/2019		8/5/2019		8/5/2019		11/21/2019		5/6/2020	
			Year 1 Quarter 4		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 2		Year 2 Quarter 3		Year 2 Quarter 3		Year 2 Quarter 4		Year 2 Quarter 4		Year 3 Semiannual 2		Year 3 Semiannual 2	
			REG		FD		REG		REG		FD		REG		FD		REG		FD		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																								
Bromide	mg/L																							
Chloride	mg/L																							
Fluoride	mg/L																							
Nitrate	mg/L	10																						
Nitrite	mg/L	1																						
Sulfate	mg/L																							
SULFIDE																								
Sulfide	mg/L																							
DHC																								
Dehalococcoides	cells/mL																							
FIELD TESTS																								
Conductivity	mS/cm		0.195				0.089		0.104				0.117				0.113						0.102	
Dissolved oxygen	mg/L		1.06				2.87		3.91				1.04				0.15				1.29		1.5	
Oxidation-Reduction Potential	mV		261				240.2		354				357				292				371		238	
pH	SU		4.93				4.84		5.57				4.06				5.40				5.41		5.10	
Temperature	C		24.59				18.12		15.91				21.60				23.14				20.51		17.46	
Turbidity	NTU		76.4				121.9		33.5				53.1				26.3				37.7		63.1	
Water Level at Reading Time	Ft BTOC		14.46				15.1		8.34				7.4				12.12				14.59		8.51	
GASES																								
Carbon dioxide	µg/L																							
Ethane	µg/L																							
Ethylene	µg/L																							
Methane	µg/L																							
GEN CHEMISTRY																								
Ferrous Iron (Iron II)	mg/L																							
TOTAL ORGANIC CARBON																								
Total Inorganic Carbon	mg/L																							
Total organic carbon	mg/L																							
METALS																								
Antimony	µg/L	6																						
Manganese	µg/L	14,000																						
VOLATILES																								
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW01		35BWW02												35BWW04									
			Sample ID		35BWW01-200506-FD		35BWW02-131004												35BWW04-100313		35BWW04-110917		35BWW04-110917-FD			
			Sample Date		5/6/2020		10/4/2013		11/7/2017		2/21/2018		5/25/2018		8/21/2018		11/16/2018		2/14/2019		10/3/2013		11/9/2017		11/9/2017	
			Sample Event		Year 3 Semiannual 2		Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 2		Baseline		Year 1 Quarter 1		Year 1 Quarter 1	
			Sample Purpose		FD		REG		REG		REG		REG		REG		REG		REG		REG		REG		FD	
Parameter		Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual			
ANIONS								Dry		Dry		Dry		Dry		Dry		Dry								
Bromide		mg/L																								
Chloride		mg/L																11		0.1	U	0.209				
Fluoride		mg/L																		5.67		5.82				
Nitrate		mg/L	10															1.06		0.244		0.249				
Nitrite		mg/L	1															0.2	U	0.187		0.173				
Sulfate		mg/L																0.2	U	0.1	U	0.1	U			
SULFIDE																		41.6		33.1		33.8				
Sulfide		mg/L																								
DHC																		1	U	1	U	1	U			
Dehalococcoides		cells/mL																								
FIELD TESTS																				1.7	U					
Conductivity		mS/cm																								
Dissolved oxygen		mg/L																		0.277						
Oxidation-Reduction Potential		mV																		2.2						
pH		SU																		183.5						
Temperature		C																		6.50						
Turbidity		NTU																		18.40						
Water Level at Reading Time		Ft BTOC																		0						
GASES																				24.25						
Carbon dioxide		µg/L																								
Ethane		µg/L																		38000		35000				
Ethylene		µg/L																2	U	0.076	U	0.076	U			
Methane		µg/L																2	U	0.071	U	0.071	U			
GEN CHEMISTRY																		2	U	0.49	J	0.3	U			
Ferrous Iron (Iron II)		mg/L																								
TOTAL ORGANIC CARBON																		0.04	U	0.18						
Total Inorganic Carbon		mg/L																								
Total organic carbon		mg/L																		40		33				
METALS																		2.01		1.12		1.21				
Antimony		µg/L	6																							
Manganese		µg/L	14,000																							
VOLATILES																										
1,1-Dichloroethene		µg/L	7	0.5	U													2.3	J	1	U	1	U			
cis-1,2-Dichloroethene		µg/L	70	0.5	U													0.673	J	1	U	1	U			
Tetrachloroethene		µg/L	5	1	U													66.5	J	7.3		8.2				
Trichloroethene		µg/L	5	0.5	U													11.4	J	1		1.1				
Vinyl chloride		µg/L	2	0.5	U													0.5	U	1	U	1	U			

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW04																							
			Sample ID		35BWW04-021418-FD		35BWW04-180522		35BWW04-180822		35BWW04-181120		35BWW04-181120-FD		35BWW04-190213		35BWW04-190520		35BWW04-190805		35BWW04-191121		35BWW04-191121-FD			
			Sample Date		2/14/2018		2/14/2018		5/22/2018		8/22/2018		11/20/2018		11/20/2018		2/13/2019		5/20/2019		8/5/2019		11/21/2019		11/21/2019	
			Sample Event		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 3		Year 2 Quarter 4		Year 3 Semiannual 2		Year 3 Semiannual 2	
			Sample Purpose		REG		FD		REG		REG		REG		FD		REG		REG		REG		REG		FD	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual		
ANIONS																										
Bromide	mg/L																									
Chloride	mg/L		6.96		7.06		4.87		3.78		3.65		3.66		3.24		2.96		3.17		3.51		3.48			
Fluoride	mg/L																									
Nitrate	mg/L	10	0.124		0.105		0.099	J	0.049	J	0.1		0.101		0.174		0.174		0.187		0.145		0.132			
Nitrite	mg/L	1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U										
Sulfate	mg/L		31.8		32.2		36.5		26.5		25.1		25.5		34.6		22		24		28.9		26.5			
SULFIDE																										
Sulfide	mg/L																									
DHC																										
Dehalococcoides	cells/mL						1.2				0.5	U			0.4	J										
FIELD TESTS																										
Conductivity	mS/cm		0.312				0.216		0.398		0.330				0.333		0.327		0.327							
Dissolved oxygen	mg/L		3.03				0		0.33		4.73				1.16		1.98		0.37		0.03					
Oxidation-Reduction Potential	mV		126.1				411		281		152.7				364		273		262		296					
pH	SU		6.34				5.12		5.17		6.02				5.43		6.39		5.93		5.82					
Temperature	C		17.84				18.87		21.26		19.43				15.39		21.46		21.45		19.23					
Turbidity	NTU		1.7				58.3		229		0				4.9		3.3		0		39.9					
Water Level at Reading Time	Ft BTOC						22.73		24.3		23.8				21.97		19.15		20.98		23.19					
GASES																										
Carbon dioxide	µg/L		40000		43000		770000		500000	J					800000	J	670000		280000		100000	J	87000	J		
Ethane	µg/L		0.6	U	0.6	U	0.47	UJ	0.47	U	0.238	J	0.574	J	0.47	UJ	0.47	U	0.47	U	0.47	U	0.47	U		
Ethylene	µg/L		1	U	1	U	0.55	U	0.55	U	0.524	J	0.959	J	0.55	UJ	0.55	U	0.55	U	0.55	U	0.55	U		
Methane	µg/L		1.3	U	1.3	U	1	UJ	1	U	2.23		1.82		1	UJ	1	U	1	U	1	U	1	U		
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L		0.06				0.52		0.52		0.05				0		0.33		0		0.16					
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L														123											
Total organic carbon	mg/L		1.52		1.52		1.7		1.73		2.31		2.23		3.81		3.21		2.66	J	1.17		1.28			
METALS																										
Antimony	µg/L	6	1.87	J	0.913	J																				
Manganese	µg/L	14,000																								
VOLATILES																										
1,1-Dichloroethene	µg/L	7	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
cis-1,2-Dichloroethene	µg/L	70	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
Tetrachloroethene	µg/L	5	10		10		5.3		2.2		6.3		5.3		5.3		4.7		7.9		8.3		7.7			
Trichloroethene	µg/L	5	1.3		1.2		0.5	U	0.5	U	0.95	J	0.73	J	0.59	J	0.58	J	0.93	J	0.93	J	0.93	J		
Vinyl chloride	µg/L	2	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW04		35BWW05																					
			Sample ID		35BWW04-200506		35BWW05-100413		35BWW05-110817		35BWW05-021618		35BWW05-180327		35BWW05-180521		35BWW05-180821		35BWW05-181118		35BWW05-190213		35BWW05-190521		35BWW05-190806	
			Sample Date		5/6/2020		10/4/2013		11/8/2017		2/16/2018		3/27/2018		5/21/2018		8/21/2018		11/18/2018		2/13/2019		5/21/2019		8/6/2019	
			Sample Event		Year 3 Semiannual 2		Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 3		Year 2 Quarter 4	
			Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual		
ANIONS																										
Bromide	mg/L																									
Chloride	mg/L		4.52																							
Fluoride	mg/L																									
Nitrate	mg/L	10	0.132																							
Nitrite	mg/L	1																								
Sulfate	mg/L		26.6																							
SULFIDE																										
Sulfide	mg/L																									
DHC																										
Dehalococcoides	cells/mL																									
FIELD TESTS																										
Conductivity	mS/cm		0.289		0.237		0.338		0.306		0.317		0.213		0.310		0.270		0.324		0.321		0.317			
Dissolved oxygen	mg/L		3.1		0.59		0.78		0.65		1.72		0		0.7		1.51		0.56		0.88		0.05			
Oxidation-Reduction Potential	mV		147		-146		-0.3		84.6		125.1		269		111		75.1		168		207		116			
pH	SU		6.38		7.06		6.80		6.73		6.35		5.14		5.29		6.55		6.50		5.12		5.99			
Temperature	C		18.36		25		18.57		19.51		25.64		23.26		21.27		18.87		18.89		21.94		23.09			
Turbidity	NTU		13		43.3		19		0		0		779		657		0		221		139		225			
Water Level at Reading Time	Ft BTOC		20.82				24.55		24.15		23.45		23.41		24.85		23.73		22.82		20.72		22.05			
GASES																										
Carbon dioxide	µg/L		46000																							
Ethane	µg/L		0.47	U																						
Ethylene	µg/L		0.55	U																						
Methane	µg/L		1	U																						
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L		0.68																							
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L																									
Total organic carbon	mg/L		1.96																							
METALS																										
Antimony	µg/L	6									1	U														
Manganese	µg/L	14,000																								
VOLATILES																										
1,1-Dichloroethene	µg/L	7	0.5	U	1	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.295	J	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
Tetrachloroethene	µg/L	5	6.4		1.57		1.5		2.8				2		1.7		2.7		1.9		1.1		1.9			
Trichloroethene	µg/L	5	0.71	J	14		7		10				8.5		7.3		12		9.6		5.5		8.6			
Vinyl chloride	µg/L	2	0.5	U	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW05				35BWW06														35BWW07					
			Sample ID		35BWW05-191125		35BWW05-200506		35BWW06-100413		35BWW06-110817		35BWW06-021618		35BWW06-180327		35BWW06-180521		35BWW06-180821		35BWW06-181118		35BWW07-100513		35BWW07-110917	
			Sample Date		11/25/2019		5/6/2020		10/4/2013		11/8/2017		2/16/2018		3/27/2018		5/21/2018		8/21/2018		11/18/2018		10/5/2013		11/9/2017	
			Sample Event		Year 3 Semiannual 2		Year 3 Semiannual 2		Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Baseline		Year 1 Quarter 1	
			Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter		Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	
ANIONS																										
Bromide		mg/L																								
Chloride		mg/L																								
Fluoride		mg/L																								
Nitrate		mg/L	10																							
Nitrite		mg/L	1																							
Sulfate		mg/L																								
SULFIDE																										
Sulfide		mg/L																								
DHC																										
Dehalococcoides		cells/mL																								
FIELD TESTS																										
Conductivity		mS/cm			0.313				0.706		0.763		0.751		0.629		0.911		0.928		0.837		1.112			
Dissolved oxygen		mg/L		0.03	0.04		0.073		0.8		0.57		0.37		0		0.44		1.15		10.86		1.86			
Oxidation-Reduction Potential		mV		150	79		-143		-11.2		-46.5		-95.6		180		92		-20		187		135.7			
pH		SU		5.29	6.10		6.98		6.39		7.22		8.34		5.57		5.57		5.82		6.77		6.87			
Temperature		C		20.56	17.51		23.9		18.00		19.96		23.01		22.85		22.25		18.58		22.17		17.49			
Turbidity		NTU		304	208		5.1		0		0		0		0		162		0		27.6		5.9			
Water Level at Reading Time		Ft BTOC		23.82	21.84				26.3		26.37		24.9		24.22		25.5		25.51				27.9			
GASES																										
Carbon dioxide		µg/L																								
Ethane		µg/L																								
Ethylene		µg/L																								
Methane		µg/L																								
GEN CHEMISTRY																										
Ferrous Iron (Iron II)		mg/L																								
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon		mg/L																								
Total organic carbon		mg/L																								
METALS																										
Antimony		µg/L	6										1.28	J												
Manganese		µg/L	14,000																							
VOLATILES																										
1,1-Dichloroethene		µg/L	7	0.5	U	0.5	U	1	U	1	U	1	U			0.5	U	0.5	U	0.5	U	1	U	1	U	
cis-1,2-Dichloroethene		µg/L	70	0.5	U	0.5	U	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	1	U	
Tetrachloroethene		µg/L	5	1.4		2.4		0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	1	U	
Trichloroethene		µg/L	5	6		7.3		0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	1	U	
Vinyl chloride		µg/L	2	0.5	U	0.5	U	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	1	U	

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW07																				35BWW08			
			Sample ID		35BWW07-021318		35BWW07-180329		35BWW07-180523		35BWW07-180820		35BWW07-181118		35BWW07-190214		35BWW07-190522		35BWW07-190805		35BWW07-191125		35BWW07-200511		35BWW08-100913	
					2/13/2018		3/29/2018		5/23/2018		8/20/2018		11/18/2018		2/14/2019		5/22/2019		8/5/2019		11/25/2019		5/11/2020		10/9/2013	
					Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 3		Year 2 Quarter 4		Year 3 Semiannual 2		Year 3 Semiannual 2		Baseline	
					REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual		
ANIONS																										
Bromide	mg/L																									
Chloride	mg/L																						71.5			
Fluoride	mg/L																									
Nitrate	mg/L	10																					2.3			
Nitrite	mg/L	1																					0.2	U		
Sulfate	mg/L																						115			
SULFIDE																										
Sulfide	mg/L																						1	U		
DHC																										
Dehalococcoides	cells/mL																						7.1	U		
FIELD TESTS																										
Conductivity	mS/cm		1.031		0.931		0.613		0.951		0.938		0.881		0.632		0.659				0.753		0.647			
Dissolved oxygen	mg/L		0.84		0.97		0		0.63		1.18		0.14		0.08		0.11		0.1		0.59		1.06			
Oxidation-Reduction Potential	mV		94.7		119.1		364		112		77.4		325		268		51		50		158		99			
pH	SU		6.82		6.16		5.61		6.02		7.01		5.80		5.83		6.89		6.08		6.91		6.86			
Temperature	C		14.43		19.00		19.78		27.94		16.82		16.41		21.21		22.05		16.80		17.07		19.48			
Turbidity	NTU		0		0		35.3		59.1		0		0		0		0		7.6		16.1		1.1			
Water Level at Reading Time	Ft BTOC		29.5		28.3		26.33		28.28		29.28		26		25.38		24.12		26.22		24.2					
GASES																										
Carbon dioxide	µg/L																									
Ethane	µg/L																						2	U		
Ethylene	µg/L																						2	U		
Methane	µg/L																						2	U		
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L																						0.04	U		
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L																									
Total organic carbon	mg/L																						4.19			
METALS																										
Antimony	µg/L	6			1	U																				
Manganese	µg/L	14,000																								
VOLATILES																										
1,1-Dichloroethene	µg/L	7	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U		
cis-1,2-Dichloroethene	µg/L	70	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
Tetrachloroethene	µg/L	5	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U		
Trichloroethene	µg/L	5	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	43.8			
Vinyl chloride	µg/L	2	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW08																				35BWW09			
			Sample ID		35BWW08-110717		35BWW08-021418		35BWW08-180523		35BWW08-180822		35BWW08-181120		35BWW08-190212		35BWW08-190520		35BWW08-190805		35BWW08-191121		35BWW08-200506		35BWW09-100813	
			Sample Date		11/7/2017		2/14/2018		5/23/2018		8/22/2018		11/20/2018		2/12/2019		5/20/2019		8/5/2019		11/21/2019		5/6/2020		10/8/2013	
			Sample Event		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 3		Year 2 Quarter 4		Year 3 Semiannual 2		Year 3 Semiannual 2		Baseline	
			Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual		
ANIONS																										
Bromide	mg/L		2.11																							
Chloride	mg/L		11.3		11.2		12.2		10.3		9.14		7.22		4.57		2.43		6.66		2.38					
Fluoride	mg/L		0.53																							
Nitrate	mg/L	10	0.1	U	0.465		0.265		0.311		0.169		0.206		0.185		0.18		0.301		0.137					
Nitrite	mg/L	1	0.1	U	0.1	U	0.04	J	0.1	U	0.1	U	0.1	U												
Sulfate	mg/L		62.3		55.8		51		64.4		36.2		27.4		19.3		17		30.1		15.9					
SULFIDE																										
Sulfide	mg/L		6.88																							
DHC																										
Dehalococcoides	cells/mL		0.5	U			0.5				0.2	J	0.5	U												
FIELD TESTS																										
Conductivity	mS/cm		0.408		0.418		0.318		0.481		0.343		0.318		0.497		0.391				0.302		1.02			
Dissolved oxygen	mg/L		3.2		3.2		0.58		1.6		4.57		3.76		1.18		1.65		1.61		4.66		0.74			
Oxidation-Reduction Potential	mV		176.5		25.5		380		236		66.5		245		289		212		268		102		-13			
pH	SU		8		9.06		5.53		5.49		9.92		9.54		5.83		7.57		6.84		7.15		7.06			
Temperature	C		20.51		18.93		19.68		22.64		19		18.19		21.98		24.59		20.95		23.76		20.45			
Turbidity	NTU		0		0		0.8		42.8		0		10.5		0		19.1		44.2		52.4		0.6			
Water Level at Reading Time	Ft BTOC		26		25.31		24.63		25.95		24.7		23.89		21.64		20.72		24.97		22.87					
GASES																										
Carbon dioxide	µg/L		2200		1000	U	580000		350000	J			390	J	610000		15000		14000	J	11000					
Ethane	µg/L		0.076	U	0.6	U	0.47	U	0.47	U	1	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U				
Ethylene	µg/L		0.071	U	1	U	0.55	U	0.55	U	2.31		0.55	U	0.55	U	0.55	U	0.55	U	0.55	U				
Methane	µg/L		0.3	U	1.3	U	1	U	1	U	1.82		1	U	1	U	1	U	1	U	1	U				
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L		0.12		0.05		0	U	0	U	0		0.02		0.29		0		0.32		0.81					
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L		34										33													
Total organic carbon	mg/L		0.875	J	0.87	J	0.812	J	0.854	J	0.87		0.86		1.83		2.5		0.73		1.14	J				
METALS																										
Antimony	µg/L	6			2	U																				
Manganese	µg/L	14,000																								
VOLATILES																										
1,1-Dichloroethene	µg/L	7	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U		
cis-1,2-Dichloroethene	µg/L	70	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.529	J		
Tetrachloroethene	µg/L	5	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U		
Trichloroethene	µg/L	5	0.89	J	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	49			
Vinyl chloride	µg/L	2	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW09																							
			Sample ID		35BWW09-110717		35BWW09-021318		35BWW09-180327		35BWW09-180521		35BWW09-180816		35BWW09-181119		35BWW09-190213		35BWW09-190521		35BWW09-190805		35BWW09-191126		35BWW09-200511	
			Sample Date		11/7/2017		2/13/2018		3/20/2018		5/21/2018		8/16/2018		11/19/2018		2/13/2019		5/21/2019		8/5/2019		11/26/2019		5/11/2020	
			Sample Event		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 3		Year 2 Quarter 4		Year 3 Semiannual 2		Year 3 Semiannual 2	
			Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual		
ANIONS																										
Bromide	mg/L																									
Chloride	mg/L																									
Fluoride	mg/L																									
Nitrate	mg/L	10																								
Nitrite	mg/L	1																								
Sulfate	mg/L																									
SULFIDE																										
Sulfide	mg/L																									
DHC																										
Dehalococcoides	cells/mL																									
FIELD TESTS																										
Conductivity	mS/cm		0.776		0.926		0.850		0.591		0.534		0.754		0.693		0.638		0.533				0.513			
Dissolved oxygen	mg/L		0.59		0.48		2.09		0		0.61		1.14		1.01		0.05		0.82		0.69		0.4			
Oxidation-Reduction Potential	mV		-38.6		41.9		139.1		355		214		118		273		296		229		195		151			
pH	SU		6.68		7.15		6.33		5.47		6.02		7.07		6.63		5.60		7.39		6.84		7.65			
Temperature	C		19.63		15.12		22.68		19.50		31.29		16.94		18.35		20.88		22.02		19.84		18.38			
Turbidity	NTU		18.5		0		0		0		72.6		0		0		0		3.3		12.8		2.1			
Water Level at Reading Time	Ft BTOC		26.56		26.53		22.68		25.75		26.91		25.8		25		23.05		24.14		26.03		23.86			
GASES																										
Carbon dioxide	µg/L																									
Ethane	µg/L																									
Ethylene	µg/L																									
Methane	µg/L																									
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L																									
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L																									
Total organic carbon	mg/L																									
METALS																										
Antimony	µg/L	6					1	U																		
Manganese	µg/L	14,000																								
VOLATILES																										
1,1-Dichloroethene	µg/L	7	0.84	J	1	U			0.5	U	0.5	U	0.78	J	0.5	U	5.5		0.5	U	0.5	U	0.5	U		
cis-1,2-Dichloroethene	µg/L	70	1.7		1	U			0.96	J	0.84	J	1.9		1.1		1.8		0.5	U	0.5	U	0.5	U		
Tetrachloroethene	µg/L	5	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	41		0.5	U	0.5	U	1	U		
Trichloroethene	µg/L	5	180		180				240		180		580		410		20		70	J	47		42			
Vinyl chloride	µg/L	2	1	U	1	U			0.5	U	0.5	U	0.6	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW10																							
			Sample ID		35BWW10FD-100413		35BWW10-110717		35BWW10-021618		35BWW10-180327		35BWW10-180524		35BWW10-180817		35BWW10-181118		35BWW10-190212		35BWW10-190520		35BWW10-190806			
			Sample Date		10/4/2013		10/4/2013		11/7/2017		2/16/2018		3/27/2018		5/24/2018		8/17/2018		11/18/2018		2/12/2019		5/20/2019		8/6/2019	
			Sample Event		Baseline		Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 3		Year 2 Quarter 4	
			Sample Purpose		REG		FD		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual		
ANIONS																										
Bromide	mg/L																									
Chloride	mg/L																									
Fluoride	mg/L																									
Nitrate	mg/L	10																								
Nitrite	mg/L	1																								
Sulfate	mg/L																									
SULFIDE																										
Sulfide	mg/L																									
DHC																										
Dehalococcoides	cells/mL																									
FIELD TESTS																										
Conductivity	mS/cm		0.309				0.318		0.357		0.354		0.245		0.366		0.365		0.370		0.344		0.293			
Dissolved oxygen	mg/L		1.38				0.69		0.45		0.5		0		1.11		0.58		0.08		0.56		1.57			
Oxidation-Reduction Potential	mV		96				86.2		57.3		118.1		379		208		62.1		312		283		227			
pH	SU		7.24				7.02		7.18		6.53		5.43		7.16		7.24		7.27		5.48		7.26			
Temperature	C		26.2				19.85		20.92		23.12		20.15		26.58		19.33		19.68		23.47		22.07			
Turbidity	NTU		20.2				0		0		0		88.3		277		0		40.7		182		216			
Water Level at Reading Time	Ft BTOC						25.5		24.95		24.28		24.38		25.63		24.34		23.55		21.26		22.92			
GASES																										
Carbon dioxide	µg/L																									
Ethane	µg/L																									
Ethylene	µg/L																									
Methane	µg/L																									
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L																									
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L																									
Total organic carbon	mg/L																									
METALS																										
Antimony	µg/L	6									1	U														
Manganese	µg/L	14,000																								
VOLATILES																										
1,1-Dichloroethene	µg/L	7	1	U	1	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
Tetrachloroethene	µg/L	5	4.45		4.52		31		29				30		24		45		37		5.5		1.6			
Trichloroethene	µg/L	5	56.3		56.9		33		39				36		28		53		50		9.4		2.6			
Vinyl chloride	µg/L	2	0.5	U	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW10				35BWW11																	
			35BWW10-191126		35BWW10-200506		35BWW11-100813		35BWW11-110817		35BWW11-021218		35BWW11-180327		35BWW11-180521		35BWW11-180817		35BWW11-181118		35BWW11-190213		35BWW11-190521	
			11/26/2019		5/6/2020		10/8/2013		11/8/2017		2/12/2018		3/27/2018		5/21/2018		8/17/2018		11/18/2018		2/13/2019		5/21/2019	
			Year 3 Semiannual 2		Year 3 Semiannual 2		Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 3	
			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																								
Bromide	mg/L																							
Chloride	mg/L																							
Fluoride	mg/L																							
Nitrate	mg/L	10																						
Nitrite	mg/L	1																						
Sulfate	mg/L																							
SULFIDE																								
Sulfide	mg/L																							
DHC																								
Dehalococcoides	cells/mL																							
FIELD TESTS																								
Conductivity	mS/cm				0.281		0.518		0.586		0.595		0.471		0.306		0.333		0.446		0.348		0.385	
Dissolved oxygen	mg/L		2.51		1.51		1.3		0.77		0.82		1.31		0		0.48		0.68		0.27		0.05	
Oxidation-Reduction Potential	mV		237		101		-59		93		20.9		195.8		342		170		103.5		358		220	
pH	SU		6.78		6.73		6.44		6.17		6.95		5.68		5.71		6.33		6.44		5.80		5.86	
Temperature	C		20.24		17.72		19.55		17.78		14.99		24.14		23.02		27.66		18.71		17.81		24.08	
Turbidity	NTU		153		116		2.1		66.8		0		0		0		66.7		0		0		0	
Water Level at Reading Time	Ft BTOC		24.69		22.53				24.85		24.55		23.16		22.85		24.69		23.38		21.72		18.76	
GASES																								
Carbon dioxide	µg/L																							
Ethane	µg/L																							
Ethylene	µg/L																							
Methane	µg/L																							
GEN CHEMISTRY																								
Ferrous Iron (Iron II)	mg/L																							
TOTAL ORGANIC CARBON																								
Total Inorganic Carbon	mg/L																							
Total organic carbon	mg/L																							
METALS																								
Antimony	µg/L	6											1	U										
Manganese	µg/L	14,000																						
VOLATILES																								
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	1	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	µg/L	5	0.84	J	1	U	0.252	J	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	0.9	J	0.64	J	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW11								35BWW12													
			35BWW11-190807		35BWW11-191121		35BWW11-200506		35BWW12-100313		35BWW12-110917		35BWW12-021418		35BWW12-180523		35BWW12-180523FD		35BWW12-180822		35BWW12-180822FD		35BWW12-181120	
			8/7/2019		11/21/2019		5/6/2020		10/3/2013		11/9/2017		2/14/2018		5/23/2018		5/23/2018		8/22/2018		8/22/2018		11/20/2018	
			Year 2 Quarter 4		Year 3 Semiannual 2		Year 3 Semiannual 2		Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 3		Year 1 Quarter 4		Year 1 Quarter 4		Year 2 Quarter 1	
			REG		REG		REG		REG		REG		REG		REG		FD		REG		FD		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																								
Bromide	mg/L										0.086	J												
Chloride	mg/L								10.5		10.8		9.3		9.08		9.68		8.4		8.14		8.19	
Fluoride	mg/L										0.159													
Nitrate	mg/L	10							0.2	U	0.161		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.076	J
Nitrite	mg/L	1							0.2	U	0.032	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Sulfate	mg/L								38.5		48.5		46.5		48.7		58.6		47.2		44.8		43.6	
SULFIDE																								
Sulfide	mg/L								1	U	7.56													
DHC																								
Dehalococcoides	cells/mL										0.5	U			3.3								1.3	
FIELD TESTS																								
Conductivity	mS/cm		0.339				0.381		0.322		0.402		0.431		0.277				0.460				0.414	
Dissolved oxygen	mg/L		0.04		0.05		0.08		0.68		0.79		0.51		0				0.25				1.57	
Oxidation-Reduction Potential	mV		216		116		120		119		151		122.8		374				201				140.6	
pH	SU		6.46		6.07		6.17		5.98		6.00		6.39		5.29				5.53				6.37	
Temperature	C		22.21		21.05		19.70		21.72		18.19		17.98		20.41				21.30				18.95	
Turbidity	NTU		0		5.7		22.8		42		0		5.4		729				356				0	
Water Level at Reading Time	Ft BTOC		19.88		23.5		20.37				23.3		22.44		21.55				23.19				21.93	
GASES																								
Carbon dioxide	µg/L										53000		61000	J	700000		570000		320000	J	340000	J		
Ethane	µg/L								2	U	0.076	U	0.6	U	0.47	U	0.47	U	0.47	U	0.47	U	1	U
Ethylene	µg/L								2	U	0.071	U	1	U	0.55	U	0.55	U	0.55	U	0.55	U	2	
Methane	µg/L								2	U	0.91	J	0.52	J	0.83	J	0.8	J	0.73	UB	0.73	UB	1.7	
GEN CHEMISTRY																								
Ferrous Iron (Iron II)	mg/L								0.04	U	0.24		0.26		3.3				0.91				0	
TOTAL ORGANIC CARBON																								
Total Inorganic Carbon	mg/L										47	J												
Total organic carbon	mg/L								3.2		0.669	J	0.812	J	0.985	J	0.969	J	0.754	J	0.851	J	0.89	
METALS																								
Antimony	µg/L	6											2	U										
Manganese	µg/L	14,000																						
VOLATILES																								
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	1	U	15.3		4.8		7.1		6.2		7		7.3		7.6		8.7	
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	2.04		0.62	J	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.92	J
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW12																		35BWW13			
			35BWW12-190213		35BWW12-190213-FD		35BWW12-190521		35BWW12-190521-FD		35BWW12-190805		35BWW12-190805-FD		35BWW12-191125		35BWW12-200506		35BWW12-200506-FD		35BWW13-100713		35BWW13-110717	
			2/13/2019		2/13/2019		5/21/2019		5/21/2019		8/5/2019		8/5/2019		11/25/2019		5/6/2020		5/6/2020		10/7/2013		11/7/2017	
			Year 2 Quarter 2		Year 2 Quarter 2		Year 2 Quarter 3		Year 2 Quarter 3		Year 2 Quarter 4		Year 2 Quarter 4		Year 3 Semiannual 2		Year 3 Semiannual 2		Year 3 Semiannual 2		Baseline		Year 1 Quarter 1	
			REG		FD		REG		FD		REG		FD		REG		REG		FD		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																								
Bromide	mg/L																							
Chloride	mg/L		9.37		9.61		6.61		6.37		5.65		6.1		7.05		7.21		7.23					
Fluoride	mg/L																							
Nitrate	mg/L	10	0.1	U	0.1	U	0.104		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U				
Nitrite	mg/L	1	0.1	U	0.1	U																		
Sulfate	mg/L		49.1		47.8		39.9		38.4		33.8		37.6		37.1		41.2		39.4					
SULFIDE																								
Sulfide	mg/L																							
DHC																								
Dehalococcoides	cells/mL		0.5	U																				
FIELD TESTS																								
Conductivity	mS/cm		0.415				0.353				0.296						0.355				0.113		0.154	
Dissolved oxygen	mg/L		0.1				0.06				0.22				0.03		0.04				1.18		4.59	
Oxidation-Reduction Potential	mV		353				256				205				137		142				230		289.1	
pH	SU		5.60				5.35				6.35				6.17		6.19				5.11		5.27	
Temperature	C		15.27				27.98				24.24				20.18		18.59				18.45		18.43	
Turbidity	NTU		134				134				80.8				158		100				101		4.9	
Water Level at Reading Time	Ft BTOC		20.76				18.02				19.74				21.97		20.53						25.65	
GASES																								
Carbon dioxide	µg/L		570000		640000		590000		580000		140000		140000		73000	J	94000		88000					
Ethane	µg/L		0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U				
Ethylene	µg/L		0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U				
Methane	µg/L		1.2	U	1.3	U	1	U	1	U	1	U	1	U	1	U	0.93	J	0.81	J				
GEN CHEMISTRY																								
Ferrous Iron (Iron II)	mg/L		0.78				3.3				0.78				0.66		0.94							
TOTAL ORGANIC CARBON																								
Total Inorganic Carbon	mg/L		103		132																			
Total organic carbon	mg/L		1.63		2.48		1.27		1.45		0.85		0.92		0.41	J	1.4		1.25					
METALS																								
Antimony	µg/L	6																						
Manganese	µg/L	14,000																						
VOLATILES																								
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Tetrachloroethene	µg/L	5	8		8.2		6.2		5.7		5.8		6.3		5.8		8.5		8.5		4.14		0.99	J
Trichloroethene	µg/L	5	0.91	J	0.88	J	0.55	J	0.53	J	0.5	U	0.53	J	0.55	J	0.61	J	0.72	J	1.84		1	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code Sample ID Sample Date Sample Event Sample Purpose			35BWW13																							
			35BWW13-110717-FD		35BWW13-021318		35BWW13-021318 FD		35BWW13-021318FD		35BWW13-180328		35BWW13-180328-FD		35BWW13-180524		35BWW13-180821		35BWW13-181116		35BWW13-190214		35BWW13-190522			
			11/7/2017		2/13/2018		2/13/2018		2/13/2018		3/28/2018		3/28/2018		5/24/2018		8/21/2018		11/16/2018		2/14/2019		5/22/2019			
			Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 3			
			FD		REG		FD		FD		REG		FD		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual		
ANIONS																										
Bromide	mg/L																									
Chloride	mg/L																									
Fluoride	mg/L																									
Nitrate	mg/L	10																								
Nitrite	mg/L	1																								
Sulfate	mg/L																									
SULFIDE																										
Sulfide	mg/L																									
DHC																										
Dehalococcoides	cells/mL																									
FIELD TESTS																										
Conductivity	mS/cm				0.133						0.141				0.139		0.152		0.136		0.204		0.185			
Dissolved oxygen	mg/L				5.59						4.84				0		0.95		4.08		0.8		0.08			
Oxidation-Reduction Potential	mV				213.1						267				538		376		235.5		433		387			
pH	SU				4.94						4.04				3.77		4.58		5.12		4.26		3.93			
Temperature	C				15.65						17.73				18.40		22.74		18.72		17.29		21.89			
Turbidity	NTU				1.5						0				877		191		0		283		683			
Water Level at Reading Time	Ft BTOC				25.43						24.37				24.25		25.92		25.18		22.99		20.4			
GASES																										
Carbon dioxide	µg/L																									
Ethane	µg/L																									
Ethylene	µg/L																									
Methane	µg/L																									
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L																									
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L																									
Total organic carbon	mg/L																									
METALS																										
Antimony	µg/L	6									1	U	1	U												
Manganese	µg/L	14,000																								
VOLATILES																										
1,1-Dichloroethene	µg/L	7	1	U	1	U	1	U	1	U					0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
cis-1,2-Dichloroethene	µg/L	70	1	U	1	U	1	U	1	U					0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
Tetrachloroethene	µg/L	5	0.84	J	1.9		1.9		1.9						0.5	U	0.5	U	1.1		0.5	U	0.5	U		
Trichloroethene	µg/L	5	1	U	1	U	1	U	1	U					0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
Vinyl chloride	µg/L	2	1	U	1	U	1	U	1	U					0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW13						35BWW14																	
			Sample ID		35BWW13-191125		35BWW13-200507		35BWW14-100913		35BWW14-110717		35BWW14-021518		35BWW14-180522		35BWW14-180822		35BWW14-181120		35BWW14-190212		35BWW14-190521			
			Sample Date		8/6/2019		11/25/2019		5/7/2020		10/9/2013		11/7/2017		2/15/2018		5/22/2018		8/22/2018		11/20/2018		2/12/2019		5/21/2019	
			Sample Event		Year 2 Quarter 4		Year 3 Semiannual 2		Year 3 Semiannual 2		Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 3	
			Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual		
ANIONS																										
Bromide	mg/L										1.09															
Chloride	mg/L								16.3		11.1		11.9		15.6		10		8.74		12.2		18.4			
Fluoride	mg/L										0.476															
Nitrate	mg/L	10							0.2	U	0.1	U	0.533		0.349		0.423		0.451		0.483		0.368			
Nitrite	mg/L	1							0.2	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U				
Sulfate	mg/L								59.5		55.6		54.5		66.7		52.1		46.2		57.1		72.4			
SULFIDE																										
Sulfide	mg/L								1	U	1	U														
DHC																										
Dehalococcoides	cells/mL								0.3	U	0.5	U			0.5				0.1		0.5					
FIELD TESTS																										
Conductivity	mS/cm		0.200				0.204		0.368		0.484		0.440		0.303		0.451		0.409		0.435		0.440			
Dissolved oxygen	mg/L		0.71		3.25		0.08		0.68		0.56		2.7		0		0.25		0.73		0.4		0.16			
Oxidation-Reduction Potential	mV		324		296		315		-52		0.56		105.9		388		245		113.1		327		219			
pH	SU		4.81		4.85		4.59		6.83		7.05		6.76		5.11		5.28		7.0		5.42		6.35			
Temperature	C		25.21		16.63		17.29		20.93		20.00		20.38		22.73		25.74		19.27		16.48		22.15			
Turbidity	NTU		146		141		134		1		0		0		17.9		66.9		0		0		50.7			
Water Level at Reading Time	Ft BTOC		22.23		24.6		21.91				23.46		23.2		22.38		23.89		22.96		21.74		19.54			
GASES																										
Carbon dioxide	µg/L										9400		20000		480000		520000	J			770000		160000			
Ethane	µg/L								2	U	0.076	U	0.6	U	0.47	U	0.47	U	1	U	0.47	U	0.47	U		
Ethylene	µg/L								2	U	0.071	U	1	U	0.55	U	0.55	U	1.31		0.55	U	0.55	U		
Methane	µg/L								83.6		1.3		1.3	U	1	U	2.2	UB	1.48		6.8		1	U		
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L								0.04	U	0.35		0	U	0	U	0	U	0.02		0.67		0.4			
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L										43										137					
Total organic carbon	mg/L								3.84		0.812	J	0.766	J	1.03		0.961	J	0.89		3.25		0.7			
METALS																										
Antimony	µg/L	6											2	U												
Manganese	µg/L	14,000																								
VOLATILES																										
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	57.2		8.4		1	U	5.1		2.2		2.2		5.6		0.5	U		
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	14.3		2.4		1.1		2.6		1.4		0.91	J	2.1		0.66	J		
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	1	U	19		53		44		30		31		37		37		0.5	U		
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	82.8		24		20		23		12		9.1		22		110			
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	5.09		1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW14						35BWW15																	
			Sample ID		35BWW14-190806		35BWW14-191125		35BWW14-200507		35BWW15-131008		35BWW15-110717		35BWW15-021318		35BWW15-180329		35BWW15-180521		35BWW15-180820		35BWW15-181116		35BWW15-181116-FD	
			Sample Date		8/6/2019		11/25/2019		5/7/2020		10/8/2013		11/7/2017		2/13/2018		3/29/2018		5/21/2018		8/20/2018		11/16/2018		11/16/2018	
			Sample Event		Year 2 Quarter 4		Year 3 Semiannual 2		Year 3 Semiannual 2		Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 1	
			Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual		
ANIONS																										
Bromide	mg/L																									
Chloride	mg/L		20.8		16.9		18																			
Fluoride	mg/L																									
Nitrate	mg/L	10	0.357		0.394		0.394																			
Nitrite	mg/L	1																								
Sulfate	mg/L		81.4		72.7		73.7																			
SULFIDE																										
Sulfide	mg/L																									
DHC																										
Dehalococcoides	cells/mL																									
FIELD TESTS																										
Conductivity	mS/cm		0.430				0.440		0.868		0.480		0.519		0.500		0.311		0.431		0.521					
Dissolved oxygen	mg/L		0.05		0.05		0.23		0.82		0.8		0.61		0.46		0		0.47		0.69					
Oxidation-Reduction Potential	mV		158		184		157		-45		226.3		99.3		144.4		328		208		84.3					
pH	SU		6.85		6.07		6.58		6.84		6.74		6.65		6.28		5.42		5.73		6.98					
Temperature	C		23.39		18.98		17.73		21.01		19.09		15.68		20.20		20.37		23.52		19.16					
Turbidity	NTU		37.1		5.1		7		1,000		0		0		0		5.4		22.5		0					
Water Level at Reading Time	Ft BTOC		20.83		27.73		20.65				24.2		24		22.6		23.81		24.26		23.65					
GASES																										
Carbon dioxide	µg/L		42000		31000		29000																			
Ethane	µg/L		0.47	U	0.47	U	0.47	U																		
Ethylene	µg/L		0.55	U	0.55	U	0.55	U																		
Methane	µg/L		4.6		1	U	1	U																		
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L		0.45		0.08		0.29																			
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L																									
Total organic carbon	mg/L		0.93		0.54	J	0.83	J-																		
METALS																										
Antimony	µg/L	6													1	U										
Manganese	µg/L	14,000																								
VOLATILES																										
1,1-Dichloroethene	µg/L	7	4.2		4.6		3.6				4.2		2.2				3.4		1.7		2.6		2.2			
cis-1,2-Dichloroethene	µg/L	70	1.3		1.5		1.2				1.1		1	U			0.5	U	0.5	U	0.68	J	0.5	U		
Tetrachloroethene	µg/L	5	38		38		40				12		12				13		11		11		10			
Trichloroethene	µg/L	5	15		16		14				15		14				13		9.2		12		12			
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U			1	U	1	U			0.5	U	0.5	U	0.63	J	0.63	J		

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW15												35BWW16											
			Sample ID		35BWW15-190214		35BWW15-190522		35BWW15-190807		35BWW15-191122		35BWW15-191122-FD		35BWW15-200507		35BWW16-100713		35BWW16FD-100713		35BWW16-110717		35BWW16-021318		35BWW16-180329	
			Sample Date		2/14/2019		5/22/2019		8/7/2019		11/22/2019		11/22/2019		5/7/2020		10/7/2013		10/7/2013		11/7/2017		2/13/2018		3/29/2018	
			Sample Event		Year 2 Quarter 2		Year 2 Quarter 3		Year 2 Quarter 4		Year 3 Semiannual 1		Year 3 Semiannual 2		Year 3 Semiannual 2		Baseline		Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 2	
			Sample Purpose		REG		REG		REG		REG		FD		REG		REG		FD		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual		
ANIONS																										
Bromide	mg/L																									
Chloride	mg/L																									
Fluoride	mg/L																									
Nitrate	mg/L	10																								
Nitrite	mg/L	1																								
Sulfate	mg/L																									
SULFIDE																										
Sulfide	mg/L																									
DHC																										
Dehalococcoides	cells/mL																									
FIELD TESTS																										
Conductivity	mS/cm		0.389		0.457		0.388						0.405		0.259				0.314		0.320		0.295			
Dissolved oxygen	mg/L		0.05		0.09		0.32		0.49				0.07		1.35				1.74		0.65		0.99			
Oxidation-Reduction Potential	mV		374		323		218		280				168		213				178.3		155.4		201.3			
pH	SU		5.87		5.73		6.69		6.37				6.36		6				6.24		5.71		5.11			
Temperature	C		19.20		21.65		24.68		18.99				17.40		22.42				18.78		15.24		19.75			
Turbidity	NTU		7.4		12.5		152		90.2				44.3		98.9				5.7		0		30.9			
Water Level at Reading Time	Ft BTOC		22.06		20.56		21.41		23.18				21.33						23.7		23.48		22.5			
GASES																										
Carbon dioxide	µg/L																									
Ethane	µg/L																									
Ethylene	µg/L																									
Methane	µg/L																									
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L																									
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L																									
Total organic carbon	mg/L																									
METALS																										
Antimony	µg/L	6																				1	U			
Manganese	µg/L	14,000																								
VOLATILES																										
1,1-Dichloroethene	µg/L	7	1.9		0.5	U	1.1		1.2		1.1		0.87	J	0.865	J	0.846	J	1.1		1	U				
cis-1,2-Dichloroethene	µg/L	70	0.65	J	0.5	U	0.39	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U				
Tetrachloroethene	µg/L	5	12		7.8		9.7		11		11		13		0.447	J	0.447	J	9.2		12					
Trichloroethene	µg/L	5	11		7.1		7.6		7.8		7.6		7.7		2.57		2.45		4.2		5.8					
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U				

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW16																35BWW17					
			35BWW16-180524		35BWW16-180817		35BWW16-181116		35BWW16-190215		35BWW16-190523		35BWW16-190807		35BWW16-191121		35BWW16-200507		35BWW17-131008		35BWW17-110717		35BWW17-021318	
			5/24/2018		8/17/2018		11/16/2018		2/15/2019		5/23/2019		8/7/2019		11/21/2019		5/7/2020		10/8/2013		11/7/2017		2/13/2018	
			Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 3		Year 2 Quarter 4		Year 3 Semiannual 1		Year 3 Semiannual 2		Baseline		Year 1 Quarter 1		Year 1 Quarter 2	
			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																								
Bromide	mg/L																							
Chloride	mg/L																							
Fluoride	mg/L																							
Nitrate	mg/L	10																						
Nitrite	mg/L	1																						
Sulfate	mg/L																							
SULFIDE																								
Sulfide	mg/L																							
DHC																								
Dehalococcoides	cells/mL																							
FIELD TESTS																								
Conductivity	mS/cm		0.183		0.198		0.298		0.296		0.296		0.244				0.259		0.259		0.199		0.234	
Dissolved oxygen	mg/L		0		0.27		0.97		0.08		0.06		0.06		0.23		0.03		0.6		0.64		0.45	
Oxidation-Reduction Potential	mV		491		267		152.3		447		343		189		306		198		142		125.4		201.3	
pH	SU		5.02		5.43		6.13		4.61		5.26		5.91		5.50		5.59		5.67		6.27		5.15	
Temperature	C		23.55		27.97		17.48		16.82		21.27		25.67		18.23		17.61		20.59		19.50		13.93	
Turbidity	NTU		786		600		0		226		164		106		128		126		975		0		0.1	
Water Level at Reading Time	Ft BTOC		22.48		23.91		23.3		21.81		20.4		21.08		22.86		20.95				23		22.93	
GASES																								
Carbon dioxide	µg/L																							
Ethane	µg/L																							
Ethylene	µg/L																							
Methane	µg/L																							
GEN CHEMISTRY																								
Ferrous Iron (Iron II)	mg/L																							
TOTAL ORGANIC CARBON																								
Total Inorganic Carbon	mg/L																							
Total organic carbon	mg/L																							
METALS																								
Antimony	µg/L	6																						
Manganese	µg/L	14,000																						
VOLATILES																								
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	1.5		1		0.5	U	0.79	J	0.75	J	0.61	J			1	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U			1	U	1	U
Tetrachloroethene	µg/L	5	7.8		6.6		15		11		9.5		9.8		8.1		9.9				2.6		7.5	
Trichloroethene	µg/L	5	4		3.3		6.5		4.7		3.6		3.5		3.2		3.3				1.1		2.9	
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U			1	UJ	1	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW17																				35BWW18			
			Sample ID		35BWW17-180329		35BWW17-180524		35BWW17-180821		35BWW17-181116		35BWW17-190214		35BWW17-190221		35BWW17-190523		35BWW17-190807		35BWW17-191121		35BWW17-200507		35BWW18-100213	
			Sample Date		3/29/2018		5/24/2018		8/21/2018		11/16/2018		2/14/2019		2/21/2019		5/22/2019		8/7/2019		11/21/2019		5/7/2020		10/2/2013	
			Sample Event		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 2		Year 2 Quarter 3		Year 2 Quarter 4		Year 3 Semiannual 1		Year 3 Semiannual 2		Baseline	
			Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter		Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	
ANIONS																										
Bromide	mg/L																									
Chloride	mg/L																									
Fluoride	mg/L																									
Nitrate	mg/L	10																								
Nitrite	mg/L	1																								
Sulfate	mg/L																									
SULFIDE																										
Sulfide	mg/L																									
DHC																										
Dehalococcoides	cells/mL																									
FIELD TESTS																										
Conductivity	mS/cm			0.119		0.058		0.085		0.183				0.072		0.080		0.060				0.062		2.42		
Dissolved oxygen	mg/L			1.55		0		1.1		0.44				1.12		0.22		1.25		1.29		0.07		1.05		
Oxidation-Reduction Potential	mV			244.9		540		370		214				410		386		350		385		269		-166		
pH	SU			4.45		3.81		4.74		5.19				4.67		4.08		4.90		5.12		4.98		12.3		
Temperature	C			19.19		19.35		22.37		19.08				18.22		21.02		23.82		18.09		16.76		28.79		
Turbidity	NTU			10.1		812		639		0				359		687		235		216		368		1		
Water Level at Reading Time	Ft BTOC			21.45		21.66		23.35		22.63				20.34		18.2		19.84		22.1		19.42				
GASES																										
Carbon dioxide	µg/L																									
Ethane	µg/L																									
Ethylene	µg/L																									
Methane	µg/L																									
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L																									
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L																									
Total organic carbon	mg/L																									
METALS																										
Antimony	µg/L	6		1	U																					
Manganese	µg/L	14,000																								
VOLATILES																										
1,1-Dichloroethene	µg/L	7				0.5	U	0.5	U	0.5	U	0.5	U			0.5	U	0.5	UJ	0.5	U	0.5	U	1	U	
cis-1,2-Dichloroethene	µg/L	70				0.5	U	0.5	U	0.5	U	0.5	U			0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	
Tetrachloroethene	µg/L	5				0.5	U	0.5	U	5.4		0.5	U			0.5	U	0.5	U	0.5	U	1	U	0.5	U	
Trichloroethene	µg/L	5				0.5	U	0.5	U	1.8		0.5	U			0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	
Vinyl chloride	µg/L	2				0.5	U	0.5	U	0.5	U	0.5	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW18																							
			Sample ID		35BWWU18-100213		35BWW18-110717		35BWW18-021318		35BWW18-180327		35BWW18-180521		35BWW18-180816		35BWW18-181119		35BWW18-190214		35BWW18-190520		35BWW18-190805		35BWW18-191126	
			Sample Date		10/2/2013		11/7/2017		2/13/2018		3/27/2018		5/21/2018		8/16/2018		11/19/2018		2/14/2019		5/20/2019		8/5/2019		11/26/2019	
			Sample Event		Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 3		Year 2 Quarter 4		Year 3 Semiannual 1	
			Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																										
Bromide	mg/L																									
Chloride	mg/L																									
Fluoride	mg/L																									
Nitrate	mg/L	10																								
Nitrite	mg/L	1																								
Sulfate	mg/L																									
SULFIDE																										
Sulfide	mg/L																									
DHC																										
Dehalococcoides	cells/mL																									
FIELD TESTS																										
Conductivity	mS/cm				0.842		0.979		0.842		0.621		0.865		0.787		0.850		0.988		0.735					
Dissolved oxygen	mg/L				1.37		0.93		1.73		0		0.82		1.47		0.09		0.05		1.44		0.88			
Oxidation-Reduction Potential	mV				205.6		125.3		184.1		363		227		151.1		369		263		269		246			
pH	SU				6.04		6.10		5.59		5.40		5.59		6.14		5.61		5.77		6.23		6.28			
Temperature	C				19.36		15.29		22.11		19.08		24.11		17.93		16.89		20.95		20.85		19.88			
Turbidity	NTU				7.3		0		0		312		162		0		1.2		44.9		0		8.3			
Water Level at Reading Time	Ft BTOC				27.88		28.3		27.4		27.24		28.18		27.79		26.63		25.82		25.84		27.17			
GASES																										
Carbon dioxide	µg/L																									
Ethane	µg/L																									
Ethylene	µg/L																									
Methane	µg/L																									
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L																									
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L																									
Total organic carbon	mg/L																									
METALS																										
Antimony	µg/L	6							1	U																
Manganese	µg/L	14,000																								
VOLATILES																										
1,1-Dichloroethene	µg/L	7	1	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	µg/L	5	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW18		35BWW19																					
			Sample ID		35BWW18-200511		35BWW19-100713		35BWW19-110717		35BWW19-021318		35BWW19-180327		35BWW19-180521		35BWW19-180816		35BWW19-181119		35BWW19-190214		35BWW19-190520		35BWW19-190805	
			Sample Date		5/11/2020		10/7/2013		11/7/2017		2/13/2018		3/27/2018		5/21/2018		8/16/2018		11/19/2018		2/14/2019		5/20/2019		8/5/2019	
			Sample Event		Year 3 Semiannual 2		Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 3		Year 2 Quarter 4	
			Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual		
ANIONS																										
Bromide	mg/L																									
Chloride	mg/L																									
Fluoride	mg/L																									
Nitrate	mg/L	10																								
Nitrite	mg/L	1																								
Sulfate	mg/L																									
SULFIDE																										
Sulfide	mg/L																									
DHC																										
Dehalococcoides	cells/mL																									
FIELD TESTS																										
Conductivity	mS/cm		2.29		2.53		2.465		3.035		2.675		2.62		1.36		2.723		2.68		2.58		2.60			
Dissolved oxygen	mg/L		0.37		1.62		0.84		1.34		1.21		0		0.48		1.68		1.08		0.37		1.85			
Oxidation-Reduction Potential	mV		177		138		182		114.9		161.2		345		229		144.6		376		263		258			
pH	SU		6.60		6.23		6.30		6.30		5.73		5.67		6.18		6.48		6.40		5.83		6.65			
Temperature	C		18.67		17.7		19.45		14.24		21.49		19.22		28.08		17.45		16.27		21.68		20.59			
Turbidity	NTU		16.4		9.8		12		0.4		0		111		356		0		5.7		66.9		12.4			
Water Level at Reading Time	Ft BTOC		25.94				27.3		27.76		27.3		26.95		27.77		27.52		26.4		25.89		25.63			
GASES																										
Carbon dioxide	µg/L																									
Ethane	µg/L																									
Ethylene	µg/L																									
Methane	µg/L																									
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L																									
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L																									
Total organic carbon	mg/L																									
METALS																										
Antimony	µg/L	6									1	U														
Manganese	µg/L	14,000																								
VOLATILES																										
1,1-Dichloroethene	µg/L	7	0.5	U	1	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
Tetrachloroethene	µg/L	5	1	U	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
Trichloroethene	µg/L	5	0.5	U	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
Vinyl chloride	µg/L	2	0.5	U	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW19				35BWW20																	
			35BWW19-191126		35BWW19-200511		35BWW20-100413		35BWW20-110817		35BWW20-021218		35BWW20-180327		35BWW20-180524		35BWW20-180820		35BWW20-181118		35BWW20-190213		35BWW20-190522	
			11/26/2019		5/11/2020		10/4/2013		11/8/2017		2/12/2018		3/27/2018		5/24/2018		8/20/2018		11/18/2018		2/13/2019		5/22/2019	
			Year 3 Semiannual 1		Year 3 Semiannual 2		Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 3	
			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																								
Bromide	mg/L																							
Chloride	mg/L																							
Fluoride	mg/L																							
Nitrate	mg/L	10																						
Nitrite	mg/L	1																						
Sulfate	mg/L																							
SULFIDE																								
Sulfide	mg/L																							
DHC																								
Dehalococcoides	cells/mL																							
FIELD TESTS																								
Conductivity	mS/cm				2.76		0.378		0.328		0.413		0.366		0.240		0.372		0.376		0.331		0.308	
Dissolved oxygen	mg/L		0.84		1.19		1.65		2.15		3.49		3.97		0.93		1.03		3.52		2.08		1.24	
Oxidation-Reduction Potential	mV		231		183		170		136.7		94.3		190.7		366		238		130.1		231		285	
pH	SU		6.37		6.62		5.23		6.70		7.09		5.82		5.66		7.13		6.85		6.91		5.65	
Temperature	C		19.46		18.95		23.28		19.30		16.04		23.72		21.60		28.86		20.71		20.79		22.88	
Turbidity	NTU		139		145		35.9		25		20.3		24.1		272		648		0		166		92.8	
Water Level at Reading Time	Ft BTOC		26.74		25.87				27.05		26.6		25.78		25.65		27.04		25.93		24.72		22.21	
GASES																								
Carbon dioxide	µg/L																							
Ethane	µg/L																							
Ethylene	µg/L																							
Methane	µg/L																							
GEN CHEMISTRY																								
Ferrous Iron (Iron II)	mg/L																							
TOTAL ORGANIC CARBON																								
Total Inorganic Carbon	mg/L																							
Total organic carbon	mg/L																							
METALS																								
Antimony	µg/L	6											1	U										
Manganese	µg/L	14,000																						
VOLATILES																								
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	1	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	µg/L	5	0.5	U	1	U	31.1		25		34				29		19		34		34		12	
Trichloroethene	µg/L	5	0.5	U	0.5	U	7.04		4.7		5.7				6.3		3.6		6.4		6		2.8	
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	1	U	1	U			0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code Sample ID Sample Date Sample Event Sample Purpose			35BWW20										35BWW23											
			35BWW20-190522-FD	35BWW20-190806		35BWW20-190806-FD	35BMW20-191122		35BWW20-200511		35BWW23-070114		35BWW23-110917		35BWW23-021518		35BWW23-180522		35BWW23-180822		35BWW23-181120			
			5/22/2019	8/6/2019		8/6/2019	11/22/2019		5/11/2020		7/1/2014		11/9/2017		2/15/2018		5/22/2018		8/22/2018		11/20/2018			
			Year 2 Quarter 3	Year 2 Quarter 4		Year 2 Quarter 4					Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1			
			FD	REG		FD	REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																								
Bromide	mg/L														0.469									
Chloride	mg/L														89.8		71.1		68.2		58.1		54.5	
Fluoride	mg/L														0.184									
Nitrate	mg/L	10													0.1	U	0.1	U	0.1	U	0.104		0.081	J
Nitrite	mg/L	1													0.1	U	0.155		0.1	U	0.1	U	0.1	U
Sulfate	mg/L														123		112		116		102		99.7	
SULFIDE																								
Sulfide	mg/L														1	U								
DHC																								
Dehalococcoides	cells/mL														2.2				0.5				0.4	J
FIELD TESTS																								
Conductivity	mS/cm				0.175						0.250				0.891		0.782		0.466		0.653		0.670	
Dissolved oxygen	mg/L				3.72				1.88		3.26				4.24		2.83		0		0.59		1.47	
Oxidation-Reduction Potential	mV				264				281		190				153.1		110.5		393		261		150.6	
pH	SU				6.20				6.47		6.37		6.37		6.45		6.42		5.19		5.35		6.41	
Temperature	C				22.40				20.62		18.53				17.40		21.00		23.14		28.91		15.92	
Turbidity	NTU				321				437		188		1.7		0		0		0		3.7		0	
Water Level at Reading Time	Ft BTOC				23.92				26.01		23.29				28.88		28.75		27.86		29.09		29.18	
GASES																								
Carbon dioxide	µg/L														50000		63000		480000		500000	J		
Ethane	µg/L														0.076	U	0.6	U	0.47	U	0.47	U	0.859	J
Ethylene	µg/L														0.071	U	1	U	0.55	U	0.55	U	1.7	
Methane	µg/L														0.9	J	1.3	U	1	U	1	U	2.65	
GEN CHEMISTRY																								
Ferrous Iron (Iron II)	mg/L														0.16		0.01		0	U	0	U	0.01	
TOTAL ORGANIC CARBON																								
Total Inorganic Carbon	mg/L														41									
Total organic carbon	mg/L														1.05		0.946	J	1.19		1.16		1	
METALS																								
Antimony	µg/L	6															2	U						
Manganese	µg/L	14,000																						
VOLATILES																								
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	µg/L	5	12		7.5		7.6		15		12		0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	2.9		2.1		2		3.1		2.9		0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW23										35BWW24											
			35BWW23-190212		35BWW23-190521		35BWW23-190806		35BWW23-191125		35BWW23-200507		35BWW24-081916		35BWW24-110817		35BWW24-021618		35BWW24-180328		35BWW24-180524		35BWW24-180821	
			2/12/2019		5/21/2019		8/6/2019		11/25/2019		5/7/2020		8/19/2016		11/8/2017		2/16/2018		3/28/2018		5/24/2018		8/21/2018	
			Year 2 Quarter 2		Year 2 Quarter 3		Year 2 Quarter 4						Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4	
			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																								
Bromide	mg/L																							
Chloride	mg/L		55.6		39.8		31.7		28.1		21.1													
Fluoride	mg/L																							
Nitrate	mg/L	10	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U												
Nitrite	mg/L	1	0.1	U																				
Sulfate	mg/L		96		88.1		86.3		85.9		83.8													
SULFIDE																								
Sulfide	mg/L																							
DHC																								
Dehalococcoides	cells/mL		0.3	J																				
FIELD TESTS																								
Conductivity	mS/cm		0.667		0.516		0.476				0.466				1.717		1.572		1.490		1.01		1.50	
Dissolved oxygen	mg/L		0.71		0.06		1.13		1.31		1.83				2.18		1.51		2.95		0		0.37	
Oxidation-Reduction Potential	mV		325		293		228		222		191				246.9		109.4		164.7		424		250	
pH	SU		5.38		5.24		6.63		6.11		6.39		5.3		6.49		6.35		5.53		5.31		5.69	
Temperature	C		15.56		23.98		24.69		18.50		19.28				16.40		19.99		18.36		20.52		23.33	
Turbidity	NTU		0		22.1		18.1		1.6		7.9		9.1		9.8		6.7		0		114		48	
Water Level at Reading Time	Ft BTOC		27.8		26.82		26.73		28.02		27.04				30.14		30.15		29.61		28.85		30.02	
GASES																								
Carbon dioxide	µg/L		740000		730000		73000		69000		42000													
Ethane	µg/L		0.47	U	0.47	U	0.47	U	0.47	U	0.47	U												
Ethylene	µg/L		0.55	U	0.55		0.55	U	0.55	U	0.55	U												
Methane	µg/L		1	U	1	U	1	U	1	U	1	U												
GEN CHEMISTRY																								
Ferrous Iron (Iron II)	mg/L		0.07		0.19		1.04		0.06		0.55													
TOTAL ORGANIC CARBON																								
Total Inorganic Carbon	mg/L		141																					
Total organic carbon	mg/L		1.47		1.59		0.94		0.47	J	0.52													
METALS																								
Antimony	µg/L	6																	1	U				
Manganese	µg/L	14,000																						
VOLATILES																								
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U			0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U			0.5	U	0.5	U
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U			0.5	U	0.5	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.415	J	1	U	1	U			0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U			0.5	U	0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW24												35BWW25											
			Sample ID		35BWW24-181116		35BWW24-190215		35BWW24-190522		35BWW24-190807		35BWW24-191125		35BWW24-200507		35BWW25-081916		35BWW25FD-081916		35BWW25-110817		35BWW25-110817-FD		35BWW25-021618	
			Sample Date		11/16/2018		2/15/2019		5/22/2019		8/7/2019		11/25/2019		5/7/2020		8/19/2016		8/19/2016		11/8/2017		11/8/2017		2/16/2018	
			Sample Event		Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 3		Year 2 Quarter 4						Baseline		Baseline		Year 1 Quarter 1		Year 1 Quarter 1		Year 1 Quarter 2	
			Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		FD	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual		
ANIONS																										
Bromide	mg/L																									
Chloride	mg/L																									
Fluoride	mg/L																									
Nitrate	mg/L	10																								
Nitrite	mg/L	1																								
Sulfate	mg/L																									
SULFIDE																										
Sulfide	mg/L																									
DHC																										
Dehalococcoides	cells/mL																									
FIELD TESTS																										
Conductivity	mS/cm		1.483		1.47		1.46		1.43				1.44						0.974				0.865			
Dissolved oxygen	mg/L		1.69		0.55		1.24		2.23		1.48		3.37					2.32				0.92				
Oxidation-Reduction Potential	mV		88.9		309		2.86		238		232		182					239.2				116.9				
pH	SU		6.09		5.45		6.0		6.47		6.0		6.45		4.81			6.42				6.28				
Temperature	C		15.00		17.00		23.40		21.61		18.49		18.77					18.41				19.21				
Turbidity	NTU		0		3.8		0		16.3		7.5		8.5		20.7			0				0				
Water Level at Reading Time	Ft BTOC		30.18		28.54		27.77		27.69		29.02		27.99					27.27				27.73				
GASES																										
Carbon dioxide	µg/L																									
Ethane	µg/L																									
Ethylene	µg/L																									
Methane	µg/L																									
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L																									
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L																									
Total organic carbon	mg/L																									
METALS																										
Antimony	µg/L	6																								
Manganese	µg/L	14,000																								
VOLATILES																										
1,1-Dichloroethene	µg/L	7	0.67	J	0.5	U	0.5	U	0.5	U	0.5	U	0.54	J	1	U	1	U	1	U	1	U	1	U		
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U		
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	1	U	1	U	1	U		
Trichloroethene	µg/L	5	2.9		2.6		1.1		1.7		1.8		2.3		5.55		5.94		7.6		7.5		11			
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U		

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code Sample ID Sample Date Sample Event Sample Purpose			35BWW25																							
			35BWW25-021618-FD		35BWW25-180328		35BWW25-180328-FD		35BWW25-180523		35BWW25-180523FD		35BWW25-180820		35BWW25-180820-FD		35BWW25-181116		35BWW25-190215		35BWW25-190215-FD		35BWW25-190522			
			2/16/2018		3/28/2018		3/28/2018		5/23/2018		5/23/2018		8/20/2018		8/20/2018		11/16/2018		2/15/2019		2/15/2019		5/22/2019			
			Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 3		Year 1 Quarter 4		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 2		Year 2 Quarter 3			
			FD		REG		FD		REG		FD		REG		FD		REG		REG		REG		FD		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual		
ANIONS																										
Bromide	mg/L																									
Chloride	mg/L																									
Fluoride	mg/L																									
Nitrate	mg/L	10																								
Nitrite	mg/L	1																								
Sulfate	mg/L																									
SULFIDE																										
Sulfide	mg/L																									
DHC																										
Dehalococcoides	cells/mL																									
FIELD TESTS																										
Conductivity	mS/cm				0.829				0.563				0.697				0.816		0.705				0.746			
Dissolved oxygen	mg/L				2.38				0				0.36				0.97		0.16				0.82			
Oxidation-Reduction Potential	mV				167.9				383				222				168.5		332				297			
pH	SU				5.51				5.34				5.93				6.23		5.30				5.56			
Temperature	C				17.44				20.81				29.33				15.71		16.92				22.70			
Turbidity	NTU				0				2.5				43.9				0		2				0			
Water Level at Reading Time	Ft BTOC				26.6				26.5				27.53				27.6		26.04				25.46			
GASES																										
Carbon dioxide	µg/L																									
Ethane	µg/L																									
Ethylene	µg/L																									
Methane	µg/L																									
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L																									
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L																									
Total organic carbon	mg/L																									
METALS																										
Antimony	µg/L	6			1	U	1	U																		
Manganese	µg/L	14,000																								
VOLATILES																										
1,1-Dichloroethene	µg/L	7	1	U					0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
cis-1,2-Dichloroethene	µg/L	70	1	U					0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
Tetrachloroethene	µg/L	5	1	U					0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
Trichloroethene	µg/L	5	11						5.5		5.1		5.3		5.3		19		14		14		6.3			
Vinyl chloride	µg/L	2	1	U					0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW25								35BWW26															
			Sample ID		35BWW25-190807		35BWW25-191122		35BWW25-191122-FD		35BWW25-200507		35BWW26-081716		35BWW26-110917		35BWW26-021418		35BWW26-180522		35BWW26-180822		35BWW26-181120		35BWW26-190212	
			Sample Date		8/7/2019		11/22/2019		11/22/2019		5/7/2020		8/17/2016		11/9/2017		2/14/2018		5/22/2018		8/22/2018		11/20/2018		2/12/2019	
			Sample Event		Year 2 Quarter 4								Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1		Year 2 Quarter 2	
			Sample Purpose		REG		REG		FD		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual		
ANIONS																										
Bromide	mg/L												0.169													
Chloride	mg/L										30.2		29.6		30.2		32.2		30.3		30.2		33			
Fluoride	mg/L												0.295													
Nitrate	mg/L	10									0.2	U	0.12		0.1	U	0.093	J	0.036	J	0.086	J	0.146			
Nitrite	mg/L	1									0.2	U	0.033	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U		
Sulfate	mg/L										28.7		30.2		30.3		31.6		27.6		27.1		30.3			
SULFIDE																										
Sulfide	mg/L										1	U	1	U												
DHC																										
Dehalococcoides	cells/mL												2.2				0.5				0.4	J	2.3			
FIELD TESTS																										
Conductivity	mS/cm		0.749						0.762				0.327		0.312		0.222		0.330		0.318		0.330			
Dissolved oxygen	mg/L		0.85		0.76				2.55				1.02		1.78		0		0.42		1.95		0.27			
Oxidation-Reduction Potential	mV		253		308				173				169.6		139.8		418		277		159.6		339			
pH	SU		6.34		5.94				6.53		4.47		6.21		6.1		4.83		4.89		5.87		5.44			
Temperature	C		21.94		18.70				19.65				19.80		17.65		20.62		21.56		18.56		17.83			
Turbidity	NTU		0		5.6				8.1		0		0		0		0		0		0		0			
Water Level at Reading Time	Ft BTOC		25.5		26.76				25.58				28.85		28.15		27.19		28.32		28.31		26.77			
GASES																										
Carbon dioxide	µg/L										417000		57000		57000		490000		450000	J			630000			
Ethane	µg/L										2	U	0.076	U	0.6	U	0.47	U	0.47	U	1	U	0.47	U		
Ethylene	µg/L										2	U	0.071	U	1	U	0.55	U	0.55	U	2.35		0.55	U		
Methane	µg/L										2	U	0.3	U	1.3	U	1	U	1	U	2.16		1	U		
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L										0.04	U	0.03		0	U	0	U	0	U	0.03		0			
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L												28										112			
Total organic carbon	mg/L										18.2		0.861	J	0.762	J	1.08		0.865	J	0.94		2.81			
METALS																										
Antimony	µg/L	6													2	U										
Manganese	µg/L	14,000																								
VOLATILES																										
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U		
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U		
Tetrachloroethene	µg/L	5	0.33	J	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U		
Trichloroethene	µg/L	5	15		13		13		13		0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U		
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U		

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code			35BWW26								LHSMW58															
			Sample ID		35BWW26-190520		35BWW26-190806		35BWW26-191121		35BWW26-200506		LHSMW58-100313		LHSMW58-110817		LHSMW58-021218		LHSMW58-180327		LHSMW58-180524		LHSMW58-180820		LHSMW58-181118	
			Sample Date		5/20/2019		8/6/2019		11/21/2019		5/6/2020		10/3/2013		11/8/2017		2/12/2018		3/27/2018		5/24/2018		8/20/2018		11/18/2018	
			Sample Event		Year 2 Quarter 3		Year 2 Quarter 4		Year 2 Semiannual 1		Year 2 Semiannual 2		Baseline		Year 1 Quarter 1		Year 1 Quarter 2		Year 1 Quarter 2		Year 1 Quarter 3		Year 1 Quarter 4		Year 2 Quarter 1	
			Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual		
ANIONS																										
Bromide	mg/L																									
Chloride	mg/L		30.2		29.3		30.6		31		9.83															
Fluoride	mg/L																									
Nitrate	mg/L	10	0.126		0.1	U	0.0743	J	0.133		2.32															
Nitrite	mg/L	1									0.2	U														
Sulfate	mg/L		25.7		24.5		26		25.3		34.9															
SULFIDE																										
Sulfide	mg/L										1	U														
DHC																										
Dehalococcoides	cells/mL																									
FIELD TESTS																										
Conductivity	mS/cm		0.290		0.264				0.280				0.24		0.241		0.203		0.148		0.257		0.233			
Dissolved oxygen	mg/L		0.69		0.31		0.13		0.35				2.6		5.8		6.5		2.45		1.37		5.01			
Oxidation-Reduction Potential	mV		306		202		301		180				138.8		96.5		213		386		228		143.9			
pH	SU		5.06		5.95		5.87		5.83				5.98		6.75		5.64		5.14		5.43		6.63			
Temperature	C		22.25		22.63		20.73		19.28				17.7		15.86		22.76		20.74		25.78		19.56			
Turbidity	NTU		0		0		6.7		2.7				0		0		0		0		42.3		0			
Water Level at Reading Time	Ft BTOC		25.57		25.82		27.31		26				25.2		24.95		24		24.05		25.43		24.24			
GASES																										
Carbon dioxide	µg/L		580000		140000		100000	J	87000																	
Ethane	µg/L		0.47	U	0.47	U	0.47	U	0.47	U	2	U														
Ethylene	µg/L		0.55	U	0.55	U	0.55	U	0.55	U	2	U														
Methane	µg/L		1	U	1	U	1	U	1	U	3.1	J														
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L		0.4		0.19		0.05		0.67		0.04	U														
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L										53.9															
Total organic carbon	mg/L		1.82		0.56		0.44	J	2.14	J	4.43															
METALS																										
Antimony	µg/L	6															1	U								
Manganese	µg/L	14,000																								
VOLATILES																										
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	0.5	U			0.5	U	0.5	U	0.5	U		
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U			0.5	U	0.5	U	0.5	U		
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	1	U	20.3		20		14				12		26		26			
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	4.26		1.6		0.5	U			1.4		2.2		1.8			
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U			0.5	U	0.5	U	0.5	U		

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2020

Location Code Sample ID Sample Date Sample Event Sample Purpose			LHSMW58											
			LHSMW58-181118-FD		LHSMW58-190213		LHSMW58-190522		LHSMW58-190807		LHSMW58-191122		LHSMW58-200511	
			11/18/2018		2/13/2019		5/22/2019		8/7/2019		11/22/2019		5/11/2020	
			Year 2 Quarter 1		Year 2 Quarter 2		Year 2 Quarter 3		Year 2 Quarter 4		Year 2 Semiannual 1		Year 2 Semiannual 2	
			FD		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS														
Bromide	mg/L													
Chloride	mg/L													
Fluoride	mg/L													
Nitrate	mg/L	10												
Nitrite	mg/L	1												
Sulfate	mg/L													
SULFIDE														
Sulfide	mg/L													
DHC														
Dehalococcoides	cells/mL													
FIELD TESTS														
Conductivity	mS/cm				0.200		0.235		0.240				0.219	
Dissolved oxygen	mg/L				6.26		3.25		4.88		5.11		3.02	
Oxidation-Reduction Potential	mV				355		302		223		278		207	
pH	SU				7.02		5.39		6.76		6.63		6.22	
Temperature	C				16.40		21.96		22.29		19.56		17.95	
Turbidity	NTU				1		0		0		5.5		6.3	
Water Level at Reading Time	Ft BTOC				23.22		20.45		22.36		24.45		21.72	
GASES														
Carbon dioxide	µg/L													
Ethane	µg/L													
Ethylene	µg/L													
Methane	µg/L													
GEN CHEMISTRY														
Ferrous Iron (Iron II)	mg/L													
TOTAL ORGANIC CARBON														
Total Inorganic Carbon	mg/L													
Total organic carbon	mg/L													
METALS														
Antimony	µg/L	6												
Manganese	µg/L	14,000												
VOLATILES														
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U
Tetrachloroethene	µg/L	5	25		6.1		3.6		6.8		4.2		14	
Trichloroethene	µg/L	5	1.8		0.5	U	0.5	U	0.59	J	0.5	U	0.88	J
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2019

Notes:

Bold and highlighted values indicate result exceeds the MCL.

µg/L - micrograms per liter

C - degrees Celsius

J - The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.

U - Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

UJ - The analyte was analyzed for, but not detected above the established reporting limit. However, review and evaluation of supporting QC data have indicated that the “non-detect” may be inaccurate or imprecise. The non-detect result should be estimated.

cells/mL - cells per milliliter

DHC - Dehalococcoides

Ft BTOC - feet below top of casing

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

ID - identifier

MCL - maximum contaminant level

mg/L - milligrams per Liter

mS/cm - millisiemens per centimeter

mV - millivolts

NTU - nephelometric turbidity unit

REG - regular sample

SIM - selected ion monitoring

SU - standard unit

SVOC - semivolatile organic compound

ValQual - validation qualifier

VOC - volatile organic compound

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BSW01								35BSW02								35BWW01	
			35BSW01-101713		35BSW01-021218		35BSW01-181116		35BSW01-200511		35BSW02-101713		35BSW02-021218		35BSW02-181116		35BSW02-200511		35BWW01-981108	
			10/17/2013		2/12/2018		11/16/2018		5/11/2020		10/17/2013		2/12/2018		11/16/2018		5/11/2020		11/8/1998	
			Surface Water Location, Upgradient		Surface Water Location, Upgradient		Surface Water Location, Upgradient		Surface Water Location, Upgradient		Surface Water Location, Downgradient		Surface Water Location, Downgradient		Surface Water Location, Downgradient		Surface Water Location, Downgradient		Shallow zone, unimpacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	1	U	1	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,1-Dichloroethene	µg/L	7	1	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW01																	
			35BWW01-040910		35BWW01-060810		35BWW01-061217		35BWW01-081916		35BWW01-110817		35BWW01-021418		35BWW01-180524		35BWW01-180524FD		35BWW01-180816	
			9/10/2004		8/10/2006		12/17/2006		8/19/2016		11/8/2017		2/14/2018		5/24/2018		5/24/2018		8/16/2018	
			Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	5	U	5	U	5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	5	U	5	U	5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	5	U	5	U	5	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	5	U	10	U	10	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	5	U	10	U	10	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW01																	
			35BWW01-180816-FD		35BWW01-181115		35BWW01-190212		35BWW01-190212-FD		35BWW01-190520		35BWW01-190520-FD		35BWW01-190805		35BWW01-190805-FD		35BWW01-191121	
			8/16/2018		11/15/2018		2/12/2019		2/12/2019		5/20/2019		5/20/2019		8/5/2019		8/5/2019		11/21/2019	
			Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW01				35BWW02				35BWW03									
			35BWW01-200506		35BWW01-200506-FD		35BWW02-981105FD		35BWW02-981108		35BWW03-040910		35BWW03-060809		35BWW03-060809FD		35BWW03-061216		35BWW03-100513	
			5/6/2020		5/6/2020		11/5/1998		11/8/1998		9/10/2004		8/9/2006		8/9/2006		12/16/2006		10/5/2013	
			Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary						Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	1	U	1	U	1	U	1	U	5	U	5	U	5	U	5	U	0.5	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	0.5	U
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	1	U	1	U	5	U	10	U	10	U	10	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	1	U	1	U	5	U	10	U	10	U	10	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW03				35BWW04													
			35BWW03-081816		35BWW03FD-081816		35BWW04-061216		35BWW04-100313		35BWW04-081716		35BWW04-110917		35BWW04-110917-FD		35BWW04-021418		35BWW04-021418-FD	
			8/18/2016		8/18/2016		12/16/2006		10/3/2013		8/17/2016		11/9/2017		11/9/2017		2/14/2018		2/14/2018	
			Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	30.1		66.5	J	6.1		7.3		8.2		10		10	
Trichloroethene	µg/L	5	0.5	U	0.5	U	10.8		11.4	J	0.786	J	1		1.1		1.3		1.2	
1,1-Dichloroethene	µg/L	7	1	U	1	U	3.34	J	2.3	J	1	U	1	U	1	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.846	J	0.673	J	0.5	U	1	U	1	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	10	U	0.5	U	0.5	U	1	U	1	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW04																	
			35BWW04-180522		35BWW04-180822		35BWW04-181120		35BWW04-181120-FD		35BWW04-190213		35BWW04-190520		35BWW04-190805		35BWW04-191121		35BWW04-191121-FD	
			5/22/2018		8/22/2018		11/20/2018		11/20/2018		2/13/2019		5/20/2019		8/5/2019		11/21/2019		11/21/2019	
			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	5.3		2.2		6.3		5.3		5.3		4.7		7.9		8.3		7.7	
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.95	J	0.73	J	0.59	J	0.58	J	0.93	J	0.93	J	0.93	J
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW04		35BWW05															
			35BWW04-200506		35BWW05-061214		35BWW05-100413		35BWW05-081816		35BWW05-110817		35BWW05-021618		35BWW05-180521		35BWW05-180821		35BWW05-181118	
			5/6/2020		12/14/2006		10/4/2013		8/18/2016		11/8/2017		2/16/2018		5/21/2018		8/21/2018		11/18/2018	
			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	6.4		1	J	1.57		1.25		1.5		2.8		2		1.7		2.7	
Trichloroethene	µg/L	5	0.71	J	12.9		14		8.87		7		10		8.5		7.3		12	
1,1-Dichloroethene	µg/L	7	0.5	U	5	U	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	10	U	0.295	J	0.497	J	1	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	10	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW05										35BWW06							
			35BWW05-190213		35BWW05-190521		35BWW05-190806		35BWW05-191125		35BWW05-200506		35BWW06-061214		35BWW06-100413		35BWW06-081816		35BWW06FD-081816	
			2/13/2019		5/21/2019		8/6/2019		11/25/2019		5/6/2020		12/14/2006		10/4/2013		8/18/2016		8/18/2016	
			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Lower shallow zone, unimpacted, within site boundary		Lower shallow zone, unimpacted, within site boundary		Lower shallow zone, unimpacted, within site boundary		Lower shallow zone, unimpacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	1.9		1.1		1.9		1.4		2.4		5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	9.6		5.5		8.6		6		7.3		5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	5	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	10	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	10	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW06										35BWW07							
			35BWW06-110817		35BWW06-021618		35BWW06-180521		35BWW06-180821		35BWW06-181118		35BWW07-091407		35BWW07-100513		35BWW07-081916		35BWW07-110917	
			11/8/2017		2/16/2018		5/21/2018		8/21/2018		11/18/2018		9/14/2007		10/5/2013		8/19/2016		11/9/2017	
			Lower shallow zone, unimpacted, within site boundary		Lower shallow zone, unimpacted, within site boundary		Lower shallow zone, unimpacted, within site boundary		Lower shallow zone, unimpacted, within site boundary		Lower shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	1	U	0.5	U	0.5	U	0.5	U	0.5	U	1		0.5	U	0.5	U	1	U
Trichloroethene	µg/L	5	1	U	0.5	U	0.5	U	0.5	U	0.5	U	1		0.5	U	0.5	U	1	U
1,1-Dichloroethene	µg/L	7	1	U	0.5	U	0.5	U	0.5	U	0.5	U	1		1	U	1	U	1	U
cis-1,2-Dichloroethene	µg/L	70	1	U	0.5	U	0.5	U	0.5	U	0.5	U	1		0.5	U	0.5	U	1	U
Vinyl chloride	µg/L	2	1	U	0.5	U	0.5	U	0.5	U	0.5	U	1		0.5	U	0.5	U	1	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW07																	
			35BWW07-021318		35BWW07-180523		35BWW07-180820		35BWW07-181118		35BWW07-190214		35BWW07-190522		35BWW07-190805		35BWW07-191125		35BWW07-200511	
			2/13/2018		5/23/2018		8/20/2018		11/18/2018		2/14/2019		5/22/2019		8/5/2019		11/25/2019		5/11/2020	
			Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW08																	
			35BWW08-091407		35BWW08-091407FD		35BWW08-100913		35BWW08-081716		35BWW08-110717		35BWW08-021418		35BWW08-180523		35BWW08-180822		35BWW08-181120	
			9/14/2007		9/14/2007		10/9/2013		8/17/2016		11/7/2017		2/14/2018		5/23/2018		8/22/2018		11/20/2018	
			Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.981	J	0.955	J	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	150		151		43.8		1.01		0.89	J	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	1		1		1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.407		0.388	J	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	1		1		0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW08										35BWW09							
			35BWW08-190212		35BWW08-190520		35BWW08-190805		35BWW08-191121		35BWW08-200506		35BWW09-100813		35BWW09-081616		35BWW09-110717		35BWW09-021318	
			2/12/2019		5/20/2019		8/5/2019		11/21/2019		5/6/2020		10/8/2013		8/16/2016		11/7/2017		2/13/2018	
			Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	1	U	0.5	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	49		149		180		180	
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	0.84	J	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.529	J	0.759	J	1.7		0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW09																35BWW10	
			35BWW09-180521		35BWW09-180816		35BWW09-181119		35BWW09-190213		35BWW09-190521		35BWW09-190805		35BWW09-191126		35BWW09-200511		35BWW10-100413	
			5/21/2018		8/16/2018		11/19/2018		2/13/2019		5/21/2019		8/5/2019		11/26/2019		5/11/2020		10/4/2013	
			Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	41		0.5	U	0.5	U	1	U	4.45	
Trichloroethene	µg/L	5	240		180		580		410		20		70	J	47		42		56.3	
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.78	J	0.5	U	5.5		0.5	U	0.5	U	0.5	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.96	J	0.84	J	1.9		1.1		1.8		0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.6	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW10																	
			35BWW10FD-100413		35BWW10-081816		35BWW10-110717		35BWW10-021618		35BWW10-180524		35BWW10-180817		35BWW10-181118		35BWW10-190212		35BWW10-190520	
			10/4/2013		8/18/2016		11/7/2017		2/16/2018		5/24/2018		8/17/2018		11/18/2018		2/12/2019		5/20/2019	
			Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	4.52		21		31		29		30		24		45		37		5.5	
Trichloroethene	µg/L	5	56.9		23.9		33		39		36		28		53		50		9.4	
1,1-Dichloroethene	µg/L	7	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW10						35BWW11											
			35BWW10-190806		35BWW10-191126		35BWW10-200506		35BWW11-100813		35BWW11-081816		35BWW11-110817		35BWW11-021218		35BWW11-180521		35BWW11-180817	
			8/6/2019		11/26/2019		5/6/2020		10/8/2013		8/18/2016		11/8/2017		2/12/2018		5/21/2018		8/17/2018	
			Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	1.6		0.84	J	1	U	0.252	J	0.798	J	1	U	0.5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	2.6		0.9	J	0.64	J	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW11												35BWW12					
			35BWW11-181118		35BWW11-190213		35BWW11-190521		35BWW11-190807		35BWW11-191121		35BWW11-200506		35BWW12-100313		35BWW12-081716		35BWW12-110917	
			11/18/2018		2/13/2019		5/21/2019		8/7/2019		11/21/2019		5/6/2020		10/3/2013		8/17/2016		11/9/2017	
			Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	15.3		4.06		4.8	
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	2.04		0.473	J	0.62	J
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW12																	
			35BWW12-021418		35BWW12-180523		35BWW12-180523FD		35BWW12-180822		35BWW12-180822FD		35BWW12-181120		35BWW12-190213		35BWW12-190213-FD		35BWW12-190521	
			2/14/2018		5/23/2018		5/23/2018		8/22/2018		8/22/2018		11/20/2018		2/13/2019		2/13/2019		5/21/2019	
			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	7.1		6.2		7		7.3		7.6		8.7		8		8.2		6.2	
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.92	J	0.91	J	0.88	J	0.55	J
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW12												35BWW13					
			35BWW12-190521-FD		35BWW12-190805		35BWW12-190805-FD		35BWW12-191125		35BWW12-200506		35BWW12-200506-FD		35BWW13-100713		35BWW13-081916		35BWW13-110717	
			5/21/2019		8/5/2019		8/5/2019		11/25/2019		5/6/2020		5/6/2020		10/7/2013		8/19/2016		11/7/2017	
			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	5.7		5.8		6.3		5.8		8.5		8.5		4.14		0.5	U	0.99	J
Trichloroethene	µg/L	5	0.53	J	0.5	U	0.53	J	0.55	J	0.61	J	0.72	J	1.84		0.5	U	1	U
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW13																	
			35BWW13-110717-FD		35BWW13-021318		35BWW13-021318 FD		35BWW13-021318FD		35BWW13-180524		35BWW13-180821		35BWW13-181116		35BWW13-190214		35BWW13-190522	
			11/7/2017		2/13/2018		2/13/2018		2/13/2018		5/24/2018		8/21/2018		11/16/2018		2/14/2019		5/22/2019	
			Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.84	J	1.9		1.9		1.9		0.5	U	0.5	U	1.1		0.5	U	0.5	U
Trichloroethene	µg/L	5	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW13						35BWW14											
			35BWW13-190806		35BWW13-191125		35BWW13-200507		35BWW14-100913		35BWW14-081716		35BWW14-110717		35BWW14-021518		35BWW14-180522		35BWW14-180822	
			8/6/2019		11/25/2019		5/7/2020		10/9/2013		8/17/2016		11/7/2017		2/15/2018		5/22/2018		8/22/2018	
			Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	1	U	19		20.1		53		44		30		31	
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	82.8		39.7		24		20		23		12	
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	57.2		10		8.4		0.5	U	5.1		2.2	
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	14.3		3.44		2.4		1.1		2.6		1.4	
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	5.09		0.301	J	1	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW14												35BWW15					
			35BWW14-181120		35BWW14-190212		35BWW14-190521		35BWW14-190806		35BWW14-191125		35BWW14-200507		35BWW15-011414		35BWW15-081916		35BWW15-110717	
			11/20/2018		2/12/2019		5/21/2019		8/6/2019		11/25/2019		5/7/2020		1/14/2014		8/19/2016		11/7/2017	
			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	37		37		0.5	U	38		38		40		8.69		14.5		12	
Trichloroethene	µg/L	5	9.1		22		110		15		16		14		43.5		20.5		15	
1,1-Dichloroethene	µg/L	7	2.2		5.6		0.5	U	4.2		4.6		3.6		35.5		6.63		4.2	
cis-1,2-Dichloroethene	µg/L	70	0.91	J	2.1		0.66	J	1.3		1.5		1.2		6.25		1.73		1.1	
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	3.42		0.5	U	1	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW15																	
			35BWW15-021318		35BWW15-180521		35BWW15-180820		35BWW15-181116		35BWW15-181116-FD		35BWW15-190214		35BWW15-190522		35BWW15-190807		35BWW15-191122	
			2/13/2018		5/21/2018		8/20/2018		11/16/2018		11/16/2018		2/14/2019		5/22/2019		8/7/2019		11/22/2019	
			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	12		13		11		11		10		12		7.8		9.7		11	
Trichloroethene	µg/L	5	14		13		9.2		12		12		11		7.1		7.6		7.8	
1,1-Dichloroethene	µg/L	7	2.2		3.4		1.7		2.6		2.2		1.9		0.5	U	1.1		1.2	
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.68	J	0.5	U	0.65	J	0.5	U	0.39	J	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.63	J	0.63	J	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW15				35BWW16													
			35BWW15-191122-FD		35BWW15-200507		35BWW16-100713		35BWW16FD-100713		35BWW16-081916		35BWW16-110717		35BWW16-021318		35BWW16-180524		35BWW16-180817	
			11/22/2019		5/7/2020		10/7/2013		10/7/2013		8/19/2016		11/7/2017		2/13/2018		5/24/2018		8/17/2018	
			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	11		13		0.447	J	0.447	J	5.13		9.2		12		7.8		6.6	
Trichloroethene	µg/L	5	7.6		7.7		2.57		2.45		3.43		4.2		5.8		4		3.3	
1,1-Dichloroethene	µg/L	7	1.1		0.87	J	0.865	J	0.846	J	0.787	J	1.1		0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW16												35BWW17					
			35BWW16-181116		35BWW16-190215		35BWW16-190523		35BWW16-190807		35BWW16-191121		35BWW16-200507		35BWW17-020414		35BWW17-081916		35BWW17-110717	
			11/16/2018		2/15/2019		5/23/2019		8/7/2019		11/21/2019		5/7/2020		2/4/2014		8/19/2016		11/7/2017	
			Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	15		11		9.5		9.8		8.1		9.9		0.512	J	0.5	U	2.6	
Trichloroethene	µg/L	5	6.5		4.7		3.6		3.5		3.2		3.3		0.5	U	0.5	U	1.1	
1,1-Dichloroethene	µg/L	7	1.5		1		0.5	U	0.79	J	0.75	J	0.61	J	1	U	1	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	UJ

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW17																	
			35BWW17-021318		35BWW17-180524		35BWW17-180821		35BWW17-181116		35BWW17-190214		35BWW17-190523		35BWW17-190807		35BWW17-191121		35BWW17-200507	
			2/13/2018		5/24/2018		8/21/2018		11/16/2018		2/14/2019		5/22/2019		8/7/2019		11/21/2019		5/7/2020	
			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	7.5		0.5	U	0.5	U	5.4		0.5	U	0.5	U	0.5	U	0.5	U	1	U
Trichloroethene	µg/L	5	2.9		0.5	U	0.5	U	1.8		0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW18																	
			35BWW18-100213		35BWWU18-100213		35BWW18-081616		35BWW18-110717		35BWW18-021318		35BWW18-180521		35BWW18-180816		35BWW18-181119		35BWW18-190214	
			10/2/2013		10/2/2013		8/16/2016		11/7/2017		2/13/2018		5/21/2018		8/16/2018		11/19/2018		2/14/2019	
			Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	1	U	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW18								35BWW19									
			35BWW18-190520		35BWW18-190805		35BWW18-191126		35BWW18-200511		35BWW19-100713		35BWW19-081616		35BWW19-110717		35BWW19-021318		35BWW19-180521	
			5/20/2019		8/5/2019		11/26/2019		5/11/2020		10/7/2013		8/16/2016		11/7/2017		2/13/2018		5/21/2018	
			Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW19														35BWW20			
			35BWW19-180816		35BWW19-181119		35BWW19-190214		35BWW19-190520		35BWW19-190805		35BWW19-191126		35BWW19-200511		35BWW20-100413		35BWW20-081816	
			8/16/2018		11/19/2018		2/14/2019		5/20/2019		8/5/2019		11/26/2019		5/11/2020		10/4/2013		8/18/2016	
			Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	31.1		26.7	
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	7.04		6.75	
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW20																	
			35BWW20-110817		35BWW20-021218		35BWW20-180524		35BWW20-180820		35BWW20-181118		35BWW20-190213		35BWW20-190522		35BWW20-190522-FD		35BWW20-190806	
			11/8/2017		2/12/2018		5/24/2018		8/20/2018		11/18/2018		2/13/2019		5/22/2019		5/22/2019		8/6/2019	
			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	25		34		29		19		34		34		12		12		7.5	
Trichloroethene	µg/L	5	4.7		5.7		6.3		3.6		6.4		6		2.8		2.9		2.1	
1,1-Dichloroethene	µg/L	7	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW20								35BWW23									
			35BWW20-190806-FD		35BMW20-191122		35BWW20-200511		35BWW20-200511-FD		35BWW23-070114		35BWW23-081716		35BWW23-110917		35BWW23-021518		35BWW23-180522	
			8/6/2019		11/22/2019		5/11/2020		5/11/2020		7/1/2014		8/17/2016		11/9/2017		2/15/2018		5/22/2018	
			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	7.6		15		12		12		0.5	U	0.5	U	1	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	2		3.1		2.9		2.9		0.5	U	0.5	U	1	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW23														35BWW24			
			35BWW23-180822		35BWW23-181120		35BWW23-190212		35BWW23-190521		35BWW23-190806		35BWW23-191125		35BWW23-200507		35BWW24-081916		35BWW24-110817	
			8/22/2018		11/20/2018		2/12/2019		5/21/2019		8/6/2019		11/25/2019		5/7/2020		8/19/2016		11/8/2017	
			Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	1	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.415	J	1	U
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW24																	
			35BWW24-021618		35BWW24-180524		35BWW24-180821		35BWW24-181116		35BWW24-190215		35BWW24-190522		35BWW24-190807		35BWW24-191125		35BWW24-200507	
			2/16/2018		5/24/2018		8/21/2018		11/16/2018		2/15/2019		5/22/2019		8/7/2019		11/25/2019		5/7/2020	
			Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	2.9		2.6		1.1		1.7		1.8		2.3	
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.67	J	0.5	U	0.5	U	0.5	U	0.5	U	0.54	J
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW25																	
			35BWW25-081916		35BWW25FD-081916		35BWW25-110817		35BWW25-110817-FD		35BWW25-021618		35BWW25-021618-FD		35BWW25-180523		35BWW25-180523FD		35BWW25-180820	
			8/19/2016		8/19/2016		11/8/2017		11/8/2017		2/16/2018		2/16/2018		5/23/2018		5/23/2018		8/20/2018	
			Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	5.55		5.94		7.6		7.5		11		11		5.5		5.1		5.3	
1,1-Dichloroethene	µg/L	7	1	U	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW25																	
			35BWW25-180820-FD		35BWW25-181116		35BWW25-190215		35BWW25-190215-FD		35BWW25-190522		35BWW25-190807		35BWW25-191122		35BWW25-191122-FD		35BWW25-200507	
			8/20/2018		11/16/2018		2/15/2019		2/15/2019		5/22/2019		8/7/2019		11/22/2019		11/22/2019		5/7/2020	
			Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.33	J	0.5	U	0.5	U	1	U
Trichloroethene	µg/L	5	5.3		19		14		14		6.3		15		13		13		13	
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW26																	
			35BWW26-081716		35BWW26-110917		35BWW26-021418		35BWW26-180522		35BWW26-180822		35BWW26-181120		35BWW26-190212		35BWW26-190520		35BWW26-190806	
			8/17/2016		11/9/2017		2/14/2018		5/22/2018		8/22/2018		11/20/2018		2/12/2019		5/20/2019		8/6/2019	
			Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			35BWW26				37DPT03		LHSMW58											
			35BWW26-191121		35BWW26-200506		37DPT03(60-62)-		LHSMW58-941211		LHSMW58-941211FD		LHSMW58-960210		LHSMW58-960821		LHSMW58-980520		LHSMW58-040910	
			11/21/2019		5/6/2020		8/27/2013		12/11/1994		12/11/1994		2/10/1996		8/21/1996		5/20/1998		9/10/2004	
			Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary				Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	1	U	2.5	UV,T	21		34		8		7.9		9.5		20	
Trichloroethene	µg/L	5	0.5	U	0.5	U	1.3	UV,T	26				9		11.5		9.4		33	
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	1.3	UV,T	58		53		18		25.4		4.2		4	J
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	1.3	UV,T					1.8		2.1		0.53	J	5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	1.3	UV,T							0.24	U	1	U	5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			LHSMW58																	
			LHSMW58-060809		LHSMW58-061216		LHSMW58-100313		LHSMW58-081816		LHSMW58-110817		LHSMW58-021218		LHSMW58-180524		LHSMW58-180820		LHSMW58-181118	
			8/9/2006		12/16/2006		10/3/2013		8/18/2016		11/8/2017		2/12/2018		5/24/2018		8/20/2018		11/18/2018	
			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	21.8	J	9.01		20.3		19.9		20		14		12		26		26	
Trichloroethene	µg/L	5	21.8	J	13.7		4.26		1.93		1.6		0.5	U	1.4		2.2		1.8	
1,1-Dichloroethene	µg/L	7	2.11	JH	3.17	J	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.716	JH	0.629	J	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	10	U	10	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			LHSMW58												LHSMW59					
			LHSMW58-181118-FD		LHSMW58-190213		LHSMW58-190522		LHSMW58-190807		LHSMW58-191122		LHSMW58-200511		LHSMW59-941211		LHSMW59-941211FD		LHSMW59-960210	
			11/18/2018		2/13/2019		5/22/2019		8/7/2019		11/22/2019		5/11/2020		12/11/1994		12/11/1994		2/10/1996	
			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	25		6.1		3.6		6.8		4.2		14		11		11		16	
Trichloroethene	µg/L	5	1.8		0.5	U	0.5	U	0.59	J-	0.5	U	0.88	J	120				249	
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	5	U	5	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U					1	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U						

Table 2-4
COC Concentrations 1994–2019

Location Code Sample ID Sample Date Location Description			LHSMW59									
			LHSMW59-960821		LHSMW59-980520		LHSMW59-040910		LHSMW59-060810		LHSMW59-061213	
			8/21/1996		5/20/1998		9/10/2004		8/10/2006		12/13/2006	
			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	16.9		7		3	J	1.19	J	1.15	J
Trichloroethene	µg/L	5	327		330		180		135		166	
1,1-Dichloroethene	µg/L	7	2.2		1	U	5	U	5	U	5	U
cis-1,2-Dichloroethene	µg/L	70	0.2	U	1	U	5	U	0.521	J	0.463	J
Vinyl chloride	µg/L	2	0.24	U	1	U	5	U	10	U	10	U

Table 2-4
COC Concentrations 1994–2019

Notes:

Blue Highlighting Indicates concentrations above the MCL.

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

µg/L - micrograms per liter

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

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

COC - contaminant of concern

FD - field duplicate

ID - identifier

MCL - Maximum Contaminant Limit

NR - not reported by laboratory

Val Qual - validation qualifier

Table 2-5**Well Maintenance Activities Year 3 RA-O**

Well ID	Date Inspected	Pads	Bollards	Protective Casings	Locks	Date Mowed	Photos	Comments
35BWW01	11/21/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/6/2020	Good	Good	Good	In Place		Yes	
35BWW04	11/21/2019	Good	Fair	Good	In Place	10/18/2019	Yes	Only one Ballard is remaining. Old Well ID needs replacing
	5/6/2020	Good	Fair	Good	In Place		Yes	Only one Ballard is remaining. Old Well ID needs replacing
35BWW05	11/25/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/6/2020	Good	Good	Good	In Place		Yes	
35BWW07	11/25/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/11/2020	Good	Good	Good	In Place		Yes	
35BWW08	11/21/2019	Good	Good	Good	In Place	10/18/2019	Yes	Well ID not visible, need to be added
	5/6/2020	Good	Good	Good	In Place		Yes	Well ID not visible, needs to be added
35BWW09	11/26/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/11/2020	Good	Good	Good	In Place		Yes	
35BWW10	11/26/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/6/2020	Good	Good	Good	In Place		Yes	
35BWW11	11/21/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/6/2020	Good	Good	Good	In Place		Yes	
35BWW12	11/25/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/6/2020	Good	Good	Good	In Place		Yes	
35BWW13	11/25/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/7/2020	Good	Good	Good	In Place		Yes	
35BWW14	11/25/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/7/2020	Good	Good	Good	In Place		Yes	
35BWW15	11/22/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/7/2020	Good	Good	Good	In Place		Yes	
35BWW16	11/21/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/7/2020	Good	Good	Good	In Place		Yes	
35BWW17	11/21/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/7/2020	Good	Good	Good	In Place		Yes	
35BWW18	11/26/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/11/2020	Good	Good	Good	In Place		Yes	
35BWW19	11/26/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/11/2020	Good	Good	Good	In Place		Yes	
35BWW20	11/22/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/11/2020	Good	Good	Good	In Place		Yes	
35BWW23	11/25/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/7/2020	Good	Good	Good	In Place		Yes	
35BWW24	11/25/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/7/2020	Good	Good	Good	In Place		Yes	
35BWW25	NR	NR	NR	NR	NR	10/18/2019	Yes	
	5/7/2020	Good	Good	Good	In Place		Yes	
35BWW26	11/21/2019	Good	Good	Good	In Place	10/18/2019	Yes	
	5/6/2020	Good	Good	Good	In Place		Yes	
LHSMW58	11/22/2019	Good	Good	Good	In Place	10/18/2019	Yes	Well ID not visible, needs to be added
	5/11/2020	Good	Good	Good	In Place		Yes	Well ID is visible

Notes:

ID - identifier

NR - Not recorded

RA-O - remedial action operation

Table 2-6
Year 4 RA-O Semiannual Sampling

Well ID	VOC	Field Parameters	MNA Parameters	Water Levels
35BWW01	X	X		X
35BWW02 ^a				
35BWW03 ^b				
35BWW04	X	X	X	X
35BWW05	X	X		X
35BWW06 ^b				
35BWW07	X	X		X
35BWW08	X	X	X	X
35BWW09	X	X		X
35BWW10	X	X		X
35BWW11	X	X		X
35BWW12	X	X	X	X
35BWW13	X	X		X
35BWW14	X	X	X	X
35BWW15	X	X		X
35BWW16	X	X		X
35BWW17	X	X		X
35BWW18	X	X		X
35BWW19	X	X		X
35BWW20	X	X		X
35BWW23	X	X	X	X
35BWW24	X	X		X
35BWW25	X	X		X
35BWW26	X	X	X	X
LHSMW58	X	X		X
35BSW01 ^c	X	X		X
35BSW02 ^c	X	X		X

Notes:

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

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

^a Well was removed from the sampling list.

^b Monitoring wells 35BWW03 and 35BWW06 will continue to be sampled once every five years to support the Five Year Reviews, and the next sampling event for these wells will be in 2021.

^c Surface water locations to be sampled annually per the RACR - next sampling is Y4SA2, May 2021.

X well will be analyzed for that parameter.

ID - identifier

MNA - monitored natural attenuation

RA-O - remedial action operation

RACR - Response Action Completion Report

TOC - total organic carbon

VOC - volatile organic compounds

Table 3-1
RA-O Mann-Kendall Trend Summary, LHAAP-35B (37)

Monitoring Well	PCE	TCE
35BWW04	No Trend	NA
35BWW05	NA	Probable Decrease
35BWW09	NA	Stable
35BWW12	No Trend	NA
35BWW14	No Trend	Significant Decrease
35BWW15	Stable	Significant Decrease
35BWW16	Probable Increasing	NA
35BWW20	Significant Decrease	No Trend
35BWW25	NA	No Trend
LHSMW58	Significant Decrease	NA

Notes:

MCL - maximum contaminant level

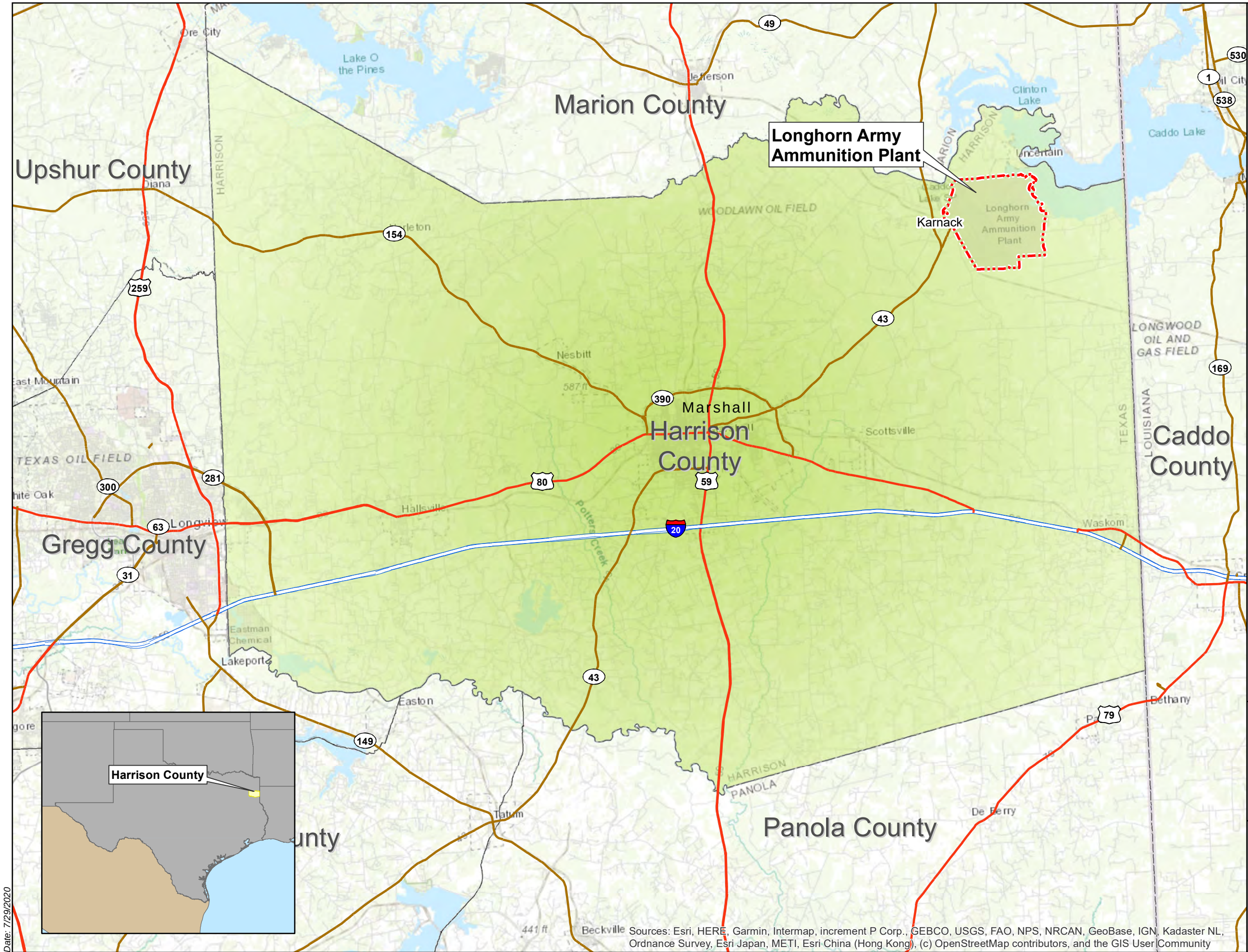
NA - not analyzed due to concentrations are below the MCL.

PCE - tetrachloroethene

RA-O - remedial action operation

TCE - trichloroethene

Figures



Note:
1. RA-O = Remedial Action Operations



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Figure 1-1

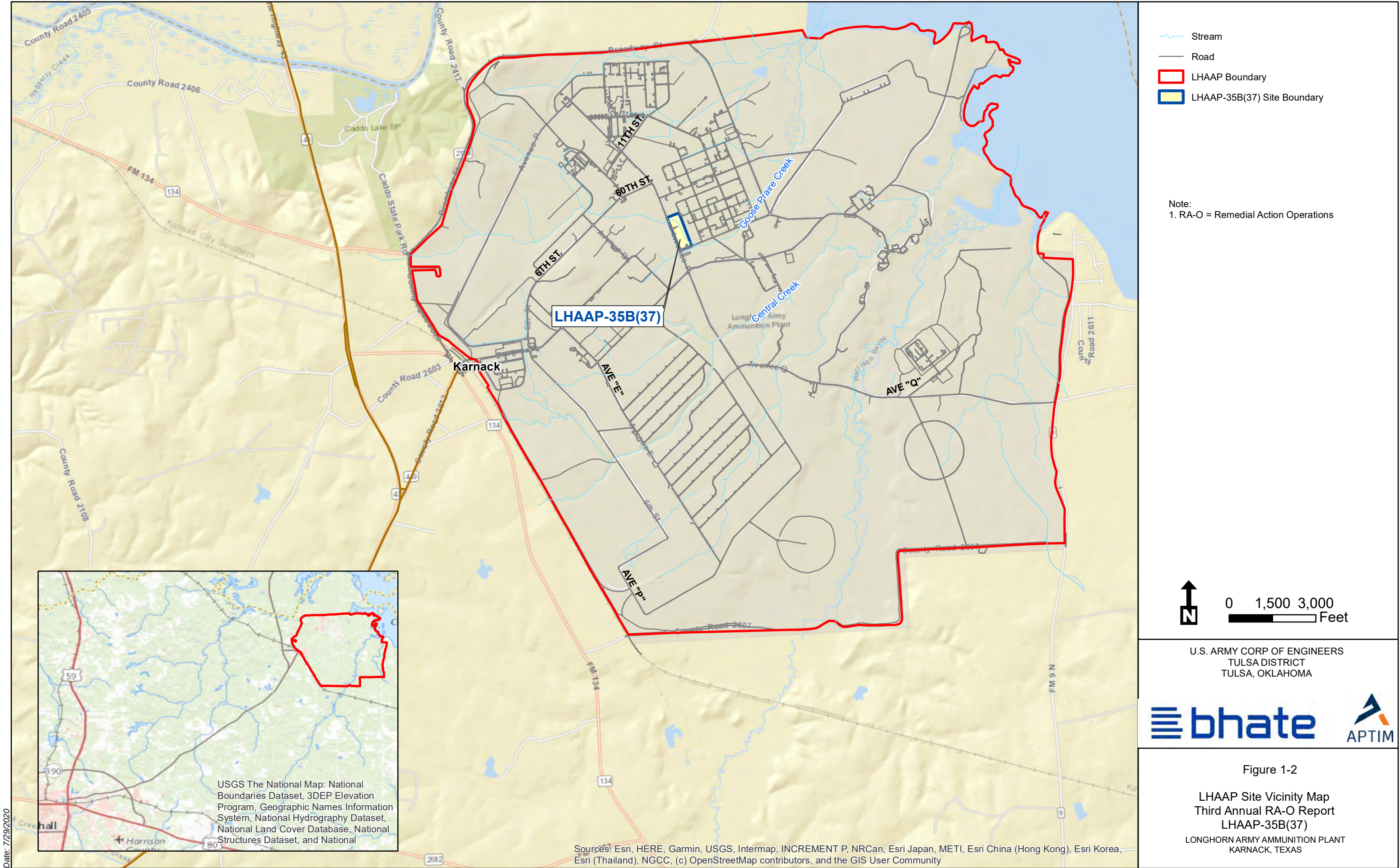
LHAAP Location Map
Third Annual RA-O Report
LHAAP-35B(37)

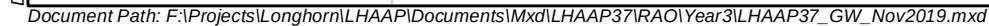
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

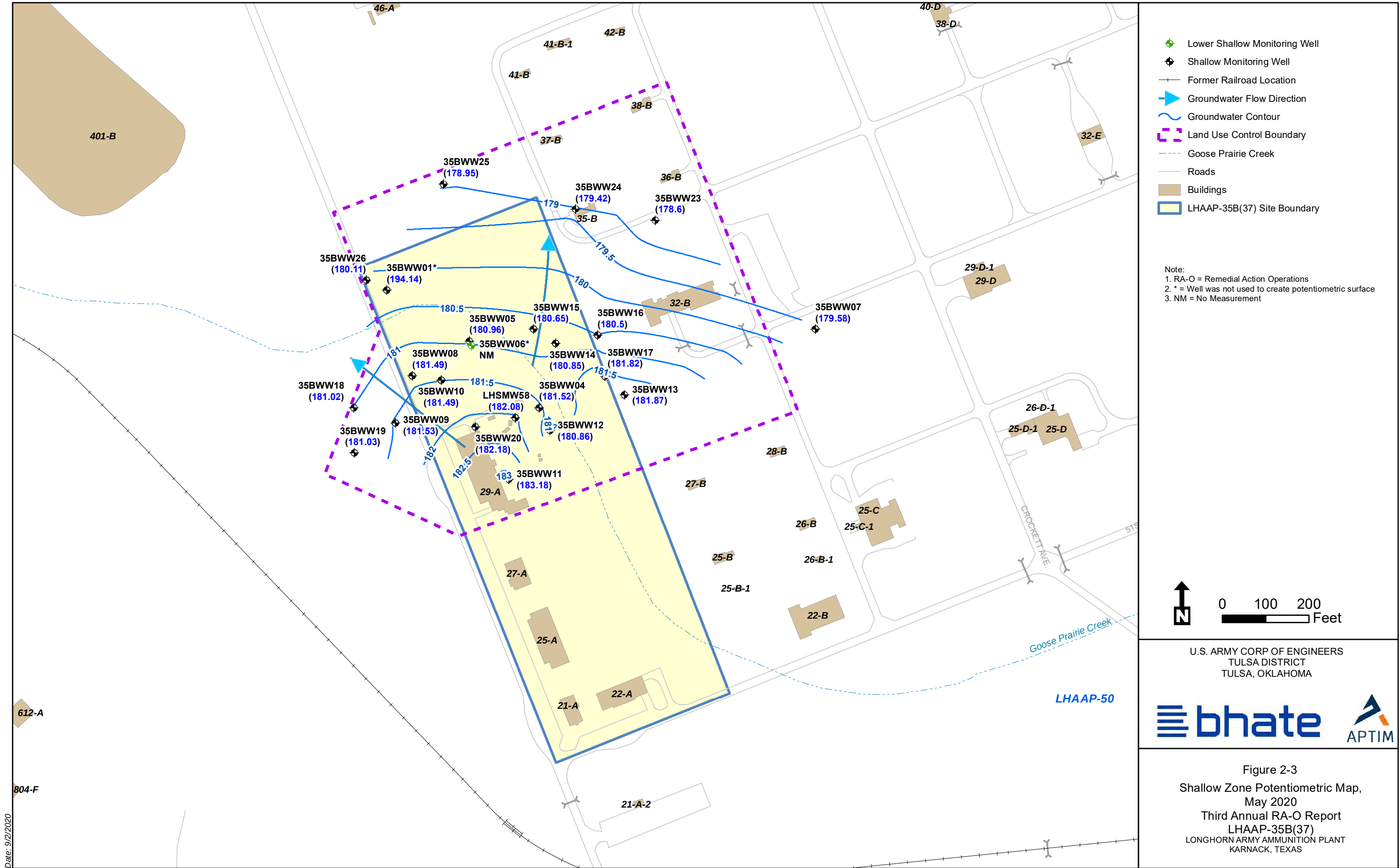
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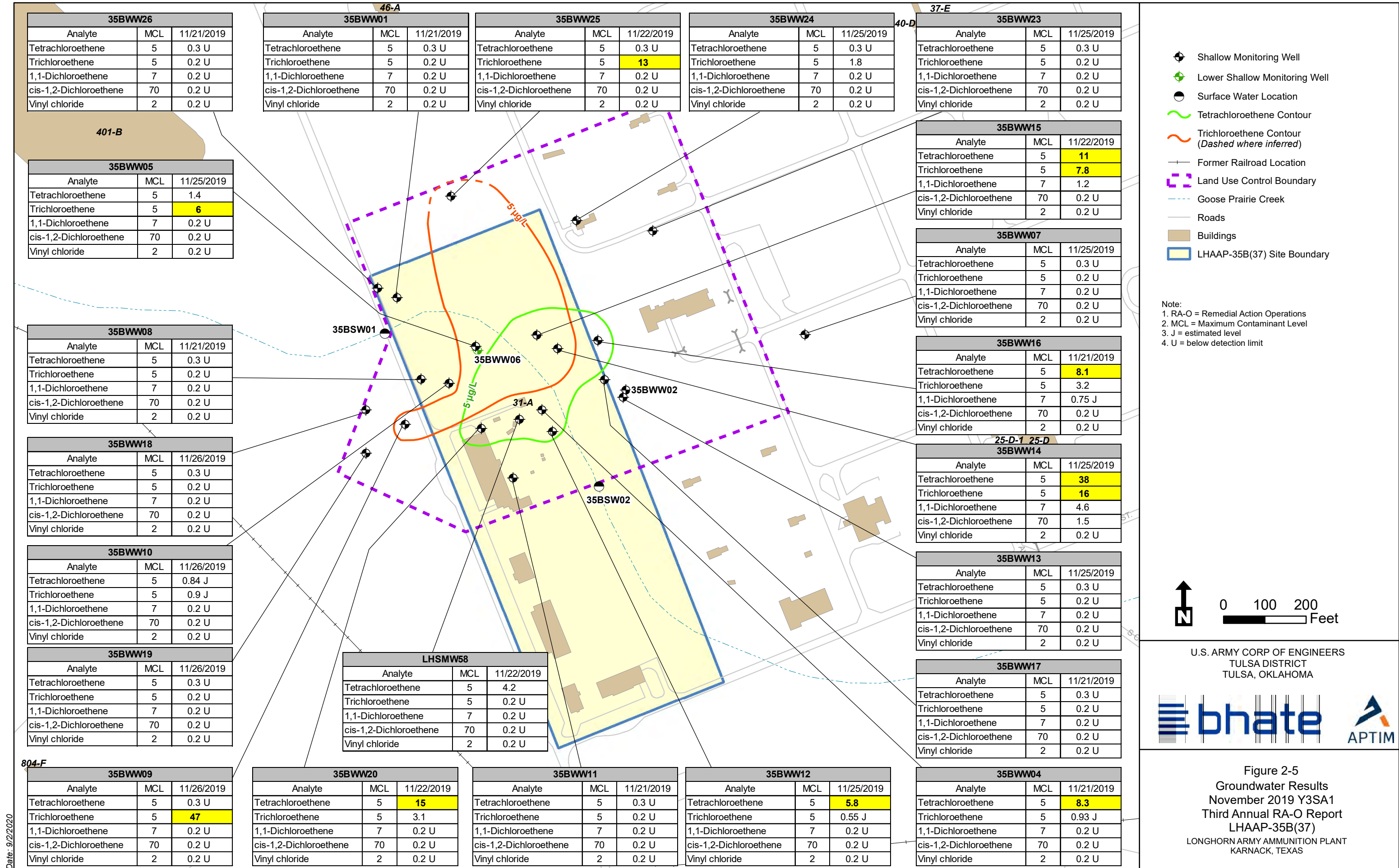
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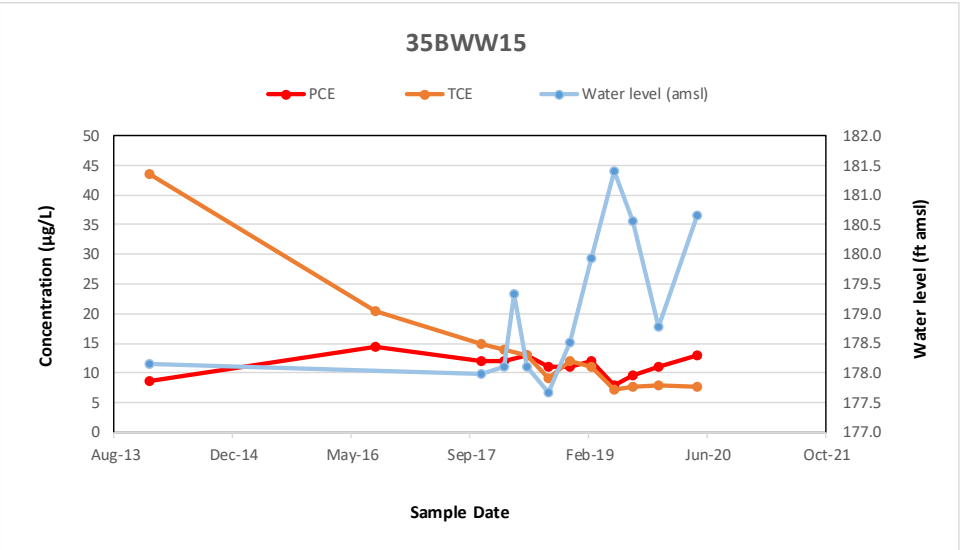
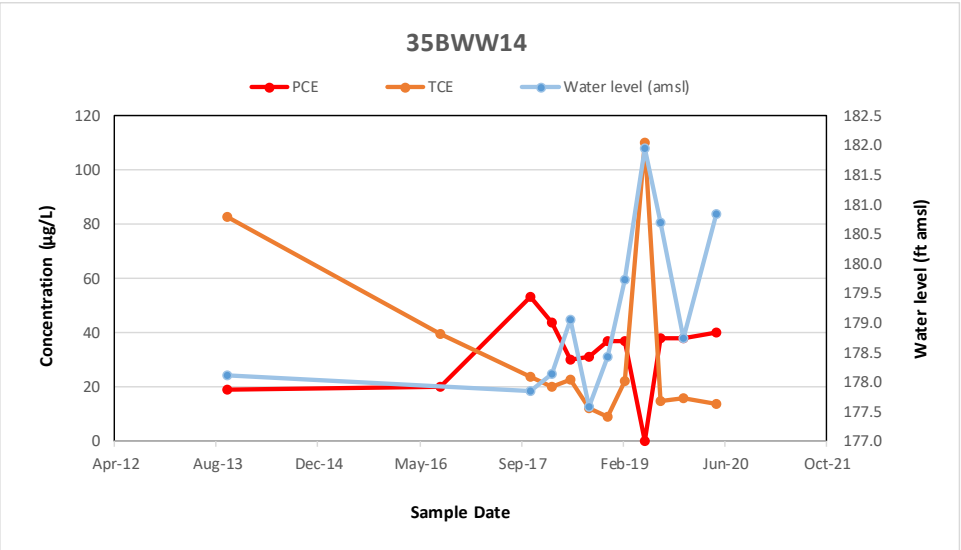
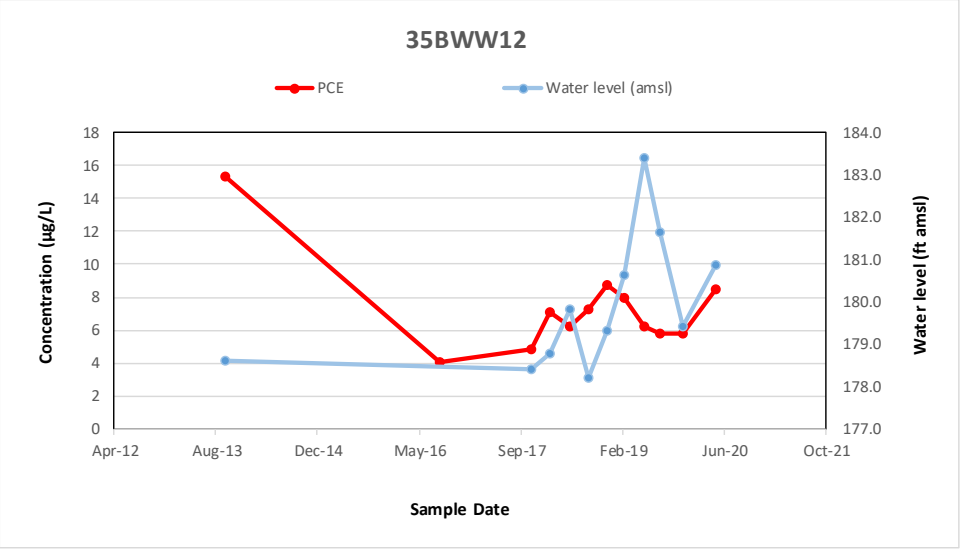
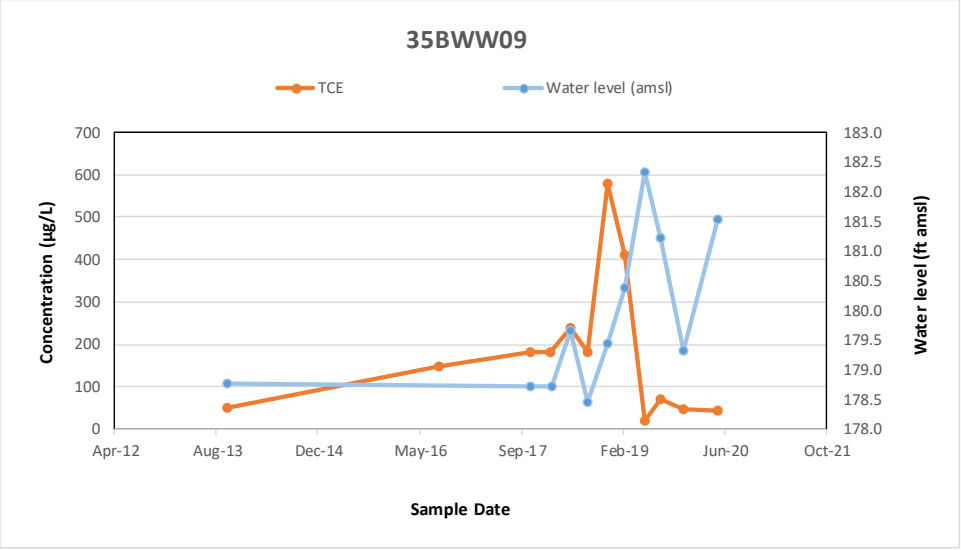
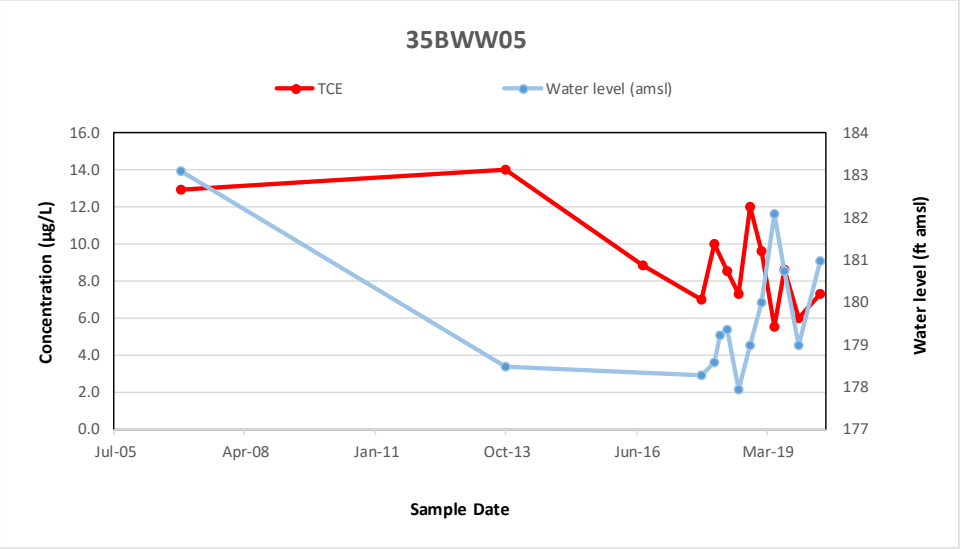
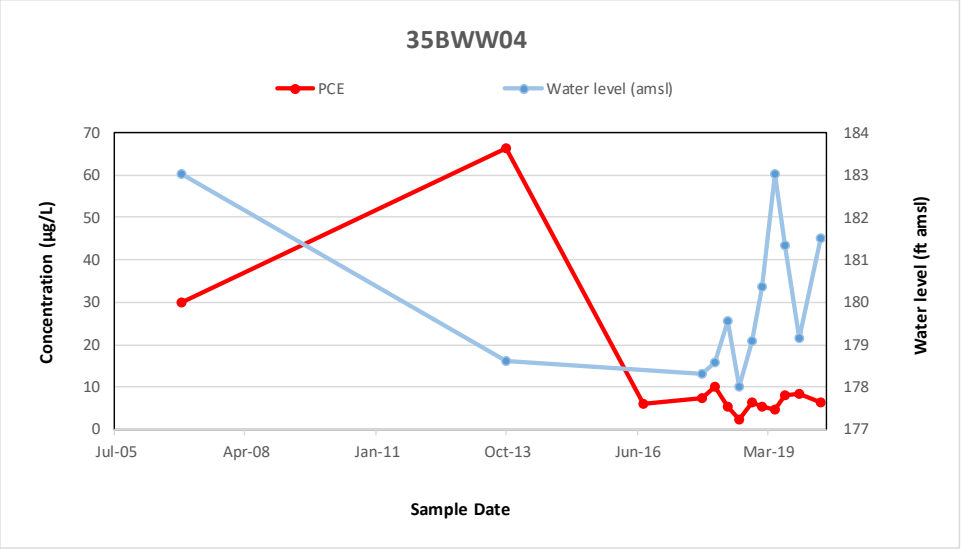
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community











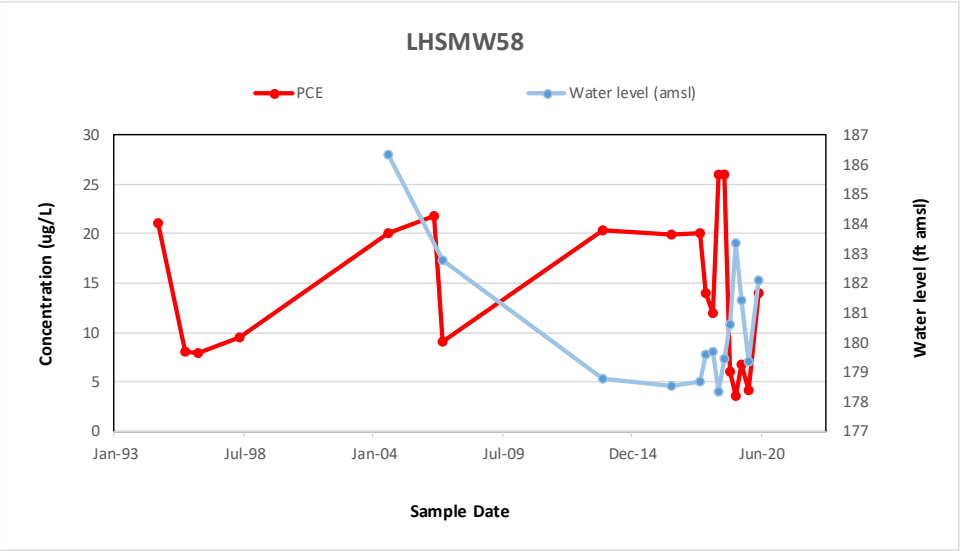
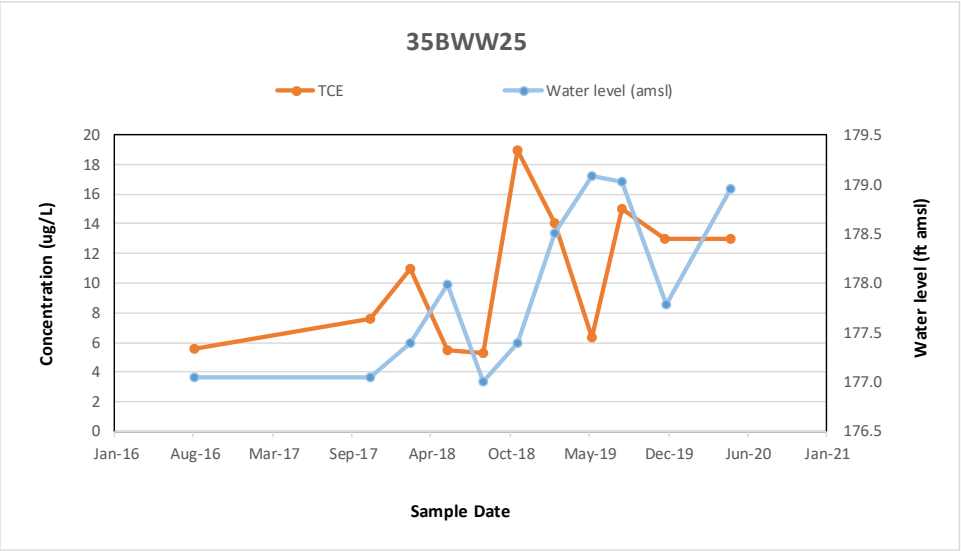
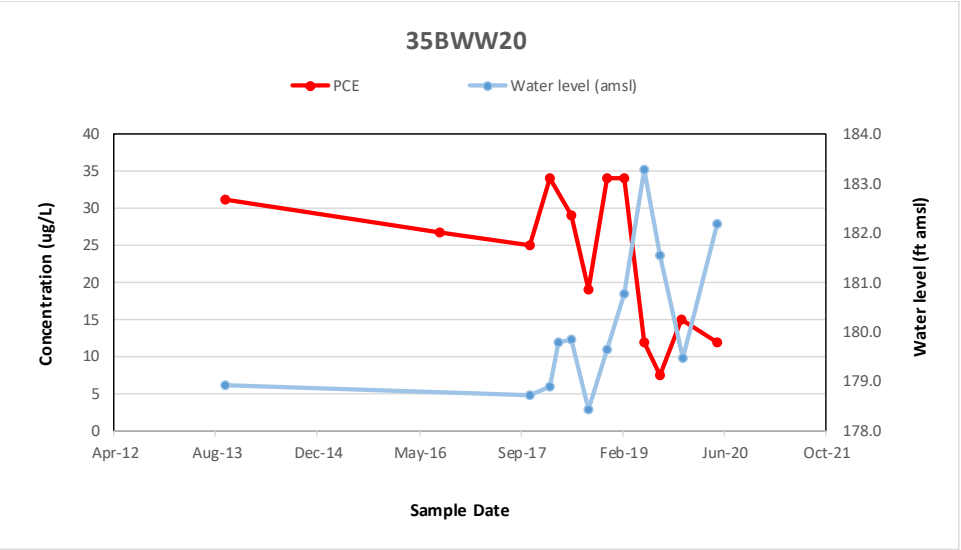
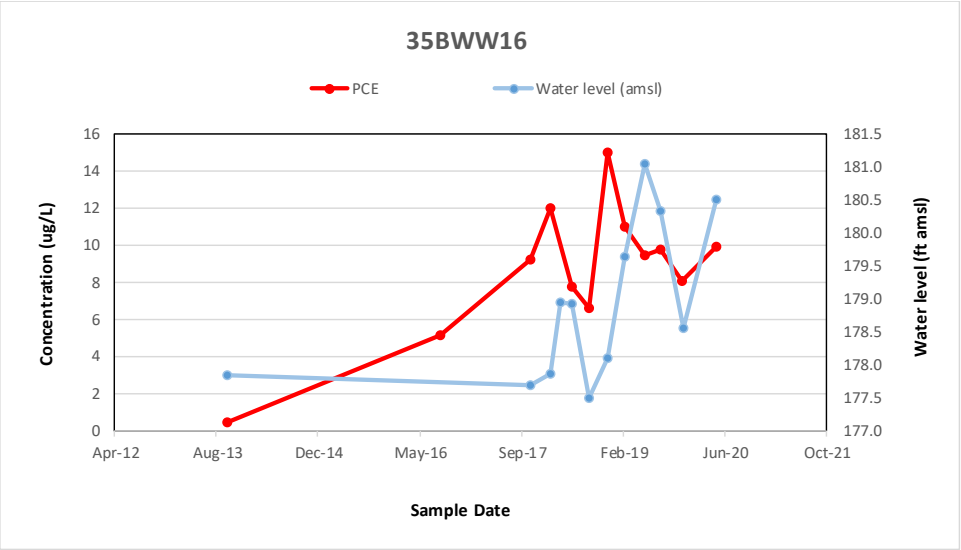
Cleanup Levels:
Tetrachloroethene = 5 µg/L
Trichloroethene = 5 µg/L

- Notes:
- 1. RA-O = Remedial Action Operations
 - 2. PCE = Tetrachloroethene
 - 3. TCE = Trichloroethene
 - 4. µg/L = micrograms per liter
 - 5. ft = feet
 - 6. amsl = above mean sea level

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Figure 2-7a
COC Concentrations
Third Annual RA-O Report
LHAAP-35B(37)
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS



Cleanup Levels:
Tetrachloroethene = 5 µg/L
Trichloroethene = 5 µg/L

Notes:
1. RA-O = Remedial Action Operations
2. PCE = Tetrachloroethene
3. TCE = Trichloroethene
4. Groundwater elevations at LHSMW58 were not available for all sampling events prior to 2013.

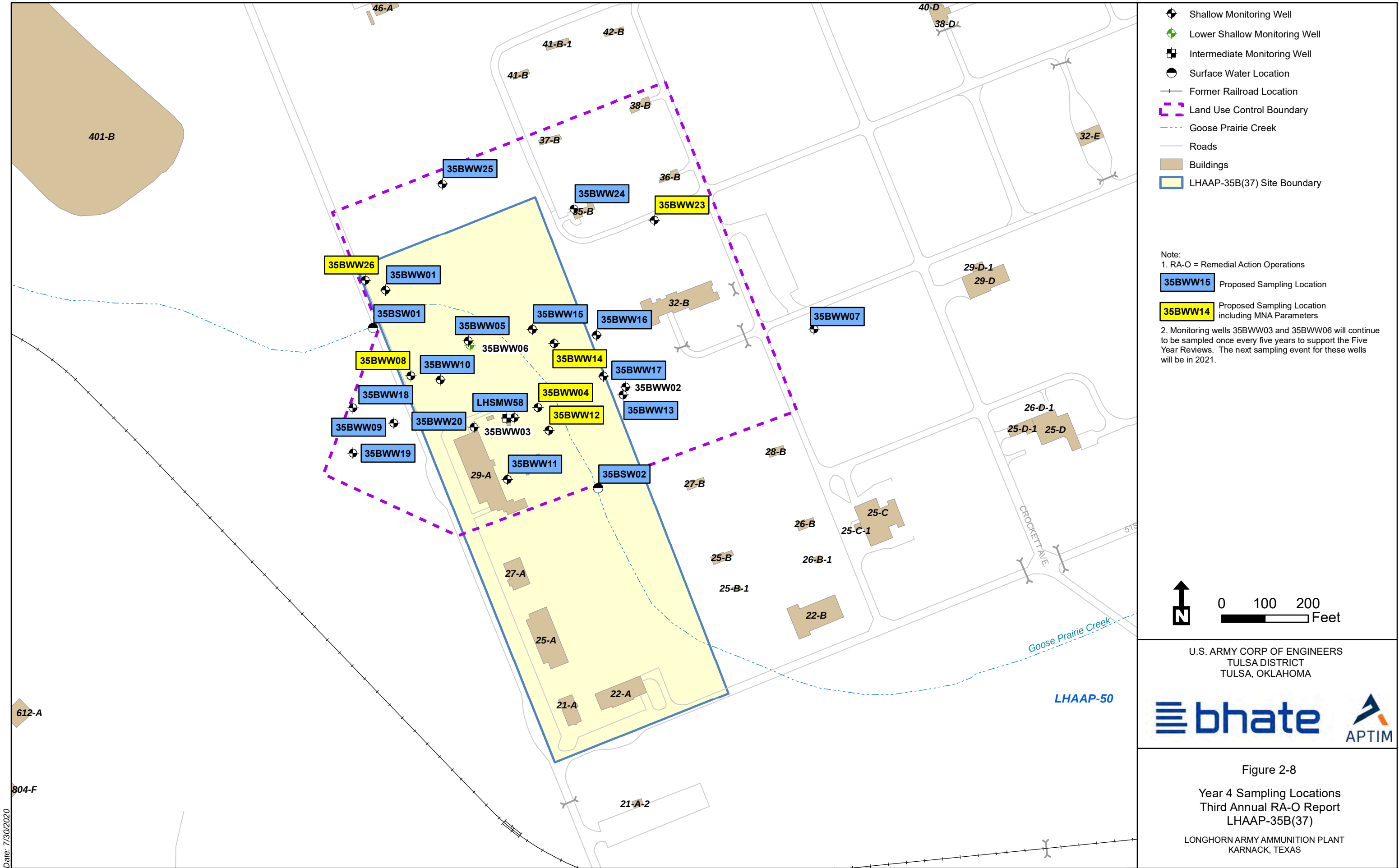
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TULSA, OKLAHOMA



Figure 2-7b

COC Concentrations
Third Annual RA-O Report
LHAAP-35B(37)

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS



Appendix A

Annual Land Use Control Compliance Certification and Documentation

Annual Land Use Control Compliance Certification Documentation

In accordance with the Remedial Action Work Plan dated June 2013 for LHAAP-35B (37) a certification of site was conducted by APTIm [indicate transferee] on 6/29/20.

A summary of land use control mechanism is as follows:

Groundwater restriction – restriction of the use of groundwater to environmental monitoring and testing until cleanup levels are met. A restriction against residential use of groundwater will remain in effect until the levels of the COCs in groundwater and soil allow unrestricted use and unlimited exposure (UUUE).

[Indicate whether groundwater restrictions are still required at LHAAP-35B (37)]

A summary of compliance with land use and restriction covenants is as follows:

No use of groundwater, installation of new groundwater wells, or tampering with existing wells at LHAAP-35B (37).

I, the undersigned, do document that the certification was performed as indicated above, and that the above information is true and correct to the best of my knowledge, information, and belief. I also certify that the non-residential use assumption that forms the basis of the remedy remains the same.

Date:

June 29, 2020

Name/Title:

Scott Beesinger / Senior Field Tech

Signature:

Scott Beesinger

Annual compliance certification forms shall be completed no later than March 1 of each year for the previous calendar year.

Appendix B

Groundwater Sampling Forms

(Note: The sample collection logs (SCLs) for the November 2019 sampling event have been revised to correct the screen interval and units. The values written on the forms were taken from the database prior to updating. The database was updated in January 2020 using well installation forms. Where required, the SCLs for November 2019 have been corrected by crossing out and entering the correct information. In May 2020, the updated screen intervals were used and are correct.)



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW01

Project No: 501032

Sampler(s): Scott Baggins & R

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW01-1911.21DATE/TIME: 11/21/19 1138Pump Inlet Depth: 16.21

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Low flow/BLADDER PumpCasing ID (in.): 4"Purge Start Date/Time: 11/21/19 1145Depth to Water - Initial (DTWi) (ft) 14.35Purge End Date/Time: 11/21/19 1215Depth to Well Bottom (ft) 21.20Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): ~~11.21 - 21.21~~ 11.11 - 21.11 ft BTOCDischarge Tube Diameter: 1/4" Immersible Layer: Y / ☒ NL George 05/18/2020Approximate depth of pump inlet*(ft): 16.21Pump Start Time: 1145Ferrous Iron (Required Y or ☒ N) _____ mg/L

2ND Depth TO WATER - 14.35



Sample Collection Log

2 of 2

Location ID: 35BWW01 Sample No: 35BWW01-1911 <u>21</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/21/19	1150	100	.5	14.43	0.085	21.20	6.12	50.3	298	1.68
	1155	100	1.0	14.48	0.082	21.60	5.70	45.6	349	1.40
	1200	100	1.5	14.52	0.079	21.58	5.44	39.3	368	1.35
	1205	100	2.0	14.55	0.079	21.55	5.43	38.7	369	1.33
	1210	100	2.5	14.57	0.079	21.53	5.42	38.2	370	1.31
	1215	100	3.0	14.59	0.079	20.51	5.41	37.7	371	1.29

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW04

Project No: 501032

Sampler(s): Scott Beesinca

FIELD CONDITIONS

OVERCAST

SAMPLING INFORMATION

Sample No: 35BWW04-1911 21DATE/TIME: 11/21/19 0858Pump Inlet Depth: 27.85

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 250 mL HDPE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Lowflow/BLADDER PUMPCasing ID (in.): 4"Purge Start Date/Time: 11/21/19 0905Depth to Water - Initial (DTWi) (ft) 22.95Purge End Date/Time: 11/21/19 0935Depth to Well Bottom (ft) ~~33.30~~ 33.30Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 22.85-32.85 ft BTOCDischarge Tube Diameter: 1/4" Immersible Layer: Y / 0L George 04/21/2020Approximate depth of pump inlet* (ft): 27.85Pump Start Time: 0905Ferrous Iron (Required 0 or N) 0.16 mg/L2ND Depth TO WATER- 22.95



Sample Collection Log

2 of 2

Location ID: 35BWW04 Sample No: 35BWW04-191121										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/21/19	0910	100	.5	23.03	0.236	18.43	5.28	47.3	352	0.92
	0915	100	1.0	23.08	0.239	19.07	5.75	43.1	304	0.28
	0920	100	1.5	23.12	0.239	19.11	5.80	41.0	298	0.04
	0925	100	2.0	23.15	0.238	19.15	5.81	40.7	297	0.03
	0930	100	2.5	23.17	0.238	19.18	5.82	40.2	296	0.03
	0935	100	3.0	23.19	0.238	19.23	5.82	39.9	296	0.03

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW04

Project No: 501032

Sampler(s): Scott Breesinger

FIELD CONDITIONS

OVER CAST

SAMPLING INFORMATION

Sample No: 35BWW04-191121-FDDATE/TIME: 11/21/19 0858Pump Inlet Depth: 27.85

Sampling Method:

Sample Purpose: FD

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 250 mL HDPE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Low flow/Bladder PumpCasing ID (in.): 4"Purge Start Date/Time: 11/21/19 0905Depth to Water - Initial (DTWi) (ft) 22.95Purge End Date/Time: 11/21/19 0935Depth to Well Bottom (ft) 33.30Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 22.85-32.85 ft BTOCDischarge Tube Diameter: 1/4" Immersible Layer: Y/N N

L George 04/21/2020

Approximate depth of pump inlet*(ft): 27.85Pump Start Time: 0905Ferrous Iron (Required ☒ or N) 0.16 mg/L

2ND Depth TO WATER - 22.95



Sample Collection Log

2 of 2

Location ID: 35BWW04 Sample No: 35BWW04-1911 <u>21</u> -FD										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/21/19	0910	100	.5	23.03	0.236	18.43	5.28	47.3	352	0.92
	0915	100	1.0	23.08	0.239	19.07	5.75	43.1	304	0.28
	0920	100	1.5	23.12	0.239	19.11	5.80	41.0	298	0.04
	0925	100	2.0	23.15	0.238	19.15	5.81	40.7	297	0.03
	0930	100	2.5	23.17	0.238	19.18	5.82	40.2	296	0.03
✓	0935	100	3.0	23.19	0.238	19.23	5.82	39.9	296	0.03

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW05

Project No: 501032

Sampler(s): Scott Beezinger**FIELD CONDITIONS**Clear**SAMPLING INFORMATION**Sample No: 35BWW05-191125DATE/TIME: 11/25/19 1257Pump Inlet Depth: 33.60

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATIONMeasuring Point : Top of CasingPurging Method/Equipment: Low flow/Bladder PumpCasing ID (in.): 2"Purge Start Date/Time: 11/25/19 1305Depth to Water - Initial (DTWi) (ft) 23.60Purge End Date/Time: 11/25/19 1335Depth to Well Bottom (ft) 38.60Discharge Tube Length: NAPID Reading: NAScreen Interval (ft): 28.60 - 38.60 ft BTOCDischarge Tube Diameter: 1/4"Immersible Layer: Y (N)L George 04/21/2020
Approximate depth of pump inlet* (ft): 33.60Pump Start Time: 1305Ferrous Iron (Required Y or (N)) _____ mg/L

2ND Depth TO WATER - 23.60



Sample Collection Log

2 of 2

Location ID: 35BWW05 Sample No: 35BWW05-1911 <u>25</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/25/19	1310	100	.5	23.67	0.262	21.26	6.11	367	154	1.00
↓	1315	100	1.0	23.72	0.258	20.75	5.51	329	151	0.22
↓	1320	100	1.5	23.76	0.252	20.70	5.30	306	151	0.04
↓	1325	100	2.0	23.79	0.251	20.64	5.30	306	151	0.04
↓	1330	100	2.5	23.81	0.251	20.60	5.29	305	150	0.03
↓	1335	100	3.0	23.82	0.251	20.56	5.29	304	150	0.03

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW07

Project No: 501032

Sampler(s): Scott Deisinger

FIELD CONDITIONS

Clear/cool

SAMPLING INFORMATION

Sample No: 35BWW07-191125DATE/TIME: 11/25/19 0755Pump Inlet Depth: 26.50

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Lowflow/Bladder PumpCasing ID (in.): 21Purge Start Date/Time: 11/25/19 0805Depth to Water - Initial (DTWi) (ft) 25.97Purge End Date/Time: 11/25/19 0835Depth to Well Bottom (ft) 31.40Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 20.67-30.67Discharge Tube Diameter: 1/4" Immersible Layer: Y (N)
L George 04/21/2020
 Approximate depth of pump inlet*(ft): 26.50
Pump Start Time: 0805Ferrous Iron (Required Y or (N)) _____ mg/L

2ND Depth to Water - 25.97



Sample Collection Log

2 of 2

Location ID: 35BWW07 Sample No: 35BWW07-1911 <u>25</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/25/19	0810	100	.5	26.05	0.677	15.40	5.60	19.3	211	1.03
	0815	100	1.0	26.11	0.630	16.35	5.96	14.2	100	0.39
	0820	100	1.5	26.15	0.636	16.62	6.05	9.2	53	0.11
	0825	100	2.0	26.18	0.637	16.68	6.06	8.8	52	0.11
	0830	100	2.5	26.20	0.637	16.75	6.07	8.0	51	0.10
✓	0835	100	3.0	26.22	0.637	16.80	6.08	7.6	50	0.10

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW08

Project No: 501032

Sampler(s): Scott Bessinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW08-1911 21DATE/TIME: 11/21/19 0955Pump Inlet Depth: 24.72

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 250 mL HDPE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Low flow/BLADDER PumpCasing ID (in.): 2"Purge Start Date/Time: 11/21/19 1005Depth to Water - Initial (DTWi) (ft) 24.75Purge End Date/Time: 11/21/19 1035Depth to Well Bottom (ft) 34.72Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 24.72-34.72 ^{ft BTOC}Discharge Tube Diameter: 1/4" Immersible Layer: Y / ⓪

L George 04/21/2020

Approximate depth of pump inlet*(ft): 24.72Pump Start Time: 1005Ferrous Iron (Required Y or N) ⓪ 0.32 mg/L2ND Depth TO WATER - 24.75



Sample Collection Log

2 of 2

Location ID: 35BWW08 Sample No: 35BWW08-1911 <u>21</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/21/14	1010	100	1.5	24.82	0.370	20.43	5.94	60.3	293	2.03
	1015	100	1.0	24.87	0.351	20.80	6.59	51.5	277	1.77
	1020	100	1.5	24.91	0.344	20.83	6.81	45.7	270	1.66
	1025	100	2.0	24.93	0.344	20.87	6.82	45.1	269	1.64
	1030	100	2.5	24.95	0.344	20.91	6.83	44.8	269	1.62
	1035	100	3.0	24.97	0.344	20.95	6.84	44.2	268	1.61

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW09

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW09-191126DATE/TIME: 11/26/19 0905Pump Inlet Depth: 31.76

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Low flow/BLADDER PumpCasing ID (in.): 4"Purge Start Date/Time: 11/26/19 0915Depth to Water - Initial (DTWi) (ft) 25.83Purge End Date/Time: 11/26/19 0945Depth to Well Bottom (ft) 37.10Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): ~~27.01-36.51~~Discharge Tube Diameter: 1/4" Immersible Layer: Y/NL George 05/18/2020Approximate depth of pump inlet* (ft): 31.76Pump Start Time: 0915Ferrous Iron (Required Y or N) _____ mg/L

2ND Depth TO WATER 25.83



Sample Collection Log

2 of 2

Location ID: 35BWW09 Sample No: 35BWW09-1911 <i>26</i>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
<i>11/26/19</i>	<i>0920</i>	<i>100</i>	<i>5</i>	<i>25.90</i>	<i>0.462</i>	<i>20.06</i>	<i>7.24</i>	<i>18.3</i>	<i>207</i>	<i>1.08</i>
	<i>0925</i>	<i>100</i>	<i>1.0</i>	<i>25.95</i>	<i>0.440</i>	<i>19.87</i>	<i>7.18</i>	<i>15.2</i>	<i>190</i>	<i>0.80</i>
	<i>0930</i>	<i>100</i>	<i>1.5</i>	<i>25.98</i>	<i>0.437</i>	<i>19.86</i>	<i>6.86</i>	<i>14.0</i>	<i>193</i>	<i>0.71</i>
	<i>0935</i>	<i>100</i>	<i>2.0</i>	<i>26.00</i>	<i>0.437</i>	<i>19.85</i>	<i>6.85</i>	<i>13.7</i>	<i>194</i>	<i>0.70</i>
	<i>0940</i>	<i>100</i>	<i>2.5</i>	<i>26.02</i>	<i>0.437</i>	<i>19.84</i>	<i>6.84</i>	<i>13.2</i>	<i>195</i>	<i>0.69</i>
	<i>0945</i>	<i>100</i>	<i>3.0</i>	<i>26.03</i>	<i>0.437</i>	<i>19.84</i>	<i>6.84</i>	<i>12.8</i>	<i>195</i>	<i>0.69</i>

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW10

Project No: 501032

Sampler(s): Scott Bessinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW10-191126DATE/TIME: 11/26/19 0655Pump Inlet Depth: 28.62

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Low flow / Bladder PumpCasing ID (in.): 211Purge Start Date/Time: 11/26/19 0705Depth to Water - Initial (DTWi) (ft) 24.45Purge End Date/Time: 11/26/19 0735Depth to Well Bottom (ft) 36.43Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 21.23 - 36.00 ^{ft BTOC}Discharge Tube Diameter: 1/4" Immersible Layer: Y / NL George 04/21/2020Approximate depth of pump inlet*(ft): 28.62Pump Start Time: 0705Ferrous Iron (Required Y or N) _____ mg/L

2ND Depth TO WATER - 24.45



Sample Collection Log

2 of 2

Location ID: 35BWW10 Sample No: 35BWW10-1911 <u>26</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	+10%		+0.1 units	No criteria		+ 10% or 0.2 mg/L
11/26/19	0710	100	1.5	24.52	0.275	20.50	5.91	210	291	2.87
	0715	100	1.0	24.58	0.261	20.25	6.52	173	255	2.69
	0720	100	1.5	24.62	0.259	20.25	6.75	155	240	2.57
	0725	100	2.0	24.65	0.258	20.24	6.76	155	239	2.55
	0730	100	2.5	24.67	0.258	20.24	6.77	154	238	2.53
	0735	100	3.0	24.69	0.258	20.24	6.78	153	237	2.51

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW11

Project No: 501032

Sampler(s): Scott Bessinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW11-1911 21DATE/TIME: 11/21/19 1224Pump Inlet Depth: 32.16

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Low flow/BLADDER PumpCasing ID (in.): 4"Purge Start Date/Time: 11/21/19 1230Depth to Water - Initial (DTWi) (ft) 23.28Purge End Date/Time: 11/21/19 1300Depth to Well Bottom (ft) 37.63Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 27.41 - 37.41Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

L George 05/18/2020

Approximate depth of pump inlet*(ft): 32.16Pump Start Time: 1230Ferrous Iron (Required Y or N) _____ mg/L

2nd Depth to water - ~~23.28~~
23.28



Sample Collection Log

2 of 2

Location ID: 35BWW11 Sample No: 35BWW11-1911 <u>21</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/24/19	1235	100	.5	23.35	0.322	21.20	5.52	8.3	178	1.01
	1240	100	1.0	23.41	0.326	21.10	5.95	7.4	122	0.30
	1245	100	1.5	23.45	0.326	21.09	6.05	7.0	118	0.06
	1250	100	2.0	23.47	0.326	21.07	6.06	6.5	117	0.06
	1255	100	2.5	23.49	0.326	21.05	6.06	5.9	117	0.05
	1300	100	3.0	23.50	0.326	21.05	6.07	5.7	116	0.05

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW12

Project No: 501032

Sampler(s): Scott Beersinger

FIELD CONDITIONS

CLEAR

SAMPLING INFORMATION

Sample No: 35BWW12-191125

DATE/TIME: 11/25/19 1154

Pump Inlet Depth: 30.29

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 250 mL HDPE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 211

Purge Start Date/Time: 11/25/19 1205

Depth to Water - Initial (DTWi) (ft) 21.74

Purge End Date/Time: 11/25/19 1235

Depth to Well Bottom (ft) 37.65

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 22.95-37.65

Discharge Tube Diameter: 1/4" Immersible Layer: Y / ☒

L George 04/21/2020

Approximate depth of pump inlet*(ft): 30.29

Pump Start Time: 1205

Ferrous Iron (Required ☒ or N) 0.66 mg/L

2ND Depth TO WATER - 21.74



Sample Collection Log

2 of 2

Location ID: 35BWW12 Sample No: 35BWW12-1911 <u>25</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/25/19	1210	100	1.5	21.80	0.302	19.97	6.54	220	209	1.03
	1215	100	1.0	21.85	0.301	20.21	6.24	175	152	0.23
	1220	100	1.5	21.89	0.277	20.20	6.19	160	139	0.04
	1225	100	2.0	21.92	0.276	20.19	6.18	159	138	0.04
	1230	100	2.5	21.95	0.275	20.18	6.18	159	137	0.03
	1235	100	3.0	21.97	0.275	20.18	6.17	158	137	0.03

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW12

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

SAMPLING INFORMATION

Sample No: 35BWW12-191125-MSDATE/TIME: 11/25/19 1154Pump Inlet Depth: 30.29

Sampling Method:

Sample Purpose: MS

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 250 mL HDPE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Low flow / Bladder PumpCasing ID (in.): 2"Purge Start Date/Time: 11/25/19 1205Depth to Water - Initial (DTWi) (ft) 21.74Purge End Date/Time: 11/25/19 1235Depth to Well Bottom (ft) 37.65Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 22.95-37.65 ft BTOCDischarge Tube Diameter: 1/4" Immersible Layer: Y / (N)

L George 04/21/2020

Approximate depth of pump inlet*(ft): 30.29Pump Start Time: 1205Ferrous Iron (Required (N) or N) 0.66 mg/L

2ND Depth TO WATER - 21.74



Sample Collection Log

2 of 2

Location ID: 35BWW12 Sample No: 35BWW12-191125-MS										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/25/19	1210	100	.5	21.80	0.302	19.97	6.54	220	209	1.03
	1215	100	1.0	21.85	0.277	20.21	6.24	175	152	0.23
	1220	100	1.5	21.89	0.277	20.20	6.19	160	139	0.04
	1225	100	2.0	21.92	0.276	20.19	6.18	159	138	0.04
	1230	100	2.5	21.95	0.275	20.18	6.18	159	137	0.03
	1235	100	3.0	21.97	0.275	20.18	6.17	158	137	0.03

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW12

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

CLEAR

SAMPLING INFORMATION

Sample No: 35BWW12-191125-MSDDATE/TIME: 11/25/19 1154Pump Inlet Depth: 30.29

Sampling Method:

Sample Purpose: MSD

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 250 mL HDPE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Low flow/Bladder PumpCasing ID (in.): 2"Purge Start Date/Time: 11/25/19 1205Depth to Water - Initial (DTWi) (ft) 21.74Purge End Date/Time: 11/25/19 1235Depth to Well Bottom (ft) 37.65Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 22.95-37.65 ^{ft} BTOCDischarge Tube Diameter: 1/4" Immersible Layer: Y/NL George 04/21/2020Approximate depth of pump inlet*(ft): 30.29Pump Start Time: 1205Ferrous Iron (Required ☒ or N) 0.66 mg/L2ND Depth TO WATER - 21.74



Sample Collection Log

2 of 2

Location ID: 35BWW12 Sample No: 35BWW12-191125-MSD										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/25/14	1210	100	.5	21.80	0.302	19.97	6.54	220	209	1.03
	1215	100	1.0	21.85	0.277	20.21	6.24	175	152	0.23
	1220	100	1.5	21.89	0.277	20.20	6.19	160	139	0.04
	1225	100	2.0	21.92	0.276	20.19	6.18	159	138	0.04
	1230	100	2.5	21.95	0.275	20.18	6.18	159	137	0.03
	1235	100	3.0	21.97	0.275	20.18	6.17	158	137	0.03

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW13

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

clean/cool

SAMPLING INFORMATION

Sample No: 35BWW13-191125DATE/TIME: 11/25/19 0842Pump Inlet Depth: 29.60

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: low flow/bladder pumpCasing ID (in.): 2"Purge Start Date/Time: 11/25/19 0850Depth to Water - Initial (DTWi) (ft) 24.35Purge End Date/Time: 11/25/19 0920Depth to Well Bottom (ft) 37.70Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 22.25 - 36.45 ft BTOCDischarge Tube Diameter: 1/4" Immersible Layer: Y / QL George 04/21/2020Approximate depth of pump inlet*(ft): 29.60Pump Start Time: 0850Ferrous Iron (Required Y or N) _____ mg/L

2ND Depth TO WATER- 24.35



Sample Collection Log

2 of 2

Location ID: 35BWW13 Sample No: 35BWW13-191125										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/25/19	0855	100	.5	24.43	0.194	15.54	6.24	175	201	3.59
	0900	100	1.0	24.49	0.180	16.20	5.10	160	280	3.35
	0905	100	1.5	24.53	0.180	16.44	4.87	143	294	3.27
	0910	100	2.0	24.56	0.179	16.50	4.86	142	295	3.26
	0915	100	2.5	24.58	0.179	16.57	4.85	142	296	3.26
↓	0920	100	3.0	24.60	0.179	16.63	4.85	141	296	3.25

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW14

Project No: 501032

Sampler(s): Scott Bessinger

FIELD CONDITIONS

Clear/cool

SAMPLING INFORMATION

Sample No: 35BWW14-191125DATE/TIME: 11/25/19 0927Pump Inlet Depth: 32.46

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 250 mL HDPE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Lowflow/Bladder PumpCasing ID (in.): 4"Purge Start Date/Time: 11/25/19 0935Depth to Water - Initial (DTWi) (ft) 22.52Purge End Date/Time: 11/25/19 1005Depth to Well Bottom (ft) 37.28Discharge Tube Length: NAPID Reading: NAScreen Interval (ft): 27.71-37.21 26.71-36.71 ft BTOCDischarge Tube Diameter: 1/4"Immersible Layer: Y / ☒ NL George 05/18/2020Approximate depth of pump inlet*(ft): 32.46Pump Start Time: 0935Ferrous Iron (Required ☒ or N) 0.08 mg/L2ND Depth TO WATER - 22.52



Sample Collection Log

2 of 2

Location ID: 35BWW14 Sample No: 35BWW14-1911 ²⁵										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/25/19	0940	100	.5	22.60	0.355	17.06	5.23	12.3	273	0.83
↓	0945	100	1.0	22.65	0.359	18.35	5.85	7.3	210	0.28
↓	0950	100	1.5	22.68	0.359	18.77	6.05	6.9	187	0.05
↓	0955	100	2.0	22.70	0.359	18.85	6.06	6.4	186	0.04
↓	1000	100	2.5	22.72	0.359	18.92	6.07	5.7	185	0.04
↓	1005	100	3.0	22.73	0.359	18.98	6.07	5.1	184	0.05

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW15

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW15-191122DATE/TIME: 11/22/19 0815Pump Inlet Depth: 34.39

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Low Flow/Bladder PumpCasing ID (in.): 2"Purge Start Date/Time: 11/22/19 0825Depth to Water - Initial (DTWi) (ft) 22.98Purge End Date/Time: 11/22/19 0855Depth to Well Bottom (ft) 50.12Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 19.54 - 49.24Discharge Tube Diameter: 1/4" Immersible Layer: Y ☒

L George 05/18/2020

Approximate depth of pump inlet* (ft): 34.39Pump Start Time: 0825Ferrous Iron (Required Y or ☒) _____ mg/L

2ND DEPTH TO WATER - 22.98



Sample Collection Log

2 of 2

Location ID: 35BWW15 Sample No: 35BWW15-191122										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/22/19	0830	100	.5	23.05	0.303	19.08	6.48	139	280	0.95
	0835	100	1.0	23.10	0.302	19.00	6.38	115	282	0.60
	0840	100	1.5	23.13	0.304	19.00	6.38	92.0	281	0.51
	0845	100	2.0	23.15	0.310	19.00	6.37	91.5	281	0.50
	0850	100	2.5	23.17	0.310	18.99	6.37	90.8	280	0.50
	0855	100	3.0	23.18	0.310	18.99	6.37	90.2	280	0.49

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW15

Project No: 501032

Sampler(s): Scott Bessinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW15-191122-FDDATE/TIME: 11/22/19 0815Pump Inlet Depth: 34.39

Sampling Method:

Sample Purpose: FD

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Low flow / Bladder PumpCasing ID (in.): 2"Purge Start Date/Time: 11/22/19 0825Depth to Water - Initial (DTWi) (ft) 22.98Purge End Date/Time: 11/22/19 0855Depth to Well Bottom (ft) 50.12Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): ~~19.54 - 49.24~~Discharge Tube Diameter: 1/4"Immersible Layer: Y / ØL George 05/18/2020Approximate depth of pump inlet* (ft): 34.39Pump Start Time: 0825Ferrous Iron (Required Y or N) Ø mg/L

2ND Depth TO WATER - 22.98



Sample Collection Log

2 of 2

Location ID: 35BWW15 Sample No: 35BWW15-191122FD										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/22/19	0830	100	.5	23.05	0.303	19.08	6.48	134	280	0.95
	0835	100	1.0	23.10	0.302	19.00	6.38	115	282	0.60
	0840	100	1.5	23.13	0.304	19.00	6.38	92.0	281	0.51
	0845	100	2.0	23.15	0.310	19.00	6.37	91.5	281	0.50
	0850	100	2.5	23.17	0.310	18.99	6.37	90.8	280	0.50
	0855	100	3.0	23.18	0.310	18.99	6.37	90.2	280	0.49

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW16

Project No: 501032

Sampler(s): Scott Bagesinger

FIELD CONDITIONS

OVERCAST

SAMPLING INFORMATION

Sample No: 35BWW16-191121

DATE/TIME: 11/21/19 0725

Pump Inlet Depth: 29.01

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 11/21/19 0735

Depth to Water - Initial (DTWi) (ft) 22.65

Purge End Date/Time: 11/21/19 0805

Depth to Well Bottom (ft) 36.86

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 21.66-36.36

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / ☒

L George 04/21/2020

Approximate depth of pump inlet*(ft): 29.01

Pump Start Time: 0735

Ferrous Iron (Required Y or ☒) _____ mg/L

2ND Depth TO WATER - 22.65



Sample Collection Log

2 of 2

Location ID: 35BWW16 Sample No: 35BWW16-1911 <u>21</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/21/19	0740	100	.5	22.72	0.324	18.04	5.48	147	381	1.00
	0745	100	1.0	22.77	0.220	18.23	5.53	132	328	0.55
	0750	100	1.5	22.81	0.207	18.23	5.51	131	309	0.25
	0755	100	2.0	22.83	0.206	18.23	5.51	130	308	0.24
	0800	100	2.5	22.85	0.206	18.23	5.50	129	307	0.24
	0805	100	3.0	22.86	0.206	18.23	5.50	128	306	0.23

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW17

Project No: 501032

Sampler(s): Scott Bussinger

FIELD CONDITIONS

overcast

SAMPLING INFORMATION

Sample No: 35BWW17-191121DATE/TIME: 11/21/19 0812Pump Inlet Depth: 28.49

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow/Bladder PumpCasing ID (in.): 2"Purge Start Date/Time: 11/21/19 0820Depth to Water - Initial (DTWi) (ft) 21.85Purge End Date/Time: 11/21/19 0850Depth to Well Bottom (ft) 36.25Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 21.14 - 35.84 ft BTOCDischarge Tube Diameter: 1/4" Immersible Layer: Y / NL George 04/21/2020Approximate depth of pump inlet* (ft): 28.49Pump Start Time: 0820Ferrous Iron (Required Y or N) _____ mg/L

2ND Depth TO WATER - 21.85



Sample Collection Log

2 of 2

Location ID: 35BWW17 Sample No: 35BWW17-19112										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/21/19	0825	100	.5	21.93	0.061	17.75	5.71	240	306	1.77
	0830	100	1.0	21.99	0.053	17.90	5.23	223	370	1.46
	0835	100	1.5	22.03	0.052	17.94	5.15	218	383	1.36
	0840	100	2.0	22.06	0.052	17.99	5.14	217	384	1.33
	0845	100	2.5	22.08	0.052	18.04	5.13	216	384	1.31
↓	0850	100	3.0	22.10	0.052	18.09	5.12	216	385	1.29

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW18

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW18-191126DATE/TIME: 11/26/19 ¹²⁰⁰ ~~0800~~Pump Inlet Depth: 28.06

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: low flow / Peristaltic PumpCasing ID (in.): 2"Purge Start Date/Time: 11/26/19 1210Depth to Water - Initial (DTWi) (ft) 26.92Purge End Date/Time: 11/26/19 1240Depth to Well Bottom (ft) 35.43Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 20.69-35.42 ^{ft BTOC}Discharge Tube Diameter: 1/4" Immersible Layer: Y / ☒L George 04/21/2020Approximate depth of pump inlet*(ft): 28.06Pump Start Time: 1210Ferrous Iron (Required Y or ☒) _____ mg/L2nd Depth TO WATER - 26.92



Sample Collection Log

2 of 2

Location ID: 35BWW18 Sample No: 35BWW18-191126										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/26/19	1215	100	.5	27.00	0.607	20.42	6.44	15.5	265	1.33
	1220	100	1.0	27.06	0.636	19.99	6.29	11.9	251	1.06
	1225	100	1.5	27.10	0.641	19.95	6.28	9.8	248	0.92
	1230	100	2.0	27.13	0.642	19.92	6.28	9.2	247	0.91
	1235	100	2.5	27.15	0.642	19.89	6.28	8.7	246	0.90
	1240	100	3.0	27.17	0.642	19.88	6.28	8.3	246	0.88

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW19

Project No: 501032

Sampler(s): Scott Bessinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW19-1911 26

DATE/TIME: 11/26/19 0743

Pump Inlet Depth: 28.68

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: low flow/Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 11/26/19 0750

Depth to Water - Initial (DTWi) (ft) 26.50

Purge End Date/Time: 11/26/19 0820

Depth to Well Bottom (ft) 36.63

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 26.31-36.04

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

L George 04/21/2020

Approximate depth of pump inlet* (ft): 28.68

Pump Start Time: 0750

Ferrous Iron (Required Y or N) mg/L

2ND Depth TO WATER- 26.50



Sample Collection Log

2 of 2

Location ID: 35BWW19 Sample No: 35BWW19-1911 <u>26</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/26/19	0755	100	.5	26.58	2.53	20.03	6.30	192	264	1.45
↓	0800	100	1.0	26.64	2.67	19.61	6.32	153	240	1.02
	0805	100	1.5	26.68	2.70	19.57	6.36	141	232	0.88
	0810	100	2.0	26.71	2.70	19.53	6.37	140	232	0.86
	0815	100	2.5	26.73	2.71	19.49	6.37	140	231	0.85
↓	0820	100	3.0	26.74	2.71	19.46	6.37	139	231	0.84

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW20

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW20-1911 22DATE/TIME: 11/22/19 0953Pump Inlet Depth: 26.50

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Low flow / Bladder PumpCasing ID (in.): 2"Purge Start Date/Time: 11/22/19 1000Depth to Water - Initial (DTWi) (ft) 25.75Purge End Date/Time: 11/22/19 1030Depth to Well Bottom (ft) 32.90Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 17.70-32.46Discharge Tube Diameter: 1/4" Immersible Layer: Y/N NApproximate depth of pump inlet* (ft): 26.50Pump Start Time: 1000Ferrous Iron (Required Y or N) N mg/L

2ND Depth TO WATER - 25.75



Sample Collection Log

2 of 2

Location ID: 35BWW20 Sample No: 35BWW20-1911 <u>22</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/22/19	1005	100	.5	25.83	0.225	19.67	6.71	493	266	2.21
↓	1010	100	1.0	25.89	0.232	20.31	6.53	465	276	2.05
↓	1015	100	1.5	25.93	0.238	20.47	6.48	439	280	1.95
↓	1020	100	2.0	25.97	0.238	20.51	6.48	438	281	1.92
↓	1025	100	2.5	25.99	0.239	20.58	6.47	438	281	1.90
↓	1030	100	3.0	26.01	0.239	20.62	6.47	437	281	1.88

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW23

Project No: 501032

Sampler(s): Scott Bessinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 35BWW23-191125

DATE/TIME: 11/25/19 1018

Pump Inlet Depth: 28.63

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 250 mL HDPE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/25/19 1025

Depth to Water - Initial (DTWi) (ft) 27.77

Purge End Date/Time: 11/25/19 1055

Depth to Well Bottom (ft) 33.65

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 23.63 - 33.63 22.63-32.63 ft BTOC

Discharge Tube Diameter: 1/4" Immersible Layer: Y/N

L George 05/18/2020

Approximate depth of pump inlet*(ft): 28.63

Pump Start Time: 1025

Ferrous Iron (Required ☒ or N) 0.06 mg/L

2ND Depth TO WATER - 27.77



Sample Collection Log

2 of 2

Location ID: 35BWW23 Sample No: 35BWW23-1911 <u>25</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/25/19	1030	100	1.5	27.85	0.395	19.18	6.33	4.3	221	1.60
↓	1035	100	1.0	27.91	0.401	18.75	6.15	3.2	222	1.49
↓	1040	100	1.5	27.95	0.403	18.69	6.11	2.8	222	1.36
↓	1045	100	2.0	27.98	0.404	18.61	6.11	2.4	222	1.34
↓	1050	100	2.5	28.00	0.404	18.55	6.11	1.9	222	1.33
↓	1055	100	3.0	28.02	0.404	18.50	6.11	1.6	222	1.31

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW24

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

CLEM

SAMPLING INFORMATION

Sample No: 35BWW24-191125DATE/TIME: 11/25/19 1107Pump Inlet Depth: 29.50

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow Bladder PumpCasing ID (in.): 4"Purge Start Date/Time: 11/25/19 1115Depth to Water - Initial (DTWi) (ft) 28.77Purge End Date/Time: 11/25/19 1145Depth to Well Bottom (ft) 32.70Discharge Tube Length: NAPID Reading: NAScreen Interval (ft): 22.92-32.42Discharge Tube Diameter: 1/4"Immersible Layer: Y/☒L George 05/18/2020Approximate depth of pump inlet*(ft): 29.50Pump Start Time: 1115Ferrous Iron (Required Y or ☒) _____ mg/L

2ND Depth to water - 28.77



Sample Collection Log

2 of 2

Location ID: 35BWW24 Sample No: 35BWW24-191125										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/25/19	1120	100	1.5	28.85	1.08	18.40	6.10	17.9	238	1.83
	1125	100	1.0	28.91	1.10	18.50	6.00	13.3	238	1.70
	1130	100	1.5	28.95	1.10	18.50	6.00	9.1	234	1.54
	1135	100	2.0	28.98	1.10	18.49	6.00	8.6	233	1.52
	1140	100	2.5	29.00	1.10	18.50	6.00	8.2	232	1.50
	1145	100	3.0	29.02	1.10	18.49	6.00	7.5	232 232	1.48

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW25

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW25-191122DATE/TIME: 11/22/19 0725Pump Inlet Depth: 27.66

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Low flow/Bladder PumpCasing ID (in.): 4"Purge Start Date/Time: 11/22/19 0735Depth to Water - Initial (DTWi) (ft) 26.52Purge End Date/Time: 11/22/19 0805Depth to Well Bottom (ft) 32.52Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): ~~22.91-32.41~~ 22.47-32.17 ft BTOCDischarge Tube Diameter: 1/4" Immersible Layer: Y / ☒ NL George 05/18/2020Approximate depth of pump inlet* (ft): 27.66Pump Start Time: 0735Ferrous Iron (Required Y or ☒ N) _____ mg/L

2ND Depth TO WATER-26.52



Sample Collection Log

2 of 2

Location ID: 35BWW25 Sample No: 35BWW25-1911 <u>22</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/22/19	0740	100	1.5	26.60	0.627	18.87	5.66	15.5	308	1.22
	0745	100	1.0	26.65	0.638	18.75	5.88	8.3	308	0.90
	0750	100	1.5	26.69	0.639	18.74	5.91	7.2	308	0.80
	0755	100	2.0	26.72	0.639	18.72	5.92	6.5	308	0.78
	0800	100	2.5	26.74	0.639	18.71	5.93	6.1	308	0.77
	0805	100	3.0	26.76	0.639	18.70	5.94	5.6	308	0.76

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW25

Project No: 501032

Sampler(s): Scott Beasinger

FIELD CONDITIONS

cloudy

SAMPLING INFORMATION

Sample No: 35BWW25-191122-FD

DATE/TIME: 11/22/19 0725

Pump Inlet Depth: 27.66

Sampling Method:

Sample Purpose: FD

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/22/19 0735

Depth to Water - Initial (DTWi) (ft) 26.52

Purge End Date/Time: 11/22/19 0805

Depth to Well Bottom (ft) 32.52

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): ~~22.41 - 32.41~~ 22.47-32.17 ft BTOC

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / ☒

L George 05/18/2020

Approximate depth of pump inlet* (ft): 27.66

Pump Start Time: 0735

Ferrous Iron (Required Y or ☒) _____ mg/L

ZND Depth to WATER - 26.52



Sample Collection Log

2 of 2

Location ID: 35BWW25 Sample No: 35BWW25-1911 <u>22</u> FD										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/22/19	0740	100	.5	26.60	0.627	18.87	5.66	15.5	308	1.22
	0745	100	1.0	26.65	0.638	18.75	5.88	8.3	308	0.90
	0750	100	1.5	26.69	0.639	18.74	5.91	7.2	308	0.80
	0755	100	2.0	26.72	0.639	18.72	5.92	6.5	308	0.78
	0800	100	2.5	26.74	0.639	18.71	5.93	6.1	308	0.77
	0805	100	3.0	26.76	0.639	18.70	5.94	5.6	308	0.76

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW26

Project No: 501032

Sampler(s): Scott Beasinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW26-191121

DATE/TIME: 11/21/19 12:47

Pump Inlet Depth: 32.91

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 250 mL HDPE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/21/19 1055

Depth to Water - Initial (DTWi) (ft) 27.07

Purge End Date/Time: 11/21/19 1125

Depth to Well Bottom (ft) 38.02

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): ~~28.16 - 37.66~~ 27.65-37.35 ft BTOC

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

L George 05/07/2020

Approximate depth of pump inlet*(ft): 32.91

Pump Start Time: 1055

Ferrous Iron (Required ☒ or N) 0.05 mg/L

2ND Depth TO WATER- 27.07



Sample Collection Log

2 of 2

Location ID: 35BWW26 Sample No: 35BWW26-1911 <u>21</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/21/19	1100	100	.5	27.14	0.233	20.85	6.74	20.1	258	0.84
	1105	100	1.0	27.20	0.230	20.70	6.05	11.3	296	0.24
	1110	100	1.5	27.24	0.230	20.70	5.89	8.2	298	0.14
	1115	100	2.0	27.27	0.230	20.71	5.88	7.5	299	0.13
	1120	100	2.5	27.29	0.230	20.72	5.87	7.0	300	0.14
✓	1125	100	3.0	27.31	0.230	20.73	5.87	6.7	301	0.13

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: LHSMW58

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: LHSMW58-191122DATE/TIME: 11/22/19 0905Pump Inlet Depth: 30.15

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow/Bladder PumpCasing ID (in.): 4"Purge Start Date/Time: 11/22/19 0915Depth to Water - Initial (DTWi) (ft) 24.22Purge End Date/Time: 11/22/19 0945L George 06/11/2020Depth to Well Bottom (ft) 30.15Incorrect readingDischarge Tube Length: NAPID Reading: NAScreen Interval (ft): 25.15 - 35.15Discharge Tube Diameter: 1/4"Immersible Layer: Y/NL George 05/18/2020Approximate depth of pump inlet*(ft): 30.15Pump Start Time: 0915Ferrous Iron (Required Y or N) _____ mg/L2ND Depth TO WATER - 24.22



Sample Collection Log

2 of 2

Location ID: LHSMW58 Sample No: LHSMW58-1911 <u>22</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/22/19	0920	100	.5	24.30	0.164	19.62	6.78	7.7	262	5.93
	0925	100	1.0	24.36	0.163	19.75	6.72	7.1	271	5.40
	0930	100	1.5	24.40	0.166	19.70	6.65	6.6	275	5.16
	0935	100	2.0	24.42	0.167	19.66	6.64	6.3	276	5.14
	0940	100	2.5	24.44	0.167	19.61	6.63	5.9	277	5.13
↓	0945	100	3.0	24.45	0.167	19.56	6.63	5.5	278	5.11

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: LHSMW58

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

cloudy

SAMPLING INFORMATION

Sample No: LHSMW58-191122MSDATE/TIME: 11/22/19 0905Pump Inlet Depth: 30.15

Sampling Method:

Sample Purpose: MS

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder PumpCasing ID (in.): 4"Purge Start Date/Time: 11/22/19 0915Depth to Water - Initial (DTWi) (ft) 24.22Purge End Date/Time: 11/22/19 0945Depth to Well Bottom (ft) 30.15Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 25.15 - 35.15Discharge Tube Diameter: 1/4" Immersible Layer: Y/N24.18-34.18 ft BTOCL George 04/21/2020
Approximate depth of pump inlet*(ft): 30.15Pump Start Time: 0915Ferrous Iron (Required Y or N) _____ mg/L

2ND Depth TO WATER - 24.22



Sample Collection Log

2 of 2

Location ID: LHSMW58 Sample No: LHSMW58-191122-MS										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/22/19	0920	100	1.5	24.30	0.164	19.62	6.78	7.7	262	5.93
	0925	100	1.0	24.36	0.163	19.75	6.72	7.1	271	5.40
	0930	100	1.5	24.40	0.166	19.70	6.65	6.6	275	5.16
	0935	100	2.0	24.42	0.167	19.66	6.64	6.3	276	5.14
	0940	100	2.5	24.44	0.167	19.61	6.63	5.9	277	5.13
	0945	100	3.0	24.45	0.167	19.56	6.63	5.5	278	5.11

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: LHSMW58

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: LHSMW58-191122MSDDATE/TIME: 11/22/19 0905Pump Inlet Depth: 30.15

Sampling Method:

Sample Purpose: MSD

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Lowflow/BLADDER PumpCasing ID (in.): 4"Purge Start Date/Time: 11/22/19 0915Depth to Water - Initial (DTWi) (ft) 24.22Purge End Date/Time: 11/22/19 0945Depth to Well Bottom (ft) 30.15Discharge Tube Length: NAPID Reading: NAScreen Interval (ft): ~~25.15 - 35.15~~Discharge Tube Diameter: 1/4"Immersible Layer: Y ☒ NL George 04/21/2020Approximate depth of pump inlet*(ft): 30.15Pump Start Time: 0915Ferrous Iron (Required Y or ☒) _____ mg/L

2ND Depth TO WATER - 24.22



Sample Collection Log

2 of 2

Location ID: LHSMW58 Sample No: LHSMW58-191122-MSD										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/22/19	0920	100	.5	24.30	0.164	19.62	6.78	7.7	262	5.93
	0925	100	1.0	24.36	0.163	19.75	6.72	7.1	271	5.40
	0930	100	1.5	24.40	0.166	19.70	6.65	6.6	275	5.16
	0935	100	2.0	24.42	0.167	19.66	6.64	6.3	276	5.14
	0940	100	2.5	24.44	0.167	19.61	6.63	5.9	277	5.13
	0945	100	3.0	24.45	0.167	19.56	6.63	5.5	278	5.11

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 1

Project Name: Longhorn AAP

Location ID: 35BSW01

Project No: 501032

Sampler(s): Scott Bussinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BSW01-1911

DATE/TIME: 11/26/19 0957

Pump Inlet Depth: NA

Sampling Method:

Sample Purpose: REG

Sample Matrix: SW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

Logged by: _____

Date: _____

QC'd by: _____

Date: _____

There is no flow AT THIS LOCATION
NO Sample collected



Sample Collection Log

1 of 1

Project Name: Longhorn AAP

Location ID: 35BSW02

Project No: 501032

Sampler(s): Scott Bassinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BSW02-1911DATE/TIME: 11/26/19 0953Pump Inlet Depth: NA

Sampling Method:

Sample Purpose: REG

Sample Matrix: SW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

Logged by: _____

Date: _____

QC'd by: _____

Date: _____

THERE IS NO FLOW AT THIS LOCATION
NO SAMPLE COLLECTED



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW01

Project No: 501032

Sampler(s): Scott Baesinger

FIELD CONDITIONS

Clear/Sunny

SAMPLING INFORMATION

Sample No: 35BWW01-2005 06DATE/TIME: 5/6/20 0917Pump Inlet Depth: 16.11

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Lowflow/BLADDER PumpCasing ID (in.): 4"Purge Start Date/Time: 5/6/20 0925Depth to Water - Initial (DTWi) (ft) 8.28Purge End Date/Time: 5/6/20 0955Depth to Well Bottom (ft) 21.05Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 16.11 - 21.11Discharge Tube Diameter: 1/4" Immersible Layer: Y ☒ NApproximate depth of pump inlet*(ft): 16.11Pump Start Time: 0925Ferrous Iron (Required Y or ☒ N) _____ mg/L2ND Depth TO WATER - 8.28



Sample Collection Log

2 of 2

Location ID: 35BWW01 Sample No: 35BWW01-2005 <u>06</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/6/20	0930	100	.5	8.35	0.105	18.19	5.80	79.2	163	1.97
↓	0935	100	1.0	8.41	0.102	17.68	5.17	68.4	220	1.71
↓	0940	100	1.5	8.45	0.102	17.59	5.11	64.8	235	1.55
↓	0945	100	2.0	8.48	0.102	17.53	5.11	64.2	236	1.53
↓	0950	100	2.5	8.50	0.102	17.49	5.10	63.6	237	1.51
↓	0955	100	3.0	8.51	0.102	17.46	5.10	63.1	238	1.50

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW01

Project No: 501032

Sampler(s): Scott Bessinger

FIELD CONDITIONS

Clear/Sunny

SAMPLING INFORMATION

Sample No: 35BWW01-2005de-FDDATE/TIME: 5/6/20 0917Pump Inlet Depth: 16.11

Sampling Method:

Sample Purpose: FD

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Low flow/BLADDER PumpCasing ID (in.): 4"Purge Start Date/Time: 5/6/20 0925Depth to Water - Initial (DTWi) (ft) 8.28Purge End Date/Time: 5/6/20 0955Depth to Well Bottom (ft) 21.05Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 11.11 - 21.11Discharge Tube Diameter: 1/4" Immersible Layer: Y / NApproximate depth of pump inlet*(ft): 16.11Pump Start Time: 0925Ferrous Iron (Required Y or N) _____ mg/L

2ND Depth TO WATER - 8.28



Sample Collection Log

2 of 2

Location ID: 35BWW01 Sample No: 35BWW01-2005 <u>06</u> -FD										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/6/20	0930	100	.5	8.35	0.105	18.19	5.80	79.2	163	1.97
	0935	100	1.0	8.41	0.102	17.68	5.17	68.4	220	1.71
	0940	100	1.5	8.45	0.102	17.59	5.11	64.8	235	1.55
	0945	100	2.0	8.48	0.102	17.53	5.11	64.2	236	1.53
	0950	100	2.5	8.50	0.102	17.49	5.10	63.6	237	1.51
↓	0955	100	3.0	8.51	0.102	17.46	5.10	63.1	238	1.50

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW04

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear / Sunny

SAMPLING INFORMATION

Sample No: 35BWW04-2005 06DATE/TIME: 5/6/20 1053Pump Inlet Depth: 27.85

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL < pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL < pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow / Bladder PumpCasing ID (in.): 4"Purge Start Date/Time: 5/6/20 1100Depth to Water - Initial (DTWi) (ft) 20.59Purge End Date/Time: 5/6/20 1130Depth to Well Bottom (ft) 33.30Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 22.85-32.85Discharge Tube Diameter: 1/4" Immersible Layer: Y / ☒ NApproximate depth of pump inlet* (ft): 27.85Pump Start Time: 1100Ferrous Iron (Required ☒ or N) 0.68 mg/L2ND Depth TO WATER - 20.59



Sample Collection Log

2 of 2

Location ID: 35BWW04 Sample No: 35BWW04-2005 <u>06</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/6/20	1105	100	.5	20.67	0.287	19.38	6.40	15.6	143	3.78
	1110	100	1.0	20.73	0.288	18.85	6.38	14.1	145	3.31
	1115	100	1.5	20.77	0.288	18.51	6.38	13.8	145	3.16
	1120	100	2.0	20.79	0.289	18.46	6.38	13.5	146	3.14
	1125	100	2.5	20.81	0.289	18.41	6.38	13.2	147	3.12
	1130	100	3.0	20.82	0.289	18.36	6.38	13.0	147	3.10

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW05

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear / cool

SAMPLING INFORMATION

Sample No: 35BWW05-2005 06DATE/TIME: 5/6/20 0747Pump Inlet Depth: 33.60

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Low flow / Bladder PumpCasing ID (in.): 2"Purge Start Date/Time: 5/6/20 0755Depth to Water - Initial (DTWi) (ft) 21.61Purge End Date/Time: 5/6/20 0825Depth to Well Bottom (ft) 38.40Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 28.60-38.60Discharge Tube Diameter: 1/4" Immersible Layer: Y ☒ NApproximate depth of pump inlet*(ft): 33.60Pump Start Time: 0755Ferrous Iron (Required Y or ☒ N) _____ mg/L2ND Depth TO WATER- 21.61



Sample Collection Log

2 of 2

Location ID: 35BWW05 Sample No: 35BWW05-2005 <u>06</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/6/20	0800	100	.5	21.69	0.338	16.76	6.75	255	107	0.69
	0805	100	1.0	21.75	0.317	17.03	6.20	221	91	0.18
	0810	100	1.5	21.79	0.314	17.39	6.12	210	82	0.05
	0815	100	2.0	21.81	0.313	17.43	6.11	209	81	0.05
	0820	100	2.5	21.83	0.313	17.47	6.11	208	80	0.04
	0825	100	3.0	21.84	0.313	17.51	6.10	208	79	0.04

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW07

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 35BWW07-2005 11DATE/TIME: 5/11/20 0650Pump Inlet Depth: 25.67

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL< pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Low flow/Bladder PumpCasing ID (in.): 2"Purge Start Date/Time: 5/11/20 0700Depth to Water - Initial (DTWi) (ft) 23.95Purge End Date/Time: 5/11/20 0730Depth to Well Bottom (ft) 31.40Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 20.67 - 30.67Discharge Tube Diameter: 1/4" Immersible Layer: Y / 0Approximate depth of pump inlet*(ft): 25.67Pump Start Time: 0700Ferrous Iron (Required Y or N) _____ mg/L

2ND Depth to Water - 23.95



Sample Collection Log

2 of 2

Location ID: 35BWW07 Sample No: 35BWW07-2005 <u>11</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/11/20	0705	100	.5	24.02	0.717	18.16	6.78	22.3	159	0.93
↓	0710	100	1.0	24.08	0.721	17.51	6.90	18.0	160	0.78
↓	0715	100	1.5	24.12	0.752	17.25	6.90	17.7	159	0.62
↓	0720	100	2.0	24.15	0.753	17.18	6.91	17.3	159	0.61
↓	0725	100	2.5	24.18	0.753	17.13	6.91	16.6	158	0.60
↓	0730	100	3.0	24.20	0.753	17.07	6.91	16.1	158	0.59

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW08

Project No: 501032

Sampler(s): Scott Bessinger

FIELD CONDITIONS

Clear/Sunny

SAMPLING INFORMATION

Sample No: 35BWW08-2005 06DATE/TIME: 5/6/20 1242Pump Inlet Depth: 29.72

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Lowflow/Bladder PumpCasing ID (in.): 2"Purge Start Date/Time: 5/6/20 1250Depth to Water - Initial (DTWi) (ft) 22.63Purge End Date/Time: 5/6/20 1320Depth to Well Bottom (ft) 34.60Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 24.72-34.72Discharge Tube Diameter: 1/4" Immersible Layer: Y/☒NApproximate depth of pump inlet*(ft): 29.72Pump Start Time: 1250Ferrous Iron (Required ☒ or N) 0.81 mg/L

2ND Depth TO WATER - 22.63



Sample Collection Log

2 of 2

Location ID: 35BWW08 Sample No: 35BWW08-2005 <u>06</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/6/20	1255	100	.5	22.70	0.313	23.67	7.03	67.3	115	4.93
	1300	100	1.0	22.76	0.305	23.58	7.14	56.9	105	4.78
	1305	100	1.5	22.80	0.303	23.65	7.14	53.8	103	4.71
	1310	100	2.0	22.83	0.302	23.68	7.15	53.3	103	4.69
	1315	100	2.5	22.85	0.302	23.72	7.15	52.7	102	4.67
	1320	100	3.0	22.87	0.302	23.76	7.15	52.4	102	4.66

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW09

Project No: 501032

Sampler(s): Scott Bessinger

FIELD CONDITIONS

Clear / Sunny

SAMPLING INFORMATION

Sample No: 35BWW09-2005 11DATE/TIME: 5/11/20 0911Pump Inlet Depth: 32.01

Sampling Method: _____

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow/BLADDER PumpCasing ID (in.): 4"Purge Start Date/Time: 5/11/20 0920Depth to Water - Initial (DTWi) (ft) 23.63Purge End Date/Time: 5/11/20 0950Depth to Well Bottom (ft) 37.10Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 27.01 - 37.01Discharge Tube Diameter: 1/4" Immersible Layer: Y / NApproximate depth of pump inlet*(ft): 32.01Pump Start Time: 0920Ferrous Iron (Required Y or N) _____ mg/L

2ND Depth to Water - 23.63



Sample Collection Log

2 of 2

Location ID: 35BWW09 Sample No: 35BWW09-2005 <u>11</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/11/20	0925	100	1.5	23.70	0.506	17.75	7.25	4.8	168	0.95
	0930	100	1.0	23.75	0.515	18.09	7.50	2.5	151	0.61
	0935	100	1.5	23.79	0.514	18.18	7.63	2.4	151	0.42
	0940	100	2.0	23.82	0.513	18.24	7.64	2.3	151	0.41
	0945	100	2.5	23.84	0.513	18.32	7.65	2.2	151	0.41
	0950	100	3.0	23.86	0.513	18.38	7.65	2.1	151	0.40

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW10

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear / cool

SAMPLING INFORMATION

Sample No: 35BWW10-2005 06DATE/TIME: 5/6/20 0658Pump Inlet Depth: 28.62

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow / Bladder PumpCasing ID (in.): 2"Purge Start Date/Time: 5/6/20 0710Depth to Water - Initial (DTWi) (ft) 22.30Purge End Date/Time: 5/6/20 0740Depth to Well Bottom (ft) 36.37Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 21.23 - 36.00Discharge Tube Diameter: 1/4" Immersible Layer: Y ☒ NApproximate depth of pump inlet* (ft): 28.62Pump Start Time: 0710Ferrous Iron (Required Y or ☒) _____ mg/L2ND Depth TO WATER - 22.30



Sample Collection Log

2 of 2

Location ID: 35BWW10 Sample No: 35BWW10-2005 <u>bb</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/6/20	0715	100	1.5	22.37	0.336	18.31	7.38	142	85	2.03
	0720	100	1.0	22.43	0.280	18.12	6.83	129	100	1.79
	0725	100	1.5	22.47	0.280	17.89	6.75	118	100	1.57
	0730	100	2.0	22.49	0.281	17.83	6.74	117	101	1.54
	0735	100	2.5	22.51	0.281	17.77	6.74	116	100	1.53
	0740	100	3.0	22.53	0.281	17.72	6.73	116	101	1.51

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW11

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 35BWW11-2005 06DATE/TIME: 5/6/20 0832Pump Inlet Depth: 32.16

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Lowflow/Bladder PumpCasing ID (in.): 4"Purge Start Date/Time: 5/6/20 0840Depth to Water - Initial (DTWi) (ft) 20.13Purge End Date/Time: 5/6/20 0910Depth to Well Bottom (ft) 37.67Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 27.41-36.91Discharge Tube Diameter: 1/4" Immersible Layer: Y ☒Approximate depth of pump inlet*(ft): 32.16Pump Start Time: 0840Ferrous Iron (Required Y or ☒) _____ mg/L

2nd Depth to Water - 20.13



Sample Collection Log

2 of 2

Location ID: 35BWW11 Sample No: 35BWW11-2005 <u>06</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/6/20	0845	100	.5	20.20	0.380	18.40	6.37	33.2	87	0.80
	0850	100	1.0	20.26	0.380	19.33	6.21	25.9	105	0.29
	0855	100	1.5	20.30	0.380	19.53	6.18	24.1	117	0.09
	0900	100	2.0	20.33	0.380	19.59	6.17	23.7	118	0.09
	0905	100	2.5	20.35	0.381	19.65	6.17	23.3	119	0.08
✓	0910	100	3.0	20.37	0.381	19.70	6.17	22.8	120	0.08

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW12

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear/sunny

SAMPLING INFORMATION

Sample No: 35BWW12-2005 06DATE/TIME: 5/6/2011 43Pump Inlet Depth: 30.30

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of CasingPurging Method/Equipment: Low flow/Bladder PumpCasing ID (in.): 2"Purge Start Date/Time: 5/6/20 1155Depth to Water - Initial (DTWi) (ft) 20.31Purge End Date/Time: 5/6/20 1225Depth to Well Bottom (ft) 38.30Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 22.95-37.65Discharge Tube Diameter: 1/4" Immersible Layer: Y/☒NApproximate depth of pump inlet*(ft): 30.30Pump Start Time: 1155Ferrous Iron (Required ☒ or N) 0.94 mg/L2ND Depth to Water - 20.31



Sample Collection Log

2 of 2

Location ID: 35BWW12 Sample No: 35BWW12-2005 <u>06</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/6/20	1200	100	.5	20.38	0.342	19.15	6.24	142	148	0.77
	1205	100	1.0	20.43	0.347	18.83	6.20	118	144	0.23
	1210	100	1.5	20.47	0.354	18.73	6.20	102	143	0.05
	1215	100	2.0	20.49	0.354	18.67	6.19	102	143	0.05
	1220	100	2.5	20.51	0.355	18.63	6.19	101	142	0.05
	1225	100	3.0	20.53	0.355	18.59	6.19	100	142	0.04

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW12

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear/Sunny

SAMPLING INFORMATION

Sample No: 35BWW12-200506-FDDATE/TIME: 5/6/20 1143Pump Inlet Depth: 30.30

Sampling Method:

Sample Purpose: FD

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow / Bladder PumpCasing ID (in.): 21'Purge Start Date/Time: 5/6/20 1155Depth to Water - Initial (DTWi) (ft) 20.31Purge End Date/Time: 5/6/20 1225Depth to Well Bottom (ft) 38.30Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 22.95-37.65Discharge Tube Diameter: 1/4" Immersible Layer: Y / ☒ NApproximate depth of pump inlet*(ft): 30.30Pump Start Time: 1155Ferrous Iron (Required ☒ or N) 0.94 mg/L2nd Depth TO WATER - 20.31



Sample Collection Log

2 of 2

Location ID: 35BWW12 Sample No: 35BWW12-2005 <u>06</u> -FD										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/6/20	1200	100	.5	20.38	0.342	19.15	6.24	142	148	0.77
	1205	100	1.0	20.43	0.347	18.83	6.20	118	144	0.73
	1210	100	1.5	20.47	0.354	18.73	6.20	102	143	0.05
	1215	100	2.0	20.49	0.354	18.67	6.19	102	143	0.05
	1220	100	2.5	20.51	0.355	18.63	6.19	101	142	0.05
↓	1225	100	3.0	20.53	0.355	18.59	6.19	101	142	0.04

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW13

Project No: 501032

Sampler(s): Scott Bussinger

FIELD CONDITIONS

Clear / Sunny

SAMPLING INFORMATION

Sample No: 35BWW13-2005 07DATE/TIME: 5/7/20 1020Pump Inlet Depth: 29.60

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow/BLADDER PumpCasing ID (in.): 2"Purge Start Date/Time: 5/7/20 1020Depth to Water - Initial (DTWi) (ft) 21.65Purge End Date/Time: 5/7/20 1050Depth to Well Bottom (ft) 37.69Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 22.25-36.95Discharge Tube Diameter: 1/4" Immersible Layer: Y / NApproximate depth of pump inlet* (ft): 29.60Pump Start Time: 1020Ferrous Iron (Required Y or N) _____ mg/L2ND Depth TO WATER- 21.65



Sample Collection Log

2 of 2

Location ID: 35BWW13 Sample No: 35BWW13-2005 <u>07</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/7/20	1025	100	.5	21.73	0.209	17.29	4.90	159	254	0.81
	1030	100	1.0	21.79	0.207	17.23	4.65	140	300	0.27
	1035	100	1.5	21.84	0.204	17.24	4.59	137	313	0.09
	1040	100	2.0	21.87	0.204	17.26	4.59	136	314	0.09
	1045	100	2.5	21.89	0.204	17.28	4.59	135	314	0.08
✓	1050	100	3.0	21.91	0.204	17.29	4.59	134	315	0.08

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW14

Project No: 501032

Sampler(s): Scott Baesinger

FIELD CONDITIONS

Clear / Sunny

SAMPLING INFORMATION

Sample No: 35BWW14-2005_07DATE/TIME: 5/07/20 0702Pump Inlet Depth: 31.71

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow / BLADDER PumpCasing ID (in.): 4"Purge Start Date/Time: 5/7/20 0715Depth to Water - Initial (DTWi) (ft) 20.41Purge End Date/Time: 5/7/20 0745Depth to Well Bottom (ft) 37.28Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 26.71-36.71Discharge Tube Diameter: 1/4" Immersible Layer: Y / NApproximate depth of pump inlet*(ft): 31.71Pump Start Time: 0715Ferrous Iron (Required Y or N) 0.29 mg/L2ND Depth TO WATER - 20.41



Sample Collection Log

2 of 2

Location ID: 35BWW14 Sample No: 35BWW14-2005 <u>07</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/7/20	0720	100	.5	20.49	0.441	18.09	7.14	12.1	143	0.75
	0725	100	1.0	20.55	0.439	17.98	6.70	8.8	152	0.31
	0730	100	1.5	20.59	0.439	17.90	6.60	8.5	155	0.25
	0735	100	2.0	20.62	0.440	17.84	6.59	8.1	156	0.24
	0740	100	2.5	20.64	0.440	17.78	6.59	7.6	157	0.23
✓	0745	100	3.0	20.65	0.440	17.73	6.58	7.0	157	0.23

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW15

Project No: 501032

Sampler(s): Scott Breesinger

FIELD CONDITIONS

Clear/Sunny

SAMPLING INFORMATION

Sample No: 35BWW15-2005 07DATE/TIME: 5/7/20 0757Pump Inlet Depth: 34.34

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL < pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow/BLADDER PumpCasing ID (in.): 2"Purge Start Date/Time: 5/7/20 0805Depth to Water - Initial (DTWi) (ft) 21.10Purge End Date/Time: 5/7/20 0835Depth to Well Bottom (ft) 50.12Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 19.34-49.34Discharge Tube Diameter: 1/4" Immersible Layer: Y / ☒Approximate depth of pump inlet*(ft): 34.34Pump Start Time: 0805Ferrous Iron (Required Y or ☒) _____ mg/L

2ND Depth TO WATER - 21.10



Sample Collection Log

2 of 2

Location ID: 35BWW15 Sample No: 35BWW15-2005 <u>07</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/7/20	0810	100	.5	21.18	0.392	16.93	6.78	57.2	156	0.72
↓	0815	100	1.0	21.24	0.395	17.26	6.37	49.5	167	0.24
↓	0820	100	1.5	21.28	0.404	17.29	6.37	45.8	167	0.08
↓	0825	100	2.0	21.30	0.405	17.33	6.36	45.2	168	0.08
↓	0830	100	2.5	21.32	0.405	17.37	6.36	44.7	168	0.07
↓	0835	100	3.0	21.33	0.405	17.40	6.36	44.3	168	0.07

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW16

Project No: 501032

Sampler(s): Scott Breesinger

FIELD CONDITIONS

Clear/Sunny

SAMPLING INFORMATION

Sample No: 35BWW16-2005 07DATE/TIME: 5/7/20 0928Pump Inlet Depth: 29.01

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow/BLADDER PumpCasing ID (in.): 211Purge Start Date/Time: 5/7/20 0935Depth to Water - Initial (DTW) (ft) 20.70Purge End Date/Time: 5/7/20 1005Depth to Well Bottom (ft) 36.90Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 32.66-36.36Discharge Tube Diameter: 1/4" Immersible Layer: Y / NApproximate depth of pump inlet*(ft): 29.01Pump Start Time: 0935Ferrous Iron (Required Y or N) _____ mg/L

2ND Depth TO WATER-20.70



Sample Collection Log

2 of 2

Location ID: 35BWW16 Sample No: 35BWW16-2005 <u>07</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/7/20	0940	100	1.5	20.78	0.254	17.13	5.68	159	219	0.69
↓	0945	100	1.0	20.84	0.256	17.39	5.61	137	212	0.25
↓	0950	100	1.5	20.88	0.259	17.45	5.60	128	201	0.04
↓	0955	100	2.0	20.91	0.259	17.50	5.59	127	200	0.04
↓	1000	100	2.5	20.93	0.259	17.56	5.59	126	199	0.04
↓	1005	100	3.0	20.95	0.259	17.61	5.59	126	198	0.03

Logged by: _____

Date: _____

QC'd by: _____

Date: _____

APTIM

Project Name: Longhorn AAP

Location ID: 35BWW17

Project No: 501032

Sampler(s): Scott Baesin**FIELD CONDITIONS**Clear/Sunny**SAMPLING INFORMATION**Sample No: 35BWW17-2005 07DATE/TIME: 5/7/20 0842Pump Inlet Depth: 28.49

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATIONMeasuring Point: Top of CasingPurging Method/Equipment: Low flow/BLADDER PumpCasing ID (in.): 2"Purge Start Date/Time: 5/7/20 0850Depth to Water - Initial (DTWi) (ft) 19.18Purge End Date/Time: 5/7/20 0920Depth to Well Bottom (ft) 36.25Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 21.14 - 35.84Discharge Tube Diameter: 1/4" Immersible Layer: Y / ☒Approximate depth of pump inlet*(ft): 28.49Pump Start Time: 0850Ferrous Iron (Required Y or ☒) _____ mg/L2ND Depth TO WATER- 19.18



Sample Collection Log

2 of 2

Location ID: 35BWW17 Sample No: 35BWW17-2005 <u>07</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/7/20	0855	100	.5	19.25	0.070	16.60	6.65	404	159	0.71
	0900	100	1.0	19.31	0.063	16.70	5.20	380	239	0.27
	0905	100	1.5	19.35	0.062	16.72	5.00	370	265	0.08
	0910	100	2.0	19.38	0.062	16.73	4.99	369	267	0.08
	0915	100	2.5	19.40	0.062	16.75	4.99	368	268	0.08
	0920	100	3.0	19.42	0.062	16.76	4.98	368	269	0.07

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW17

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

CLAR Sunny

SAMPLING INFORMATION

Sample No: 35BWW17-2005 07-MSDATE/TIME: 5/7/20 0842Pump Inlet Depth: 28.49

Sampling Method:

Sample Purpose: MS

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL < pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow/Bladder PumpCasing ID (in.): 2"Purge Start Date/Time: 5/7/20 0850Depth to Water - Initial (DTWi) (ft) 19.18Purge End Date/Time: 5/7/20 0920Depth to Well Bottom (ft) 36.25Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 21.14 - 35.84Discharge Tube Diameter: 1/4" Immersible Layer: Y / ⓃApproximate depth of pump inlet*(ft): 28.49Pump Start Time: 0850Ferrous Iron (Required Y or N) _____ mg/L

2ND Depth TO WATER - 19.18



Sample Collection Log

2 of 2

Location ID: 35BWW17 Sample No: 35BWW17-200507-MS										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/7/20	0855	100	.5	19.25	0.070	16.60	6.65	404	159	0.71
	0900	100	1.0	19.31	0.063	16.70	5.20	380	239	0.27
	0905	100	1.5	19.35	0.062	16.72	5.00	370	265	0.08
	0910	100	2.0	19.38	0.062	16.73	4.99	369	267	0.08
	0915	100	2.5	19.40	0.062	16.75	4.99	368	268	0.08
	0920	100	3.0	19.42	0.062	16.76	4.98	368	269	0.07

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW17

Project No: 501032

Sampler(s): Scott Baesinger

FIELD CONDITIONS

Clear / Sunny

SAMPLING INFORMATION

Sample No: 35BWW17-200507-MSDDATE/TIME: 5/7/20 0842Pump Inlet Depth: 28.49

Sampling Method:

Sample Purpose: MSD

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow/BLADDER PumpCasing ID (in.): 211Purge Start Date/Time: 5/7/20 0850Depth to Water - Initial (DTWi) (ft) 19.18Purge End Date/Time: 5/7/20 0920Depth to Well Bottom (ft) 36.25Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 21.14 - 35.84Discharge Tube Diameter: 1/4" Immersible Layer: Y / ☒ NApproximate depth of pump inlet* (ft): 28.49Pump Start Time: 0850Ferrous Iron (Required Y or ☒ N) _____ mg/L2ND Depth To Water - 19.18



Sample Collection Log

2 of 2

Location ID: 35BWW17 Sample No: 35BWW17-200507-MSD										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/7/20	0855	100	.5	19.25	0.070	16.60	6.65	404	159	0.71
	0900	100	1.0	19.31	0.063	16.70	5.20	380	239	0.27
	0905	100	1.5	19.35	0.062	16.72	5.00	370	265	0.08
	0910	100	2.0	19.38	0.062	16.73	4.99	369	267	0.08
	0915	100	2.5	19.40	0.062	16.75	4.99	368	268	0.08
	0920	100	3.0	19.42	0.062	16.76	4.98	368	269	0.07

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW18

Project No: 501032

Sampler(s): SCOTT BEESINGER

FIELD CONDITIONS

Clear / Sunny

SAMPLING INFORMATION

Sample No: 35BWW18-2005 11DATE/TIME: 5/11/20 1037Pump Inlet Depth: 28.06

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow/BLADDER PumpCasing ID (in.): 2"Purge Start Date/Time: 5/11/20 1045Depth to Water - Initial (DTWi) (ft) 25.70Purge End Date/Time: 5/11/20 1115Depth to Well Bottom (ft) 35.48Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 20.69-35.42Discharge Tube Diameter: 1/4" Immersible Layer: Y / ☒Approximate depth of pump inlet* (ft): 28.06Pump Start Time: 1045Ferrous Iron (Required Y or ☒) _____ mg/L2ND Depth To water - 25.70



Sample Collection Log

2 of 2

Location ID: 35BWW18 Sample No: 35BWW18-2005 <u>11</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/11/20	1050	100	1.5	25.77	2.17	17.95	6.87	27.3	162	0.89
	1055	100	1.0	25.83	2.24	18.31	6.69	19.1	171	0.51
	1100	100	1.5	25.87	2.28	18.54	6.62	17.7	175	0.39
	1105	100	2.0	25.90	2.28	18.59	6.61	17.3	176	0.38
	1110	100	2.5	25.92	2.29	18.63	6.60	16.8	176	0.38
	1115	100	3.0	25.94	2.29	18.67	6.60	16.4	177	0.37

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW19

Project No: 501032

Sampler(s): Scott Bessinger

FIELD CONDITIONS

Clear/Sunny

SAMPLING INFORMATION

Sample No: 35BWW19-2005 11DATE/TIME: 5/11/20Pump Inlet Depth: 28.68

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow/BLADDER PumpCasing ID (in.): 2"Purge Start Date/Time: 5/11/20 1000Depth to Water - Initial (DTWI) (ft) 25.63Purge End Date/Time: 5/11/20 1030Depth to Well Bottom (ft) 36.62Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 21.31-36.04Discharge Tube Diameter: 1/4" Immersible Layer: Y/☒ NApproximate depth of pump inlet*(ft): 28.68Pump Start Time: 1000Ferrous Iron (Required Y or ☒ N) _____ mg/L2ND Depth TO WATER 25.63



Sample Collection Log

2 of 2

Location ID: 35BWW19 Sample No: 35BWW19-2005 <u>11</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/11/20	1005	100	.5	25.71	2.70	18.53	6.97	183	184	1.59
	1010	100	1.0	25.76	2.72	18.75	6.67	157	185	1.30
	1015	100	1.5	25.80	2.75	18.81	6.63	147	184	1.23
	1020	100	2.0	25.83	2.76	18.86	6.63	146	184	1.21
	1025	100	2.5	25.85	2.76	18.91	6.62	146	183	1.20
	1030	100	3.0	25.87	2.74	18.95	6.62	145	183	1.19

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW20

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

CLEAR

SAMPLING INFORMATION

Sample No: 35BWW20-2005-11DATE/TIME: 5/11/20 0738Pump Inlet Depth: 25.08

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow/Bladder PumpCasing ID (in.): 211Purge Start Date/Time: 5/11/20 0745Depth to Water - Initial (DTWi) (ft) 23.05Purge End Date/Time: 5/11/20 0815Depth to Well Bottom (ft) 32.96Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 17.70 - 32.46Discharge Tube Diameter: 1/4" Immersible Layer: Y / ☒Approximate depth of pump inlet*(ft): 25.08Pump Start Time: 0745Ferrous Iron (Required Y or ☒) _____ mg/L

2ND Depth TO WATER 23.05



Sample Collection Log

2 of 2

Location ID: 35BWW20 Sample No: 35BWW20-2005 <u>11</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/11/20	0750	100	.5	23.12	0.258	17.02	7.62	231	133	3.85
	0755	100	1.0	23.18	0.239	17.85	6.50	200	180	3.41
	0800	100	1.5	23.22	0.249	18.31	6.38	191	188	3.32
	0805	100	2.0	23.25	0.249	18.40	6.38	190	189	3.30
	0810	100	2.5	23.27	0.250	18.47	6.37	189	190	3.28
	0815	100	3.0	23.29	0.250	18.53	6.37	188	190	3.26

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW20

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 35BWW20-2005 II -FDDATE/TIME: 5/11/20 0738Pump Inlet Depth: 25.08

Sampling Method:

Sample Purpose: FD

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow / Bladder PumpCasing ID (in.): 2"Purge Start Date/Time: 5/11/20 0745Depth to Water - Initial (DTWi) (ft) 23.05Purge End Date/Time: 5/11/20 0815Depth to Well Bottom (ft) 32.96Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 17.70 - 32.46Discharge Tube Diameter: 1/4" Immersible Layer: Y / ☒ NApproximate depth of pump inlet* (ft): 25.08Pump Start Time: 0745Ferrous Iron (Required Y or ☒ N) _____ mg/L

2nd Depth TO WATER - 23.05



Sample Collection Log

2 of 2

Location ID: 35BWW20 Sample No: 35BWW20-2005_11-FD										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/11/20	0750	100	.5	23.12	0.258	17.02	7.62	231	133	3.85
	0755	100	1.0	23.18	0.239	17.85	6.50	200	180	3.41
	0800	100	1.5	23.22	0.249	18.31	6.38	191	188	3.32
	0805	100	2.0	23.25	0.249	18.40	6.38	190	189	3.30
	0810	100	2.5	23.27	0.250	18.47	6.37	189	190	3.28
	0815	100	3.0	23.29	0.250	18.53	6.37	188	190	3.26

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW23

Project No: 501032

Sampler(s): Scott Bussinger

FIELD CONDITIONS

Clear/Sunny

SAMPLING INFORMATION

Sample No: 35BWW23-2005 07DATE/TIME: 5/7/20 1057Pump Inlet Depth: 27.63

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow/BLADDER PumpCasing ID (in.): 4"Purge Start Date/Time: 5/7/20 1105Depth to Water - Initial (DTWi) (ft) 26.77Purge End Date/Time: 5/7/20 1140Depth to Well Bottom (ft) 33.75Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 22.63 - 32.63Discharge Tube Diameter: 1/4" Immersible Layer: Y / ☒ NApproximate depth of pump inlet*(ft): 27.63Pump Start Time: 1105Ferrous Iron (Required ☒ or N) 0.55 mg/L2ND Depth TO WATER - 26.77



Sample Collection Log

2 of 2

Location ID: 35BWW23 Sample No: 35BWW23-2005 <u>07</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/7/20	1110	100	.5	26.85	0.466	18.10	6.10	14.3	220	2.70
	1115	100	1.0	26.91	0.468	18.25	6.29	10.6	212	2.31
	1120	100	1.5	26.95	0.470	18.68	6.35	8.8	199	1.98
	1125	100	2.0	26.98	0.467	18.95	6.38	8.5	193	1.88
	1130	100	2.5	27.00	0.467	19.08	6.38	8.3	192	1.86
	1135	100	3.0	27.02	0.466	19.17	6.39	8.1	191	1.84
	1140	100	3.5	27.04	0.466	19.28	6.39	7.9	191	1.83

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW24

Project No: 501032

Sampler(s): Scott Bassinger

FIELD CONDITIONS

Clear/Sunny

SAMPLING INFORMATION

Sample No: 35BWW24-2005 07DATE/TIME: 5/7/20 1152Pump Inlet Depth: 28.50

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL < pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low Flow/BLADDER PumpCasing ID (in.): 4"Purge Start Date/Time: 5/7/20 1200Depth to Water - Initial (DTWi) (ft) 27.72Purge End Date/Time: 5/7/20 1230Depth to Well Bottom (ft) 32.75Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 22.72 - 32.42Discharge Tube Diameter: 1/4" Immersible Layer: Y ☒ NApproximate depth of pump inlet* (ft): 28.50 Pump Start Time: 1200Ferrous Iron (Required Y or ☒ N) _____ mg/L

2ND DPTH TO WATER - 27.72



Sample Collection Log

2 of 2

Location ID: 35BWW24 Sample No: 35BWW24-2005 <u>07</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/7/20	1205	100	.5	27.80	1.43	19.84	6.53	13.6	184	3.84
	1210	100	1.0	27.86	1.44	19.27	6.47	9.6	182	3.50
	1215	100	1.5	27.91	1.44	18.98	6.45	9.3	182	3.43
	1220	100	2.0	27.95	1.44	18.90	6.45	9.1	182	3.41
	1225	100	2.5	27.97	1.44	18.86	6.45	8.8	182	3.39
↓	1230	100	3.0	27.99	1.44	18.77	6.45	8.5	182	3.37

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW25

Project No: 501032

Sampler(s): Scott Bassinger

FIELD CONDITIONS

Clear/Sunny

SAMPLING INFORMATION

Sample No: 35BWW25-2005 07DATE/TIME: 5/7/20 1237Pump Inlet Depth: 27.32

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow/Bladder PumpCasing ID (in.): 4"Purge Start Date/Time: 5/7/20 1345Depth to Water - Initial (DTWI) (ft) 25.36Purge End Date/Time: 5/7/20 1315Depth to Well Bottom (ft) 32.54Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 22.47-32.17Discharge Tube Diameter: 1/4" Immersible Layer: Y / ☒ NApproximate depth of pump inlet*(ft): 27.32Pump Start Time: 1245Ferrous Iron (Required Y or ☒ N) _____ mg/L2ND Depth TO WATER-25.36



Sample Collection Log

2 of 2

Location ID: 35BWW25 Sample No: 35BWW25-2005 <u>07</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/7/20	1250	100	.5	25.44	0.764	20.86	6.96	12.1	162	2.89
	1255	100	1.0	25.50	0.764	20.12	6.50	9.2	175	2.67
	1300	100	1.5	25.53	0.762	19.88	6.51	9.0	174	2.59
	1305	100	2.0	25.55	0.762	19.79	6.52	8.7	174	2.57
	1310	100	2.5	25.57	0.762	19.71	6.53	8.4	173	2.56
	1315	100	3.0	25.58	0.762	19.65	6.53	8.1	173	2.55

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: 35BWW26

Project No: 501032

Sampler(s): Scott Baesinger

FIELD CONDITIONS

Clear / Sunny

SAMPLING INFORMATION

Sample No: 35BWW26-200506DATE/TIME: 5/6/20 1004Pump Inlet Depth: 32.50

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL < pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL < pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow / Bladder PumpCasing ID (in.): 4"Purge Start Date/Time: 5/6/20 1010Depth to Water - Initial (DTWi) (ft) 25.75Purge End Date/Time: 5/6/20 1040Depth to Well Bottom (ft) 38.00Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 27.65 - 37.35Discharge Tube Diameter: 1/4" Immersible Layer: Y / ☒ NApproximate depth of pump inlet*(ft): 32.50Pump Start Time: 1010Ferrous Iron (Required ☒ or N) 0.67 mg/L

2ND Depth TO WATER - 25.75



Sample Collection Log

2 of 2

Location ID: 35BWW26 Sample No: 35BWW26-2005 <u>06</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/6/20	1015	100	.5	25.82	0.280	18.61	5.65	5.2	170	0.77
	1020	100	1.0	25.88	0.281	18.97	5.73	2.4	175	0.49
	1025	100	1.5	25.92	0.281	19.09	5.81	2.1	179	0.37
	1030	100	2.0	25.95	0.281	19.16	5.82	2.3	179	0.36
	1035	100	2.5	25.98	0.280	19.22	5.83	2.5	180	0.36
	1040	100	3.0	26.00	0.280	19.28	5.83	2.7	180	0.35

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: LHSMW58

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear/Sunny

SAMPLING INFORMATION

Sample No: LHSMW58-2005 11DATE/TIME: 5/11/20 0824Pump Inlet Depth: 29.18

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL < pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low Flow/Bladder PumpCasing ID (in.): 4"Purge Start Date/Time: 5/11/20 0830Depth to Water - Initial (DTWi) (ft) 21.48Purge End Date/Time: 5/11/20 0900Depth to Well Bottom (ft) 35.20Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 24.18-34.18Discharge Tube Diameter: 1/4" Immersible Layer: Y / ☒ NApproximate depth of pump inlet* (ft): 29.18Pump Start Time: 0830Ferrous Iron (Required Y or ☒ N) _____ mg/L

2ND Depth TO WATER- 21.48



Sample Collection Log

2 of 2

Location ID: LHSMW58 Sample No: LHSMW58-2005 <u>11</u>										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/11/20	0835	100	1.5	21.55	0.218	17.78	6.44	5.7	196	3.77
	0840	100	1.0	21.61	0.218	17.87	6.27	4.9	206	3.29
	0845	100	1.5	21.65	0.218	17.88	6.22	5.3	206	3.07
	0850	100	2.0	21.68	0.219	17.90	6.22	5.5	206	3.05
	0855	100	2.5	21.70	0.219	17.93	6.22	5.8	207	3.03
	0900	100	3.0	21.72	0.219	17.95	6.22	6.3	207	3.02

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: LHSMW58

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear/Sunny

SAMPLING INFORMATION

Sample No: LHSMW58-2005 11 -MSDATE/TIME: 5/11/20 0824Pump Inlet Depth: 29.18

Sampling Method:

Sample Purpose: MS

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow/BLADDER PumpCasing ID (in.): 4"Purge Start Date/Time: 5/11/20 0830Depth to Water - Initial (DTWi) (ft) 21.48Purge End Date/Time: 5/11/20 0900Depth to Well Bottom (ft) 35.20Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 24.18 - 34.18Discharge Tube Diameter: 1/4" Immersible Layer: Y / ☒Approximate depth of pump inlet*(ft): 29.18Pump Start Time: 0830Ferrous Iron (Required Y or ☒) _____ mg/L2ND Depth TO WATER - 21.48



Sample Collection Log

2 of 2

Location ID: LHSMW58 Sample No: LHSMW58-2005 <u>11</u> -MS										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/11/20	0835	100	.5	21.55	0.218	17.78	6.44	5.7	196	3.77
	0840	100	1.0	21.61	0.218	17.87	6.27	4.9	206	3.29
	0845	100	1.5	21.65	0.218	17.88	6.22	5.3	206	3.07
	0850	100	2.0	21.68	0.219	17.90	6.22	5.5	206	3.05
	0855	100	2.5	21.70	0.219	17.93	6.22	5.8	207	3.03
	0900	100	3.0	21.72	0.219	17.95	6.22	6.3	207	3.02

Logged by: _____

Date: _____

QC'd by: _____

Date: _____



Sample Collection Log

1 of 2

Project Name: Longhorn AAP

Location ID: LHSMW58

Project No: 501032

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear/Sunny

SAMPLING INFORMATION

Sample No: LHSMW58-2005 11 -MSDDATE/TIME: 5/11/20 0824Pump Inlet Depth: 29.18

Sampling Method:

Sample Purpose: MSD

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point: Top of CasingPurging Method/Equipment: Low flow/BLADDER PumpCasing ID (in.): 4"Purge Start Date/Time: 5/11/20 0830Depth to Water - Initial (DTWi) (ft) 21.48Purge End Date/Time: 5/11/20 0900Depth to Well Bottom (ft) ~~35.20~~ 35.20Discharge Tube Length: NA PID Reading: NAScreen Interval (ft): 24.18 - 34.18Discharge Tube Diameter: 1/4" Immersible Layer: Y / ☒ NApproximate depth of pump inlet*(ft): 29.18Pump Start Time: 0830Ferrous Iron (Required Y or ☒ N) _____ mg/L2ND Depth TO WATER - 21.48



Sample Collection Log

2 of 2

Location ID: LHSMW58 Sample No: LHSMW58-2005 <u>11</u> -MSD										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/11/20	0835	100	.5	21.55	0.218	17.78	6.44	5.7	196	3.77
	0840	100	1.0	21.61	0.218	17.87	6.27	4.9	206	3.29
	0845	100	1.5	21.65	0.218	17.88	6.22	5.3	206	3.07
	0850	100	2.0	21.68	0.219	17.90	6.22	5.5	206	3.05
	0855	100	2.5	21.70	0.219	17.93	6.22	5.8	207	3.03
	0900	100	3.0	21.72	0.219	17.95	6.22	6.3	207	3.02

Logged by: _____

Date: _____

QC'd by: _____

Date: _____

Appendix C

Laboratory Analytical Data Package

(Provided on CD)

Appendix D

Photographic Log and Well Inspection Forms

PHOTO LOG

Photo No.	Date	Task and Description
1	12-2-2019	35BWW01
2	12-2-2019	35BWW04
3	12-2-2019	35BWW05
4	12-2-2019	35BWW07
5	12-2-2019	35BWW08
6	12-2-2019	35BWW09
7	12-2-2019	35BWW10
8	12-2-2019	35BWW11
9	12-2-2019	35BWW12
10	12-2-2019	35BWW13
11	12-2-2019	35BWW14
12	12-2-2019	35BWW15
13	12-2-2019	35BWW16
14	12-2-2019	35BWW17
15	12-2-2019	35BWW18
16	12-2-2019	35BWW19
17	12-2-2019	35BWW20
18	12-2-2019	35BWW23
19	12-2-2019	35BWW24
20	12-2-2019	35BWW25
21	12-2-2019	35BWW26
22	12-2-2019	LHSM258
23	5-11-2020	35BSW01
24	5-11-2020	35BSW02
25	5-6-2020	35BWW01
26	5-6-2020	35BWW04
27	5-6-2020	35BWW05
28	5-11-2020	35BWW07
29	5-6-2020	35BWW08
30	5-11-2020	35BWW09
31	5-6-2020	35BWW10

Photo No.	Date	Task and Description
32	5-6-2020	35BWW11
33	5-6-2020	35BWW12
34	5-7-2020	35BWW13
35	5-7-2020	35BWW14
36	5-7-2020	35BWW15
37	5-7-2020	35BWW16
38	5-7-2020	35BWW17
39	5-11-2020	35BWW18
40	5-11-2020	35BWW19
41	5-11-2020	35BWW20
42	5-7-2020	35BWW23
43	5-7-2020	35BWW24
44	5-7-2020	35BWW25
45	5-6-2020	35BWW26
46	5-11-2020	LHSMW58



PHOTO 1: 35BWW01
DATE: November 2019



PHOTO 2: 35BWW04
DATE: November 2019



PHOTO 3: 35BWW05
DATE: November 2019



PHOTO 4: 35BWW07
DATE: November 2019



PHOTO 5: 35BWW08

DATE: November 2019



PHOTO 6: 35BWW09

DATE: November 2019



PHOTO 7: 35BWW10

DATE: November 2019



PHOTO 8: 35BWW10

DATE: November 2019



PHOTO 9: 35BWW12
DATE: November 2019



PHOTO 10: 35BWW13
DATE: November 2019



PHOTO 11: 35BWW14

DATE: November 2019



PHOTO 12: 35BWW15

DATE: November 2019



PHOTO 13: 35BWW16

DATE: November 2019



PHOTO 14: 35BWW17

DATE: November 2019



PHOTO 15: 35BWW18

DATE: November 2019



PHOTO 16: 35BWW19

DATE: November 2019



PHOTO 17: 35BWW20

DATE: November 2019



PHOTO 18: 35BWW23

DATE: November 2019



PHOTO 19: 35BWW24

DATE: November 2019



PHOTO 20: 35BWW25

DATE: November 2019



PHOTO 21: 35BWW26

DATE: November 2019



PHOTO 22: LHSM258

DATE: November 2019

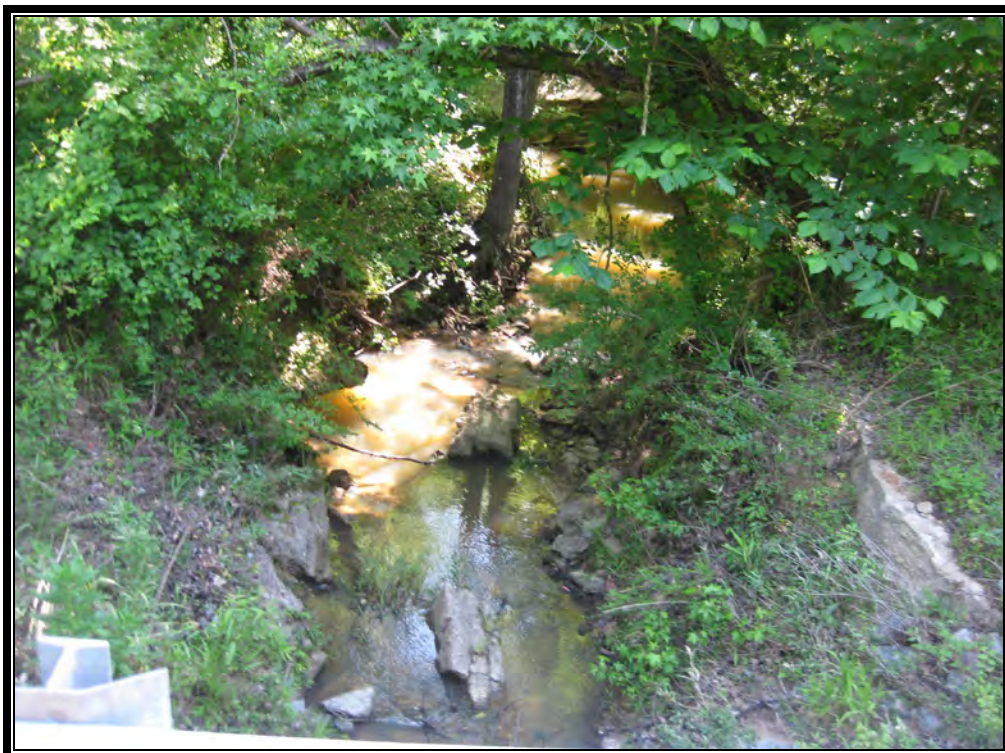


PHOTO 23: 35BSW01
DATE: May 11, 2020



PHOTO 24: 35BSW02
DATE: May 11, 2020



PHOTO 25: 35BWW01
DATE: May 6, 2020



PHOTO 26: 35BWW04
DATE: May 6, 2020



PHOTO 27: 35BWW05

DATE: May 6, 2020



PHOTO 28: 35BWW07

DATE: May 11, 2020



PHOTO 29: 35BWW08
DATE: May 6, 2020



PHOTO 30: 35BWW09
DATE: May 11, 2020



PHOTO 31: 35BWW10
DATE: May 6, 2020



PHOTO 32: 35BWW11
DATE: May 6, 2020



PHOTO 33: 35BWW12
DATE: May 6, 2020



PHOTO 34: 35BWW13
DATE: May 7, 2020



PHOTO 35: 35BWW14
DATE: May 7, 2020



PHOTO 36: 35BWW15
DATE: May 7, 2020



PHOTO 37: 35BWW16
DATE: May 7, 2020



PHOTO 38: 35BWW17
DATE: May 7, 2020



PHOTO 39: 35BWW18
DATE: May 11, 2020



PHOTO 40: 35BWW19
DATE: May 11, 2020



PHOTO 41: 35BWW20
DATE: May 11, 2020



PHOTO 42: 35BWW23
DATE: May 7, 2020



PHOTO 43: 35BWW24
DATE: May 7, 2020



PHOTO 44: 35BWW25
DATE: May 7, 2020



PHOTO 45: 35BWW26
DATE: May 6, 2020



PHOTO 46: LHSMW58
DATE: May 11, 2020

WELL INSPECTION FORM

Job Name: LHAPP
 Job No.: 501032
 Client: Army
 Site Name: 37

Well ID: 35BWW16
 Inspection Date: 11/21/19
 Well Completion Depth/ Measured Depth: 36.86
 Inspector: Scott Bessinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

Material

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☐ Good☐ Less than 50% rusted☒ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

Condition:

☐ Good☐ Broken☐ Cracked☐ Yes☐ No

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

Pad Area Cleared of Vegetation?

☒ Yes☐ No

Check any of the following features that apply:

☒ Yes☐ No☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

21

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes☐ No

Well lock present?

☒ Yes☐ No

Lock functioning properly?

☒ Yes☐ No

Are bollards present and stable?

☒ Yes☐ No

Well ID visible?

☒ Yes☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes☒ No

Visual obstruction?

☐ Yes☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes☐ No

Is silt present in well? (complete when gauging)

☐ Yes☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35BWW17
 Job No.: 501032 Inspection Date: 11/21/19
 Client: Army Well Completion Depth/ Measured Depth: 36.25
 Site Name: 37 Inspector: Scott Bessinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

Material

METAL
☒ Yes ☐ No
☒ Yes ☐ No

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☐ Good☐ Less than 50% rusted☒ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

Condition:

☐ Good☐ Broken☐ Cracked☐ Yes ☐ No

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☒ Yes ☐ No☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

2"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☒ Yes ☐ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35Bwmo 4
 Job No.: 501032 Inspection Date: 11/21/19
 Client: Army Well Completion Depth/ Measured Depth: 33.30
 Site Name: 37 Inspector: Scott BRESINGER

☒ ABOVE GROUND

Well Accessible?

Protective casing?

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTEDNA

Well cover present?

Condition:

☐ Good☐ Broken☐ Cracked☐ Yes☐ No

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

Pad Area Cleared of Vegetation?

☒ Yes☐ No

Check any of the following features that apply:

☒ Yes☐ No☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

411

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes☐ No

Well lock present?

☒ Yes☐ No

Lock functioning properly?

☒ Yes☐ No

Are bollards present and stable?

☐ Yes☒ No

Well ID visible?

☐ Yes☒ No

WELL INTEGRITY:

Bailer present?

☐ Yes☒ No

Visual obstruction?

☐ Yes☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes☐ No

Is silt present in well? (complete when gauging)

☐ Yes☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAD Well ID: 35BWW08
 Job No.: 501032 Inspection Date: 11/21/19
 Client: Army Well Completion Depth/ Measured Depth: 34.72
 Site Name: 37 Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

Material

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

Condition:

☐ Good☐ Broken☐ Cracked☐ Yes☐ No

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

Pad Area Cleared of Vegetation?

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

2"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes☐ No

Well lock present?

☒ Yes☐ No

Lock functioning properly?

☒ Yes☐ No

Are bollards present and stable?

☒ Yes☐ No

Well ID visible?

☐ Yes☒ No

WELL INTEGRITY:

Bailer present?

☐ Yes☒ No

Visual obstruction?

☐ Yes☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes☐ No

Is silt present in well? (complete when gauging)

☐ Yes☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35Bww26
 Job No.: 501032 Inspection Date: 11/21/19
 Client: Army Well Completion Depth/ Measured Depth: 38.02
 Site Name: 37 Inspector: Scott Buesinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

4"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35BWw01
 Job No.: 501032 Inspection Date: 11/21/19
 Client: Army Well Completion Depth/ Measured Depth: 21.20
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

Condition:

☐ Good☐ Broken☐ Cracked☐ Yes☐ No

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

Pad Area Cleared of Vegetation?

☒ Yes☐ No

Check any of the following features that apply:

☒ Yes☐ No☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

4.11

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes☐ No

Well lock present?

☒ Yes☐ No

Lock functioning properly?

☒ Yes☐ No

Are bollards present and stable?

☒ Yes☐ No

Well ID visible?

☒ Yes☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes☒ No

Visual obstruction?

☐ Yes☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes☐ No

Is silt present in well? (complete when gauging)

☐ Yes☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 358WW11
 Job No.: 501032 Inspection Date: 11/21/19
 Client: Army Well Completion Depth/ Measured Depth: 37.63
 Site Name: 37 Inspector: Scott Bresinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

Material

Condition:

Lid Condition:

Hinge Condition:

☐ FLUSH MOUNTED

Well cover present?

Condition:

Condition of Sump:

CONCRETE PAD:

Sloped away from casing?

Pad Area Cleared of Vegetation?

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

Condition:

Cap present?

Well lock present?

Lock functioning properly?

Are bollards present and stable?

Well ID visible?

WELL INTEGRITY:

Bailer present?

Visual obstruction?

Is well open to completed depth? (complete when gauging)

Is silt present in well? (complete when gauging)

Is silt greater than 10% of well screen length? (complete when gauging)

COMMENTS:

☒ Yes ☐ No
☒ Yes ☐ No

METAL
☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
☒ Good ☐ Broken ☒ Cracked
☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

NA

☐ Yes ☐ No

☒ Yes ☐ No
☒ Yes ☐ No

☒ Yes ☐ No
☒ Yes ☐ No
☒ Yes ☐ No
☒ Yes ☐ No
☒ Yes ☐ No

☐ Yes ☒ No
☐ Yes ☒ No
☒ Yes ☐ No
☐ Yes ☒ No
☐ Yes ☒ No

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35BWW22
 Job No.: 501032 Inspection Date: 11/22/19
 Client: Army Well Completion Depth/ Measured Depth: 32.52
 Site Name: 37 Inspector: Scott Buesinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

☒ Yes ☐ No
☒ Yes ☐ No

Material

METAL

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
☒ Good ☐ Broken ☒ Cracked
☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

Lid Condition:

Hinge Condition:

☐ FLUSH MOUNTEDNA

Well cover present?

Condition:

☐ Good ☐ Broken ☐ Cracked ☐ Yes ☐ No
☐ Clean ☐ Dry ☐ Standing Water

Condition of Sump:

CONCRETE PAD:

Sloped away from casing?

Pad Area Cleared of Vegetation?

☒ Yes ☐ No
☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

411

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)

Cap present?

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35BWW15
 Job No.: SD1032 Inspection Date: 11/22/19
 Client: Army Well Completion Depth/ Measured Depth: 50.12
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

211

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAPP Well ID: 35BWW20
 Job No.: 501032 Inspection Date: 11/22/19
 Client: Army Well Completion Depth/ Measured Depth: 32.90
 Site Name: 37 Inspector: Scott Brayinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☒ Yes☐ No☒ Yes☐ No☐ FLUSH MOUNTEDNA

Well cover present?

Condition:

☐ Good☐ Broken☐ Cracked☐ Yes☐ No

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

Pad Area Cleared of Vegetation?

☒ Yes☐ No

Check any of the following features that apply:

☒ Yes☐ No☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

21

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes☐ No

Well lock present?

☒ Yes☐ No

Lock functioning properly?

☒ Yes☐ No

Are bollards present and stable?

☒ Yes☐ No

Well ID visible?

☒ Yes☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes☒ No

Visual obstruction?

☐ Yes☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes☐ No

Is silt present in well? (complete when gauging)

☒ Yes☐ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAMP Well ID: LHS mw58
 Job No.: 501032 Inspection Date: 11/22/19
 Client: Army Well Completion Depth/ Measured Depth: 30.15
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

☒ Yes ☐ No

Material

☒ Yes ☐ No

Condition:

~~50~~ ☒ Good☐ Broken☐ Cracked☒ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

4.11

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☐ Yes ☒ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35 BWW07
 Job No.: 501032 Inspection Date: 11/25/19
 Client: ARmy Well Completion Depth/ Measured Depth: 31.40
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTEDNA

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

2.11

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35BWW13
 Job No.: 501032 Inspection Date: 11/25/19
 Client: Army Well Completion Depth/Measured Depth: 37.70
 Site Name: 37 Inspector: Scott Beasinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

☒ Yes ☐ No
☒ Yes ☐ No

Material

METAL

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Need Paint

Lid Condition:

☒ Good ☐ Broken ☒ Cracked

Hinge Condition:

☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present?

NA

Condition:

☐ Good ☐ Broken ☐ Cracked ☐ Yes ☐ No

Condition of Sump:

☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

21

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☒ Yes ☐ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 358ww14
 Job No.: 501032 Inspection Date: 11/25/19
 Client: Army Well Completion Depth/ Measured Depth: 37.28
 Site Name: 37 Inspector: Scott Beggsinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

☒ Yes ☐ No
☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTEDNA

Well cover present?

Condition:

☐ Good☐ Broken☐ Cracked

☐ Yes ☐ No

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

4"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35BWW23
 Job No.: 501032 Inspection Date: 11/25/19
 Client: ARmy Well Completion Depth/ Measured Depth: 33.65
 Site Name: 37 Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

☒ Yes ☐ No
☒ Yes ☐ No

Material

METAL

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Need Paint

Lid Condition:

☒ Good ☐ Broken ☒ Cracked

Hinge Condition:

☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTEDNA

Well cover present?

Condition:

☐ Good ☐ Broken ☐ Cracked ☐ Yes ☐ No

Condition of Sump:

☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No
☒ Yes ☐ No

Pad Area Cleared of Vegetation?

Check any of the following features that apply:

☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

4"

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35Bww24
 Job No.: 501032 Inspection Date: 11/25/19
 Client: Army Well Completion Depth/Measured Depth: 32.70
 Site Name: 37 Inspector: Scott Bessinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

☒ Yes ☐ No

Material

☒ Yes ☐ No

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

Condition:

☐ Good☐ Broken☐ Cracked☐ Yes ☐ No

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

4"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35BWW12
 Job No.: 501032 Inspection Date: 11/25/19
 Client: Army Well Completion Depth/ Measured Depth: 37.65
 Site Name: 37 Inspector: Scott Bessinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

211

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☒ Yes ☐ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHARP Well ID: 35BWW05
 Job No.: 501032 Inspection Date: 11/25/19
 Client: Army Well Completion Depth/ Measured Depth: 38.60
 Site Name: 37 Inspector: Scott Buesinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

Material

Condition:

Lid Condition:

Hinge Condition:

☒ Yes ☐ No☒ Yes ☐ No50 ☒ Good☐ Broken☐ Cracked☒ Need Paint☒ Good☐ Broken☒ Cracked☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

Condition:

Condition of Sump:

☐ Good☐ Broken☐ Cracked☐ Yes ☐ No☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

Pad Area Cleared of Vegetation?

Check any of the following features that apply:

☒ Yes ☐ No☒ Yes ☐ No☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

Condition:

Cap present?

Well lock present?

Lock functioning properly?

Are bollards present and stable?

Well ID visible?

☒ Good☐ Broken☐ Cracked☐ Other (describe)☒ Yes ☐ No☒ Yes ☐ No☒ Yes ☐ No☒ Yes ☐ No☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

Visual obstruction?

Is well open to completed depth? (complete when gauging)

Is silt present in well? (complete when gauging)

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No☐ Yes ☒ No☒ Yes ☐ No☐ Yes ☒ No☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAP Well ID: 35BWW10
 Job No.: 501032 Inspection Date: 11/26/19
 Client: Army Well Completion Depth/ Measured Depth: 36.43
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

☒ Yes ☐ No
☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

Condition:

☐ Good☐ Broken☐ Cracked☐ Yes ☐ No

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☒ Yes ☐ No☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

21

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35BWW19
 Job No.: 501032 Inspection Date: 11/26/19
 Client: Army Well Completion Depth/ Measured Depth: 36.63
 Site Name: 37 Inspector: Scott Bessinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

Material

Condition:

Lid Condition:

Hinge Condition:

☐ FLUSH MOUNTED

Well cover present?

Condition:

Condition of Sump:

CONCRETE PAD:

Sloped away from casing?

Pad Area Cleared of Vegetation?

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

Condition:

Cap present?

Well lock present?

Lock functioning properly?

Are bollards present and stable?

Well ID visible?

WELL INTEGRITY:

Bailer present?

Visual obstruction?

Is well open to completed depth? (complete when gauging)

Is silt present in well? (complete when gauging)

Is silt greater than 10% of well screen length? (complete when gauging)

COMMENTS:

☒ Yes ☐ No
☒ Yes ☐ No

METAL
☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
☒ Good ☐ Broken ☒ Cracked
☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

NA

☐ Yes ☐ No

☒ Yes ☐ No
☒ Yes ☐ No

☒ Yes ☐ No
☒ Yes ☐ No
☒ Yes ☐ No
☒ Yes ☐ No
☒ Yes ☐ No

☐ Yes ☒ No
☐ Yes ☒ No
☒ Yes ☐ No
☐ Yes ☒ No
☐ Yes ☒ No

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35B WW09
 Job No.: 501032 Inspection Date: 11/26/19
 Client: ARMY Well Completion Depth/ Measured Depth: 37.10
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

☒ Yes ☐ No
☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTEDNA

Well cover present?

Condition:

☐ Good☐ Broken☐ Cracked☐ Yes ☐ No

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☒ Yes ☐ No☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

4"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LITAAP
 Job No.: 501032
 Client: Army
 Site Name: 37

Well ID: 35Bww18
 Inspection Date: 11/26/19
 Well Completion Depth/ Measured Depth: 35.43
 Inspector: Scott Baesinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

☒ Yes ☐ No

Material

☒ Yes ☐ No

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

Condition:

☐ Good☐ Broken☐ Cracked☐ Yes ☐ No

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☒ Yes ☐ No☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

21"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAPP Well ID: 35BWW10
 Job No.: 501032 Inspection Date: 5/6/20
 Client: ARMY Well Completion Depth/ Measured Depth: ~~36.37~~ 36.37
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

☒ Yes ☐ No

Material

☒ Yes ☐ No

Condition:

METAL
☒ Good ☐ Broken ☐ Cracked ☐ Need Paint

Lid Condition:

☒ Good ☐ Broken ☒ Cracked

Hinge Condition:

☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good ☐ Broken ☐ Cracked

Condition of Sump:

☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

2"

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☒ Yes ☐ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: L4AAP Well ID: 35BWW05
 Job No.: 501032 Inspection Date: 5/6/20
 Client: ARMY Well Completion Depth/ Measured Depth: 38.40
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☐ Good☐ Broken☐ Cracked☒ Need Paint

Lid Condition:

☒ Good☐ Broken☐ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

NA☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

21

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☒ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35B WW11
 Job No.: 501032 Inspection Date: 5/6/20
 Client: Army Well Completion Depth/Measured Depth: 37.67
 Site Name: 37 Inspector: Scott Breesinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

☒ Yes ☐ No

Material

☒ Yes ☐ No

Condition:

METAL
☒ Good ☐ Broken ☐ Cracked ☐ Need Paint

Lid Condition:

☒ Good ☐ Broken ☒ Cracked

Hinge Condition:

☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present?

☐ Yes ☐ No

Condition:

NA
☐ Good ☐ Broken ☐ Cracked

Condition of Sump:

☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

411

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35Bwwol
 Job No.: 501032 Inspection Date: 5/6/20
 Client: ARMY Well Completion Depth/Measured Depth: 21.05
 Site Name: 37 Inspector: Scott Bessinger

☒ ABOVE GROUND

Well Accessible?

Protective casing?

☒ Yes ☐ No

Material

☒ Yes ☐ No

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Need Paint

Lid Condition:

☒ Good ☐ Broken ☒ Cracked

Hinge Condition:

☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good ☐ Broken ☐ Cracked

Condition of Sump:

☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

4"

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAPP Well ID: 35Bww26
 Job No.: 501032 Inspection Date: 5/6/20
 Client: ARMY Well Completion Depth/ Measured Depth: 38.00
 Site Name: 37 Inspector: Scott Basinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTEDNA

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

4"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35BWW04
 Job No.: 501032 Inspection Date: 5/6/20
 Client: ARMY Well Completion Depth/ Measured Depth: 33.30
 Site Name: 37 Inspector: Scott Businbar

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☐ Good☐ Broken☐ Cracked☒ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

4"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☐ Yes ☒ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35BWW12
 Job No.: 501032 Inspection Date: 5/6/20
 Client: Army Well Completion Depth/ Measured Depth: 38.30
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTEDNA

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

7"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☒ Yes ☐ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHARP Well ID: 35BWW08
 Job No.: 501032 Inspection Date: 5/6/20
 Client: Army Well Completion Depth/ Measured Depth: 34.60
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☐ Good☐ Broken☐ Cracked☒ Need Paint

Lid Condition:

☒ Good☐ Broken☐ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

2"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☐ Yes ☒ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAMP Well ID: 35BWW14
 Job No.: 501032 Inspection Date: 5/7/20
 Client: Army Well Completion Depth/ Measured Depth: 37.28
 Site Name: 37 Inspector: Scott Bessinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTEDNA

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

4"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35BWW15
 Job No.: 501032 Inspection Date: 5/7/20
 Client: Army Well Completion Depth/ Measured Depth: 50.12
 Site Name: 37 Inspector: Scott Breesinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Need Paint

Lid Condition:

☒ Good ☐ Broken ☒ Cracked

Hinge Condition:

☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted☐ FLUSH MOUNTEDNA

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good ☐ Broken ☐ Cracked

Condition of Sump:

☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

21

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35BWW/17
 Job No.: 501032 Inspection Date: 5/7/20
 Client: ARMY Well Completion Depth/ Measured Depth: 36.25
 Site Name: 37 Inspector: Scott Bussinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Need Paint

Lid Condition:

☒ Good ☐ Broken ☒ Cracked

Hinge Condition:

☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good ☐ Broken ☐ Cracked

Condition of Sump:

☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

21

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☒ Yes ☐ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHMAP Well ID: 35BWW16
 Job No.: 501032 Inspection Date: 5/7/20
 Client: Army Well Completion Depth/Measured Depth: 36.90
 Site Name: 37 Inspector: Scott Baesinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☐ Good☐ Less than 50% rusted☒ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

NA☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (Inches)

2"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHHHP Well ID: 35BWW13
 Job No.: 501032 Inspection Date: 5/7/20
 Client: Army Well Completion Depth/ Measured Depth: 37.69
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☐ Good☐ Less than 50% rusted☒ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

NA☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

2"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35BLW23
 Job No.: 501032 Inspection Date: 5/7/20
 Client: Army Well Completion Depth/ Measured Depth: 33.75
 Site Name: 37 Inspector: Scott Bussinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

4"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35BWW24
 Job No.: 501032 Inspection Date: 5/7/20
 Client: ARMY Well Completion Depth/Measured Depth: 32.75
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTEDNA

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

4"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35 BW 25
 Job No.: 501032 Inspection Date: 5/7/20
 Client: ARMY Well Completion Depth/Measured Depth: 32.54
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

4"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: CHAMP Well ID: 35BWW07
 Job No.: 501032 Inspection Date: 5/11/20
 Client: Army Well Completion Depth/ Measured Depth: 31.40
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTEDNA

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

24

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAPP Well ID: 35BWW20
 Job No.: 501032 Inspection Date: 5/11/20
 Client: ARmy Well Completion Depth/ Measured Depth: 32.96
 Site Name: 37 Inspector: Scott Belsinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Need Paint

Lid Condition:

☒ Good ☐ Broken ☒ Cracked

Hinge Condition:

☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

NA☐ Yes ☐ No

Condition:

☐ Good ☐ Broken ☐ Cracked

Condition of Sump:

☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

21

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: LHSMW58
 Job No.: 501032 Inspection Date: 5/11/20
 Client: ARMY Well Completion Depth/Measured Depth: 35.20
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☐ Good☐ Broken☐ Cracked☒ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTEDNA

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

4 1/2

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35BWW09
 Job No.: 501032 Inspection Date: 5/11/20
 Client: Army Well Completion Depth/Measured Depth: 37.10
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

NA☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

4"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAPP Well ID: 35BWW19
 Job No.: 501032 Inspection Date: 5/11/20
 Client: Army Well Completion Depth/Measured Depth: 36.62
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Need Paint

Lid Condition:

☒ Good ☐ Broken ☒ Cracked

Hinge Condition:

☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted☐ FLUSH MOUNTED

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good ☐ Broken ☐ Cracked

Condition of Sump:

☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

2 1/2

Condition:

☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP Well ID: 35BWW18
 Job No.: 501032 Inspection Date: 5/11/20
 Client: Army Well Completion Depth/ Measured Depth: 35.48
 Site Name: 37 Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible?

☒ Yes ☐ No

Protective casing?

☒ Yes ☐ No

Material

METAL

Condition:

☒ Good☐ Broken☐ Cracked☐ Need Paint

Lid Condition:

☒ Good☐ Broken☒ Cracked

Hinge Condition:

☒ Good☐ Less than 50% rusted☐ More than 50% rusted☐ FLUSH MOUNTEDNA

Well cover present?

☐ Yes ☐ No

Condition:

☐ Good☐ Broken☐ Cracked

Condition of Sump:

☐ Clean☐ Dry☐ Standing Water

CONCRETE PAD:

Sloped away from casing?

☒ Yes ☐ No

Pad Area Cleared of Vegetation?

☒ Yes ☐ No

Check any of the following features that apply:

☐ Many Cracks☐ Gap Around Casing☐ Few Cracks☐ Ponded Water☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches)

2"

Condition:

☒ Good☐ Broken☐ Cracked☐ Other (describe)

Cap present?

☒ Yes ☐ No

Well lock present?

☒ Yes ☐ No

Lock functioning properly?

☒ Yes ☐ No

Are bollards present and stable?

☒ Yes ☐ No

Well ID visible?

☒ Yes ☐ No

WELL INTEGRITY:

Bailer present?

☐ Yes ☒ No

Visual obstruction?

☐ Yes ☒ No

Is well open to completed depth? (complete when gauging)

☒ Yes ☐ No

Is silt present in well? (complete when gauging)

☐ Yes ☒ No

Is silt greater than 10% of well screen length? (complete when gauging)

☐ Yes ☒ No

COMMENTS:

Appendix E

Mann-Kendall Trend Test Results

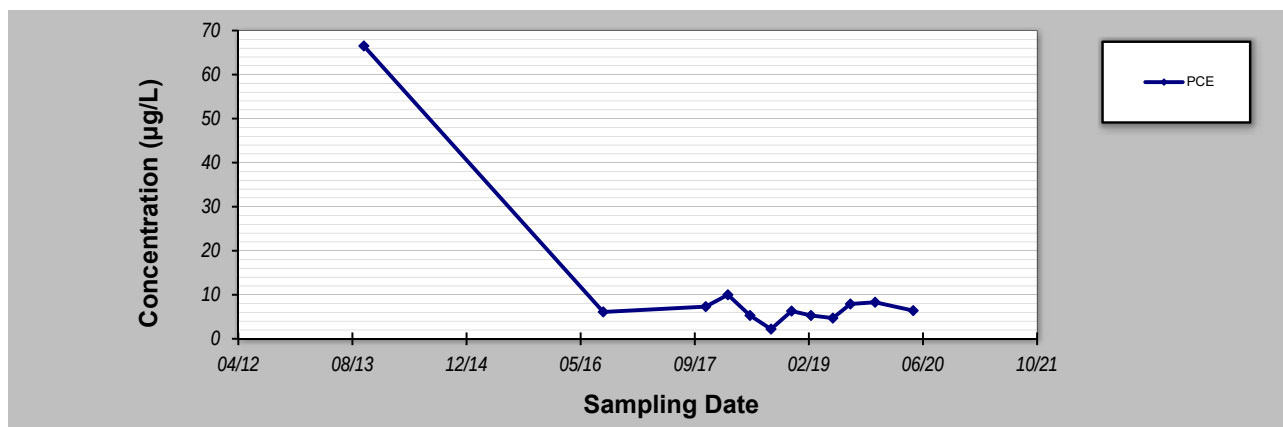
GSI MANN-KENDALL TOOLKIT for Constituent Trend Analysis

Evaluation Date: **26-Jun-20**
 Facility Name: **LHAAP-37**
 Conducted By: **Robert Mayer**

Job ID: **501032**
 Constituent: **35BWW04**
 Concentration Units: **µg/L**

Sampling Point ID: **PCE**

Sampling Event	Sampling Date	35BWW04 CONCENTRATION (µg/L)					
1	3-Oct-13	67					
2	17-Aug-16	6.1					
3	9-Nov-17	7.3					
4	14-Feb-18	10					
5	22-May-18	5.3					
6	22-Aug-18	2.2					
7	20-Nov-18	6.3					
8	13-Feb-19	5.3					
9	20-May-19	4.7					
10	5-Aug-19	7.9					
11	21-Nov-19	8.3					
12	6-May-20	6.4					
13							
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		1.54					
Mann-Kendall Statistic (S):		-7					
Confidence Factor:		65.6%					
Concentration Trend:		No Trend					



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S > 0$) or decreasing ($S < 0$): $> 95\%$ = Increasing or Decreasing; $\geq 90\%$ = Probably Increasing or Probably Decreasing; $< 90\%$ and $S > 0$ = No Trend; $< 90\%$, $S \leq 0$, and $COV \geq 1$ = No Trend; $< 90\%$ and $COV < 1$ = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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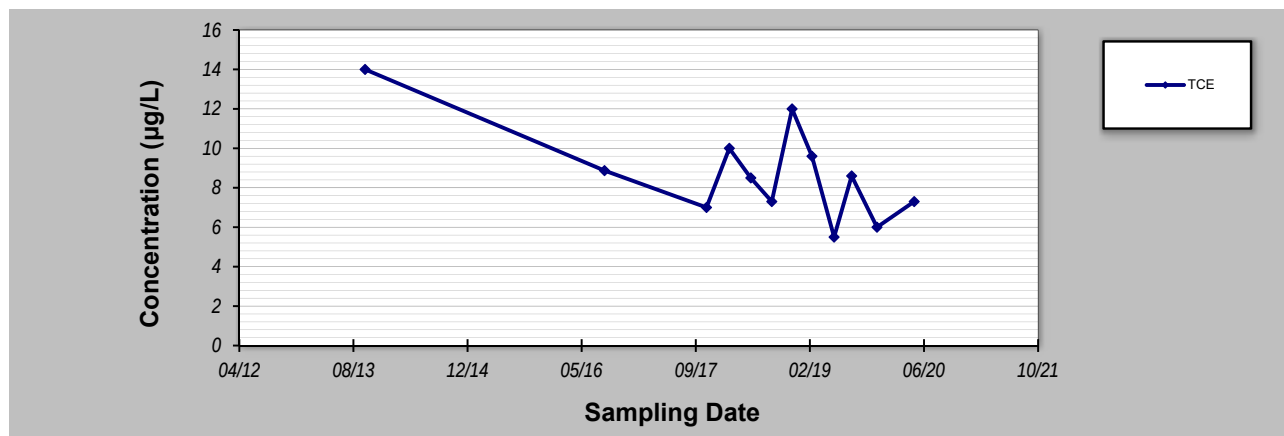
GSI MANN-KENDALL TOOLKIT for Constituent Trend Analysis

Evaluation Date: **26-Jun-20**
 Facility Name: **LHAAP-37**
 Conducted By: **Robert Mayer**

Job ID: **501032**
 Constituent: **35BWW05**
 Concentration Units: **µg/L**

Sampling Point ID: **TCE**

Sampling Event	Sampling Date	35BWW05 CONCENTRATION (µg/L)					
1	4-Oct-13	14					
2	18-Aug-16	8.9					
3	8-Nov-17	7.0					
4	16-Feb-18	10					
5	21-May-18	8.5					
6	21-Aug-18	7.3					
7	18-Nov-18	12					
8	13-Feb-19	9.6					
9	21-May-19	5.5					
10	6-Aug-19	8.6					
11	25-Nov-19	6					
12	6-May-20	7.3					
13							
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		0.28					
Mann-Kendall Statistic (S):		-23					
Confidence Factor:		93.3%					
Concentration Trend:		Prob. Decreasing					



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S > 0$) or decreasing ($S < 0$): $> 95\%$ = Increasing or Decreasing; $\geq 90\%$ = Probably Increasing or Probably Decreasing; $< 90\%$ and $S > 0$ = No Trend; $< 90\%$, $S \leq 0$, and $COV \geq 1$ = No Trend; $< 90\%$ and $COV < 1$ = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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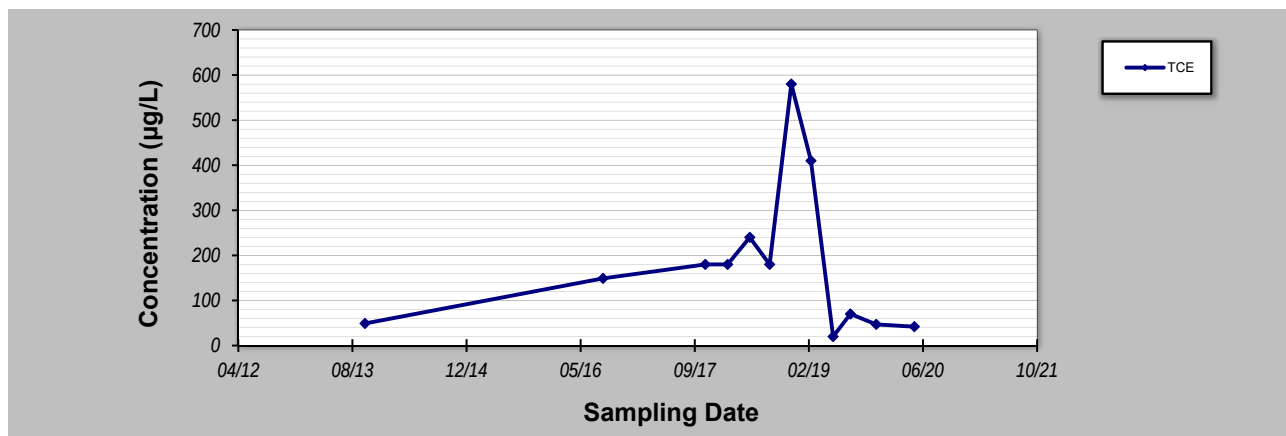
GSI MANN-KENDALL TOOLKIT for Constituent Trend Analysis

Evaluation Date: **26-Jun-20**
 Facility Name: **LHAAP-37**
 Conducted By: **Robert Mayer**

Job ID: **501032**
 Constituent: **35BWW09**
 Concentration Units: **µg/L**

Sampling Point ID: **TCE**

Sampling Event	Sampling Date	35BWW09 CONCENTRATION (µg/L)					
1	8-Oct-13	49					
2	16-Aug-16	149					
3	7-Nov-17	180					
4	13-Feb-18	180					
5	21-May-18	240					
6	16-Aug-18	180					
7	19-Nov-18	580					
8	13-Feb-19	410					
9	21-May-19	20					
10	5-Aug-19	70					
11	26-Nov-19	47					
12	11-May-20	42					
13							
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		0.94					
Mann-Kendall Statistic (S):		-9					
Confidence Factor:		70.4%					
Concentration Trend:		Stable					



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

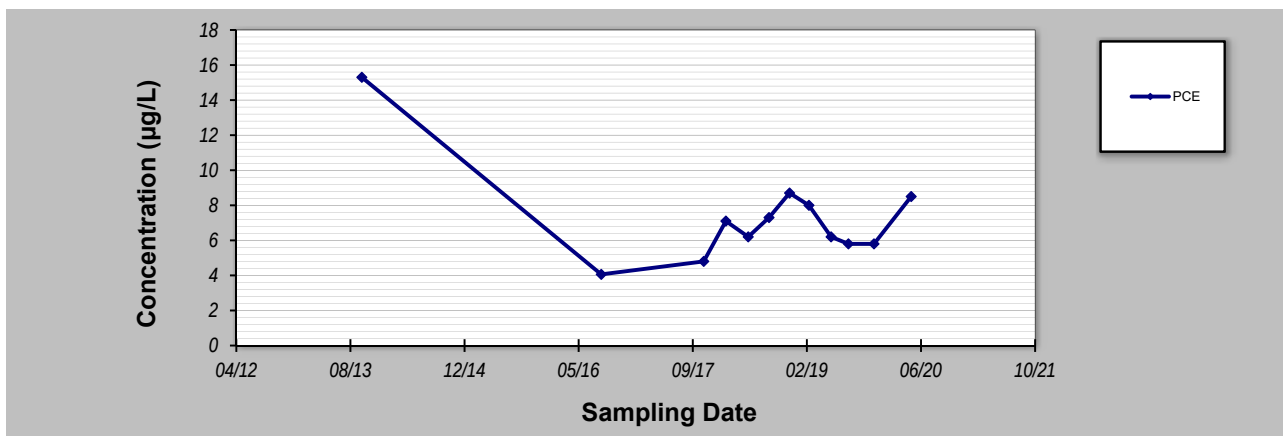
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GSI MANN-KENDALL TOOLKIT for Constituent Trend Analysis

Evaluation Date: 26-Jun-20	Job ID: 501032
Facility Name: LHAAP-37	Constituent: 35BWW12
Conducted By: Robert Mayer	Concentration Units: µg/L
Sampling Point ID: PCE	

Sampling Event	Sampling Date	35BWW12 CONCENTRATION (µg/L)
1	3-Oct-13	15.3
2	17-Aug-16	4.1
3	9-Nov-17	4.8
4	14-Feb-18	7.1
5	23-May-18	6.2
6	22-Aug-18	7.3
7	20-Nov-18	8.7
8	13-Feb-19	8.0
9	21-May-19	6.2
10	5-Aug-19	5.8
11	25-Nov-19	5.8
12	6-May-20	8.5
13		
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		0.39
Mann-Kendall Statistic (S):		4
Confidence Factor:		58.0%
Concentration Trend:		No Trend



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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GSI MANN-KENDALL TOOLKIT for Constituent Trend Analysis

Evaluation Date: **26-Jun-20**
 Facility Name: **LHAAP-37**
 Conducted By: **Robert Mayer**

Job ID: **501032**
 Constituent: **35BWW14**
 Concentration Units: **µg/L**

Sampling Point ID: **PCE** **TCE**

Sampling Event	Sampling Date	35BWW14 CONCENTRATION (µg/L)					
1	9-Oct-13	19	83				
2	17-Aug-16	20	40				
3	7-Nov-17	53	24				
4	15-Feb-18	44	20				
5	22-May-18	30	23				
6	22-Aug-18	31	12				
7	20-Nov-18	37	9.1				
8	12-Feb-19	37	22				
9	21-May-19	0.25	110				
10	6-Aug-19	38	15				
11	25-Nov-19	38	16				
12	7-May-20	40	14				
13							
14							
15							
16							
17							
18							
19							
20							

Coefficient of Variation:

0.43

0.97

Mann-Kendall Statistic (S):

18

-28

Confidence Factor:

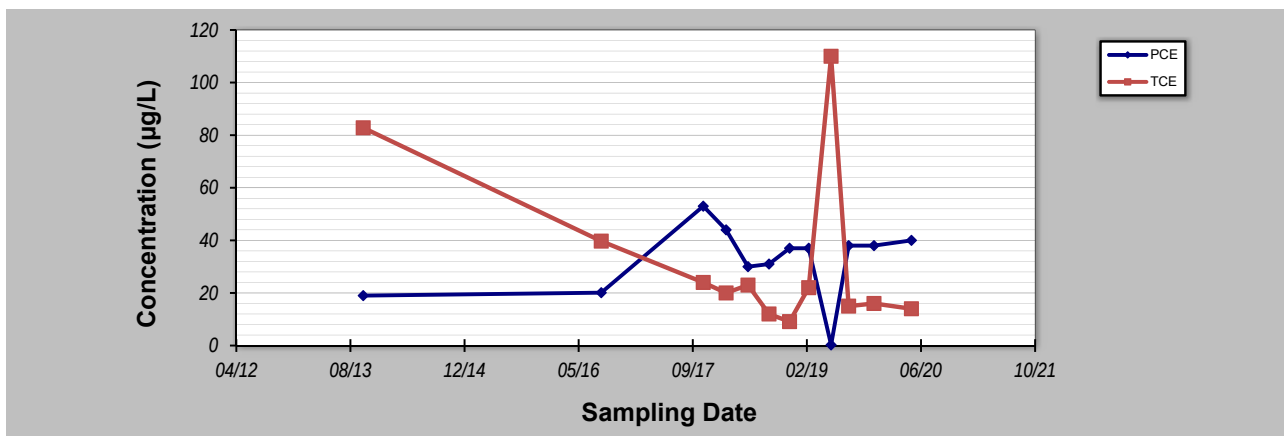
87.5%

96.9%

Concentration Trend:

No Trend

Decreasing



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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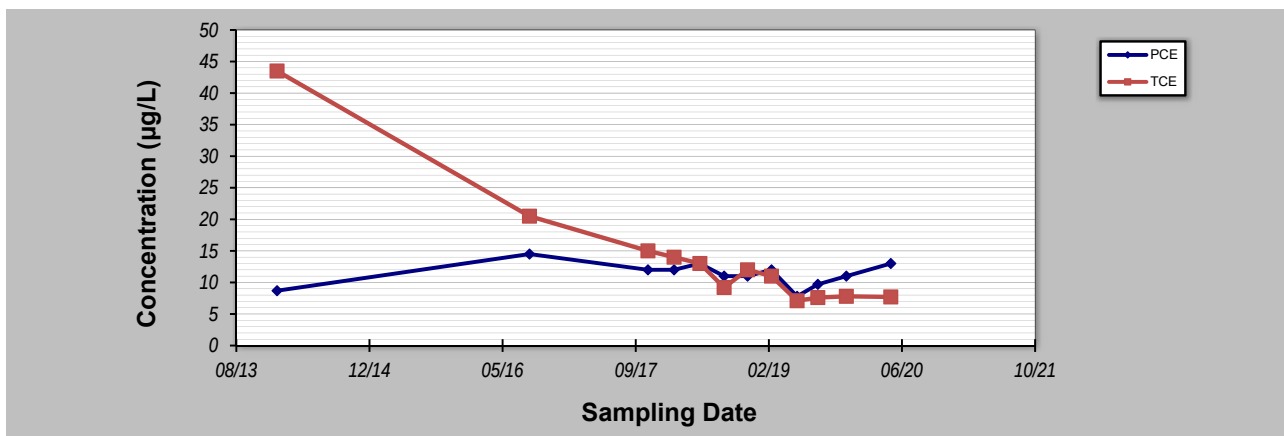
GSI MANN-KENDALL TOOLKIT for Constituent Trend Analysis

Evaluation Date: **26-Jun-20**
 Facility Name: **LHAAP-37**
 Conducted By: **Robert Mayer**

Job ID: **501032**
 Constituent: **35BWW15**
 Concentration Units: **µg/L**

Sampling Point ID: **PCE** **TCE**

Sampling Event	Sampling Date	35BWW15 CONCENTRATION (µg/L)					
1	14-Jan-14	8.7	44				
2	19-Aug-16	15	21				
3	7-Nov-17	12	15				
4	13-Feb-18	12	14				
5	21-May-18	13	13				
6	20-Aug-18	11	9.2				
7	16-Nov-18	11	12				
8	14-Feb-19	12	11				
9	21-May-19	7.8	7.1				
10	7-Aug-19	9.7	7.6				
11	22-Nov-19	11	7.8				
12	7-May-20	13	7.7				
13							
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		0.17	0.72				
Mann-Kendall Statistic (S):		-9	-52				
Confidence Factor:		70.4%	>99.9%				
Concentration Trend:		Stable	Decreasing				



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S > 0$) or decreasing ($S < 0$): $>95\%$ = Increasing or Decreasing; $\geq 90\%$ = Probably Increasing or Probably Decreasing; $< 90\%$ and $S > 0$ = No Trend; $< 90\%$, $S \leq 0$, and $COV \geq 1$ = No Trend; $< 90\%$ and $COV < 1$ = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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GSI MANN-KENDALL TOOLKIT for Constituent Trend Analysis

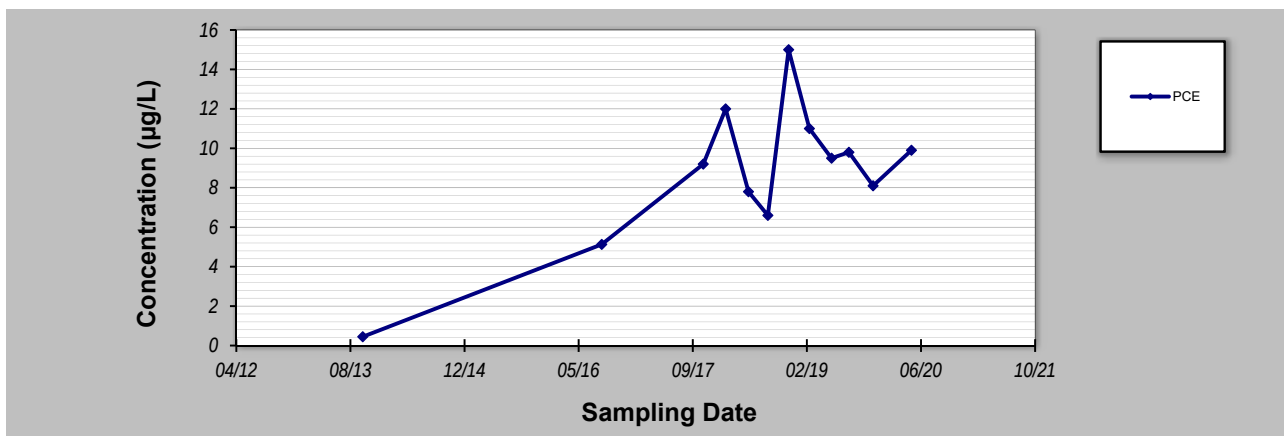
Evaluation Date: **26-Jun-20**
 Facility Name: **LHAAP-37**
 Conducted By: **Robert Mayer**

Job ID: **501032**
 Constituent: **35BWW16**
 Concentration Units: **µg/L**

Sampling Point ID: **PCE**

Sampling Event	Sampling Date	35BWW16 CONCENTRATION (µg/L)						
1	7-Oct-13	0.45						
2	19-Aug-16	5.13						
3	7-Nov-17	9.2						
4	13-Feb-18	12						
5	24-May-18	7.8						
6	17-Aug-18	6.6						
7	16-Nov-18	15						
8	15-Feb-19	11						
9	23-May-19	9.5						
10	7-Aug-19	9.8						
11	21-Nov-19	8.1						
12	7-May-20	9.9						
13								
14								
15								
16								
17								
18								
19								
20								

Coefficient of Variation: **0.42**
 Mann-Kendall Statistic (S): **22**
 Confidence Factor: **92.4%**
 Concentration Trend: **Prob. Increasing**



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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GSI MANN-KENDALL TOOLKIT for Constituent Trend Analysis

Evaluation Date: **26-Jun-20**
 Facility Name: **LHAAP-37**
 Conducted By: **Robert Mayer**

Job ID: **501032**
 Constituent: **35BWW20**
 Concentration Units: **µg/L**

Sampling Point ID: **PCE**

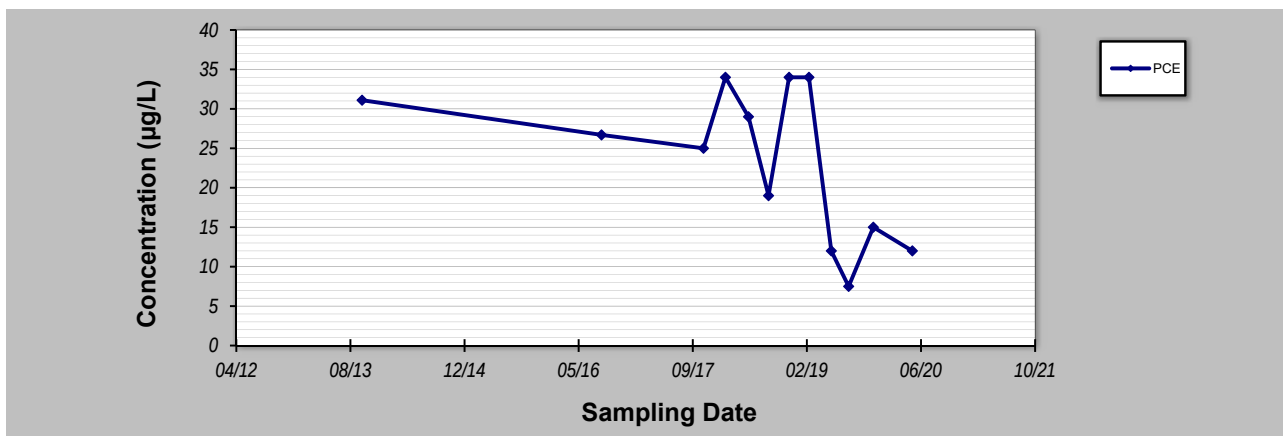
Sampling Event	Sampling Date	35BWW20 CONCENTRATION (µg/L)					
1	4-Oct-13	31					
2	18-Aug-16	27					
3	8-Nov-17	25					
4	12-Feb-18	34					
5	24-May-18	29					
6	20-Aug-18	19					
7	18-Nov-18	34					
8	13-Feb-19	34					
9	22-May-19	12					
10	6-Aug-19	7.5					
11	22-Nov-19	15					
12	11-May-20	12					
13							
14							
15							
16							
17							
18							
19							
20							

Coefficient of Variation: **0.42**

Mann-Kendall Statistic (S): **-26**

Confidence Factor: **95.7%**

Concentration Trend: **Decreasing**



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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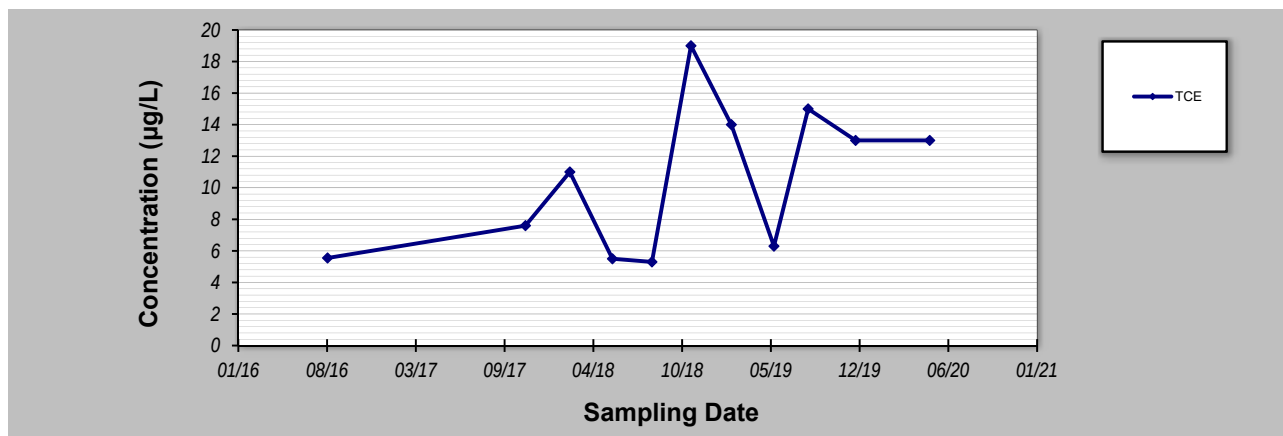
GSI MANN-KENDALL TOOLKIT for Constituent Trend Analysis

Evaluation Date: **26-Jun-20**
 Facility Name: **LHAAP-37**
 Conducted By: **Robert Mayer**

Job ID: **501032**
 Constituent: **35BWW25**
 Concentration Units: **µg/L**

Sampling Point ID: **TCE**

Sampling Event	Sampling Date	35BWW25 CONCENTRATION (µg/L)					
1	19-Aug-16	5.55					
2	8-Nov-17	7.6					
3	16-Feb-18	11					
4	23-May-18	5.5					
5	20-Aug-18	5.3					
6	16-Nov-18	19					
7	15-Feb-19	14					
8	22-May-19	6.3					
9	7-Aug-19	15					
10	22-Nov-19	13					
11	7-May-20	13					
12							
13							
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		0.45					
Mann-Kendall Statistic (S):		16					
Confidence Factor:		87.5%					
Concentration Trend:		No Trend					



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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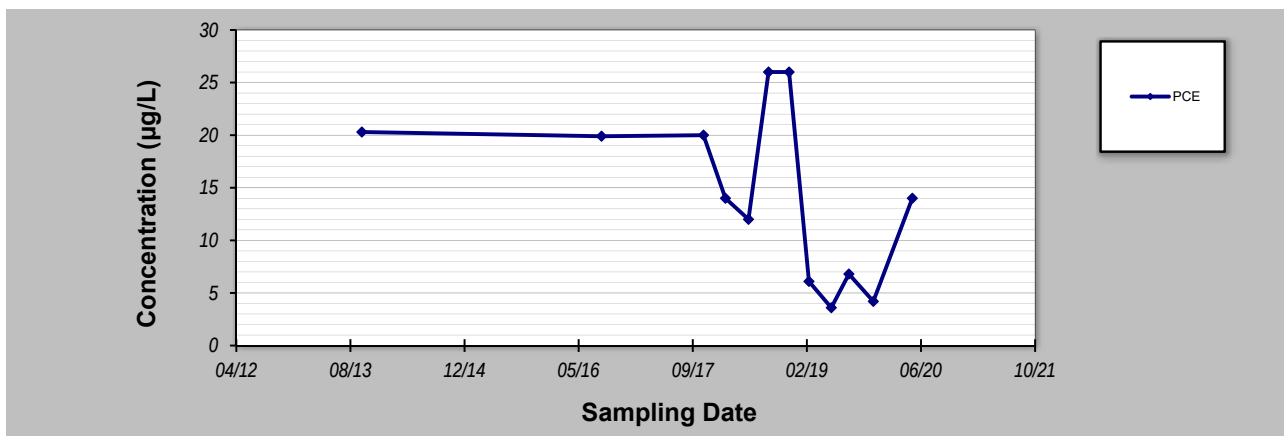
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GSI MANN-KENDALL TOOLKIT for Constituent Trend Analysis

Evaluation Date: **26-Jun-20**Facility Name: **LHAAP-37**Conducted By: **Jonathan Reagan**Job ID: **501032**Constituent: **LHSMW58**Concentration Units: **µg/L**Sampling Point ID: **PCE**

Sampling Event	Sampling Date	LHSMW58 CONCENTRATION (µg/L)					
1	3-Oct-13	20					
2	18-Aug-16	20					
3	8-Nov-17	20					
4	12-Feb-18	14					
5	24-May-18	12					
6	20-Aug-18	26					
7	18-Nov-18	26					
8	13-Feb-19	6.1					
9	22-May-19	3.6					
10	7-Aug-19	6.8					
11	22-Nov-19	4.2					
12	11-May-20	14					
13							
14							
15							
16							
17							
18							
19							
20							

Coefficient of Variation:	0.56						
Mann-Kendall Statistic (S):	-26						
Confidence Factor:	95.7%						
Concentration Trend:	Decreasing						

**Notes:**

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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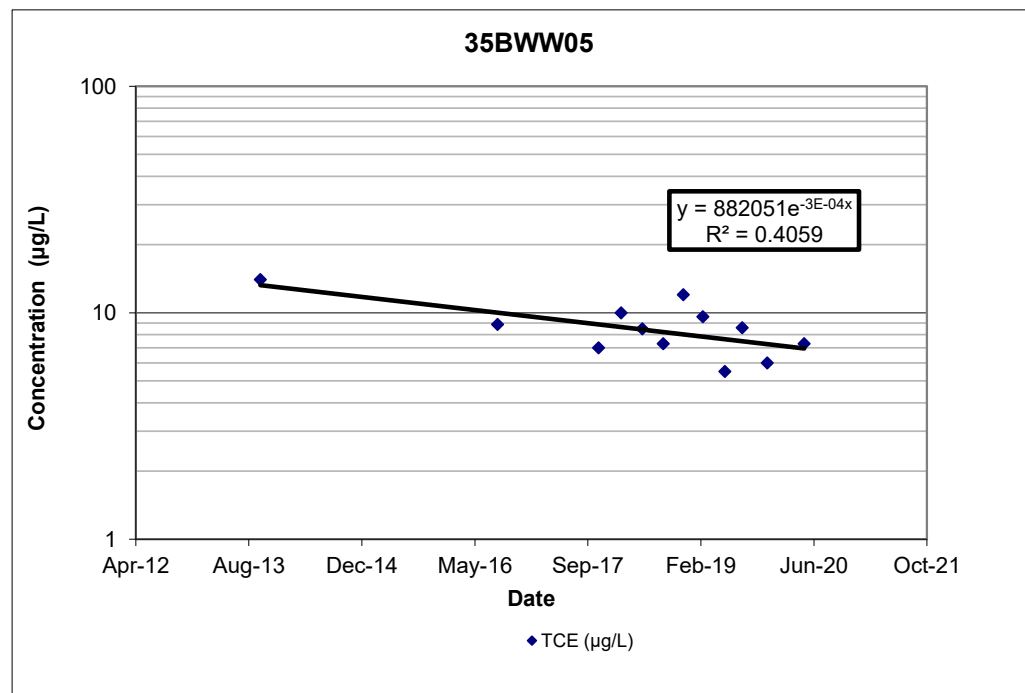
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Appendix F

Regression Analysis

Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time LHSMW58

Date	TCE (µg/L)
4-Oct-13	14
18-Aug-16	8.87
8-Nov-17	7
16-Feb-18	10
21-May-18	8.5
21-Aug-18	7.3
18-Nov-18	12
13-Feb-19	9.6
21-May-19	5.5
6-Aug-19	8.6
25-Nov-19	6
6-May-20	7.3



Chemical	Attenuation Rate Constant (day ⁻¹)	Attenuation Half-life (days)	Attenuation Half-life (years)	Current Conc. (µg/L)	Target Concentration (µg/L)	Estimated Cleanup Time (years)
TCE	3.00E-04	2310.5	6.3	7.3	5	3.5

Notes:

The estimated cleanup time was calculated as the time it would take the most recent detected PCE concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.

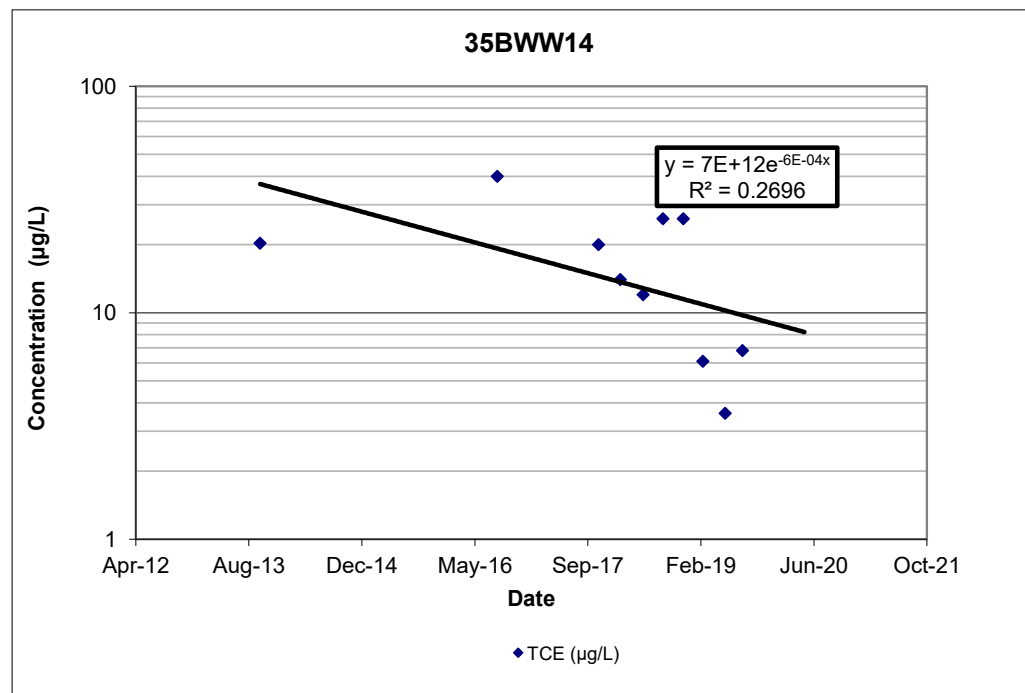
µg/L - micrograms per liter

MCL - maximum contaminant level

TCE - Trichloroethene

Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time 35BWW14

Date	TCE (µg/L)
3-Oct-13	20
17-Aug-16	40
8-Nov-17	20
12-Feb-18	14
24-May-18	12
20-Aug-18	26
18-Nov-18	26
13-Feb-19	6.1
22-May-19	3.6
7-Aug-19	6.8
25-Nov-19	
7-May-20	



Chemical	Attenuation Rate Constant (day ⁻¹)	Attenuation Half-life (days)	Attenuation Half-life (years)	Current Conc. (µg/L)	Target Concentration (µg/L)	Estimated Cleanup Time (years)
TCE	6.00E-04	1155.2	3.2	6.8	5	1.4

Notes:

The estimated cleanup time was calculated as the time it would take the most recent detected TCE concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.

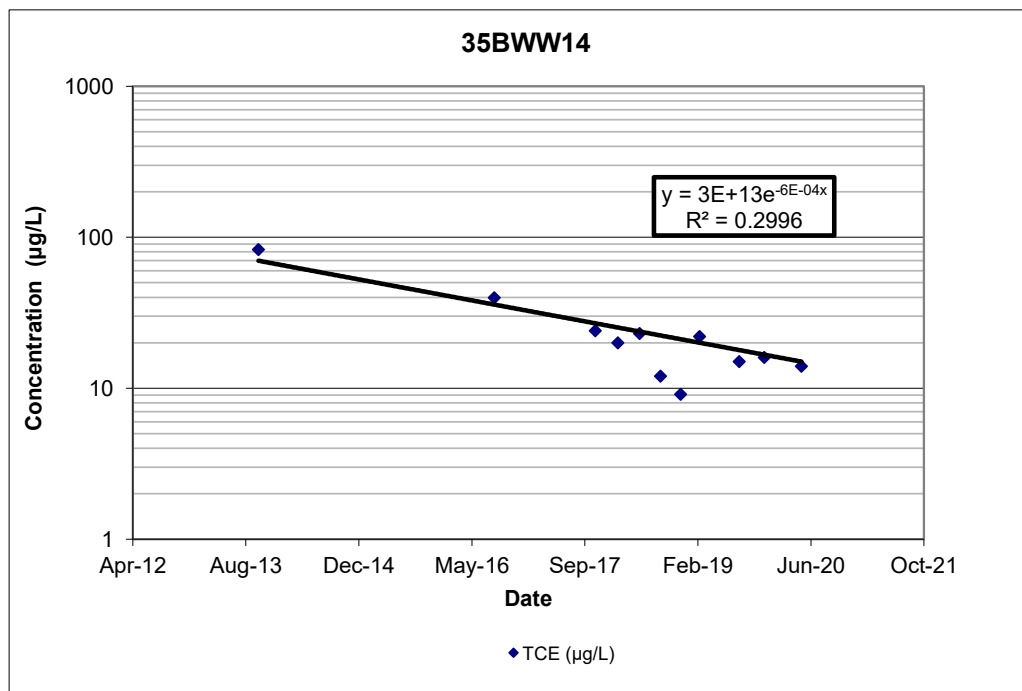
µg/L - micrograms per liter

MCL - maximum contaminant level

PCE - Tetrachloroethene

Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time 35BWW14

Date	TCE (µg/L)
9-Oct-13	83
17-Aug-16	39.7
7-Nov-17	24
15-Feb-18	20
22-May-18	23
22-Aug-18	12
20-Nov-18	9.1
12-Feb-19	22
21-May-19	110
6-Aug-19	15
25-Nov-19	16
7-May-20	14



Chemical	Attenuation Rate Constant (day ⁻¹)	Attenuation Half-life (days)	Attenuation Half-life (years)	Current Conc. (µg/L)	Target Concentration (µg/L)	Estimated Cleanup Time (years)
TCE	6.00E-04	1155.2	3.2	14	5	4.7

Notes:

The estimated cleanup time was calculated as the time it would take the most recent detected TCE concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.

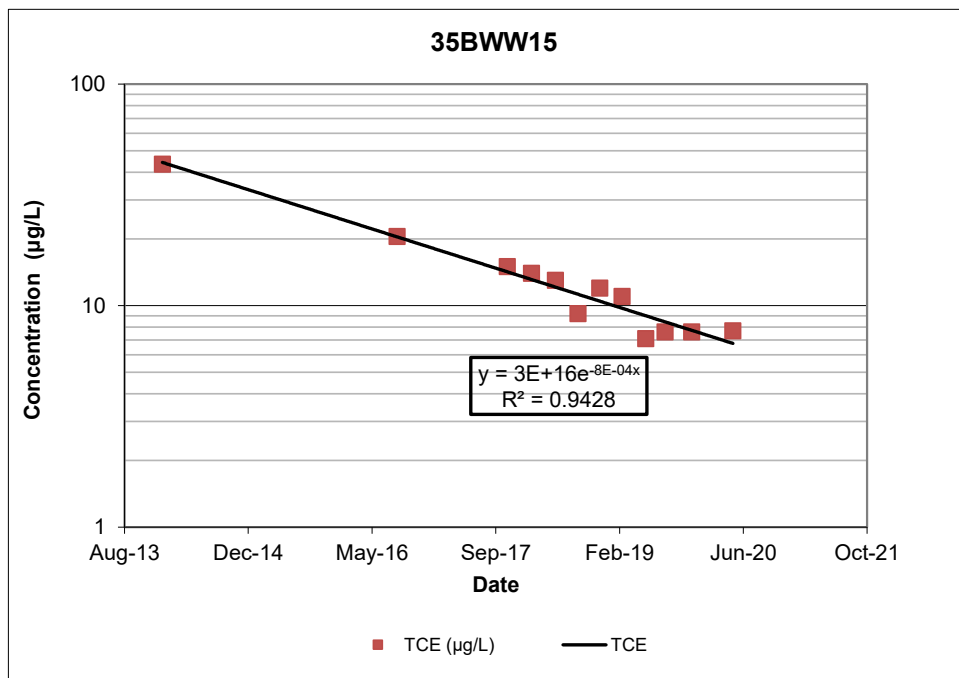
µg/L - micrograms per liter

MCL - maximum contaminant level

PCE - Tetrachloroethene

Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time 35BWW15

Date	TCE (µg/L)
14-Jan-14	43.5
19-Aug-16	20.5
7-Nov-17	15
13-Feb-18	14
21-May-18	13
20-Aug-18	9.2
16-Nov-18	12
14-Feb-19	11
21-May-19	7.1
7-Aug-19	7.6
22-Nov-19	7.6
7-May-20	7.7



Chemical	Attenuation Rate Constant (day ⁻¹)	Attenuation Half-life (days)	Attenuation Half-life (years)	Current Conc. (µg/L)	Target Concentration (µg/L)	Estimated Cleanup Time (years)
TCE	8.00E-04	866.4	2.4	7.7	5	1.5

Notes:

The estimated cleanup time was calculated as the time it would take the most recent detected TCE concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.

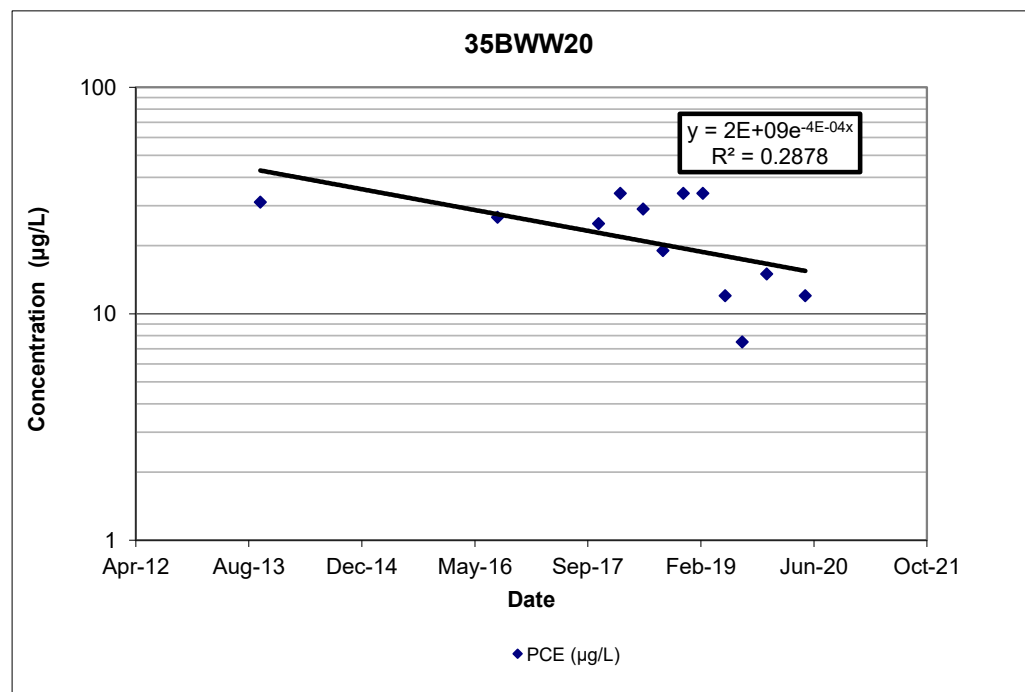
µg/L - micrograms per liter

MCL - maximum contaminant level

TCE - Trichloroethene

Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time LHSMW58

Date	PCE (µg/L)
4-Oct-13	31
18-Aug-16	26.7
8-Nov-17	25
12-Feb-18	34
24-May-18	29
20-Aug-18	19
18-Nov-18	34
13-Feb-19	34
22-May-19	12
6-Aug-19	7.5
22-Nov-19	15
11-May-20	12



Chemical	Attenuation Rate Constant (day ⁻¹)	Attenuation Half-life (days)	Attenuation Half-life (years)	Current Conc. (µg/L)	Target Concentration (µg/L)	Estimated Cleanup Time (years)
PCE	4.00E-04	1732.9	4.7	12	5	6.0

Notes:

The estimated cleanup time was calculated as the time it would take the most recent detected PCE concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.

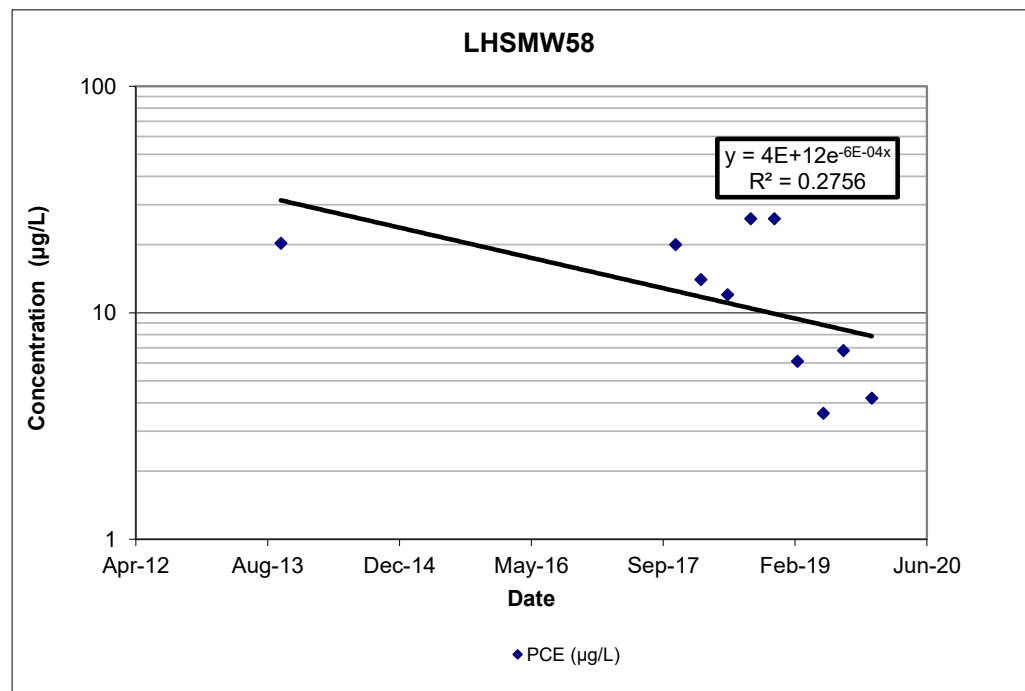
µg/L - micrograms per liter

MCL - maximum contaminant level

PCE - Tetrachloroethene

Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time LHSMW58

Date	PCE (µg/L)
3-Oct-13	20
8-Nov-17	20
12-Feb-18	14
24-May-18	12
20-Aug-18	26
18-Nov-18	26
13-Feb-19	6.1
22-May-19	3.6
7-Aug-19	6.8
22-Nov-19	4.2
11-May-20	14



Chemical	Attenuation Rate Constant (day ⁻¹)	Attenuation Half-life (days)	Attenuation Half-life (years)	Current Conc. (µg/L)	Target Concentration (µg/L)	Estimated Cleanup Time (years)
PCE	6.00E-04	1155.2	3.2	14.2	5	4.8

Notes:

The estimated cleanup time was calculated as the time it would take the most recent detected PCE concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.

µg/L - micrograms per liter

MCL - maximum contaminant level

PCE - Tetrachloroethene



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WorkOrder: HS19111153

LHAAP-37

Aptim Environmental & Infrastructure, Inc.

Susan Huang
2500 City West Blvd., Suite 1700
Houston TX 77042

18-Dec-2019





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ALS WO# HS19111153





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December 12, 2019

Susan Huang
Aptim Environmental & Infrastructure, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS19111153**

Laboratory Results for: **LHAAP-37**

Dear Susan,

ALS Environmental received 9 sample(s) on Nov 22, 2019 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Raj. P. Modashia', enclosed in a circular scribble.

Generated By: JUMOKE.LAWAL

RJ Modashia
Project Manager



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: LHAAP-37
Work Order: HS19111153

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19111153-01	35BWW16-191121	Groundwater		21-Nov-2019 08:05	22-Nov-2019 09:05	☐
HS19111153-02	35BWW17-191121	Groundwater		21-Nov-2019 08:50	22-Nov-2019 09:05	☐
HS19111153-03	35BWW04-191121	Groundwater		21-Nov-2019 09:35	22-Nov-2019 09:05	☐
HS19111153-04	35BWW04-191121-FD	Groundwater		21-Nov-2019 09:35	22-Nov-2019 09:05	☐
HS19111153-05	35BWW08-191121	Groundwater		21-Nov-2019 10:35	22-Nov-2019 09:05	☐
HS19111153-06	35BWW26-191121	Groundwater		21-Nov-2019 11:25	22-Nov-2019 09:05	☐
HS19111153-07	35BWW01-191121	Groundwater		21-Nov-2019 12:15	22-Nov-2019 09:05	☐
HS19111153-08	35BWW11-191121	Groundwater		21-Nov-2019 13:00	22-Nov-2019 09:05	☐
HS19111153-09	Trip Blank	Groundwater	CG-101419 -13	21-Nov-2019 00:00	22-Nov-2019 09:05	☐



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: LHAAP-37
Work Order: HS19111153

CASE NARRATIVE**Work Order Comments**

- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for TOC was subcontracted to ALS Kelso, WA. Final report attached.

GCMS Volatiles by Method SW8260**Batch ID: R351197****Sample ID: CCV**

- Acetone exceeded %D limits for CCV. Samples are ND for this compound.

Sample ID: HS19111239-05MSD

- MSD is performed on unrelated sample

WetChemistry by Method SW9056**Batch ID: R351218**

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: 35BWW16-191121
 Collection Date: 21-Nov-2019 08:05

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-01
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,1,2-Trichlor-1,2,2-trifluoroethane	7.5		0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,1-Dichloroethene	0.75	J	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 17:25
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 17:25
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:25
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 17:25
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 17:25
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 17:25
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: 35BWW16-191121
 Collection Date: 21-Nov-2019 08:05

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-01
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 17:25
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 17:25
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:25
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Tetrachloroethene	8.1		0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Trichloroethene	3.2		0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
<i>Surr: 1,2-Dichloroethane-d4</i>	93.5			0	81-118	%REC	1	24-Nov-2019 17:25
<i>Surr: 4-Bromofluorobenzene</i>	93.6			0	85-114	%REC	1	24-Nov-2019 17:25
<i>Surr: Dibromofluoromethane</i>	95.9			0	80-119	%REC	1	24-Nov-2019 17:25
<i>Surr: Toluene-d8</i>	95.9			0	89-112	%REC	1	24-Nov-2019 17:25

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: 35BWW17-191121
 Collection Date: 21-Nov-2019 08:50

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-02
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:49
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 17:49
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 17:49
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:49
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 17:49
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 17:49
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 17:49
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: 35BWW17-191121
 Collection Date: 21-Nov-2019 08:50

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-02
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 17:49
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 17:49
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:49
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
<i>Surr: 1,2-Dichloroethane-d4</i>	92.3			0	81-118	%REC	1	24-Nov-2019 17:49
<i>Surr: 4-Bromofluorobenzene</i>	93.0			0	85-114	%REC	1	24-Nov-2019 17:49
<i>Surr: Dibromofluoromethane</i>	95.9			0	80-119	%REC	1	24-Nov-2019 17:49
<i>Surr: Toluene-d8</i>	97.9			0	89-112	%REC	1	24-Nov-2019 17:49

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: 35BWW04-191121
 Collection Date: 21-Nov-2019 09:35

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-03
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:13
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 18:13
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 18:13
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:13
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 18:13
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 18:13
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 18:13
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: 35BWW04-191121
 Collection Date: 21-Nov-2019 09:35

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-03
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C			Method:SW8260					Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 18:13
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 18:13
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:13
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Tetrachloroethene	8.3		0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Trichloroethene	0.93	J	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
<i>Surr: 1,2-Dichloroethane-d4</i>	92.8			0	81-118	%REC	1	24-Nov-2019 18:13
<i>Surr: 4-Bromofluorobenzene</i>	92.4			0	85-114	%REC	1	24-Nov-2019 18:13
<i>Surr: Dibromofluoromethane</i>	96.4			0	80-119	%REC	1	24-Nov-2019 18:13
<i>Surr: Toluene-d8</i>	97.6			0	89-112	%REC	1	24-Nov-2019 18:13
ANIONS BY SW9056A			Method:SW9056					Analyst: KMU
Chloride	3.51		0.200	0.500	0.500	mg/L	1	22-Nov-2019 22:44
Nitrogen, Nitrate (As N)	0.145		0.0300	0.100	0.100	mg/L	1	22-Nov-2019 22:44
Sulfate	28.9		0.200	0.500	0.500	mg/L	1	22-Nov-2019 22:44
SUBCONTRACT ANALYSIS - RSK			Method:NA					Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Dec-2019 09:33
SUBCONTRACT ANALYSIS - TOC ANALYSIS			Method:NA					Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	03-Dec-2019 09:38

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: 35BWW04-191121-FD
 Collection Date: 21-Nov-2019 09:35

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-04
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:37
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 18:37
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 18:37
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:37
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 18:37
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 18:37
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 18:37
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: 35BWW04-191121-FD
 Collection Date: 21-Nov-2019 09:35

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-04
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C			Method:SW8260					Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 18:37
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 18:37
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:37
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Tetrachloroethene	7.7		0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Trichloroethene	0.93	J	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
<i>Surr: 1,2-Dichloroethane-d4</i>	92.3			0	81-118	%REC	1	24-Nov-2019 18:37
<i>Surr: 4-Bromofluorobenzene</i>	92.8			0	85-114	%REC	1	24-Nov-2019 18:37
<i>Surr: Dibromofluoromethane</i>	95.9			0	80-119	%REC	1	24-Nov-2019 18:37
<i>Surr: Toluene-d8</i>	97.4			0	89-112	%REC	1	24-Nov-2019 18:37
ANIONS BY SW9056A			Method:SW9056					Analyst: KMU
Chloride	3.48		0.200	0.500	0.500	mg/L	1	22-Nov-2019 23:33
Nitrogen, Nitrate (As N)	0.132		0.0300	0.100	0.100	mg/L	1	22-Nov-2019 23:33
Sulfate	26.5		0.200	0.500	0.500	mg/L	1	22-Nov-2019 23:33
SUBCONTRACT ANALYSIS - RSK			Method:NA					Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Dec-2019 09:33
SUBCONTRACT ANALYSIS - TOC ANALYSIS			Method:NA					Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	03-Dec-2019 09:38

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: 35BWW08-191121
 Collection Date: 21-Nov-2019 10:35

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-05
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:01
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 19:01
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 19:01
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:01
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 19:01
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 19:01
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 19:01
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: 35BWW08-191121
 Collection Date: 21-Nov-2019 10:35

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-05
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 19:01
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 19:01
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:01
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Surr: 1,2-Dichloroethane-d4	94.6			0	81-118	%REC	1	24-Nov-2019 19:01
Surr: 4-Bromofluorobenzene	94.3			0	85-114	%REC	1	24-Nov-2019 19:01
Surr: Dibromofluoromethane	98.0			0	80-119	%REC	1	24-Nov-2019 19:01
Surr: Toluene-d8	97.7			0	89-112	%REC	1	24-Nov-2019 19:01
ANIONS BY SW9056A		Method:SW9056						Analyst: KMU
Chloride	6.66		0.200	0.500	0.500	mg/L	1	22-Nov-2019 23:50
Nitrogen, Nitrate (As N)	0.301		0.0300	0.100	0.100	mg/L	1	22-Nov-2019 23:50
Sulfate	30.1		0.200	0.500	0.500	mg/L	1	22-Nov-2019 23:50
SUBCONTRACT ANALYSIS - RSK		Method:NA						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Dec-2019 09:33
SUBCONTRACT ANALYSIS - TOC ANALYSIS		Method:NA						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	03-Dec-2019 09:38

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: 35BWW26-191121
 Collection Date: 21-Nov-2019 11:25

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-06
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 19:25
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 19:25
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:25
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 19:25
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 19:25
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 19:25
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: 35BWW26-191121
 Collection Date: 21-Nov-2019 11:25

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-06
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C			Method:SW8260					Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 19:25
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 19:25
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:25
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Surr: 1,2-Dichloroethane-d4	93.1			0	81-118	%REC	1	24-Nov-2019 19:25
Surr: 4-Bromofluorobenzene	92.9			0	85-114	%REC	1	24-Nov-2019 19:25
Surr: Dibromofluoromethane	97.3			0	80-119	%REC	1	24-Nov-2019 19:25
Surr: Toluene-d8	97.6			0	89-112	%REC	1	24-Nov-2019 19:25
ANIONS BY SW9056A			Method:SW9056					Analyst: KMU
Chloride	30.6		0.200	0.500	0.500	mg/L	1	23-Nov-2019 00:07
Nitrogen, Nitrate (As N)	0.0743	J	0.0300	0.100	0.100	mg/L	1	23-Nov-2019 00:07
Sulfate	26.0		0.200	0.500	0.500	mg/L	1	23-Nov-2019 00:07
SUBCONTRACT ANALYSIS - RSK			Method:NA					Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Dec-2019 09:33
SUBCONTRACT ANALYSIS - TOC ANALYSIS			Method:NA					Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	03-Dec-2019 09:38

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: 35BWW01-191121
 Collection Date: 21-Nov-2019 12:15

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-07
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:49
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 19:49
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 19:49
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:49
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 19:49
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 19:49
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 19:49
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: 35BWW01-191121
 Collection Date: 21-Nov-2019 12:15

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-07
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 19:49
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 19:49
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:49
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Surr: 1,2-Dichloroethane-d4	94.4			0	81-118	%REC	1	24-Nov-2019 19:49
Surr: 4-Bromofluorobenzene	94.9			0	85-114	%REC	1	24-Nov-2019 19:49
Surr: Dibromofluoromethane	97.7			0	80-119	%REC	1	24-Nov-2019 19:49
Surr: Toluene-d8	97.9			0	89-112	%REC	1	24-Nov-2019 19:49

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: 35BWW11-191121
 Collection Date: 21-Nov-2019 13:00

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-08
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:13
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 20:13
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 20:13
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:13
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 20:13
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 20:13
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 20:13
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: 35BWW11-191121
 Collection Date: 21-Nov-2019 13:00

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-08
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 20:13
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 20:13
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:13
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
<i>Surr: 1,2-Dichloroethane-d4</i>	92.7			0	81-118	%REC	1	24-Nov-2019 20:13
<i>Surr: 4-Bromofluorobenzene</i>	92.3			0	85-114	%REC	1	24-Nov-2019 20:13
<i>Surr: Dibromofluoromethane</i>	96.0			0	80-119	%REC	1	24-Nov-2019 20:13
<i>Surr: Toluene-d8</i>	96.2			0	89-112	%REC	1	24-Nov-2019 20:13

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: Trip Blank
 Collection Date: 21-Nov-2019 00:00

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-09
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:00
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 15:00
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 15:00
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:00
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 15:00
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 15:00
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 15:00
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00

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



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: LHAAP-37
 Sample ID: Trip Blank
 Collection Date: 21-Nov-2019 00:00

ANALYTICAL REPORT

WorkOrder:HS19111153
 Lab ID:HS19111153-09
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 15:00
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 15:00
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:00
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
<i>Surr: 1,2-Dichloroethane-d4</i>	93.3			0	81-118	%REC	1	24-Nov-2019 15:00
<i>Surr: 4-Bromofluorobenzene</i>	93.5			0	85-114	%REC	1	24-Nov-2019 15:00
<i>Surr: Dibromofluoromethane</i>	96.1			0	80-119	%REC	1	24-Nov-2019 15:00
<i>Surr: Toluene-d8</i>	96.8			0	89-112	%REC	1	24-Nov-2019 15:00

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



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Client: Aptim Environmental & Infrastructure, Inc.
Project: LHAAP-37
WorkOrder: HS19111153

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R351197 (0)		Test Name : VOLATILES ORGANICS BY METHOD 8260C			Matrix: Groundwater	
HS19111153-01	35BWW16-191121	21 Nov 2019 08:05			24 Nov 2019 17:25	1
HS19111153-02	35BWW17-191121	21 Nov 2019 08:50			24 Nov 2019 17:49	1
HS19111153-03	35BWW04-191121	21 Nov 2019 09:35			24 Nov 2019 18:13	1
HS19111153-04	35BWW04-191121-FD	21 Nov 2019 09:35			24 Nov 2019 18:37	1
HS19111153-05	35BWW08-191121	21 Nov 2019 10:35			24 Nov 2019 19:01	1
HS19111153-06	35BWW26-191121	21 Nov 2019 11:25			24 Nov 2019 19:25	1
HS19111153-07	35BWW01-191121	21 Nov 2019 12:15			24 Nov 2019 19:49	1
HS19111153-08	35BWW11-191121	21 Nov 2019 13:00			24 Nov 2019 20:13	1
HS19111153-09	Trip Blank	21 Nov 2019 00:00			24 Nov 2019 15:00	1
Batch ID: R351218 (0)		Test Name : ANIONS BY SW9056A			Matrix: Groundwater	
HS19111153-03	35BWW04-191121	21 Nov 2019 09:35			22 Nov 2019 22:44	1
HS19111153-04	35BWW04-191121-FD	21 Nov 2019 09:35			22 Nov 2019 23:33	1
HS19111153-05	35BWW08-191121	21 Nov 2019 10:35			22 Nov 2019 23:50	1
HS19111153-06	35BWW26-191121	21 Nov 2019 11:25			23 Nov 2019 00:07	1
Batch ID: R351628 (0)		Test Name : SUBCONTRACT ANALYSIS - TOC ANALYSIS			Matrix: Groundwater	
HS19111153-03	35BWW04-191121	21 Nov 2019 09:35			03 Dec 2019 09:38	1
HS19111153-04	35BWW04-191121-FD	21 Nov 2019 09:35			03 Dec 2019 09:38	1
HS19111153-05	35BWW08-191121	21 Nov 2019 10:35			03 Dec 2019 09:38	1
HS19111153-06	35BWW26-191121	21 Nov 2019 11:25			03 Dec 2019 09:38	1
Batch ID: R352312 (0)		Test Name : SUBCONTRACT ANALYSIS - RSK			Matrix: Groundwater	
HS19111153-03	35BWW04-191121	21 Nov 2019 09:35			12 Dec 2019 09:33	1
HS19111153-04	35BWW04-191121-FD	21 Nov 2019 09:35			12 Dec 2019 09:33	1
HS19111153-05	35BWW08-191121	21 Nov 2019 10:35			12 Dec 2019 09:33	1
HS19111153-06	35BWW26-191121	21 Nov 2019 11:25			12 Dec 2019 09:33	1



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QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MBLK	Sample ID: VBLKW-191124	Units: UG/L		Analysis Date: 24-Nov-2019 14:36					
Client ID:	Run ID: VOA6_351197	SeqNo: 5359047		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-Trichloro-1,2,2-trifluoroethane	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



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QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MBLK	Sample ID: VBLKW-191124	Units: UG/L		Analysis Date: 24-Nov-2019 14:36					
Client ID:	Run ID: VOA6_351197	SeqNo: 5359047		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromomethane	0.50	1.0							U
Carbon disulfide	1.0	2.0							U
Carbon tetrachloride	0.50	1.0							U
Chlorobenzene	0.50	1.0							U
Chloroethane	0.50	1.0							U
Chloroform	0.50	1.0							U
Chloromethane	0.50	1.0							U
cis-1,2-Dichloroethene	0.50	1.0							U
cis-1,3-Dichloropropene	0.50	1.0							U
Dibromochloromethane	0.50	1.0							U
Dibromomethane	0.50	1.0							U
Dichlorodifluoromethane	0.50	1.0							U
Ethylbenzene	0.50	1.0							U
Hexachlorobutadiene	0.50	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	45.83	1.0	50	0	91.7	81 - 118			
Surr: 4-Bromofluorobenzene	45.55	1.0	50	0	91.1	85 - 114			
Surr: Dibromofluoromethane	47.85	1.0	50	0	95.7	80 - 119			



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QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MBLK	Sample ID: VBLKW-191124	Units: UG/L		Analysis Date: 24-Nov-2019 14:36					
Client ID:	Run ID: VOA6_351197		SeqNo: 5359047		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Surr: Toluene-d8	48.8	1.0	50	0	97.6	89 - 112			



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QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
LCS		Sample ID: VLCSW-191124		Units: UG/L		Analysis Date: 24-Nov-2019 13:48			
Client ID:		Run ID: VOA6_351197		SeqNo: 5359046		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	20.62	1.0	20	0	103	78 - 124			
1,1,1-Trichloroethane	20.64	1.0	20	0	103	74 - 131			
1,1,2,2-Tetrachloroethane	20.35	1.0	20	0	102	71 - 121			
1,1,2-Trichlor-1,2,2-trifluoroethane	19.89	1.0	20	0	99.5	70 - 136			
1,1,2-Trichloroethane	20.38	1.0	20	0	102	80 - 119			
1,1-Dichloroethane	20.55	1.0	20	0	103	77 - 125			
1,1-Dichloroethene	19.43	1.0	20	0	97.1	71 - 131			
1,1-Dichloropropene	20.19	1.0	20	0	101	78 - 125			
1,2,3-Trichlorobenzene	21.94	1.0	20	0	110	69 - 129			
1,2,3-Trichloropropane	19.97	1.0	20	0	99.9	73 - 122			
1,2,4-Trichlorobenzene	21.34	1.0	20	0	107	69 - 130			
1,2,4-Trimethylbenzene	20.39	1.0	20	0	102	76 - 124			
1,2-Dibromo-3-chloropropane	20.16	1.0	20	0	101	62 - 128			
1,2-Dibromoethane	20.05	1.0	20	0	100	77 - 121			
1,2-Dichlorobenzene	20.48	1.0	20	0	102	80 - 119			
1,2-Dichloroethane	20.29	1.0	20	0	101	73 - 128			
1,2-Dichloropropane	20.26	1.0	20	0	101	78 - 122			
1,3,5-Trimethylbenzene	20.66	1.0	20	0	103	75 - 124			
1,3-Dichlorobenzene	20.59	1.0	20	0	103	80 - 119			
1,3-Dichloropropane	19.68	1.0	20	0	98.4	80 - 119			
1,4-Dichlorobenzene	20.5	1.0	20	0	103	79 - 118			
2,2-Dichloropropane	20.47	1.0	20	0	102	60 - 139			
2-Butanone	39.49	2.0	40	0	98.7	56 - 143			
2-Chlorotoluene	21.32	1.0	20	0	107	79 - 122			
2-Hexanone	39.78	2.0	40	0	99.5	57 - 139			
4-Chlorotoluene	20.52	1.0	20	0	103	78 - 122			
4-Isopropyltoluene	20.47	1.0	20	0	102	77 - 127			
4-Methyl-2-pentanone	38.77	2.0	40	0	96.9	67 - 130			
Acetone	43.21	2.0	40	0	108	39 - 160			
Benzene	20.71	1.0	20	0	104	79 - 120			
Bromobenzene	20.96	1.0	20	0	105	80 - 120			
Bromochloromethane	20.43	1.0	20	0	102	78 - 123			
Bromodichloromethane	20.51	1.0	20	0	103	79 - 125			
Bromoform	20.06	1.0	20	0	100	66 - 130			



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QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
LCS		Sample ID: VLCSW-191124		Units: UG/L		Analysis Date: 24-Nov-2019 13:48			
Client ID:		Run ID: VOA6_351197		SeqNo: 5359046		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromomethane	21.53	1.0	20	0	108	53 - 141			
Carbon disulfide	41.92	2.0	40	0	105	64 - 133			
Carbon tetrachloride	19.98	1.0	20	0	99.9	72 - 136			
Chlorobenzene	19.9	1.0	20	0	99.5	82 - 118			
Chloroethane	18.17	1.0	20	0	90.9	60 - 138			
Chloroform	20.14	1.0	20	0	101	79 - 124			
Chloromethane	15.24	1.0	20	0	76.2	50 - 139			
cis-1,2-Dichloroethene	21.32	1.0	20	0	107	78 - 123			
cis-1,3-Dichloropropene	20.55	1.0	20	0	103	75 - 124			
Dibromochloromethane	20.29	1.0	20	0	101	74 - 126			
Dibromomethane	20.7	1.0	20	0	103	79 - 123			
Dichlorodifluoromethane	15.73	1.0	20	0	78.7	32 - 152			
Ethylbenzene	20.21	1.0	20	0	101	79 - 121			
Hexachlorobutadiene	20.68	1.0	20	0	103	66 - 134			
Isopropylbenzene	20.02	1.0	20	0	100	72 - 131			
m,p-Xylene	40.31	2.0	40	0	101	80 - 121			
Methylene chloride	19.82	2.0	20	0	99.1	74 - 124			
Naphthalene	18.54	1.0	20	0	92.7	61 - 128			
n-Butylbenzene	20.99	1.0	20	0	105	75 - 128			
n-Propylbenzene	21.12	1.0	20	0	106	76 - 126			
o-Xylene	20.1	1.0	20	0	100	78 - 122			
sec-Butylbenzene	20.93	1.0	20	0	105	77 - 126			
Styrene	20.09	1.0	20	0	100	78 - 123			
tert-Butylbenzene	20.85	1.0	20	0	104	78 - 124			
Tetrachloroethene	19.88	1.0	20	0	99.4	74 - 129			
Toluene	20.27	1.0	20	0	101	80 - 121			
trans-1,2-Dichloroethene	20.72	1.0	20	0	104	75 - 124			
trans-1,3-Dichloropropene	20.09	1.0	20	0	100	73 - 127			
Trichloroethene	20.68	1.0	20	0	103	79 - 123			
Trichlorofluoromethane	19.6	1.0	20	0	98.0	65 - 141			
Vinyl chloride	16.98	1.0	20	0	84.9	58 - 137			
Surr: 1,2-Dichloroethane-d4	50.3	1.0	50	0	101	81 - 118			
Surr: 4-Bromofluorobenzene	46.99	1.0	50	0	94.0	85 - 114			
Surr: Dibromofluoromethane	50.21	1.0	50	0	100	80 - 119			



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QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
LCS	Sample ID: VLCSW-191124	Units: UG/L		Analysis Date: 24-Nov-2019 13:48					
Client ID:	Run ID: VOA6_351197		SeqNo: 5359046		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Surr: Toluene-d8	46.49	1.0	50	0	93.0	89 - 112			



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QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MS		Sample ID: HS19111239-05MS		Units: UG/L		Analysis Date: 24-Nov-2019 16:13			
Client ID:		Run ID: VOA6_351197		SeqNo: 5359051		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
1,1,1,2-Tetrachloroethane	18.24	1.0	20	0	91.2	78 - 124			
1,1,1-Trichloroethane	18.88	1.0	20	0	94.4	74 - 131			
1,1,2,2-Tetrachloroethane	18.01	1.0	20	0	90.0	71 - 121			
1,1,2-Trichloro-1,2,2-trifluoroethane	18.99	1.0	20	0	95.0	70 - 136			
1,1,2-Trichloroethane	18.24	1.0	20	0	91.2	80 - 119			
1,1-Dichloroethane	18.35	1.0	20	0	91.7	77 - 125			
1,1-Dichloroethene	18.12	1.0	20	0	90.6	71 - 131			
1,1-Dichloropropene	19.12	1.0	20	0	95.6	78 - 125			
1,2,3-Trichlorobenzene	14.41	1.0	20	0	72.1	69 - 129			
1,2,3-Trichloropropane	17.24	1.0	20	0	86.2	73 - 122			
1,2,4-Trichlorobenzene	15.26	1.0	20	0	76.3	69 - 130			
1,2,4-Trimethylbenzene	19.07	1.0	20	0	95.3	76 - 124			
1,2-Dibromo-3-chloropropane	16.49	1.0	20	0	82.5	62 - 128			
1,2-Dibromoethane	17.78	1.0	20	0	88.9	77 - 121			
1,2-Dichlorobenzene	18.64	1.0	20	0	93.2	80 - 119			
1,2-Dichloroethane	18.26	1.0	20	0	91.3	73 - 128			
1,2-Dichloropropane	18.08	1.0	20	0	90.4	78 - 122			
1,3,5-Trimethylbenzene	19.64	1.0	20	0	98.2	75 - 124			
1,3-Dichlorobenzene	19.23	1.0	20	0	96.2	80 - 119			
1,3-Dichloropropane	17.67	1.0	20	0	88.4	80 - 119			
1,4-Dichlorobenzene	18.82	1.0	20	0	94.1	79 - 118			
2,2-Dichloropropane	18.17	1.0	20	0	90.9	60 - 139			
2-Butanone	30.13	2.0	40	0	75.3	56 - 143			
2-Chlorotoluene	19.75	1.0	20	0	98.7	79 - 122			
2-Hexanone	31.85	2.0	40	0	79.6	57 - 139			
4-Chlorotoluene	18.99	1.0	20	0	94.9	78 - 122			
4-Isopropyltoluene	19.48	1.0	20	0	97.4	77 - 127			
4-Methyl-2-pentanone	32.34	2.0	40	0	80.8	67 - 130			
Acetone	25.48	2.0	40	0	63.7	39 - 160			
Benzene	19.17	1.0	20	0	95.9	79 - 120			
Bromobenzene	19.09	1.0	20	0	95.5	80 - 120			
Bromochloromethane	17.63	1.0	20	0	88.1	78 - 123			
Bromodichloromethane	18.27	1.0	20	0	91.3	79 - 125			
Bromoform	17.79	1.0	20	0	89.0	66 - 130			



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QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MS		Sample ID: HS19111239-05MS		Units: UG/L		Analysis Date: 24-Nov-2019 16:13			
Client ID:		Run ID: VOA6_351197		SeqNo: 5359051		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromomethane	19.73	1.0	20	0	98.6	53 - 141			
Carbon disulfide	39.23	2.0	40	0	98.1	64 - 133			
Carbon tetrachloride	19.24	1.0	20	0	96.2	72 - 136			
Chlorobenzene	18.32	1.0	20	0	91.6	82 - 118			
Chloroethane	17.02	1.0	20	0	85.1	60 - 138			
Chloroform	17.4	1.0	20	0	87.0	79 - 124			
Chloromethane	14.84	1.0	20	0	74.2	50 - 139			
cis-1,2-Dichloroethene	18.73	1.0	20	0	93.6	78 - 123			
cis-1,3-Dichloropropene	18.4	1.0	20	0	92.0	75 - 124			
Dibromochloromethane	18.2	1.0	20	0	91.0	74 - 126			
Dibromomethane	18.14	1.0	20	0	90.7	79 - 123			
Dichlorodifluoromethane	18.37	1.0	20	0	91.8	32 - 152			
Ethylbenzene	18.84	1.0	20	0	94.2	79 - 121			
Hexachlorobutadiene	15.65	1.0	20	0	78.3	66 - 134			
Isopropylbenzene	19.15	1.0	20	0	95.8	72 - 131			
m,p-Xylene	37.63	2.0	40	0	94.1	80 - 121			
Methylene chloride	17.19	2.0	20	0	86.0	74 - 124			
Naphthalene	13.75	1.0	20	0	68.8	61 - 128			
n-Butylbenzene	19.96	1.0	20	0	99.8	75 - 128			
n-Propylbenzene	20.13	1.0	20	0	101	76 - 126			
o-Xylene	18.35	1.0	20	0	91.8	78 - 122			
sec-Butylbenzene	20.02	1.0	20	0	100	77 - 126			
Styrene	18.54	1.0	20	0	92.7	78 - 123			
tert-Butylbenzene	19.89	1.0	20	0	99.5	78 - 124			
Tetrachloroethene	22.84	1.0	20	4.209	93.2	74 - 129			
Toluene	18.9	1.0	20	0	94.5	80 - 121			
trans-1,2-Dichloroethene	18.85	1.0	20	0	94.3	75 - 124			
trans-1,3-Dichloropropene	17.61	1.0	20	0	88.1	73 - 127			
Trichloroethene	19.67	1.0	20	0	98.4	79 - 123			
Trichlorofluoromethane	19.15	1.0	20	0	95.7	65 - 141			
Vinyl chloride	17.07	1.0	20	0	85.4	58 - 137			
Surr: 1,2-Dichloroethane-d4	46.74	1.0	50	0	93.5	81 - 118			
Surr: 4-Bromofluorobenzene	47.36	1.0	50	0	94.7	85 - 114			
Surr: Dibromofluoromethane	48.71	1.0	50	0	97.4	80 - 119			



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.

Project: LHAAP-37

WorkOrder: HS19111153

QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MS		Sample ID: HS19111239-05MS		Units: UG/L		Analysis Date: 24-Nov-2019 16:13			
Client ID:		Run ID: VOA6_351197		SeqNo: 5359051		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
<i>Surr: Toluene-d8</i>	47.72	1.0	50	0	95.4	89 - 112			



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: LHAAP-37
WorkOrder: HS19111153

QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C						
MSD		Sample ID: HS19111239-05MSD		Units: UG/L		Analysis Date: 24-Nov-2019 16:37				
Client ID:		Run ID: VOA6_351197		SeqNo: 5359052		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.12	1.0	20	0	90.6	78 - 124	18.24	0.661	20	
1,1,1-Trichloroethane	18.11	1.0	20	0	90.6	74 - 131	18.88	4.16	20	
1,1,2,2-Tetrachloroethane	17.59	1.0	20	0	87.9	71 - 121	18.01	2.36	20	
1,1,2-Trichloro-1,2,2-trifluoroethane	17.46	1.0	20	0	87.3	70 - 136	18.99	8.39	20	
1,1,2-Trichloroethane	18.04	1.0	20	0	90.2	80 - 119	18.24	1.12	20	
1,1-Dichloroethane	17.57	1.0	20	0	87.8	77 - 125	18.35	4.35	20	
1,1-Dichloroethene	17.36	1.0	20	0	86.8	71 - 131	18.12	4.26	20	
1,1-Dichloropropene	17.8	1.0	20	0	89.0	78 - 125	19.12	7.16	20	
1,2,3-Trichlorobenzene	18.23	1.0	20	0	91.1	69 - 129	14.41	23.4	20	R
1,2,3-Trichloropropane	17.01	1.0	20	0	85.0	73 - 122	17.24	1.38	20	
1,2,4-Trichlorobenzene	17.59	1.0	20	0	87.9	69 - 130	15.26	14.2	20	
1,2,4-Trimethylbenzene	18.33	1.0	20	0	91.6	76 - 124	19.07	3.96	20	
1,2-Dibromo-3-chloropropane	16.61	1.0	20	0	83.1	62 - 128	16.49	0.724	20	
1,2-Dibromoethane	17.93	1.0	20	0	89.7	77 - 121	17.78	0.846	20	
1,2-Dichlorobenzene	18.01	1.0	20	0	90.1	80 - 119	18.64	3.43	20	
1,2-Dichloroethane	17.68	1.0	20	0	88.4	73 - 128	18.26	3.23	20	
1,2-Dichloropropane	17.55	1.0	20	0	87.8	78 - 122	18.08	2.99	20	
1,3,5-Trimethylbenzene	18.76	1.0	20	0	93.8	75 - 124	19.64	4.54	20	
1,3-Dichlorobenzene	18.48	1.0	20	0	92.4	80 - 119	19.23	3.98	20	
1,3-Dichloropropane	17.53	1.0	20	0	87.6	80 - 119	17.67	0.82	20	
1,4-Dichlorobenzene	18.44	1.0	20	0	92.2	79 - 118	18.82	2.06	20	
2,2-Dichloropropane	17.45	1.0	20	0	87.2	60 - 139	18.17	4.07	20	
2-Butanone	30.35	2.0	40	0	75.9	56 - 143	30.13	0.72	20	
2-Chlorotoluene	18.87	1.0	20	0	94.3	79 - 122	19.75	4.57	20	
2-Hexanone	32.59	2.0	40	0	81.5	57 - 139	31.85	2.3	20	
4-Chlorotoluene	18.2	1.0	20	0	91.0	78 - 122	18.99	4.21	20	
4-Isopropyltoluene	18.83	1.0	20	0	94.1	77 - 127	19.48	3.4	20	
4-Methyl-2-pentanone	33.16	2.0	40	0	82.9	67 - 130	32.34	2.53	20	
Acetone	26.02	2.0	40	0	65.1	39 - 160	25.48	2.1	20	
Benzene	18.31	1.0	20	0	91.5	79 - 120	19.17	4.61	20	
Bromobenzene	18.45	1.0	20	0	92.2	80 - 120	19.09	3.45	20	
Bromochloromethane	17.29	1.0	20	0	86.5	78 - 123	17.63	1.92	20	
Bromodichloromethane	18.04	1.0	20	0	90.2	79 - 125	18.27	1.29	20	
Bromoform	17.89	1.0	20	0	89.4	66 - 130	17.79	0.53	20	



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: LHAAP-37
WorkOrder: HS19111153

QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MSD		Sample ID: HS19111239-05MSD		Units: UG/L		Analysis Date: 24-Nov-2019 16:37			
Client ID:		Run ID: VOA6_351197		SeqNo: 5359052		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromomethane	18.39	1.0	20	0	92.0	53 - 141	19.73	6.98	20
Carbon disulfide	36.94	2.0	40	0	92.4	64 - 133	39.23	6.02	20
Carbon tetrachloride	18.2	1.0	20	0	91.0	72 - 136	19.24	5.56	20
Chlorobenzene	17.8	1.0	20	0	89.0	82 - 118	18.32	2.89	20
Chloroethane	16.57	1.0	20	0	82.9	60 - 138	17.02	2.63	20
Chloroform	16.85	1.0	20	0	84.2	79 - 124	17.4	3.23	20
Chloromethane	14.12	1.0	20	0	70.6	50 - 139	14.84	4.94	20
cis-1,2-Dichloroethene	18.13	1.0	20	0	90.6	78 - 123	18.73	3.23	20
cis-1,3-Dichloropropene	18.02	1.0	20	0	90.1	75 - 124	18.4	2.09	20
Dibromochloromethane	17.96	1.0	20	0	89.8	74 - 126	18.2	1.3	20
Dibromomethane	17.8	1.0	20	0	89.0	79 - 123	18.14	1.87	20
Dichlorodifluoromethane	17.31	1.0	20	0	86.5	32 - 152	18.37	5.94	20
Ethylbenzene	18.45	1.0	20	0	92.2	79 - 121	18.84	2.13	20
Hexachlorobutadiene	17.06	1.0	20	0	85.3	66 - 134	15.65	8.61	20
Isopropylbenzene	18.42	1.0	20	0	92.1	72 - 131	19.15	3.87	20
m,p-Xylene	36.59	2.0	40	0	91.5	80 - 121	37.63	2.78	20
Methylene chloride	16.77	2.0	20	0	83.8	74 - 124	17.19	2.51	20
Naphthalene	16.13	1.0	20	0	80.6	61 - 128	13.75	15.9	20
n-Butylbenzene	19.32	1.0	20	0	96.6	75 - 128	19.96	3.28	20
n-Propylbenzene	19.27	1.0	20	0	96.4	76 - 126	20.13	4.34	20
o-Xylene	18.08	1.0	20	0	90.4	78 - 122	18.35	1.51	20
sec-Butylbenzene	19.25	1.0	20	0	96.2	77 - 126	20.02	3.91	20
Styrene	17.88	1.0	20	0	89.4	78 - 123	18.54	3.6	20
tert-Butylbenzene	19.11	1.0	20	0	95.6	78 - 124	19.89	3.99	20
Tetrachloroethene	22.2	1.0	20	4.209	90.0	74 - 129	22.84	2.83	20
Toluene	18.32	1.0	20	0	91.6	80 - 121	18.9	3.12	20
trans-1,2-Dichloroethene	17.92	1.0	20	0	89.6	75 - 124	18.85	5.04	20
trans-1,3-Dichloropropene	17.29	1.0	20	0	86.5	73 - 127	17.61	1.81	20
Trichloroethene	18.77	1.0	20	0	93.8	79 - 123	19.67	4.7	20
Trichlorofluoromethane	17.92	1.0	20	0	89.6	65 - 141	19.15	6.64	20
Vinyl chloride	16.23	1.0	20	0	81.2	58 - 137	17.07	5.03	20
Surr: 1,2-Dichloroethane-d4	46.43	1.0	50	0	92.9	81 - 118	46.74	0.658	20
Surr: 4-Bromofluorobenzene	48.06	1.0	50	0	96.1	85 - 114	47.36	1.46	20
Surr: Dibromofluoromethane	48.44	1.0	50	0	96.9	80 - 119	48.71	0.556	20



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.

Project: LHAAP-37

WorkOrder: HS19111153

QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C						
MSD	Sample ID: HS19111239-05MSD	Units: UG/L		Analysis Date: 24-Nov-2019 16:37						
Client ID:	Run ID: VOA6_351197		SeqNo: 5359052		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	47.65	1.0	50	0	95.3	89 - 112	47.72	0.151	20	

The following samples were analyzed in this batch:

HS19111153-01	HS19111153-02	HS19111153-03	HS19111153-04
HS19111153-05	HS19111153-06	HS19111153-07	HS19111153-08
HS19111153-09			



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.

Project: LHAAP-37

WorkOrder: HS19111153

QC BATCH REPORT

Batch ID: R351218 (0)		Instrument: ICS-Integrion		Method: ANIONS BY SW9056A					
MBLK	Sample ID: WBLKW1-112219	Units: mg/L		Analysis Date: 22-Nov-2019 13:35					
Client ID:	Run ID: ICS-Integrion_351218		SeqNo: 5359370		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	0.500	0.500							U
Nitrogen, Nitrate (As N)	0.100	0.100							U
Sulfate	0.500	0.500							U

LCS	Sample ID: WLC SW1-112219	Units: mg/L		Analysis Date: 22-Nov-2019 13:52					
Client ID:	Run ID: ICS-Integrion_351218		SeqNo: 5359371		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	19.94	0.500	20	0	99.7	80 - 120			
Nitrogen, Nitrate (As N)	4.083	0.100	4	0	102	80 - 120			
Sulfate	19.3	0.500	20	0	96.5	80 - 120			

LCSD	Sample ID: WLCSDW1-112219	Units: mg/L		Analysis Date: 22-Nov-2019 14:08					
Client ID:	Run ID: ICS-Integrion_351218		SeqNo: 5359372		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	19.97	0.500	20	0	99.8	80 - 120	19.94	0.165	20
Nitrogen, Nitrate (As N)	4.066	0.100	4	0	102	80 - 120	4.083	0.405	20
Sulfate	19.54	0.500	20	0	97.7	80 - 120	19.3	1.23	20

MS	Sample ID: HS19111104-01MS	Units: mg/L		Analysis Date: 22-Nov-2019 14:42					
Client ID:	Run ID: ICS-Integrion_351218		SeqNo: 5359374		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	41.37	0.500	10	32.25	91.2	80 - 120			
Nitrogen, Nitrate (As N)	3.793	0.100	2	1.85	97.1	80 - 120			
Sulfate	93.75	0.500	10	85.29	84.6	80 - 120			O



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.

Project: LHAAP-37

WorkOrder: HS19111153

QC BATCH REPORT

Batch ID: R351218 (0)		Instrument: ICS-Integrion		Method: ANIONS BY SW9056A					
MSD		Sample ID: HS19111104-01MSD		Units: mg/L		Analysis Date: 22-Nov-2019 14:58			
Client ID:		Run ID: ICS-Integrion_351218		SeqNo: 5359375		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	41.55	0.500	10	32.25	93.0	80 - 120	41.37	0.446	20
Nitrogen, Nitrate (As N)	3.837	0.100	2	1.85	99.4	80 - 120	3.793	1.17	20
Sulfate	93.41	0.500	10	85.29	81.3	80 - 120	93.75	0.354	20 O
The following samples were analyzed in this batch:									
HS19111153-03		HS19111153-04		HS19111153-05		HS19111153-06			



ALS Houston, US

Date: 12-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: LHAAP-37
WorkOrder: HS19111153

**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 Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program



CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	TX104704231-19-23	30-Apr-2020



ALS Houston, US

Date: 12-Dec-19

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS19111153

Date/Time Received: **22-Nov-2019 09:05**
Received by: **PMG**

Checklist completed by: Paresh M. Giga 22-Nov-2019
eSignature Date

Reviewed by: RJ Modashia 22-Nov-2019
eSignature Date

Matrices: **GW/Water**Carrier name: **FedEx**

Shipping container/cooler in good condition?
Custody seals intact on shipping container/cooler?
Custody seals intact on sample bottles?
VOA/TX1005/TX1006 Solids in hermetically sealed vials?
Chain of custody present?
Chain of custody signed when relinquished and received?
Samplers name present on COC?
Chain of custody agrees with sample labels?
Samples in proper container/bottle?
Sample containers intact?
Sufficient sample volume for indicated test?
All samples received within holding time?
Container/Temp Blank temperature in compliance?
Temperature(s)/Thermometer(s):
Cooler(s)/Kit(s):
Date/Time sample(s) sent to storage:
Water - VOA vials have zero headspace?
Water - pH acceptable upon receipt?
pH adjusted?
pH adjusted by:

Yes ☒	No ☐	Not Present ☐
Yes ☒	No ☐	Not Present ☐
Yes ☐	No ☐	Not Present ☒
Yes ☐	No ☐	Not Present ☒
Yes ☒	No ☐	1 Page(s)
Yes ☒	No ☐	COC IDs:None
Yes ☐	No ☒	
Yes ☒	No ☐	
Yes ☒	No ☐	
Yes ☒	No ☐	
Yes ☒	No ☐	
Yes ☒	No ☐	

0.7c U/C	IR25
45220	
11/22/19 13:15	

Yes ☒	No ☐	No VOA vials submitted ☐
Yes ☐	No ☐	N/A ☒
Yes ☐	No ☐	N/A ☒

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



APTIM		Page 1 of													
COC ID:		37NOV2019-1911 -ALS				TURNAROUND TIME:				RUSH:					
PROJECT/CLIENT INFO						LABORATORY				OTHER INFO					
Facility Name: Longhorn AAP						Lab Name: ALS Laboratories				Email Invoice To: fedinvoices@aptim.com					
Project Number: 501032						Lab Contact: RJ Modashia				Email Report To: Susan.Huang@aptim.com					
Address: LHAAP-37						Email: RJ.Modashia@alsglobal.com				Mail Reports To: Susan Huang					
Address: 1203-B East Grand Avenue						Address: 10450 Stoneliff Rd., Suite 210				Address: 4005 Port Chicago Highway, Suite 200					
City: Marshall State: TX						City: Houston State: TX				City: Concord State: CA					
Postal Code: 75670 Country: USA						Postal Code: 77099 Country: USA				Postal Code: 94520 Country: USA					
Phone Number: 713.243.7264						Phone Number: 281.575.2279 or 281.530.5656				Shipping Company:					
Project Manager: Praveen Srivastav															
SAMPLE DETAILS								ANALYSIS REQUESTED							
Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.	Sample Container and Preservatives	3-40 ml VOA/HCL	3-40 ml VOA/HCL	3-40 ml VOA/Cool to 6 deg C	2-40ml Amber/H2SO4	1-250ml /Cool to 6 deg C	
35Bww16-191121	LHAAP37				WG	11/21/19	0805	3		X					
35Bww17-191121	LHAAP37				WG	11/21/19	0850	3		X					
35Bww04-191121	LHAAP37				WG	11/21/19	0935	12		X	X	X	X	X	
35Bww04-191121-FD	LHAAP37				WG	11/21/19	0935	12		X	X	X	X	X	
35Bww08-191121	LHAAP37				WG	11/21/19	1035	12		X	X	X	X	X	
35Bww26-191121	LHAAP37				WG	11/21/19	1125	12		X	X	X	X	X	
35Bww01-191121	LHAAP37				WG	11/21/19	1215	3		X					
35Bww11-191121	LHAAP37				WG	11/21/19	1300	3		X					
TRIP BLANK	LHAAP37				W	11/21/19		2		X					
								HS19111153 Aptim Environmental & Infrastructure, Inc. LHAAP-37 							
ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS								RELINQUISHED BY/AFFILIATION		DATE/TIME		ACCEPTED BY/AFFILIATION		DATE/TIME	
								Smita Bhasg / BHAPE		11/21/19 1415		[Signature]		11/22/19 09:05	

45220

W.C.
D.T.
H.S.
C.F.S.O.



 ALS 10450 Stancliff Rd., Suite 210 Houston, Texas 77099 Tel. +1 281 530 5656 Fax. +1 281 530 5887	CUSTODY SEAL		Seal Broken By:
	Date: 11/22/19	Time: 11:45	(S21)
	Name: SCOTT BEESINGER		
	Company: BHA19	Date: 11/22/19	

45220

**Must Deliver Next Business Day
Time and Tempature Sensitive!**



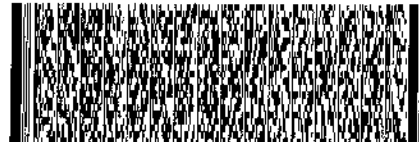
ORIGIN ID: SGRA (803) 930-6193
 SCOTT BEESINGER
 APTIM ENVIRONMENTAL & INFRASTRUCTURE
 1203-B EAST GRAND AVE
 PMB 202
 MARSHALL, TX 75670
 UNITED STATES US

SHIP DATE: 24APR19
 ACTWT: 1.00 LB NAW
 CAD: 300130/CAFE3211
 DIMS: 19x16x13 IN

10 CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099

(281) 530-5656
 REF: LHAAP-37 - BO 65124 - RJ

RMA: 11111111



FedEx
Express



FedEx

4809 7833 1372

FRI - 22 NOV 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099

TX-US
IAH



F111 162704 21NOV19 060A 864C1/1338/8502





ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
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www.alsglobal.com

December 02, 2019

Analytical Report for Service Request No: K1911085

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

RE: HS19111153

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory November 23, 2019
For your reference, these analyses have been assigned our service request number **K1911085**.

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy
Project Manager





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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.
- The chromatographic fingerprint does not resemble a petroleum product.



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

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjllabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdwlabservice.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/analyte is offered by that state.





Case Narrative

ALS Environmental—Kelso Laboratory

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www.alsglobal.com





Client: ALS Environmental - US
Project: HS19111153
Sample Matrix: Ground Water

Service Request: K1911085
Date Received: 11/23/2019

CASE NARRATIVE

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

Sample Receipt:

Four ground water samples were received for analysis at ALS Environmental on 11/23/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by

Kelley Lovejoy

Date

12/02/2019





Chain of Custody

ALS Environmental—Kelso Laboratory

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K1911085

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Subcontract Chain of Custody

SAMPLING STATE: Texas

COC ID: 12704

SUBCONTRACT TO:

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

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: RJ Modashia
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: RJ.Modashia@alsglobal.com
Alternate Contact:
Email:

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS19111153
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	HS19111153-03	35BWW04-191121	Groundwater	21 Nov 2019 09:35
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			04 Dec 2019
2.	HS19111153-04	35BWW04-191121-FD	Groundwater	21 Nov 2019 09:35
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			04 Dec 2019
3.	HS19111153-05	35BWW08-191121	Groundwater	21 Nov 2019 10:35
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			04 Dec 2019
4.	HS19111153-06	35BWW26-191121	Groundwater	21 Nov 2019 11:25
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			04 Dec 2019

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: M

Date/Time: 11/22/19 18:00

Received By: M. Modashia

Date/Time: 11/23/19 1015

Cooler ID(s): _____

Temperature(s): _____

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Global

ALS Global



PC KL

Cooler Receipt and Preservation Form

Client ALS Houston Service Request K19 11085
 Received: 11/23/19 Opened: 11/23/19 By: NP Unloaded: 11/23/19 By: NP

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? _____
 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
-0.3	0.0	1.0	1.3	0.3	379	12704	1251 0292 1428		

4. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves _____
 5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
 6. Were samples received in good condition (temperature, unbroken)? Indicate in the table below. NA Y N
 If applicable, tissue samples were received: Frozen Partially Thawed Thawed
 7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
 8. Did all sample labels and tags agree with custody papers? Indicate major discrepancies in the table on page 2. NA Y N
 9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
 10. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? Indicate in the table below NA Y N
 11. Were VOA vials received without headspace? Indicate in the table below. NA Y N
 12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions: _____



General Chemistry

ALS Environmental—Kelso Laboratory
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www.alsglobal.com



Analytical Report

Client: ALS Environmental - US
Project: HS19111153
Sample Matrix: Ground Water
Analysis Method: SM 5310 C
Prep Method: None

Service Request: K1911085
Date Collected: 11/21/19
Date Received: 11/23/19
Units: mg/L
Basis: NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
35BWW04-191121	K1911085-001	1.17	0.50	0.20	0.07	1	11/26/19 16:18	
35BWW04-191121-FD	K1911085-002	1.28	0.50	0.20	0.07	1	11/26/19 17:30	
35BWW08-191121	K1911085-003	0.73	0.50	0.20	0.07	1	11/26/19 17:58	
35BWW26-191121	K1911085-004	0.44 J	0.50	0.20	0.07	1	11/26/19 18:26	
Method Blank	K1911085-MB	ND U	0.50	0.20	0.07	1	11/26/19 13:13	



ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project HS19111153
Sample Matrix: Ground Water

Service Request:K1911085
Date Collected:11/21/19
Date Received:11/23/19

Analysis Method: SM 5310 C
Prep Method: None

Units:mg/L
Basis:NA

Replicate Sample Summary
Carbon, Total Organic

Sample Name:	Lab Code:	LOQ	LOD	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
35BWW04-191121	K1911085-001DUP	0.50	0.20	0.07	1.17	1.26	1.21	8	10	11/26/19
35BWW04-191121-FD	K1911085-002DUP	0.50	0.20	0.07	1.28	1.21	1.24	5	10	11/26/19
35BWW08-191121	K1911085-003DUP	0.50	0.20	0.07	0.73	0.71	0.724	3	10	11/26/19
35BWW26-191121	K1911085-004DUP	0.50	0.20	0.07	0.44 J	0.42 J	0.431	5	10	11/26/19

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

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

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



QA/QC Report

Client: ALS Environmental - US
Project: HS19111153
Sample Matrix: Ground Water

Service Request: K1911085
Date Collected: 11/21/19
Date Received: 11/23/19
Date Analyzed: 11/26/19
Date Extracted: NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name: 35BWW04-191121
Lab Code: K1911085-001
Analysis Method: SM 5310 C
Prep Method: None

Units: mg/L
Basis: NA

Matrix Spike
K1911085-001MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	1.17	27.0	25.0	103	83-117

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

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

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

QA/QC Report

Client: ALS Environmental - US
Project: HS19111153
Sample Matrix: Ground Water

Service Request: K1911085
Date Analyzed: 11/26/19
Date Extracted: NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method: SM 5310 C
Prep Method: None

Units: mg/L
Basis: NA
Analysis Lot: 661464

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1911085-LCS	25.0	25.0	100	83-117



Client: ALS Environmental - US
Project: HS19111153

Service Request: K1911085

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic

Analysis Method: SM 5310 C

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	661464	KQ1917720-01	11/26/19 12:44	25.0	24.4	98	90-110
CCV2	661464	KQ1917720-02	11/26/19 17:01	25.0	24.8	99	90-110
CCV3	661464	KQ1917720-03	11/26/19 22:11	25.0	24.4	97	90-110
CCV4	661464	KQ1917720-04	11/27/19 02:54	25.0	24.6	98	90-110



Client: ALS Environmental - US
Project: HS19111153

Service Request: K1911085

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic

Analysis Method: SM 5310 C

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	LOQ	LOD	MDL	Result	Q
CCB1	661464	KQ1917720-05	11/26/19 12:59	0.50	0.20	0.07	ND	U
CCB2	661464	KQ1917720-06	11/26/19 17:15	0.50	0.20	0.07	ND	U
CCB3	661464	KQ1917720-07	11/26/19 22:26	0.50	0.20	0.07	ND	U
CCB4	661464	KQ1917720-08	11/27/19 03:09	0.50	0.20	0.07	ND	U





Raw Data

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General Chemistry

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Work Request # ^{Original} (K1910803, 847, 1037, 1050, 1084, 1085, 1096, 963, 1034, 763, 1043)
IV IV II II II IV II II II II II
Tier: _____
Date Analyzed: 11/26/19 TOC: 661464
Analyst: Ben 661465
Run # DOC: 661466
Analysis: TOC/DOC

DATA QUALITY REPORT INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1. Is the method name and number correct and appropriate? yes/no/NA
2. Holding times met for all analyses and for all samples? yes/no/NA
3. Are calculations correct? yes/no/NA
4. Is the reporting basis correct? (Dry Weight) yes/no/NA
5. All quality control criteria met? yes/no
6. Is the calibration curve correlation coefficient ≥ 0.995 ? yes/no/NA
7. MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency? yes/no/NA
8. Are ICVs, CCVs, and CCBs all within acceptance limits? yes/no/NA
9. Are results for methods blanks all ND? yes/no/NA
10. Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.) yes/no/NA
11. Are all exceptions explained? yes/no/NA
12. Have all applicable service requests been reviewed? yes/no/NA
13. Are all samples labeled correctly? yes/no/NA
14. Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V) yes/no/NA
15. Are detection limits and units reported correctly? yes/no/NA
16. Is the unused space on the benchsheet crossed out? yes/no/NA
17. Was analysis turned in by the due date? (n-2) (If not record SR#) yes/no/NA

COMMENTS: K1911037 - 3/15d report a high PRSD. However, these samples are less than 5x the MRL.

Final Approved by: _____

Date: 12/2/19

DQREPORT



Analytical Results Summary

Instrument Name: K-TOC-03

Analyst: BDITZLER

Analysis Lot: 661464 Method/Testcode: SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1910803-002	Carbon, Total Organic	N/A		Water	0.90 mg/L	10 ml	180 mg/L	200	20	100			11/26/19 14:26	N	IV
K1910803-003	Carbon, Total Organic	N/A		Water	14.27 mg/L	10 ml	14.3 mg/L	1	0.07	0.50			11/26/19 14:54	N	IV
K1910803-004	Carbon, Total Organic	N/A		Water	13.03 mg/L	10 ml	1300 mg/L	100	7	50			11/26/19 15:22	N	IV
K1910803-005	Carbon, Total Organic	N/A		Water	16.70 mg/L	10 ml	16.7 mg/L	1	0.07	0.50			11/26/19 15:50	N	IV
K1910847-004	Carbon, Total Organic	N/A		Ground Water	3.25 mg/L	10 ml	65 mg/L	20	2	10			11/26/19 13:58	N	IV
K1911037-001	Carbon, Total Organic	N/A		Water	5.79 mg/L	10 ml	5.79 mg/L	1	0.07	0.50			11/26/19 21:43	N	II
K1911037-002	Carbon, Total Organic	N/A		Water	25.83 mg/L	10 ml	25.8 mg/L	1	0.07	0.50			11/26/19 23:10	N	II
K1911037-003	Carbon, Total Organic	N/A		Water	0.63 mg/L	10 ml	0.63 mg/L	1	0.07	0.50			11/26/19 23:38	N	II
K1911050-001	Carbon, Total Organic	N/A		Ground Water	16.22 mg/L	10 ml	16.2 mg/L	1	0.07	0.50			11/27/19 00:06	N	II
K1911050-005	Carbon, Total Organic	N/A		Ground Water	1.98 mg/L	10 ml	1.98 mg/L	1	0.07	0.50			11/27/19 00:34	N	II
K1911084-001	Carbon, Total Organic	N/A		Water	0.12 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 19:23	N	II
K1911084-002	Carbon, Total Organic	N/A		Water	0.18 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 19:51	N	II
K1911084-003	Carbon, Total Organic	N/A		Water	10.56 mg/L	10 ml	10.6 mg/L	1	0.07	0.50			11/26/19 20:19	N	II
K1911084-004	Carbon, Total Organic	N/A		Water	0.43 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 20:47	N	II
K1911084-005	Carbon, Total Organic	N/A		Water	0.14 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 21:15	N	II
K1911085-001	Carbon, Total Organic	N/A		Ground Water	1.17 mg/L	10 ml	1.17 mg/L	1	0.07	0.50			11/26/19 16:18	N	IV
K1911085-002	Carbon, Total Organic	N/A		Ground Water	1.28 mg/L	10 ml	1.28 mg/L	1	0.07	0.50			11/26/19 17:30	N	IV
K1911085-003	Carbon, Total Organic	N/A		Ground Water	0.73 mg/L	10 ml	0.73 mg/L	1	0.07	0.50			11/26/19 17:58	N	IV
K1911085-004	Carbon, Total Organic	N/A		Ground Water	0.44 mg/L	10 ml	0.44 mg/L J	1	0.07	0.50			11/26/19 18:26	N	IV
K1911096-001	Carbon, Total Organic	N/A		Water	0.79 mg/L	10 ml	0.79 mg/L	1	0.07	0.50			11/26/19 18:54	N	II
KQ1917720-01	Carbon, Total Organic	CCV		Ground Water	24.38 mg/L	10 ml	24.4 mg/L	1					11/26/19 12:44	N	IV
KQ1917720-02	Carbon, Total Organic	CCV		Ground Water	24.84 mg/L	10 ml	24.8 mg/L	1					11/26/19 17:01	N	IV
KQ1917720-03	Carbon, Total Organic	CCV		Ground Water	24.37 mg/L	10 ml	24.4 mg/L	1					11/26/19 22:11	N	IV
KQ1917720-04	Carbon, Total Organic	CCV		Ground Water	24.59 mg/L	10 ml	24.6 mg/L	1					11/27/19 02:54	N	IV
KQ1917720-05	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 12:59	N	IV
KQ1917720-06	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 17:15	N	IV
KQ1917720-07	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 22:26	N	IV
KQ1917720-08	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/27/19 03:09	N	IV

indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03

Analyst: BDITZLER

Analysis Lot: 661464 Method/Testcode: SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1917720-09	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 13:13	N	IV
KQ1917720-10	Carbon, Total Organic	LCS		Ground Water	25.01 mg/L	10 ml	25.0 mg/L	1	0.07	0.50	100		11/26/19 13:28	N	IV
KQ1917720-11	Carbon, Total Organic	MS	K1911085-001	Ground Water	27.01 mg/L	10 ml	27.0 mg/L	1	0.07	0.50	103		11/26/19 16:46	N	IV
KQ1917720-12	Carbon, Total Organic	DUP	K1910803-002	Water	0.92 mg/L	10 ml	180 mg/L	200	20	100		3	11/26/19 14:26	N	IV
KQ1917720-13	Carbon, Total Organic	DUP	K1910803-003	Water	15.17 mg/L	10 ml	15.2 mg/L	1	0.07	0.50		6	11/26/19 14:54	N	IV
KQ1917720-14	Carbon, Total Organic	DUP	K1910803-004	Water	12.36 mg/L	10 ml	1240 mg/L	100	7	50		5	11/26/19 15:22	N	IV
KQ1917720-15	Carbon, Total Organic	DUP	K1910803-005	Water	16.52 mg/L	10 ml	16.5 mg/L	1	0.07	0.50		1	11/26/19 15:50	N	IV
KQ1917720-16	Carbon, Total Organic	DUP	K1910847-004	Ground Water	3.24 mg/L	10 mL	65 mg/L	20	2	10		<1	11/26/19 13:58:00	N	IV
KQ1917720-17	Carbon, Total Organic	DUP	K1911037-001	Water	5.88 mg/L	10 ml	5.88 mg/L	1	0.07	0.50		1	11/26/19 21:43	N	II
KQ1917720-18	Carbon, Total Organic	DUP	K1911037-002	Water	26.23 mg/L	10 ml	26.2 mg/L	1	0.07	0.50		2	11/26/19 23:10	N	II
KQ1917720-19	Carbon, Total Organic	DUP	K1911037-003	Water	0.41 mg/L	10 ml	0.41 mg/L J	1	0.07	0.50		43*	11/26/19 23:38	N	II
KQ1917720-20	Carbon, Total Organic	DUP	K1911050-001	Ground Water	16.34 mg/L	10 ml	16.3 mg/L	1	0.07	0.50		<1	11/27/19 00:06	N	II
KQ1917720-21	Carbon, Total Organic	DUP	K1911050-005	Ground Water	1.94 mg/L	10 ml	1.94 mg/L	1	0.07	0.50		2	11/27/19 00:34	N	II
KQ1917720-22	Carbon, Total Organic	DUP	K1911085-002	Ground Water	1.21 mg/L	10 ml	1.21 mg/L	1	0.07	0.50		5	11/26/19 17:30	N	IV
KQ1917720-23	Carbon, Total Organic	DUP	K1911085-001	Ground Water	1.26 mg/L	10 ml	1.26 mg/L	1	0.07	0.50		8	11/26/19 16:18	N	IV
KQ1917720-24	Carbon, Total Organic	DUP	K1911085-003	Ground Water	0.71 mg/L	10 ml	0.71 mg/L	1	0.07	0.50		3	11/26/19 17:58	N	IV
KQ1917720-25	Carbon, Total Organic	DUP	K1911085-004	Ground Water	0.42 mg/L	10 ml	0.42 mg/L J	1	0.07	0.50		5	11/26/19 18:26	N	IV
KQ1917720-26	Carbon, Total Organic	DUP	K1911084-001	Water	0.13 mg/L	10 ml	0.13 mg/L J	1	0.07	0.50		NC	11/26/19 19:23	N	II
KQ1917720-27	Carbon, Total Organic	DUP	K1911084-005	Water	0.06 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50		NC	11/26/19 21:15	N	II
KQ1917720-28	Carbon, Total Organic	DUP	K1911084-002	Water	0.17 mg/L	10 ml	0.17 mg/L J	1	0.07	0.50		NC	11/26/19 19:51	N	II
KQ1917720-29	Carbon, Total Organic	DUP	K1911084-003	Water	10.56 mg/L	10 ml	10.6 mg/L	1	0.07	0.50		<1	11/26/19 20:19	N	II
KQ1917720-30	Carbon, Total Organic	DUP	K1911084-004	Water	0.32 mg/L	10 ml	0.32 mg/L J	1	0.07	0.50		NC	11/26/19 20:47	N	II
KQ1917720-31	Carbon, Total Organic	DUP	K1911096-001	Water	0.83 mg/L	10 ml	0.83 mg/L	1	0.07	0.50		5	11/26/19 18:54	N	II

indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03

Analyst: BDITZLER

Analysis Lot: 661465 Method/Testcode: 415.1/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1910963-001	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/27/19 06:12	N	II
K1911034-001	Carbon, Total Organic	N/A		Water	4.16 mg/L	10 ml	4.16 mg/L	1	0.07	0.50			11/27/19 01:02	N	II
K1911034-002	Carbon, Total Organic	N/A		Water	5.08 mg/L	10 ml	5.08 mg/L	1	0.07	0.50			11/27/19 01:30	N	II
K1911034-003	Carbon, Total Organic	N/A		Water	4.26 mg/L	10 ml	4.26 mg/L	1	0.07	0.50			11/27/19 01:58	N	II
K1911034-004	Carbon, Total Organic	N/A		Water	12.66 mg/L	10 ml	12.7 mg/L	1	0.07	0.50			11/27/19 02:26	N	II
K1911034-005	Carbon, Total Organic	N/A		Water	2.85 mg/L	10 ml	2.85 mg/L	1	0.07	0.50			11/27/19 03:24	N	II
K1911034-006	Carbon, Total Organic	N/A		Water	6.47 mg/L	10 ml	6.47 mg/L	1	0.07	0.50			11/27/19 03:52	N	II
K1911034-007	Carbon, Total Organic	N/A		Water	3.58 mg/L	10 ml	3.58 mg/L	1	0.07	0.50			11/27/19 04:20	N	II
K1911034-008	Carbon, Total Organic	N/A		Water	4.73 mg/L	10 ml	4.73 mg/L	1	0.07	0.50			11/27/19 04:48	N	II
K1911034-009	Carbon, Total Organic	N/A		Water	3.59 mg/L	10 ml	3.59 mg/L	1	0.07	0.50			11/27/19 05:16	N	II
K1911034-010	Carbon, Total Organic	N/A		Water	4.73 mg/L	10 ml	4.73 mg/L	1	0.07	0.50			11/27/19 05:44	N	II
KQ1917721-01	Carbon, Total Organic	CCV		Water	24.37 mg/L	10 ml	24.4 mg/L	1					11/26/19 22:11	N	II
KQ1917721-02	Carbon, Total Organic	CCV		Water	24.59 mg/L	10 ml	24.6 mg/L	1					11/27/19 02:54	N	II
KQ1917721-03	Carbon, Total Organic	CCV		Water	24.12 mg/L	10 ml	24.1 mg/L	1					11/27/19 07:24	N	II
KQ1917721-04	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 22:26	N	II
KQ1917721-05	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/27/19 03:09	N	II
KQ1917721-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/27/19 07:38	N	II
KQ1917721-07	Carbon, Total Organic	MB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 22:41	N	II
KQ1917721-08	Carbon, Total Organic	LCS		Water	24.70 mg/L	10 ml	24.7 mg/L	1	0.07	0.50	99		11/26/19 22:55	N	II
KQ1917721-09	Carbon, Total Organic	MS	K1910963-001	Water	25.13 mg/L	10 ml	25.1 mg/L	1	0.07	0.50	101		11/27/19 06:40	N	II
KQ1917721-10	Carbon, Total Organic	DUP	K1910963-001	Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50		NC	11/27/19 06:12	N	II
KQ1917721-11	Carbon, Total Organic	DUP	K1911034-001	Water	4.16 mg/L	10 ml	4.16 mg/L	1	0.07	0.50		<1	11/27/19 01:02	N	II
KQ1917721-12	Carbon, Total Organic	DUP	K1911034-002	Water	5.09 mg/L	10 ml	5.09 mg/L	1	0.07	0.50		<1	11/27/19 01:30	N	II
KQ1917721-13	Carbon, Total Organic	DUP	K1911034-003	Water	4.26 mg/L	10 ml	4.26 mg/L	1	0.07	0.50		<1	11/27/19 01:58	N	II
KQ1917721-14	Carbon, Total Organic	DUP	K1911034-004	Water	12.37 mg/L	10 ml	12.4 mg/L	1	0.07	0.50		2	11/27/19 02:26	N	II
KQ1917721-15	Carbon, Total Organic	DUP	K1911034-005	Water	2.84 mg/L	10 ml	2.84 mg/L	1	0.07	0.50		<1	11/27/19 03:24	N	II
KQ1917721-16	Carbon, Total Organic	DUP	K1911034-006	Water	6.43 mg/L	10 ml	6.43 mg/L	1	0.07	0.50		<1	11/27/19 03:52	N	II
KQ1917721-17	Carbon, Total Organic	DUP	K1911034-007	Water	3.62 mg/L	10 ml	3.62 mg/L	1	0.07	0.50		1	11/27/19 04:20	N	II
KQ1917721-18	Carbon, Total Organic	DUP	K1911034-008	Water	4.76 mg/L	10 ml	4.76 mg/L	1	0.07	0.50		<1	11/27/19 04:48	N	II
KQ1917721-19	Carbon, Total Organic	DUP	K1911034-009	Water	3.55 mg/L	10 ml	3.55 mg/L	1	0.07	0.50		1	11/27/19 05:16	N	II
KQ1917721-20	Carbon, Total Organic	DUP	K1911034-010	Water	4.60 mg/L	10 ml	4.60 mg/L	1	0.07	0.50		3	11/27/19 05:44	N	II

indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03

Analyst: BDITZLER

Analysis Lot: 661466 Method/Testcode: 415.1/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1910963-002	Carbon, Dissolved Organic N/A			Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/27/19 08:23:00	N	II
K1911043-002	Carbon, Dissolved Organic N/A (DOC)			Water	1.70 mg/L	10 mL	1.70 mg/L	1	0.07	0.50			11/27/19 09:20:00	N	II
KQ1917722-01	Carbon, Dissolved Organic CCV			Water	24.12 mg/L	10 mL	24.1 mg/L	1					11/27/19 07:24:00	N	II
KQ1917722-01	Carbon, Dissolved Organic CCV (DOC)			Water	24.12 mg/L	10 mL	24.1 mg/L	1					11/27/19 07:24:00	N	II
KQ1917722-02	Carbon, Dissolved Organic CCB			Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/27/19 07:38:00	N	II
KQ1917722-02	Carbon, Dissolved Organic CCB (DOC)			Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/27/19 07:38:00	N	II
KQ1917722-03	Carbon, Dissolved Organic CCV			Water	24.23 mg/L	10 mL	24.2 mg/L	1					11/27/19 10:17:00	N	II
KQ1917722-03	Carbon, Dissolved Organic CCV (DOC)			Water	24.23 mg/L	10 mL	24.2 mg/L	1					11/27/19 10:17:00	N	II
KQ1917722-04	Carbon, Dissolved Organic CCB			Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/27/19 10:31:00	N	II
KQ1917722-04	Carbon, Dissolved Organic CCB (DOC)			Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/27/19 10:31:00	N	II
KQ1917722-05	Carbon, Dissolved Organic MB			Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/27/19 07:53:00	N	II
KQ1917722-05	Carbon, Dissolved Organic MB (DOC)			Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/27/19 07:53:00	N	II
KQ1917722-06	Carbon, Dissolved Organic LCS			Water	24.76 mg/L	10 mL	24.8 mg/L	1	0.07	0.50	99		11/27/19 08:08:00	N	II
KQ1917722-06	Carbon, Dissolved Organic LCS (DOC)			Water	24.76 mg/L	10 mL	24.8 mg/L	1	0.07	0.50	99		11/27/19 08:08:00	N	II
KQ1917722-07	Carbon, Dissolved Organic MS		K1910963-002	Water	25.49 mg/L	10 mL	25.5 mg/L	1	0.07	0.50	102		11/27/19 08:51:00	N	II
KQ1917722-08	Carbon, Dissolved Organic DUP		K1910963-002	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	11/27/19 08:23:00	N	II
KQ1917722-09	Carbon, Dissolved Organic DUP (DOC)		K1911043-002	Water	1.75 mg/L	10 mL	1.75 mg/L	1	0.07	0.50		3	11/27/19 09:20:00	N	II
KQ1917722-10	Carbon, Dissolved Organic N/A (DOC)			Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/27/19 08:23:00	N	II
KQ1917722-11	Carbon, Dissolved Organic DUP (DOC)		KQ1917722-10	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	11/27/19 08:23:00	N	II
KQ1917722-12	Carbon, Dissolved Organic MS (DOC)		KQ1917722-10	Water	25.49 mg/L	10 mL	25.5 mg/L	1	0.07	0.50	102		11/27/19 08:51:00	N	II

indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER)

Method: Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	24.383	0.0000	24.3827	24.3827	24.4	11/26/2019
3	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/26/2019
4	mb	1	0.000	0.0000	0.0000	0	<0.5	11/26/2019
5	lcs	1	25.010	0.0000	25.0096	25.0096	25.0	11/26/2019
6	K1910847-004	20	3.251	0.0000	3.2507	65.014	65.01	11/26/2019
7	K1910847-004	20	3.241	0.0000	3.2405	64.81	64.8	11/26/2019
8	K1910803-002	200	0.898	0.0000	0.8975	179.5	180	11/26/2019
9	K1910803-002	200	0.925	0.0000	0.9249	184.98	184.98	11/26/2019
10	K1910803-003	1	14.267	0.0000	14.2670	14.267	14.27	11/26/2019
11	K1910803-003	1	15.165	0.0000	15.1650	15.165	15.2	11/26/2019
12	K1910803-004	100	13.033	0.0000	13.0326	1303.26	1303.26	11/26/2019
13	K1910803-004	100	12.361	0.0000	12.3610	1236.1	1236.10	11/26/2019
14	K1910803-005	1	16.696	0.0000	16.6964	16.6964	16.70	11/26/2019
15	K1910803-005	1	16.522	0.0000	16.5216	16.5216	16.5	11/26/2019
16	K1911085-001	1	1.165	0.0000	1.1654	1.1654	1.2	11/26/2019
17	K1911085-001	1	1.261	0.0000	1.2605	1.2605	1.26	11/26/2019
18	KQ1917720-11	1	27.011	0.0000	27.0105	27.0105	27.0	11/26/2019
19	ccv	1	24.839	0.0000	24.8385	24.8385	24.8	11/26/2019
20	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/26/2019
21	K1911085-002	1	1.276	0.0000	1.2760	1.276	1.28	11/26/2019
22	K1911085-002	1	1.208	0.0000	1.2081	1.2081	1.2	11/26/2019
23	K1911085-003	1	0.733	0.0000	0.7327	0.7327	0.7	11/26/2019
24	K1911085-003	1	0.715	0.0000	0.7146	0.7146	0.71	11/26/2019
25	K1911085-004	1	0.442	0.0000	0.4422	0.4422	<0.5	11/26/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

Analyzed By: <i>BCP</i>	Date Analyzed: <i>11/26/19</i>
Reviewed By: <i>JK</i>	Date Reviewed: <i>12/2/19</i>

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

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TOCwaterLims ALS



ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER)

Method: Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1911085-004	1	0.421	0.0000	0.4205	0.4205	<0.5	11/26/2019
27	K1911096-001	1	0.788	0.0000	0.7884	0.7884	0.79	11/26/2019
28	K1911096-001	1	0.831	0.0000	0.8314	0.8314	0.8	11/26/2019
29	K1911084-001	1	0.122	0.0000	0.1219	0.1219	<0.5	11/26/2019
30	K1911084-001	1	0.126	0.0000	0.1262	0.1262	<0.5	11/26/2019
31	K1911084-002	1	0.175	0.0000	0.1751	0.1751	<0.5	11/26/2019
32	K1911084-002	1	0.172	0.0000	0.1718	0.1718	<0.5	11/26/2019
33	K1911084-003	1	10.564	0.0000	10.5636	10.5636	10.6	11/26/2019
34	K1911084-003	1	10.562	0.0000	10.5616	10.5616	10.6	11/26/2019
35	K1911084-004	1	0.431	0.0000	0.4313	0.4313	<0.5	11/26/2019
36	K1911084-004	1	0.316	0.0000	0.3155	0.3155	<0.5	11/26/2019
37	K1911084-005	1	0.144	0.0000	0.1438	0.1438	<0.5	11/26/2019
38	K1911084-005	1	0.059	0.0000	0.0587	0.0587	<0.5	11/26/2019
39	K1911037-001	1	5.794	0.0000	5.7939	5.7939	5.8	11/26/2019
40	K1911037-001	1	5.877	0.0000	5.8773	5.8773	5.9	11/26/2019
41	ccv	1	24.373	0.0000	24.3729	24.3729	24.4	11/26/2019
42	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/26/2019
43	K1911037-002	1	25.829	0.0000	25.8285	25.8285	25.8	11/26/2019
44	K1911037-002	1	26.233	0.0000	26.2334	26.2334	26.2	11/26/2019
45	K1911037-003	1	0.631	0.0000	0.6306	0.6306	0.6	11/26/2019
46	K1911037-003	1	0.406	0.0000	0.4058	0.4058	<0.5	11/26/2019
47	K1911050-001	1	16.222	0.0000	16.2221	16.2221	16.2	11/27/2019
48	K1911050-001	1	16.339	0.0000	16.3389	16.3389	16.3	11/27/2019
49	K1911050-005	1	1.977	0.0000	1.9767	1.9767	2.0	11/27/2019
50	K1911050-005	1	1.935	0.0000	1.9351	1.9351	1.9	11/27/2019

Analyzed By: <i>BCP</i>	Date Analyzed: <i>11/26/19</i>
Reviewed By: <i>AL</i>	Date Reviewed: <i>11/27/19</i>



ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER)

Method: Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
51	ccv	1	24.586	0.0000	24.5857	24.5857	24.59	11/27/2019
52	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
53		1		0.0000	0.0000	0	<0.5	
54		1		0.0000	0.0000	0	<0.5	
55		1		0.0000	0.0000	0	<0.5	
56		1		0.0000	0.0000	0	<0.5	
57		1		0.0000	0.0000	0	<0.5	
58		1		0.0000	0.0000	0	<0.5	
59		1		0.0000	0.0000	0	<0.5	
60		1		0.0000	0.0000	0	<0.5	
61		1		0.0000	0.0000	0	<0.5	
62		1		0.0000	0.0000	0	<0.5	
63		1		0.0000	0.0000	0	<0.5	
64		1		0.0000	0.0000	0	<0.5	
65		1		0.0000	0.0000	0	<0.5	
66		1		0.0000	0.0000	0	<0.5	
67		1		0.0000	0.0000	0	<0.5	
68		1		0.0000	0.0000	0	<0.5	
69		1		0.0000	0.0000	0	<0.5	
70		1		0.0000	0.0000	0	<0.5	
71		1		0.0000	0.0000	0	<0.5	
72		1		0.0000	0.0000	0	<0.5	
73		1		0.0000	0.0000	0	<0.5	
74		1		0.0000	0.0000	0	<0.5	
75		1		0.0000	0.0000	0	<0.5	

Analyzed By: <i>YCP</i>	Date Analyzed: <i>11/26/19</i>
Reviewed By: <i>QC</i>	Date Reviewed: <i>12/2/19</i>



ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER)

Method: Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	24.373	0.0000	24.3729	24.3729	24.4	11/26/2019
3	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/26/2019
4	mb	1	0.000	0.0000	0.0000	0	<0.5	11/26/2019
5	lcs	1	24.702	0.0000	24.7023	24.7023	24.7	11/26/2019
6	K1911034-001	1	4.162	0.0000	4.1616	4.1616	4.16	11/27/2019
7	K1911034-001	1	4.162	0.0000	4.1619	4.1619	4.2	11/27/2019
8	K1911034-002	1	5.084	0.0000	5.0839	5.0839	5	11/27/2019
9	K1911034-002	1	5.087	0.0000	5.0872	5.0872	5.09	11/27/2019
10	K1911034-003	1	4.263	0.0000	4.2629	4.2629	4.26	11/27/2019
11	K1911034-003	1	4.258	0.0000	4.2581	4.2581	4.3	11/27/2019
12	K1911034-004	1	12.665	0.0000	12.6646	12.6646	12.66	11/27/2019
13	K1911034-004	1	12.375	0.0000	12.3749	12.3749	12.37	11/27/2019
14	ccv	1	24.586	0.0000	24.5857	24.5857	24.59	11/27/2019
15	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
16	K1911034-005	1	2.851	0.0000	2.8509	2.8509	2.9	11/27/2019
17	K1911034-005	1	2.841	0.0000	2.8414	2.8414	2.84	11/27/2019
18	K1911034-006	1	6.468	0.0000	6.4677	6.4677	6.5	11/27/2019
19	K1911034-006	1	6.427	0.0000	6.4268	6.4268	6.4	11/27/2019
20	K1911034-007	1	3.577	0.0000	3.5774	3.5774	3.58	11/27/2019
21	K1911034-007	1	3.619	0.0000	3.6185	3.6185	3.62	11/27/2019
22	K1911034-008	1	4.732	0.0000	4.7321	4.7321	4.7	11/27/2019
23	K1911034-008	1	4.765	0.0000	4.7648	4.7648	4.8	11/27/2019
24	K1911034-009	1	3.591	0.0000	3.5914	3.5914	3.59	11/27/2019
25	K1911034-009	1	3.548	0.0000	3.5484	3.5484	3.55	11/27/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

Analyzed By: <i>Red</i>	Date Analyzed: <i>11/26/19</i>
Reviewed By: <i>Red</i>	Date Reviewed: <i>12/2/19</i>

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ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER)Method: Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1911034-010	1	4.735	0.0000	4.7348	4.7348	4.73	11/27/2019
27	K1911034-010	1	4.602	0.0000	4.6022	4.6022	4.60	11/27/2019
28	K1910963-001	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
29	K1910963-001	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
30	KQ1917721-09	1	25.134	0.0000	25.1340	25.134	25.1	11/27/2019
31	ccv	1	24.121	0.0000	24.1211	24.1211	24.1	11/27/2019
32	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
33		1		0.0000	0.0000	0	<0.5	
34		1		0.0000	0.0000	0	<0.5	
35		1		0.0000	0.0000	0	<0.5	
36		1		0.0000	0.0000	0	<0.5	
37		1		0.0000	0.0000	0	<0.5	
38		1		0.0000	0.0000	0	<0.5	
39		1		0.0000	0.0000	0	<0.5	
40		1		0.0000	0.0000	0	<0.5	
41		1		0.0000	0.0000	0	<0.5	
42		1		0.0000	0.0000	0	<0.5	
43		1		0.0000	0.0000	0	<0.5	
44		1		0.0000	0.0000	0	<0.5	
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: <i>[Signature]</i>	Date Analyzed 11/26/19
Reviewed By: <i>[Signature]</i>	Date Reviewed 12/2/19



ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER)

Method: Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	24.121	0.0000	24.1211	24.1211	24.1	11/27/2019
3	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
4	mb	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
5	lcs	1	24.756	0.0000	24.7562	24.7562	24.8	11/27/2019
6	K1910963-002	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
7	K1910963-002	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
8	K1910963-002 ms	1	25.491	0.0000	25.4906	25.4906	25	11/27/2019
9	K1911043-002	50	1.697	0.0000	1.6970	84.85	84.85	11/27/2019
10	K1911043-002	50	1.748	0.0000	1.7483	87.415	87.42	11/27/2019
11	ccv	1	24.234	0.0000	24.2344	24.2344	24.2	11/27/2019
12	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
13		1		0.0000	0.0000	0	<0.5	
14		1		0.0000	0.0000	0	<0.5	
15		1		0.0000	0.0000	0	<0.5	
16		1		0.0000	0.0000	0	<0.5	
17		1		0.0000	0.0000	0	<0.5	
18		1		0.0000	0.0000	0	<0.5	
19		1		0.0000	0.0000	0	<0.5	
20		1		0.0000	0.0000	0	<0.5	
21		1		0.0000	0.0000	0	<0.5	
22		1		0.0000	0.0000	0	<0.5	
23		1		0.0000	0.0000	0	<0.5	
24		1		0.0000	0.0000	0	<0.5	
25		1		0.0000	0.0000	0	<0.5	

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

Analyzed By: <i>Red</i>	Date Analyzed: <i>11/26/19</i>
Reviewed By: <i>g</i>	Date Reviewed: <i>12/1/19</i>

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TOC: 661464
661465
DOC: 661466

Schedule: 11262019

Version: 5

Instrument: Fusion1

Last Saved by: Fusion1 (Fusion1)

Last Saved on: 2019/11/26 11:38 - Tuesday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1910847-004.01 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K1910803-002.01 200x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	K1910803-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
6	Sample	K1910803-004.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K1910803-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K1911085-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K1911085-001.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K1911085-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K1911085-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1911085-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1911096-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1911084-001.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1911084-002.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1911084-003.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1911084-004.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1911084-005.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1911037-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K1911037-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1911037-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K1911050-001.08	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K1911050-005.09	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1911034-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1911034-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1911034-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K1911034-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K1911034-005.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K1911034-006.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K1911034-007.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K1911034-008.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K1911034-009.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K1911034-010.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K1910963-001.08	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1910963-001.08 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
37	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
38	Sample	FB 11/22/19	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

Printed on: November 27, 2019 12:19:32

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Schedule: 11262019

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	K1910963-002.10 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K1910963-002.10 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
42	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
43	Sample	K1911043-002.01 doc 50x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	



Fusion Report - 11262019

Tuesday, November 26, 2019 10:48 AM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
 Printed on 2019/11/27 12:19 -
 Wednesday

Report Summary Information

Company Location:	Gen Chem Lab	Engine	1.1.5.1
Schedule Name:	11262019	Version:	
Instrument Name:	Fusion1	Firmware	1.2.0696
		Version:	
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by	Fusion1 (Fusion1) (v2)		
Operators (schedule	Fusion1 (Fusion1) (v3)		
version):	Fusion1 (Fusion1) (v4)		
	Fusion1 (Fusion1) (v5)		
Comment:			

Report Results

Sample Type: Clean							From Schedule Version 2
Pos	Analysis Type	Sample ID			Start Time		
◆ (clean)		Clean			2019/11/26 10:48		
Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time	
1	IC Clean	14.10	17.92	3.82	49.80	05:22	
2	TC Clean	10.56	14.21	3.66	50.06	04:02	
3	TC Clean	2.88	6.61	3.72	50.11	03:48	
4	TC Clean	2.30	5.98	3.68	50.04	03:46	

Sample Type: Clean							From Schedule Version 3
Pos	Analysis Type	Sample ID			Start Time		
◆ (clean)		Clean			2019/11/26 11:10		
Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time	
1	IC Clean	11.69	15.35	3.66	49.64	05:11	
2	TC Clean	4.38	8.07	3.69	50.07	04:02	
3	TC Clean	1.75	5.60	3.85	50.06	03:46	



4	TC Clean	1.69	5.44	3.75	50.04	03:46
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Sample Type: Clean

From Schedule Version 4

Pos	Analysis Type	Sample ID			Start Time	
♦ (clean)		Clean			2019/11/26 11:33	
Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	11.94	15.55	3.61	49.82	05:24
2	TC Clean	4.50	8.40	3.90	50.14	04:02
3	TC Clean	1.90	5.70	3.81	50.15	03:57
4	TC Clean	1.54	5.37	3.83	50.13	03:56

Sample Type: Blank (Creating v1324)

From Schedule Version 5

Pos	Analysis Type	Sample ID			Start Time	
♦ (blank)		Reagent/Acid Blank			2019/11/26 11:56	
Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.95	4.60	3.65	49.63	05:20
2	TC Clean	5.07	8.76	3.70	50.08	04:02
3	TC Clean	2.11	5.67	3.55	50.12	03:49
4	TC Clean	2.00	5.72	3.72	50.10	03:45
5	Reagent Blank	4.00	7.73	3.74	50.16	05:07
6	Acid Blank	1.33	4.87	3.54	49.64	05:27

Sample Type: Sample

From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time		
◆	D	TOC	RB	0.3449 ppm	0.0000 ppm	0.0000%	2019/11/26 12:29		
Rep #	Base Analysis Type		ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC		0.3449	3.4494	11.12	14.98	3.86	50.33	10:31

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Sample Type: Check Standard --> CCV 25 ppm

From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
♦	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.3827 ppm (PASS)	0.0000 ppm	0%	2019/11/26 12:44

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.3827	243.8273	174.97	178.89	3.92	50.40	10:31

Completion State

Success - Criteria met.

Success Action

Do Nothing

Method

CAS_salt_010711 (v4)

Calibration

CAS_salt_010711 (v30)

STD Conc - Pos B

50 ppmC

Sample Type: Check Standard --> CCB

From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
♦	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/11/26 12:59

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.52	11.31	3.79	50.39	10:33

Completion State

Success - Criteria met.

Success Action

Do Nothing

Method

CAS_salt_010711 (v4)

Calibration

CAS_salt_010711 (v30)

STD Conc - Pos D

0 ppmC

Sample Type: Sample

From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
♦	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/26 13:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.58	10.65	4.06	50.39	10:32

Dilution

1:10

Blank Contribution

(TC) 8.7826 (IC) (v1324)

Method

CAS_salt_010711 (v4)

Calibration

CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS

From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
♦	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.0096 ppm (PASS)	0.0000 ppm	0%	2019/11/26 13:28



Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.0096	250.0957	179.23	183.05	3.83	50.39	10:30

Completion State

Success - Criteria met.

Success Action

Do Nothing

MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)STD Conc - Pos C

25 ppmC

Sample Type: Sample

From Schedule Version 5

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
2	TOC	ICS	0.5966 ppm	0.0000 ppm	0.0000%	2019/11/26 13:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5966	5.9656	12.83	16.66	3.83	50.42	10:31

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
3	TOC	K1910847-004.01 20x	3.2456 ppm	0.0072 ppm	0.2200%	2019/11/26 13:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.2507	32.5068	30.85	34.44	3.59	50.32	10:28
2	TOC	3.2405	32.4052	30.78	34.52	3.74	50.36	10:29

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
4	TOC	K1910803-002.01 200x	0.9112 ppm	0.0194 ppm	2.1300%	2019/11/26 14:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8975	8.9754	14.88	18.48	3.60	50.30	10:25
2	TOC	0.9249	9.2494	15.06	18.56	3.50	50.32	10:28

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
5	TOC	K1910803-003.01	14.7160 ppm	0.6350 ppm	4.3200%	2019/11/26 14:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	14.2670	142.6698	105.63	109.34	3.72	50.29	10:27
2	TOC	15.1650	151.6504	111.72	115.38	3.65	50.36	10:27



Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
6	TOC	K1910803-004.01 100x	12.6968 ppm	0.4749 ppm	3.7400%	2019/11/26 15:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.0326	130.3259	97.25	100.87	3.62	50.25	10:29
2	TOC	12.3610	123.6095	92.69	96.45	3.76	50.27	10:27

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
7	TOC	K1910803-005.01	16.6090 ppm	0.1237 ppm	0.7400%	2019/11/26 15:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	16.6964	166.9644	122.12	125.79	3.68	50.24	10:29
2	TOC	16.5216	165.2157	120.93	124.49	3.56	50.25	10:25

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
8	TOC	K1911085-001.01	1.2129 ppm	0.0673 ppm	5.5500%	2019/11/26 16:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1654	11.6536	16.69	20.36	3.67	50.28	10:31
2	TOC	1.2605	12.6053	17.34	20.94	3.60	50.25	10:25

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
9	TOC	K1911085-001.01 ms	27.0105 ppm	0.0000 ppm	0.0000%	2019/11/26 16:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.0105	270.1046	192.13	195.57	3.44	50.25	10:32

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)Sample Type: Check Standard --> CCV 25 ppm

From Schedule Version 5

Concentration	Min / Max
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(v1324)

(v4)

(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
12	TOC	K1911085-004.01	0.4313 ppm	0.0153 ppm	3.5500%	2019/11/26 18:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4422	4.4217	11.78	15.35	3.56	50.28	10:27
2	TOC	0.4205	4.2051	11.64	15.08	3.44	50.24	10:26

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
13	TOC	K1911096-001.01	0.8099 ppm	0.0304 ppm	3.7600%	2019/11/26 18:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7884	7.8837	14.13	17.80	3.66	50.36	10:27
2	TOC	0.8314	8.3139	14.43	18.14	3.71	50.35	10:25

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
14	TOC	K1911084-001.04	0.1240 ppm	0.0030 ppm	2.4400%	2019/11/26 19:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1219	1.2190	9.61	13.15	3.54	50.37	10:26
2	TOC	0.1262	1.2617	9.64	13.19	3.55	50.38	10:29

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
15	TOC	K1911084-002.04	0.1735 ppm	0.0023 ppm	1.3200%	2019/11/26 19:51

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1751	1.7508	9.97	13.43	3.46	50.37	10:27
2	TOC	0.1718	1.7184	9.95	13.43	3.48	50.37	10:26

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
16	TOC	K1911084-003.04	10.5626 ppm	0.0015 ppm	0.0100%	2019/11/26 20:19

Rep	Base	ppm	µg	Adjusted	NDIR (Abs)	Baseline	Pressure	Run
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#	Analysis Type			(Abs)		(Abs)	(psig)	Time
1	TOC	10.5636	105.6365	80.49	84.23	3.74	50.34	10:27
2	TOC	10.5616	105.6159	80.47	84.07	3.59	50.31	10:28

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
17	TOC	K1911084-004.04	0.3734 ppm	0.0819 ppm	21.9300%	2019/11/26 20:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4313	4.3127	11.71	15.33	3.62	50.32	10:25
2	TOC	0.3155	3.1548	10.92	14.83	3.91	50.28	10:26

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
18	TOC	K1911084-005.04	0.1013 ppm	0.0602 ppm	59.4500%	2019/11/26 21:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1438	1.4385	9.76	13.29	3.53	50.29	10:31
2	TOC	0.0587	0.5870	9.18	12.97	3.79	50.26	10:27

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
19	TOC	K1911037-001.02	5.8356 ppm	0.0590 ppm	1.0100%	2019/11/26 21:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.7939	57.9387	48.11	51.69	3.57	50.25	10:27
2	TOC	5.8773	58.7725	48.68	52.12	3.45	50.26	10:27

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)Sample Type: Check Standard --> CCV 25 ppm

From Schedule Version 5

Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.3729 ppm (PASS)	0.0000 ppm	0%	2019/11/26 22:11

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
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Sample Type: Sample

From Schedule Version 5

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
21	TOC	K1911037-002.02	26.0309 ppm	0.2863 ppm	1.1000%	2019/11/26 23:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.8285	258.2851	184.10	187.69	3.59	50.23	10:26
2	TOC	26.2334	262.3335	186.85	190.55	3.70	50.22	10:26

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
22	TOC	K1911037-003.02	0.5182 ppm	0.1590 ppm	30.6800%	2019/11/26 23:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6306	6.3059	13.06	16.67	3.61	50.22	10:31
2	TOC	0.4058	4.0578	11.54	15.13	3.59	50.21	10:28

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
23	TOC	K1911050-001.08	16.2805 ppm	0.0826 ppm	0.5100%	2019/11/27 00:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	16.2221	162.2207	118.90	122.49	3.59	50.22	10:30
2	TOC	16.3389	163.3889	119.69	123.24	3.55	50.22	10:28

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
24	TOC	K1911050-005.09	1.9559 ppm	0.0294 ppm	1.5000%	2019/11/27 00:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9767	19.7666	22.20	25.66	3.46	50.20	10:27
2	TOC	1.9351	19.3511	21.92	25.52	3.60	50.19	10:28

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
25	TOC	K1911034-001.02	4.1617 ppm	0.0002 ppm	0.0100%	2019/11/27 01:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
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1	TOC	4.1616	41.6156	37.03	40.51	3.48	50.18	10:27
2	TOC	4.1619	41.6186	37.03	40.56	3.53	50.19	10:28

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
26	TOC	K1911034-002.02	5.0856 ppm	0.0023 ppm	0.0500%	2019/11/27 01:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.0839	50.8393	43.29	46.91	3.62	50.22	10:29
2	TOC	5.0872	50.8717	43.31	46.84	3.52	50.20	10:26

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
27	TOC	K1911034-003.02	4.2605 ppm	0.0034 ppm	0.0800%	2019/11/27 01:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.2629	42.6292	37.72	41.27	3.55	50.18	10:30
2	TOC	4.2581	42.5806	37.69	41.21	3.53	50.18	10:27

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
28	TOC	K1911034-004.02	12.5198 ppm	0.2048 ppm	1.6400%	2019/11/27 02:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	12.6646	126.6458	94.75	98.26	3.51	50.20	10:26
2	TOC	12.3749	123.7495	92.78	96.37	3.58	50.17	10:25

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)Sample Type: Check Standard --> CCV 25 ppm

From Schedule Version 5

Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5857 ppm (PASS)	0.0000 ppm	0%	2019/11/27 02:54

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5857	245.8573	176.35	180.01	3.66	50.20	10:33



<u>Completion State</u>	<u>Success Action</u>	<u>Method</u>	<u>Calibration</u>	<u>STD Conc - Pos B</u>
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB

From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/11/27 03:09

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.59	9.21	3.62	50.20	10:29

<u>Completion State</u>	<u>Success Action</u>	<u>Method</u>	<u>Calibration</u>	<u>STD Conc - Pos D</u>
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample

From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time		
◆	29	TOC	K1911034-005.02	2.8461 ppm	0.0067 ppm	0.2300%	2019/11/27 03:24		

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.8509	28.5085	28.13	31.62	3.49	50.18	10:28
2	TOC	2.8414	28.4143	28.07	31.70	3.63	50.17	10:28

<u>Dilution</u>	<u>Blank Contribution</u>	<u>Method</u>	<u>Calibration</u>
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time		
♦	30	TOC	K1911034-006.02	6.4472 ppm	0.0290 ppm	0.4500%	2019/11/27 03:52		

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.4677	64.6771	52.68	56.17	3.48	50.19	10:29
2	TOC	6.4268	64.2675	52.41	55.95	3.55	50.21	10:29

<u>Dilution</u>	<u>Blank Contribution</u>	<u>Method</u>	<u>Calibration</u>
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time		
◆	31	TOC	K1911034-007.02	3.5980 ppm	0.0291 ppm	0.8100%	2019/11/27 04:20		

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.5774	35.7744	33.07	36.76	3.69	50.19	10:28



2	TOC	3.6185	36.1854	33.34	36.91	3.56	50.19	10:26
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Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
32	TOC	K1911034-008.02	4.7485 ppm	0.0231 ppm	0.4900%	2019/11/27 04:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.7321	47.3213	40.90	44.39	3.48	50.17	10:27
2	TOC	4.7648	47.6484	41.13	44.66	3.53	50.23	10:25

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
33	TOC	K1911034-009.02	3.5699 ppm	0.0304 ppm	0.8500%	2019/11/27 05:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.5914	35.9143	33.16	36.78	3.62	50.21	10:32
2	TOC	3.5484	35.4841	32.87	36.46	3.59	50.23	10:28

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
34	TOC	K1911034-010.02	4.6685 ppm	0.0938 ppm	2.0100%	2019/11/27 05:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.7348	47.3478	40.92	44.47	3.54	50.21	10:31
2	TOC	4.6022	46.0219	40.02	43.57	3.55	50.21	10:29

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
35	TOC	K1910963-001.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/27 06:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.60	9.13	3.53	50.20	10:27
2	TOC	0.0000	0.0000	5.48	9.09	3.61	50.20	10:25

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
-----	---------------	-----------	---------------	------------------	-----	------------



Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.36	8.98	3.61	50.19	10:31

Completion State

Success - Criteria met.

Success Action

Do Nothing

Method

CAS_salt_010711 (v4)

Calibration

CAS_salt_010711 (v30)

STD Conc - Pos D

0 ppmC

Sample Type: Sample

From Schedule Version 5

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/27 07:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.44	8.13	3.69	50.14	10:32

Dilution

1:10

Blank Contribution

(TC) 8.7826 (IC) (v1324)

Method

CAS_salt_010711 (v4)

Calibration

CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS

From Schedule Version 5

Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	24.7562 ppm (PASS)	0.0000 ppm	0%	2019/11/27 08:08

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.7562	247.5618	177.51	181.18	3.68	50.13	10:30

Completion State

Success - Criteria met.

Success Action

Do Nothing

Method

CAS_salt_010711 (v4)

Calibration

CAS_salt_010711 (v30)

STD Conc - Pos C

25 ppmC

Sample Type: Sample

From Schedule Version 5

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
40	TOC	K1910963-002.10 doc	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/27 08:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.50	11.12	3.62	50.20	10:29
2	TOC	0.0000	0.0000	7.53	11.19	3.66	50.15	10:28

Dilution

1:10

Blank Contribution

(TC) 8.7826 (IC) (v1324)

Method

CAS_salt_010711 (v4)

Calibration

CAS_salt_010711 (v30)



Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
41	TOC	K1910963-002.10 ms doc	25.4906 ppm	0.0000 ppm	0.0000%	2019/11/27 08:51

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.4906	254.9056	181.81	185.37	3.56	50.16	10:29

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
42	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/27 09:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.58	9.04	3.47	50.18	10:34

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
43	TOC	K1911043-002.01 doc 50x	1.7227 ppm	0.0363 ppm	2.1000%	2019/11/27 09:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6970	16.9704	20.30	23.88	3.58	50.17	10:26
2	TOC	1.7483	17.4831	20.65	24.23	3.58	50.23	10:30

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
44	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/27 09:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.12	8.91	3.79	50.22	10:25
2	TOC	0.0000	0.0000	5.28	8.95	3.67	50.19	10:30

Dilution

1:10

Blank Contribution(TC) 8.7826 (IC)
(v1324)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)**Sample Type:** Check Standard --> CCV 25 ppm

From Schedule Version 5

Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.2344 ppm	0.0000 ppm	0%	2019/11/27 10:17



Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	7.8970	0.0000		2019/03/05 16:15
0.500 ppm	11.5280	0.5000		2019/03/05 16:29
1.0 ppm	14.9760	1.0000		2019/03/05 16:44
5.0 ppm	43.6500	5.0000		2019/03/05 16:58
10 ppm	79.6020	10.0000		2019/03/05 17:12
25 ppm	183.3580	25.0000		2019/03/05 17:26
50 ppm	346.3230	50.0000		2019/03/05 17:40

Methods**Name:** CAS_salt_010711 (TOC)

Version: v4

Operator: Fusion1 (Fusion1)

Ver Creation: 2019/02/21 17:57

Comment:

Parameter	Value	Advanced Parameter	Value
SampleVolume	10.0 mL	NeedleRinseVolume	5.0 ml
Dilution	1:10	VialPrimeVolume	2.0 ml
AcidVolume	0.5 ml	ICSamplePrimeVolume	2.0 ml
ReagentVolume	2.0 ml	ICSpurgeRinseVolume	12.0 ml
UVReactorPrerinse	Off	BaselineStabilizeTime	0.70 min
UVReactorPrerinseVolume	5.0	DetectorPressureFlow	150 ml/min
NumberOfUVReactorPrerinses	1	SyringeSpeedWaste	10
ICSpurgeTime	1.00 mins	SyringeSpeedAcid	7
DetectorSweepFlow	500 ml/min	SyringeSpeedReagent	7
PreSpurgeTime	2.00 mins	SyringeSpeedDIWater	7
SystemFlow	500 ml/min	NDIRPressurization	60 psig
		SyringeSpeedSampleDispense	5
		SyringeSpeedSampleAspirate	4
		SyringeSpeedUVDispense	5
		SyringeSpeedUVAspirate	5
		SyringeSpeedICDispense	5
		SyringeSpeedICAspirate	5
		NDIRPressureStabilize	1.75 min
		SampleMixing	Off
		SampleMixingCycles	1
		SampleMixingVolume	10.0
		LowLevelFilterNDIR	Off

Acceptance / Approval**Electronic Signatures**

Report Version	User Name	Acceptance	Reason	Date
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Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2019/11/27 10:46



ALS Environmental

StarLIMS Run: 661464, 661465, 661466
Analysis: DOC/TOC
Method: SM 5310 C, 9060A, 415.1, 9060

CCV: 11-GEN-05-82C 50 ppm LCS: 11-GEN-05-79J 25.0 ppm

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-78M

ICS TV: 25.0 ppm

ICS % R < 1

Spike ID: 11-GEN-05-82C 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 11-GEN-05-83D

21 % H3PO4: 11-GEN-05-83E

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: 16967789

Analyzed By: <i>Red</i>	Date Analyzed: <i>11/20/19</i> ^{25 Red 11/20/19}
Reviewed By: <i>QC</i>	Date Reviewed: <i>12/2/19</i>



LABORATORY REPORT

December 11, 2019

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

RE: HS19111153

Dear RJ:

Enclosed are the results of the sample submitted to our laboratory on November 23, 2019. For your reference, these analyses have been assigned our service request number P1907202.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental



By Hayden Akers at 4:42 pm, Dec 11, 2019

Hayden Akers
Project Manager



Client: ALS Laboratory Group
Project: HS19111153

Service Request No: P1907202

CASE NARRATIVE

The samples were received intact under chain of custody on November 23, 2019 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Methane, Ethene and Ethane Analysis

The samples were analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

Carbon Dioxide Analysis

The samples were also analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

The recovery for the laboratory control sample and its duplicate were below the DOD control limit criteria. However the recoveries were within the laboratory's control limits.

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

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



ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1521096
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-006
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946
Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.		



ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Project ID: HS19111153

Service Request: P1907202

Date Received: 11/23/2019
Time Received: 09:48

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
35BWW04-191121	P1907202-001	Water	11/21/2019	09:35	X	X
35BWW04-191121-FD	P1907202-002	Water	11/21/2019	09:35	X	X
35BWW08-191121	P1907202-003	Water	11/21/2019	10:35	X	X
35BWW26-191121	P1907202-004	Water	11/21/2019	11:25	X	X





P1907202

10450 Stancliff Rd, Ste 210
Houston, TX 77099

T: +1 281 530 5656

F: +1 281 530 5887

www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Texas**COC ID: **12703**

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Phone: +1 805 526 7161

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: RJ Modashia
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: RJ.Modashia@alsglobal.com
Alternate Contact:
Email:

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS19111153
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	HS19111153-03	35BWW04-191121	Groundwater	21 Nov 2019 09:35
	MEE + CO2. DOD IV. Equis EDD. EQUIS 5.0 - Longhorn			04 Dec 2019
2.	HS19111153-04	35BWW04-191121-FD	Groundwater	21 Nov 2019 09:35
	MEE + CO2. DOD IV. Equis EDD. EQUIS 5.0 - Longhorn			04 Dec 2019
3.	HS19111153-05	35BWW08-191121	Groundwater	21 Nov 2019 10:35
	MEE + CO2. DOD IV. Equis EDD. EQUIS 5.0 - Longhorn			04 Dec 2019
4.	HS19111153-06	35BWW26-191121	Groundwater	21 Nov 2019 11:25
	MEE + CO2. DOD IV. Equis EDD. EQUIS 5.0 - Longhorn			04 Dec 2019

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: M

Date/Time:

11/22/19 12:00

Received By: Kate Kaneko

Date/Time:

11/23/19 0948

Cooler ID(s): _____

Temperature(s):

60 C wet ice, still frozen

ALS Environmental **Sample Acceptance Check Form**

Client: ALS Laboratory Group Work order: P1907202
 Project: HS19111153
 Sample(s) received on: 11/23/19 Date opened: 11/23/19 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

	<u>Yes</u>	<u>No</u>	<u>N/A</u>
1 Were sample containers properly marked with client sample ID?	☒	☐	☐
2 Did sample containers arrive in good condition?	☒	☐	☐
3 Were chain-of-custody papers used and filled out?	☒	☐	☐
4 Did sample container labels and/or tags agree with custody papers?	☒	☐	☐
5 Was sample volume received adequate for analysis?	☒	☐	☐
6 Are samples within specified holding times?	☒	☐	☐
7 Was proper temperature (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
Cooler Temperature: ° C Blank Temperature: 6° C Thermometer ID T-111 Wet Ice			
8 Were custody seals on outside of cooler/Box/Container?	☒	☐	☐
Location of seal(s)? _____ Sealing Lid?	☒	☐	☐
Were signature and date included?	☒	☐	☐
Were seals intact?	☒	☐	☐
9 Do containers have appropriate preservation , according to method/SOP or Client specified information?	☒	☐	☐
Is there a client indication that the submitted samples are pH preserved?	☒	☐	☐
Were VOA vials checked for presence/absence of air bubbles?	☒	☐	☐
Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it?	☐	☒	☐
10 Tubes: Are the tubes capped and intact?	☐	☐	☒
11 Badges: Are the badges properly capped and intact?	☐	☐	☒
Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1907202-001.01	40mL VOA NP		6		A	WH/LD 11/27/2019
P1907202-001.02	40mL VOA NP				A	
P1907202-001.03	40mL VOA NP				A	
P1907202-001.04	40ml VOA HCL				A	
P1907202-001.05	40ml VOA HCL				A	
P1907202-001.06	40ml VOA HCL				A	
P1907202-002.01	40mL VOA NP		5		A	WH/LD 11/27/2019
P1907202-002.02	40mL VOA NP				A	
P1907202-002.03	40mL VOA NP				A	
P1907202-002.04	40ml VOA HCL				A	
P1907202-002.05	40ml VOA HCL				A	
P1907202-002.06	40ml VOA HCL				A	
P1907202-003.01	40mL VOA NP		6		A	WH/LD 11/27/2019
P1907202-003.02	40mL VOA NP				A	
P1907202-003.03	40mL VOA NP				A	

Explain any discrepancies: (include lab sample ID numbers): _____



ALS Environmental Sample Acceptance Check Form

Client: ALS Laboratory Group

Work order: P1907202

Project: HS19111153

Sample(s) received on: 11/23/19

Date opened: 11/23/19

by: ADAVID

[illegible]

Explain any discrepancies: (include lab sample ID numbers):



ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: **ALS Laboratory Group**Client Project ID: **HS19111153**

ALS Project ID: P1907202

Carbon Dioxide

Test Code: RSK 175

Instrument ID: HP5890A/GC10/TCD

Analyst: Li Donghao/Wade Henton

Matrix: Water

Test Notes:

Date(s) Collected: 11/21/19

Date Received: 11/23/19

Date Analyzed: 11/27/19

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L
35BWW04-191121	P1907202-001	0.10	100,000	1,000	860	370
35BWW04-191121-FD	P1907202-002	0.10	87,000	1,000	860	370
35BWW08-191121	P1907202-003	0.10	14,000	1,000	860	370
35BWW26-191121	P1907202-004	0.10	100,000	1,000	860	370
Method Control Sample	P191127-MB	0.10	860	1,000	860	370

The Method Control Sample is laboratory water carried through the entire analytical process.

U = Compound was analyzed for, but not detected above the laboratory detection limit.

LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

L = Laboratory control sample recovery outside the specified limits, results may be biased low.



Data Qualifier
L
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thod.



ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: ALS Laboratory Group
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: HS19111153

ALS Project ID: P1907202
 ALS Sample ID: P191127-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Li Donghao/Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/27/19
Volume(s) Analyzed: NA ml(s)

CAS #	Compound	Spike Amount	Result ₁		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS ug/L	LCS ug/L	DLCS ug/L	LCS	DLCS	Acceptance Limits			
124-38-9	Carbon Dioxide	22,900	17,600	17,700	77	77	80-122	0	12	L

₁ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

L = Laboratory control sample recovery outside the specified limits, results may be biased low.



ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: ALS Laboratory Group**Client Sample ID:** 35BWW04-191121**Client Project ID:** HS19111153

ALS Project ID: P1907202

ALS Sample ID: P1907202-001

Test Code: RSK 175**Instrument ID:** HP5890A/GC10/FID**Analyst:** Li Donghao**Matrix:** Water**Test Notes:****Date Collected:** 11/21/19**Date Received:** 11/23/19**Date Analyzed:** 12/02/19**Volume(s) Analyzed:** 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	U
74-85-1	Ethene	0.55	1.0	0.55	0.24	U
74-84-0	Ethane	0.47	0.60	0.47	0.16	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.

LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.



ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: ALS Laboratory Group**Client Sample ID:** 35BWW04-191121-FD**Client Project ID:** HS19111153

ALS Project ID: P1907202

ALS Sample ID: P1907202-002

Test Code: RSK 175**Instrument ID:** HP5890A/GC10/FID**Analyst:** Li Donghao**Matrix:** Water**Test Notes:****Date Collected:** 11/21/19**Date Received:** 11/23/19**Date Analyzed:** 12/02/19**Volume(s) Analyzed:** 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	U
74-85-1	Ethene	0.55	1.0	0.55	0.24	U
74-84-0	Ethane	0.47	0.60	0.47	0.16	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.

LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.



ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: ALS Laboratory Group**Client Sample ID:** 35BWW08-191121**Client Project ID:** HS19111153

ALS Project ID: P1907202

ALS Sample ID: P1907202-003

Test Code: RSK 175**Instrument ID:** HP5890A/GC10/FID**Analyst:** Li Donghao**Matrix:** Water**Test Notes:****Date Collected:** 11/21/19**Date Received:** 11/23/19**Date Analyzed:** 12/02/19**Volume(s) Analyzed:** 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	U
74-85-1	Ethene	0.55	1.0	0.55	0.24	U
74-84-0	Ethane	0.47	0.60	0.47	0.16	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.

LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.



ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: ALS Laboratory Group**Client Sample ID:** 35BWW26-191121**Client Project ID:** HS19111153

ALS Project ID: P1907202

ALS Sample ID: P1907202-004

Test Code: RSK 175**Instrument ID:** HP5890A/GC10/FID**Analyst:** Li Donghao**Matrix:** Water**Test Notes:****Date Collected:** 11/21/19**Date Received:** 11/23/19**Date Analyzed:** 12/02/19**Volume(s) Analyzed:** 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	U
74-85-1	Ethene	0.55	1.0	0.55	0.24	U
74-84-0	Ethane	0.47	0.60	0.47	0.16	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.

LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.



ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: ALS Laboratory Group
Client Sample ID: Method Control Sample
Client Project ID: HS19111153

ALS Project ID: P1907202
ALS Sample ID: P191202-MB

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/02/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	U
74-85-1	Ethene	0.55	1.0	0.55	0.24	U
74-84-0	Ethane	0.47	0.60	0.47	0.16	U

The Method Control Sample is laboratory water carried through the entire analytical process.

U = Compound was analyzed for, but not detected above the laboratory detection limit.

LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.



ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: ALS Laboratory Group
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: HS19111153

ALS Project ID: P1907202
 ALS Sample ID: P191202-LCS
 P191202-DLCS

Test Code: RSK 175
 Instrument ID: HP5890A/GC10/FID
 Analyst: Li Donghao
 Matrix: Water
 Test Notes:

Date Collected: NA
 Date Received: NA
 Date Analyzed: 12/02/19
 Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount	Result ₁		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS µg/L	LCS µg/L	DLCS µg/L	LCS	DLCS	Acceptance Limits			
74-82-8	Methane	2.52	2.60	2.53	103	100	73-125	3	26	
74-85-1	Ethene	4.40	4.43	4.17	101	95	72-133	6	11	
74-84-0	Ethane	4.72	4.43	4.21	94	89	74-131	5	10	

₁ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:40:52
Operator : WH/LD
Sample : P1907202-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 14:46:11 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.891	591920	0.124 ppm
2) Carbon monoxide	1.891	591920	N.D. ppm
3) Methane (TCD)	0.000	0	N.D. ppm
4) Carbon dioxide	5.956	1080806	4604.482 ppm
6) Methane (FID)	0.000	0	N.D. ppm
7) Ethylene	0.000	0	N.D. ppm
8) Ethane	0.000	0	N.D. ppm
9) Propylene	0.000	0	N.D. ppm
10) Propane	0.000	0	N.D. ppm
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	0.000	0	N.D. ppm
13) n-Butane	0.000	0	N.D. ppm

(f)=RT Delta > 1/2 Window

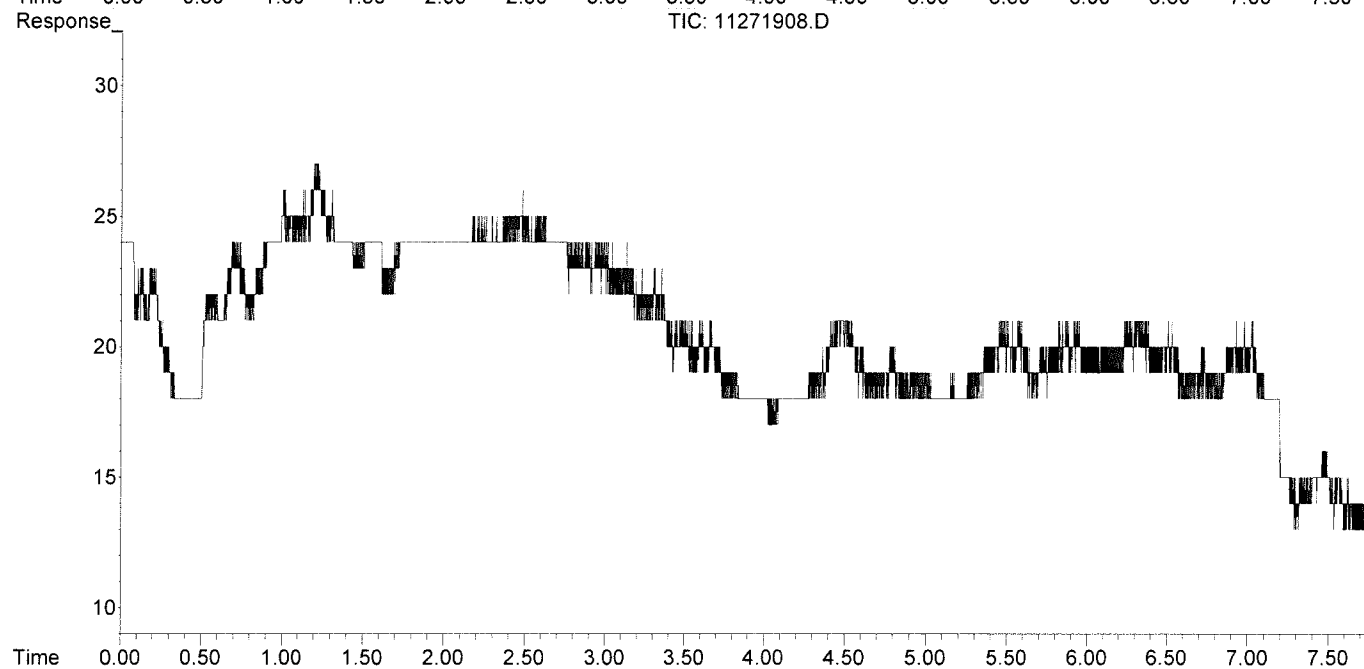
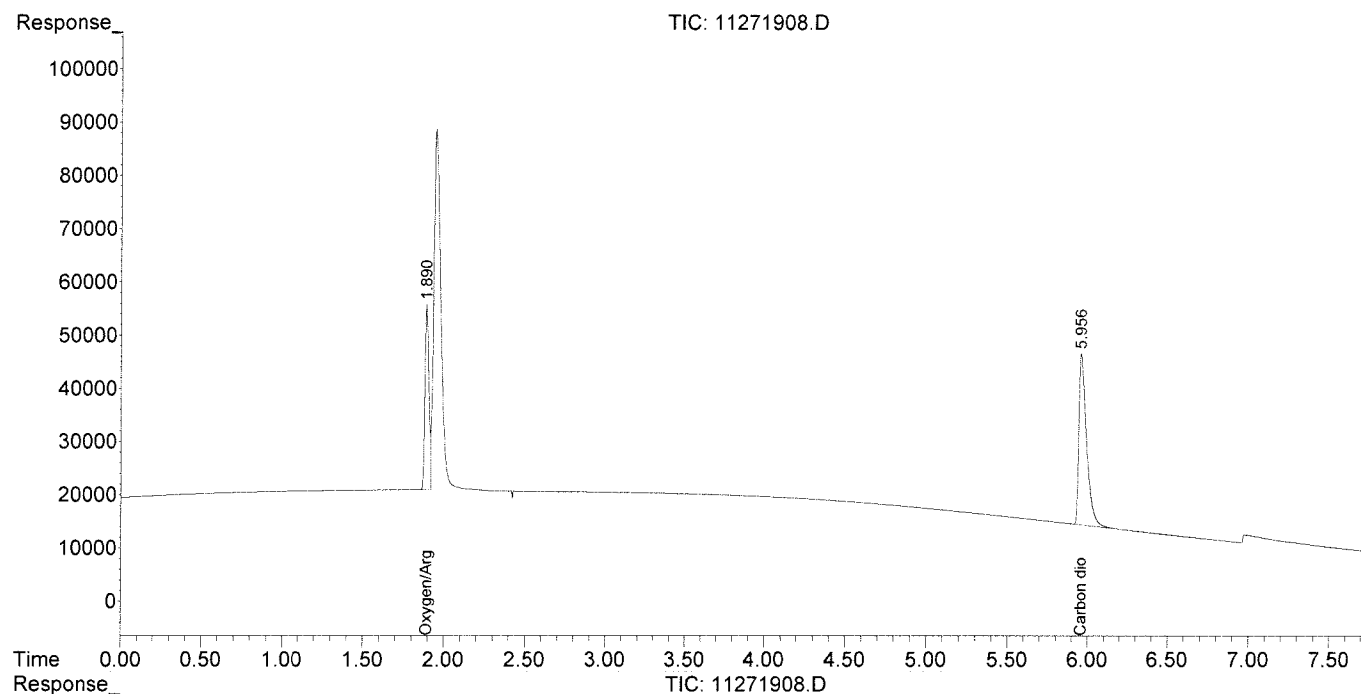
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:40:52
Operator : WH/LD
Sample : P1907202-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 14:46:11 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:54:02
Operator : WH/LD
Sample : P1907202-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 14:46:26 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.895	1505599	0.316	ppm
2) Carbon monoxide	1.895	1505599	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	5.959	932687	3973.458	ppm
6) Methane (FID)	0.000	0	N.D.	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

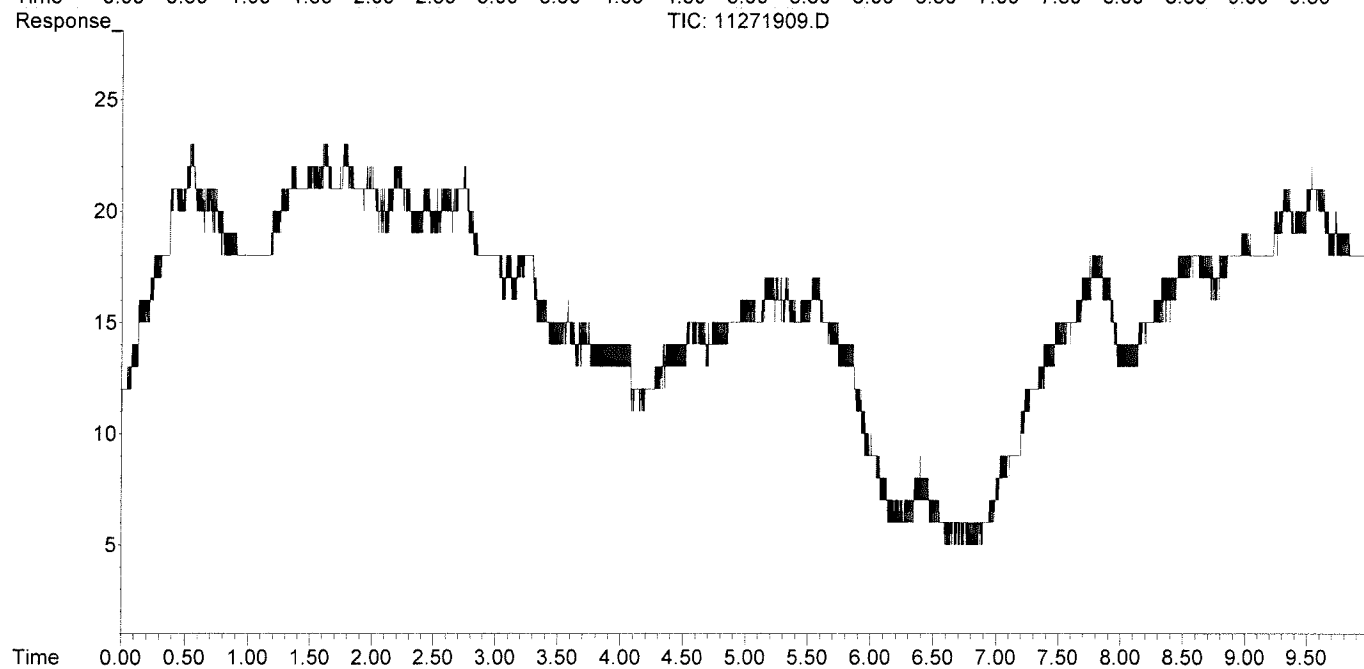
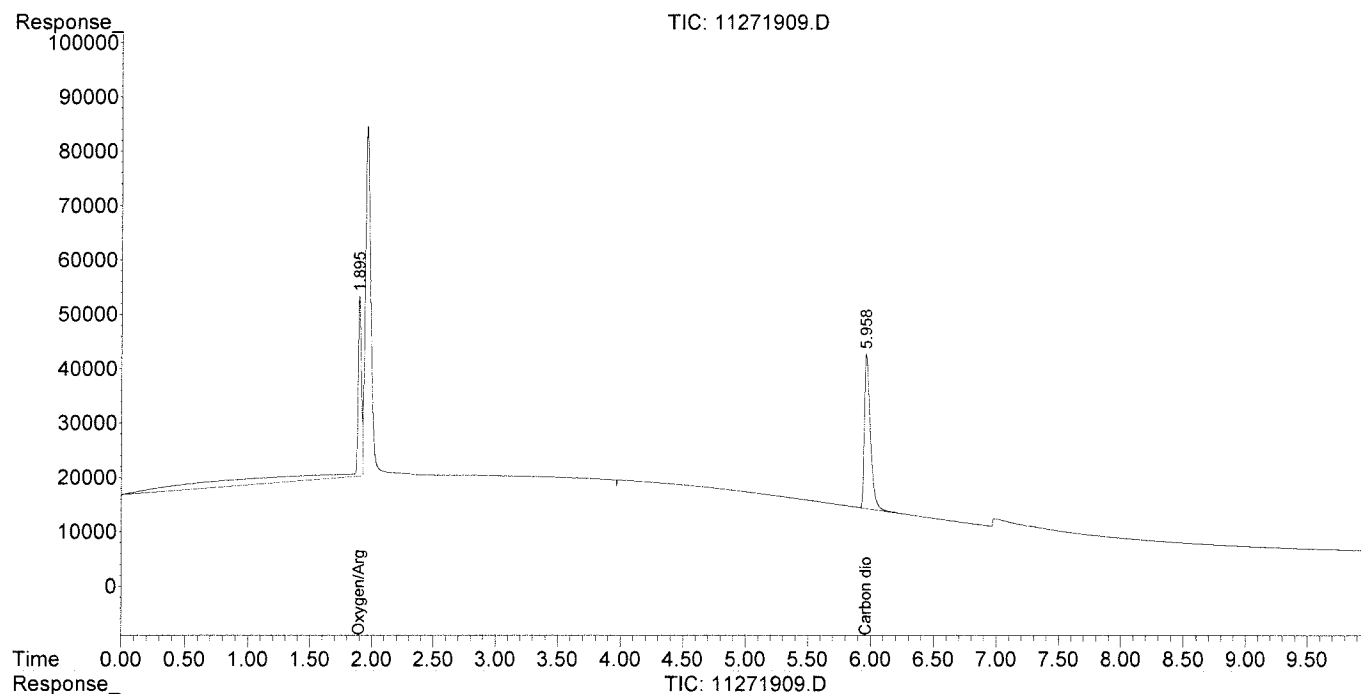
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:54:02
Operator : WH/LD
Sample : P1907202-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 14:46:26 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 15:08:56
Operator : WH/LD
Sample : P1907202-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 14:46:36 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.883	923283	0.194 ppm
2) Carbon monoxide	1.883	923283	N.D. ppm
3) Methane (TCD)	0.000	0	N.D. ppm
4) Carbon dioxide	5.976	147914	630.147 ppm
6) Methane (FID)	0.000	0	N.D. ppm
7) Ethylene	0.000	0	N.D. ppm
8) Ethane	0.000	0	N.D. ppm
9) Propylene	0.000	0	N.D. ppm
10) Propane	0.000	0	N.D. ppm
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	0.000	0	N.D. ppm
13) n-Butane	0.000	0	N.D. ppm

(f)=RT Delta > 1/2 Window

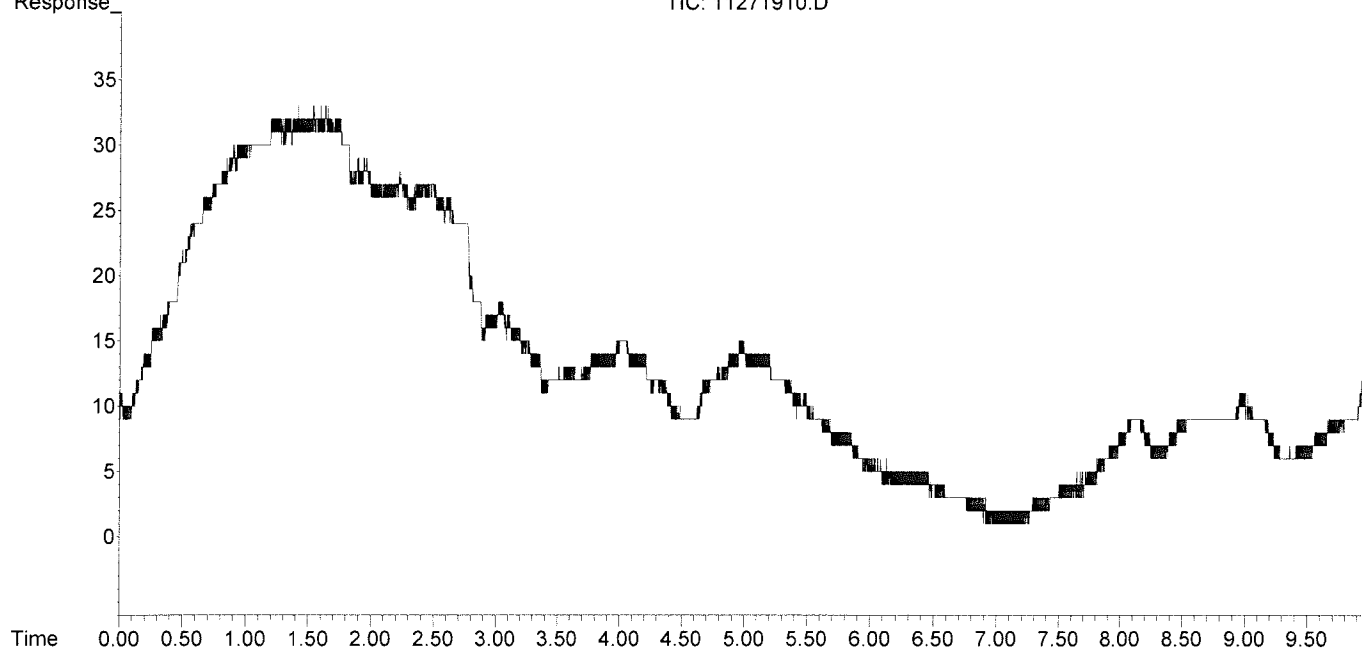
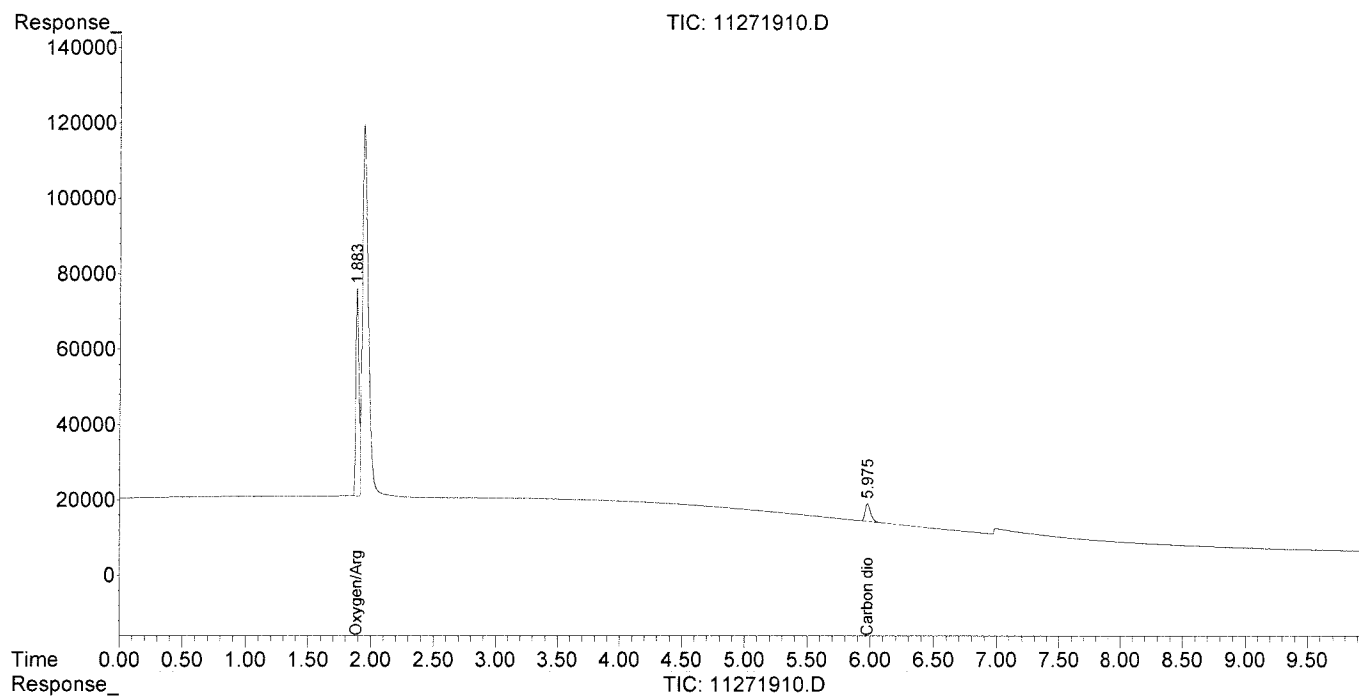
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 15:08:56
Operator : WH/LD
Sample : P1907202-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 14:46:36 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 15:21:54
Operator : WH/LD
Sample : P1907202-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 14:46:47 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.895	420642	0.088	ppm
2) Carbon monoxide	1.895	420642	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	5.956	1073966	4575.339	ppm
6) Methane (FID)	0.000	0	N.D.	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

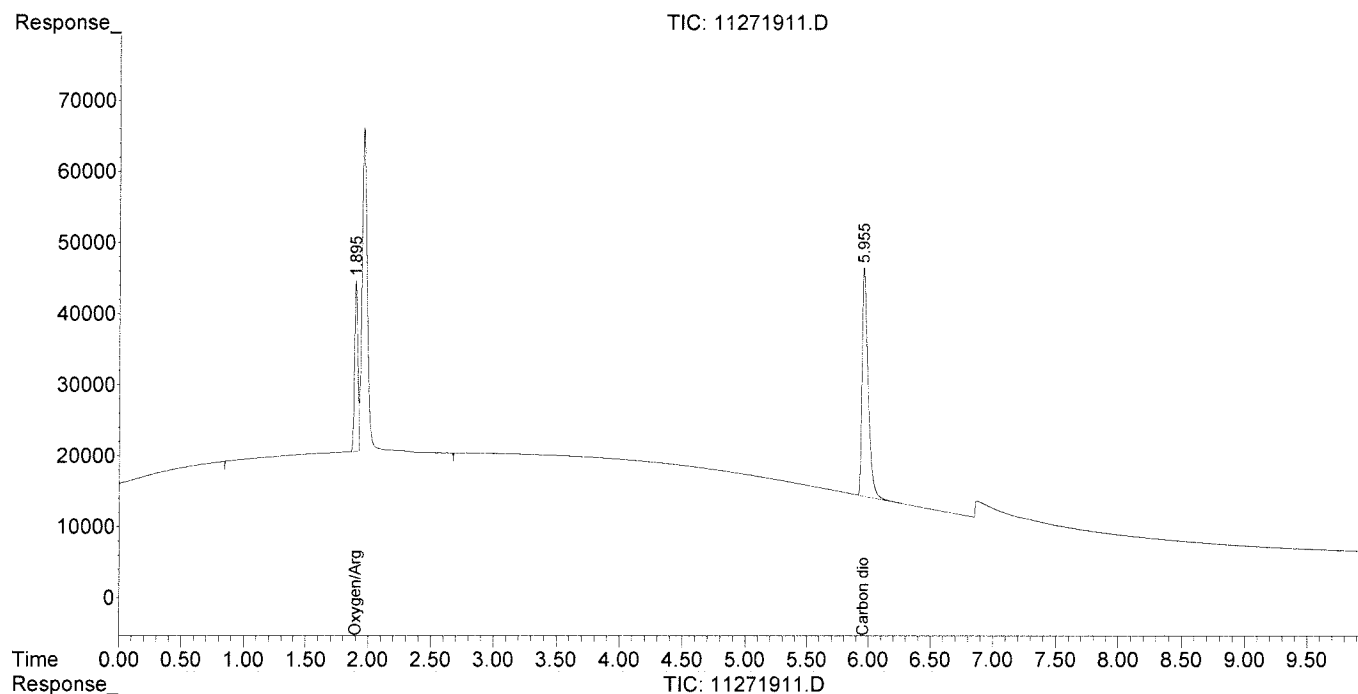
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 15:21:54
Operator : WH/LD
Sample : P1907202-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 14:46:47 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 12:15:56
Operator : WH/LD
Sample : MCS 0.1 ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 11:27:47 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.862	1859048	0.391	ppm
2) Carbon monoxide	1.862	1859048	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	0.000	0	N.D.	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

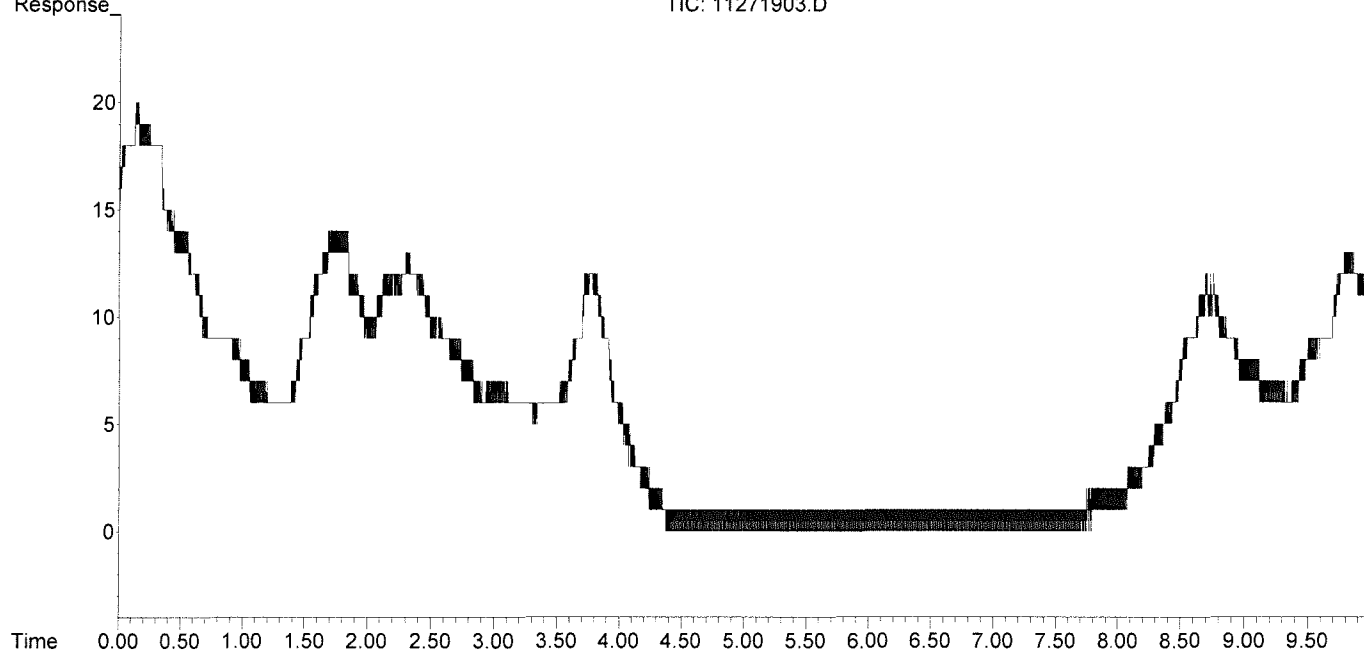
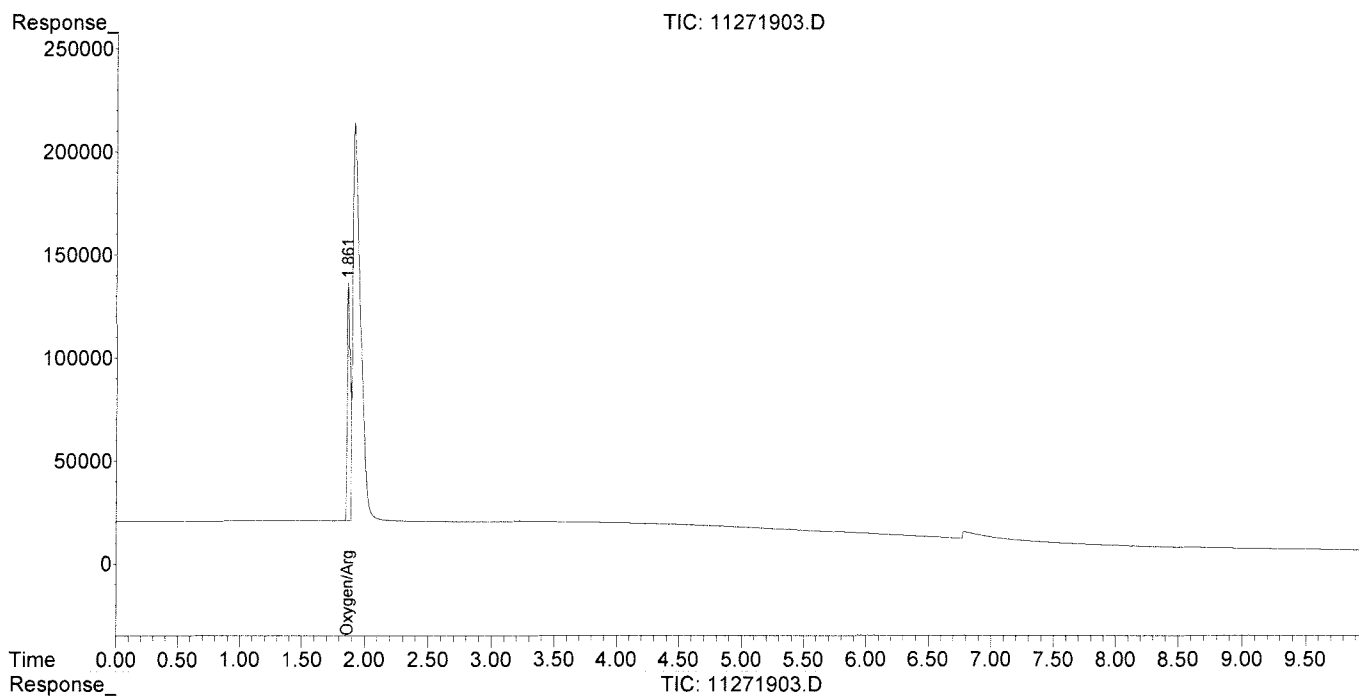
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 12:15:56
Operator : WH/LD
Sample : MCS 0.1 ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 11:27:47 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
 Data File : 11271906.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 27-Nov-2019, 14:11:55
 Operator : WH/LD
 Sample : LCS S32-08141901
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Nov 27 13:48:16 2019
 Quant Method : I:\GC10\METHODS\RS082817_CO2.M
 Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 QLast Update : Tue Aug 29 16:13:13 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.873	2793157	0.587 ppm
2) Carbon monoxide	1.873	2793157	N.D. ppm
3) Methane (TCD)	4.081f	510597	53989.438 ppm
4) Carbon dioxide	5.983	189692	808.132 ppm m
6) Methane (FID)	0.000	0	N.D. ppm
7) Ethylene	0.000	0	N.D. ppm
8) Ethane	0.000	0	N.D. ppm
9) Propylene	0.000	0	N.D. ppm
10) Propane	0.000	0	N.D. ppm
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	0.000	0	N.D. ppm
13) n-Butane	0.000	0	N.D. ppm

(f)=RT Delta > 1/2 Window

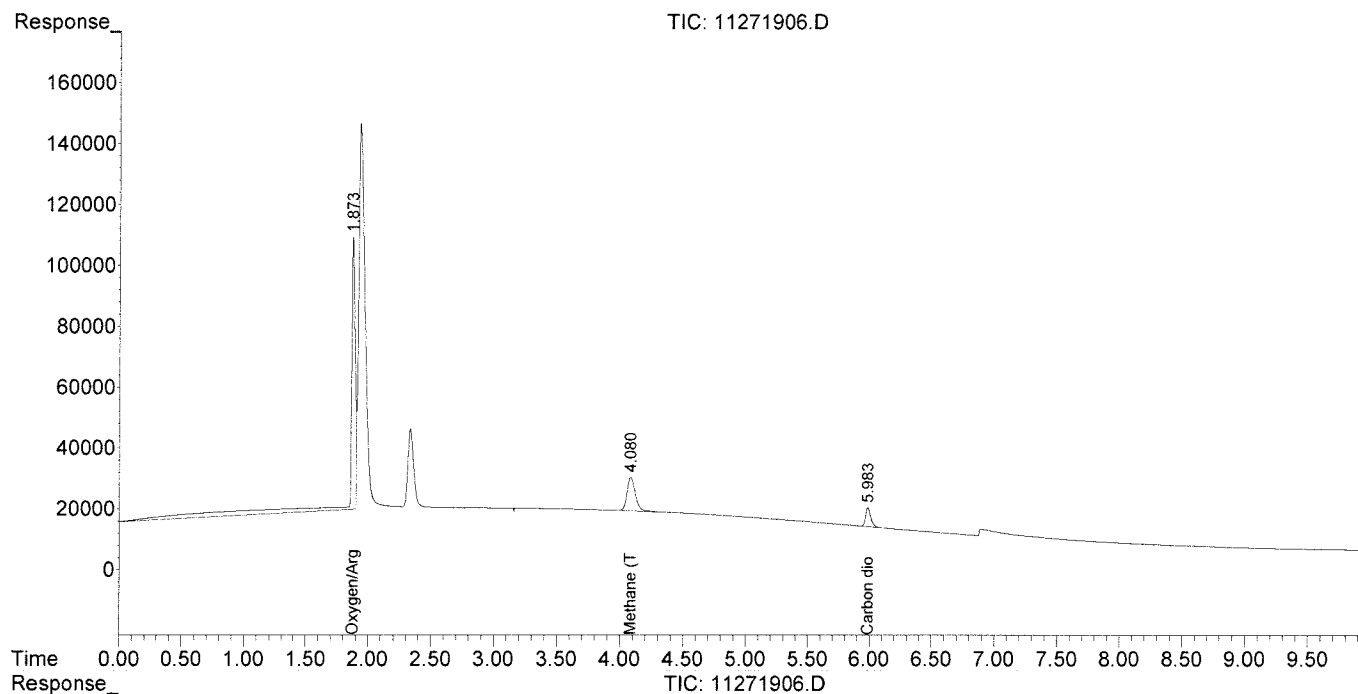
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:11:55
Operator : WH/LD
Sample : LCS S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 13:48:16 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

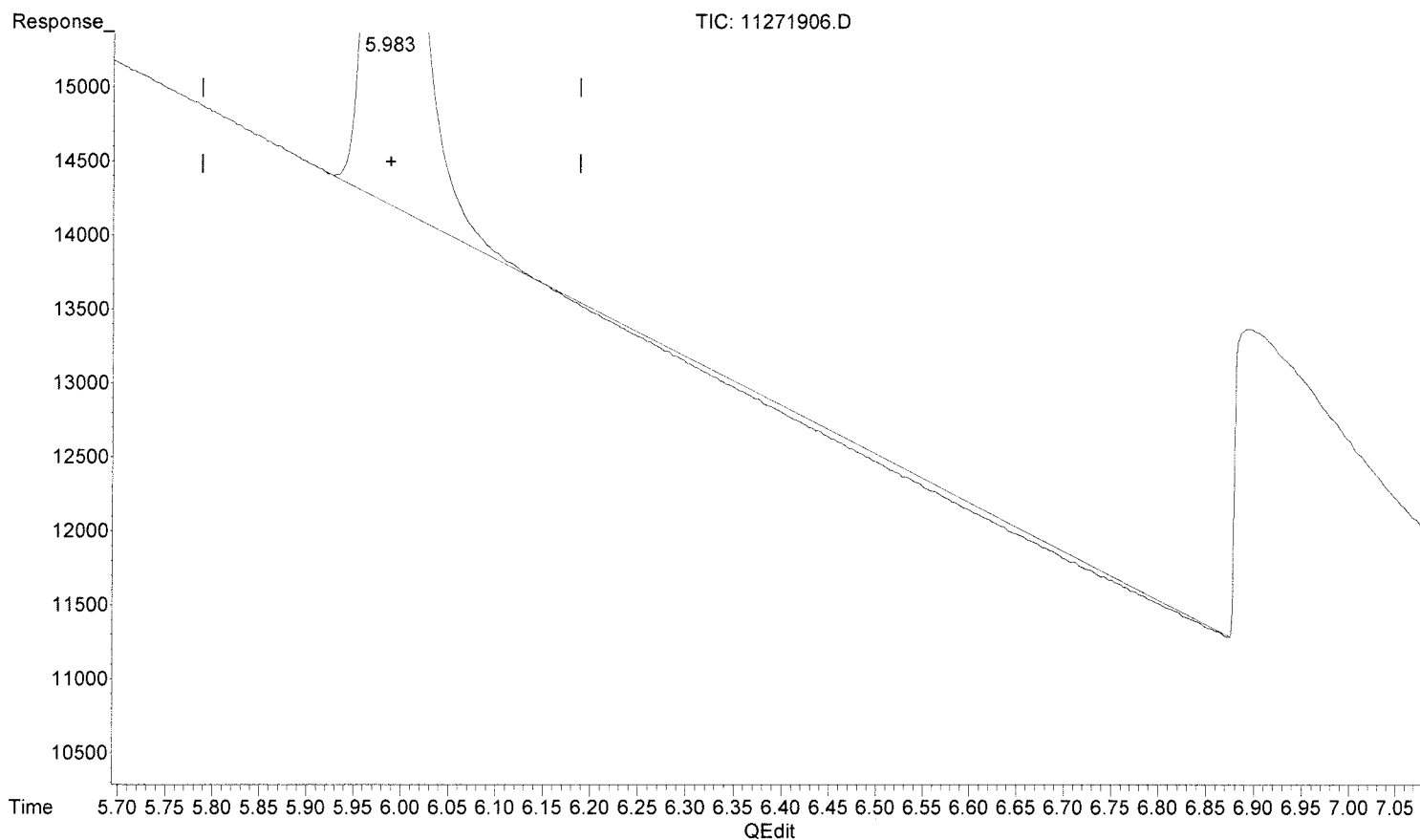
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:11:55
Operator : WH/LD
Sample : LCS S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 13:48:16 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



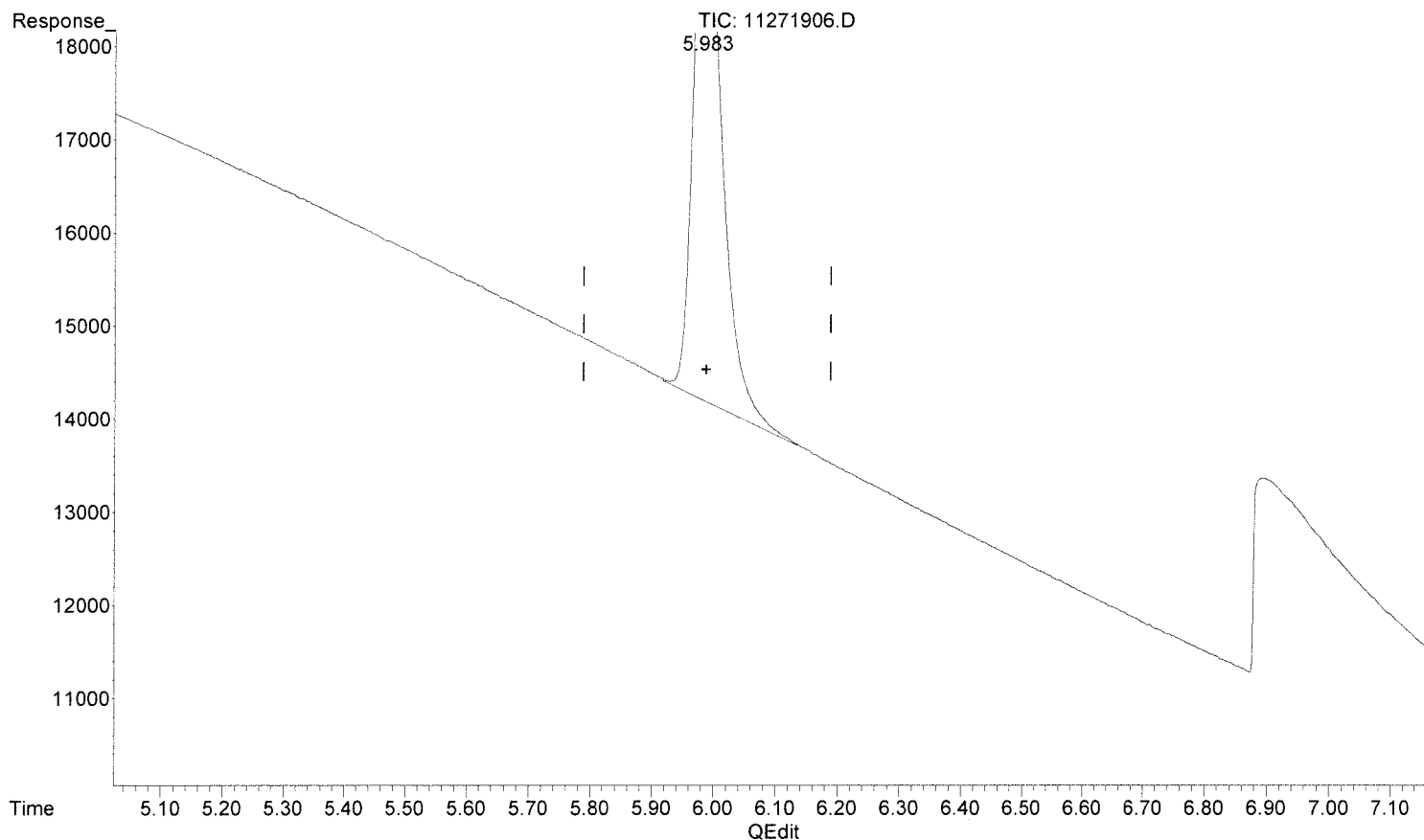
(4) Carbon dioxide
5.984min 738.423 ppm
response 173329



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:11:55
Operator : WH/LD
Sample : LCS S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 13:48:16 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :



(4) Carbon dioxide

5.983min 808.132 ppm m

response 189692

Handwritten: 12/2/19

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
 Data File : 11271907.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 27-Nov-2019, 14:26:48
 Operator : WH/LD
 Sample : LCSD S32-08141901
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Dec 02 09:25:00 2019
 Quant Method : I:\GC10\METHODS\RS082817_CO2.M
 Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 QLast Update : Tue Aug 29 16:13:13 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.876	1532624	0.322 ppm
2) Carbon monoxide	1.876	1532624	N.D. ppm
3) Methane (TCD)	4.079f	511098	54042.402 ppm
4) Carbon dioxide	5.980	190152	810.090 ppm m
6) Methane (FID)	0.000	0	N.D. ppm
7) Ethylene	0.000	0	N.D. ppm
8) Ethane	0.000	0	N.D. ppm
9) Propylene	0.000	0	N.D. ppm
10) Propane	0.000	0	N.D. ppm
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	0.000	0	N.D. ppm
13) n-Butane	0.000	0	N.D. ppm

(f)=RT Delta > 1/2 Window

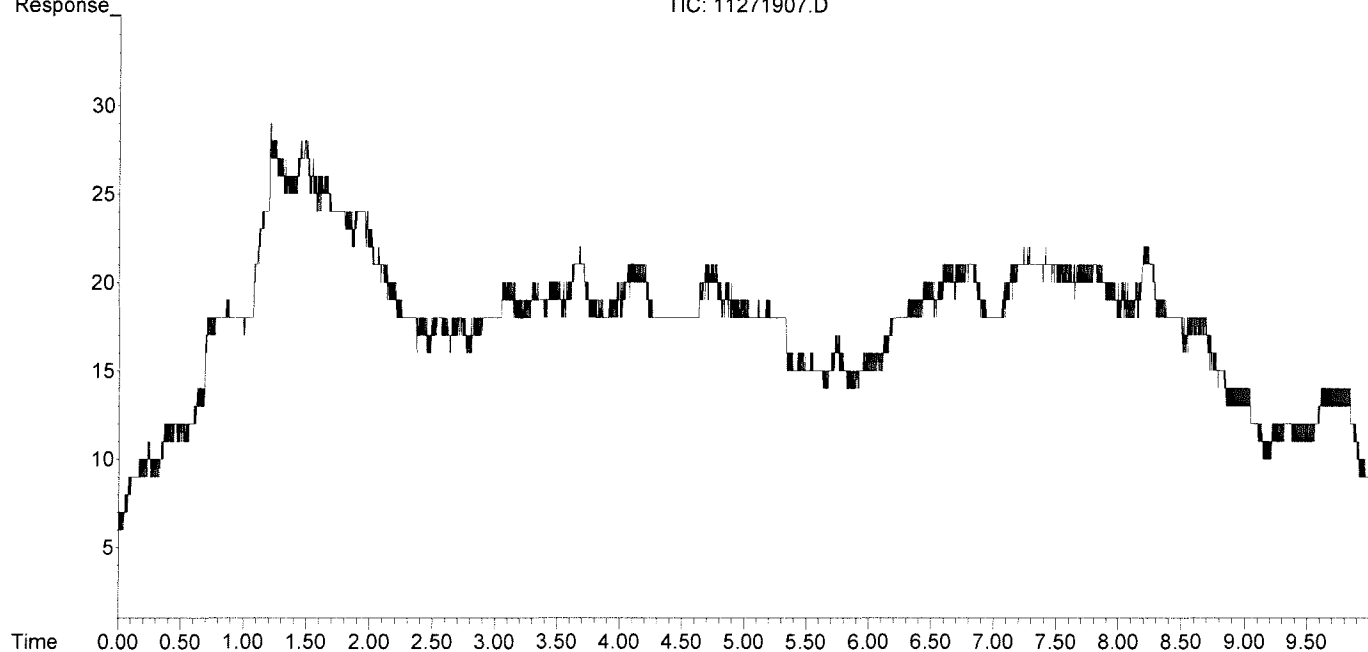
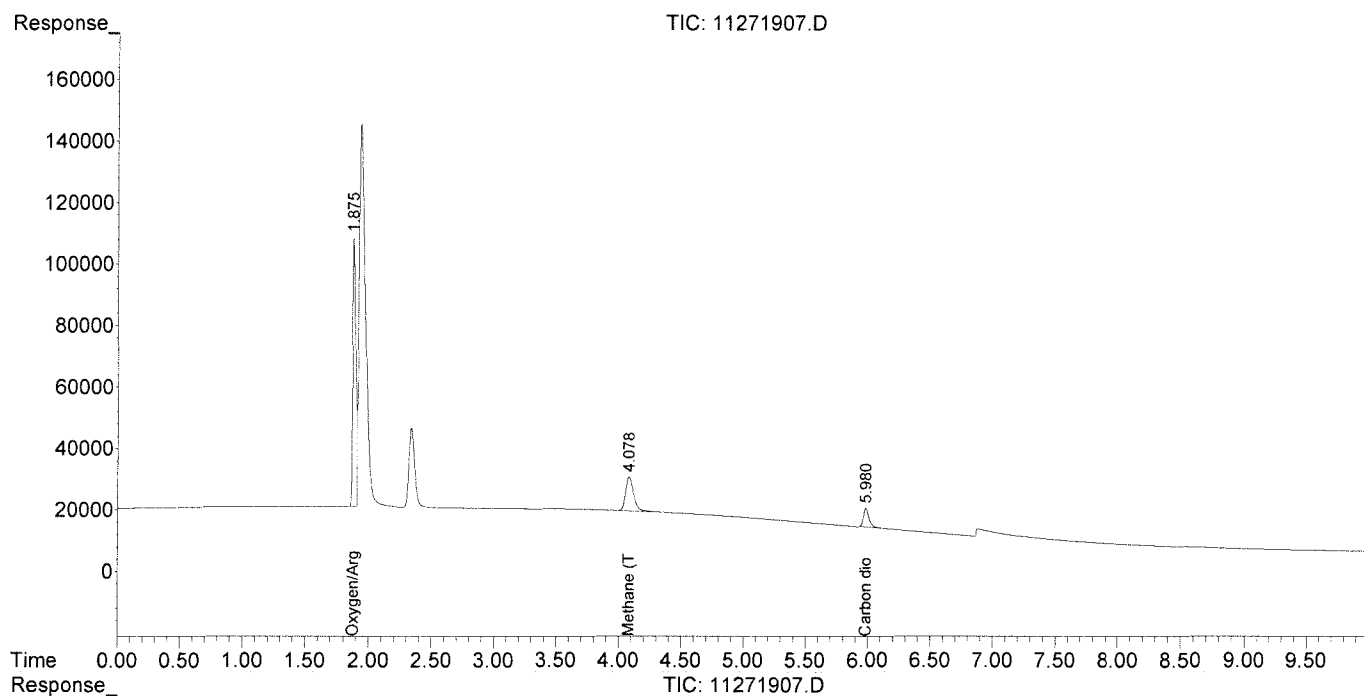
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:26:48
Operator : WH/LD
Sample : LCSD S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 09:25:00 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

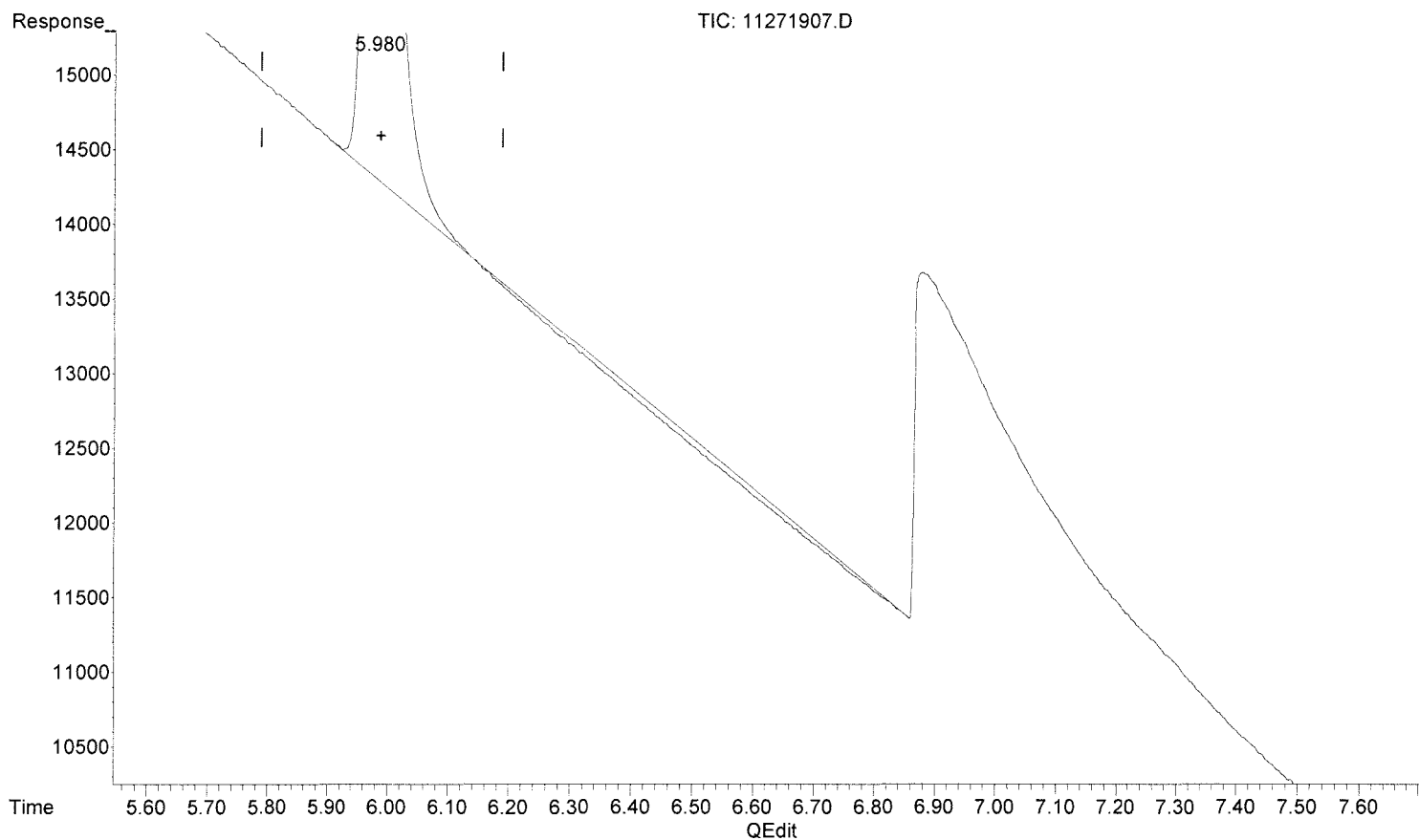
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:26:48
Operator : WH/LD
Sample : LCSD S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 09:25:00 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



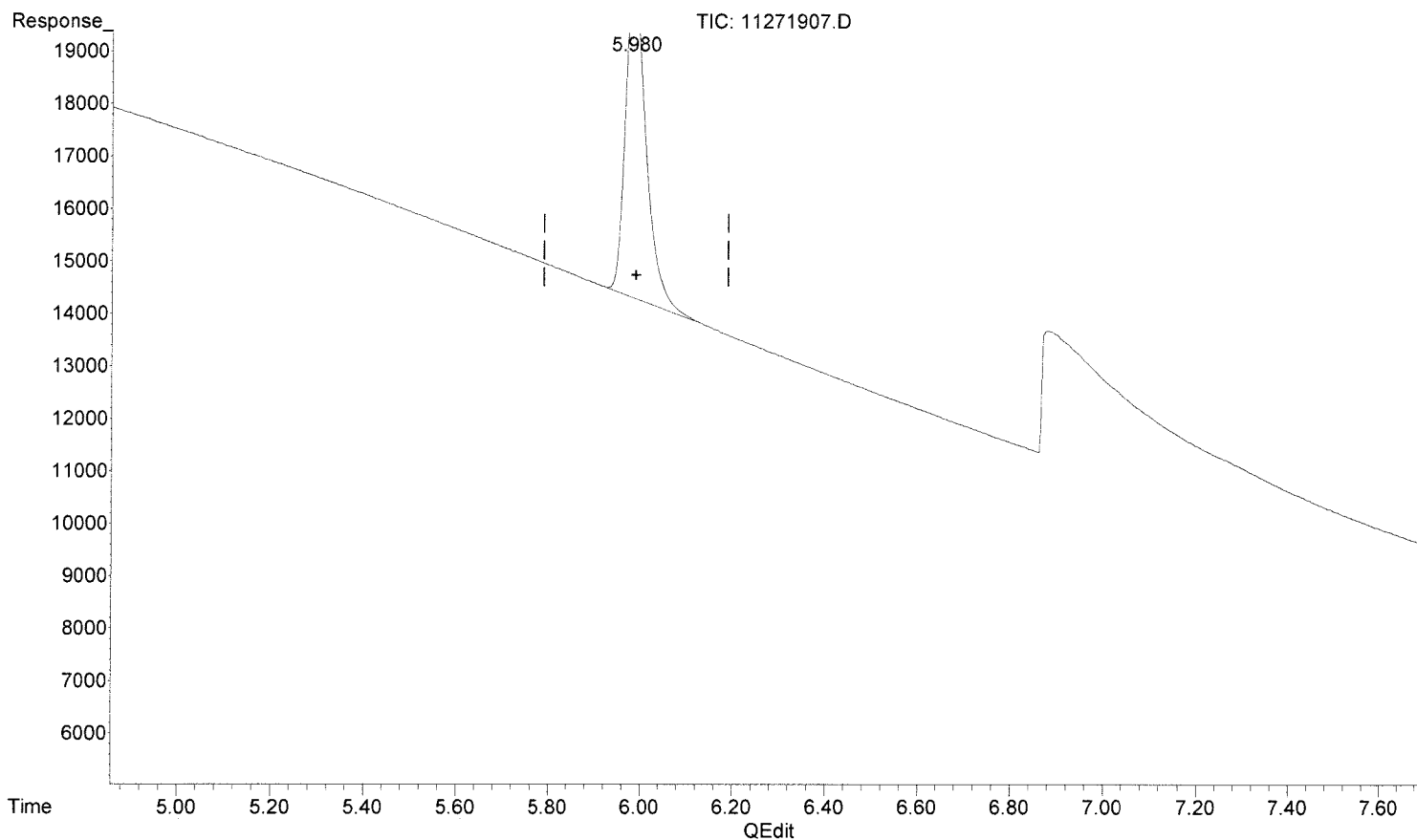
(4) Carbon dioxide
5.981min 753.491 ppm
response 176866



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:26:48
Operator : WH/LD
Sample : LCSD S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 09:25:00 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase :
Signal #2 Info :



(4) Carbon dioxide
5.980min 810.090 ppm m
response 190152

WH
12/2/19

Method Path : I:\GC10\METHODS\
 Method File : RS082817_CO2.M
 Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 Last Update : Tue Aug 29 16:13:13 2017
 Response Via : Initial Calibration

Calibration Files

1	=08291715.D	2	=08291716.D	3	=08291717.D
4	=08291719.D	5	=08291720.D	6	=08291721.D

	Compound	1	2	3	4	5	6	Avg	%RSD
1)	Oxygen/Argon	4.760						4.760 E6	0.00
2)	Carbon monoxide	2.775		1.066	0.043	0.033	0.027	0.657 E6	170.12
3)	Methane (TCD)							9.457	0.00
4)	Carbon dioxide	2.717	2.193	2.338	2.272	2.265	2.298	2.347 E2	7.99

Signal #2 Calibration Files

1	=08291715.D	2	=08291716.D	3	=08291717.D
4	=08291719.D	5	=08291720.D	6	=08291721.D

	Compound	1	2	3	4	5	6	Avg	%RSD
6)	Methane (FID)	1.253	1.160	1.005	0.927	0.848	0.848	0.945 E4	15.85
7)	Ethylene	1.677	1.605	1.900	1.749	1.597	1.579	1.684 E4	7.30
8)	Ethane	1.769	1.631	1.866	1.767	1.639	1.667	1.723 E4	5.40
9)	Propylene	2.402	2.309	2.767	2.551	2.331	2.333	2.449 E4	7.32
10)	Propane	2.906	2.737	2.817	2.639	2.410	2.420	2.655 E4	7.75
11)	Isobutylene							0.000	-1.00
12)	Isobutane							0.000	-1.00
13)	n-Butane							0.000	-1.00

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS082817_CO2.M Wed Aug 30 13:24:19 2017



dit Compounds -- Compound #4 -- Carbon dioxide

Search by: ☒ Ret Time☐ Name☐ Index

Find Compound

Compound Database

External Standard Compound

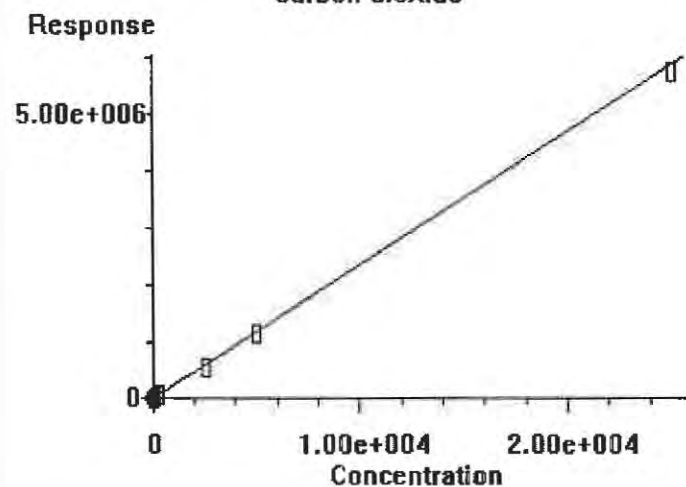
☒ Oxygen/Argon
☒ Carbon monoxide
☒ Methane (TCD)
☒ Carbon dioxide
☒ Signal #2
☒ Methane (FID)
☒ Ethylene
☒ Ethane
☒ Propylene
☒ Propane
☒ Isobutylene
☒ Isobutane
☒ n-Butane

Identification Calibration User-Defined Advanced Reporting

Lvl ID	Concentration	Response
1	25.000000	6793.665186
2	100.000000	21932.418000
3	250.000000	58460.642510
4	2500.000000	568043.388750
5	5000.000000	1132363.215937
6	25000.000000	5744294.891563
7	25000.000000	
8	25000.000000	
9	2000.000000	
10	30000.000000	

Lvl ID	Concentration	Response

Carbon dioxide



0.000e+000	Quadratic term
2.347e+002	Linear term
0.000e+000	Constant term
7.987%	RF Rel Std Dev

OK

Cancel

Help

Print Calibration Curve

Copy Calibration Curve

Method Path : I:\GC10\METHODS\
 Method File : RS082817_CO2.M
 Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 Last Update : Tue Aug 29 16:13:13 2017
 Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291715.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291716.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291717.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291719.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291720.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291721.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241711.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Aug 29 14:21 2017	Aug 29 14:20 2017	29-Aug-2017, 14:07
2	2	Aug 29 14:52 2017	Aug 29 14:51 2017	29-Aug-2017, 14:22
3	3	Aug 29 15:04 2017	Aug 29 15:04 2017	29-Aug-2017, 14:53
4	4	Aug 29 15:36 2017	Aug 29 15:36 2017	29-Aug-2017, 15:23
5	5	Aug 29 15:57 2017	Aug 29 15:57 2017	29-Aug-2017, 15:44
6	6	Aug 29 16:13 2017	Aug 29 16:13 2017	29-Aug-2017, 16:00
7	7	Aug 25 09:05 2017	Aug 24 16:00 2017	24-Aug-2017, 15:44
8	8	Aug 25 09:06 2017	Aug 24 16:13 2017	24-Aug-2017, 16:02
9	9	Aug 25 09:06 2017	Aug 24 16:31 2017	24-Aug-2017, 16:16
10	10	Aug 25 09:07 2017	Aug 24 16:42 2017	24-Aug-2017, 16:33

RS082817_CO2.M Wed Aug 30 13:24:30 2017



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm d
2) Carbon monoxide	1.776	277465	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	5.978	6794	27.870	ppm m
6) Methane (FID)	0.000	0	N.D.	ppm d
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

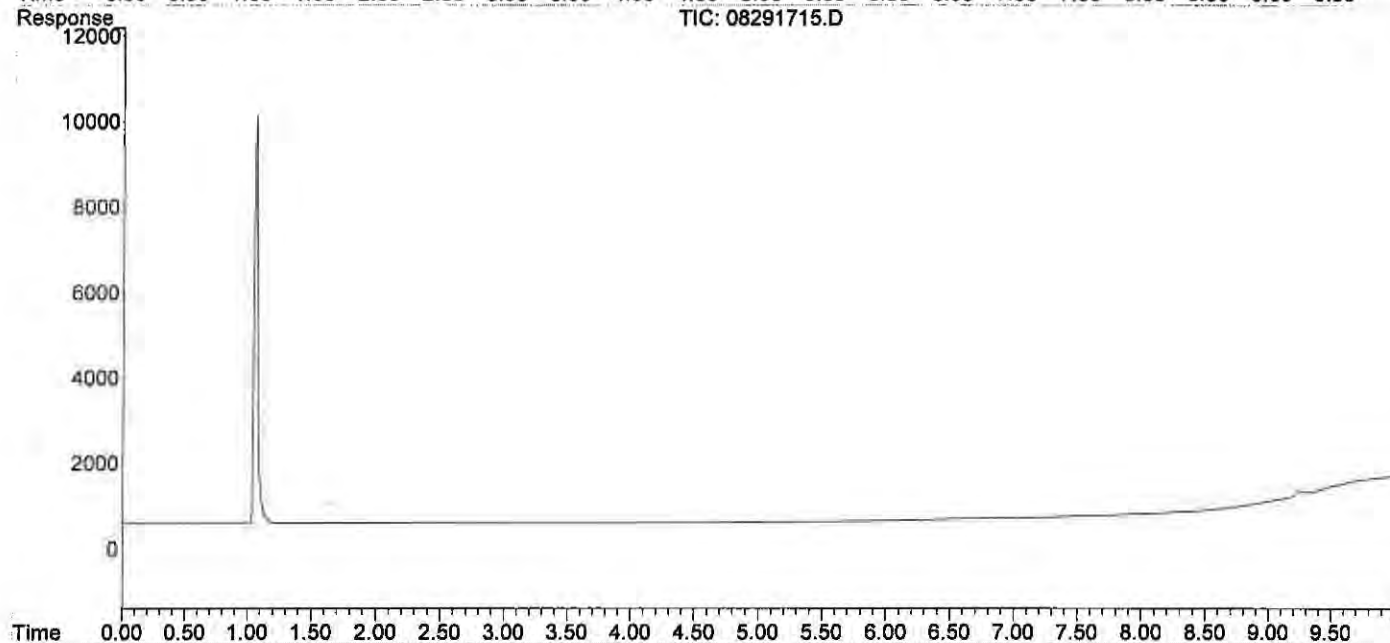
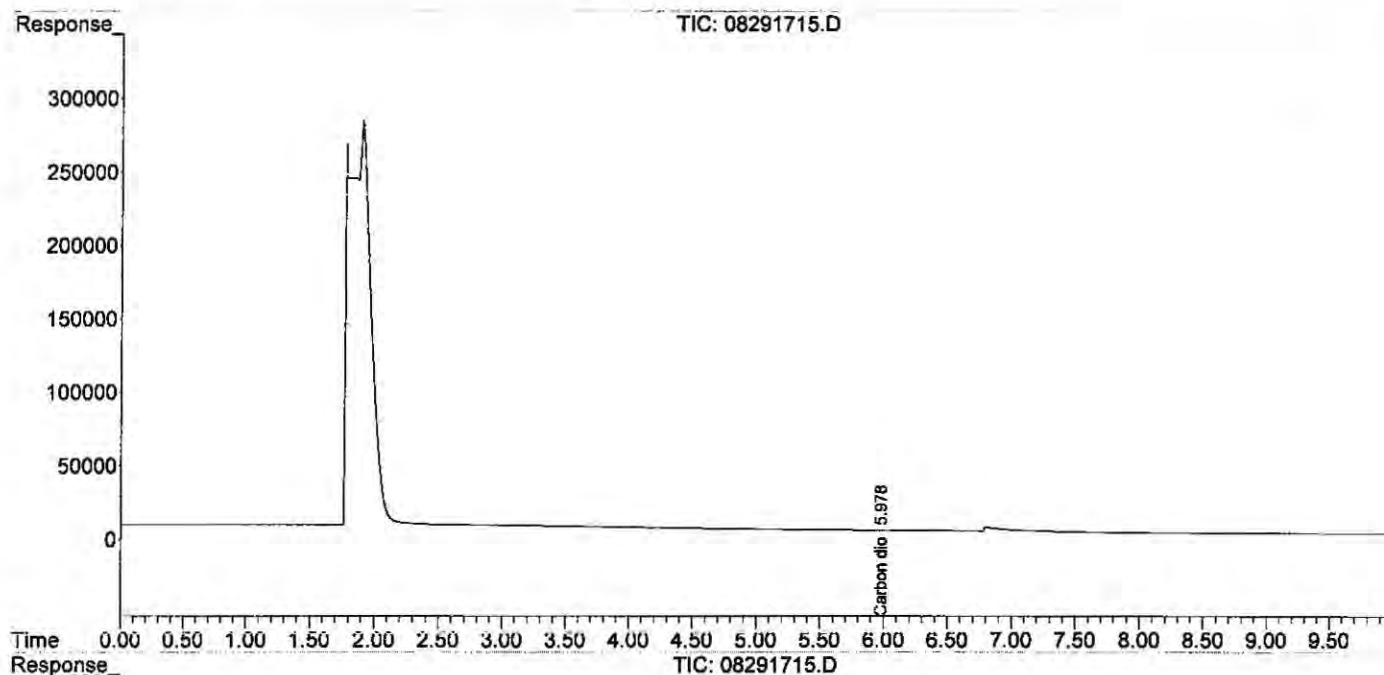
(m)=manual int.



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

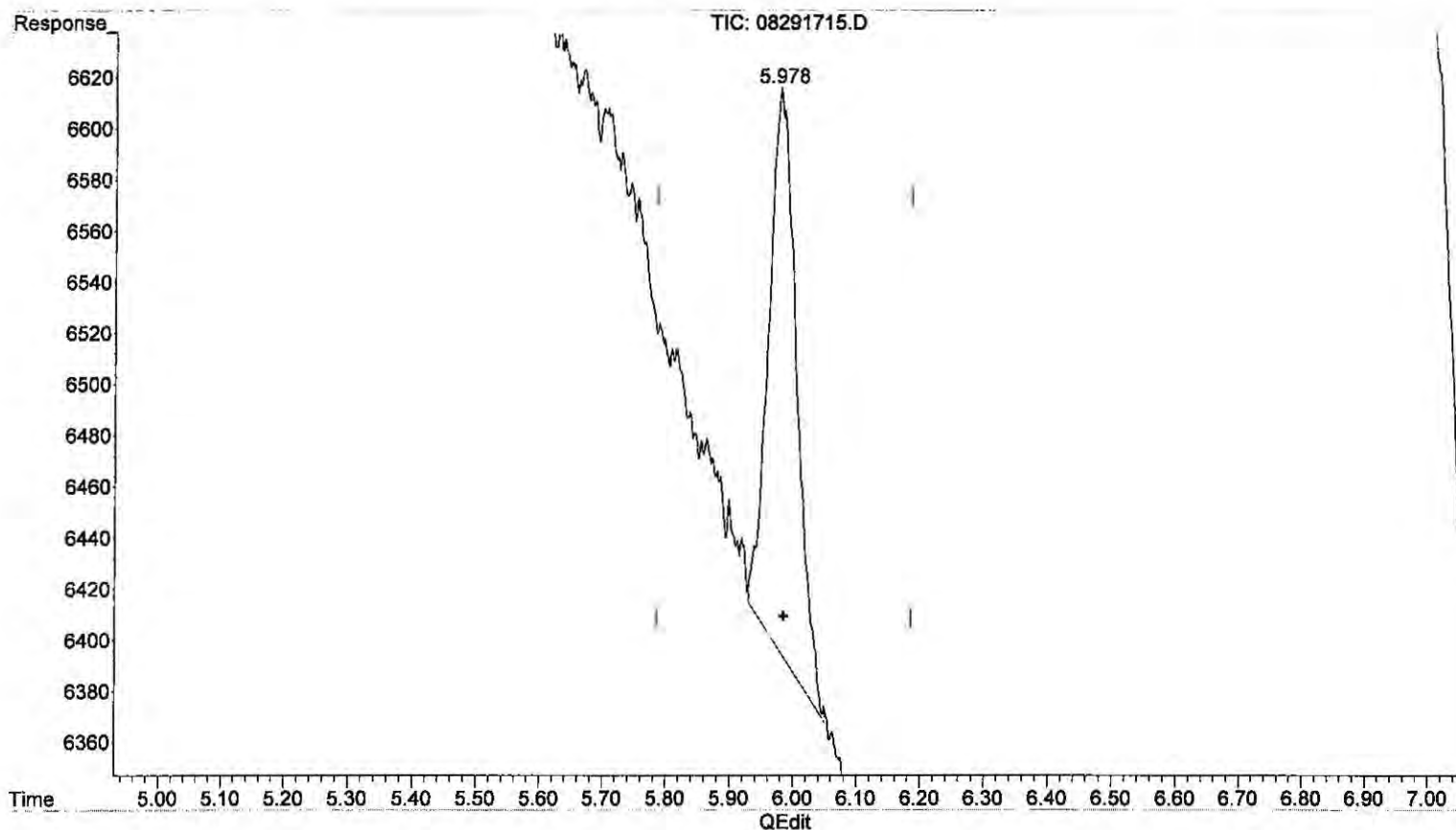
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.978min 27.870 ppm m

response 6794

MC
8/30/17
BL
M
ppm

MC
8/14/17

(+) = Expected Retention Time

RS082817_CO2.M Wed Aug 30 13:17:47 2017

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Page: 1



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
 Data File : 08291716.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 29-Aug-2017, 14:22
 Operator : MC
 Sample : 100ppm s32-08291702 0.2ml
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Aug 29 14:51:38 2017
 Quant Method : I:\GC10\METHODS\RS082817_CO2.M
 Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 QLast Update : Tue Aug 29 14:21:08 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.790	-598962	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm d
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	5.978	21932	87.858	ppm
6) Methane (FID)	0.000	0	N.D.	ppm d
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

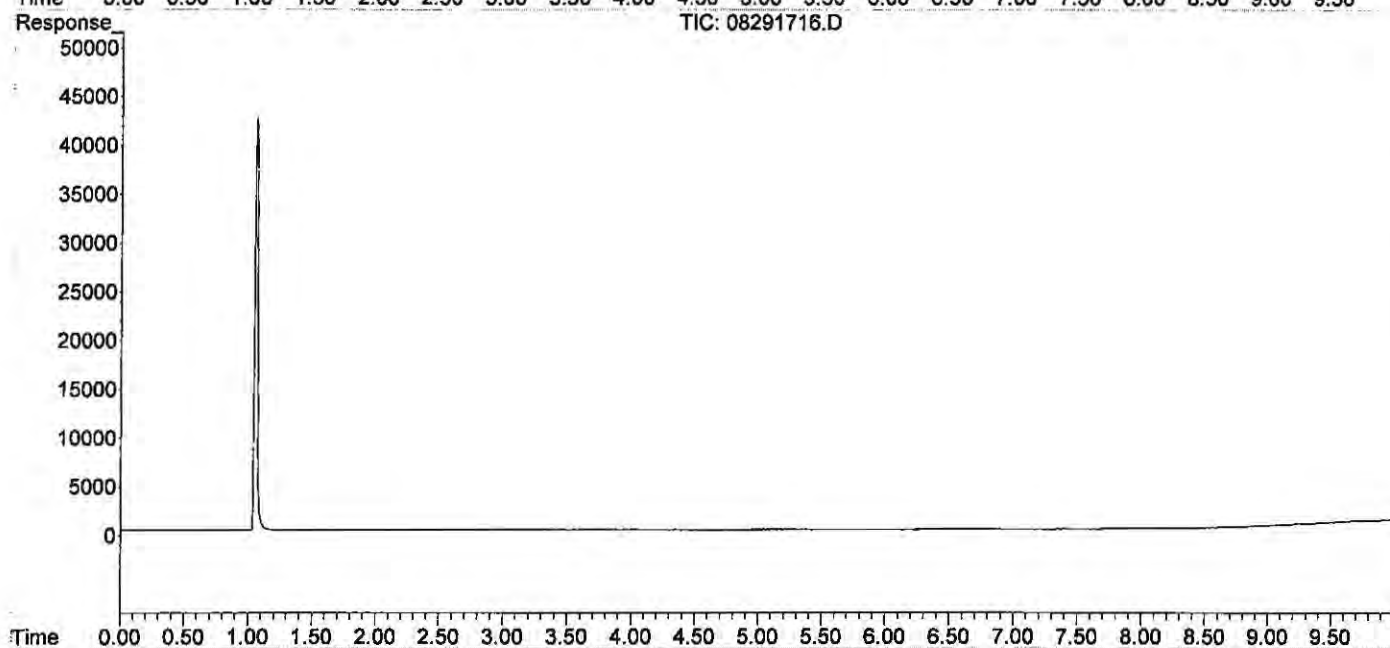
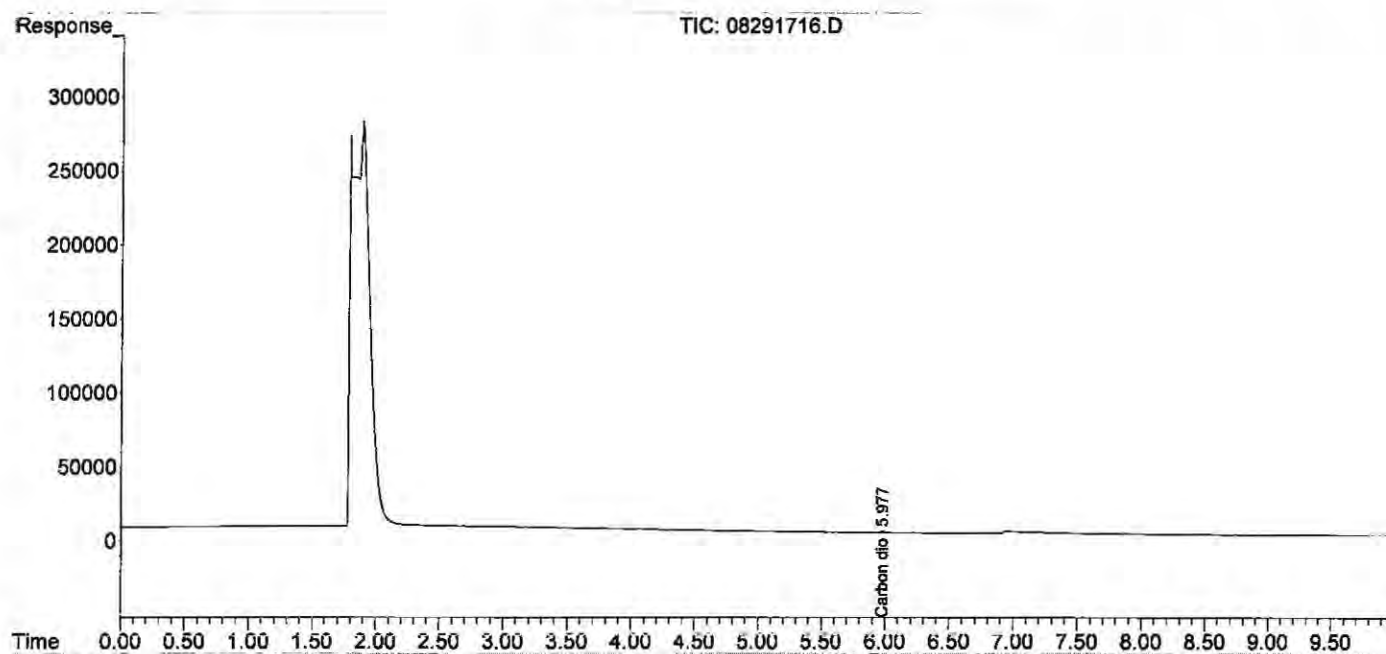
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
 Data File : 08291717.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 29-Aug-2017, 14:53
 Operator : MC
 Sample : 250ppm s32-08291702 0.5ml
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Aug 29 15:03:42 2017
 Quant Method : I:\GC10\METHODS\RS082817_CO2.M
 Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 QLast Update : Tue Aug 29 14:52:06 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.920f	-30716454	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm d
3) Methane (TCD)	0.000	0	N.D.	ppm d
4) Carbon dioxide	5.970	58461	240.204	ppm m
6) Methane (FID)	0.000	0	N.D.	ppm d
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

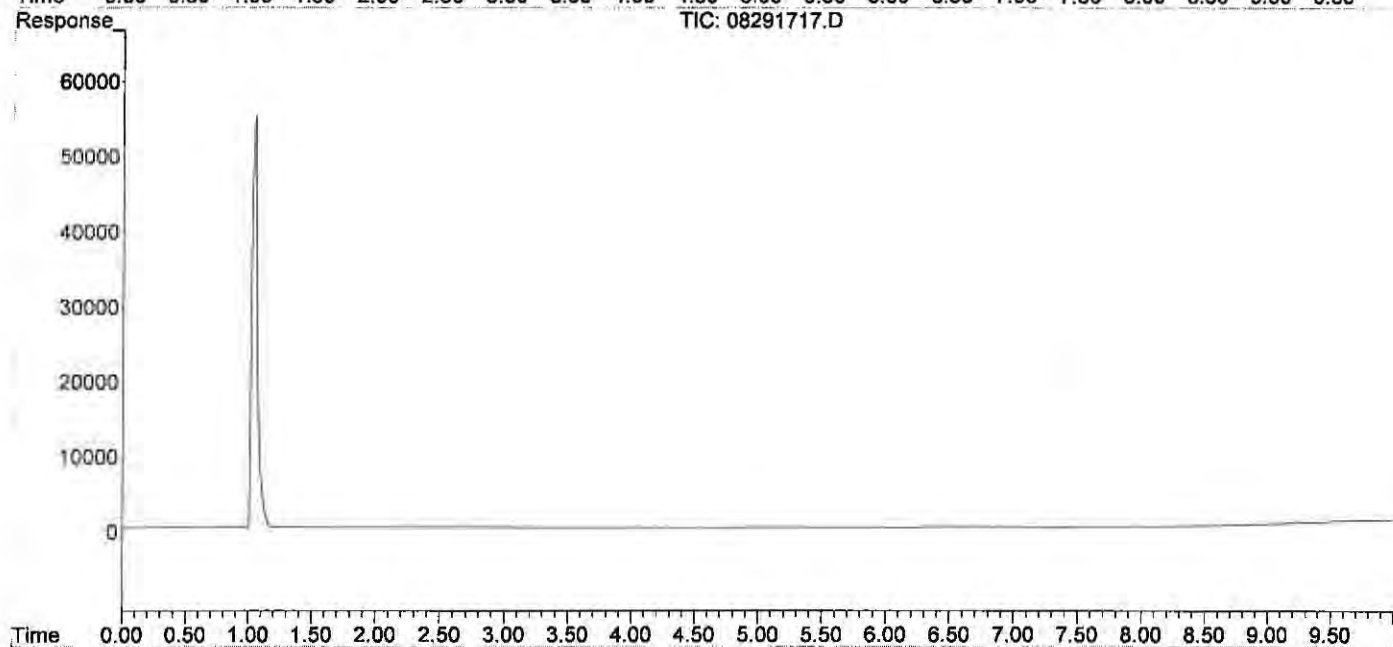
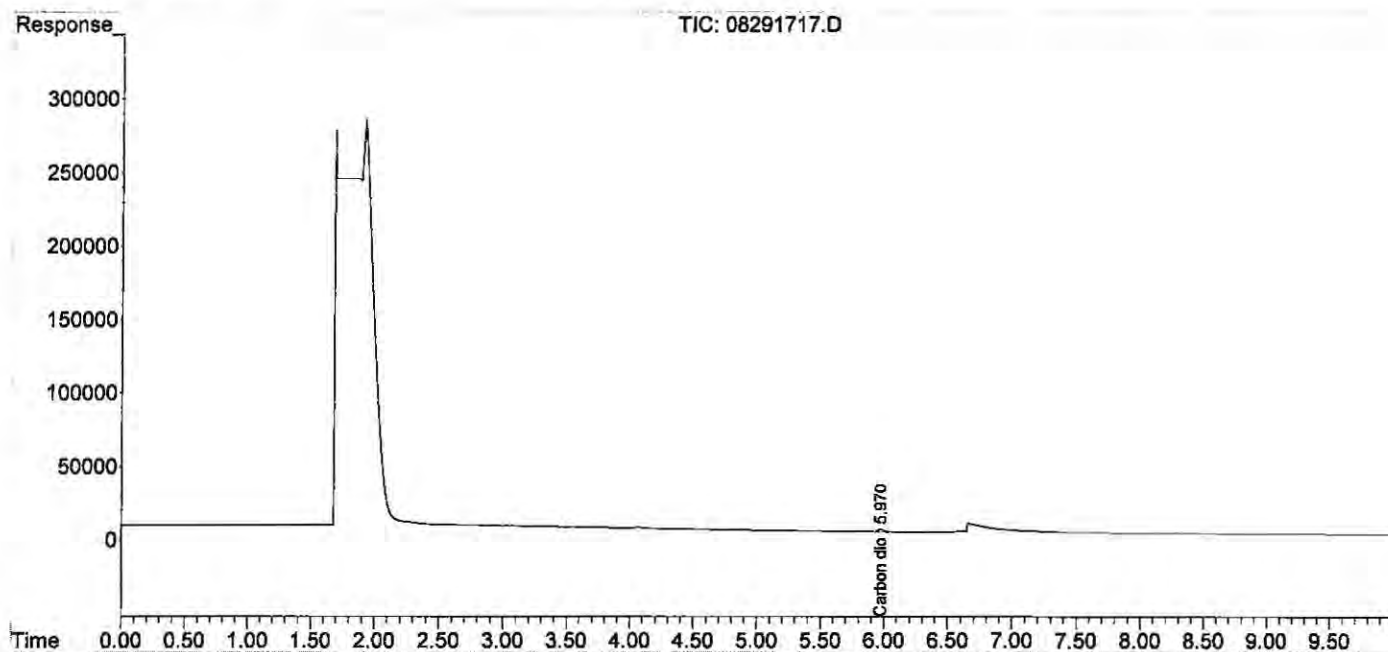
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

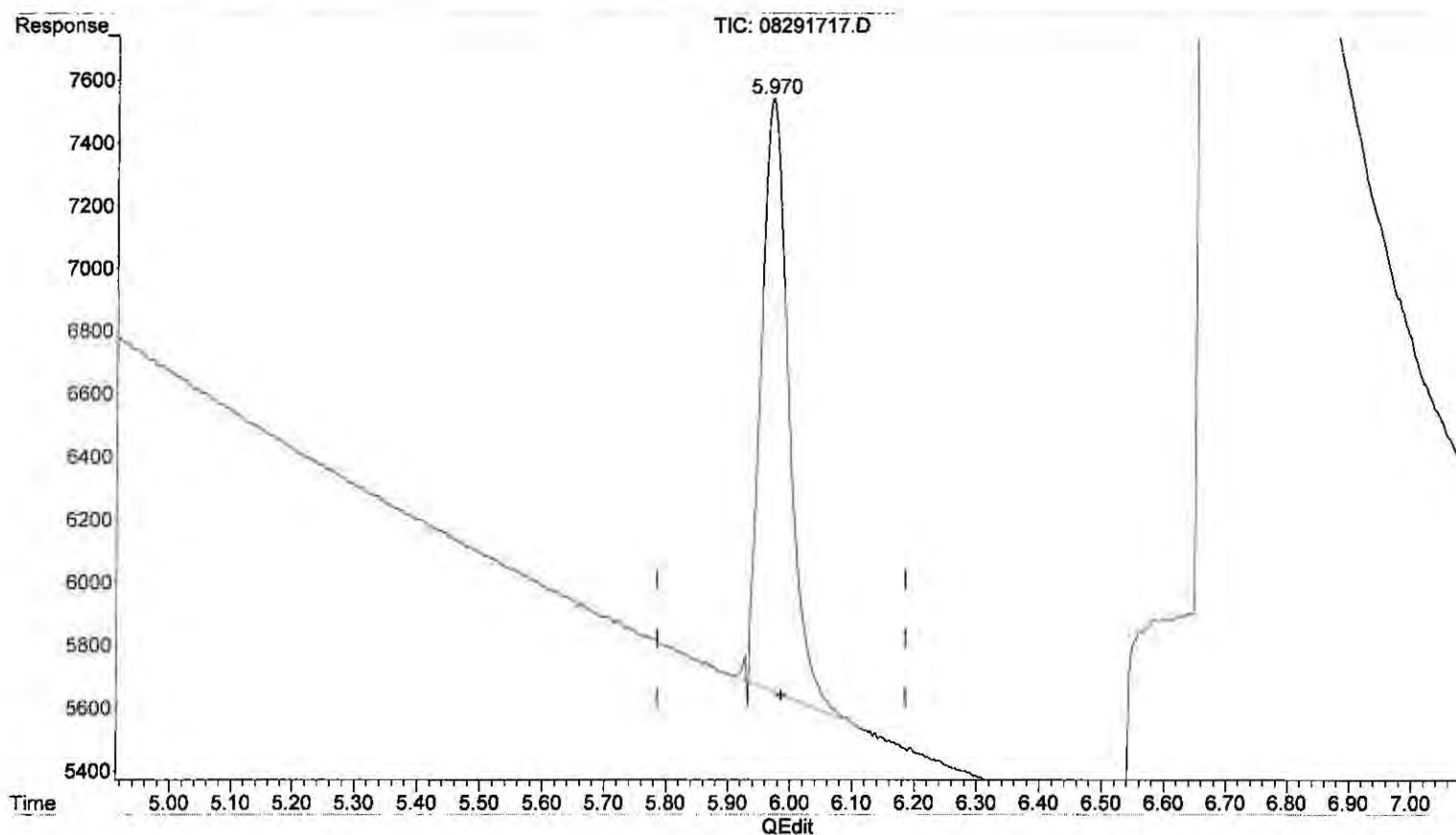
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.970min 240.204 ppm m

response 58461

MC
8/1/17
PL
N
PREVIEW



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm d
2) Carbon monoxide	1.891	425113	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm d
4) Carbon dioxide	5.962	568043	2369.673	ppm
6) Methane (FID)	0.000	0	N.D.	ppm d
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

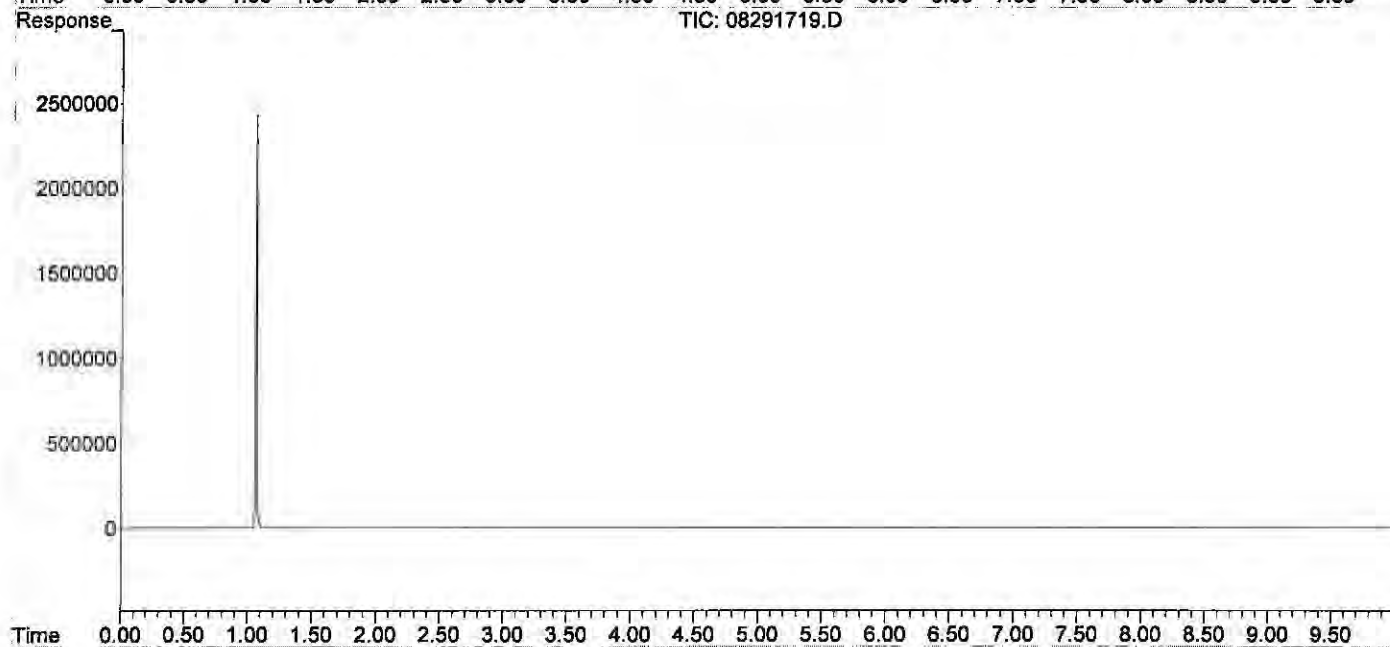
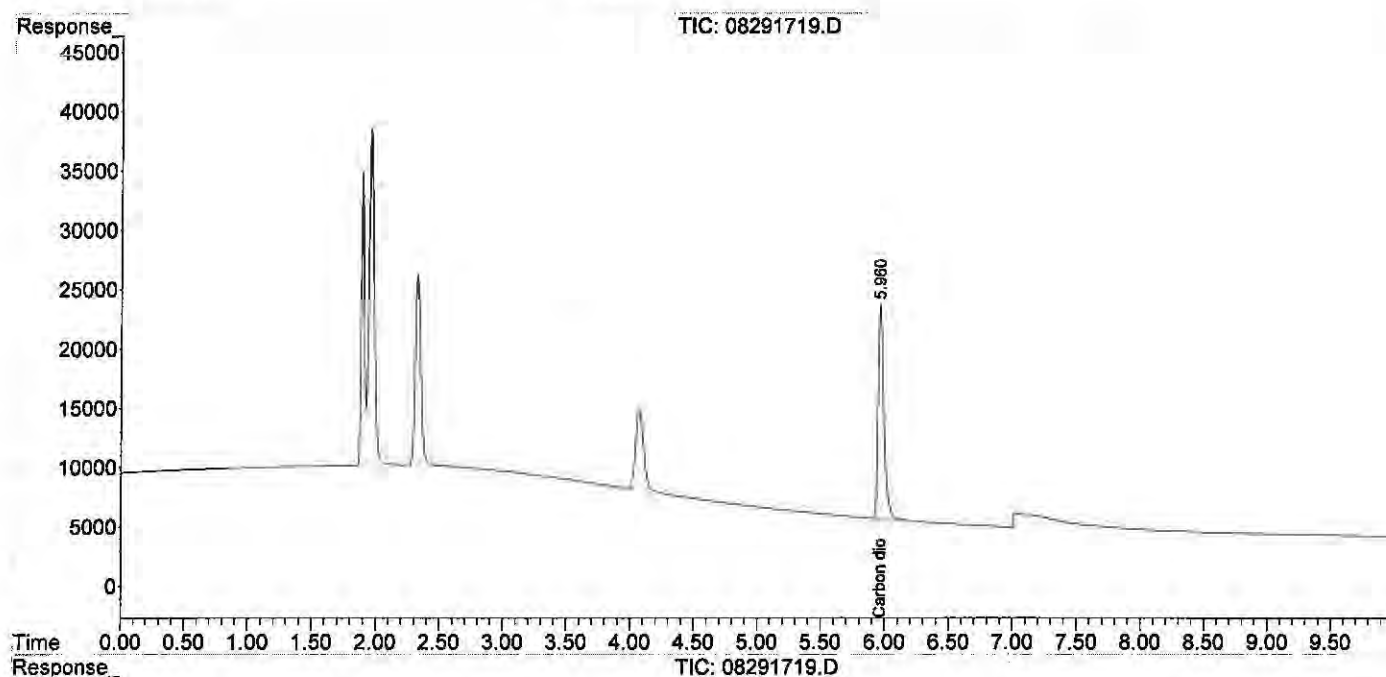
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm d
2) Carbon monoxide	1.880	819221	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm d
4) Carbon dioxide	5.948	1132363	4753.126	ppm
6) Methane (FID)	0.000	0	N.D.	ppm d
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

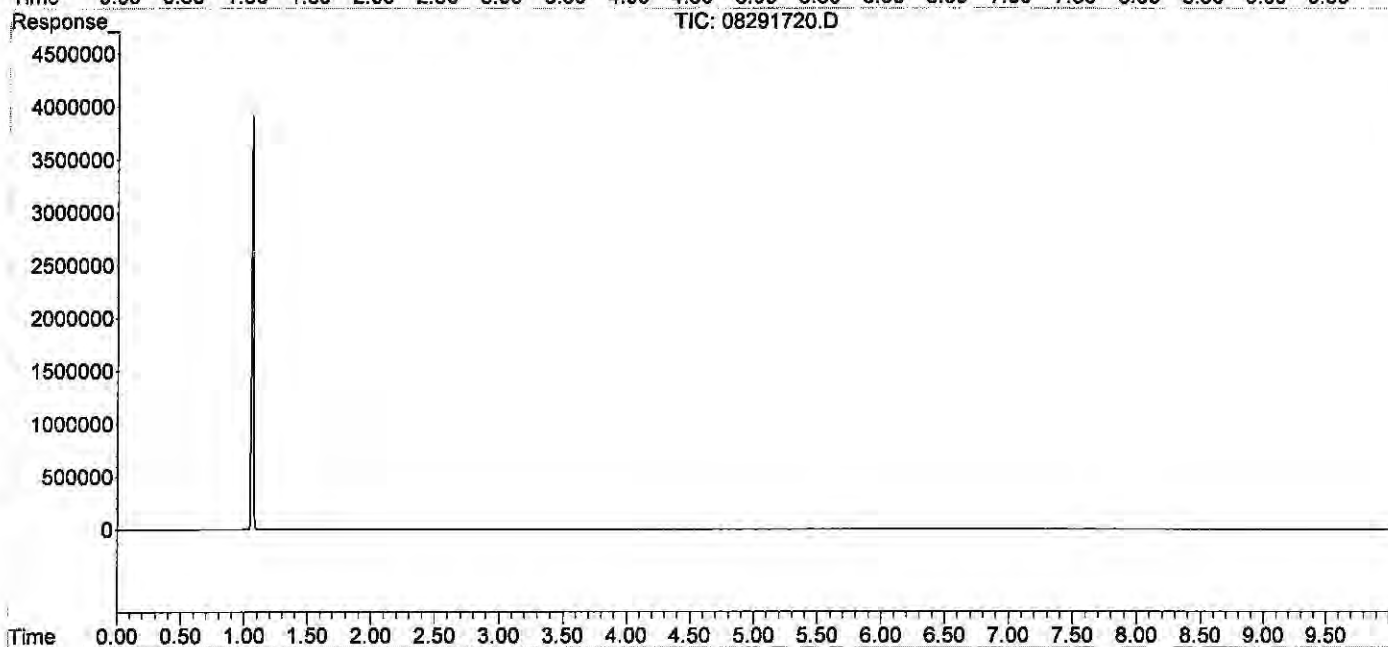
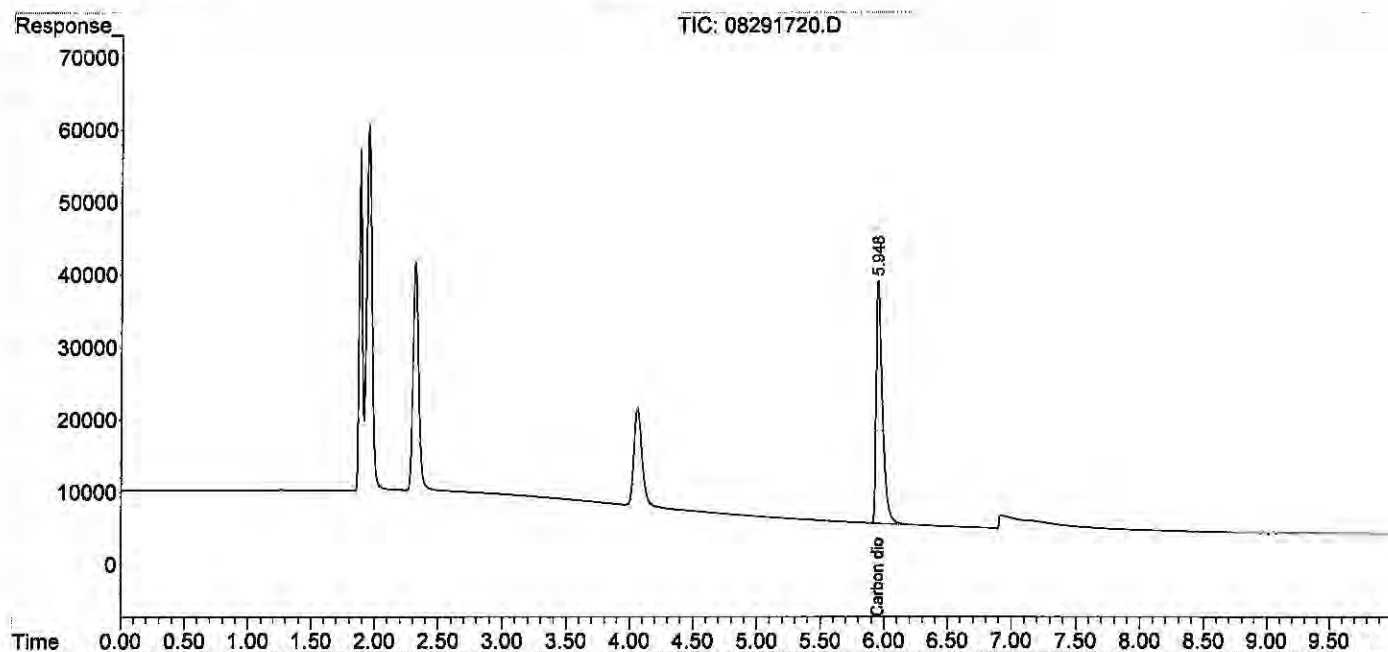
(m)=manual int.



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm d
2) Carbon monoxide	1.827	3325463	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm d
4) Carbon dioxide	5.879f	5744295	24443.288	ppm
6) Methane (FID)	0.000	0	N.D.	ppm d
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

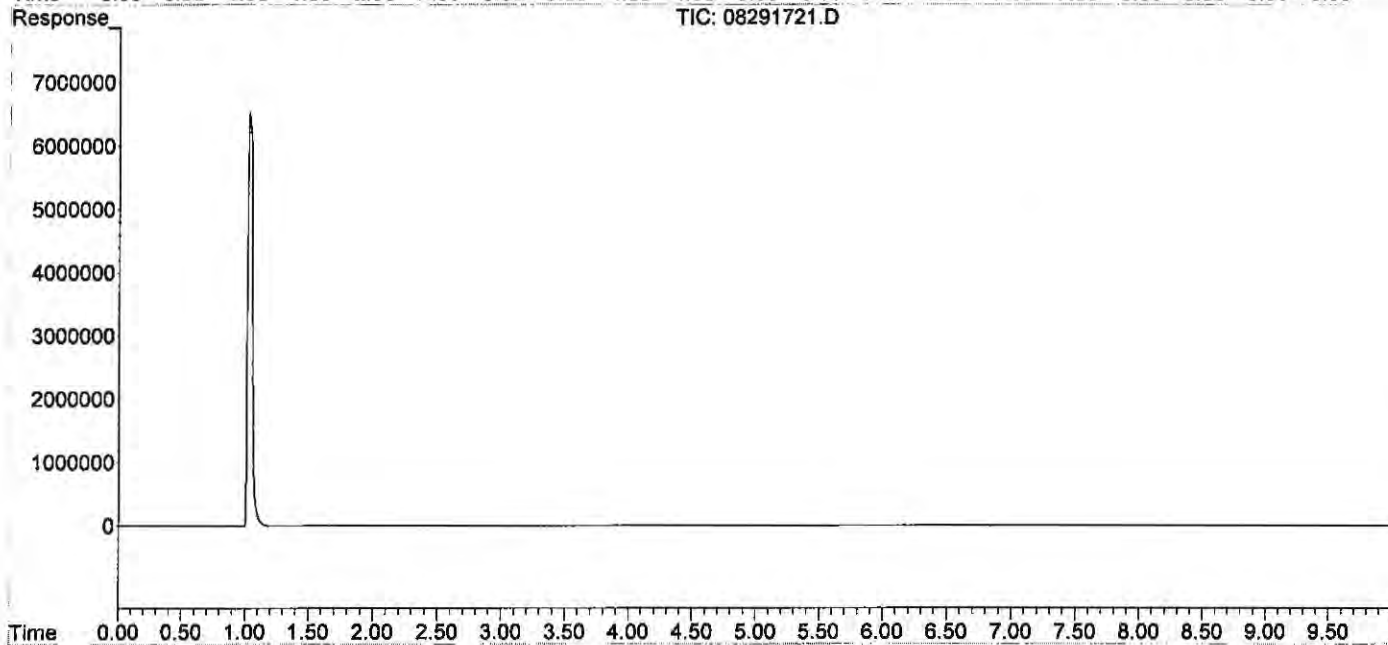
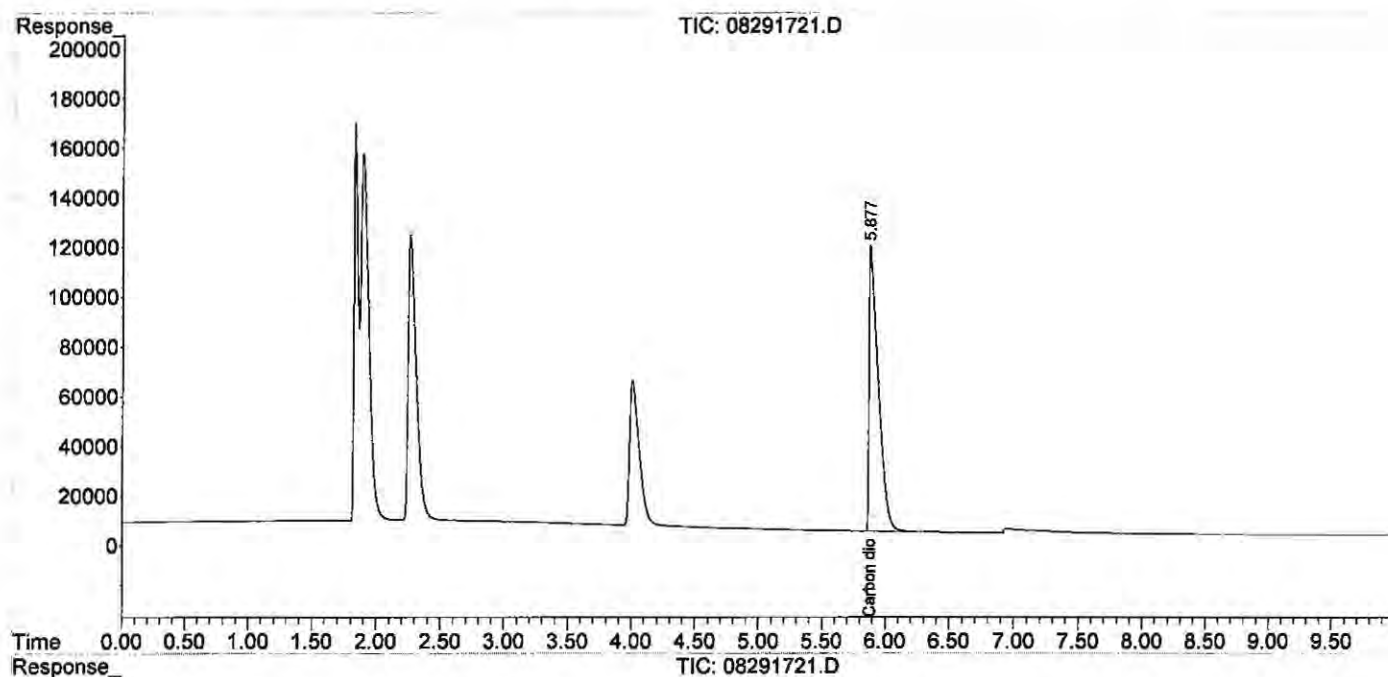
(m)=manual int.



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
 Data File : 08291723.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 29-Aug-2017, 16:35
 Operator : MC
 Sample : icv s30-07071701
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Aug 29 16:54:07 2017
 Quant Method : I:\GC10\METHODS\RS082817_CO2.M
 Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
 QLast Update : Tue Aug 29 16:13:13 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units		

Target Compounds					
1) Oxygen/Argon	1.886	536422	0.113 ppm	Actual	%D
2) Carbon monoxide	1.886	536422	N.D. ppm		
3) Methane (TCD)	4.059f	626500	66244.710 ppm	5000	99.16
4) Carbon dioxide	5.947	1163775	4957.948 ppm		
6) Methane (FID)	1.062	37290742	3947.023 ppm		
7) Ethylene	0.000	0	N.D. ppm		
8) Ethane	0.000	0	N.D. ppm		
9) Propylene	0.000	0	N.D. ppm		
10) Propane	0.000	0	N.D. ppm		
11) Isobutylene	0.000	0	N.D. ppm		
12) Isobutane	0.000	0	N.D. ppm		
13) n-Butane	0.000	0	N.D. ppm		

(f)=RT Delta > 1/2 Window

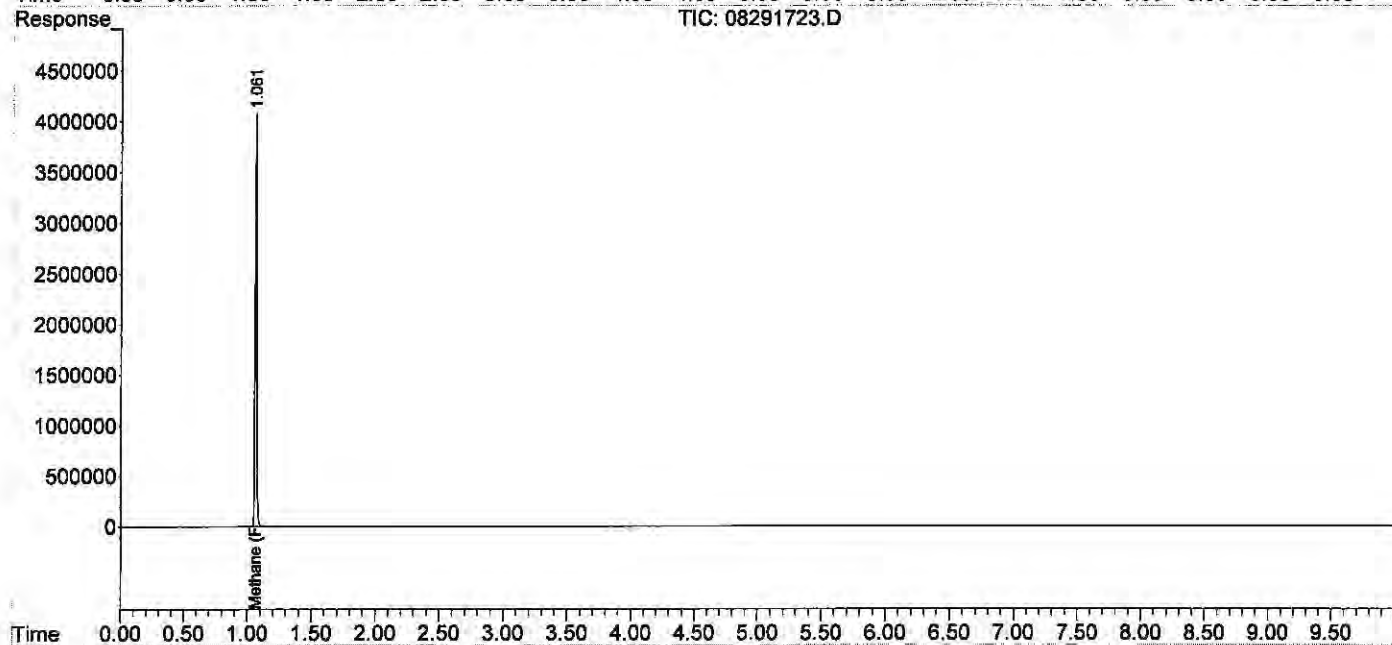
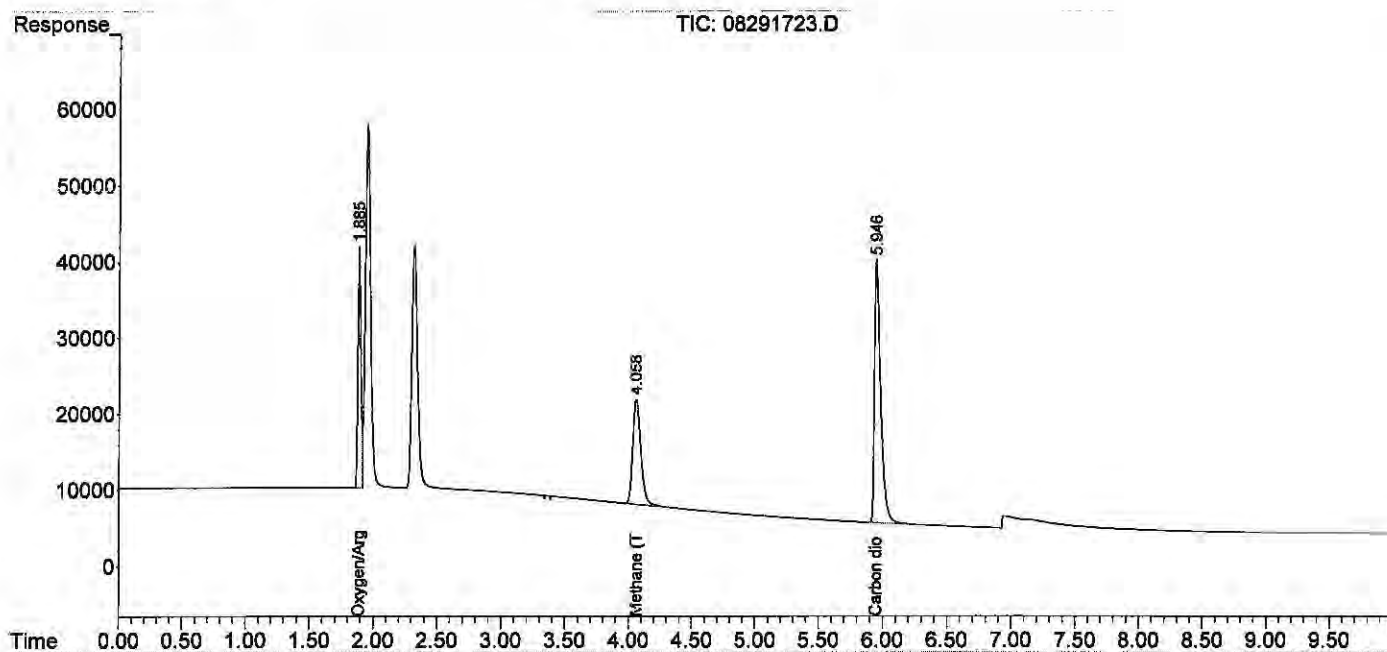
(m)=manual int.

W 9/4/17

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



**ALS Environmental**

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group Analyst : WH/LD
Service Request: P1907202 Date Analysis : 11/27/19
Sample Vol. (ml) : 32.00 ml Head Space Vol.(ml) : 8.00 ml

Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

<u>Sample ID</u>	<u>Inj. Vol.</u>
STD S32-10291901	0.100
ACTUAL	
%Difference	
MCS 0.1 ml	0.100
RB 0.1ml	0.100
LCS S32-08141901	0.100
LCSD S32-08141901	0.100
P1907202-001 0.1ml	0.100
P1907202-002 0.1ml	0.100
P1907202-003 0.1ml	0.100
P1907202-004 0.1ml	0.100

Carbon
Dioxide

4982.595

5000.00

0.3%

0.000

0.000

808.132

810.090

4604.482

3973.458

630.147

4575.339

WWt.

HENRY'S CONSTANT

RL

MCS 0.1 ml

LCS S32-08141901

LCSD S32-08141901

P1907202-001 0.1ml

P1907202-002 0.1ml

P1907202-003 0.1ml

P1907202-004 0.1ml

FINAL HEAD SPACE RESULT (ppm)

Carbon
Dioxide

44.10

1.42E+03

100.00

0.000

8081.320

8100.900

46044.820

39734.580

6301.470

45753.390

LD
12/2

STD S32-10291901
ACTUAL
%Difference

4814.557
5000.00
3.7%

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 08:49:18
Operator : WH/LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 08:00:24 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

L0
12/02

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.909f	607099	0.128 ppm
2) Carbon monoxide	1.909f	607099	N.D. ppm
3) Methane (TCD)	4.089f	625766	66167.171 ppm
4) Carbon dioxide	5.967	1169560	4982.595 ppm m
6) Methane (FID)	0.000	0	N.D. ppm
7) Ethylene	0.000	0	N.D. ppm
8) Ethane	0.000	0	N.D. ppm
9) Propylene	0.000	0	N.D. ppm
10) Propane	0.000	0	N.D. ppm
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	0.000	0	N.D. ppm
13) n-Butane	0.000	0	N.D. ppm

(f)=RT Delta > 1/2 Window

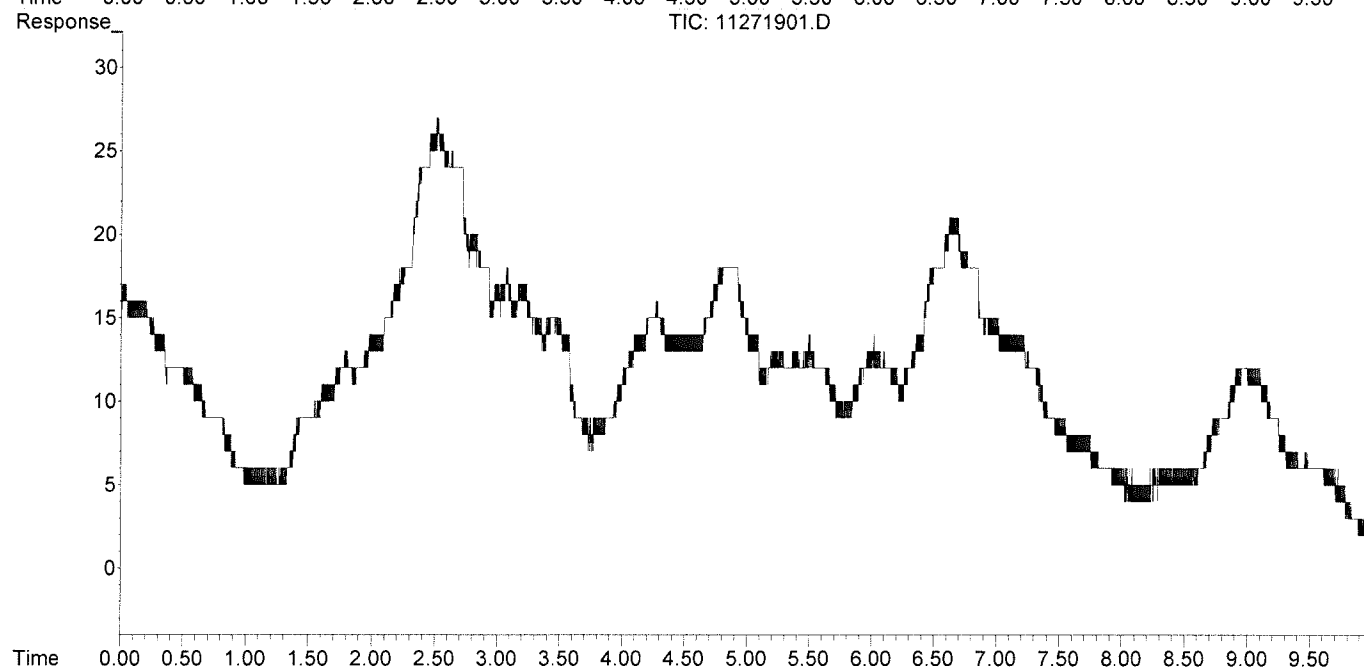
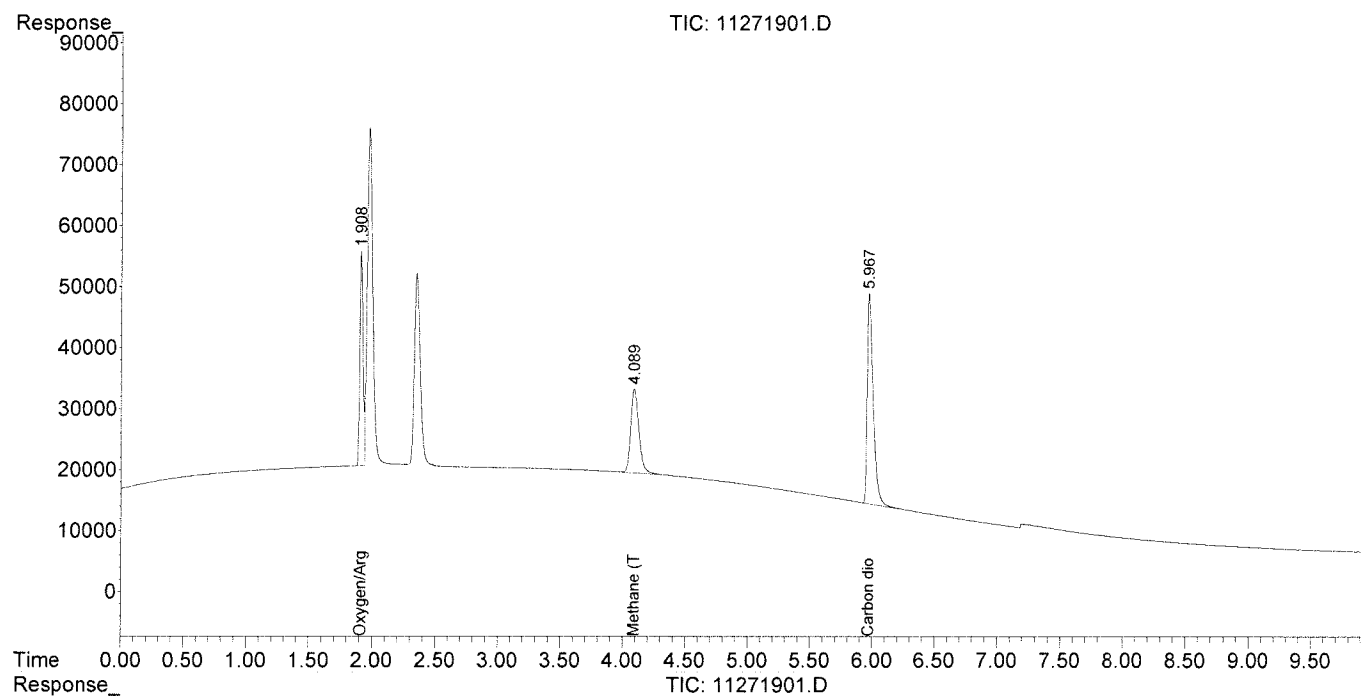
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 08:49:18
Operator : WH/LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 08:00:24 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

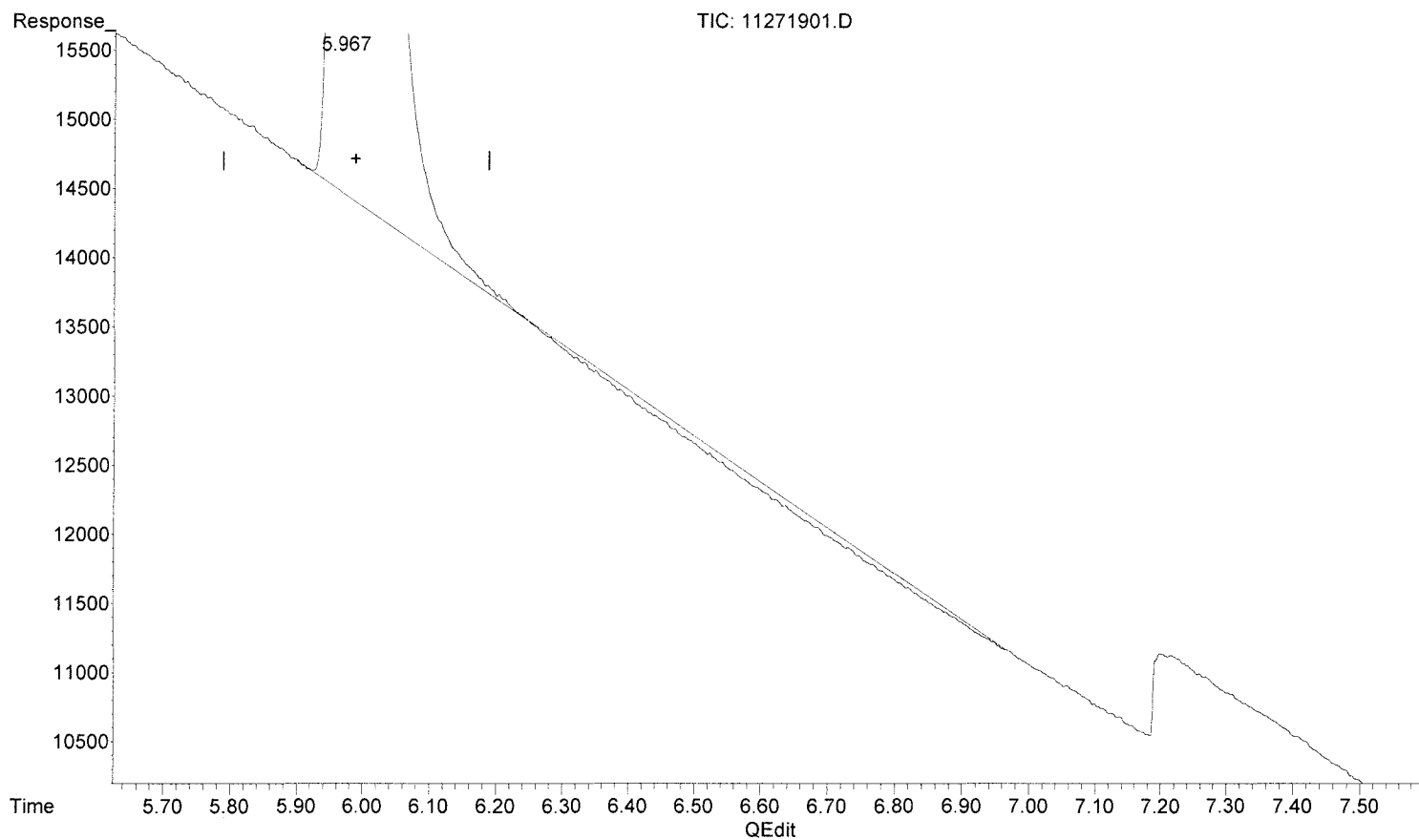
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 08:49:18
Operator : WH/LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 08:00:24 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide
5.969min 4902.979 ppm
response 1150872

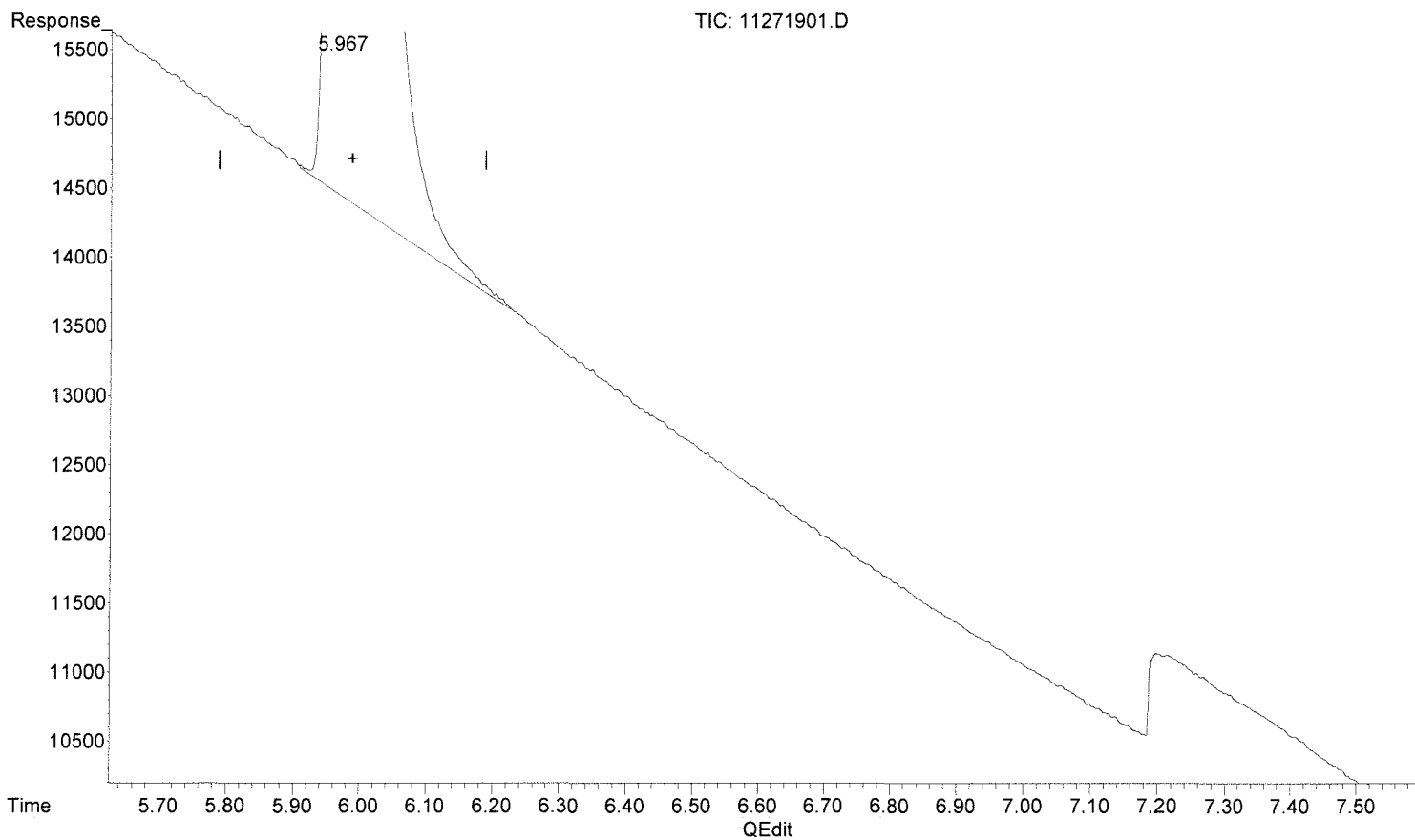


Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 08:49:18
Operator : WH/LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 08:00:24 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

LD
BLL
12/02

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.967min 4982.595 ppm m

response 1169560

LD
12/2/19



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 15:38:46
Operator : WH/LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 09:25:55 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.890	595945	0.125 ppm
2) Carbon monoxide	1.890	595945	N.D. ppm
3) Methane (TCD)	4.070f	627465	66346.818 ppm
4) Carbon dioxide	5.954	1130117	4814.557 ppm m
6) Methane (FID)	0.000	0	N.D. ppm
7) Ethylene	0.000	0	N.D. ppm
8) Ethane	0.000	0	N.D. ppm
9) Propylene	0.000	0	N.D. ppm
10) Propane	0.000	0	N.D. ppm
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	0.000	0	N.D. ppm
13) n-Butane	0.000	0	N.D. ppm

(f)=RT Delta > 1/2 Window

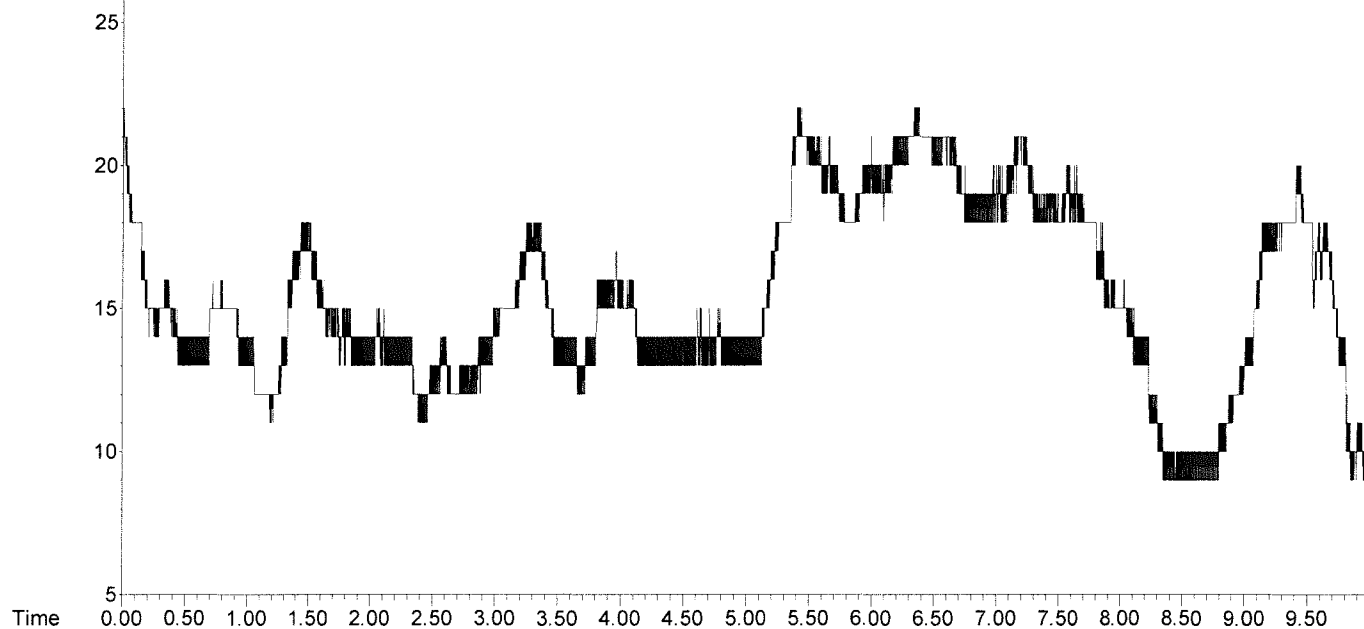
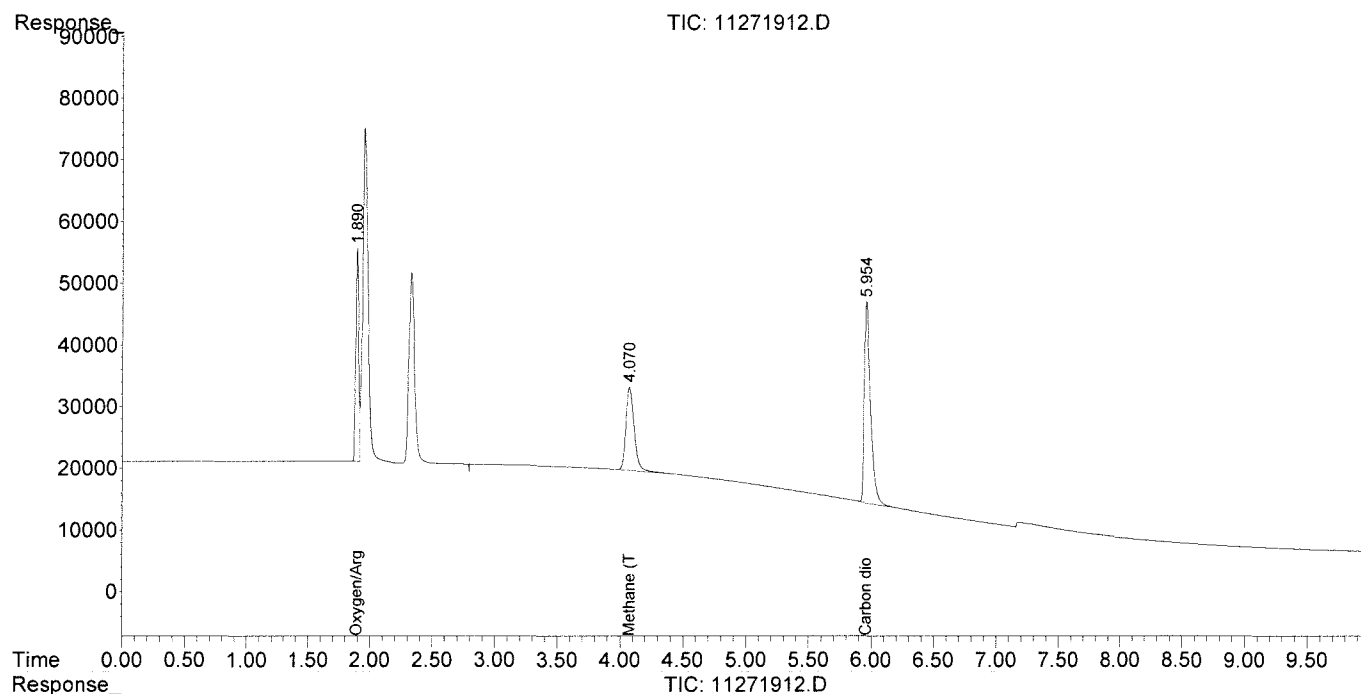
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 15:38:46
Operator : WH/LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 09:25:55 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

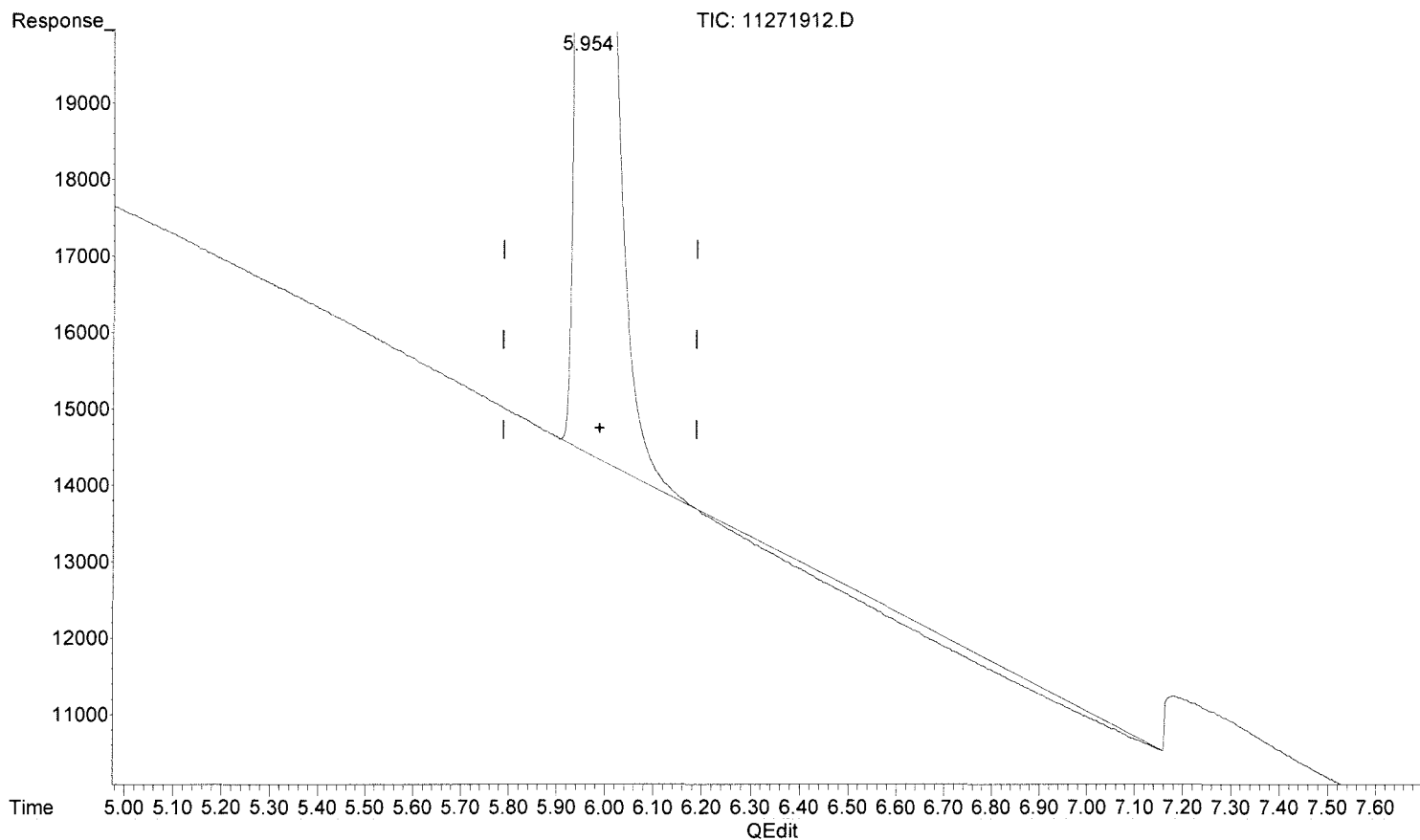
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 15:38:46
Operator : WH/LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 09:25:55 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



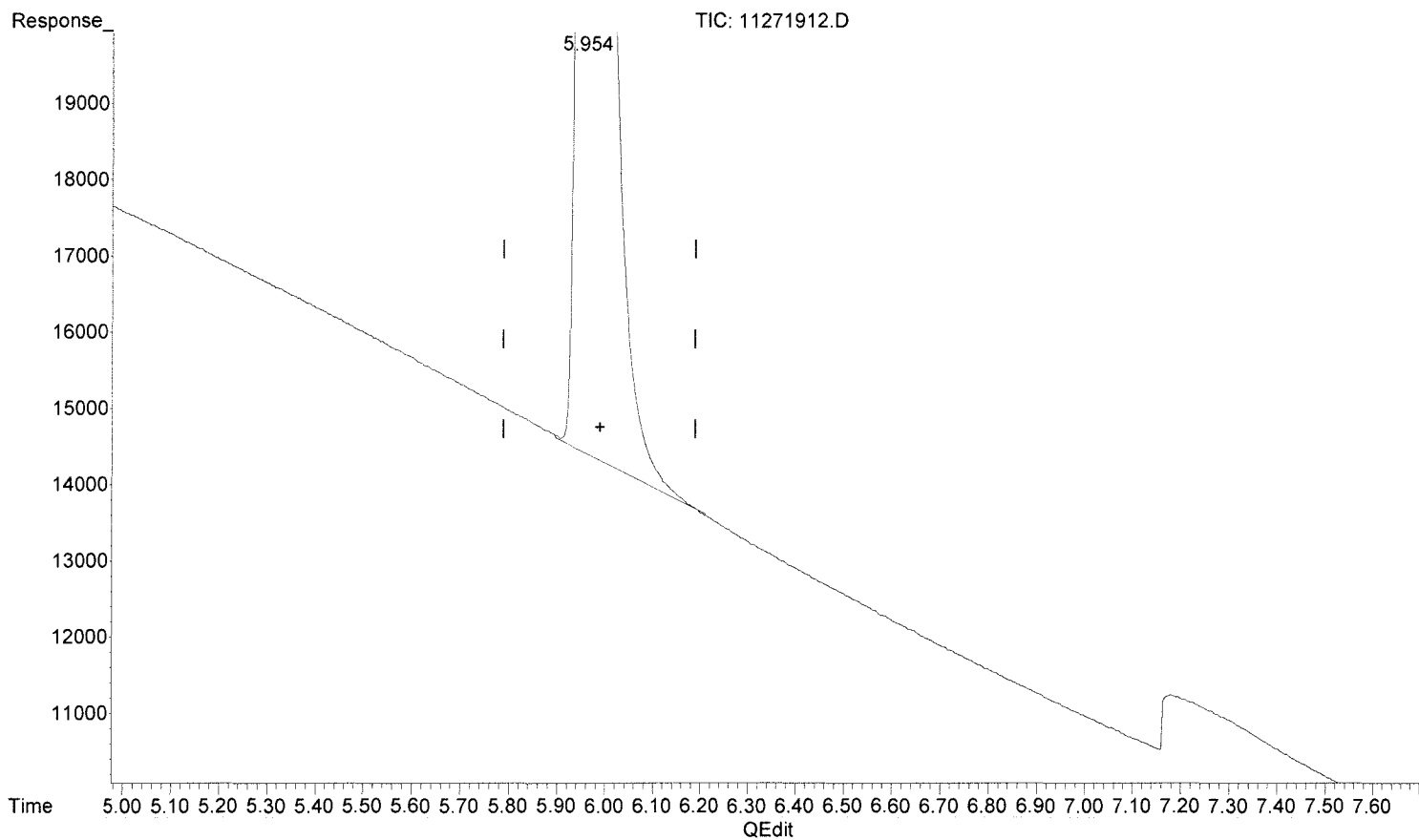
(4) Carbon dioxide
5.956min 4583.021 ppm
response 1075769



Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 15:38:46
Operator : WH/LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 09:25:55 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.954min 4814.557 ppm m

response 1130117

12/2/19

[illegible]

[illegible]

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:31:15
Operator : LD
Sample : P1907202-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 10:45:07 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.119	2265	0.250	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

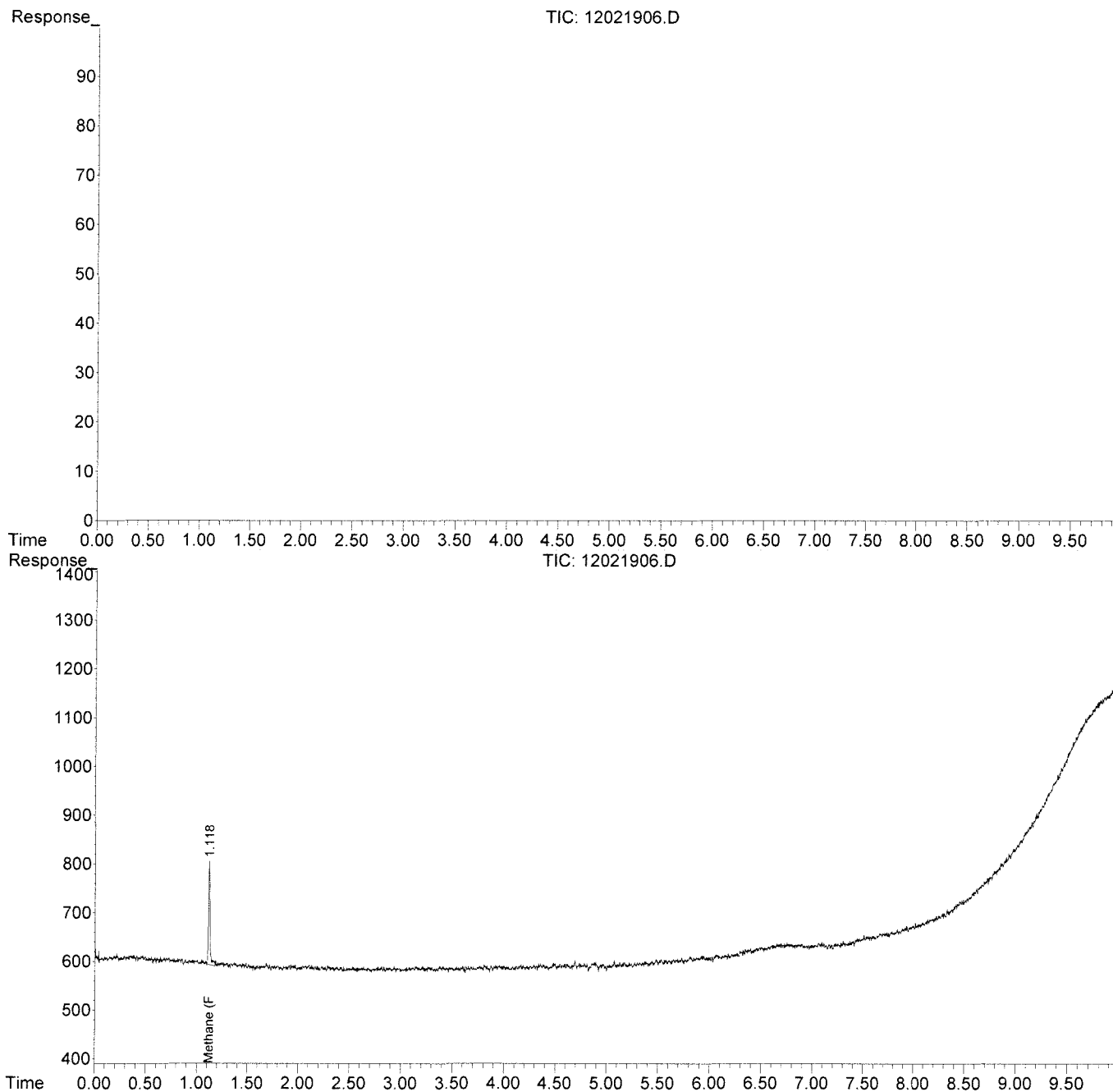
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:31:15
Operator : LD
Sample : P1907202-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 10:45:07 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
 Data File : 12021907.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 02-Dec-2019, 10:44:22
 Operator : LD
 Sample : P1907202-002 0.1ml
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Dec 02 12:33:52 2019
 Quant Method : I:\GC10\METHODS\RS091217_R.M
 Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 QLast Update : Wed Sep 13 11:14:47 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.123	2085	0.230	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

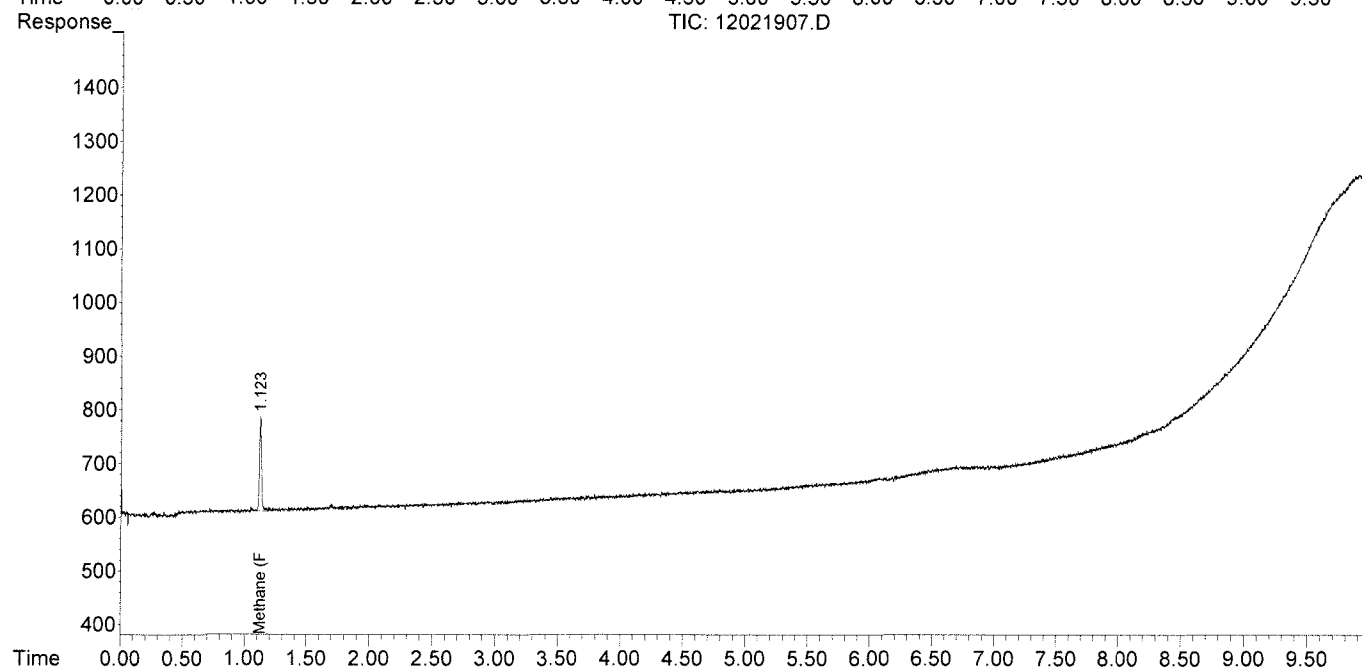
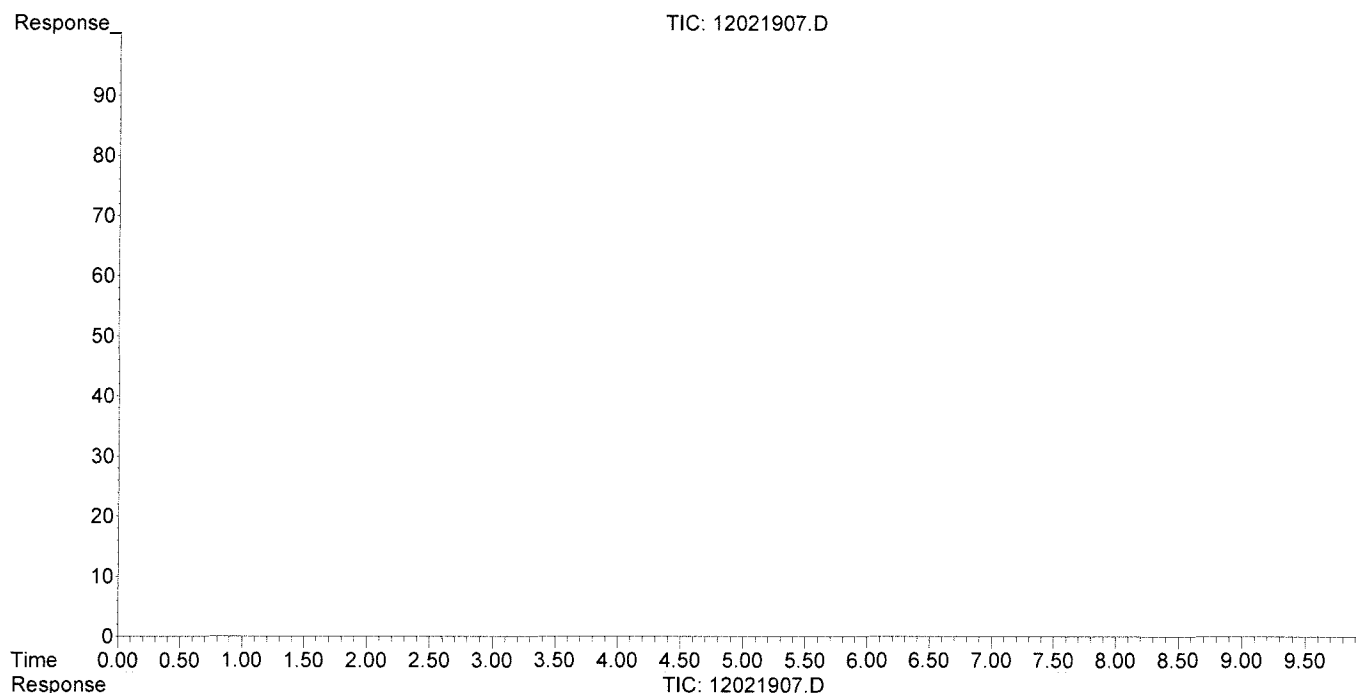
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:44:22
Operator : LD
Sample : P1907202-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 12:33:52 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:57:09
Operator : LD
Sample : P1907202-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 12:34:06 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	0.000	0	N.D.	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

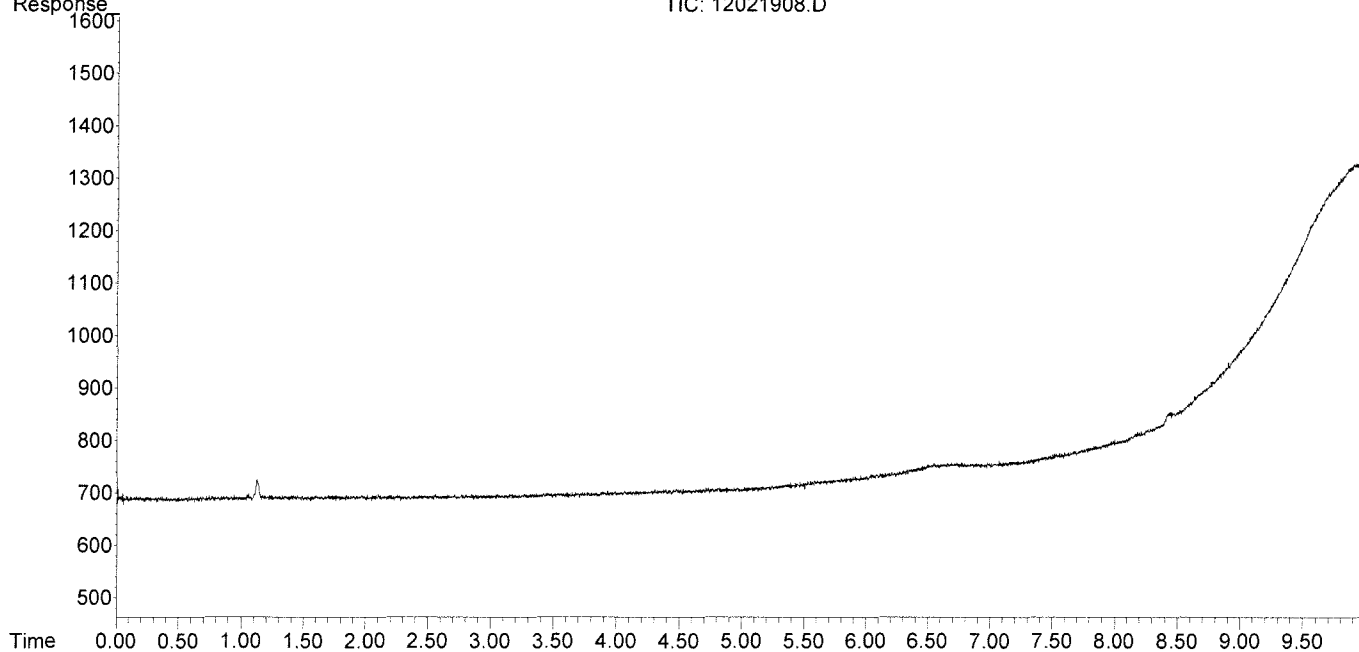
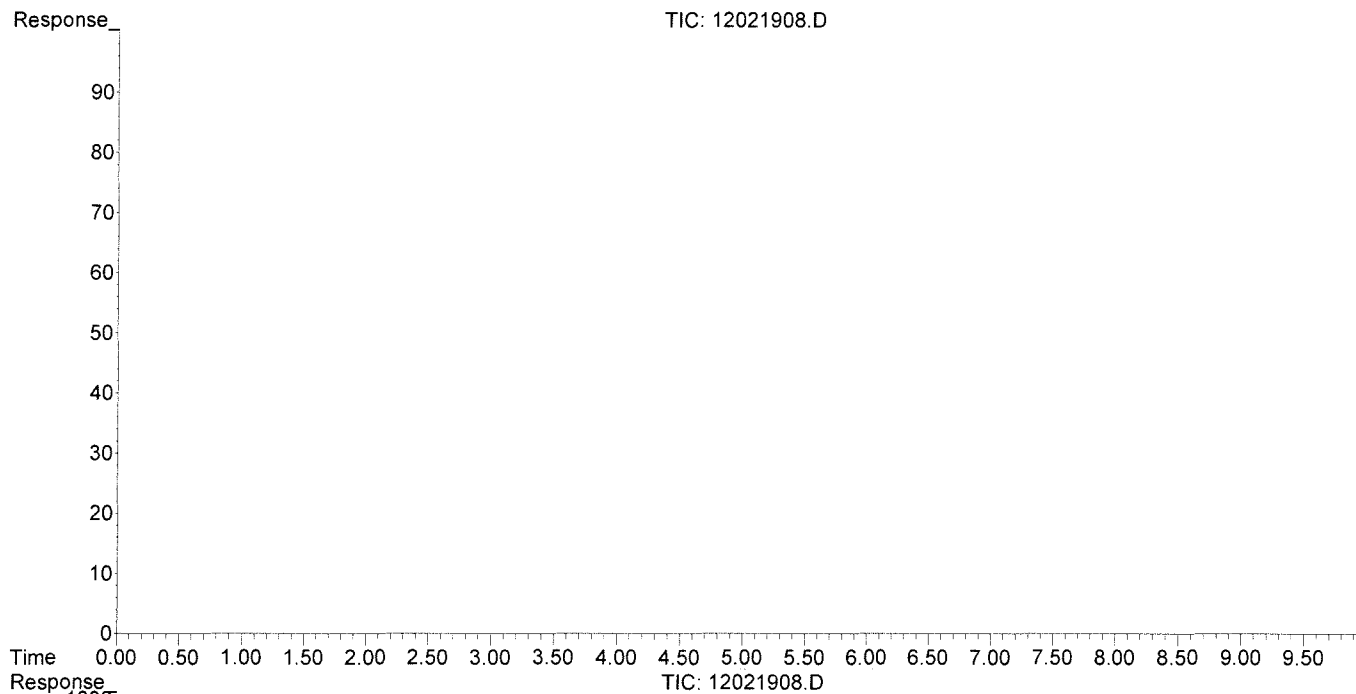
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:57:09
Operator : LD
Sample : P1907202-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 12:34:06 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 11:10:11
Operator : LD
Sample : P1907202-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 12:34:17 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	0.000	0	N.D.	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

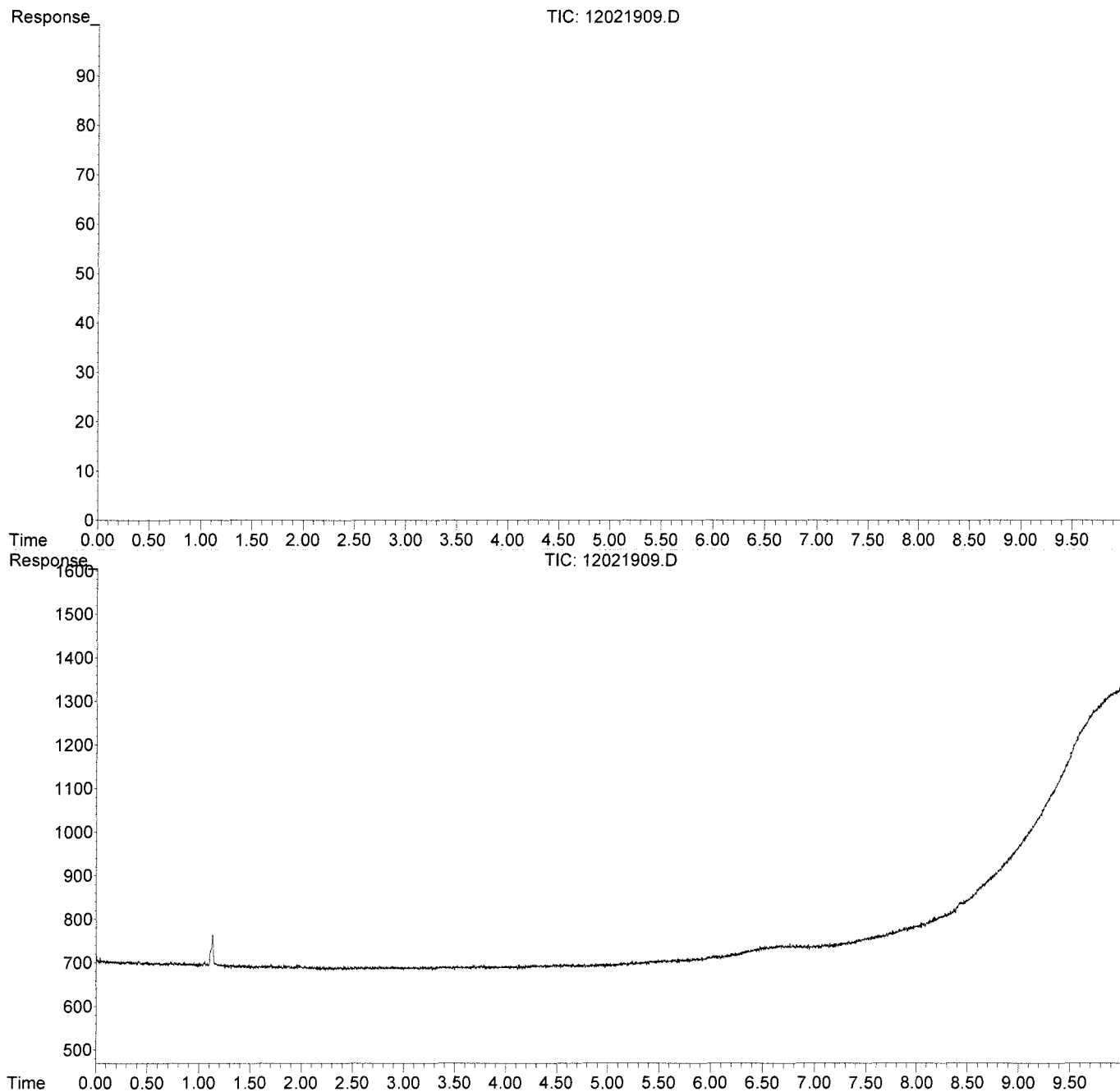
(m)=manual int.



Data Path : J:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 11:10:11
Operator : LD
Sample : P1907202-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 12:34:17 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 09:41:59
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 10:03:29 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	0.000	0	N.D.	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

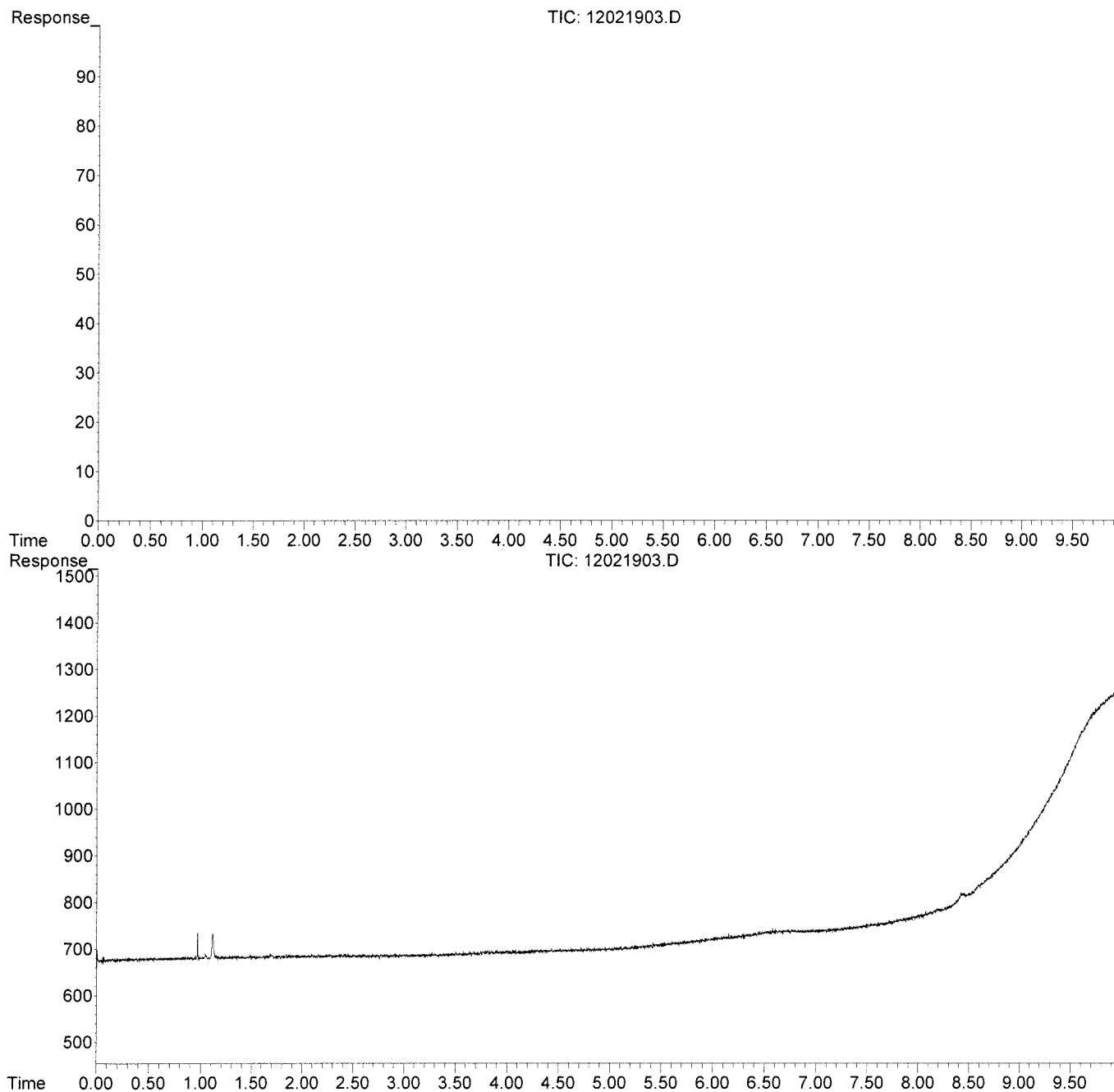
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 09:41:59
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 10:03:29 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:00:43
Operator : LD
Sample : LCS FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 10:22:45 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.120	12401	1.367	ppm
7) Ethylene	1.698	16693	0.998	ppm
8) Ethane	1.967	19954	1.177	ppm
9) Propylene	4.346	21985	0.938	ppm
10) Propane	4.468	30317	1.219	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	6.668	39797	1.495	ppm
13) n-Butane	6.668	39797	1.495	ppm

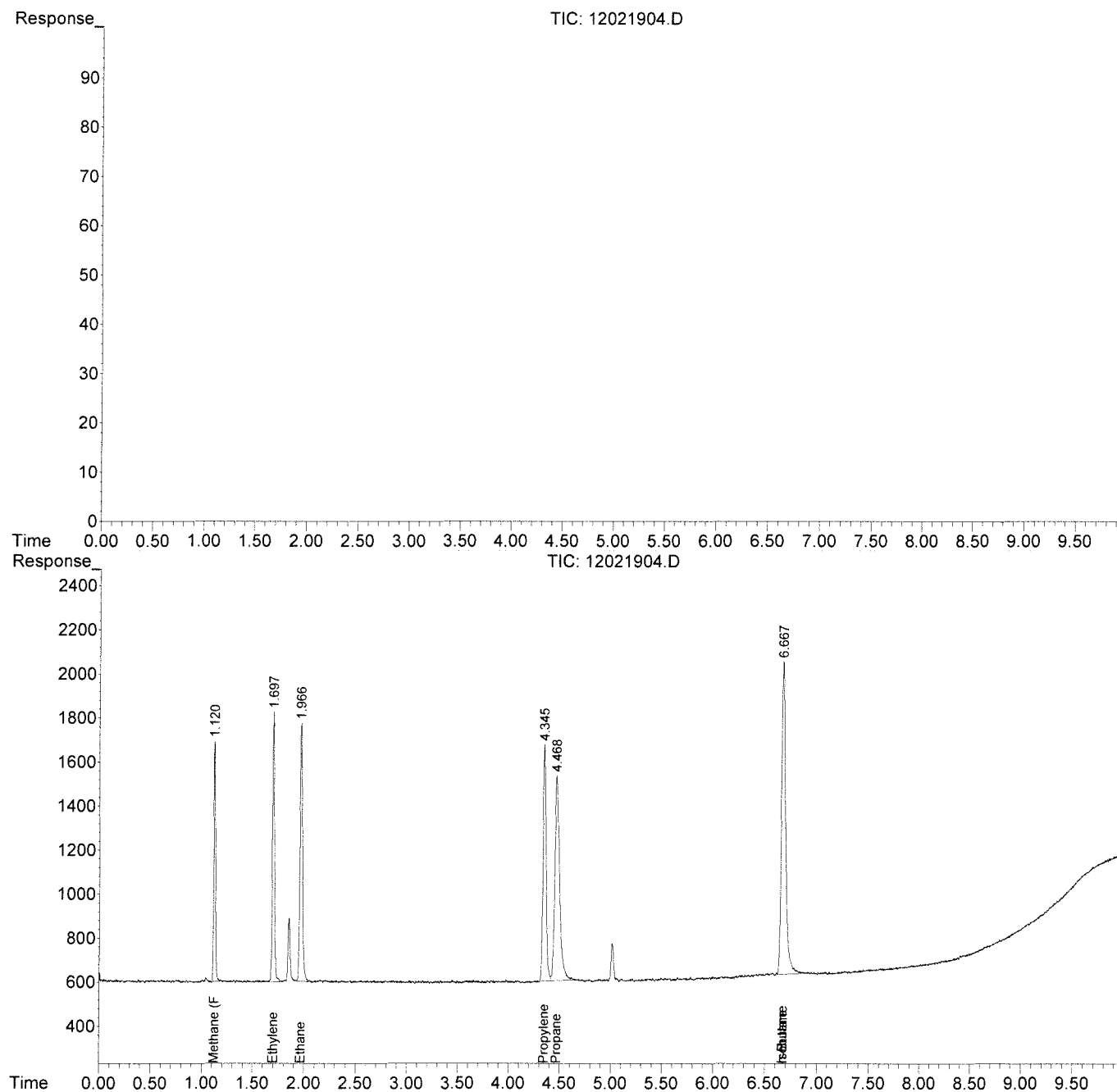
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:00:43
Operator : LD
Sample : LCS FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 10:22:45 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:18:13
Operator : LD
Sample : LCSD FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 10:29:07 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.123	12055	1.329	ppm
7) Ethylene	1.701	15721	0.939	ppm
8) Ethane	1.970	18973	1.119	ppm
9) Propylene	4.349	21011	0.897	ppm
10) Propane	4.471	29359	1.180	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	6.669	37908	1.424	ppm
13) n-Butane	6.669	37908	1.424	ppm

(f)=RT Delta > 1/2 Window

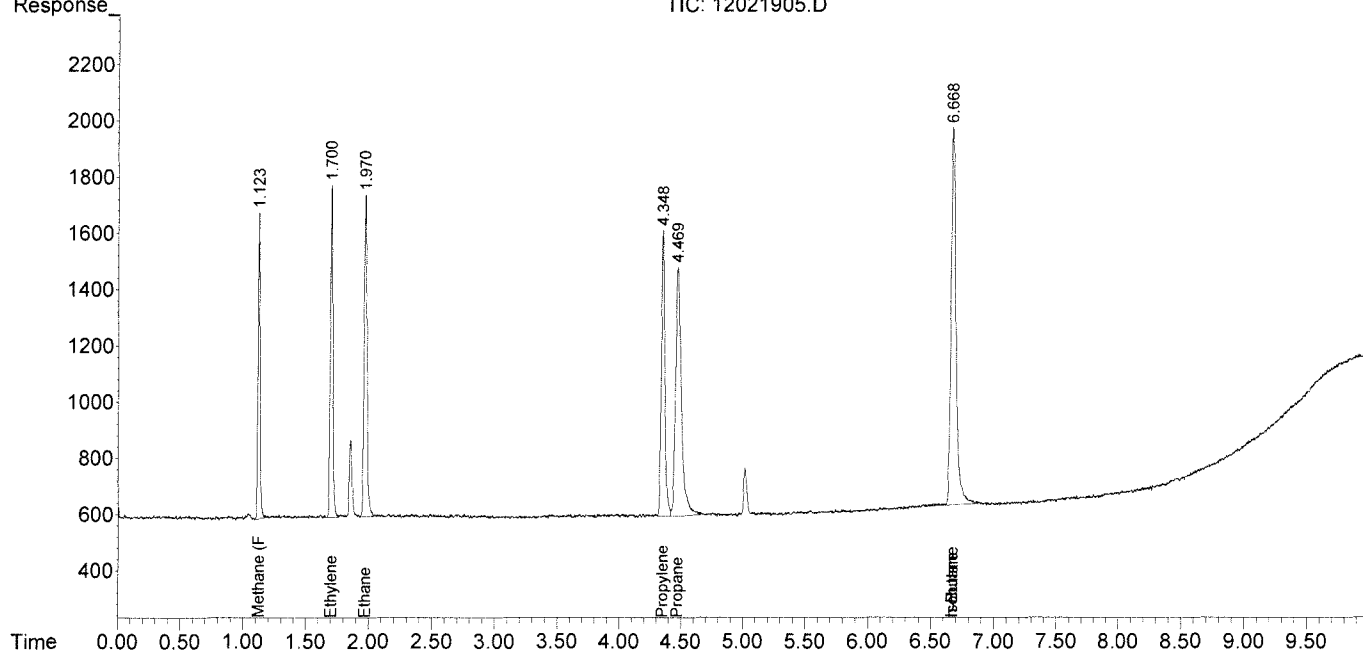
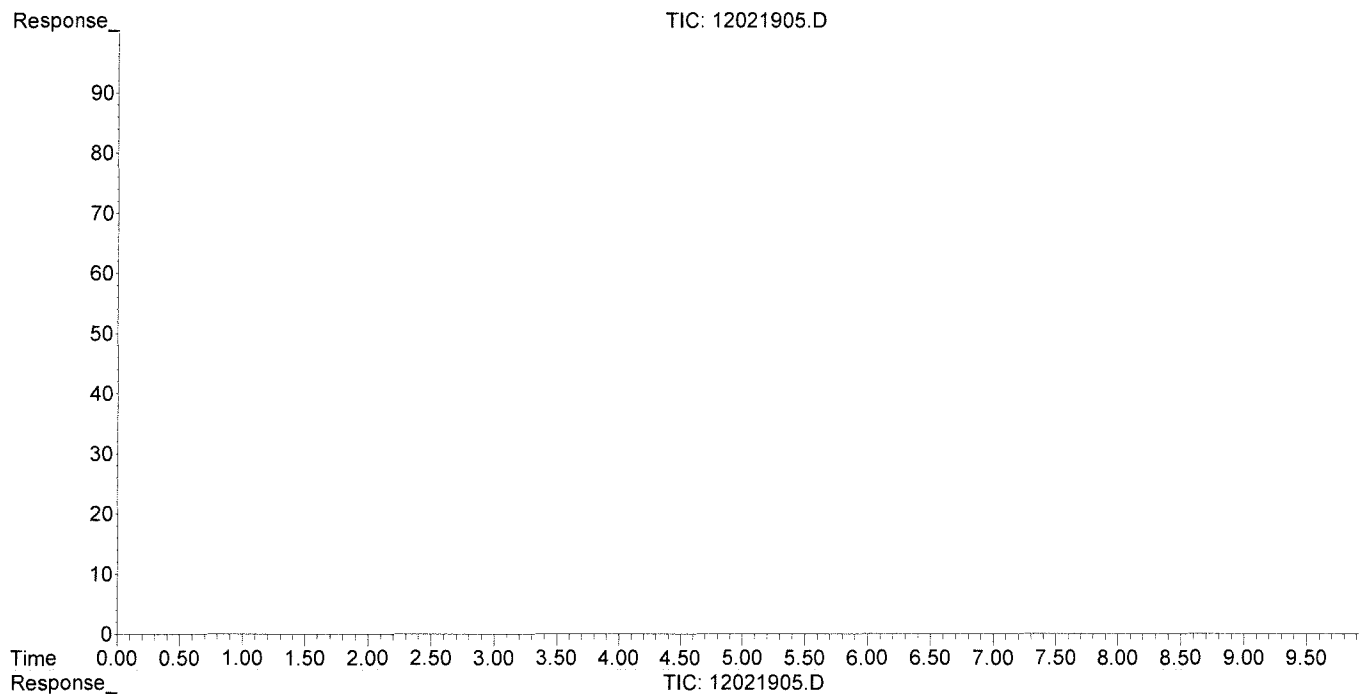
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:18:13
Operator : LD
Sample : LCSD FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 10:29:07 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Method Path : J:\GC10\METHODS\
 Method File : RS091217_R.M
 Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 Last Update : Wed Sep 13 11:14:47 2017
 Response Via : Initial Calibration

Calibration Files

1 =09121702.D 2 =09121703.D 3 =09121704.D
 4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg	%RSD
1)	Oxygen/Argon	3.739		1.014			0.001	0.793 E6	189.17
2)	Carbon monoxide	3.739		1.014			0.001	0.594 E6	221.92
3)	Methane (TCD)						2.161	0.951 E2	106.37
4)	Carbon dioxide	2.365	2.569	2.558	2.361	2.459	2.314	2.438 E2	4.44

Signal #2 Calibration Files

1 =09121702.D 2 =09121703.D 3 =09121704.D
 4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg	%RSD
6)	Methane (FID)		1.180	0.975	0.908	0.870	0.868	0.907 E4	11.66
7)	Ethylene	1.736	1.638	1.780	1.720	1.628	1.670	1.673 E4	3.90
8)	Ethane	1.781	1.676	1.784	1.730	1.692	1.675	1.695 E4	3.83
9)	Propylene	2.505	2.296	2.592	2.480	2.346	2.252	2.343 E4	6.56
10)	Propane	2.439	2.283	2.645	2.555	2.433	2.522	2.488 E4	4.20
11)	Isobutylene							0.652 E1	138.46
12)	Isobutane	6.058	4.793	2.214	1.553	1.353		2.662 E4	86.17
13)	n-Butane	6.058	4.793	2.214	1.553	1.353		2.662 E4	86.17

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS091217_R.M Wed Sep 13 15:11:48 2017



Edit Compounds -- Compound #6 -- Methane (FID)

32

Search by: ☒ Ret Time

☐ Name

☐ Index

Find Compound

Compound Database Identification Calibration User-Defined Advanced Reporting

External Standard Compound

Oxygen/Argon

Carbon monoxide

Methane (TCD)

Carbon dioxide

Signal #2

Methane (FID)

Ethylene

Ethane

Propylene

Propane

Isobutylene

Isobutane

n-Butane

Lvl ID

Concentration

Response

1

0.151000

2

0.302000

3564.400000

3

1.510000

14725.268625

4

4.530000

41128.575000

5

10.570000

91966.784531

6

200.000000

1735997.497500

7

600.000000

5189848.900000

8

1000.000000

8598533.570000

9

2000.000000

16098209.390000

10

4000.000000

35776839.311362

Lvl ID

Concentration

Response

11

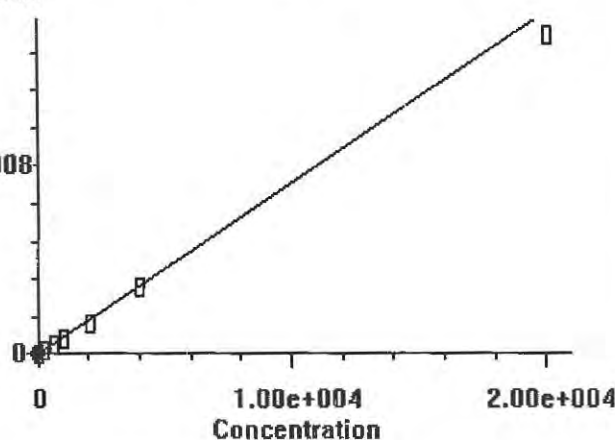
20000.000000

169009160.491997

Methane (FID)

Response

1.00e+008



0.000e+000 Quadratic term

9.071e+003 Linear term

0.000e+000 Constant term

11.657% RF Rel Std Dev

OK

Cancel

Help

Print Calibration Curve

Copy Calibration Curve

Edit Compounds -- Compound #7 -- Ethylene

Y

Search by: ☒ Ret Time

☐ Name

☐ Index

Find Compound

Compound Database
External Standard Compound

Identification

Calibration

User-Defined

Advanced

Reporting

Oxygen/Argon

Lvl ID

Concentration

Response

Lvl ID

Concentration

Response

Carbon monoxide

1

0.151000

2621.970000

11

20000.000000

Methane (TCD)

2

0.302000

4946.731301

Carbon dioxide

3

1.510000

26884.746847

Signal #2

4

4.530000

77902.721497

Methane (FID)

5

10.570000

172085.529560

Ethylene

6

200.000000

3339702.313219

Ethane

7

600.000000

10007758.776971

Propylene

8

1000.000000

16608503.805988

Propane

9

2000.000000

31192443.898600

Isobutylene

10

4000.000000

Isobutane

n-Butane

Ethylene

Response

2.00e+007

0

0

1.00e+003

2.00e+003

Concentration

0.000e+000

Quadratic term

1.673e+004

Linear term

0.000e+000

Constant term

3.897%

RF Rel Std Dev

OK

Cancel

Help

Print Calibration Curve

Copy Calibration Curve

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Edit Compounds: -- Compound #8 -- Ethane

Search by ☒ Ret Time

☐ Name

☐ Index

Find Compound

Compound Database
External Standard Compound

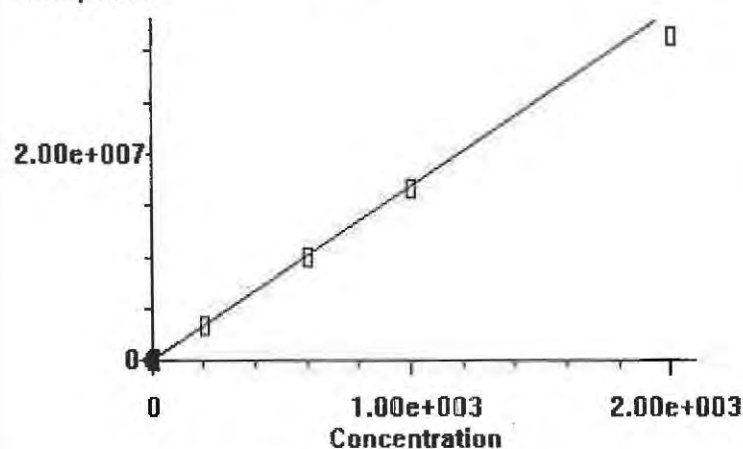
Identification Calibration User-Defined Advanced Reporting

	Lvl ID	Concentration	Response
Oxygen/Argon	1	0.151000	2689.928008
Carbon monoxide	2	0.302000	5060.331943
Methane (TCD)	3	1.510000	26943.667500
Carbon dioxide	4	4.530000	78353.525045
Signal #2	5	10.570000	178840.731148
Methane (FID)	6	200.000000	3350442.319129
Ethylene	7	600.000000	10048964.218029
Propylene	8	1000.000000	16703164.879012
Propane	9	2000.000000	31424217.938900
Isobutylene	10	4000.000000	
Isobutane			
n-Butane			

Lvl ID	Concentration	Response
11	20000.000000	

Ethane

Response



0.000e+000	Quadratic term
1.695e+004	Linear term
0.000e+000	Constant term
3.831%	RF Rel Std Dev

OK

Cancel

Help

Print Calibration Curve

Copy Calibration Curve

Edit Compounds -- Compound #9 -- Propylene

Search by: ☒ Ret Time

☐ Name

☐ Index

Find Compound

Compound Database
External Standard Compound

Identification

Calibration

User-Defined

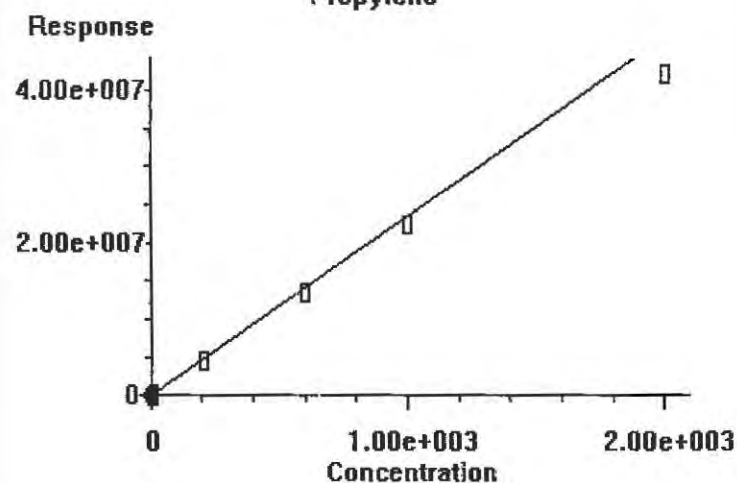
Advanced

Reporting

	LvlID	Concentration	Response
☐ Oxygen/Argon	1	0.151000	3782.537646
☐ Carbon monoxide	2	0.302000	6933.285530
☐ Methane (TCD)	3	1.510000	39139.518208
☐ Carbon dioxide	4	4.530000	112341.896872
☐ Signal #2	5	10.570000	248003.903623
☐ Methane (FID)	6	200.000000	4504060.086084
☐ Ethylene	7	600.000000	13569342.761419
☐ Ethane	8	1000.000000	22494887.720990
☒ Propylene	9	2000.000000	42124689.656800
☐ Propane	10	4000.000000	
☐ Isobutylene			
☐ Isobutane			
☐ n-Butane			

LvlID	Concentration	Response
11	20000.000000	

Propylene



0.000e+000	Quadratic term
2.343e+004	Linear term
0.000e+000	Constant term
6.559%	RF Rel Std Dev

OK

Cancel

Help

Print Calibration Curve

Copy Calibration Curve

Edit Compounds -- Compound #10 -- Propane

Search by ☒ Ret Time

☐ Name

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Find Compound

Compound Database

External Standard Compound

Oxygen/Argon

Carbon monoxide

Methane (TCD)

Carbon dioxide

Signal #2

Methane (FID)

Ethylene

Ethane

Propylene

Propane

Isobutylene

Isobutane

n-Butane

Identification

Calibration

User-Defined

Advanced

Reporting

Lvl ID

Concentration

Response

Lvl ID

Concentration

Response

1

0.151000

3682.897354

11

20000.000000

2

0.302000

6894.237803

3

1.510000

39934.166792

4

4.530000

115723.428128

5

10.570000

257124.432806

6

200.000000

5043035.663916

7

600.000000

15251325.797404

8

1000.000000

25459410.657938

9

2000.000000

48593085.287451

10

4000.000000

Propane

Response

4.00e+007

2.00e+007

0

1.00e+003

2.00e+003

Concentration

0.000e+000

Quadratic term

2.488e+004

Linear term

0.000e+000

Constant term

4.200%

RF Rel Std Dev

OK

Cancel

Help

Print Calibration Curve

Copy Calibration Curve

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Method Path : J:\GC10\METHODS\
 Method File : RS091217_R.M
 Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 Last Update : Wed Sep 13 11:14:47 2017
 Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121702.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121703.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121704.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121705.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121706.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121707.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121711.D
11	11	20000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121712.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Sep 13 11:04 2017	Sep 12 15:03 2017	12-Sep-2017, 10:52
2	2	Sep 13 11:05 2017	Sep 13 11:05 2017	12-Sep-2017, 11:05
3	3	Sep 13 11:06 2017	Sep 13 11:05 2017	12-Sep-2017, 11:45
4	4	Sep 13 11:09 2017	Sep 13 11:06 2017	12-Sep-2017, 12:09
5	5	Sep 13 11:09 2017	Sep 13 11:09 2017	12-Sep-2017, 12:30
6	6	Sep 13 11:10 2017	Sep 13 11:10 2017	12-Sep-2017, 12:47
7	7	Sep 13 11:11 2017	Sep 13 11:10 2017	12-Sep-2017, 13:00
8	8	Sep 13 11:12 2017	Sep 13 11:11 2017	12-Sep-2017, 13:47
9	9	Sep 13 11:12 2017	Sep 13 11:12 2017	12-Sep-2017, 14:07
10	10	Sep 13 11:14 2017	Sep 13 11:13 2017	12-Sep-2017, 14:48
11	11	Sep 13 11:14 2017	Sep 13 11:14 2017	12-Sep-2017, 15:21

RS091217_R.M Wed Sep 13 15:11:22 2017



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.767	373920	0.128 ppm
2) Carbon monoxide	1.767	373920	N.D. ppm
3) Methane (TCD)	0.000	0	N.D. ppm
4) Carbon dioxide	0.000	0	N.D. ppm
6) Methane (FID)	0.000	0	N.D. ppm d
7) Ethylene	1.595	2622	0.156 ppm
8) Ethane	1.848	2690	0.156 ppm
9) Propylene	4.222	3783	0.154 ppm
10) Propane	4.348	3683	0.139 ppm
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	6.582f	6058	NoCal ppm
13) n-Butane	6.582f	6058	NoCal ppm

(f)=RT Delta > 1/2 Window

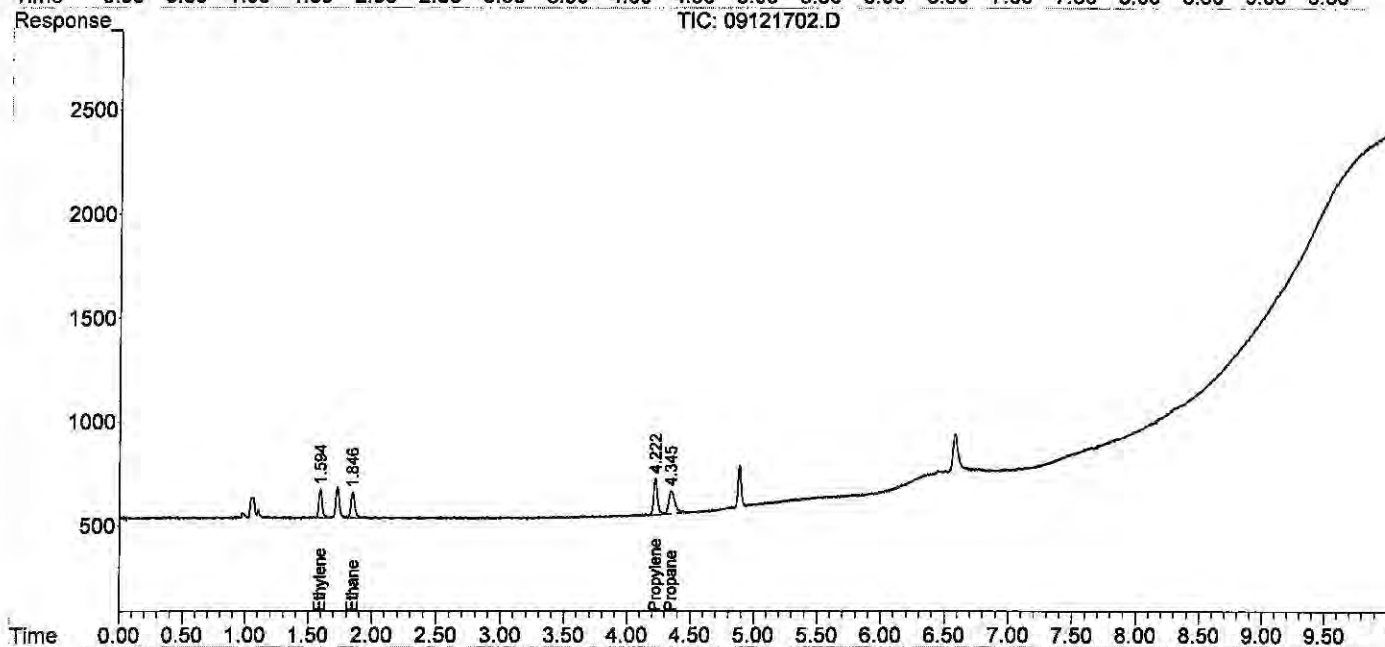
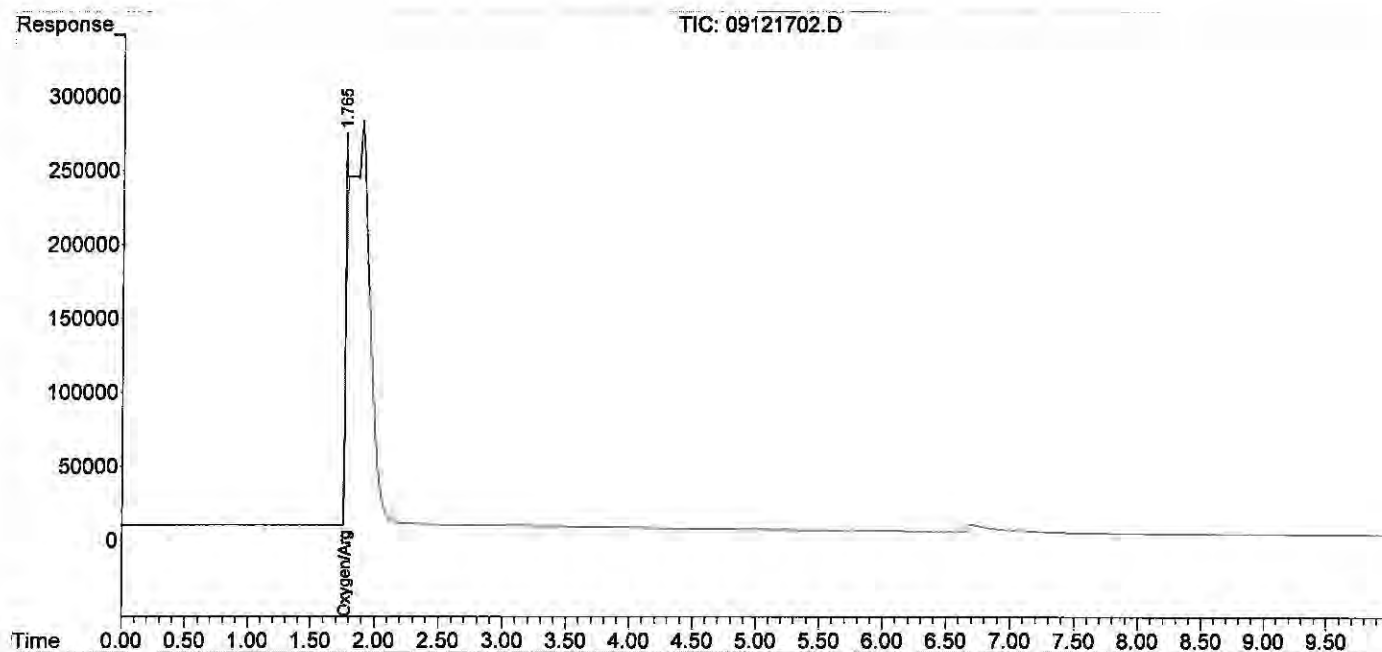
(m)=manual int.

Mc 9/13/12

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.913f	-25181981	N.D.	ppm
2) Carbon monoxide	1.913f	-25181981	1.089	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.049	3564	0.391	ppm m
7) Ethylene	1.577	4947	0.292	ppm
8) Ethane	1.828	5060	0.293	ppm
9) Propylene	4.207	6933	0.281	ppm
10) Propane	4.337	6894	0.268	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	6.579f	9587	0.158	ppm
13) n-Butane	6.579f	9587	0.158	ppm

(f)=RT Delta > 1/2 Window

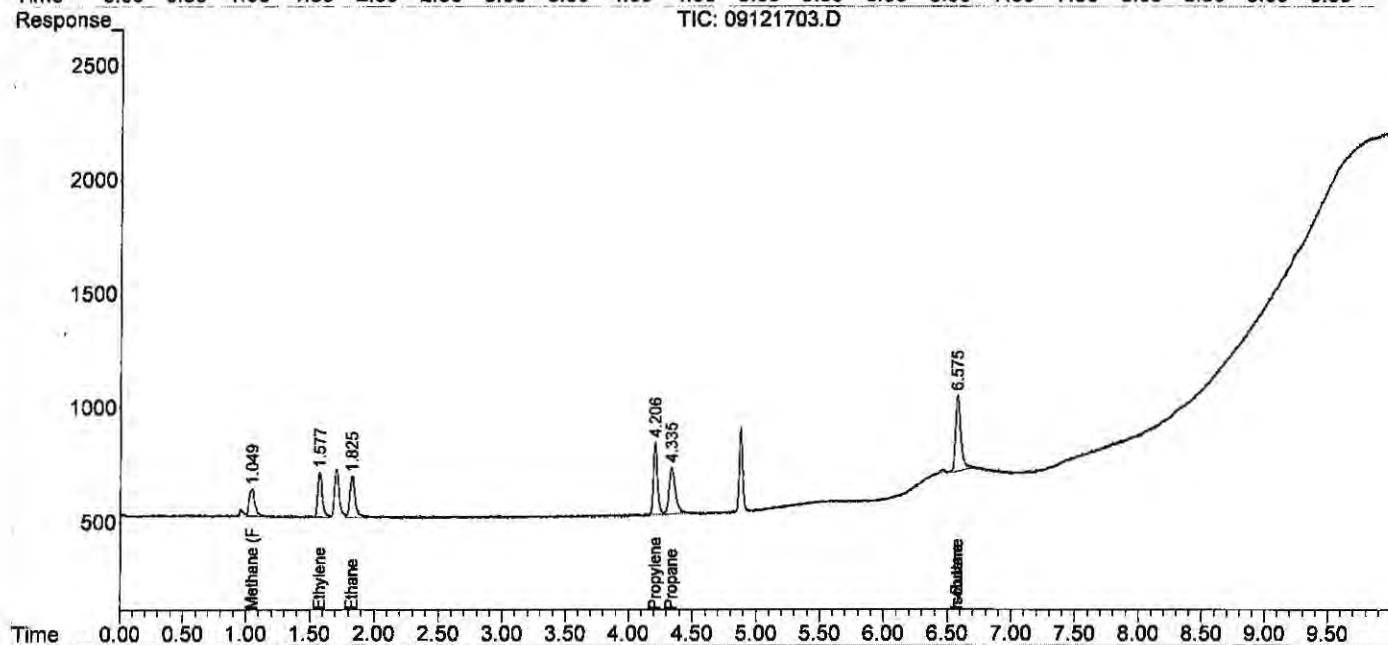
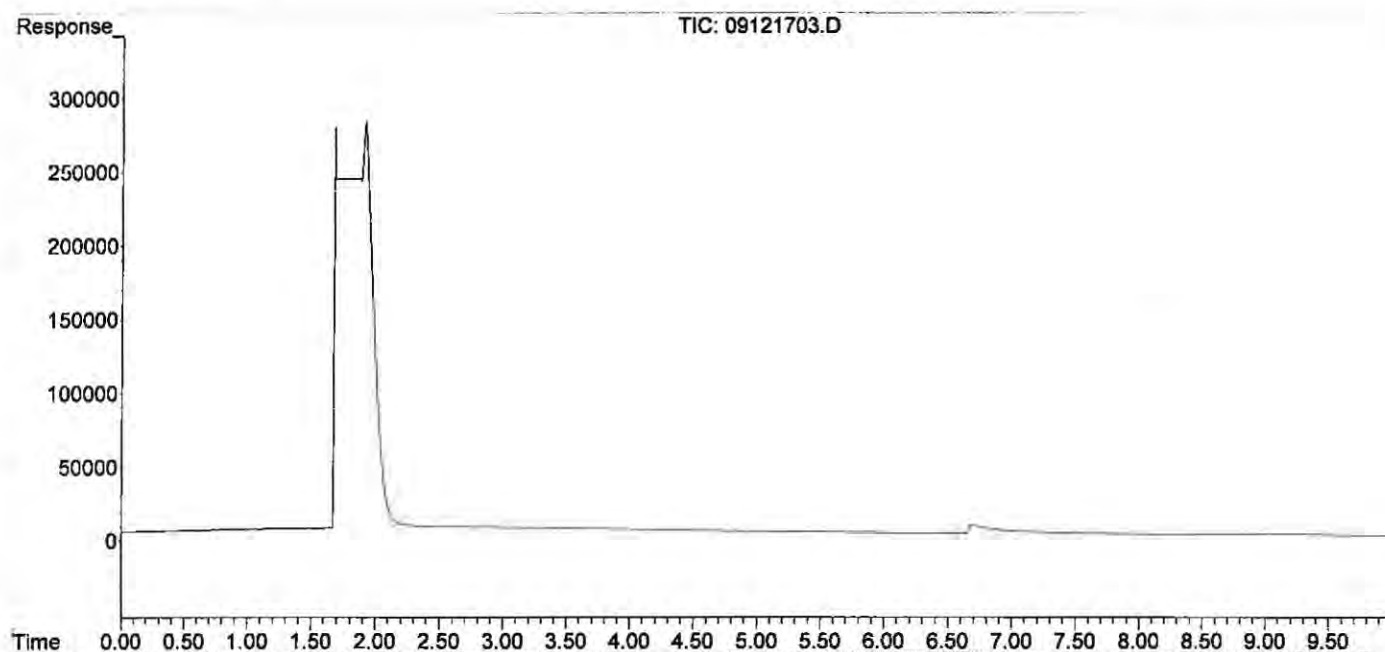
(m)=manual int.



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

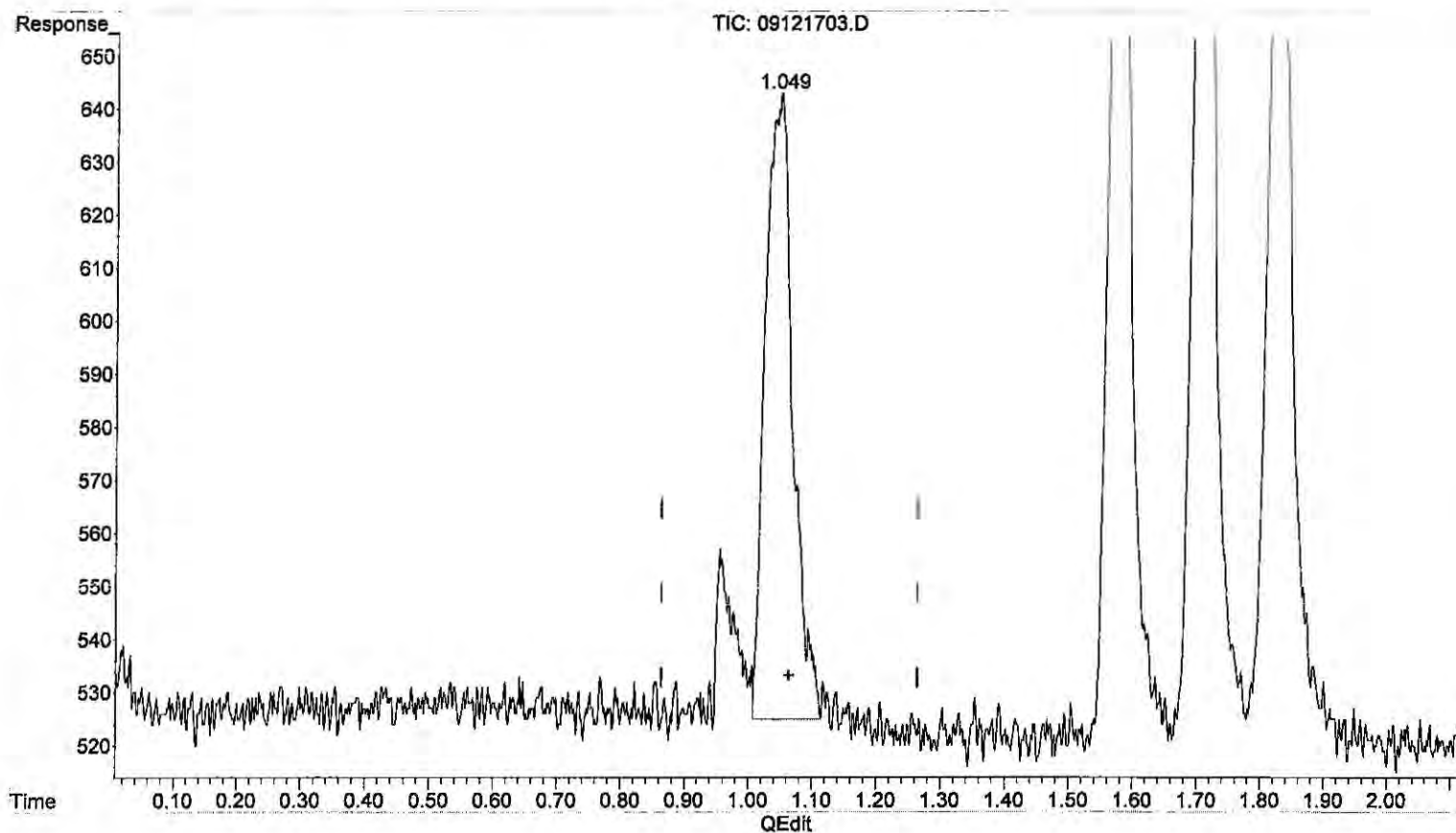
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.049min 0.391 ppm m

response 3564

MC
9/13/17
Bu
Ms
prw

Wg/17

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) Oxygen/Argon	1.847	2536230	1.056 ppm
2) Carbon monoxide	1.847	2536230	N.D. ppm
3) Methane (TCD)	0.000	0	N.D. ppm
4) Carbon dioxide	0.000	0	N.D. ppm
6) Methane (FID)	1.064	14725	1.613 ppm
7) Ethylene	1.598	26885	1.582 ppm
8) Ethane	1.851	26944	1.555 ppm
9) Propylene	4.220	39140	1.589 ppm
10) Propane	4.349	39934	1.596 ppm
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	6.578f	55348	1.020 ppm
13) n-Butane	6.578f	55348	1.020 ppm

(f)=RT Delta > 1/2 Window

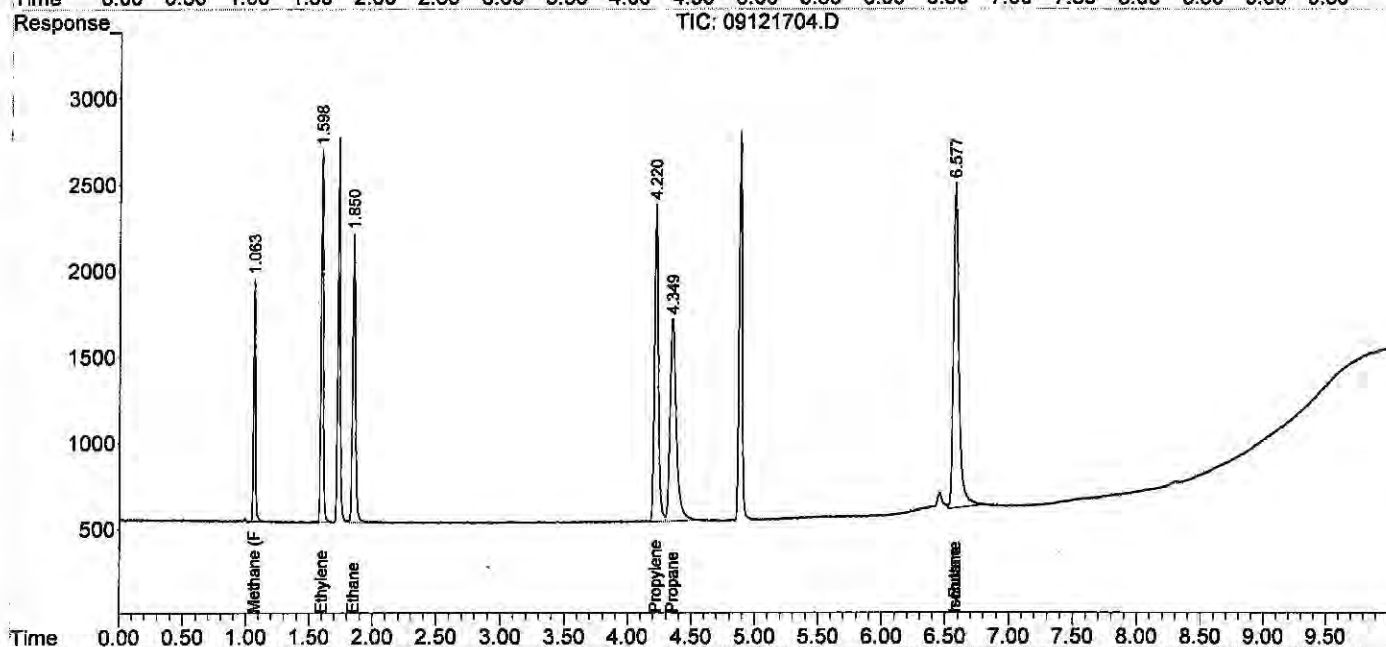
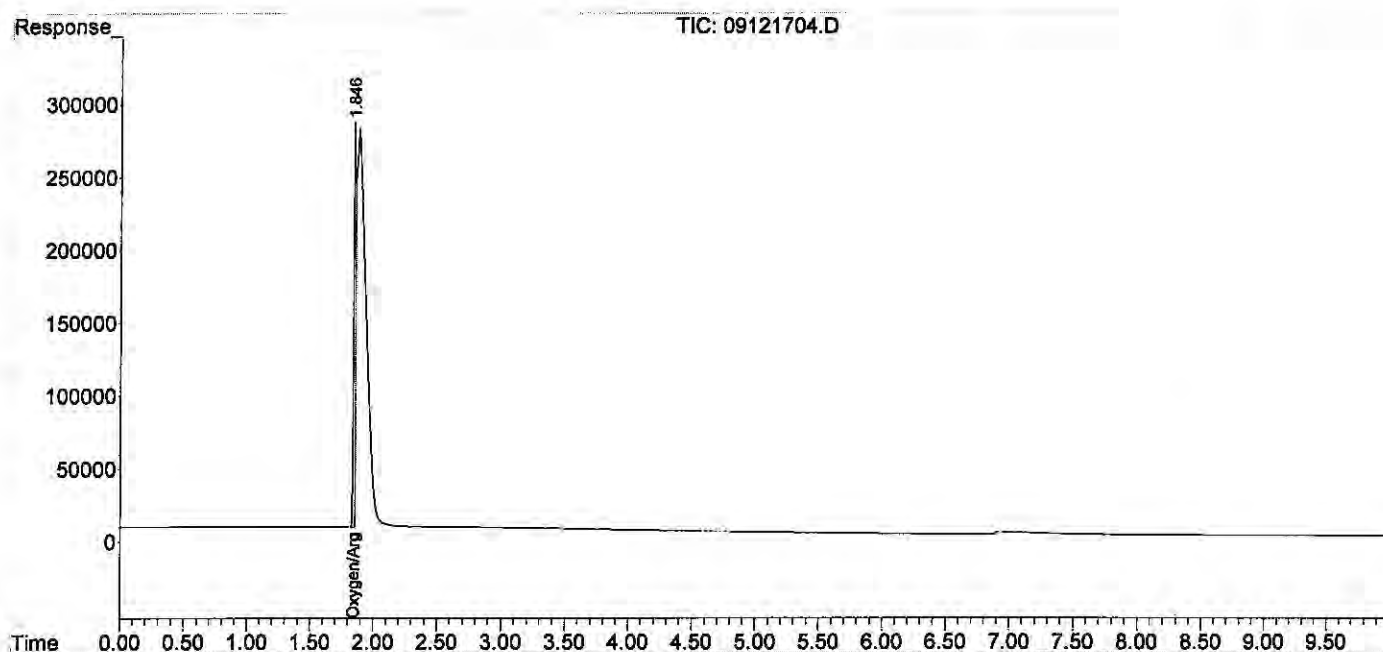
(m)=manual int.



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.738	-331216	N.D.	ppm
2) Carbon monoxide	1.738	-331216	0.019	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.052	41129	4.522	ppm
7) Ethylene	1.586	77903	4.637	ppm
8) Ethane	1.838	78354	4.558	ppm
9) Propylene	4.218	112342	4.614	ppm
10) Propane	4.347	115723	4.680	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	6.580f	155256	3.565	ppm
13) n-Butane	6.580f	155256	3.565	ppm

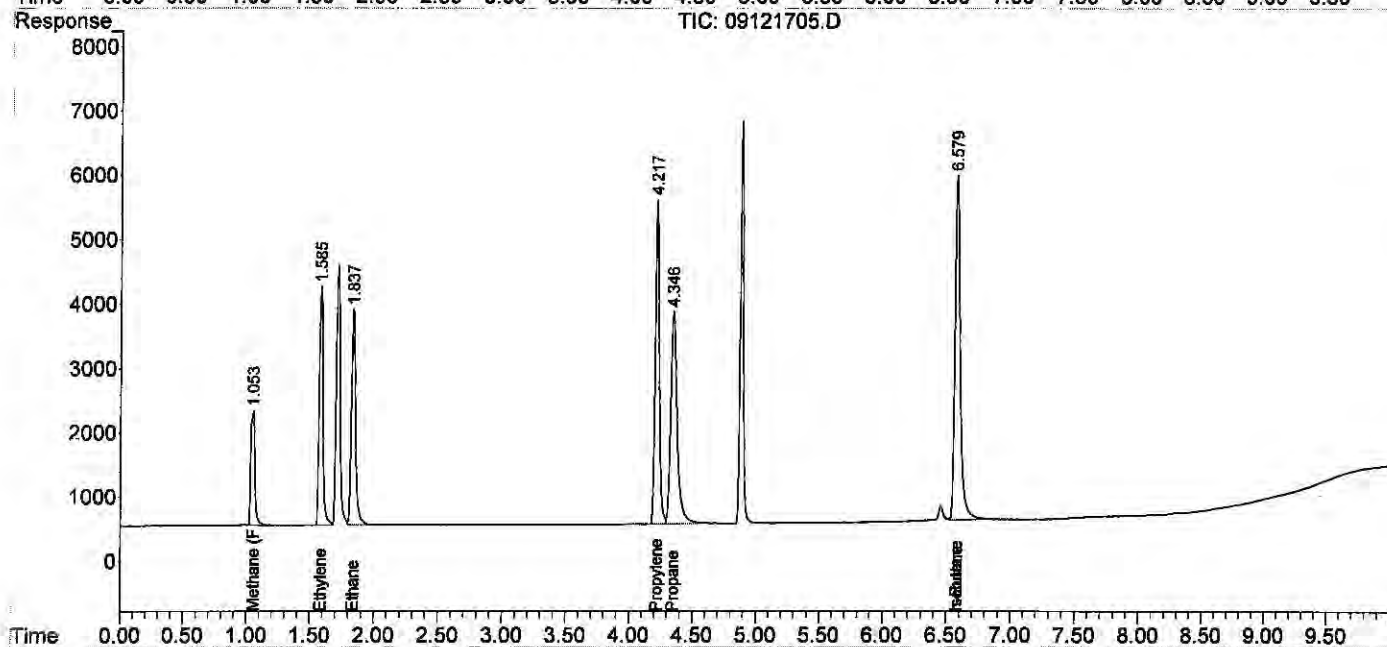
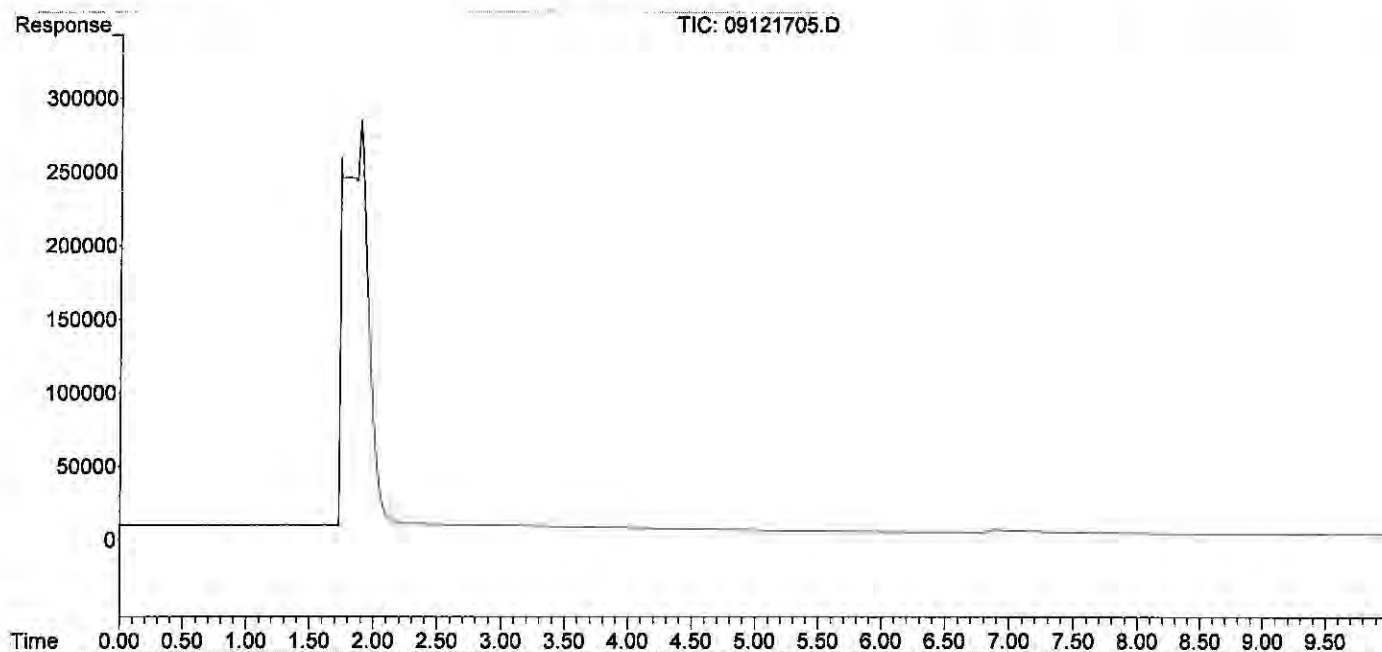
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.929f	-31871242	N.D.	ppm
2) Carbon monoxide	1.929f	-31871242	1.818	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.025	91967	10.135	ppm
7) Ethylene	1.568	172086	10.273	ppm
8) Ethane	1.822	178841	10.441	ppm
9) Propylene	4.214	248004	10.236	ppm
10) Propane	4.344	257124	10.458	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	6.578f	338181	9.254	ppm
13) n-Butane	6.578f	338181	9.254	ppm

(f)=RT Delta > 1/2 Window

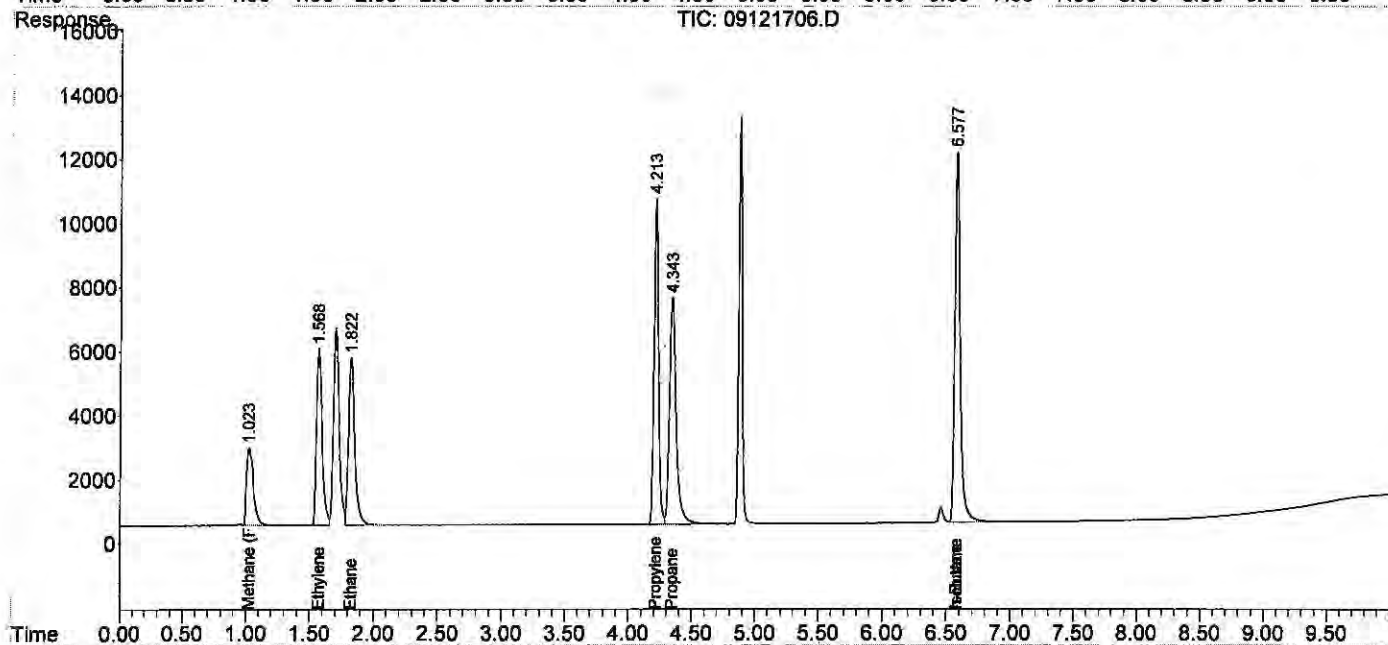
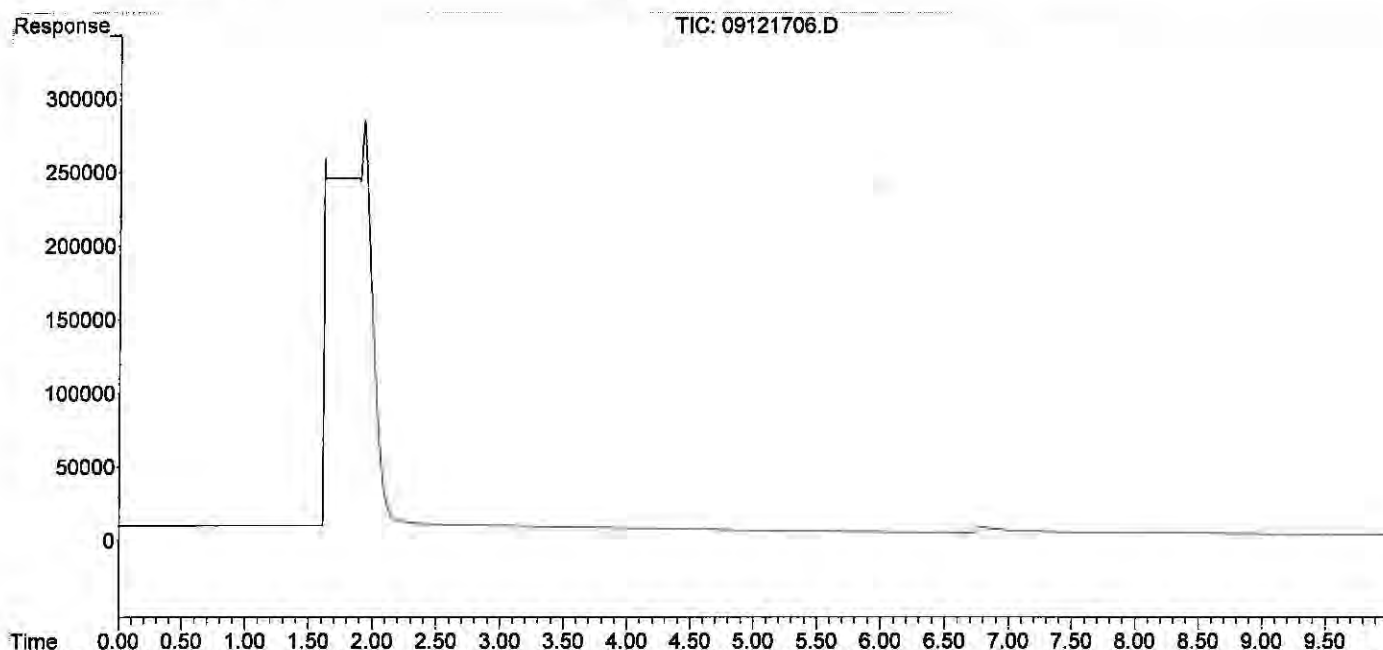
(m)=manual int.



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217 R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.897	155286	0.065	ppm
2) Carbon monoxide	1.897	155286	N.D.	ppm
3) Methane (TCD)	4.079f	27015	2856.472	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.063	1735997	190.792	ppm
7) Ethylene	1.597	3339702	198.758	ppm
8) Ethane	1.849	3350442	194.597	ppm
9) Propylene	4.201	4504060	185.706	ppm
10) Propane	4.333	5043036	204.809	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

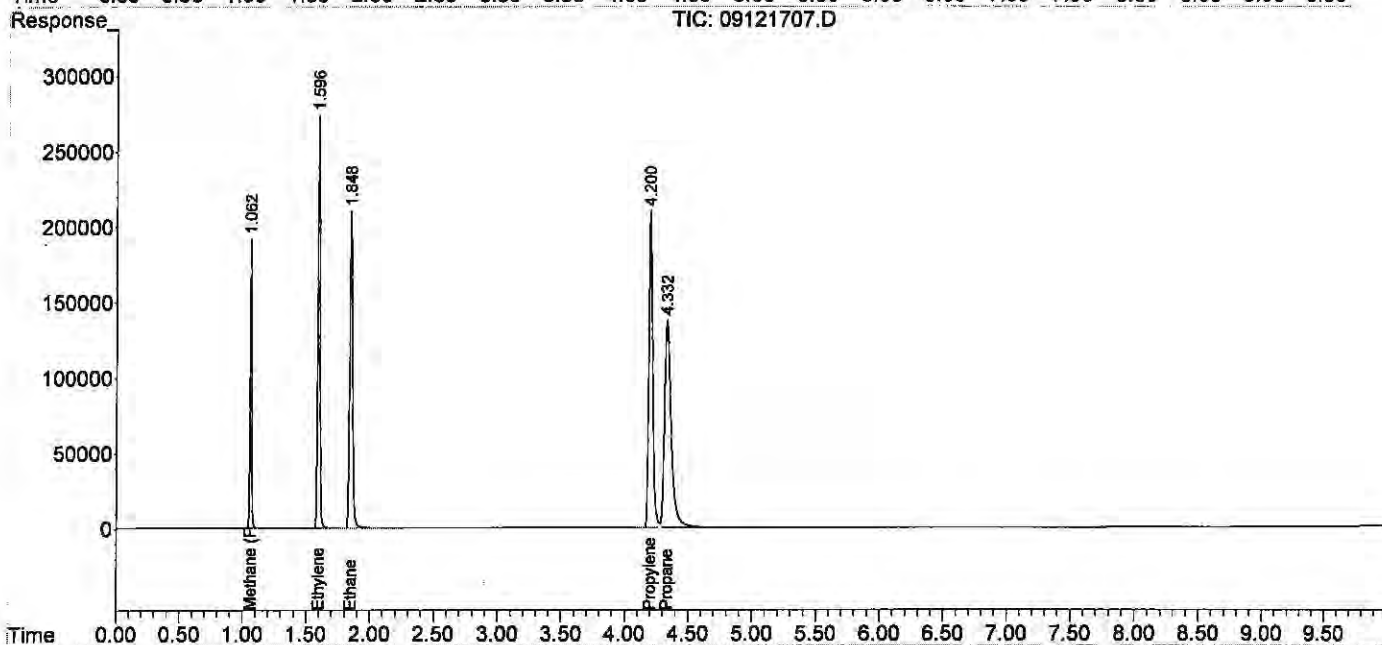
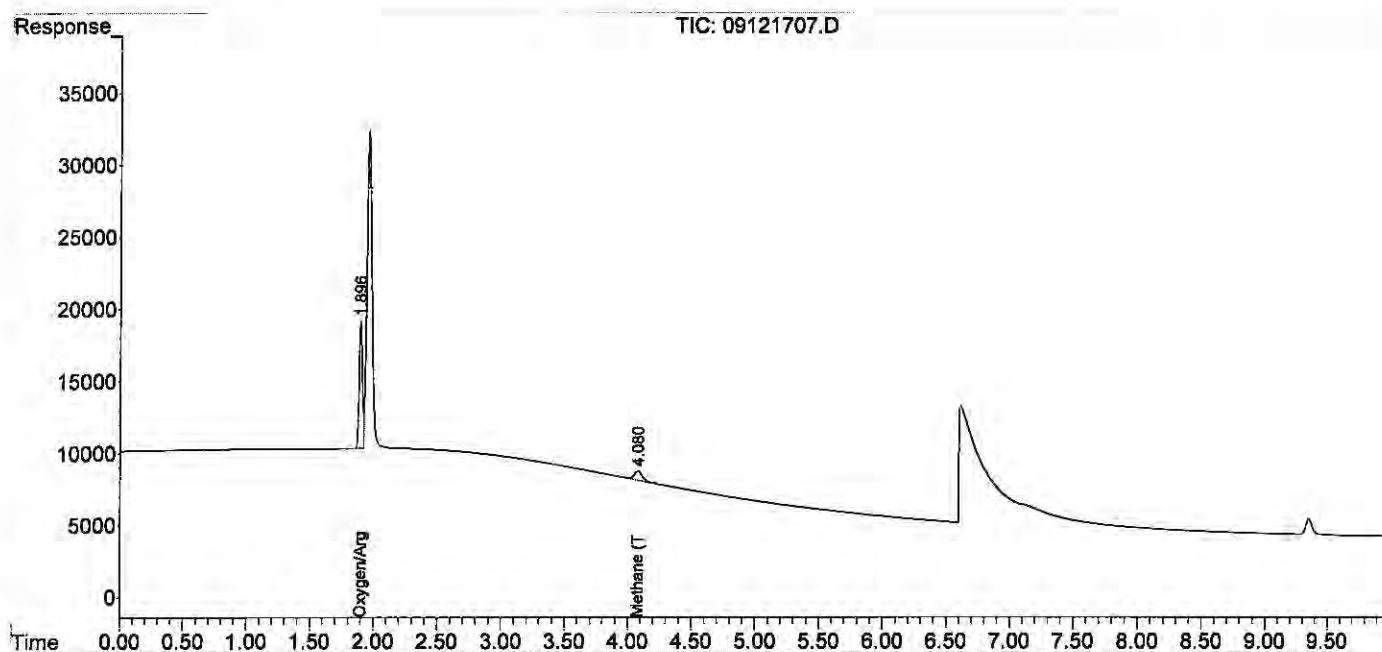
(m)=manual int.



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.884	196022	0.124 ppm
2) Carbon monoxide	1.884	196022	N.D. ppm
3) Methane (TCD)	4.070f	88282	782.730 ppm
4) Carbon dioxide	0.000	0	N.D. ppm
6) Methane (FID)	1.044	5189849	539.759 ppm
7) Ethylene	1.573	10007759	590.286 ppm
8) Ethane	1.822	10048964	583.213 ppm
9) Propylene	4.160	13569343	562.612 ppm
10) Propane	4.300	15251326	615.171 ppm
11) Isobutylene	6.143	9815	NoCal ppm
12) Isobutane	0.000	0	N.D. ppm
13) n-Butane	0.000	0	N.D. ppm

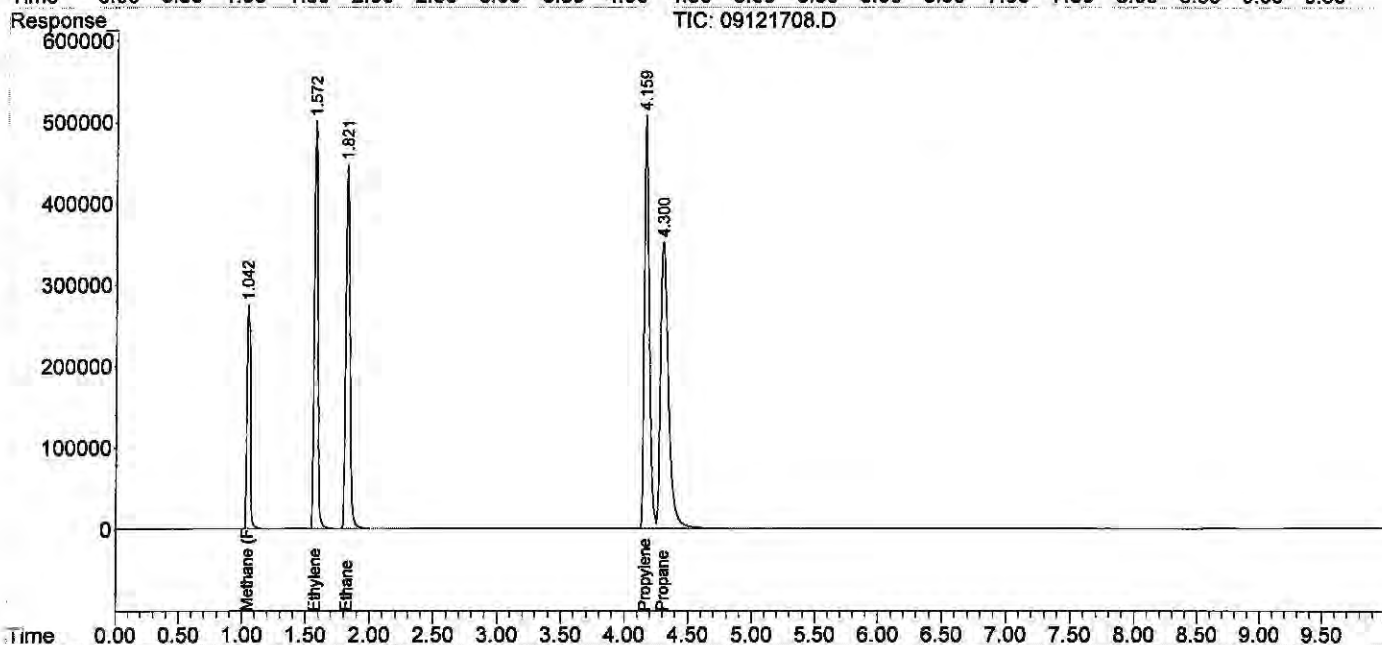
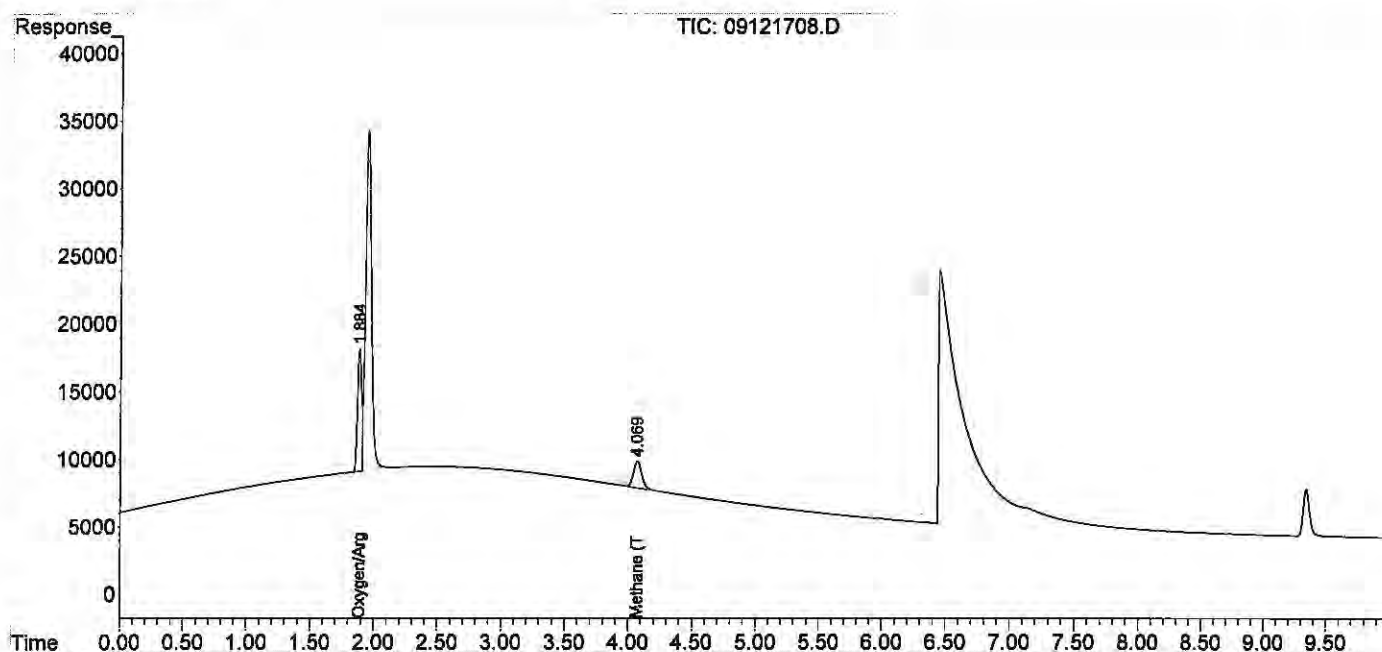
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.879	192611	0.162	ppm
2) Carbon monoxide	1.879	192611	N.D.	ppm
3) Methane (TCD)	4.070f	145492	1244.729	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.039	8598534	945.644	ppm
7) Ethylene	1.576	16608504	981.887	ppm
8) Ethane	1.827	16709165	973.644	ppm
9) Propylene	4.161	22494888	941.060	ppm
10) Propane	4.298	25459411	1023.223	ppm
11) Isobutylene	6.138	16970	8645.243	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

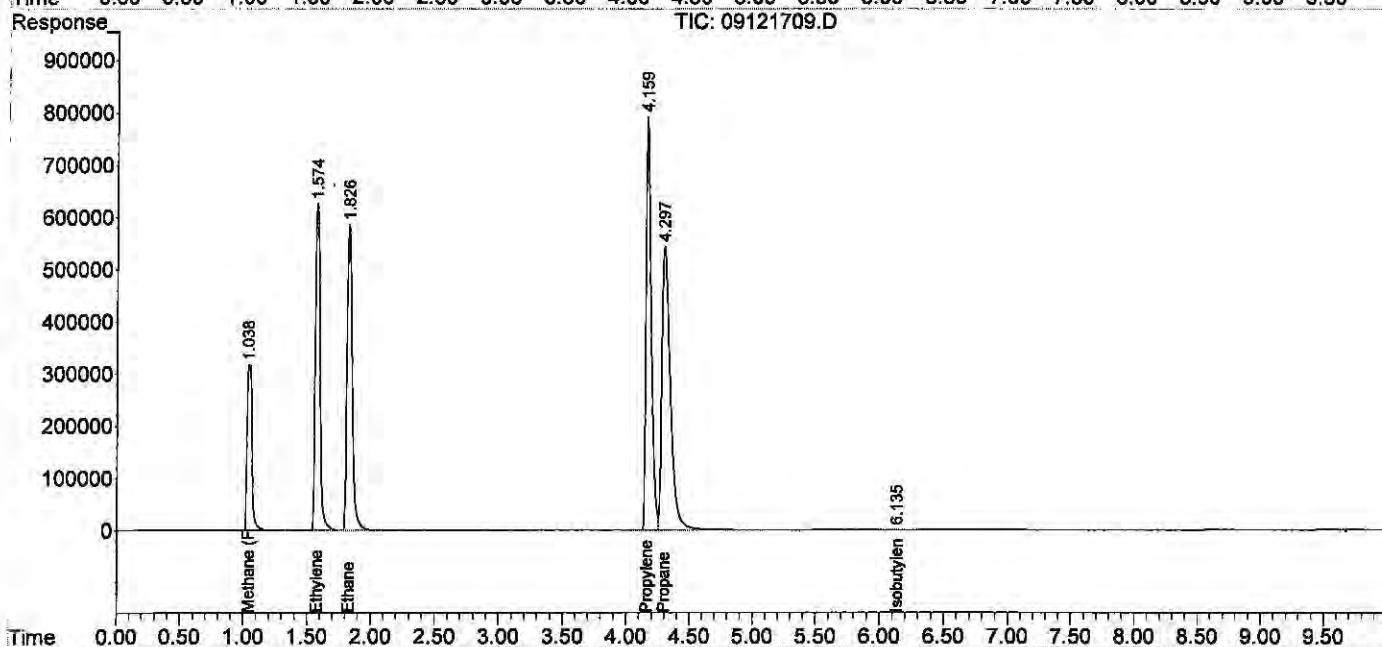
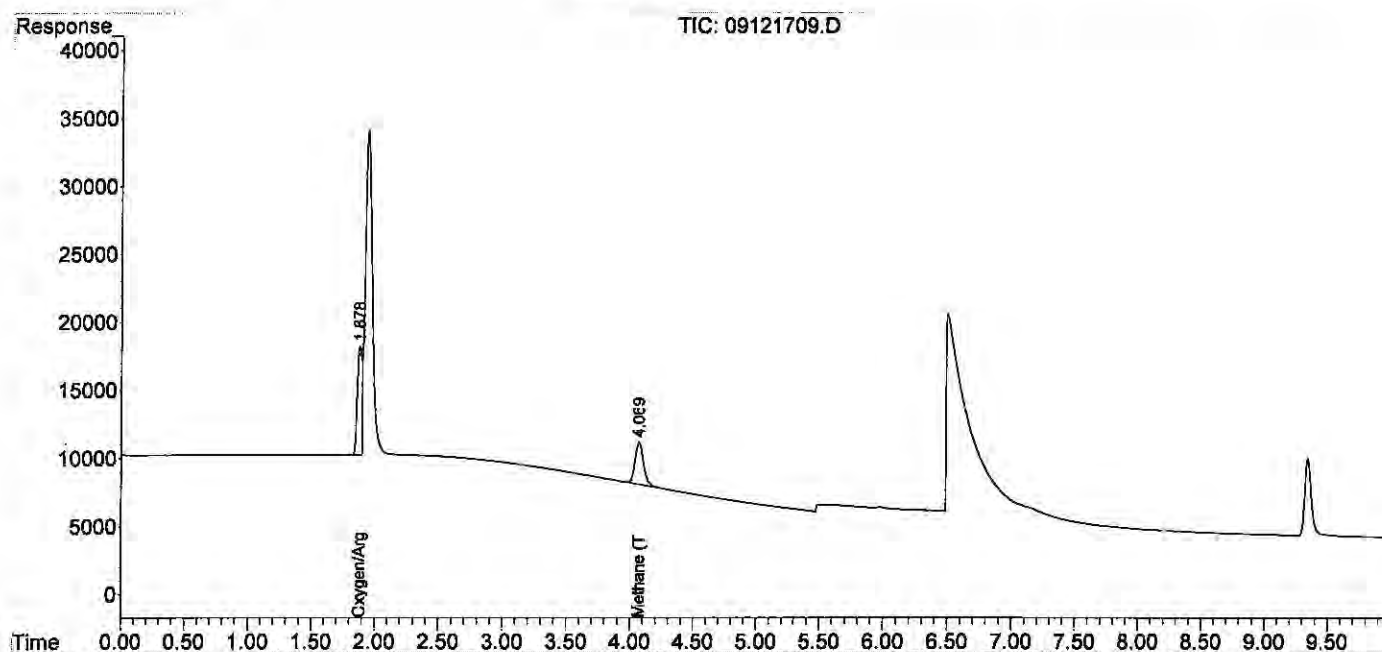
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.922f	1578147	1.659 ppm
2) Carbon monoxide	1.922f	1578147	N.D. ppm
3) Methane (TCD)	4.057f	281651	3526.607 ppm
4) Carbon dioxide	0.000	0	N.D. ppm
6) Methane (FID)	1.016	16098209	1763.622 ppm
7) Ethylene	1.552	31192444	1848.268 ppm
8) Ethane	1.801	31424218	1837.143 ppm
9) Propylene	4.129	42124690	1775.341 ppm m
10) Propane	4.269	48583085	1946.921 ppm
11) Isobutylene	6.136	33832	25613.603 ppm
12) Isobutane	6.576f	3845	0.120 ppm
13) n-Butane	6.576f	3845	0.120 ppm

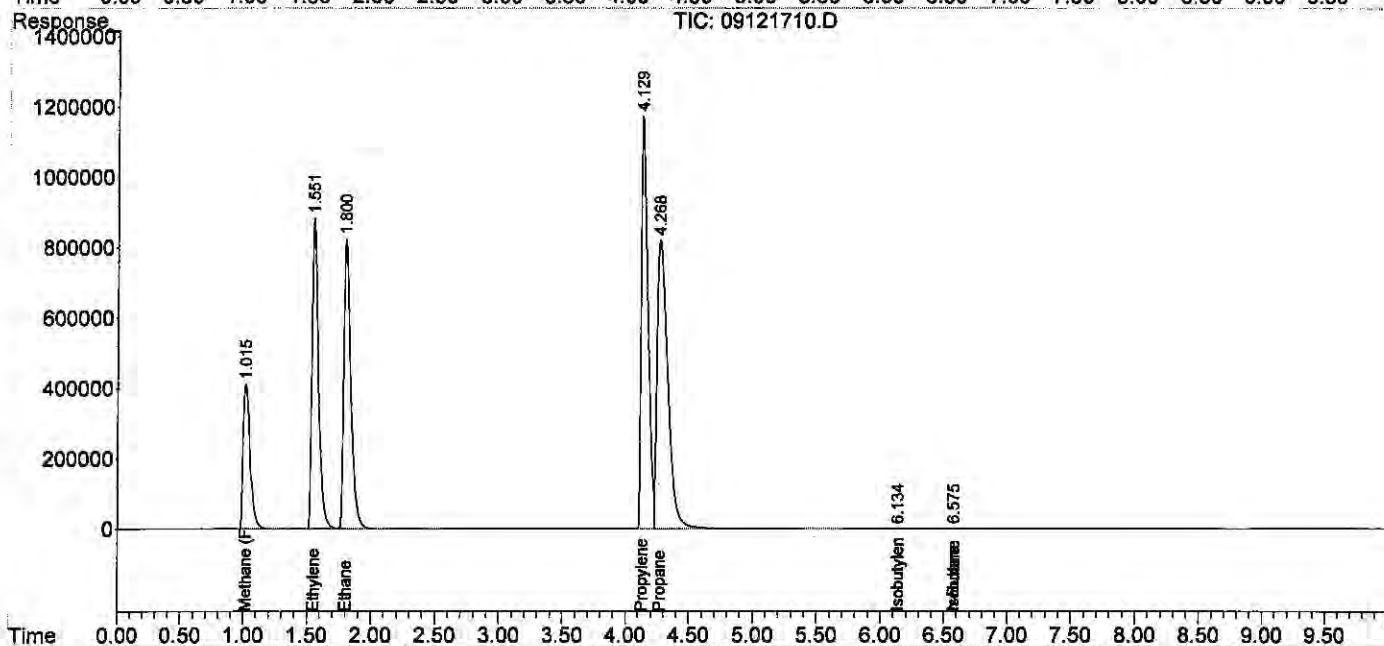
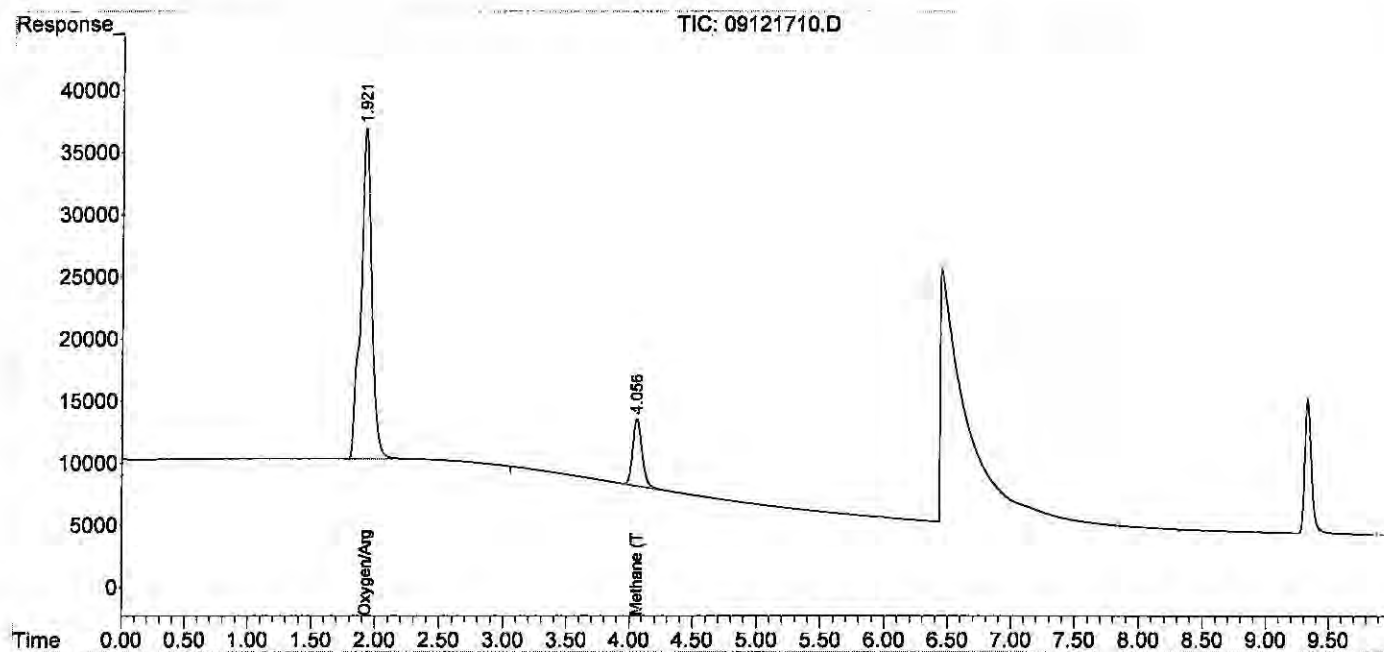
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217 R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

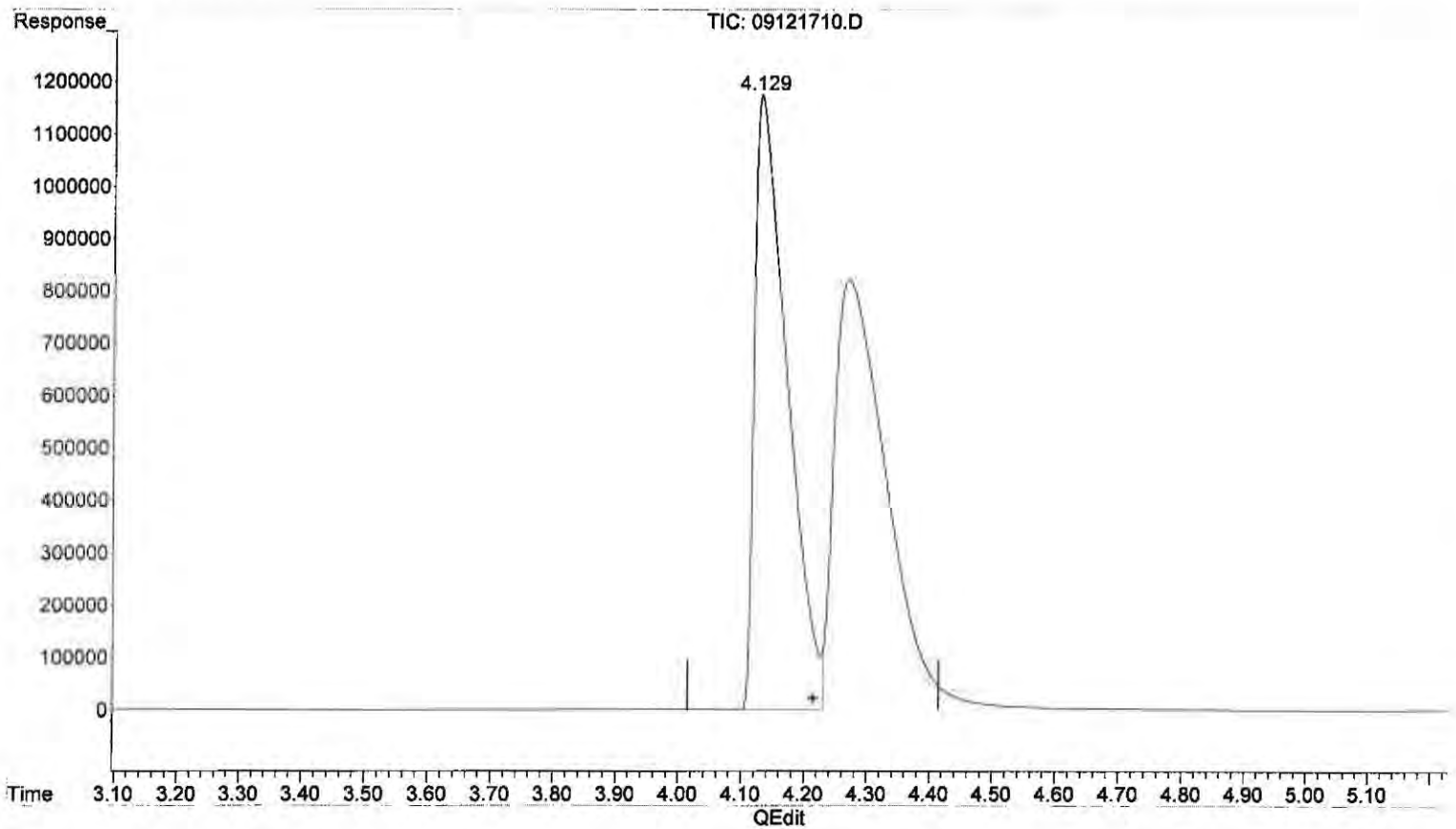
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(9) Propylene

4.129min 1775.341 ppm m

response 42124690

M 4/13/17
WP

Mo
Pren

W 9/21/17

(+) = Expected Retention Time

RS091217_R.M Wed Sep 13 15:08:03 2017

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Page: 1



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
 Data File : 09121711.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 12-Sep-2017, 14:48
 Operator : MC
 Sample : 4000ppm 0.1ml s32-08231701
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Sep 13 11:13:37 2017
 Quant Method : J:\GC10\METHODS\RS091217_R.M
 Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 QLast Update : Wed Sep 13 11:13:29 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm d
2) Carbon monoxide	0.000	0	N.D.	ppm d
3) Methane (TCD)	0.000	0	N.D.	ppm d
4) Carbon dioxide	0.000	0	N.D.	ppm d
6) Methane (FID)	1.059	35776839	3925.122	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

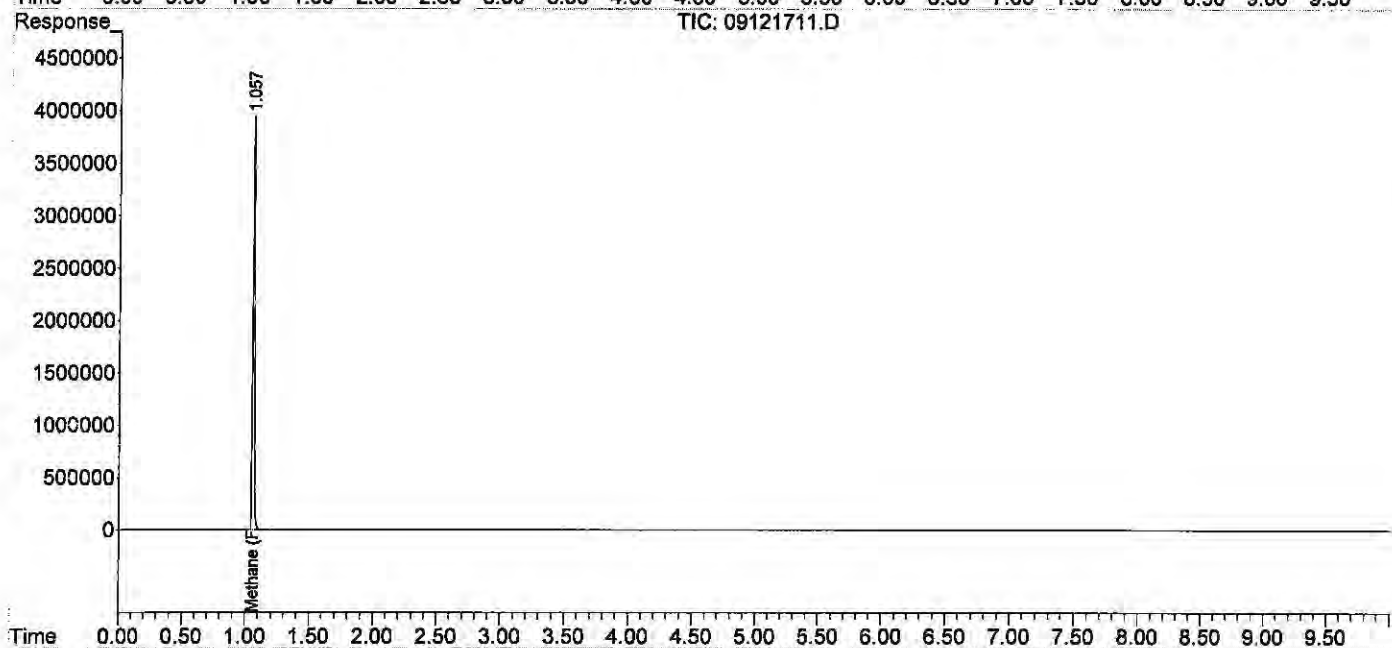
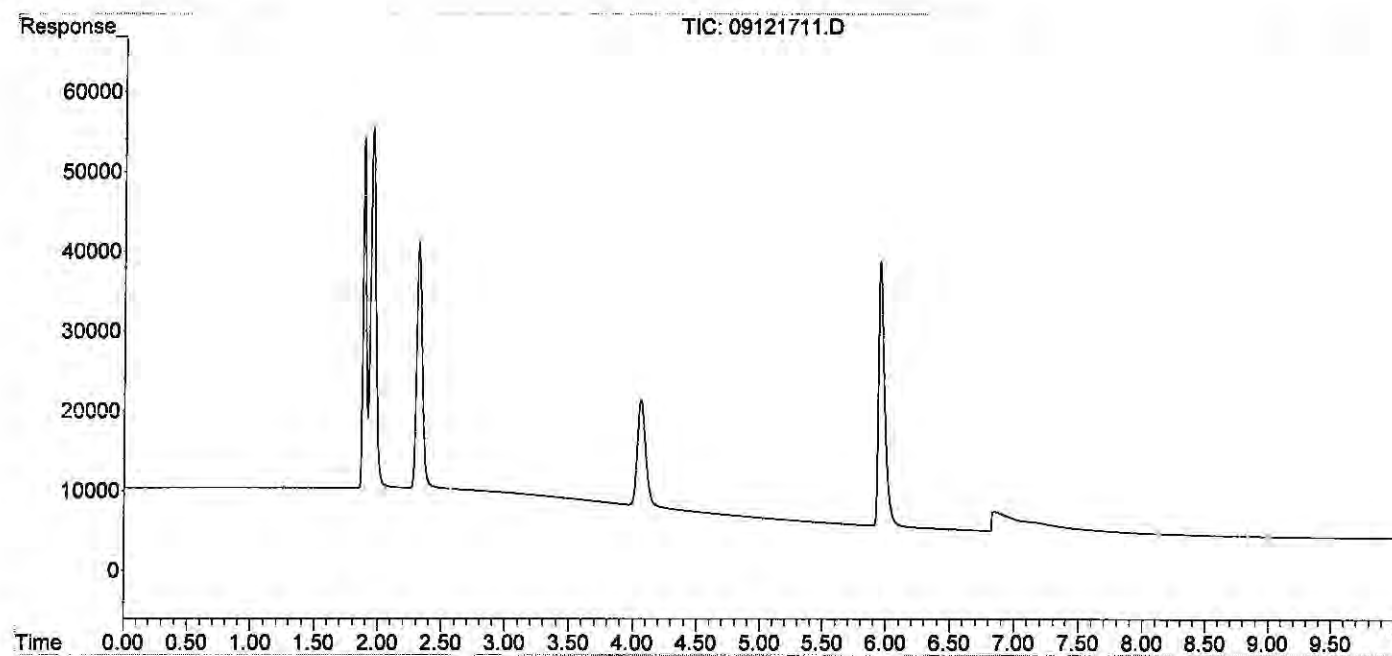
(m)=manual int.



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
 Data File : 09121712.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 12-Sep-2017, 15:21
 Operator : MC
 Sample : 20000ppm 0.5ml s32-08231701
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Sep 13 11:14:17 2017
 Quant Method : J:\GC10\METHODS\RS091217_R.M
 Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
 QLast Update : Wed Sep 13 11:13:29 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm d
2) Carbon monoxide	1.836	3190788	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm d
4) Carbon dioxide	0.000	0	N.D.	ppm d
6) Methane (FID)	1.034	169009160	18492.064	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

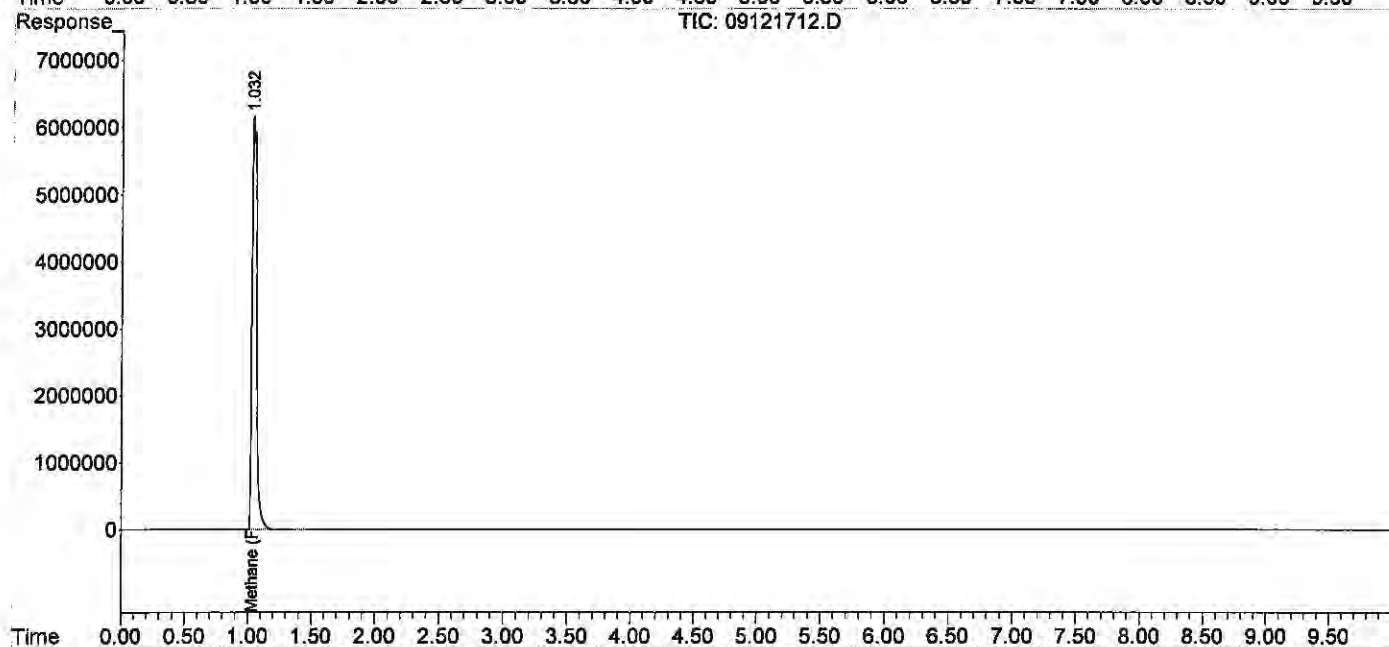
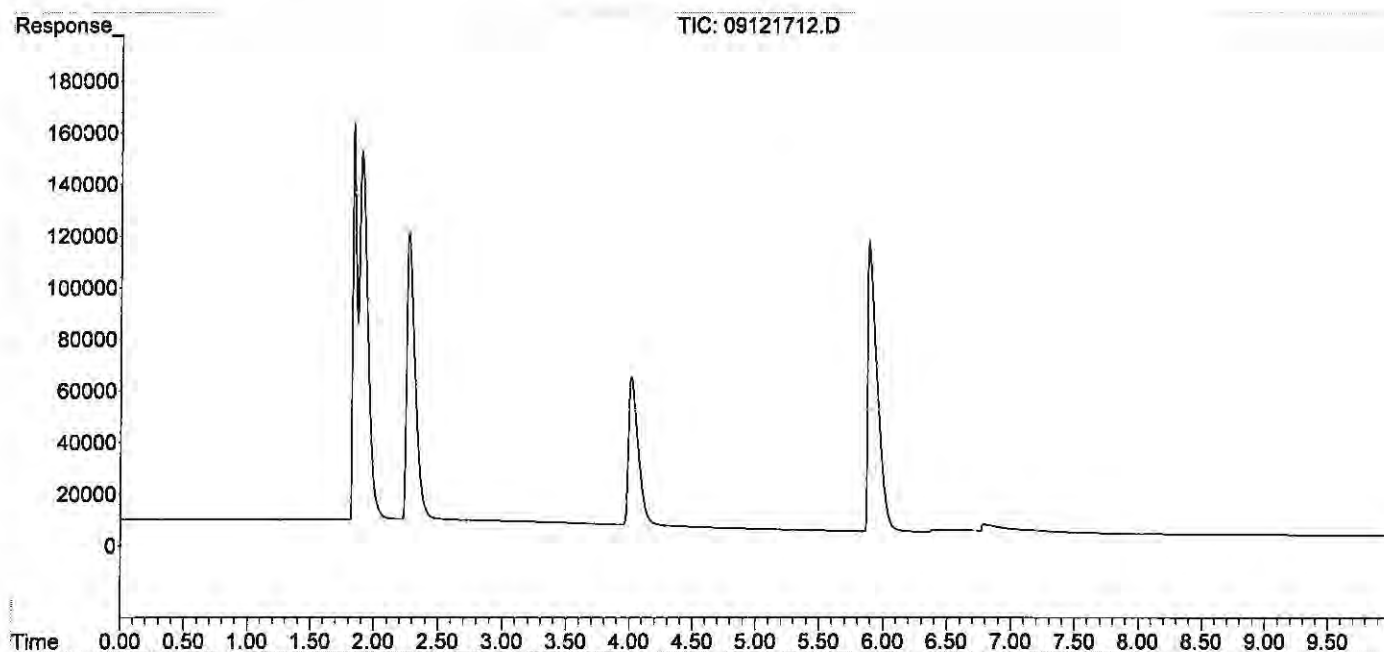
(m)=manual int.



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
 Data File : 09121715.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 12-Sep-2017, 16:15
 Operator : MC
 Sample : icv s30-05241604
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Sep 13 11:15:11 2017
 Quant Method : J:\GC10\METHODS\RS091217_R.M
 Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 QLast Update : Wed Sep 13 11:13:29 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.843	2922459	3.687 ppm
2) Carbon monoxide	1.843	2922459	N.D. ppm
3) Methane (TCD)	0.000	0	N.D. ppm <i>actual 2/1</i>
4) Carbon dioxide	0.000	0	N.D. ppm
6) Methane (FID)	1.063	13748	1.516 ppm <i>1.50 101.1</i>
7) Ethylene	1.598	24153	1.443 ppm <i>1.50 96.2</i>
8) Ethane	1.850	24488	1.445 ppm <i>1.50 96.3</i>
9) Propylene	4.221	36004	1.537 ppm <i>1.50 102.5</i>
10) Propane	4.350	37738	1.517 ppm <i>1.50 100.5</i>
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	6.579f	48019	1.804 ppm <i>9/14/2</i>
13) n-Butane	6.579f	48019	1.804 ppm

(f)=RT Delta > 1/2 Window

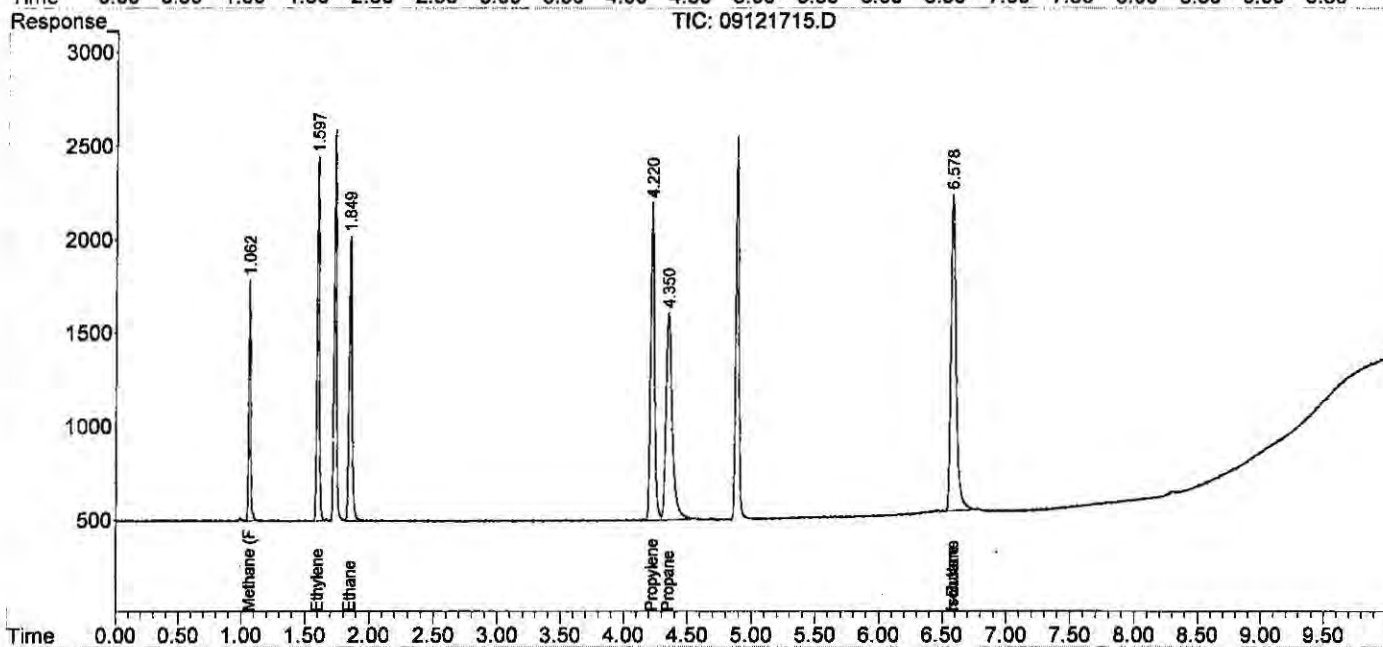
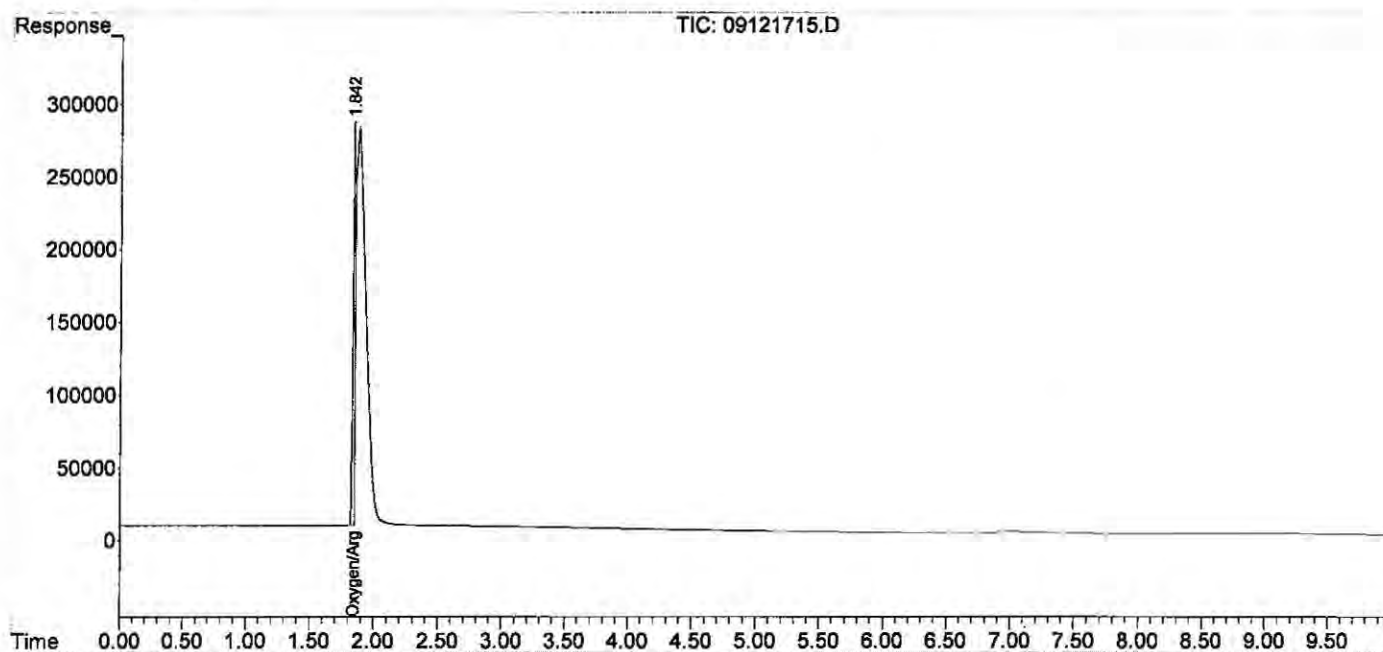
(m)=manual int.

W. G. 12/17

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



**ALS Environmental**

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group Analyst : LD
Service Request: P1907202 Date Analysis : 12/02/19
Sample Vol. (ml) : 32.00 ml Head Space Vol.(ml) : 8.00 ml

Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Methane	Ethylene	Ethane
STD S32-05221901	0.100	101.646	108.086	107.225
ACTUAL		101.50	100.90	101.40
%Difference		0.1%	7.1%	5.7%
MCS 0.1ml	0.100	0.000	0.000	0.000
RB 0.1ml	0.100	0.000	0.000	0.000
LCS FID 0.1ml	0.100	1.367	0.998	1.177
LCSD FID 0.1ml	0.100	1.329	0.939	1.119
P1907202-001 0.1ml	0.100	0.250	0.000	0.000
P1907202-002 0.1ml	0.100	0.230	0.000	0.000
P1907202-003 0.1ml	0.100	0.000	0.000	0.000
P1907202-004 0.1ml	0.100	0.000	0.000	0.000

FINAL HEAD SPACE RESULT (ppm)

	Methane	Ethylene	Ethane
WWt.	16.04	28.05	30.07
HENRY'S CONSTANT	3.76E+04	1.02E+04	2.63E+04
RL	1.30	1.00	0.60
MCS 0.1ml	0.000	0.000	0.000
LCS FID 0.1ml	13.670	9.980	11.770
LCSD FID 0.1ml	13.290	9.390	11.190
P1907202-001 0.1ml	2.500	0.000	0.000
P1907202-002 0.1ml	2.300	0.000	0.000
P1907202-003 0.1ml	0.000	0.000	0.000
P1907202-004 0.1ml	0.000	0.000	0.000

LD
12/02

STD S32-05221901	95.598	102.196	101.612
ACTUAL	101.50	100.90	101.40
%Difference	5.8%	1.3%	0.2%

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
 Data File : 12021901.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 02-Dec-2019, 08:47:07
 Operator : LD
 Sample : STD S32-05221901
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Dec 02 08:58:52 2019
 Quant Method : I:\GC10\METHODS\RS091217_R.M
 Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 QLast Update : Wed Sep 13 11:14:47 2017
 Response via : Initial Calibration
 Integrator: ChemStation

LD
12/02

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.107	921997	101.646	ppm
7) Ethylene	1.682	1808753	108.086	ppm
8) Ethane	1.949	1817479	107.225	ppm
9) Propylene	4.332	2664020	113.694	ppm
10) Propane	4.455	2729543	109.707	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

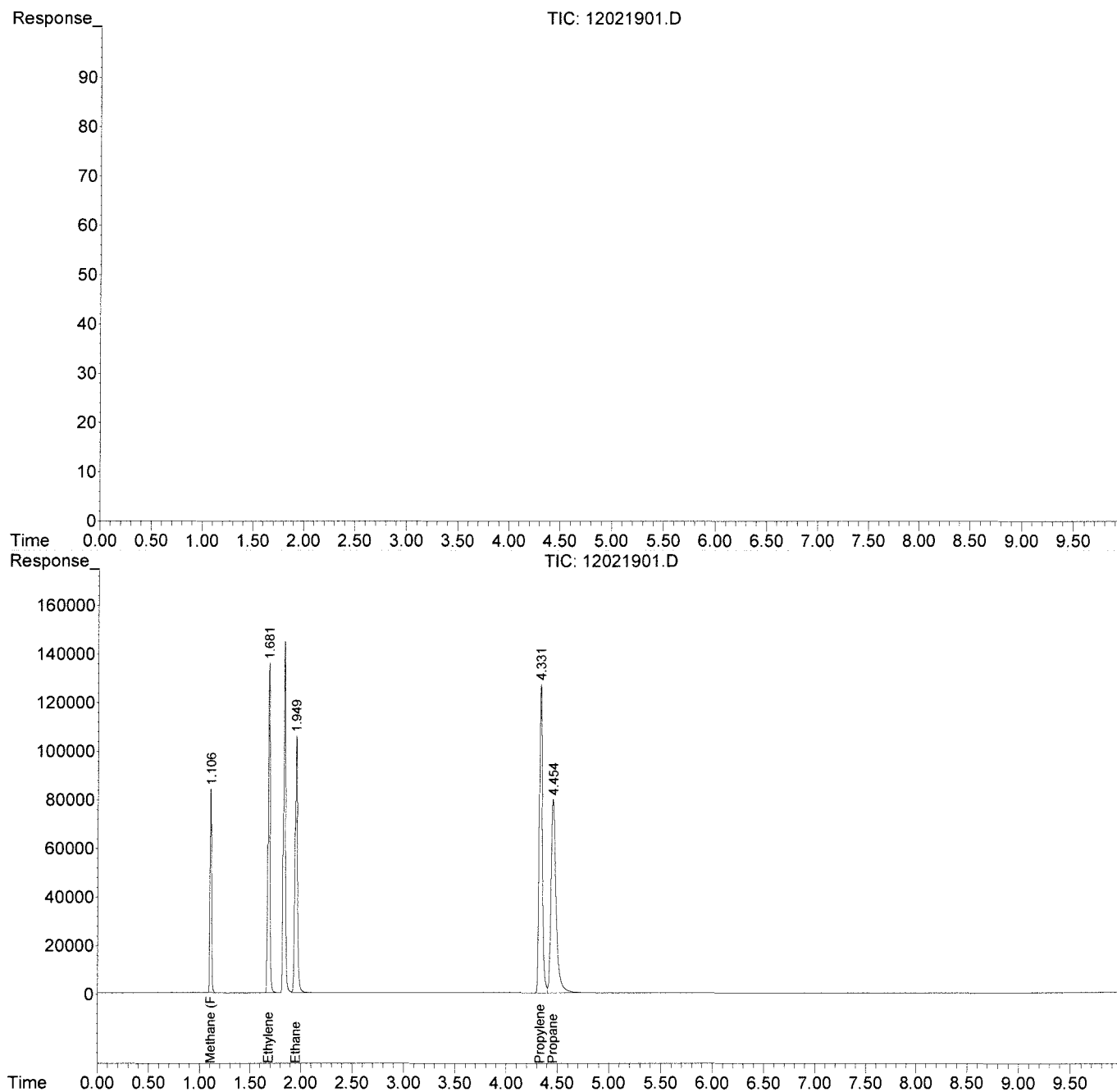
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 08:47:07
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 08:58:52 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
 Data File : 12021916.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 02-Dec-2019, 13:12:31
 Operator : LD
 Sample : STD S32-05221901
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Dec 02 13:21:50 2019
 Quant Method : I:\GC10\METHODS\RS091217_R.M
 Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 QLast Update : Wed Sep 13 11:14:47 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.114	867135	95.598	ppm
7) Ethylene	1.683	1710180	102.196	ppm
8) Ethane	1.949	1722334	101.612	ppm
9) Propylene	4.332	2524951	107.759	ppm
10) Propane	4.455	2596281	104.351	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

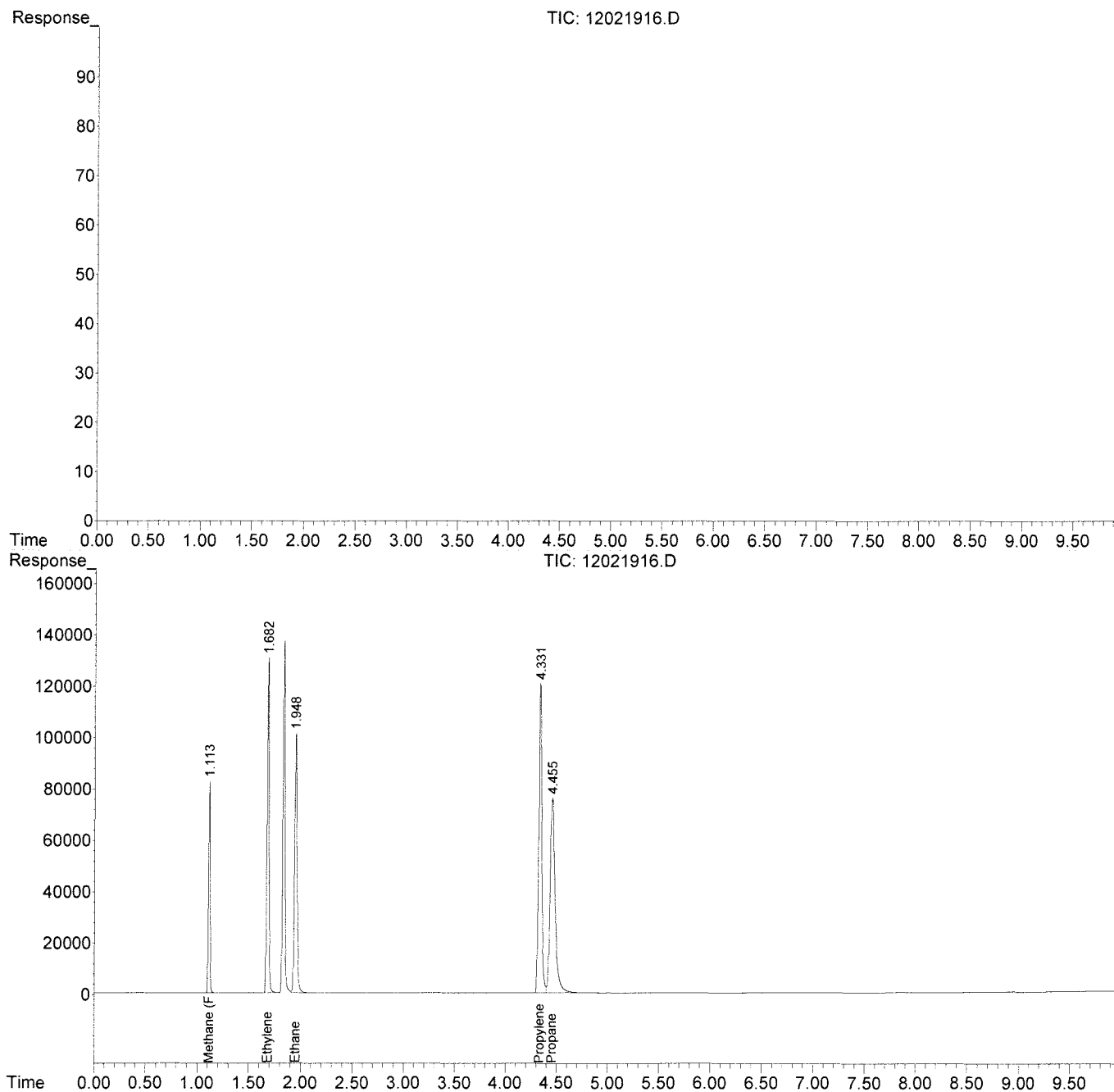
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 13:12:31
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 13:21:50 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



[illegible]

[illegible]

HS19111153 8260 Raw Data

ALS WO# HS19111153



MSVOA06 -Logbook

Batch: 38366
 Date: 11-18-2019
 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	11-18-2019 01:23 pm	1.00	50 mL	50 mL	X111801.D	Liquid	Y	NA
	<i>Auto find/ purged</i>									
2	VSTD000.25	ICAL1	11-18-2019 01:47 pm	1.00	50 mL	50 mL	X111802.D	Liquid	Y	NA
	<i>0.10 uL cal std/100 mL DI</i>									
3	VSTD000.5	ICAL2	11-18-2019 02:35 pm	1.00	50 mL	50 mL	X111803.D	Liquid	Y	NA
	<i>0.10 uL cal std/50 mL DI</i>									
4	VSTD001	ICAL3	11-18-2019 02:59 pm	1.00	50 mL	50 mL	X111804.D	Liquid	Y	NA
	<i>0.20 uL cal std/50 mL DI</i>									
5	VSTD002	ICAL4	11-18-2019 03:23 pm	1.00	50 mL	50 mL	X111805.D	Liquid	Y	NA
	<i>0.40 uL cal std/50 mL DI</i>									
6	VSTD005	ICAL5	11-18-2019 03:47 pm	1.00	50 mL	50 mL	X111806.D	Liquid	Y	NA
	<i>1.0 uL cal std/50 mL DI</i>									
7	VSTD020	ICAL6	11-18-2019 04:11 pm	1.00	50 mL	50 mL	X111807.D	Liquid	Y	NA
	<i>4.0 uL cal std/50 mL DI</i>									
8	VSTD050	ICAL7	11-18-2019 04:35 pm	1.00	50 mL	50 mL	X111808.D	Liquid	Y	NA
	<i>10 uL cal std/50 mL DI</i>									
9	VSTD100	ICAL8	11-18-2019 04:59 pm	1.00	50 mL	50 mL	X111809.D	Liquid	Y	NA
	<i>20 uL cal std/50 mL DI</i>									
10	VSTD150	ICAL9	11-18-2019 05:22 pm	1.00	50 mL	50 mL	X111810.D	Liquid	Y	NA
	<i>30 uL cal std/50 mL DI</i>									
11	VSTD200	ICAL	11-18-2019 05:46 pm	1.00	50 mL	50 mL	X111811.D	Liquid	Y	NA
	<i>40 uL cal std/50 mL DI</i>									
12	BLANK	SAMP	11-18-2019 06:10 pm	1.00	50 mL	50 mL	X111812.D	Liquid	Y	NA
13	BLANK	SAMP	11-18-2019 06:34 pm	1.00	50 mL	50 mL	X111813.D	Liquid	Y	NA
14	CCV	ICCV	11-18-2019 06:58 pm	1.00	50 mL	50 mL	X111814.D	Liquid	Y	NA
	<i>10 uL cal std/50 mL DI</i>									
15	BLANK	SAMP	11-18-2019 07:22 pm	1.00	50 mL	50 mL	X111815.D	Liquid	Y	NA
16	BFB	TUNE	11-18-2019 07:47 pm	1.00	50 mL	50 mL	Y111801.D	Liquid	Y	NA
	<i>Auto find/ purged</i>									
17	CCV	CCV	11-18-2019 08:10 pm	1.00	50 mL	50 mL	Y111802a.D	Liquid	Y	NA
	<i>10 uL cal std/50 mL DI/ not used</i>									
18	CCV	CCV	11-18-2019 08:34 pm	1.00	50 mL	50 mL	Y111803.D	Liquid	Y	NA
	<i>10 uL cal std/50 mL DI</i>									
19	CCB	SAMP	11-18-2019 08:58 pm	1.00	50 mL	50 mL	Y111804.D	Liquid	Y	NA
20	VLCSW-191118	LCS	11-18-2019 09:22 pm	1.00	50 mL	50 mL	Y111805.D	Liquid	Y	NA
	<i>4.0 uL cal std/50 mL DI</i>									
21	BLK	SAMP	11-18-2019 09:46 pm	1.00	50 mL	50 mL	Y111806.D	Liquid	Y	NA
22	VBLKW-191118	MBLK	11-18-2019 10:10 pm	1.00	50 mL	50 mL	Y111807.D	Liquid	Y	NA
23	HS19110861-01	SAMP	11-18-2019 10:34 pm	1.00	50 mL	50 mL	Y111808.D	Liquid	Y	NA
24	HS19110861-02	SAMP	11-18-2019 10:59 pm	1.00	50 mL	50 mL	Y111809.D	Liquid	Y	NA
25	HS19110861-03	SAMP	11-18-2019 11:23 pm	1.00	50 mL	50 mL	Y111810.D	Liquid	Y	NA
26	HS19110861-04	SAMP	11-18-2019 11:47 pm	1.00	50 mL	50 mL	Y111811.D	Liquid	Y	NA
27	HS19110861-05	SAMP	11-19-2019 12:11 am	1.00	50 mL	50 mL	Y111812.D	Liquid	Y	NA
28	HS19110861-06	SAMP	11-19-2019 12:35 am	1.00	50 mL	50 mL	Y111813.D	Liquid	Y	NA
29	HS19110829-13	SAMP	11-19-2019 12:59 am	1.00	50 mL	50 mL	Y111814.D	Liquid	Y	NA
30	HS19110829-11	SAMP	11-19-2019 01:23 am	1.00	50 mL	50 mL	Y111815.D	Liquid	Y	NA
31	HS19110829-01	SAMP	11-19-2019 01:47 am	1.00	50 mL	50 mL	Y111816.D	Liquid	Y	NA
32	HS19110829-01MS	MS	11-19-2019 02:11 am	1.00	50 mL	50 mL	Y111817.D	Liquid	Y	NA
	<i>3.50 uL cal std/40 mL samp</i>									



MSVOA06 -Logbook

#	<u>Samp ID</u>	<u>Type</u>	<u>Analyzed</u>	<u>DF</u>	<u>Init Wt/Vol</u>	<u>Final Vol</u>	<u>File ID</u>	<u>Matrix</u>	<u>Status</u>	<u>pH</u>
33	HS19110829-01MSD	MSD	11-19-2019 02:35 am	1.00	50 mL	50 mL	Y111818.D	Liquid	Y	NA
	<i>3.5 uL cal std/40 mL samp</i>									
34	HS19110829-02	SAMP	11-19-2019 02:59 am	1.00	50 mL	50 mL	Y111819.D	Liquid	Y	NA
35	HS19110829-03	SAMP	11-19-2019 03:23 am	1.00	50 mL	50 mL	Y111820.D	Liquid	Y	NA
36	HS19110829-04	SAMP	11-19-2019 03:47 am	1.00	50 mL	50 mL	Y111821.D	Liquid	Y	NA
37	HS19110829-05	SAMP	11-19-2019 04:11 am	1.00	50 mL	50 mL	Y111822.D	Liquid	Y	NA
38	HS19110829-06	SAMP	11-19-2019 04:35 am	1.00	50 mL	50 mL	Y111823.D	Liquid	Y	NA
39	HS19110829-07	SAMP	11-19-2019 04:59 am	1.00	50 mL	50 mL	Y111824.D	Liquid	Y	NA
40	HS19110829-08	SAMP	11-19-2019 05:23 am	1.00	50 mL	50 mL	Y111825.D	Liquid	Y	NA
41	HS19110829-09	SAMP	11-19-2019 05:47 am	1.00	50 mL	50 mL	Y111826.D	Liquid	Y	NA
42	HS19110829-10	SAMP	11-19-2019 06:11 am	1.00	50 mL	50 mL	Y111827.D	Liquid	Y	NA
43	HS19110829-12	SAMP	11-19-2019 06:36 am	1.00	50 mL	50 mL	Y111828.D	Liquid	Y	NA
44	HS19110716-06	SAMP	11-19-2019 07:00 am	1.00	50 mL	50 mL	Y111829.D	Liquid	Y	NA

Chemical	Value
SURR SPK ID	31106-04-03
IS ID	31106-04-04
ICV STD ID	30603-92-01
LCS/MS ID	30603-92-01
CAL STD ID	31106-04-01/02
BFB ID	31106-04-03
pH Paper	634-64-11



FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111153

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
=====	=====	=====	=====	=====
cis-1,3-Dichloropropene	50.00	52.07	104	80-120
trans-1,3-Dichloropropene	50.00	51.83	104	80-120
1,3-Dichlorobenzene	50.00	50.58	101	80-120
2,2-Dichloropropane	50.00	52.35	105	80-120
1,1-Dichloropropene	50.00	49.88	100	80-120
Dibromomethane	50.00	50.50	101	80-120
1,2-Dibromoethane	50.00	50.00	100	80-120
trans-1,2-Dichloroethene	50.00	52.31	105	80-120
1,1,1,2-Tetrachloroethane	50.00	51.37	103	80-120
1,1,1-Trichloroethane	50.00	52.74	105	80-120
1,1,2,2-Tetrachloroethane	50.00	49.68	99	80-120
Toluene	50.00	49.55	99	80-120
1,1,2-Trichloroethane	50.00	49.22	98	80-120
1,1-Dichloroethane	50.00	51.46	103	80-120
1,1-Dichloroethene	50.00	53.02	106	80-120
Trichlorofluoromethane	50.00	55.57	111	80-120
1,2,3-Trichlorobenzene	50.00	58.28	116	80-120
Tetrachloroethene	50.00	49.33	99	80-120
1,2,4-Trichlorobenzene	50.00	55.34	111	80-120
1,2,4-Trimethylbenzene	50.00	50.40	101	80-120
tert-Butylbenzene	50.00	51.37	103	80-120
Trichloroethene	50.00	51.78	104	80-120
1,2-Dichlorobenzene	50.00	49.42	99	80-120
1,2-Dichloroethane	50.00	51.38	103	80-120
1,2-Dichloropropane	50.00	49.50	99	80-120
1,3,5-Trimethylbenzene	50.00	52.04	104	80-120
1,3-Dichloropropane	50.00	49.18	98	80-120
1,4-Dichlorobenzene	50.00	49.63	99	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: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111153

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
=====	=====	=====	=====	=====
2-Butanone	100.00	105.25	105	80-120
2-Chlorotoluene	50.00	50.41	101	80-120
2-Hexanone	100.00	96.09	96	80-120
4-Chlorotoluene	50.00	50.58	101	80-120
Styrene	50.00	50.35	101	80-120
4-Methyl-2-Pentanone	100.00	97.68	98	80-120
Acetone	100.00	111.37	111	80-120
Benzene	50.00	50.85	102	80-120
Bromobenzene	50.00	51.16	102	80-120
Bromochloromethane	50.00	51.34	103	80-120
Bromodichloromethane	50.00	51.00	102	80-120
Bromoform	50.00	49.08	98	80-120
Bromomethane	50.00	57.73	115	80-120
Carbon Disulfide	100.00	109.76	110	80-120
Carbon Tetrachloride	50.00	51.07	102	80-120
Chlorobenzene	50.00	49.20	98	80-120
Chloroethane	50.00	51.64	103	80-120
Chloroform	50.00	49.36	99	80-120
Chloromethane	50.00	50.43	101	80-120
cis-1,2-Dichloroethene	50.00	53.16	106	80-120
Dibromochloromethane	50.00	49.93	100	80-120
Dichlorodifluoromethane	50.00	52.99	106	80-120
Ethylbenzene	50.00	50.22	100	80-120
Hexachlorobutadiene	50.00	61.69	123*	80-120
Isopropylbenzene	50.00	50.14	100	80-120
m,p-Xylenes	100.00	101.69	102	80-120
Methylene Chloride	50.00	49.65	99	80-120
n-Butylbenzene	50.00	52.07	104	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: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111153

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
=====	=====	=====	=====	=====
n-Propylbenzene	50.00	51.90	104	80-120
Naphthalene	50.00	51.04	102	80-120
o-Xylene	50.00	49.72	99	80-120
sec-Butylbenzene	50.00	51.77	104	80-120
Vinyl Chloride	50.00	51.98	104	80-120
1,2,3-Trichloropropane	50.00	49.40	99	80-120
p-Isopropyltoluene	50.00	51.77	104	80-120
1,2-Dibromo-3-Chloropro	50.00	51.39	103	80-120
Freon TF	50.00	55.79	112	80-120

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

* Values outside of QC limits

COMMENTS:

FORM III VOA



FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111153

Lab File ID: X111801

BFB Injection Date: 11/18/19

Instrument ID: VOA6

BFB Injection Time: 1323

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	20.9
75	30.0 - 60.0% of mass 95	54.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.6
173	Less than 2.0% of mass 174	0.4 (0.7)1
174	Greater than 50.0% of mass 95	65.0
175	5.0 - 9.0% of mass 174	5.8 (8.9)1
176	95.0 - 101.0% of mass 174	62.0 (95.4)1
177	5.0 - 9.0% of mass 176	5.1 (8.2)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	X111802	11/18/19	1347
02	VSTD000.5	VSTD000.5	X111803	11/18/19	1435
03	VSTD001	VSTD001	X111804	11/18/19	1459
04	VSTD002	VSTD002	X111805	11/18/19	1523
05	VSTD005	VSTD005	X111806	11/18/19	1547
06	VSTD020	VSTD020	X111807	11/18/19	1611
07	VSTD050	VSTD050	X111808	11/18/19	1635
08	VSTD100	VSTD100	X111809	11/18/19	1659
09	VSTD150	VSTD150	X111810	11/18/19	1722
10	VSTD200	VSTD200	X111811	11/18/19	1746
11	ICV	ICV	X111814	11/18/19	1858
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

page 1 of 1

FORM V VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111153

Instrument ID: VOA6

Calibration Date(s): 11/18/19 11/18/19

Column: DB624

ID: 0.18 (mm)

Calibration Time(s): 1347

1746

LAB FILE ID:

RF0.25: X111802

RF0.5: X111803

RF1: X111804

RF2: X111805

RF5: X111806

RF20: X111807

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
=====	=====	=====	=====	=====	=====	=====
cis-1,3-Dichloropropene		0.326	0.553	0.497	0.554	0.476
trans-1,3-Dichloropropene		0.304	0.464	0.458	0.504	0.445
1,3-Dichlorobenzene		1.036	1.601	1.542	1.622	1.411
2,2-Dichloropropane		0.547	0.815	0.674	0.705	0.610
1,1-Dichloropropene		0.332	0.476	0.441	0.432	0.372
Dibromomethane		0.139	0.244	0.233	0.245	0.207
1,2-Dibromoethane		0.245	0.385	0.380	0.402	0.348
trans-1,2-Dichloroethene		0.285	0.489	0.436	0.440	0.386
1,1,1,2-Tetrachloroethane		0.248	0.403	0.375	0.406	0.356
1,1,1-Trichloroethane		0.492	0.775	0.723	0.717	0.640
1,1,2,2-Tetrachloroethane		0.602	0.844	0.735	0.800	0.680
Toluene		1.077	1.582	1.498	1.570	1.359
1,1,2-Trichloroethane		0.180	0.311	0.285	0.294	0.253
1,1-Dichloroethane		0.569	0.830	0.781	0.786	0.690
1,1-Dichloroethene		0.349	0.423	0.469	0.464	0.390
Trichlorofluoromethane		0.511	0.831	0.818	0.813	0.707
1,2,3-Trichlorobenzene		421	1182	2753	6553	21856
Tetrachloroethene		0.266	0.412	0.394	0.398	0.333
1,2,4-Trichlorobenzene		0.325	0.435	0.465	0.518	0.418
1,2,4-Trimethylbenzene		1.739	2.619	2.442	2.563	2.286
tert-Butylbenzene		1.338	2.168	2.060	2.126	1.865
Trichloroethene		0.226	0.390	0.387	0.396	0.344
1,2-Dichlorobenzene		0.916	1.484	1.429	1.497	1.292
1,2-Dichloroethane		0.277	0.470	0.408	0.432	0.391
1,2-Dichloropropane		0.294	0.294	0.312	0.339	0.284
1,3,5-Trimethylbenzene		1.606	2.354	2.372	2.481	2.215
1,3-Dichloropropane		0.431	0.613	0.570	0.583	0.512
1,4-Dichlorobenzene		1.108	1.632	1.581	1.609	1.417
2-Butanone		0.167	0.156	0.152	0.164	0.146
2-Chlorotoluene		1.263	1.990	1.903	2.032	1.735
2-Hexanone		0.180	0.237	0.204	0.235	0.191
4-Chlorotoluene		1.550	2.500	2.222	2.378	2.079
Styrene		0.702	1.134	1.076	1.148	1.004
4-Methyl-2-Pentanone		0.220	0.321	0.313	0.331	0.281
Acetone		4579	5956	7954	15992	43200
Benzene		0.788	1.327	1.220	1.289	1.109
Bromobenzene		0.584	1.003	0.940	0.994	0.873
Bromochloromethane		0.229	0.323	0.309	0.284	0.255
Bromodichloromethane		0.298	0.490	0.424	0.473	0.395
Bromoform		887	3197	5989	16084	56416
Bromomethane		2741	6334	12041	28671	93456
Carbon Disulfide		0.747	1.257	1.216	1.254	1.101
Carbon Tetrachloride		0.340	0.503	0.483	0.478	0.403
Chlorobenzene		0.738	1.108	1.028	1.090	0.934

FORM VI VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911115

Instrument ID: VOA6

Calibration Date(s): 11/18/19 11/18/19

Column: DB624

ID: 0.18

(mm)

Calibration Time(s): 1347

1746

LAB FILE ID: RF0.25: X111802 RF0.5: X111803 RF1: X111804
RF2: X111805 RF5: X111806 RF20: X111807

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
=====	=====	=====	=====	=====	=====	=====
Chloroethane		0.279	0.361	0.345	0.323	0.283
Chloroform		0.775	0.990	0.890	0.850	0.736
Chloromethane		2201	6118	10461	24949	85402
cis-1,2-Dichloroethene		0.327	0.540	0.493	0.541	0.454
Dibromochloromethane		0.253	0.433	0.392	0.429	0.370
Dichlorodifluoromethane		1269	3829	7335	18346	63810
Ethylbenzene		0.353	0.562	0.515	0.576	0.493
Hexachlorobutadiene		1376	2468	4522	11525	37789
Isopropylbenzene		1.054	1.627	1.570	1.602	1.425
m,p-Xylenes		0.393	0.653	0.644	0.678	0.591
Methylene Chloride		0.422	0.556	0.483	0.491	0.406
n-Butylbenzene		1.620	2.055	2.004	2.069	1.888
n-Propylbenzene		2.290	3.358	3.192	3.345	2.976
Naphthalene		0.510	0.569	0.604	0.614	0.512
o-Xylene		0.390	0.677	0.656	0.658	0.582
sec-Butylbenzene		1.995	2.859	2.859	2.813	2.501
Vinyl Chloride		0.490	0.545	0.546	0.504	0.454
1,2,3-Trichloropropane		0.455	0.730	0.701	0.662	0.580
p-Isopropyltoluene		1.839	2.630	2.538	2.573	2.307
1,2-Dibromo-3-Chloropropane		125	464	859	2641	8805
Freon TF		0.296	0.488	0.452	0.457	0.380
=====	=====	=====	=====	=====	=====	=====
4-Bromofluorobenzene		3844	5731	10468	25804	94194
Dibromofluoromethane		2303	3882	8127	20237	75094
Toluene-d8		1.628	1.327	1.357	1.369	1.263
1,2-Dichloroethane-d4		2522	4458	8034	20921	75813

FORM VI VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911115

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

LAB FILE ID: RF50: X111808 RF100: X111809 RF150: X111810

RF200: X111811

COMPOUND	RF50	RF100	RF150	RF200
=====	=====	=====	=====	=====
cis-1,3-Dichloropropene	0.499	0.494	0.497	0.493
trans-1,3-Dichloropropene	0.452	0.455	0.456	0.461
1,3-Dichlorobenzene	1.457	1.422	1.398	1.417
2,2-Dichloropropane	0.644	0.644	0.646	0.658
1,1-Dichloropropene	0.402	0.392	0.391	0.392
Dibromomethane	0.211	0.206	0.208	0.208
1,2-Dibromoethane	0.348	0.347	0.350	0.351
trans-1,2-Dichloroethene	0.410	0.413	0.416	0.427
1,1,1,2-Tetrachloroethane	0.368	0.369	0.369	0.370
1,1,1-Trichloroethane	0.673	0.676	0.678	0.697
1,1,2,2-Tetrachloroethane	0.672	0.670	0.662	0.661
Toluene	1.411	1.408	1.420	1.435
1,1,2-Trichloroethane	0.256	0.258	0.256	0.259
1,1-Dichloroethane	0.710	0.716	0.728	0.737
1,1-Dichloroethene	0.430	0.429	0.426	0.434
Trichlorofluoromethane	0.823	0.824	0.813	0.840
1,2,3-Trichlorobenzene	52554	102660	156391	210414
Tetrachloroethene	0.352	0.340	0.332	0.334
1,2,4-Trichlorobenzene	0.421	0.402	0.400	0.406
1,2,4-Trimethylbenzene	2.419	2.440	2.397	2.446
tert-Butylbenzene	2.012	2.011	1.967	1.996
Trichloroethene	0.359	0.350	0.348	0.348
1,2-Dichlorobenzene	1.330	1.327	1.324	1.344
1,2-Dichloroethane	0.401	0.397	0.397	0.398
1,2-Dichloropropane	0.295	0.290	0.290	0.290
1,3,5-Trimethylbenzene	2.368	2.377	2.339	2.377
1,3-Dichloropropane	0.516	0.521	0.514	0.516
1,4-Dichlorobenzene	1.465	1.445	1.412	1.445
2-Butanone	0.146	0.147	0.153	0.148
2-Chlorotoluene	1.853	1.827	1.787	1.800
2-Hexanone	0.192	0.201	0.204	0.204
4-Chlorotoluene	2.208	2.230	2.205	2.250
Styrene	1.056	1.073	1.093	1.113
4-Methyl-2-Pentanone	0.283	0.291	0.298	0.298
Acetone	103091	202207	284604	372223
Benzene	1.164	1.135	1.133	1.128
Bromobenzene	0.878	0.857	0.837	0.854
Bromochloromethane	0.263	0.261	0.260	0.255
Bromodichloromethane	0.412	0.408	0.412	0.412
Bromoform	143798	293256	447981	602595
Bromomethane	215480	396733	529714	
Carbon Disulfide	1.192	1.188	1.192	1.228
Carbon Tetrachloride	0.452	0.442	0.435	0.440
Chlorobenzene	0.965	0.966	0.974	0.982

FORM VI VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911115

Instrument ID: VOA6

Calibration Date(s): 11/18/19 11/18/19

Column: DB624

ID: 0.18 (mm)

Calibration Time(s): 1347 1746

LAB FILE ID: RF50: X111808 RF100: X111809 RF150: X111810
RF200: X111811

COMPOUND	RF50	RF100	RF150	RF200
=====	=====	=====	=====	=====
Chloroethane	0.311	0.311	0.310	0.311
Chloroform	0.751	0.754	0.761	0.780
Chloromethane	215753	420936	613254	811388
cis-1,2-Dichloroethene	0.470	0.475	0.478	0.488
Dibromochloromethane	0.381	0.386	0.386	0.387
Dichlorodifluoromethane	186161	359790	504807	695305
Ethylbenzene	0.512	0.509	0.506	0.512
Hexachlorobutadiene	99881	192455		
Isopropylbenzene	1.523	1.544	1.538	1.560
m,p-Xylenes	0.623	0.628	0.627	0.639
Methylene Chloride	0.421	0.425	0.428	0.436
n-Butylbenzene	2.162	2.176	2.153	2.197
n-Propylbenzene	3.234	3.176	3.089	3.155
Naphthalene	0.521	0.505	0.514	0.512
o-Xylene	0.600	0.608	0.611	0.623
sec-Butylbenzene	2.823	2.798	2.726	2.790
Vinyl Chloride	0.505	0.510	0.510	0.523
1,2,3-Trichloropropane	0.577	0.564	0.549	0.543
p-Isopropyltoluene	2.571	2.546	2.480	2.534
1,2-Dibromo-3-Chloropropane	21800	42468	65470	86827
Freon TF	0.459	0.462	0.452	0.472
=====	=====	=====	=====	=====
4-Bromofluorobenzene	222328	465570	688600	933083
Dibromofluoromethane	173990	354918	514854	681300
Toluene-d8	1.212	1.246	1.223	1.231
1,2-Dichloroethane-d4	178006	364646	532181	713282

FORM VI VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911115

Instrument ID: VOA6

Calibration Date(s): 11/18/19 11/18/19

Column: DB624

ID: 0.18 (mm)

Calibration Time(s): 1347 1746

COMPOUND	CURVE	COEFFICIENTS			%RSD OR R ²	MAX %RSD OR R ²
		A0	A1	A2		
=====	=====	=====	=====	=====	=====	=====
cis-1,3-Dichloropropene	AVRG		0.48761342		13.630	15.000
trans-1,3-Dichloropropene	AVRG		0.44441818		12.432	15.000
1,3-Dichlorobenzene	AVRG		1.43390401		11.978	15.000
2,2-Dichloropropane	AVRG		0.66029305		11.040	15.000
1,1-Dichloropropene	AVRG		0.40332539		10.380	15.000
Dibromomethane	AVRG		0.21136309		14.886	15.000
1,2-Dibromoethane	AVRG		0.35067597		12.763	15.000
trans-1,2-Dichloroethene	AVRG		0.41138839		13.381	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.36274186		12.717	15.000
1,1,1-Trichloroethane	AVRG		0.67453438		11.648	15.000
1,1,2,2-Tetrachloroethane	AVRG		0.70308768		10.825	15.000
Toluene	AVRG		1.41788930		10.479	15.000
1,1,2-Trichloroethane	AVRG		0.26137158		14.102	15.000
1,1-Dichloroethane	AVRG		0.72750643		10.197	15.000
1,1-Dichloroethene	AVRG		0.42373367		8.607	15.000
Trichlorofluoromethane	AVRG		0.77561874		13.736	15.000
1,2,3-Trichlorobenzene	2ORDR	-1.73e-002	5.50264123	-0.1707432	0.9998373	0.9900000
Tetrachloroethene	AVRG		0.35131312		12.801	15.000
1,2,4-Trichlorobenzene	AVRG		0.42118311		12.391	15.000
1,2,4-Trimethylbenzene	AVRG		2.37245105		10.778	15.000
tert-Butylbenzene	AVRG		1.94917789		12.586	15.000
Trichloroethene	AVRG		0.34966887		14.517	15.000
1,2-Dichlorobenzene	AVRG		1.32701574		12.905	15.000
1,2-Dichloroethane	AVRG		0.39691390		12.978	15.000
1,2-Dichloropropane	AVRG		0.29867989		5.660	15.000
1,3,5-Trimethylbenzene	AVRG		2.27648393		11.444	15.000
1,3-Dichloropropane	AVRG		0.53064503		9.928	15.000
1,4-Dichlorobenzene	AVRG		1.45709302		10.715	15.000
2-Butanone	AVRG		0.15342086		5.109	15.000
2-Chlorotoluene	AVRG		1.79889065		12.374	15.000
2-Hexanone	AVRG		0.20539492		9.225	15.000
4-Chlorotoluene	AVRG		2.18043218		12.121	15.000
Styrene	AVRG		1.04451403		12.966	15.000
4-Methyl-2-Pentanone	AVRG		0.29296235		10.958	15.000
Acetone	LINR	-7.72e-002	8.02348321		0.9999004	0.9900000
Benzene	AVRG		1.14377224		13.444	15.000
Bromobenzene	AVRG		0.86897432		14.186	15.000
Bromochloromethane	AVRG		0.27086566		10.835	15.000
Bromodichloromethane	AVRG		0.41377448		13.021	15.000
Bromoform	LINR	1.997e-002	3.29171060		0.9995506	0.9900000
Bromomethane	LINR	-4.72e-002	2.10632186		0.9967362	0.9900000
Carbon Disulfide	AVRG		1.15275096		13.789	15.000
Carbon Tetrachloride	AVRG		0.44181701		10.990	15.000
Chlorobenzene	AVRG		0.97614522		10.975	15.000

FORM VI VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911115

Instrument ID: VOA6

Calibration Date(s): 11/18/19 11/18/19

Column: DB624

ID: 0.18 (mm)

Calibration Time(s): 1347

1746

COMPOUND	CURVE	COEFFICIENTS			%RSD OR R^2	MAX %RSD OR R^2
		A0	A1	A2		
Chloroethane	AVRG		0.31480657		8.302	15.000
Chloroform	AVRG		0.80974969		10.425	15.000
Chloromethane	LINR	3.748e-003	1.83460007		0.9998260	0.9900000
cis-1,2-Dichloroethene	AVRG		0.47416954		13.204	15.000
Dibromochloromethane	AVRG		0.37970849		13.683	15.000
Dichlorodifluoromethane	LINR	1.763e-002	2.15619239		0.9988587	0.9900000
Ethylbenzene	AVRG		0.50436028		12.486	15.000
Hexachlorobutadiene	LINR	-1.03e-002	2.88504774		0.9991601	0.9900000
Isopropylbenzene	AVRG		1.49389834		11.672	15.000
m,p-Xylenes	AVRG		0.60861655		13.850	15.000
Methylene Chloride	AVRG		0.45210476		10.732	15.000
n-Butylbenzene	AVRG		2.03598696		9.063	15.000
n-Propylbenzene	AVRG		3.09059969		10.434	15.000
Naphthalene	AVRG		0.54020307		8.055	15.000
o-Xylene	AVRG		0.60066696		14.145	15.000
sec-Butylbenzene	AVRG		2.68486077		10.468	15.000
Vinyl Chloride	AVRG		0.50958661		5.494	15.000
1,2,3-Trichloropropane	AVRG		0.59573805		14.502	15.000
p-Isopropyltoluene	AVRG		2.44651692		10.015	15.000
1,2-Dibromo-3-Chloropropane	LINR	-6.81e-003	12.9714748		0.9998714	0.9900000
Freon TF	AVRG		0.43530320		13.846	15.000
4-Bromofluorobenzene	LINR	8.357e-003	2.13170980		0.9997055	0.9900000
Dibromofluoromethane	LINR	7.36e-003	2.18334297		0.9997712	0.9900000
Toluene-d8	AVRG		1.31739803		9.895	15.000
1,2-Dichloroethane-d4	LINR	1.473e-002	2.09453233		0.9994184	0.9900000

FORM VI VOA



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111801.D

Page 1

Date : 18-NOV-2019 13:23

Client ID: BFB

Instrument: voa6.i

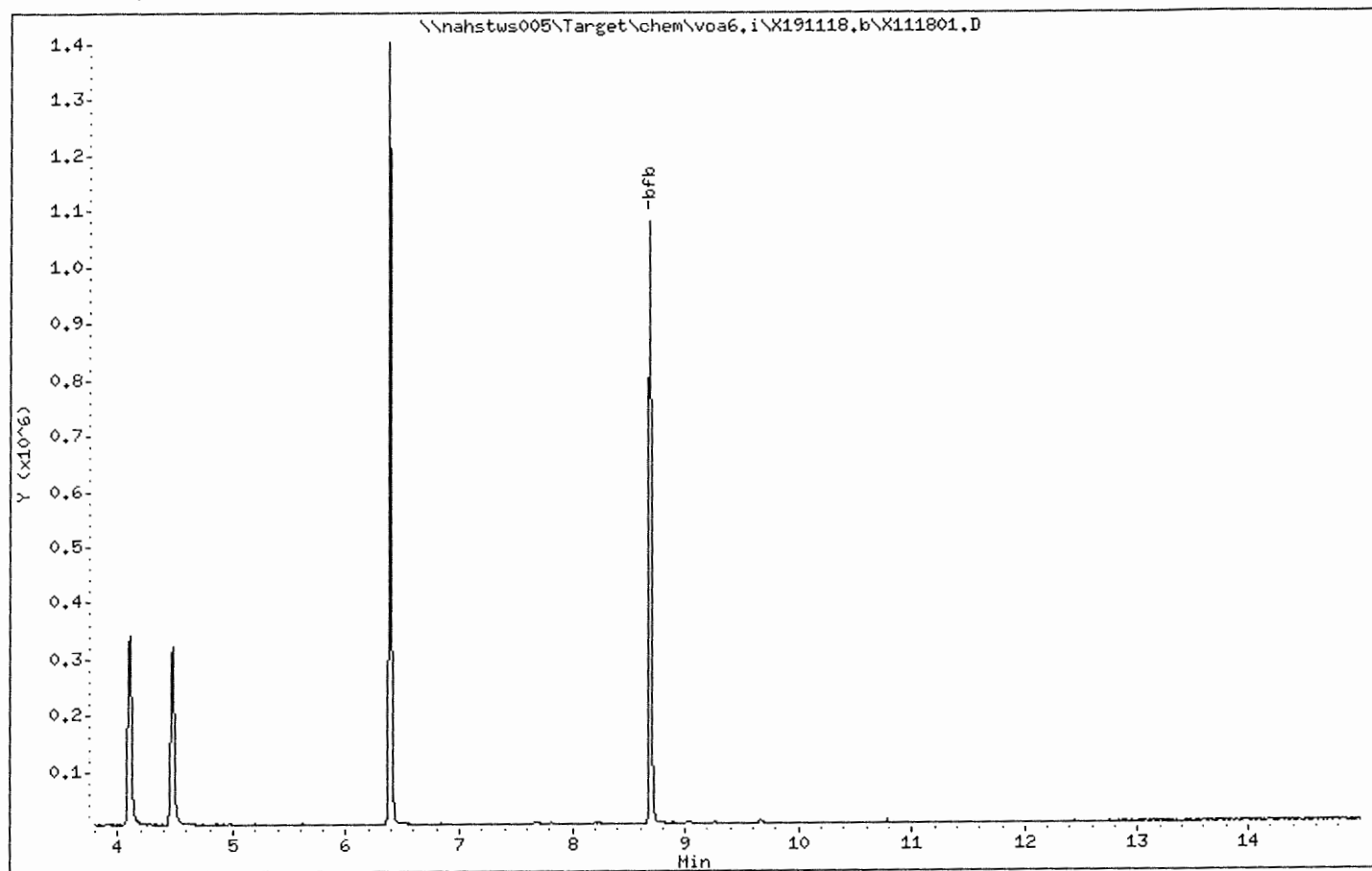
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstus005\Target\chem\voa6.i\X191118.b\X111801.D

Page 2

Date : 18-NOV-2019 13:23

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

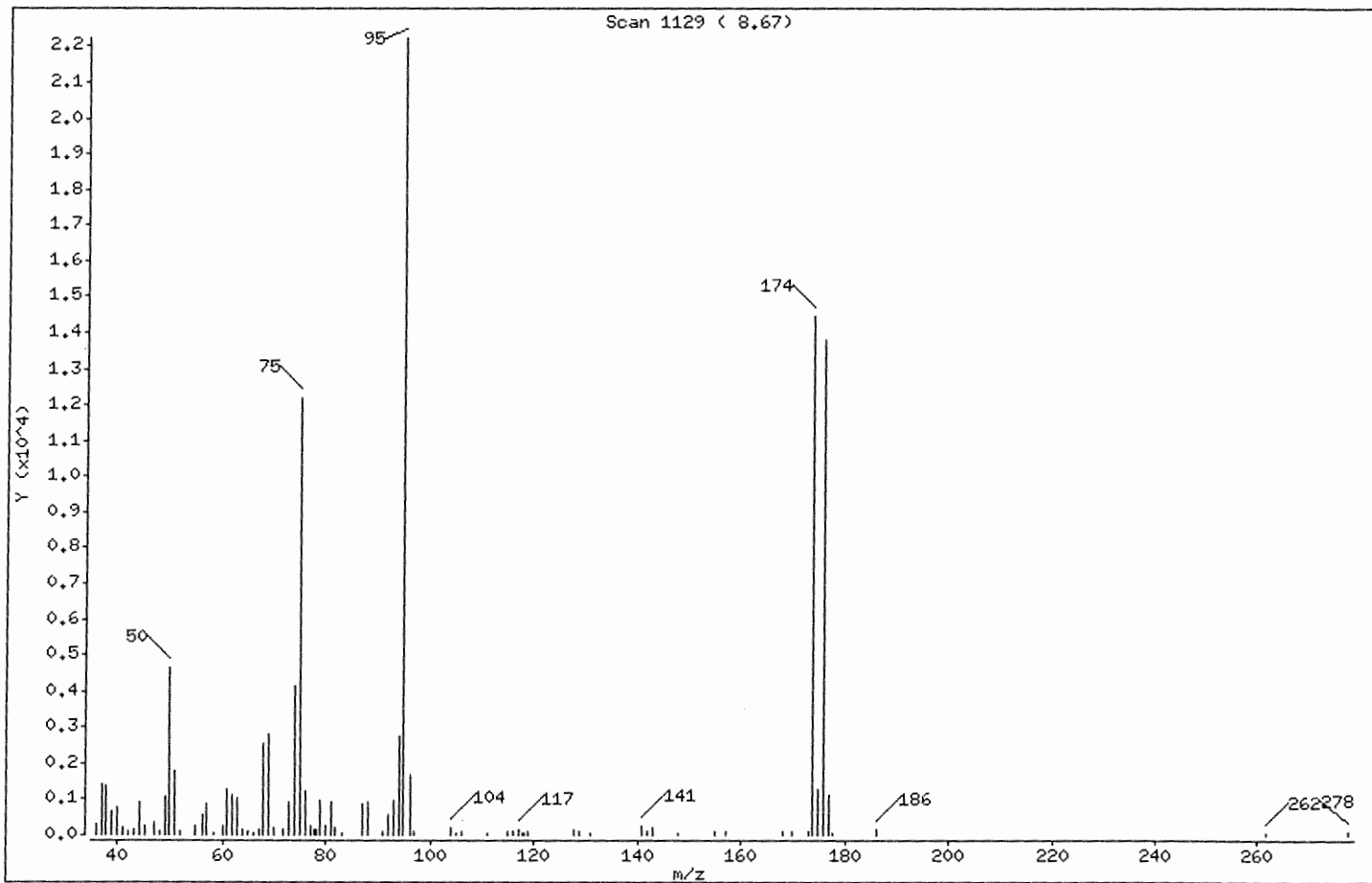
Volume Injected (uL): 2.0

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	20.86
75	30.00 - 60.00% of mass 95	54.86
96	5.00 - 9.00% of mass 95	7.62
173	Less than 2.00% of mass 174	0.43 (0.66)
174	Greater than 50.00% of mass 95	65.03
175	5.00 - 9.00% of mass 174	5.82 (8.95)
176	95.00 - 101.00% of mass 174	62.04 (95.41)
177	5.00 - 9.00% of mass 176	5.11 (8.24)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111801.D

Date : 18-NOV-2019 13:23

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: X111801.D
 Spectrum: Scan 1129 (8.67)
 Location of Maximum: 95.00
 Number of points: 83

m/z	Y	m/z	Y	m/z	Y	m/z	Y

36.00	329	61.00	1259	81.80	217	127.90	153
37.00	1409	62.00	1149	83.00	50	128.90	116
38.00	1370	62.90	1001	86.90	880	130.90	70
39.00	662	64.00	138	88.00	941	141.00	249
40.00	775	65.10	110	91.10	116	141.90	94

41.00	191	66.00	72	92.10	565	142.90	216
42.00	77	67.10	153	93.00	990	148.10	62
43.00	166	68.00	2578	94.00	2783	155.00	87
44.10	928	69.00	2816	95.00	22224	157.00	77
45.10	261	69.90	217	96.10	1694	168.00	85

47.00	367	71.90	143	97.00	111	170.00	86
48.10	104	73.00	931	103.90	180	172.90	96
49.00	1057	74.00	4135	105.10	52	173.90	14452
50.00	4636	75.00	12193	106.00	100	174.90	1293
51.00	1802	76.00	1227	111.10	63	175.90	13788

52.10	85	77.10	248	115.10	93	176.90	1136
55.00	269	77.80	150	116.00	100	177.80	71
56.10	539	78.10	174	117.00	158	186.00	161
56.90	843	78.90	948	117.70	74	261.90	57
58.20	60	79.90	265	118.10	74	277.90	85

60.00	231	80.90	936	119.00	127		

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D
 Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
 Inj Date : 18-NOV-2019 13:47
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD000.25;VSTD000.25;1;1;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 17:46 Cal File: X111811.D
 Als bottle: 2 Calibration Sample, Level: 1
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NASTW7056

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					AMOUNTS	
		RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182 (1.000)		431958	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970 (1.000)		586737	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671 (1.000)		529029	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662 (1.000)		277425	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476 (1.070)		1323	0.25000	1.05 (Ta)
\$ 69 4-Bromofluorobenzene	95	8.695	8.695 (1.134)		3260	0.25000	1.07 (a)
\$ 30 Dibromofluoromethane	113	4.103	4.103 (0.981)		1295	0.25000	0.69 (a)
\$ 48 Toluene-d8	98	6.388	6.388 (0.833)		5247	0.25000	0.37 (Ta)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778 (1.014)		814	0.25000	0.21 (a)
31 1,1,1-Trichloroethane	97	4.089	4.089 (0.978)		1177	0.25000	0.20 (a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845 (0.915)		861	0.25000	0.22 (aM)
138 Freon TF	101	1.912	1.912 (0.457)		755	0.25000	0.20 (aM)
53 1,1,2-Trichloroethane	83	6.847	6.847 (0.893)		656	0.25000	0.23 (aM)
22 1,1-Dichloroethane	63	2.922	2.922 (0.699)		1571	0.25000	0.24 (aM)
11 1,1-Dichloroethene	96	1.919	1.919 (0.459)		909	0.25000	0.24 (a)
32 1,1-Dichloropropene	75	4.283	4.283 (0.862)		1579	0.25000	0.33 (a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746 (1.216)		224	0.25000	(aM)
71 1,2,3-Trichloropropane	75	8.867	8.867 (0.918)		702	0.25000	0.21 (aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345 (1.174)		320	0.25000	0.13 (aM)
79 1,2,4-Trimethylbenzene	105	9.383	9.383 (0.971)		2742	0.25000	0.20 (a)
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658 (1.103)		103	0.25000	(aM)
57 1,2-Dibromoethane	107	7.262	7.262 (0.947)		708	0.25000	0.19 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	1523	0.25000	0.20 (a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	938	0.25000	0.20 (aM)
42 1,2-Dichloropropane	63	5.450	5.450	(1.097)	858	0.25000	0.24 (aM)
75 1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	2444	0.25000	0.19 (a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	1534	0.25000	0.19 (a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	1126	0.25000	0.20 (a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	1760	0.25000	0.21 (a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	1234	0.25000	0.21 (aM)
24 2-Butanone	43	3.588	3.588	(0.858)	827	0.50000	0.62 (aM)
76 2-Chlorotoluene	91	8.974	8.974	(0.929)	2277	0.25000	0.22 (a)
52 2-Hexanone	43	7.090	7.090	(0.924)	809	0.50000	0.37 (Ta)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	2873	0.25000	0.23 (a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	2596	0.25000	0.19 (a)
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	1190	0.50000	0.38 (aM)
10 Acetone	43	1.969	1.969	(0.471)	3213	0.50000	(aM)
37 Benzene	78	4.519	4.519	(0.909)	3088	0.25000	0.23 (a)
74 Bromobenzene	156	8.817	8.817	(0.913)	940	0.25000	0.19 (a)
29 Bromochloromethane	128	3.795	3.795	(0.908)	660	0.25000	0.28 (aM)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	1101	0.25000	0.22 (aM)
66 Bromoform	173	8.416	8.416	(1.097)	495	0.25000	1.15 (aM)
6 Bromomethane	94	1.339	1.339	(0.320)	1552	0.25000	(aM)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	3999	0.50000	0.40 (a)
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	1084	0.25000	0.20 (aM)
59 Chlorobenzene	112	7.692	7.692	(1.003)	2603	0.25000	0.25 (a)
7 Chloroethane	64	1.403	1.403	(0.336)	672	0.25000	0.24 (aM)
28 Chloroform	83	3.910	3.910	(0.935)	2414	0.25000	0.34 (aM)
3 Chloromethane	50	1.074	1.074	(0.257)	1640	0.25000	0.53 (aM)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1103	0.25000	0.26 (a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1351	0.25000	0.23 (aM)
55 Dibromochloromethane	129	7.184	7.184	(0.937)	883	0.25000	0.21 (a)
44 Dibromomethane	93	5.558	5.558	(1.118)	573	0.25000	0.23 (aM)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	642	0.25000	1.04 (aM)
61 Ethylbenzene	106	7.800	7.800	(1.017)	1072	0.25000	0.20 (a)
91 Hexachlorobutadiene	225	11.481	11.481	(1.188)	367	0.25000	(aM)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	2992	0.25000	0.18 (a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	2521	0.50000	0.39 (a)
17 Methylene Chloride	84	2.306	2.306	(0.551)	1174	0.25000	0.30 (a)
87 n-Butylbenzene	91	9.999	9.999	(1.035)	2169	0.25000	0.19 (a)
73 n-Propylbenzene	91	8.917	8.917	(0.923)	3456	0.25000	0.20 (a)
92 Naphthalene	128	11.553	11.553	(1.196)	764	0.25000	0.25 (a)
63 o-Xylene	106	8.244	8.244	(1.075)	1221	0.25000	0.19 (a)
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	3012	0.25000	0.20 (a)
64 Styrene	104	8.265	8.265	(1.078)	2388	0.25000	0.21 (a)
78 tert-Butylbenzene	119	9.340	9.340	(0.967)	2350	0.25000	0.21 (a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	914	0.25000	0.24 (a)
50 Toluene	91	6.453	6.453	(0.841)	3631	0.25000	0.24 (a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	826	0.25000	0.23 (aM)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	996	0.25000	0.19 (a)
38 Trichloroethene	130	5.214	5.214	(1.049)	945	0.25000	0.23 (a)
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	1233	0.25000	0.18 (a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	1052	0.25000	0.23 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D Page 3
Report Date: 06-Dec-2019 19:56

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: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D

Page 4

Date : 18-NOV-2019 13:47

Client ID: VSTD000.25

Instrument: voa6.i

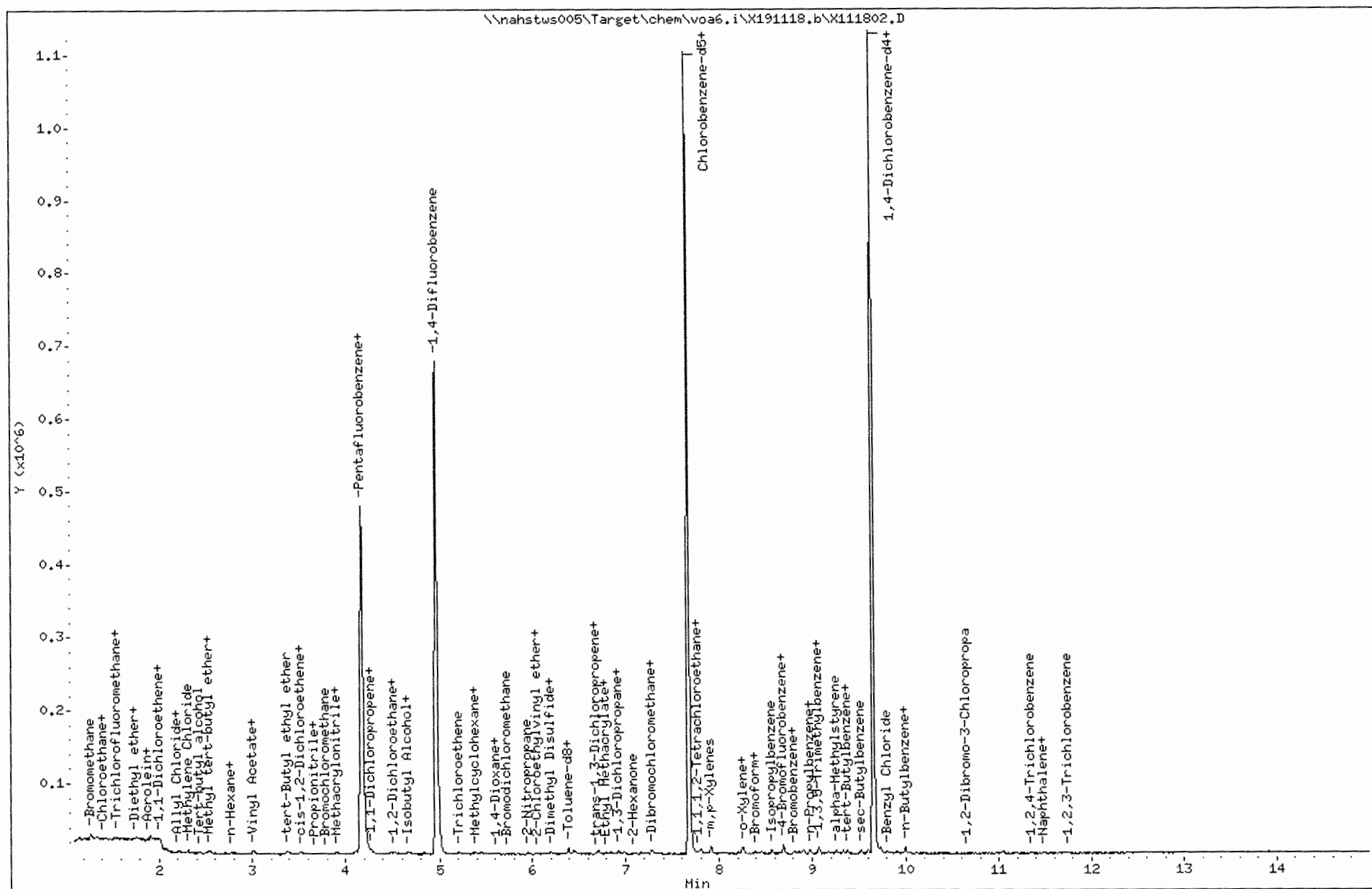
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Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 18-NOV-2019 14:35
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 13:47 Cal File: X111802.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG						AMOUNTS	
		MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene		168	4.182	4.182 (1.000)		417797	50.0000	
* 36 1,4-Difluorobenzene		114	4.970	4.970 (1.000)		575000	50.0000	
* 47 Chlorobenzene-d5		117	7.670	7.670 (1.000)		520290	50.0000	
* 70 1,4-Dichlorobenzene-d4		152	9.669	9.669 (1.000)		274172	50.0000	
\$ 35 1,2-Dichloroethane-d4		65	4.476	4.476 (1.070)		2522	0.50000	1.36 (Ta)
\$ 69 4-Bromofluorobenzene		95	8.695	8.695 (1.134)		3844	0.50000	1.20 (a)
\$ 30 Dibromofluoromethane		113	4.110	4.110 (0.983)		2303	0.50000	0.96 (a)
\$ 48 Toluene-d8		98	6.388	6.388 (0.833)		8468	0.50000	0.61 (a)
60 1,1,1,2-Tetrachloroethane		131	7.778	7.778 (1.014)		1290	0.50000	0.34 (a)
31 1,1,1-Trichloroethane		97	4.089	4.089 (0.978)		2055	0.50000	0.36 (a)
68 1,1,2,2-Tetrachloroethane		83	8.845	8.845 (0.915)		1652	0.50000	0.42 (aM)
138 Freon TF		101	1.911	1.911 (0.457)		1235	0.50000	0.33 (a)
53 1,1,2-Trichloroethane		83	6.840	6.840 (0.892)		936	0.50000	0.34 (a)
22 1,1-Dichloroethane		63	2.928	2.928 (0.700)		2376	0.50000	0.39 (Ta)
11 1,1-Dichloroethene		96	1.911	1.911 (0.457)		1458	0.50000	0.41 (aM)
32 1,1-Dichloropropene		75	4.289	4.289 (0.863)		1907	0.50000	0.41 (a)
93 1,2,3-Trichlorobenzene		180	11.746	11.746 (1.215)		421	0.50000	(aM)
71 1,2,3-Trichloropropane		75	8.867	8.867 (0.917)		1248	0.50000	0.38 (aM)
90 1,2,4-Trichlorobenzene		180	11.345	11.345 (1.173)		892	0.50000	0.38 (aM)
79 1,2,4-Trimethylbenzene		105	9.382	9.382 (0.970)		4769	0.50000	0.36 (aM)
89 1,2-Dibromo-3-Chloropropane		155	10.665	10.665 (1.103)		125	0.50000	(aM)
57 1,2-Dibromoethane		107	7.269	7.269 (0.948)		1273	0.50000	0.34 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG						AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE		CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====		=====	=====
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	2511		0.50000	0.34 (a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	1591		0.50000	0.34 (aM)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	1693		0.50000	0.49 (aM)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	4403		0.50000	0.35 (a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	2841		0.50000	0.36 (a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	2241		0.50000	0.40 (a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	3038		0.50000	0.38 (a)
26 2,2-Dichloropropane	77	3.523	3.523	(0.842)	2284		0.50000	0.41 (aM)
24 2-Butanone	43	3.595	3.595	(0.860)	1395		1.00000	1.08 (aM)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	3464		0.50000	0.35 (a)
52 2-Hexanone	43	7.090	7.090	(0.924)	1875		1.00000	0.87 (a)
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	4251		0.50000	0.35 (a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	5043		0.50000	0.37 (a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	2291		1.00000	0.75 (a)
10 Acetone	43	1.976	1.976	(0.473)	4579		1.00000	0.53 (aM)
37 Benzene	78	4.519	4.519	(0.909)	4530		0.50000	0.34 (a)
74 Bromobenzene	156	8.809	8.809	(0.911)	1601		0.50000	0.33 (a)
29 Bromochloromethane	128	3.802	3.802	(0.909)	956		0.50000	0.42 (a)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	1712		0.50000	0.35 (aM)
66 Bromoform	173	8.415	8.415	(1.097)	887		0.50000	1.27 (aM)
6 Bromomethane	94	1.338	1.338	(0.320)	2741		0.50000	(a)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	6243		1.00000	0.64 (aM)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	1955		0.50000	0.38 (aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	3839		0.50000	0.37 (a)
7 Chloroethane	64	1.403	1.403	(0.336)	1164		0.50000	0.44 (aM)
28 Chloroform	83	3.917	3.917	(0.937)	3238		0.50000	0.47 (a)
3 Chloromethane	50	1.073	1.073	(0.257)	2201		0.50000	0.67 (a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1368		0.50000	0.34 (a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1873		0.50000	0.33 (a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	1318		0.50000	0.33 (a)
44 Dibromomethane	93	5.564	5.564	(1.120)	802		0.50000	0.32 (a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	1269		0.50000	1.20 (aM)
61 Ethylbenzene	106	7.807	7.807	(1.018)	1838		0.50000	0.35 (a)
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	1376		0.50000	0.21 (a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	5484		0.50000	0.35 (a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	4089		1.00000	0.64 (a)
17 Methylene Chloride	84	2.305	2.305	(0.551)	1764		0.50000	0.46 (aM)
87 n-Butylbenzene	91	9.998	9.998	(1.034)	4442		0.50000	0.39 (aM)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	6280		0.50000	0.37 (a)
92 Naphthalene	128	11.560	11.560	(1.196)	1399		0.50000	0.47 (a)
63 o-Xylene	106	8.243	8.243	(1.075)	2028		0.50000	0.32 (a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	5469		0.50000	0.37 (a)
64 Styrene	104	8.265	8.265	(1.078)	3653		0.50000	0.33 (a)
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	3670		0.50000	0.34 (a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	1382		0.50000	0.37 (a)
50 Toluene	91	6.453	6.453	(0.841)	5603		0.50000	0.37 (a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	1192		0.50000	0.34 (a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	1749		0.50000	0.34 (a)
38 Trichloroethene	130	5.206	5.206	(1.048)	1298		0.50000	0.32 (a)
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	2137		0.50000	0.32 (a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	2046		0.50000	0.48 (aM)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D Page 3
Report Date: 06-Dec-2019 19:56

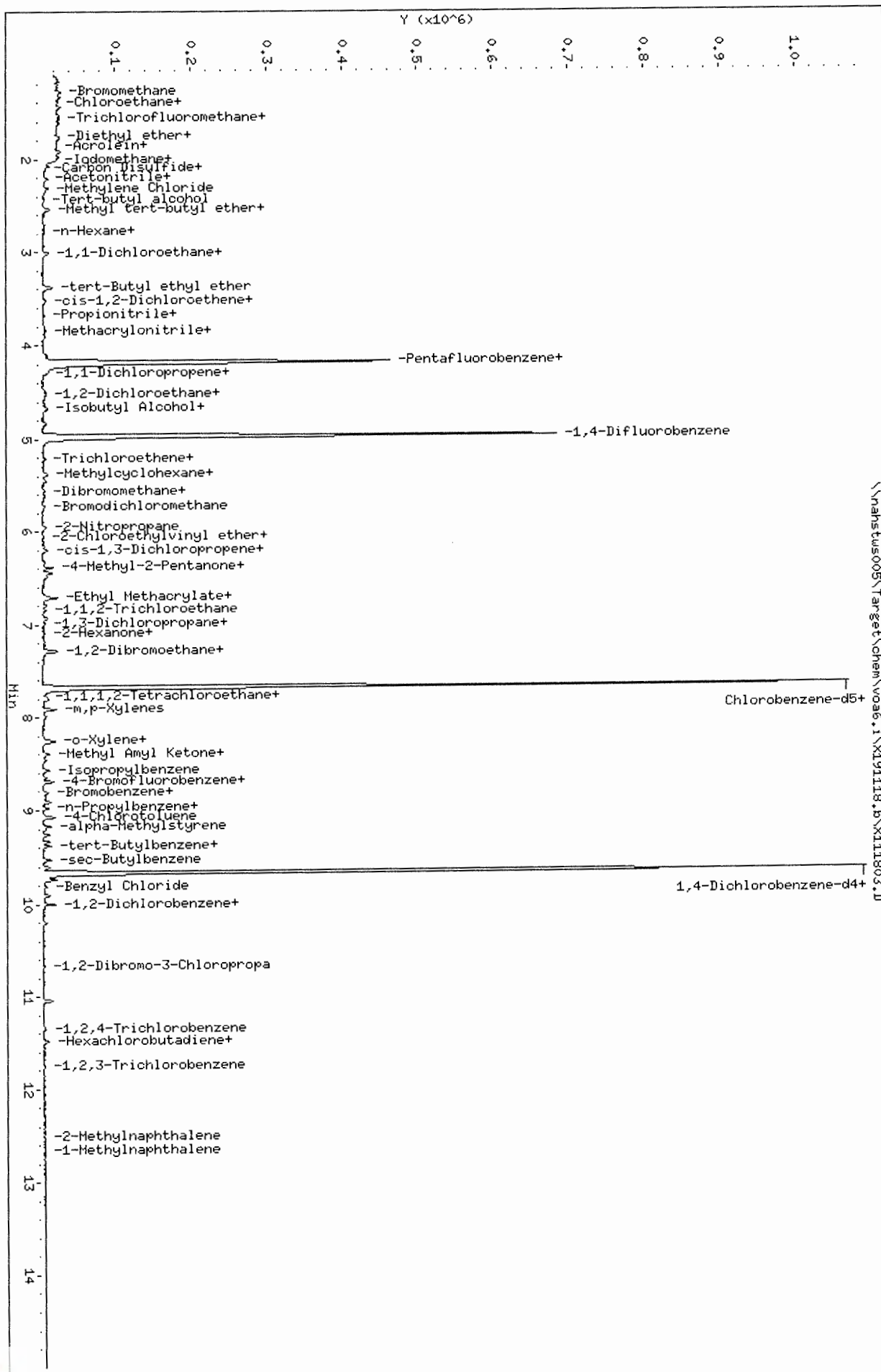
QC Flag Legend

- T - Target compound detected outside RT window.
- a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
- M - Compound response manually integrated.



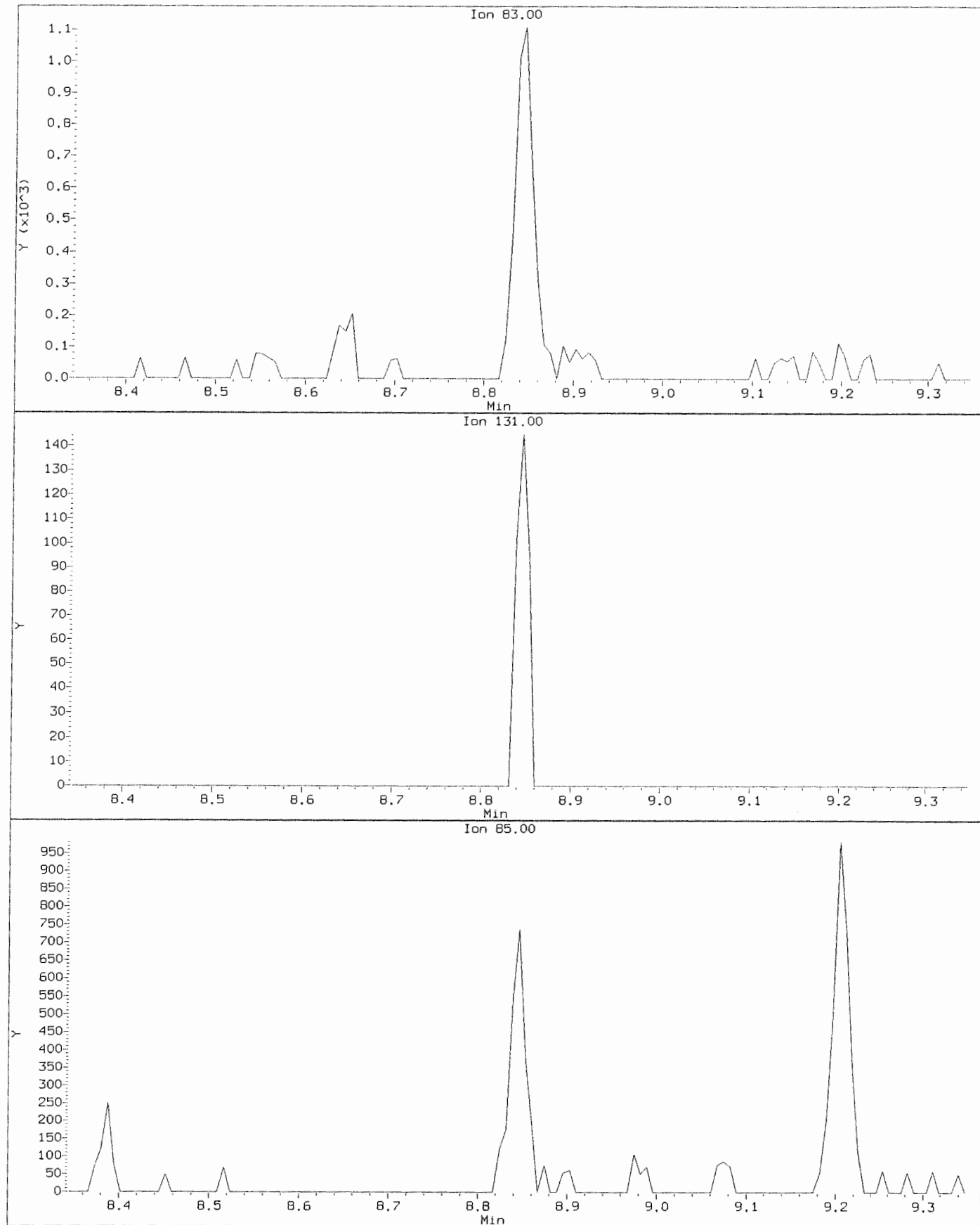
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 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



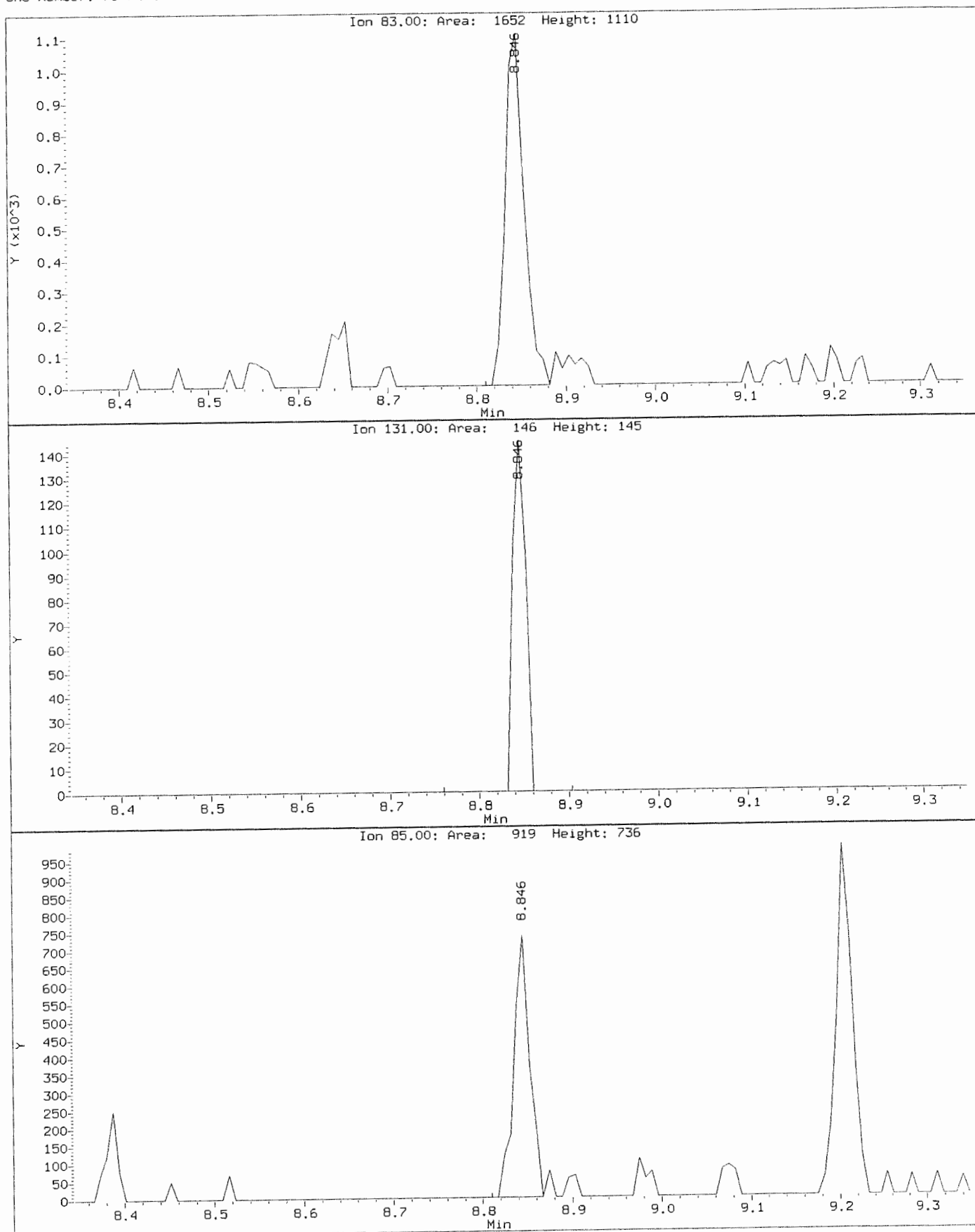
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



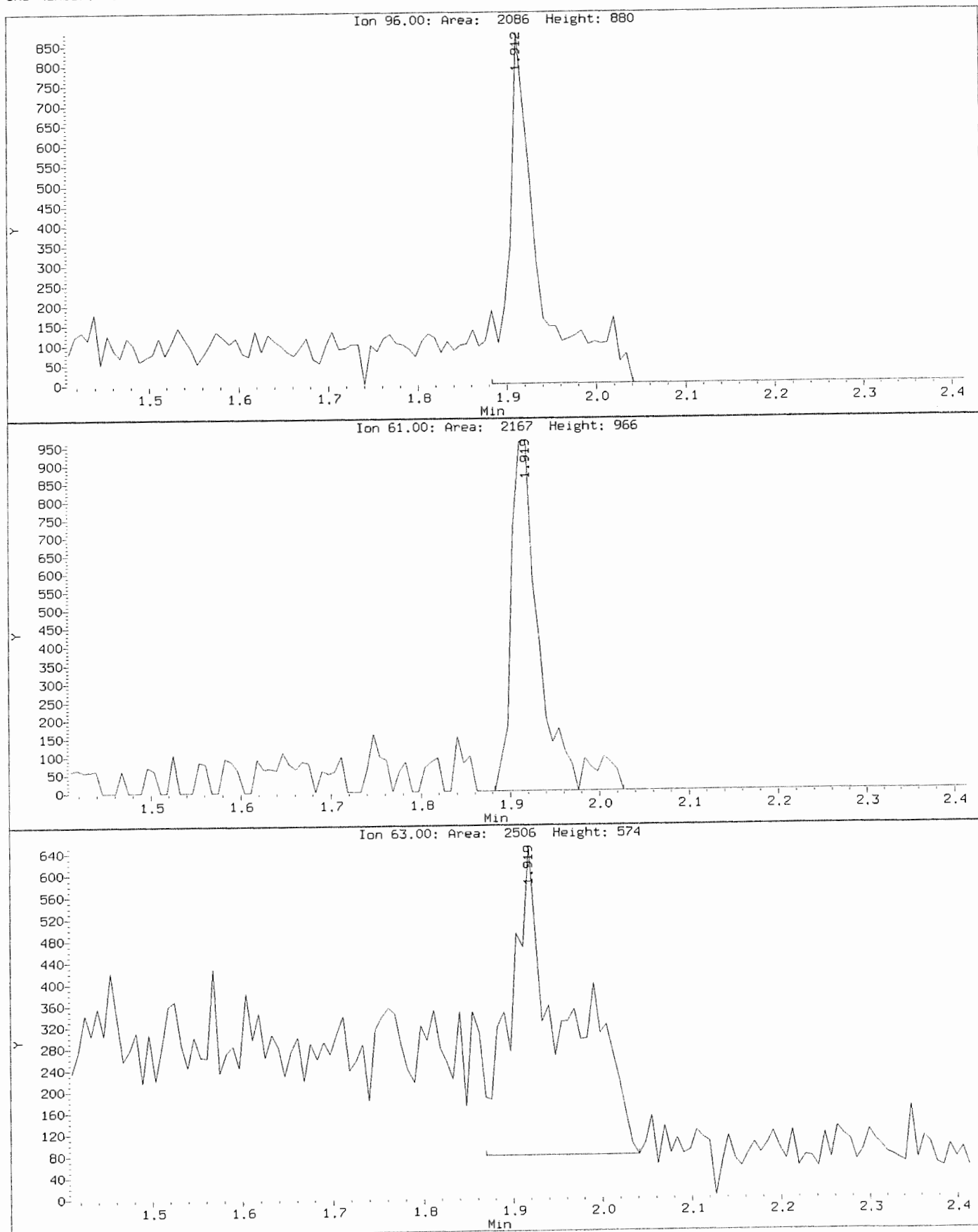
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Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



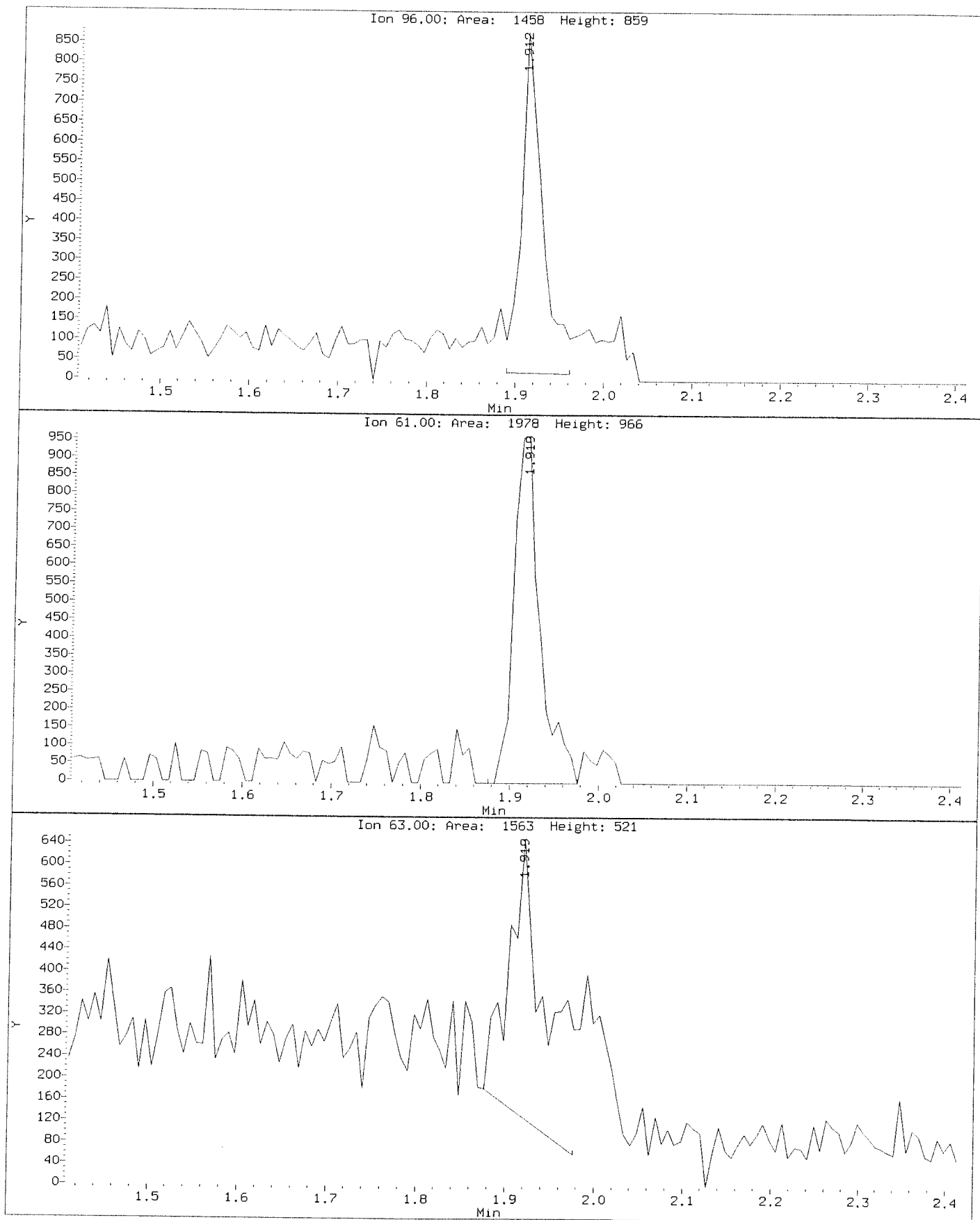
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Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



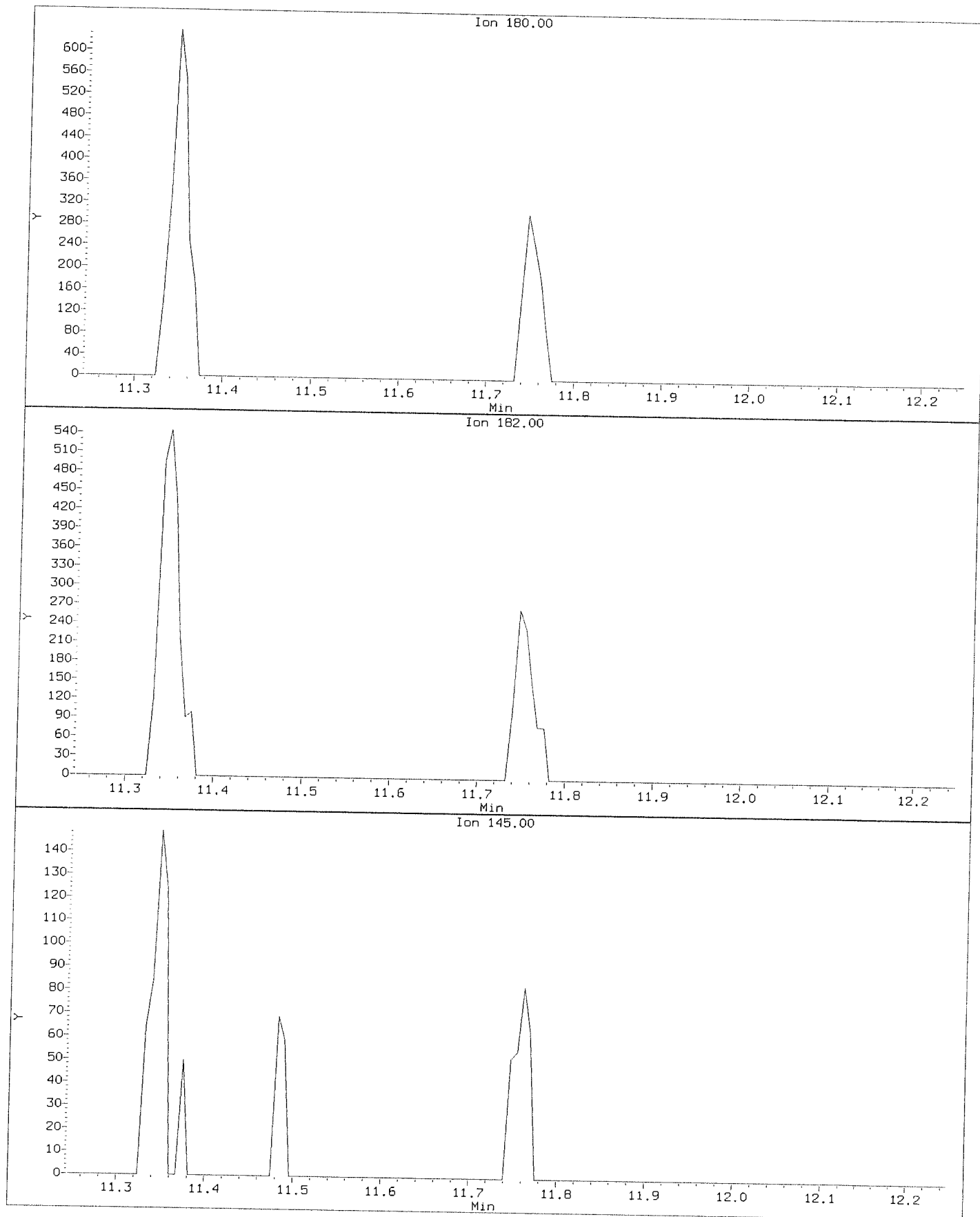
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Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



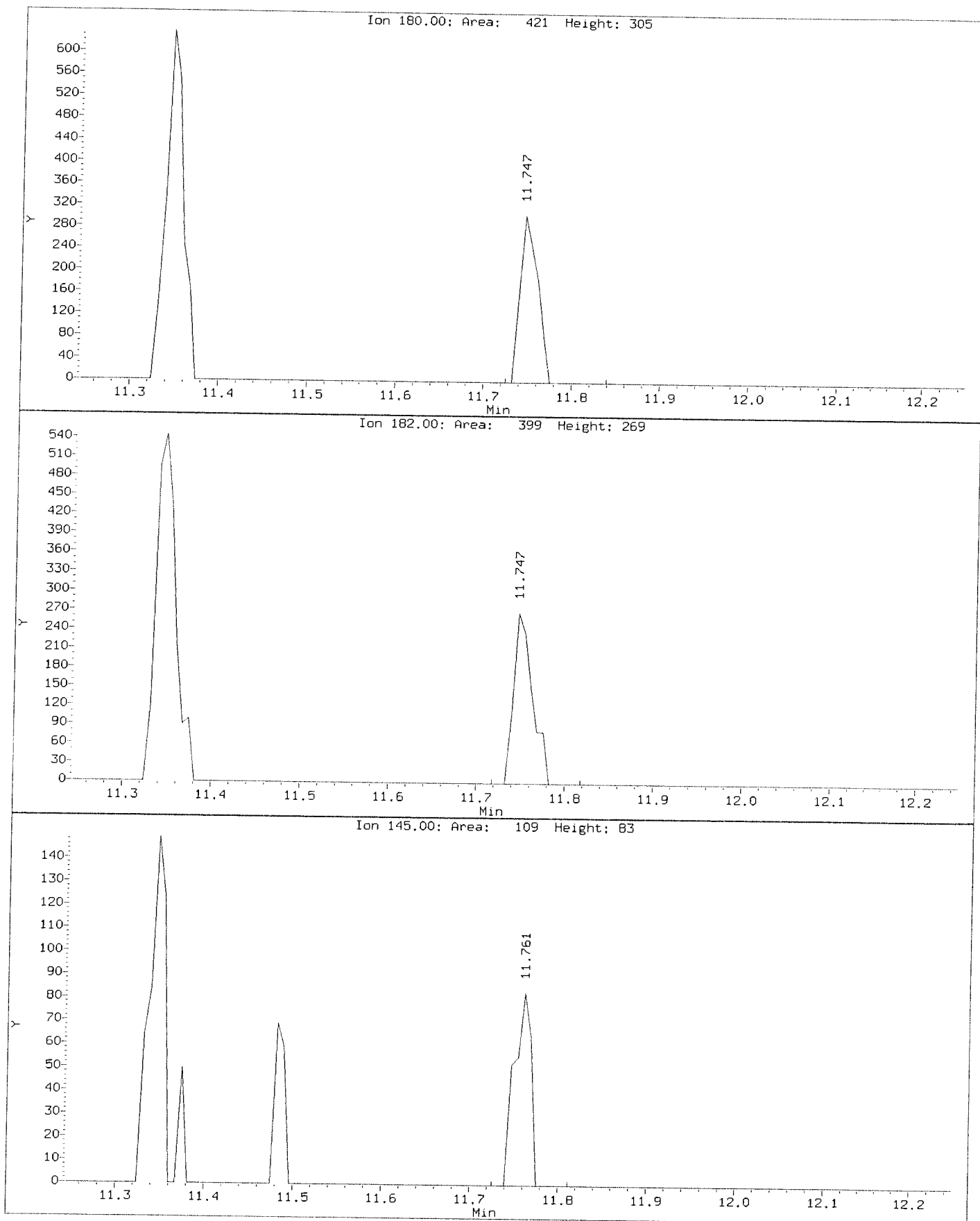
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Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



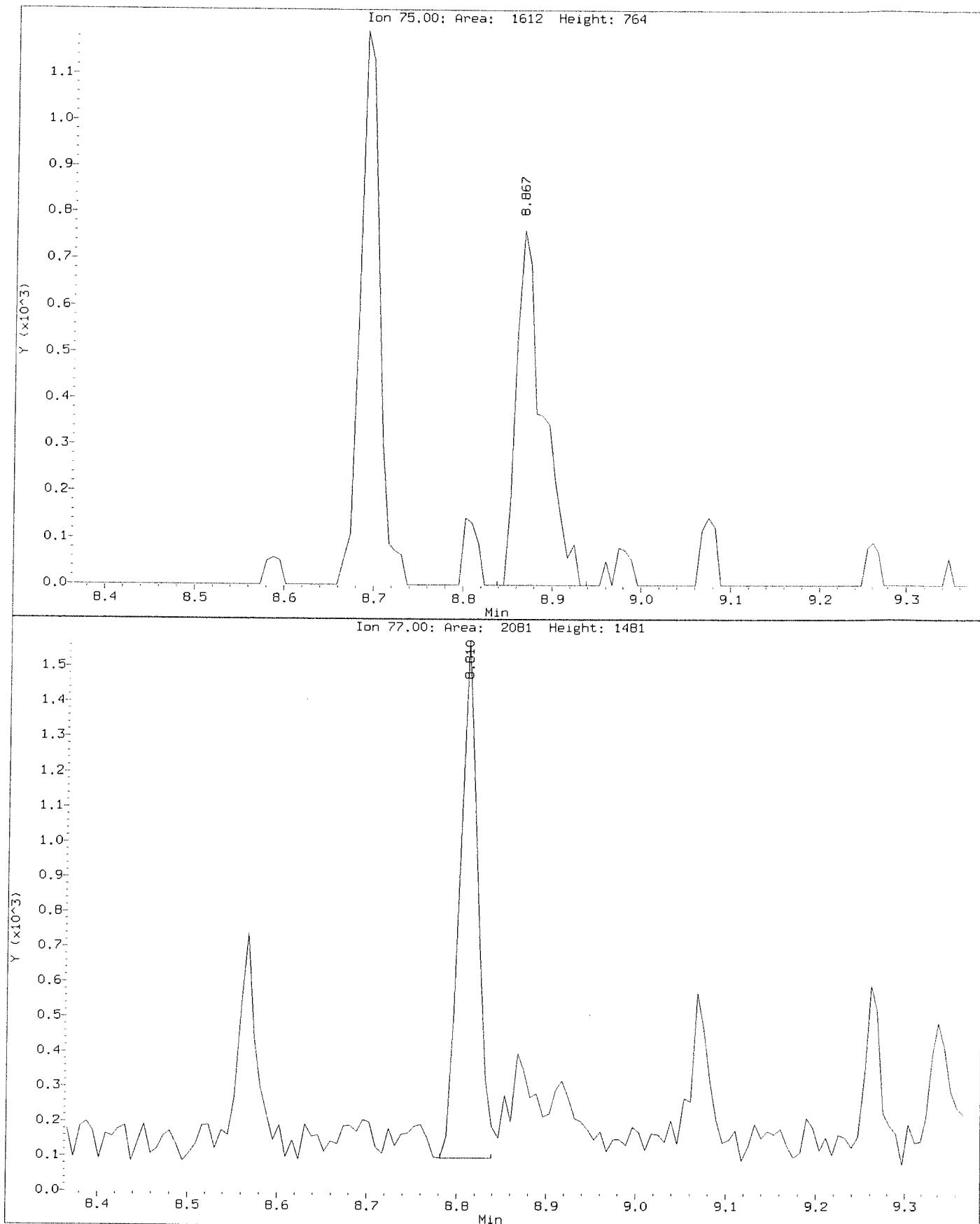
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Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



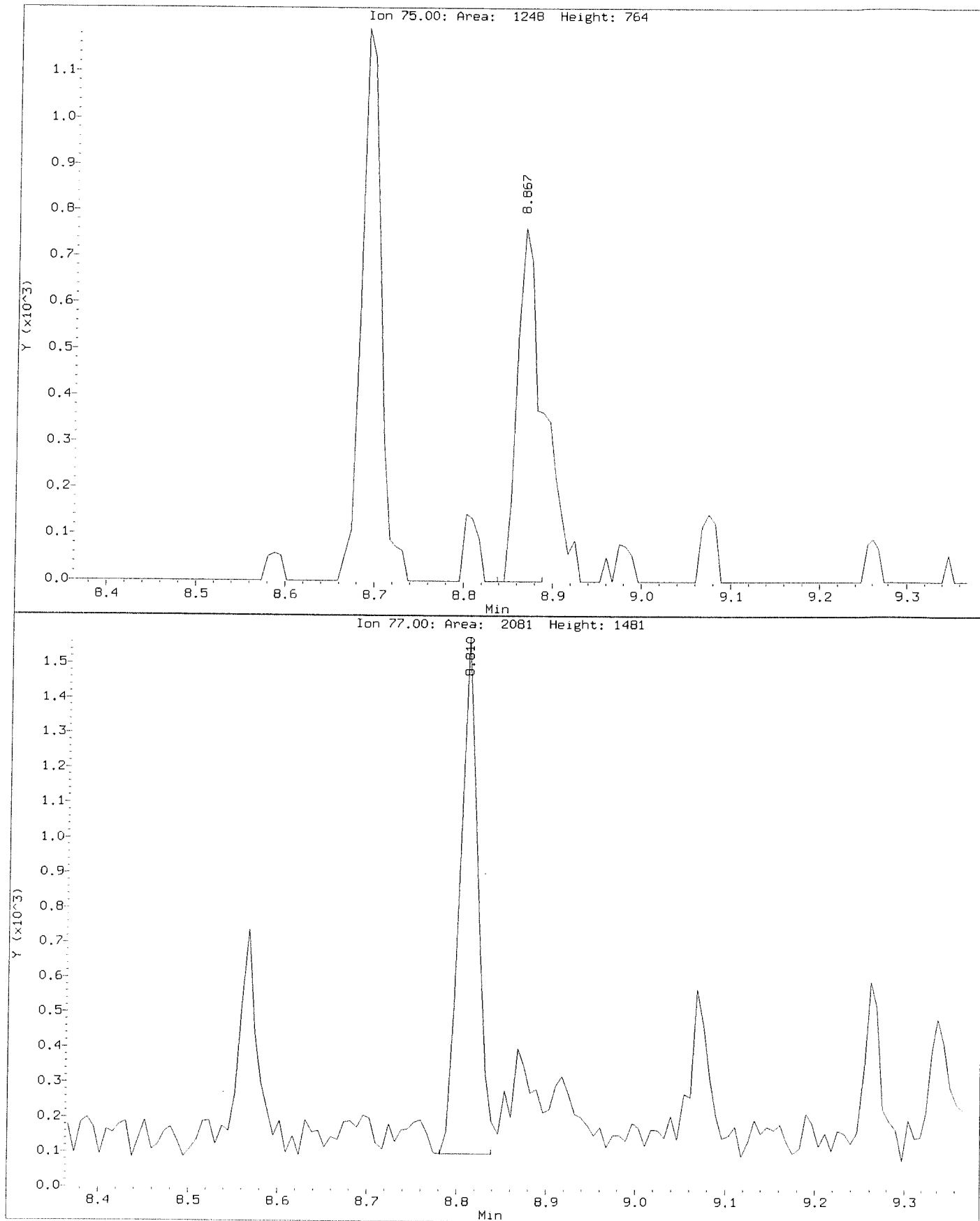
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Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



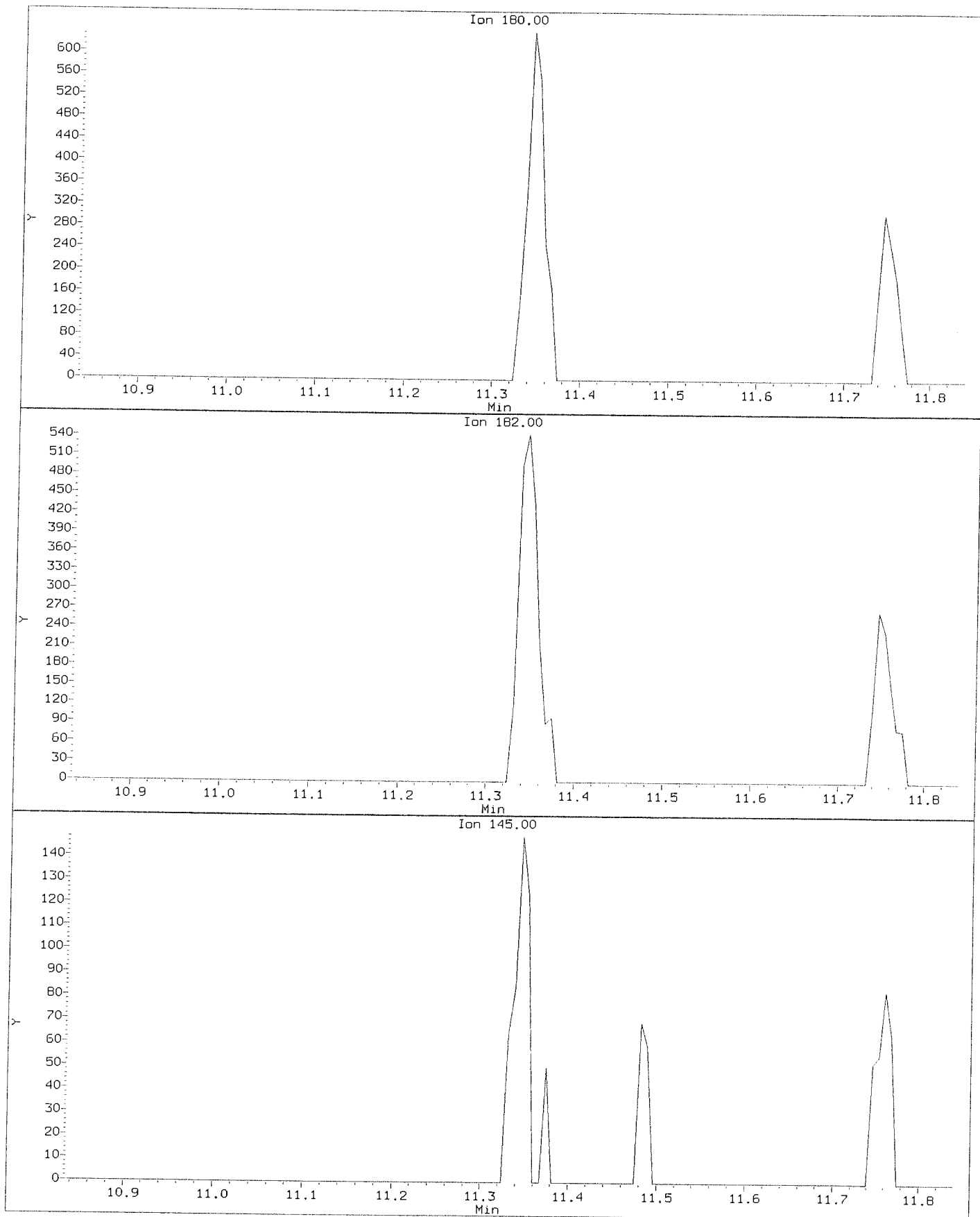
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Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



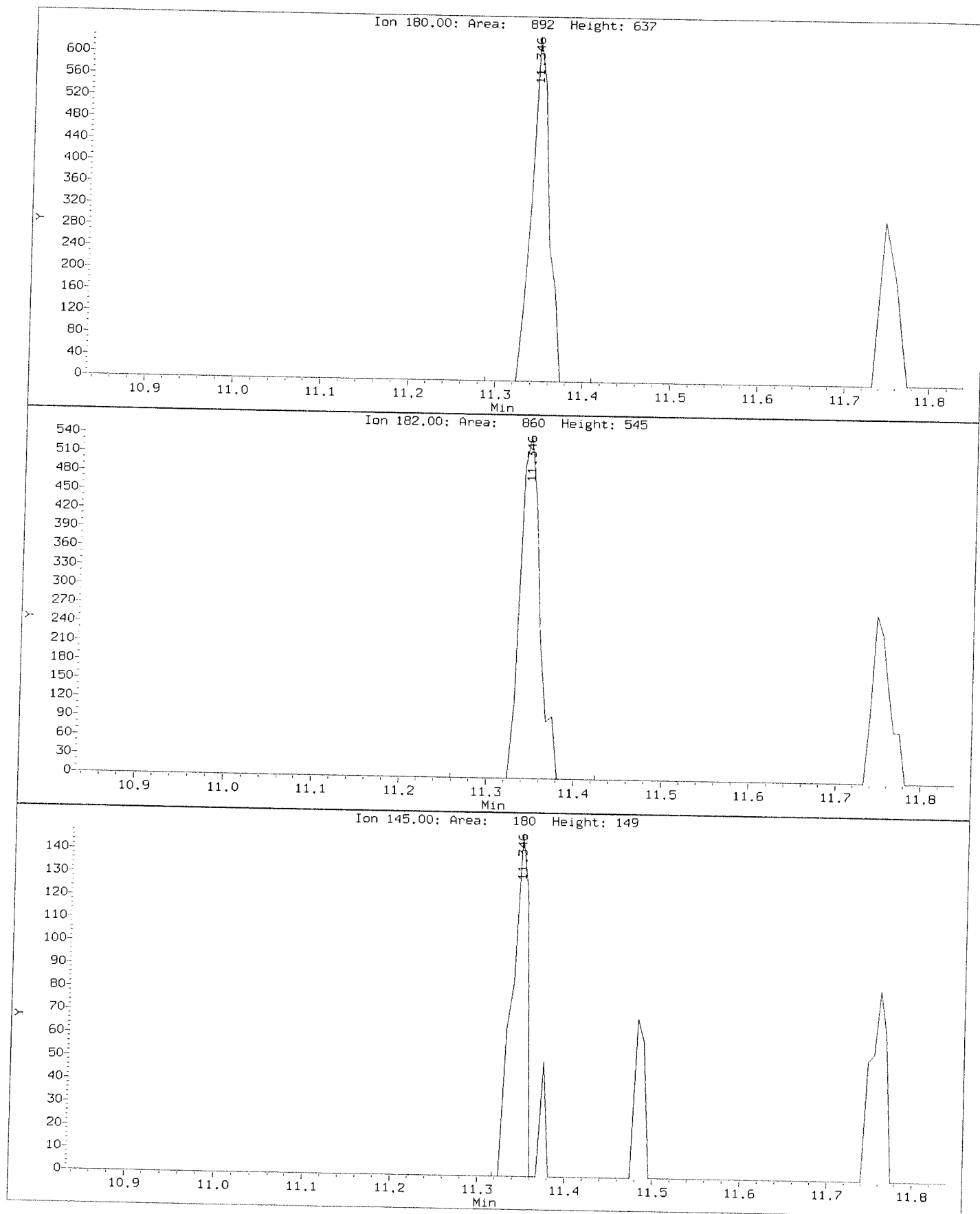
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Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



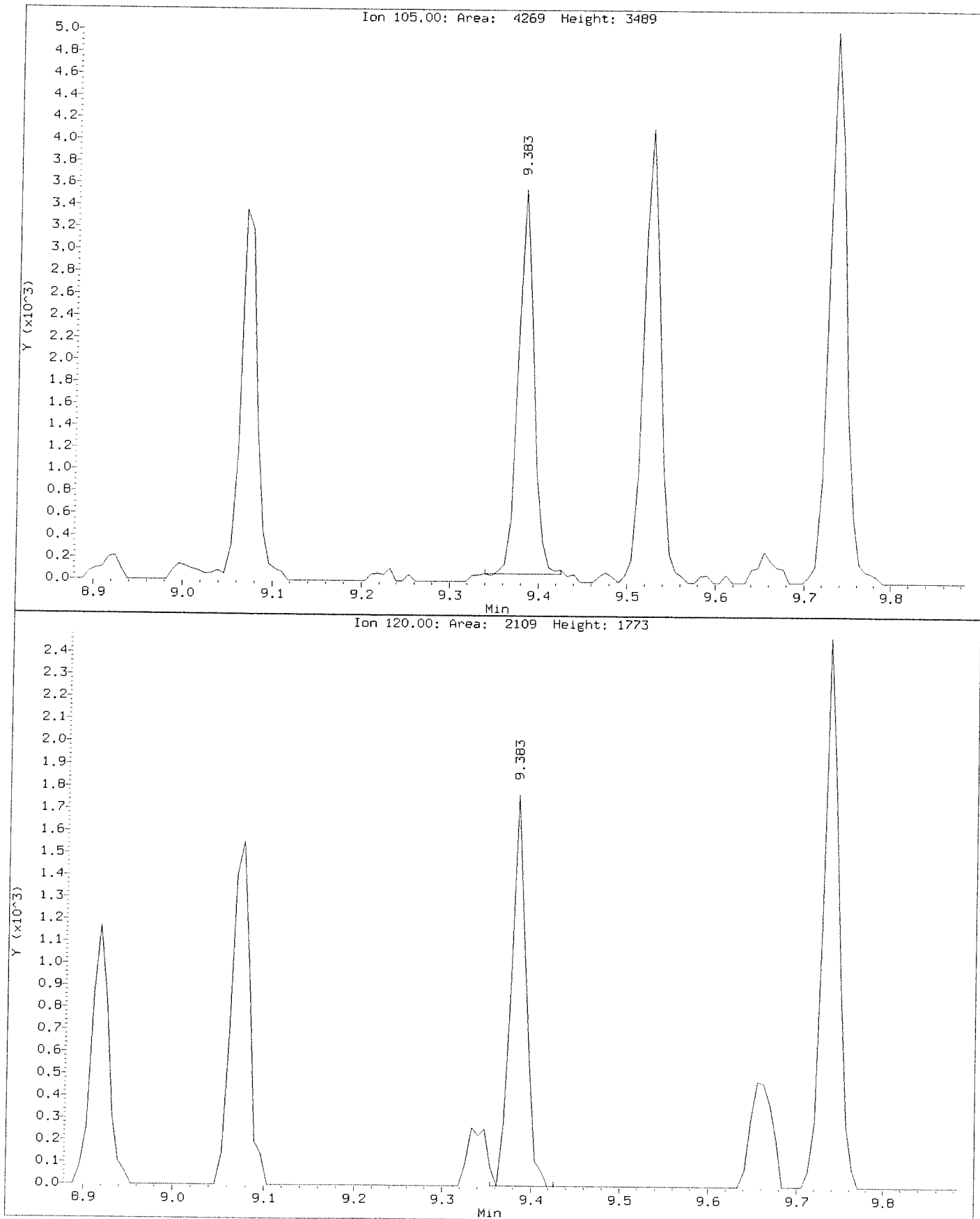
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Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



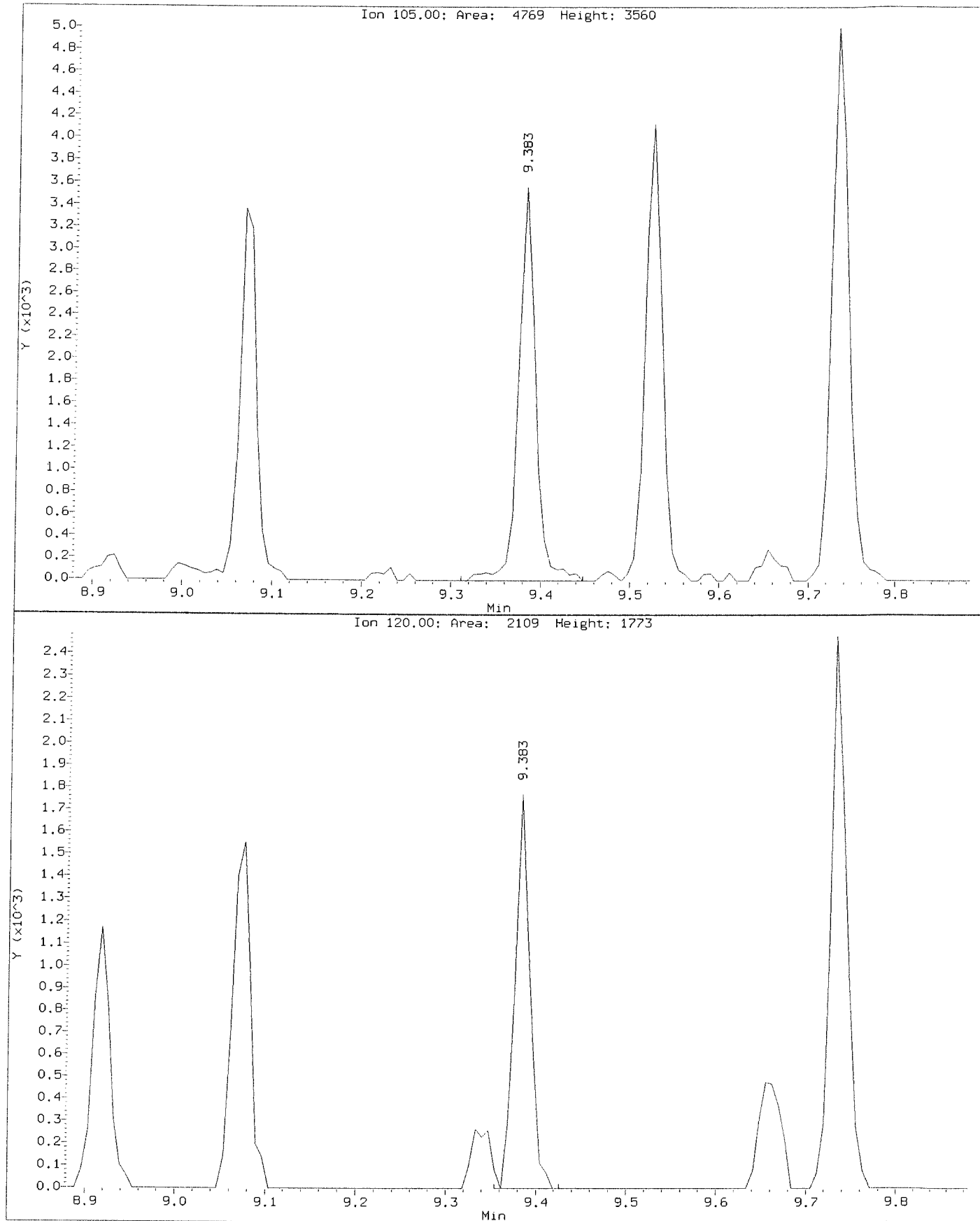
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trimethylbenzene
CAS Number: 95-63-6



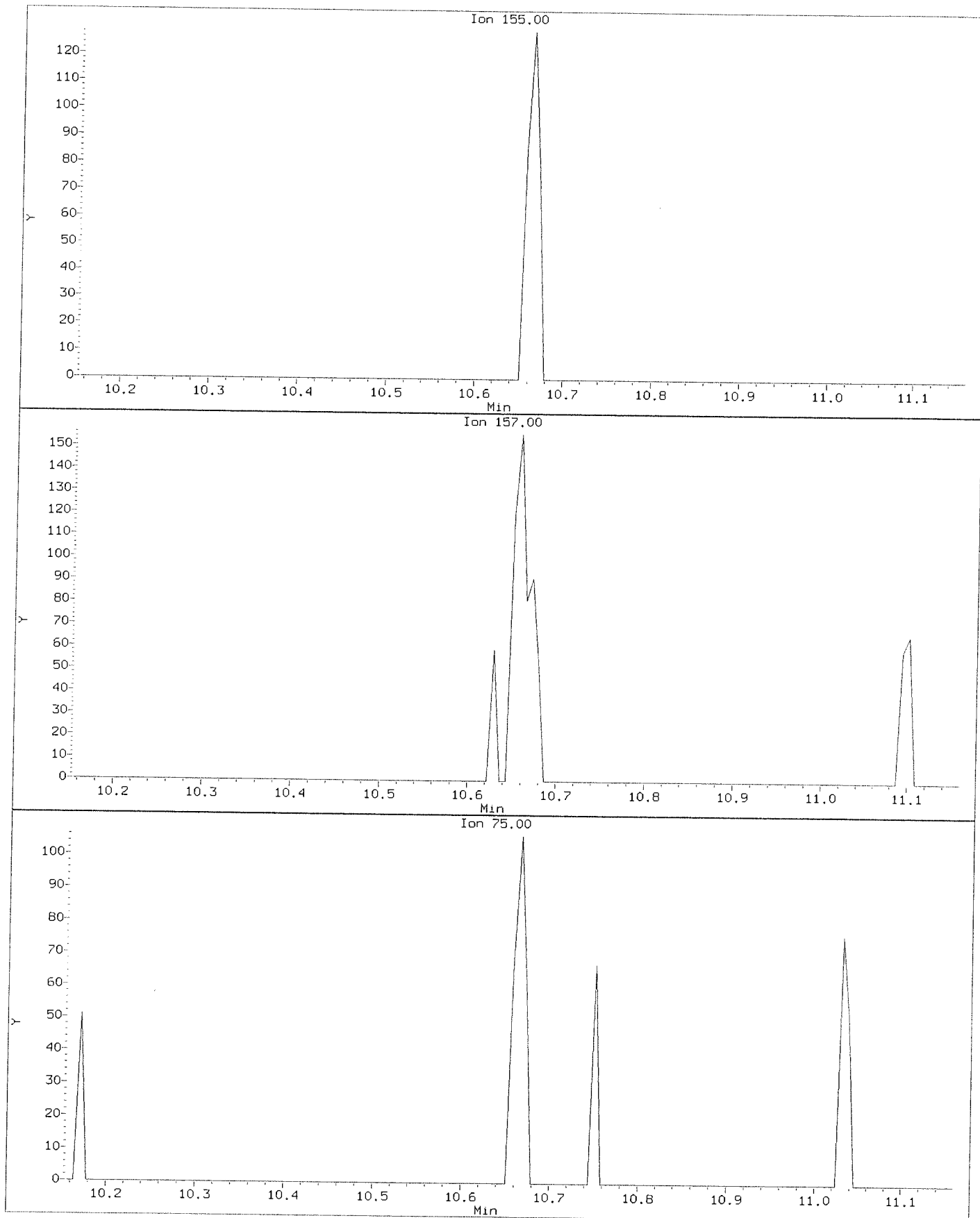
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Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trimethylbenzene
CAS Number: 95-63-6



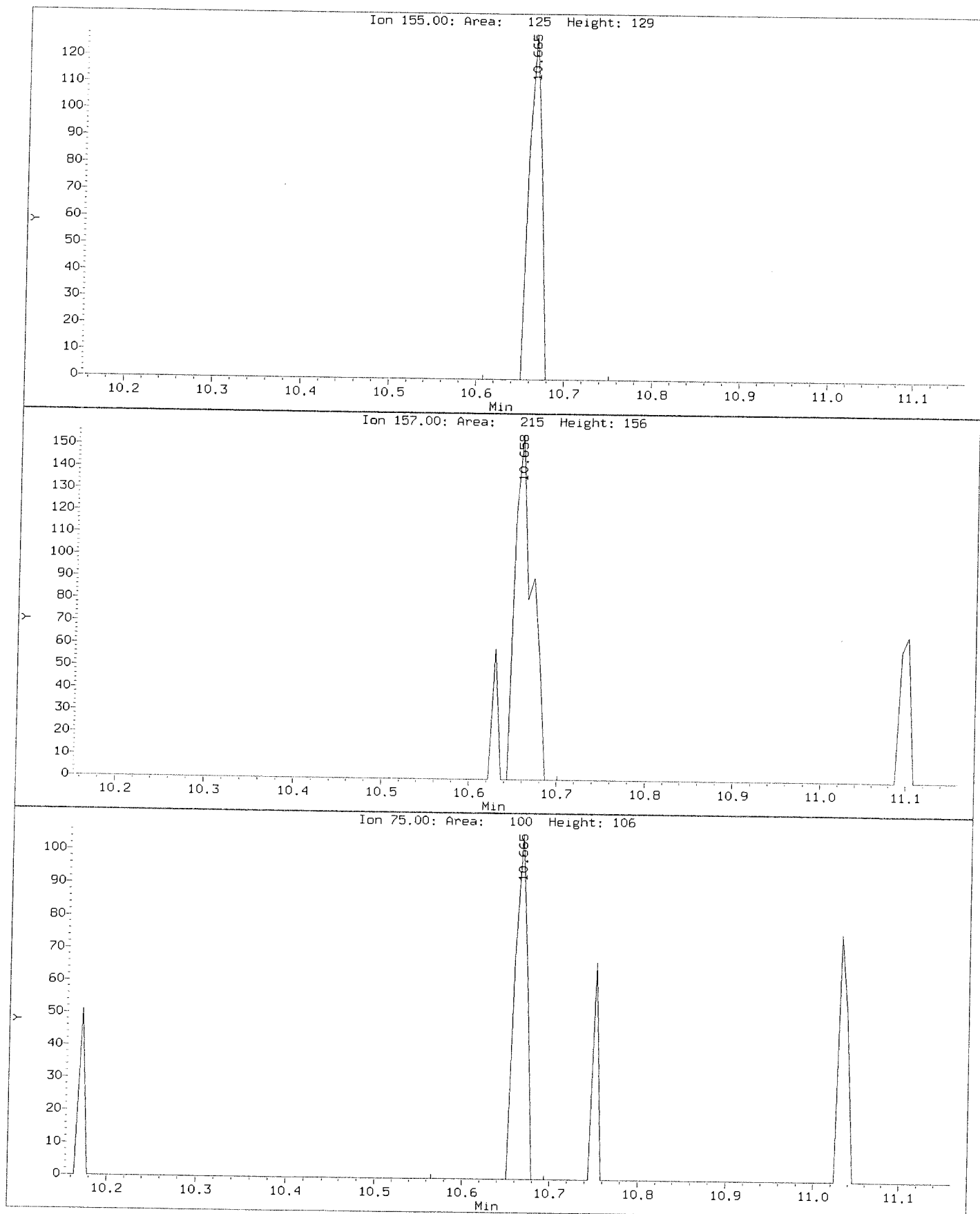
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Injection Date: 18-NOV-2019 14:35
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Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



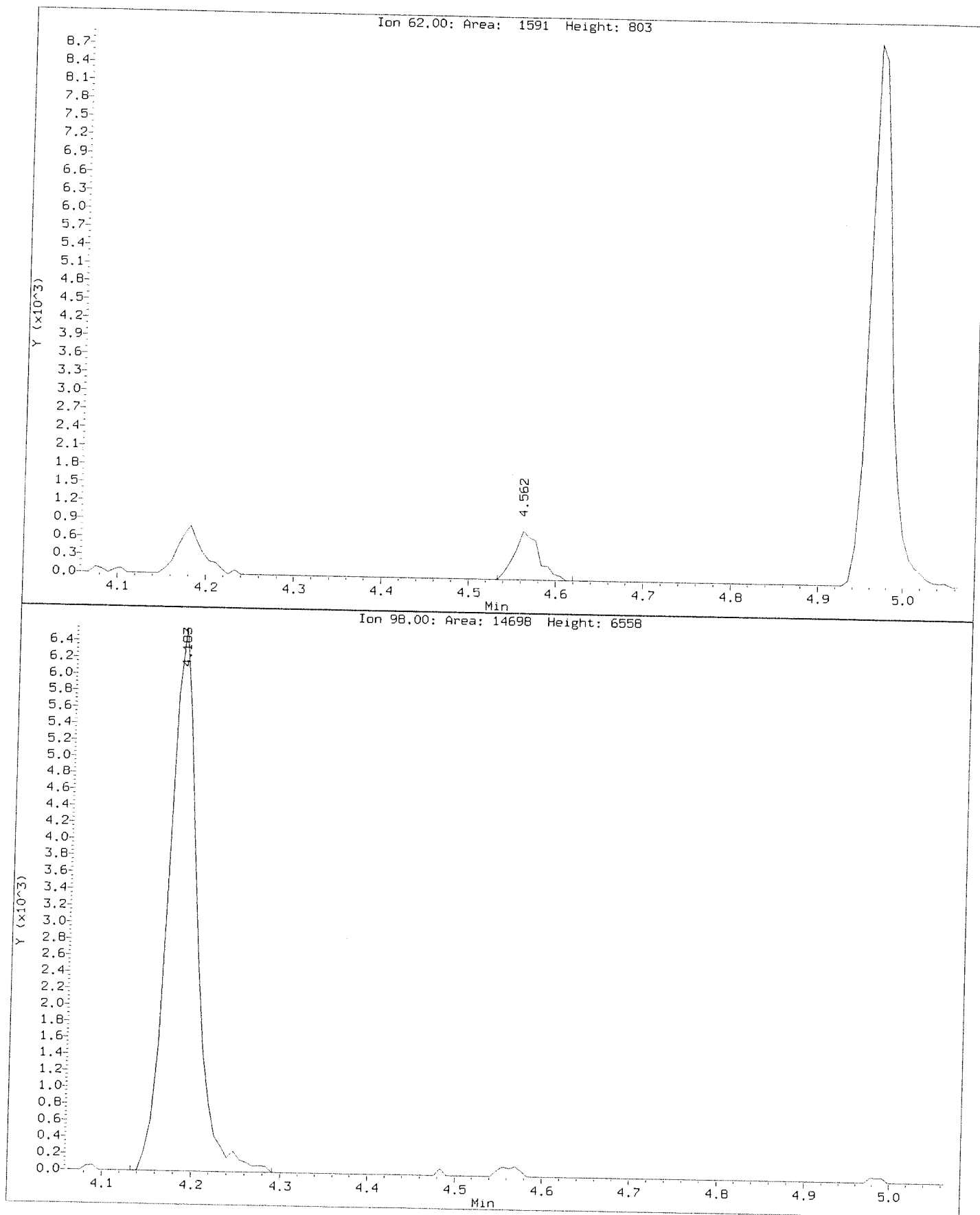
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Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



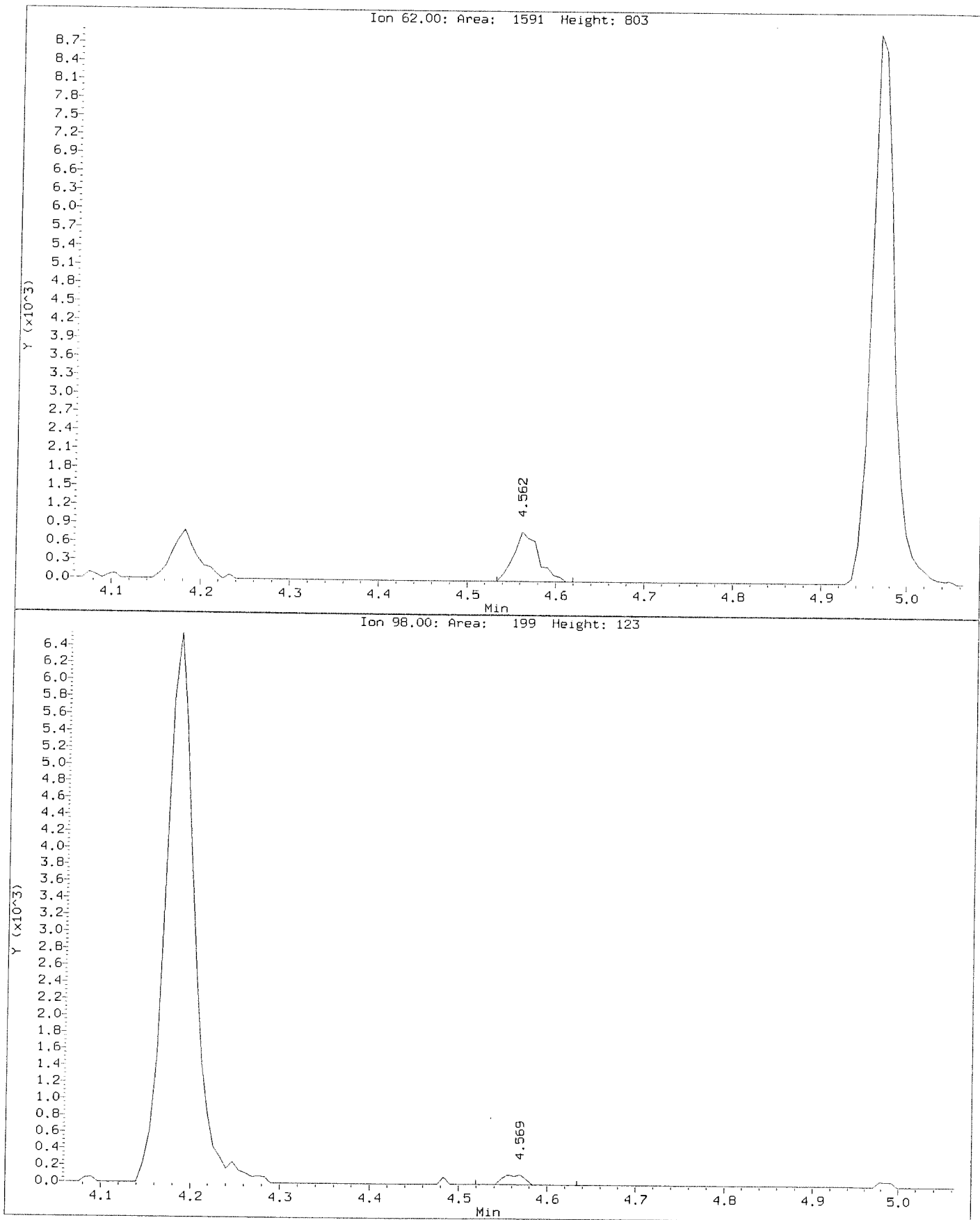
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Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2



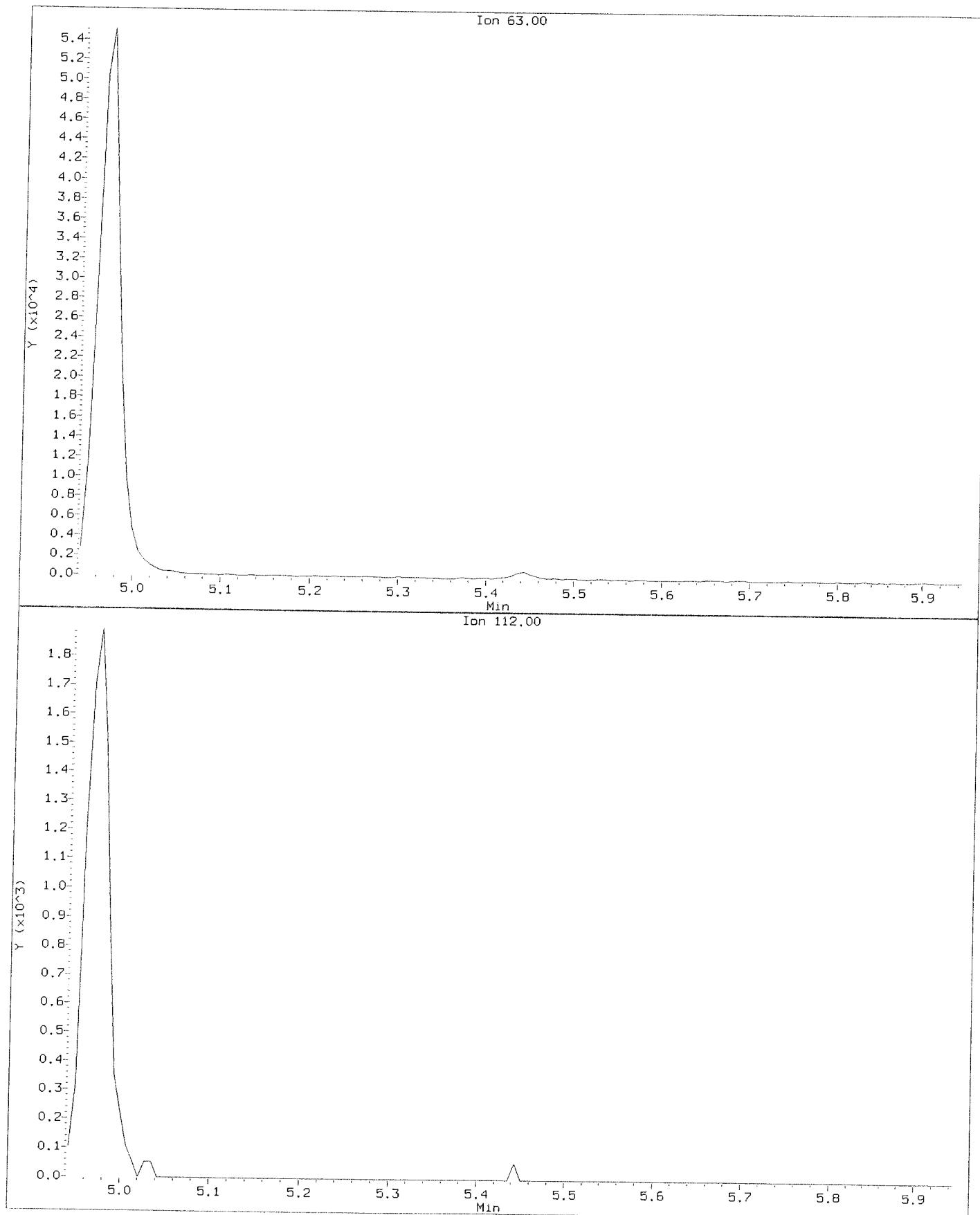
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Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2



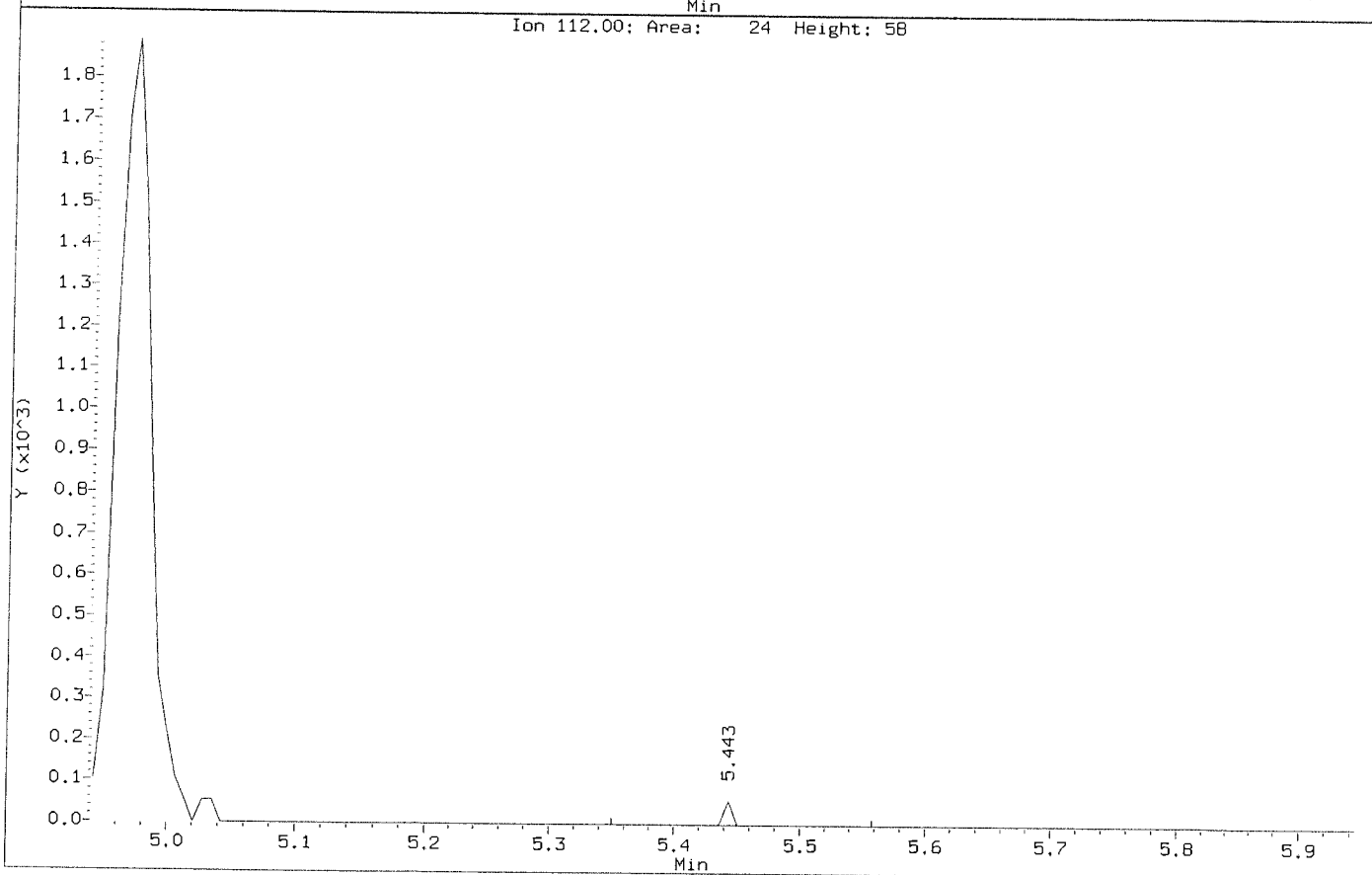
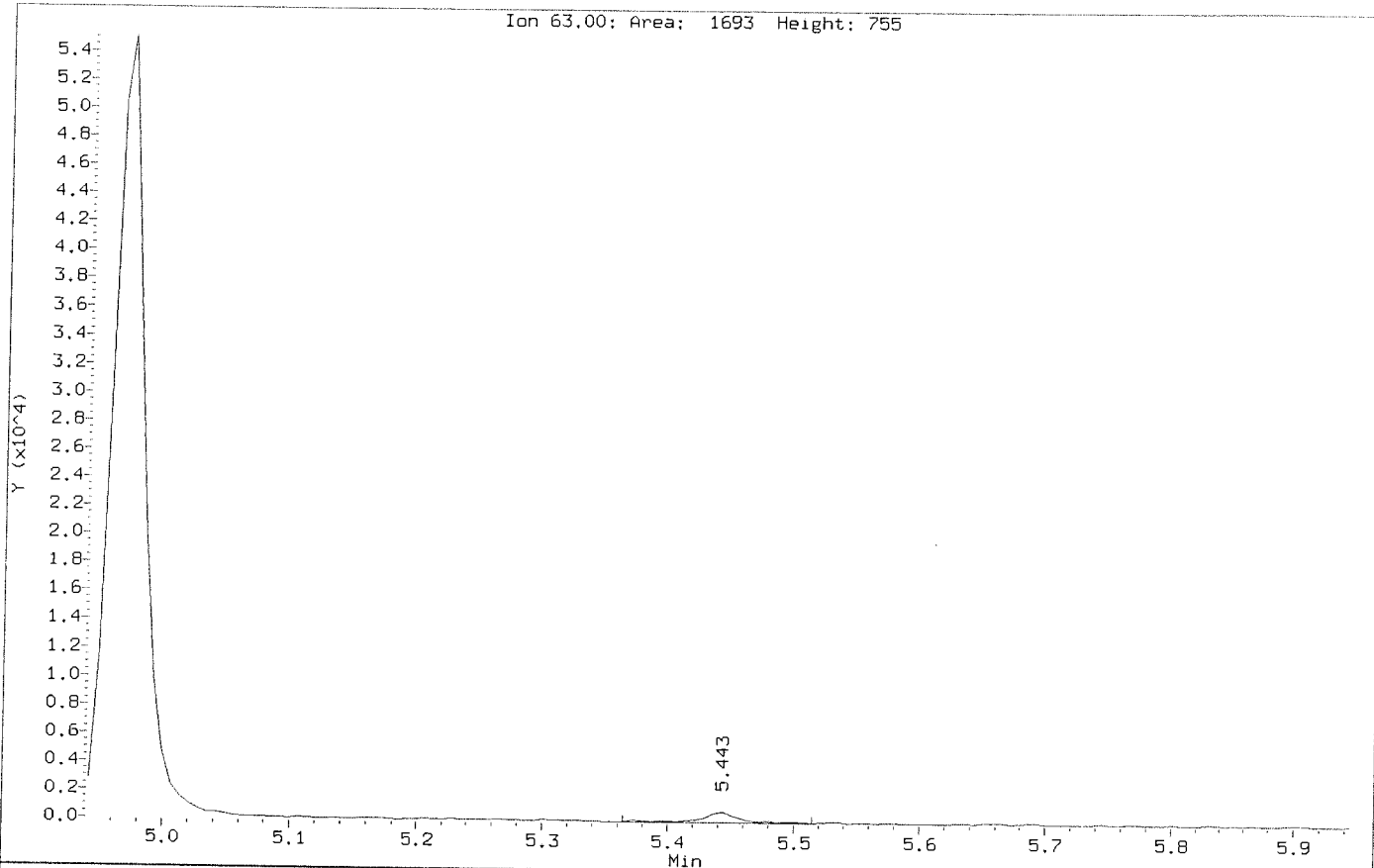
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Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



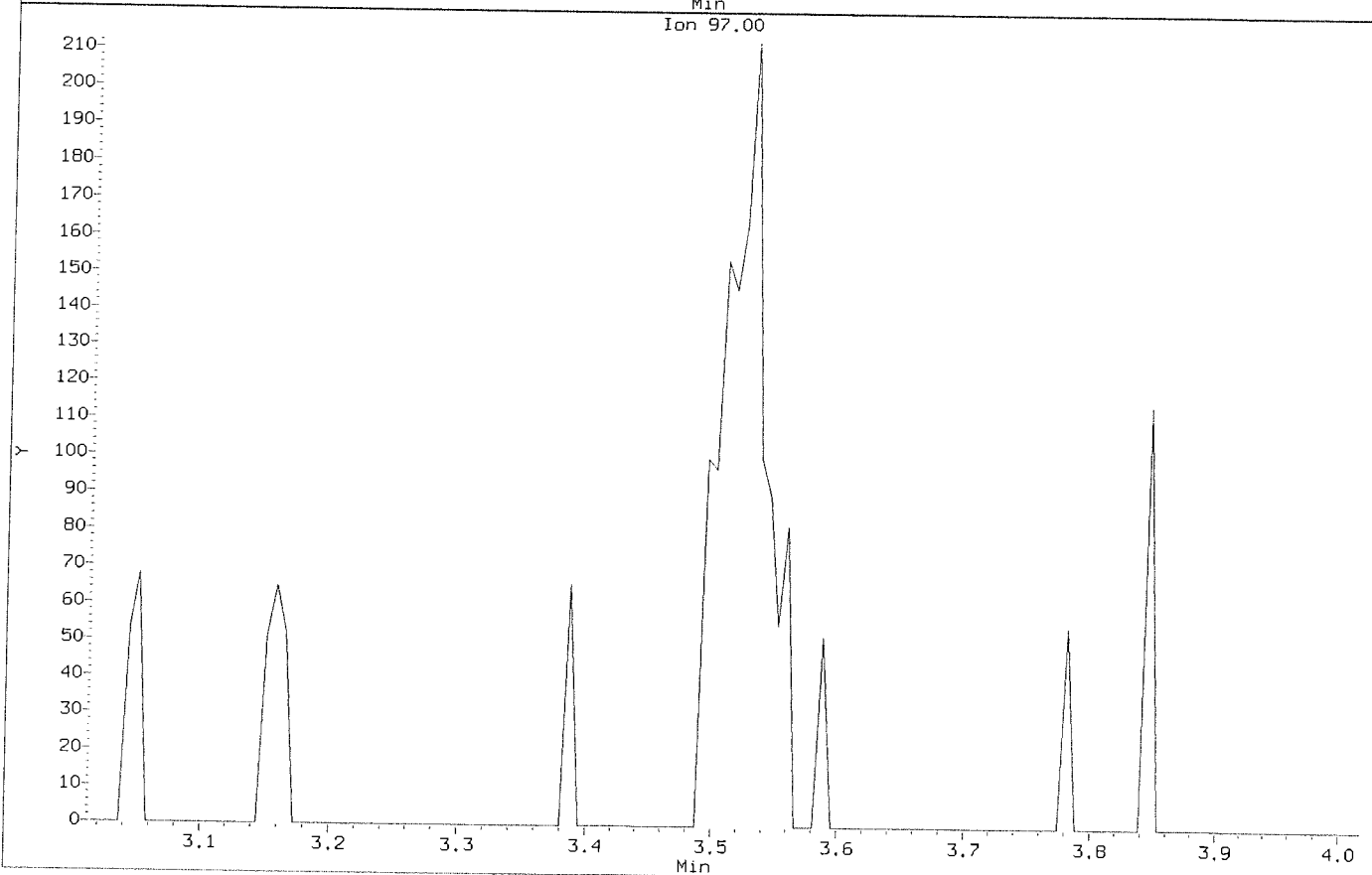
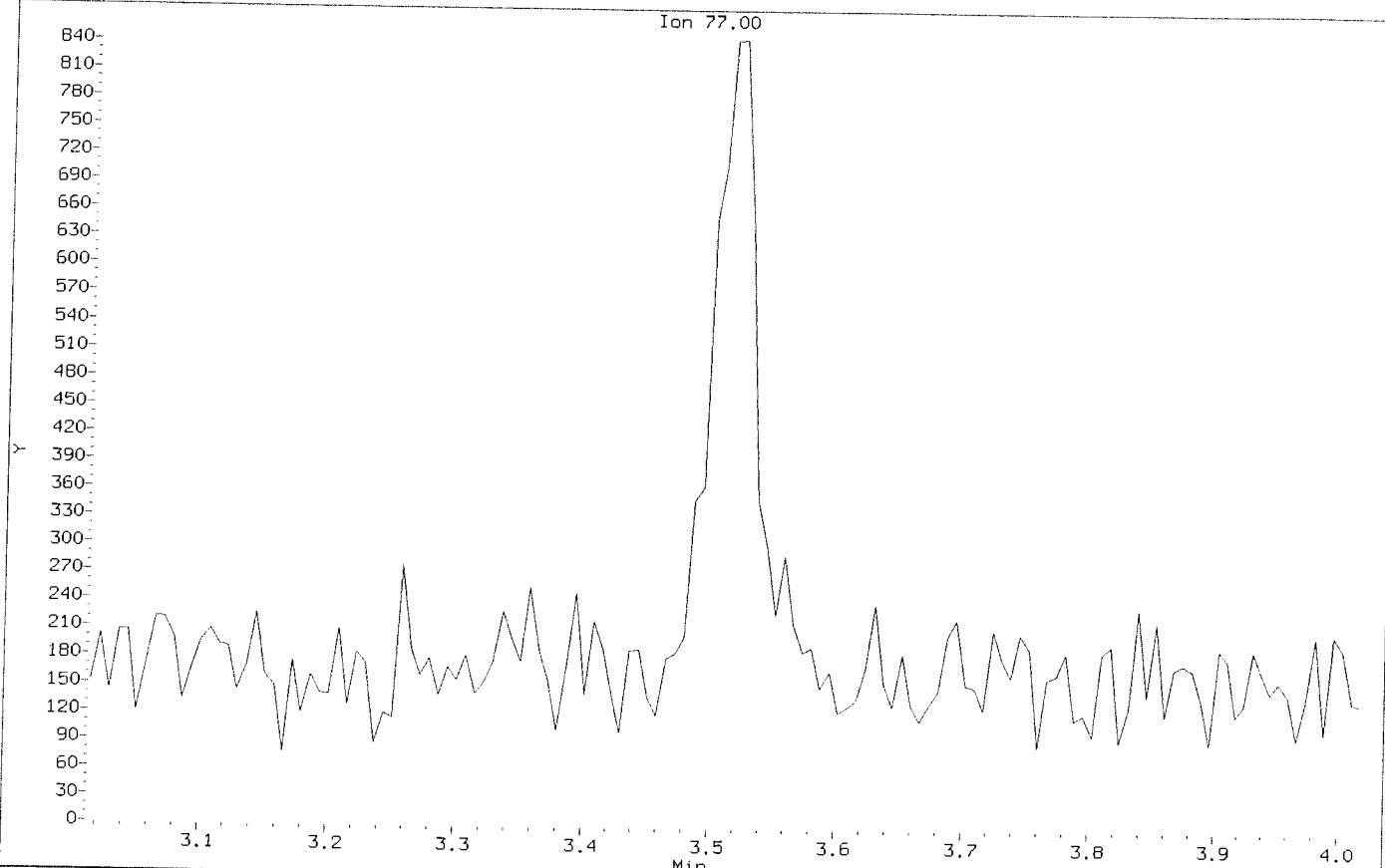
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Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



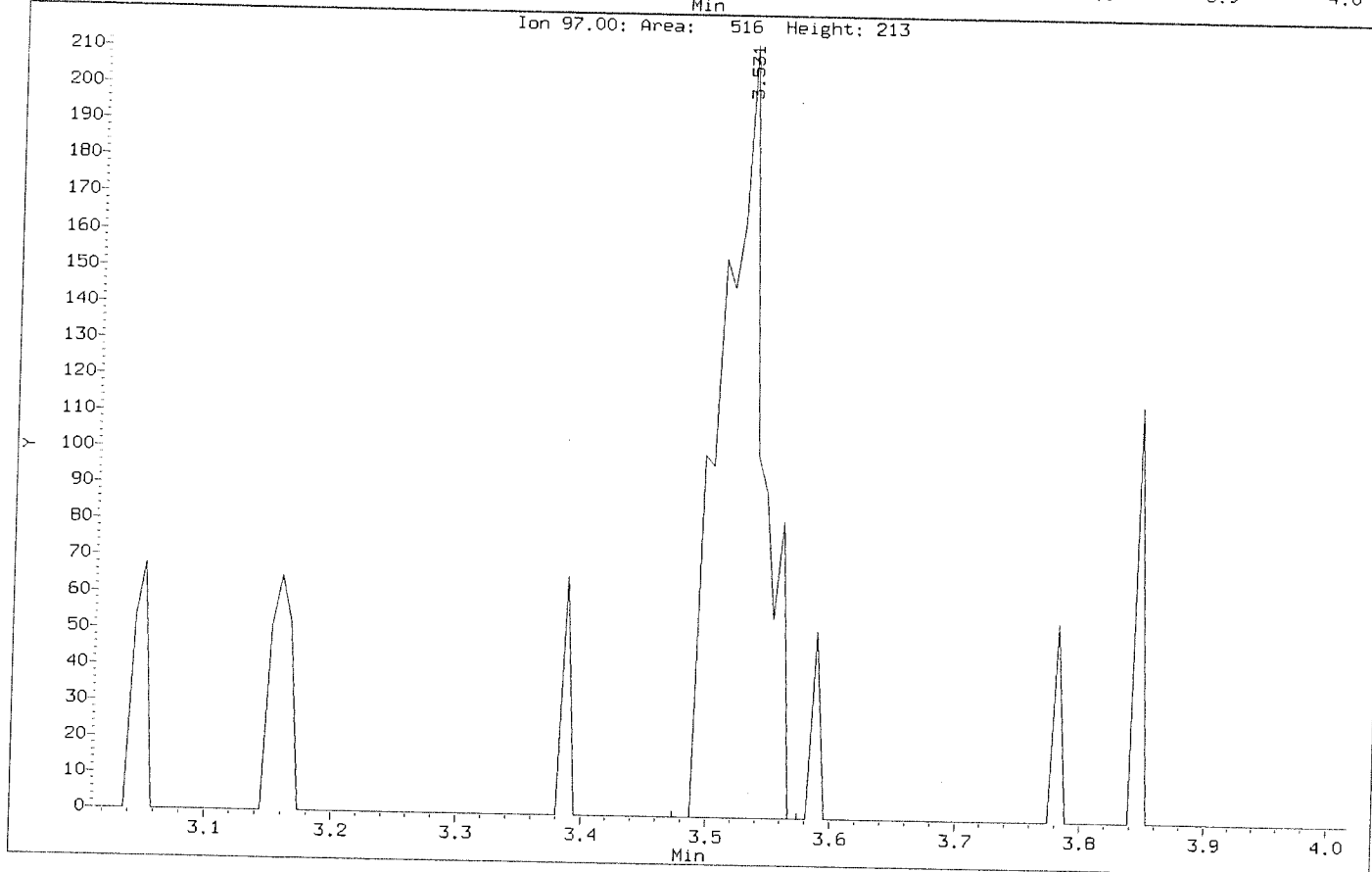
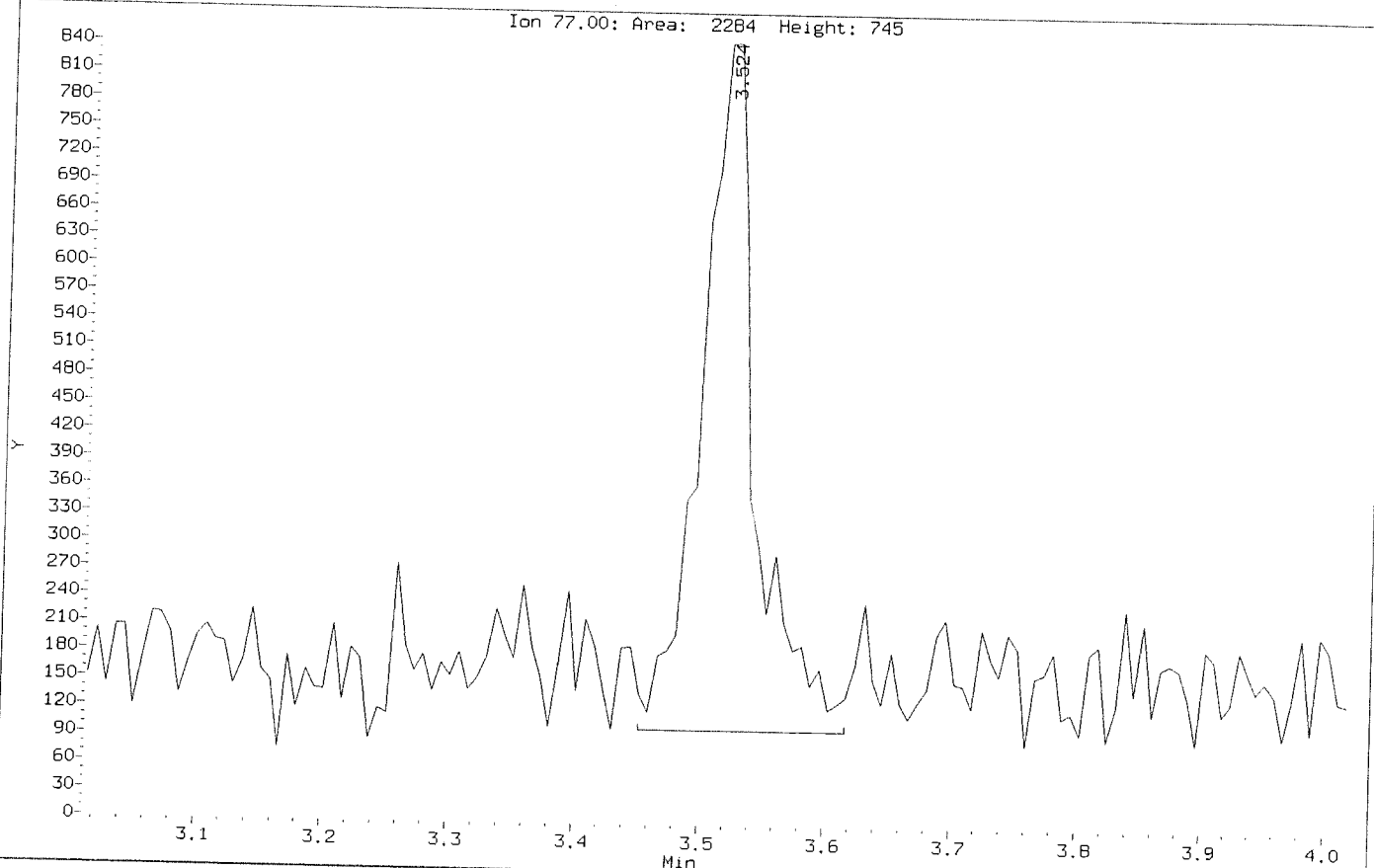
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Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7



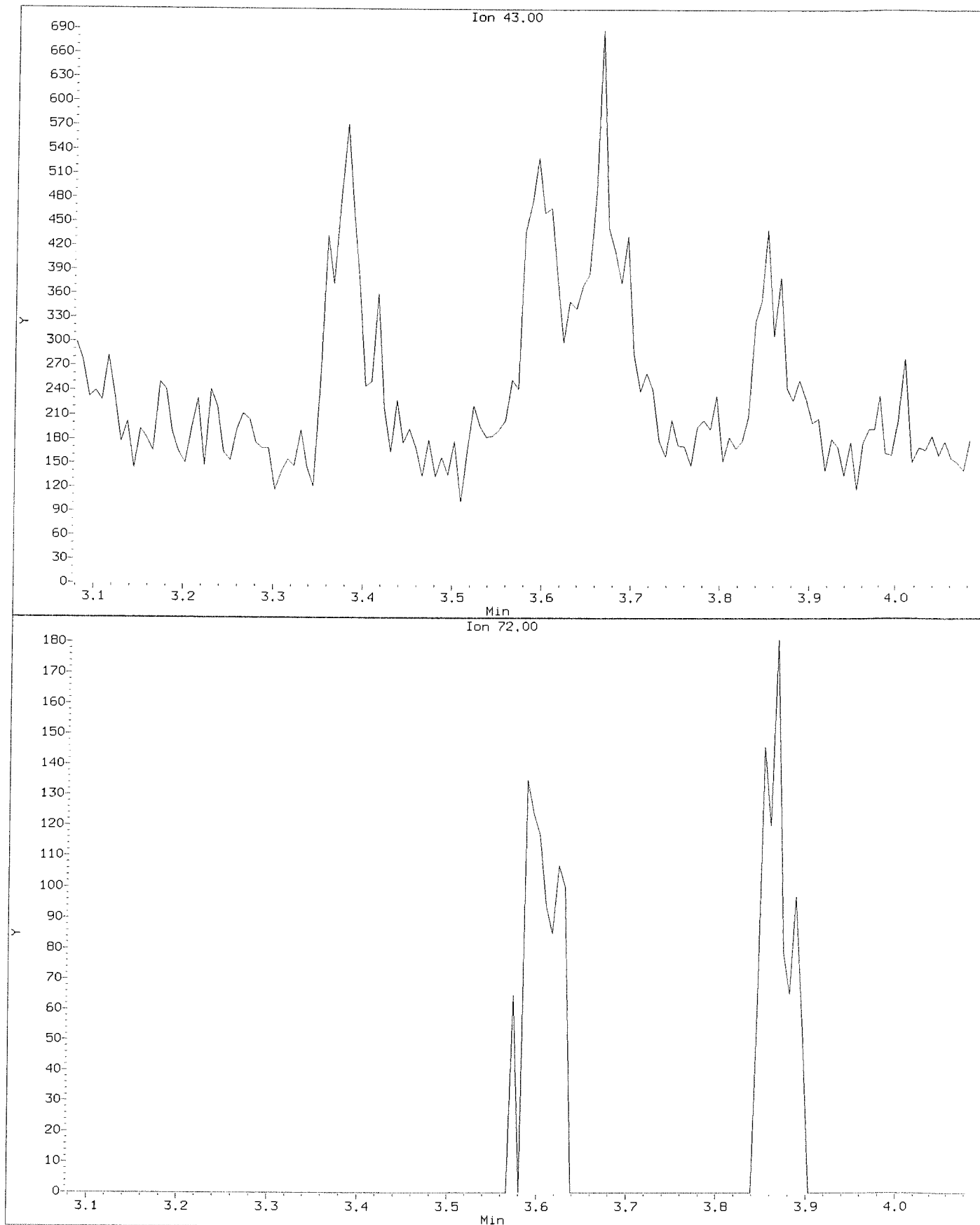
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Client Sample ID: VSTD000.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7



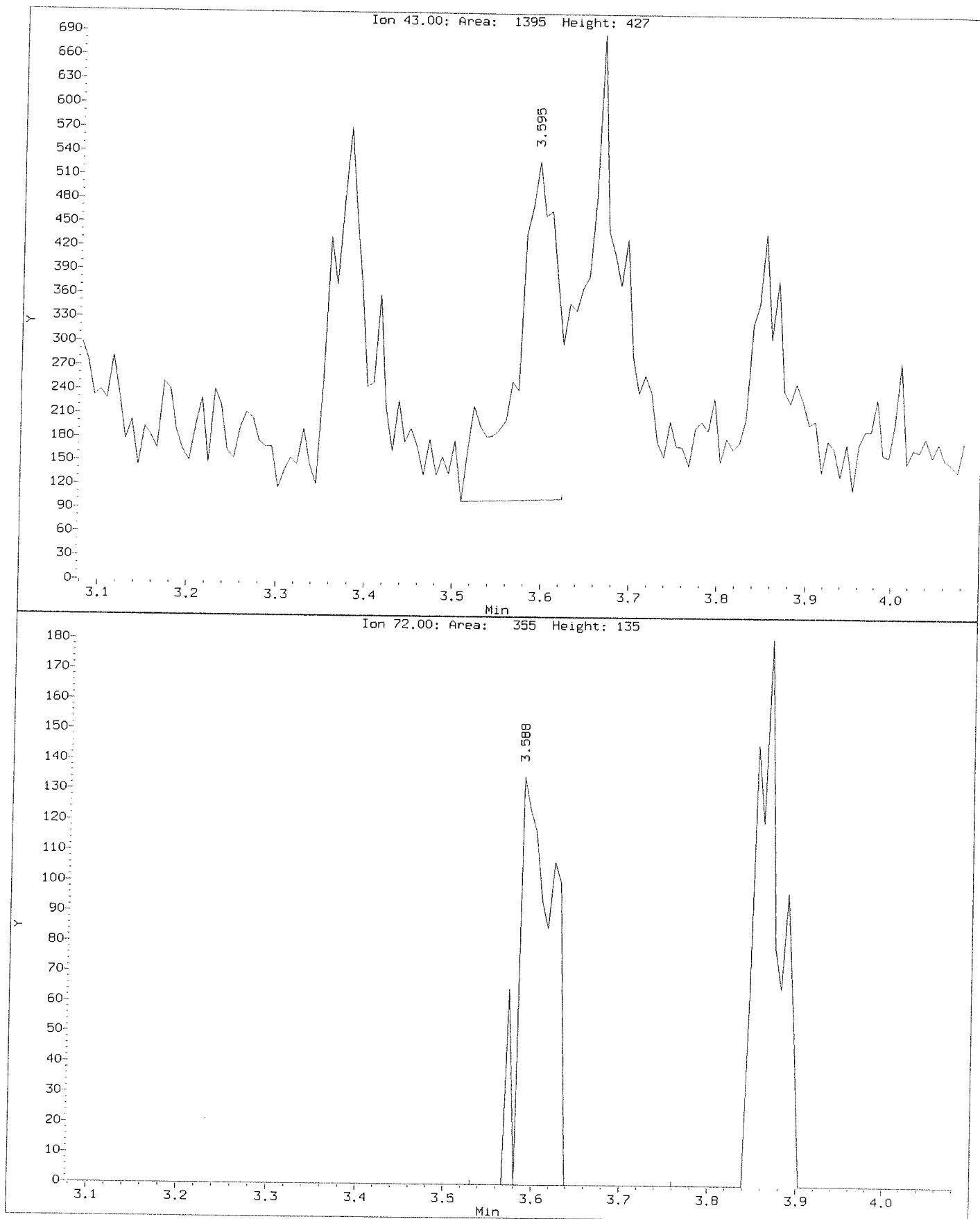
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 2-Butanone
CAS Number: 78-93-3



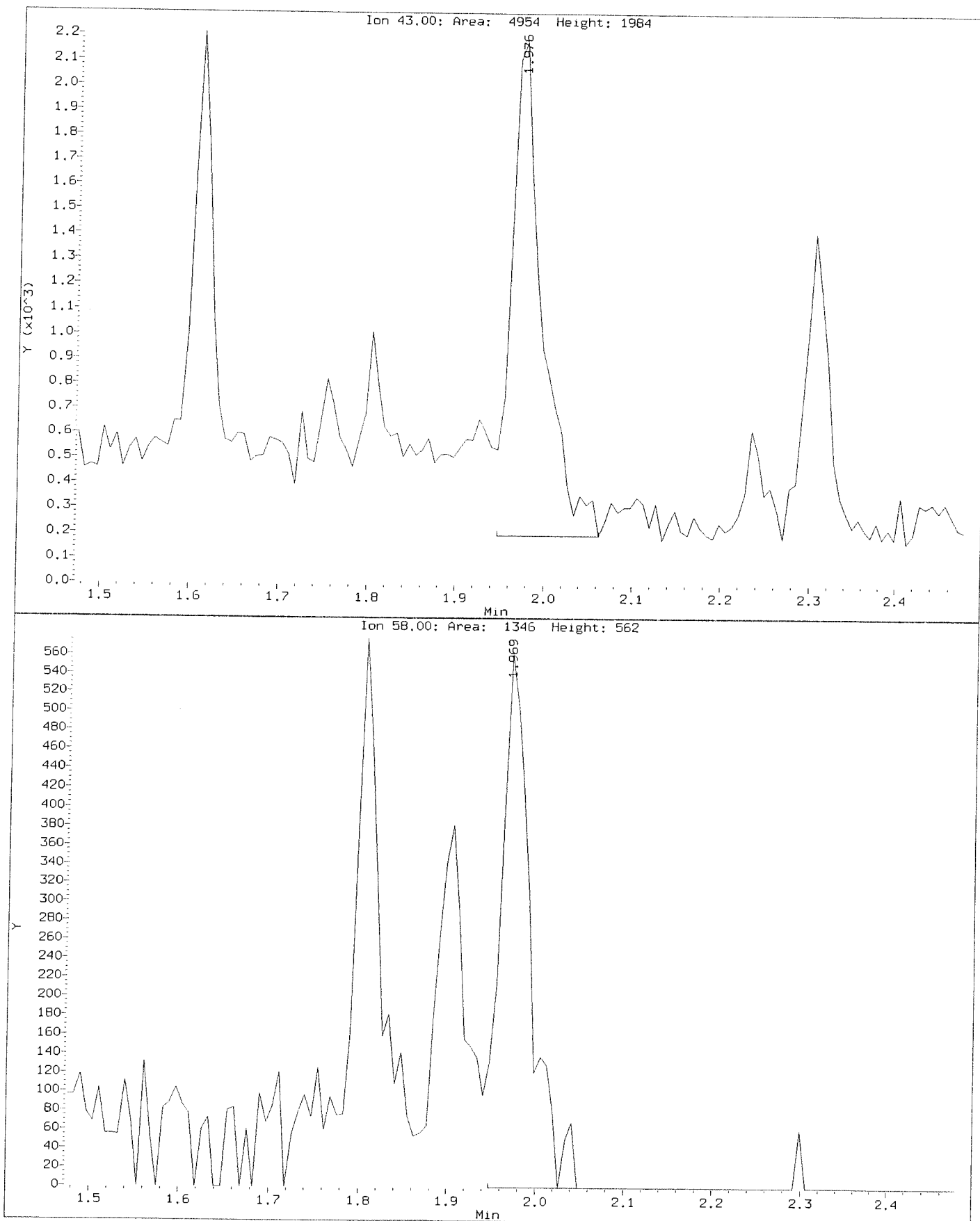
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Client Sample ID: VSTD000.5

Compound: 2-Butanone
CAS Number: 78-93-3



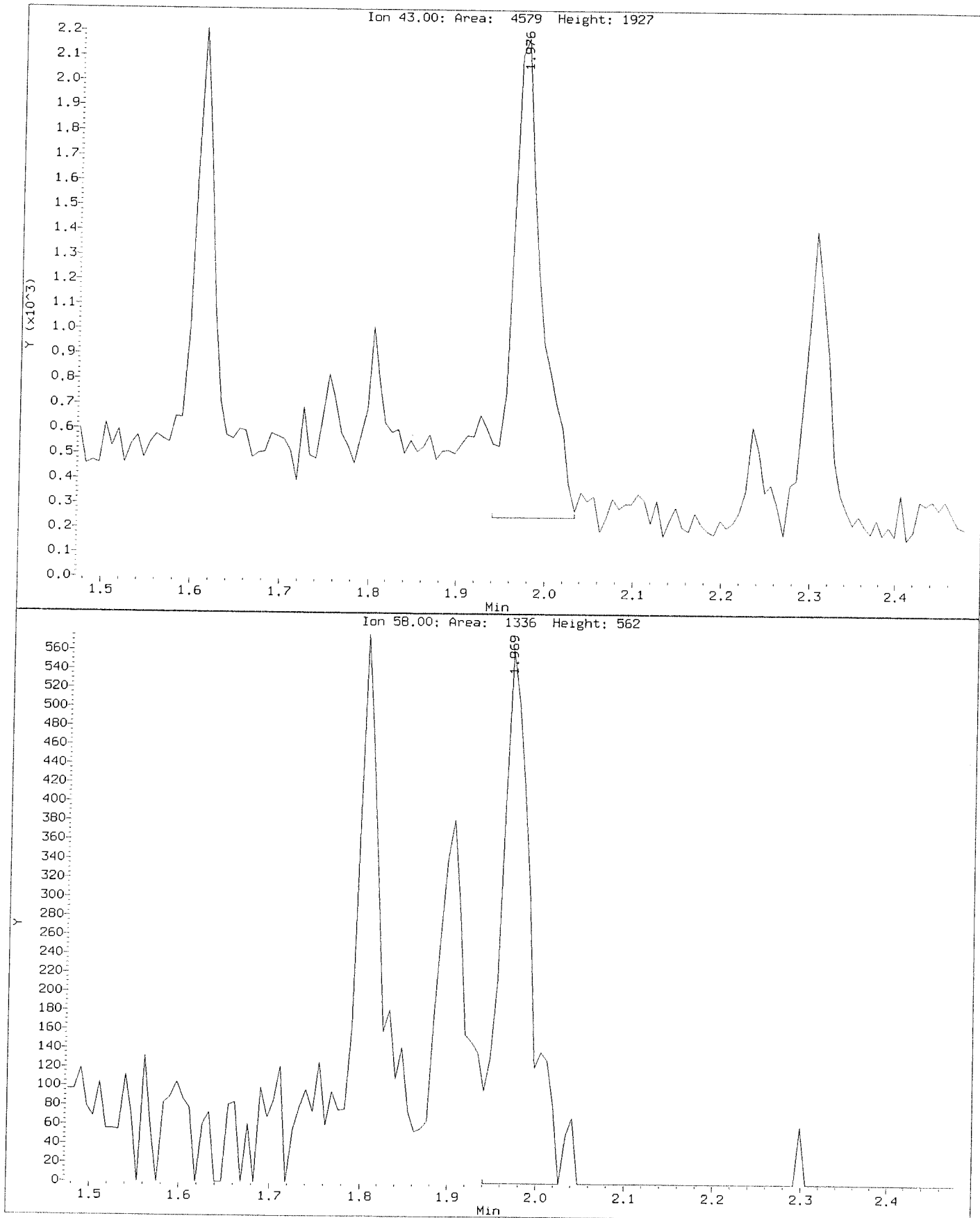
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Acetone
CAS Number: 67-64-1



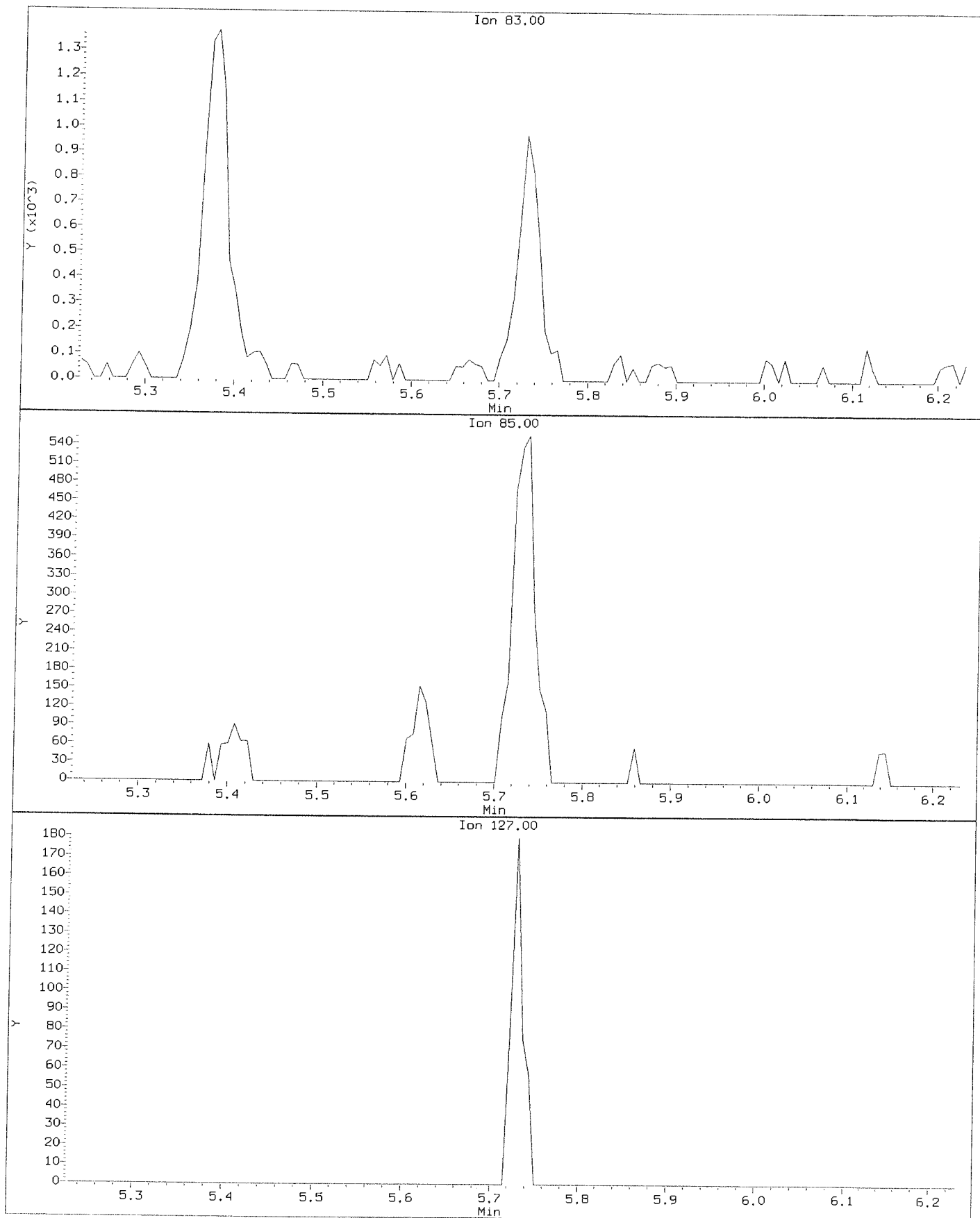
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Client Sample ID: VSTD000.5

Compound: Acetone
CAS Number: 67-64-1



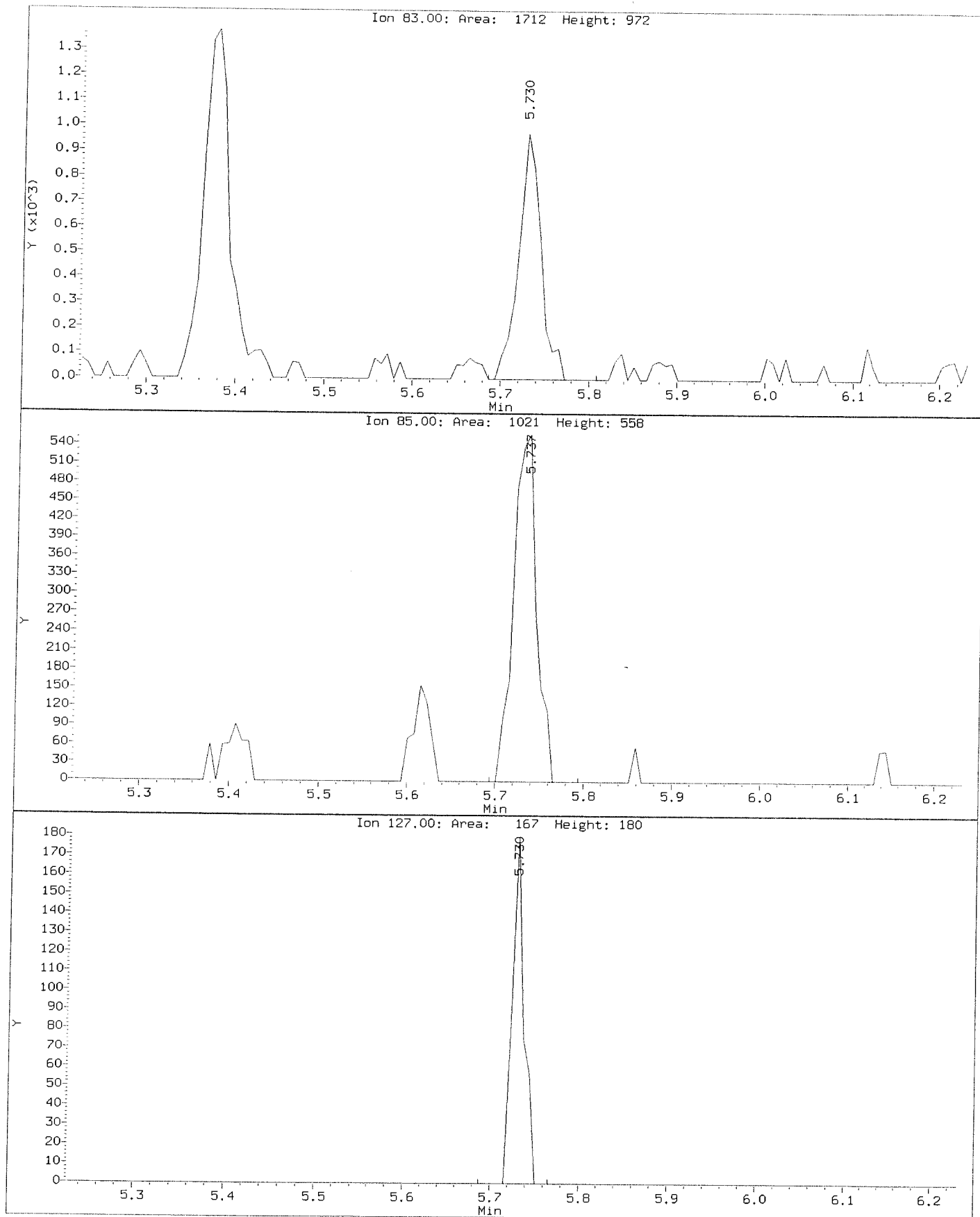
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Injection Date: 18-NOV-2019 14:35
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Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



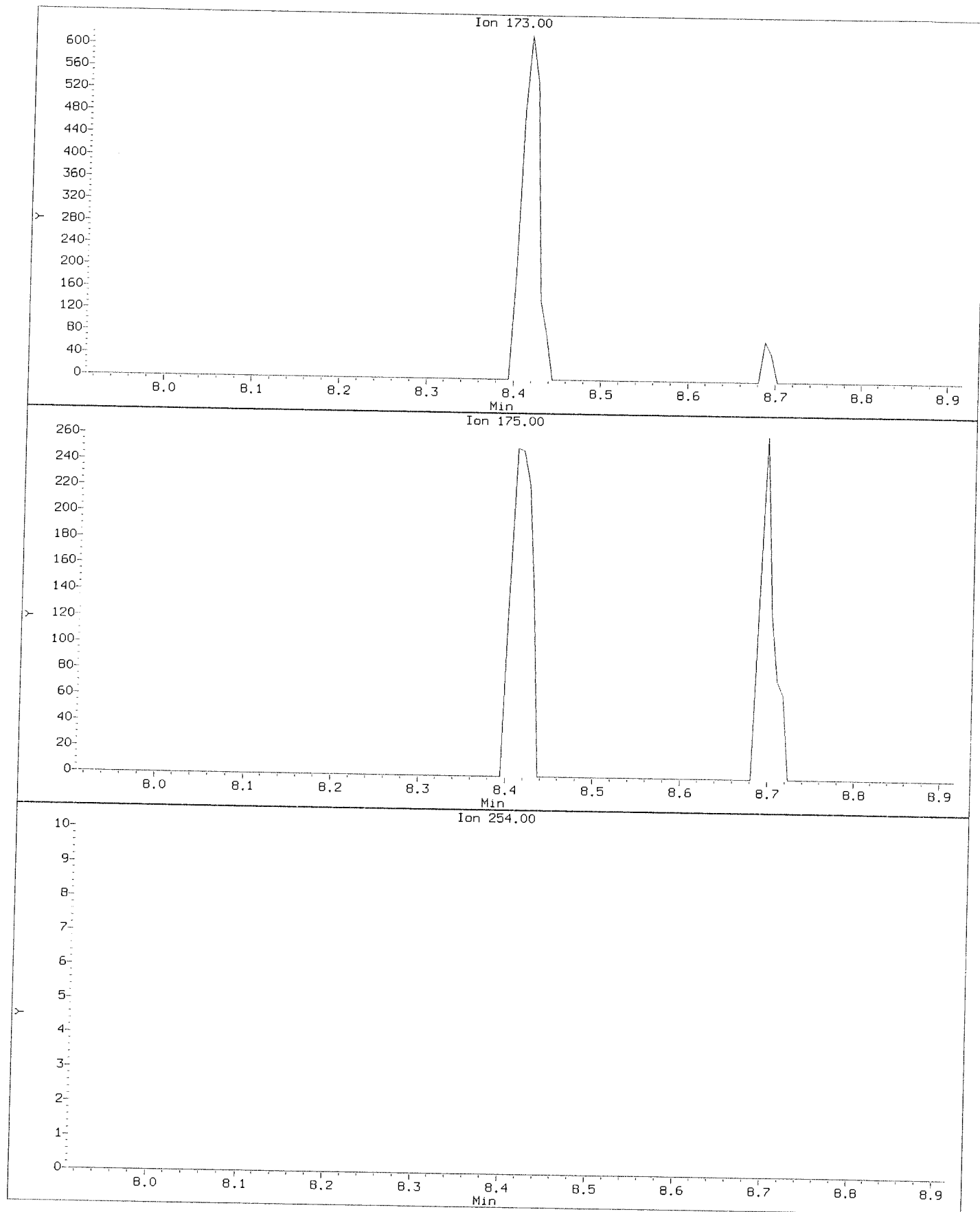
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Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



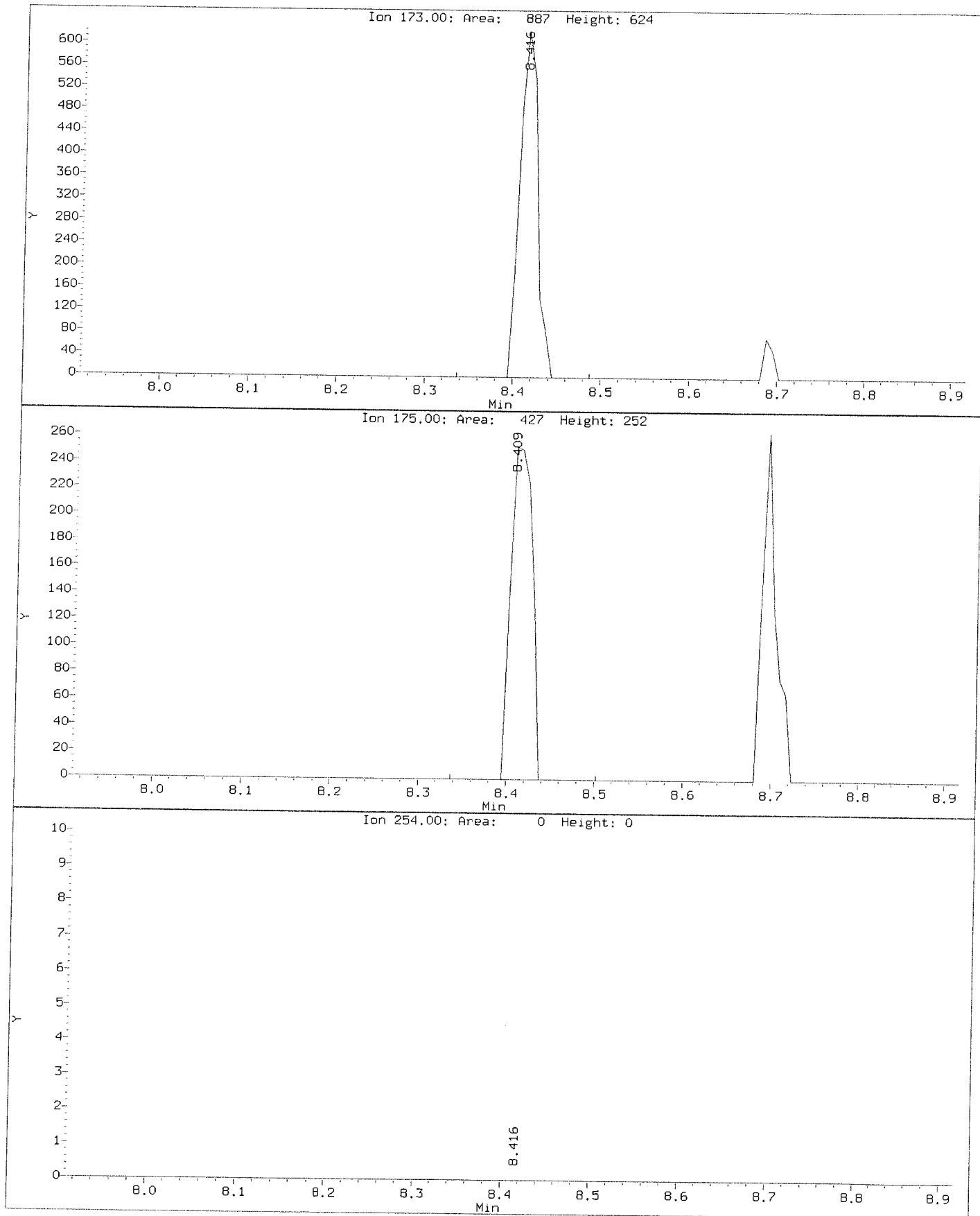
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: Bromoform
CAS Number: 75-25-2



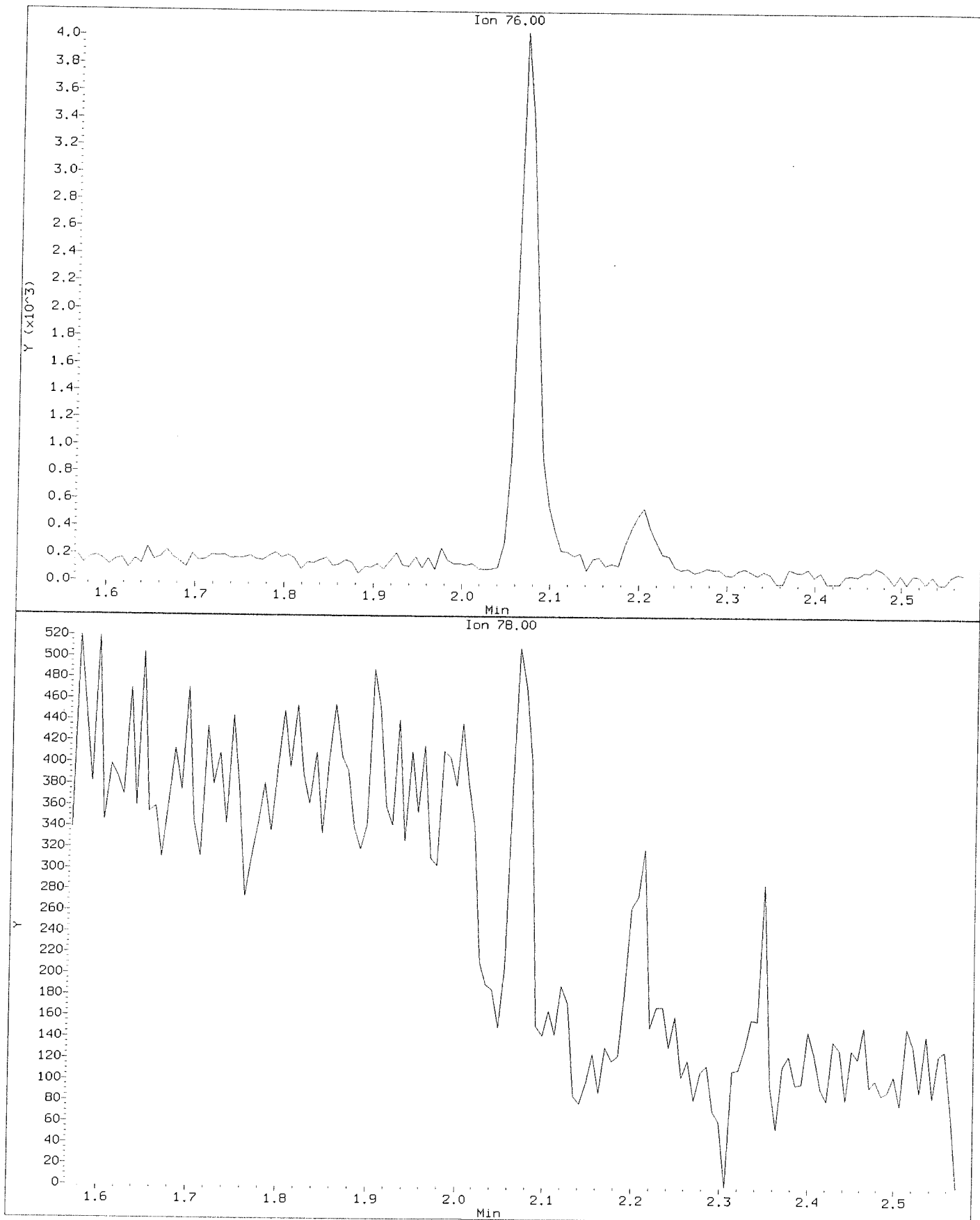
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Client Sample ID: VSTD000.5

Compound: Bromoform
CAS Number: 75-25-2



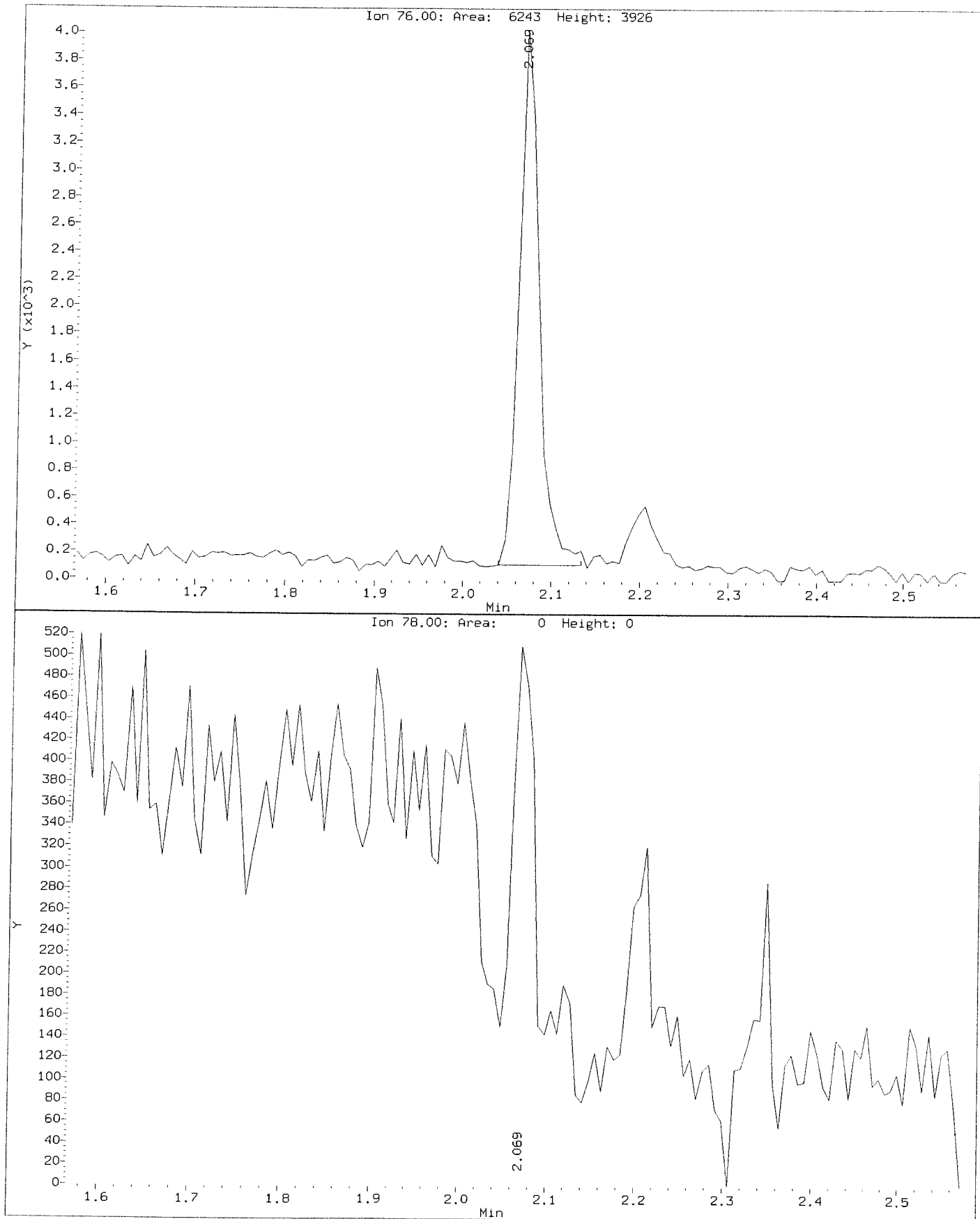
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Carbon Disulfide
CAS Number: 75-15-0



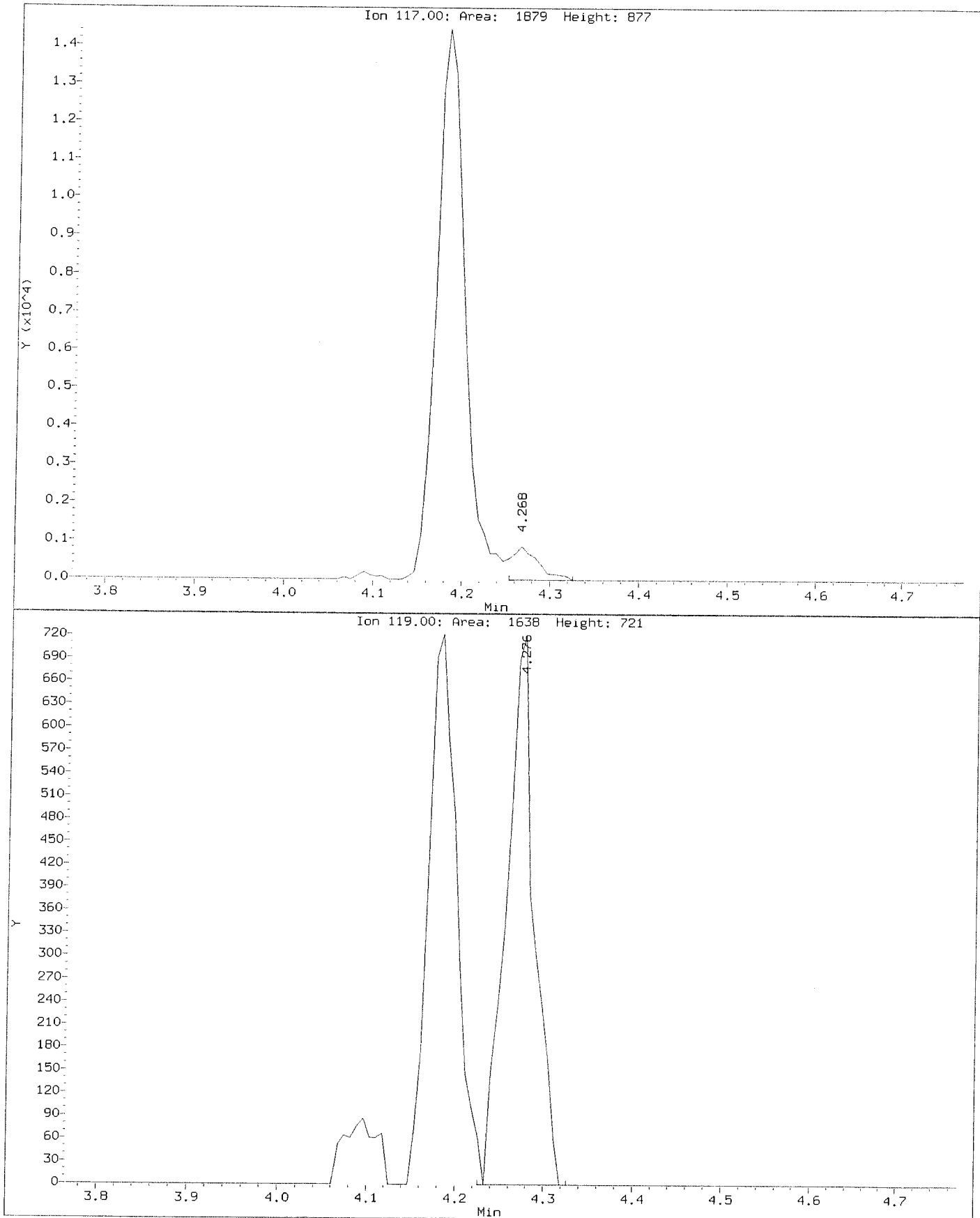
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Client Sample ID: VSTD000.5

Compound: Carbon Disulfide
CAS Number: 75-15-0



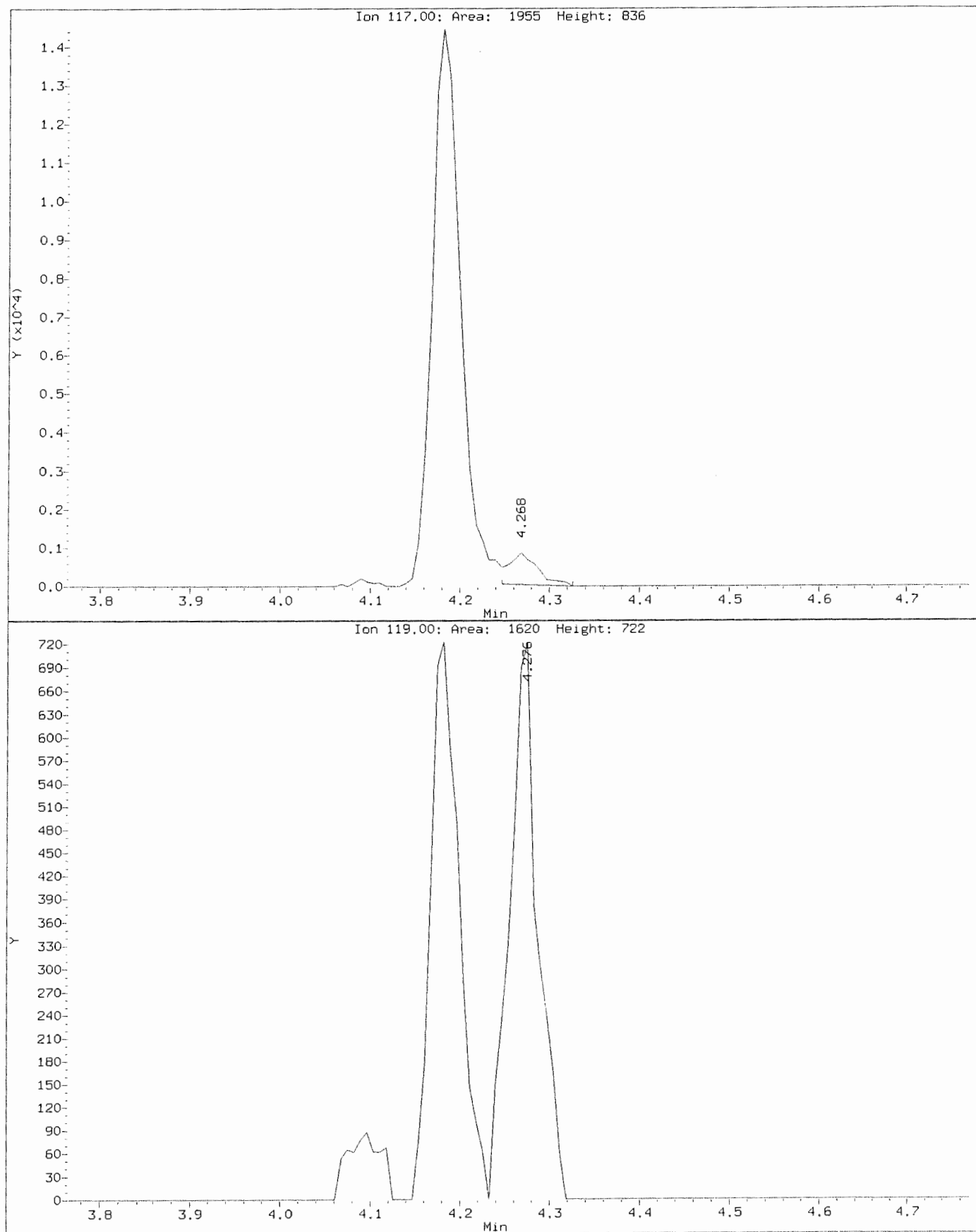
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



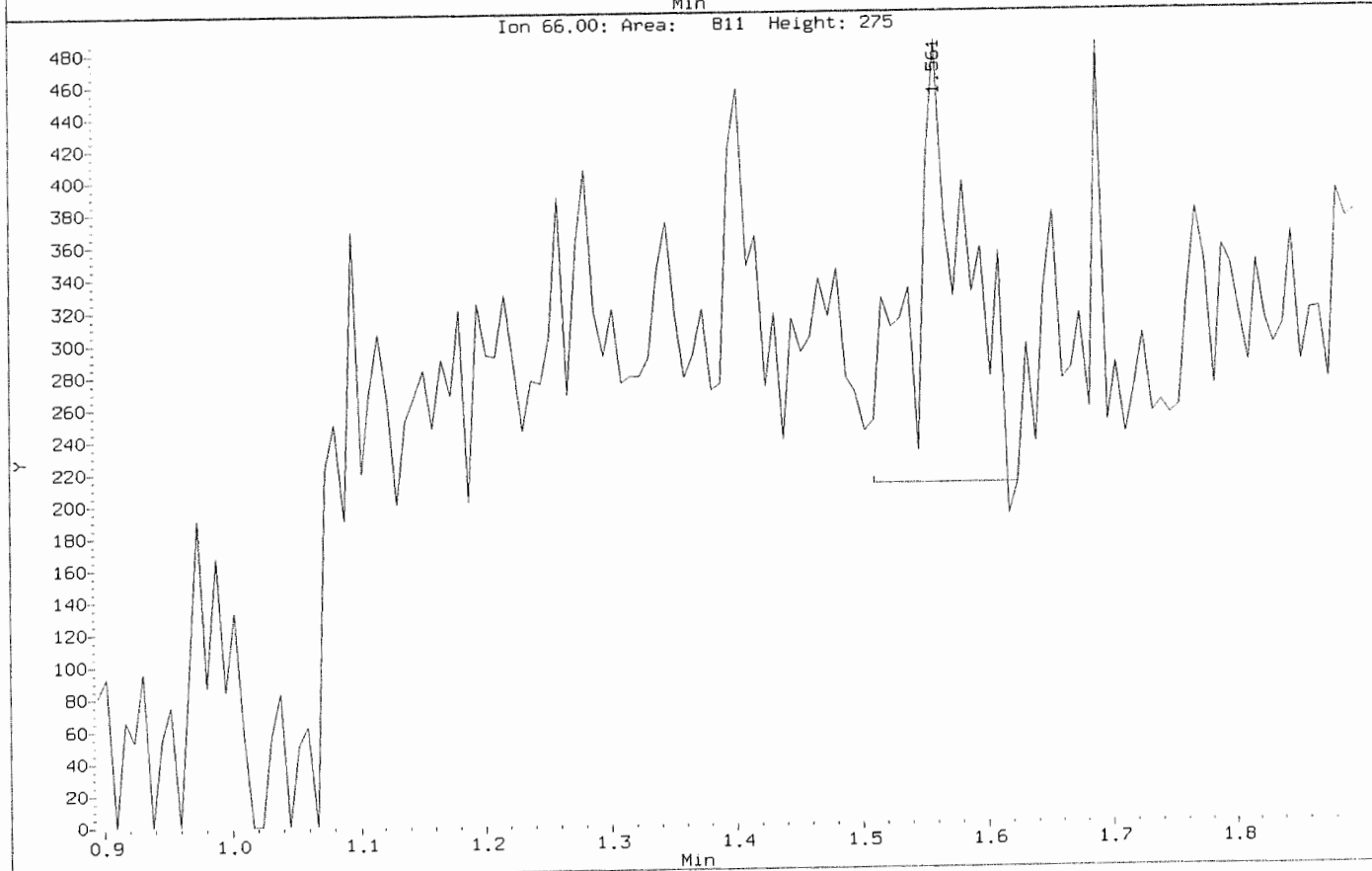
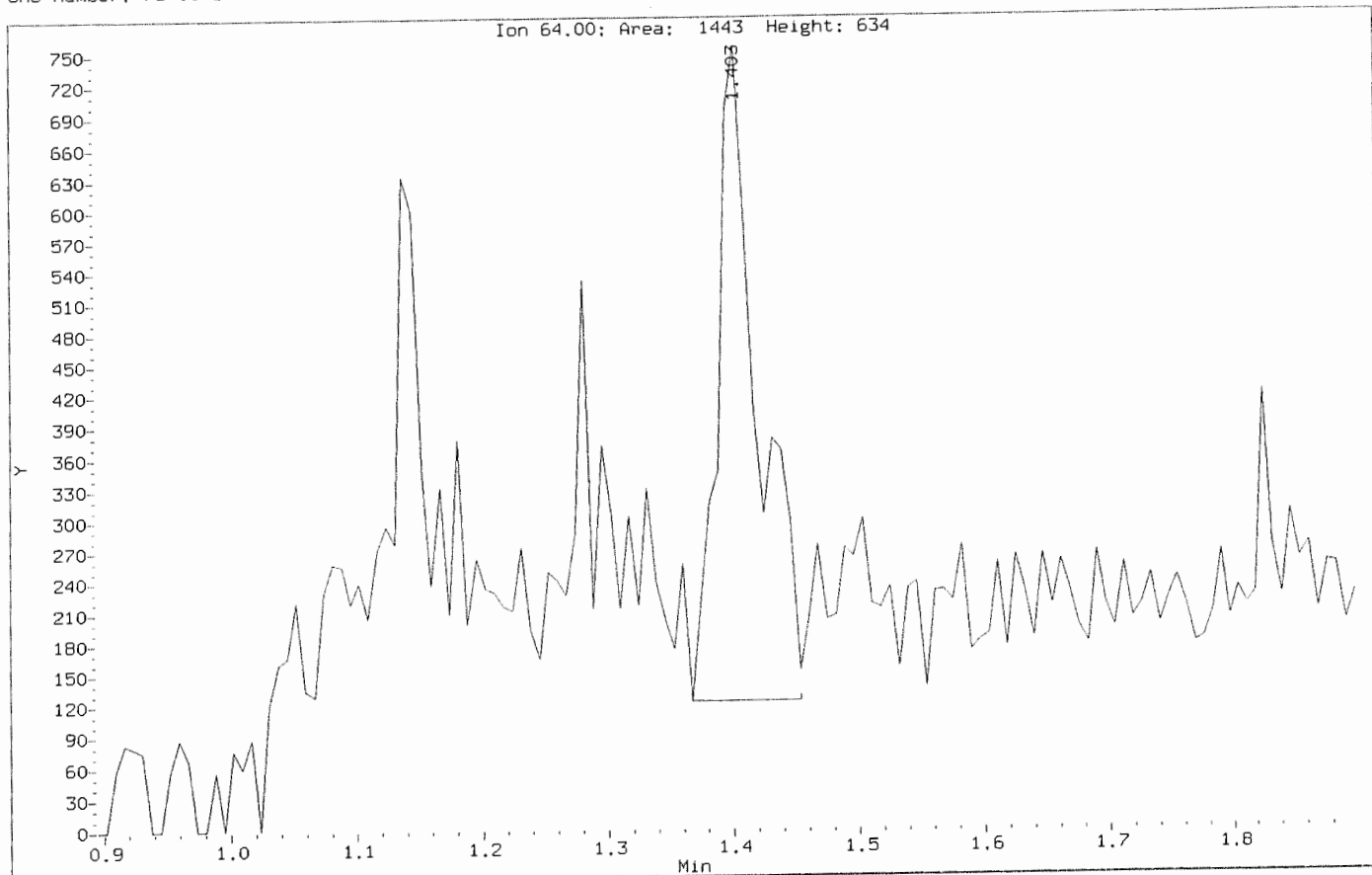
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Client Sample ID: VSTD000.5

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



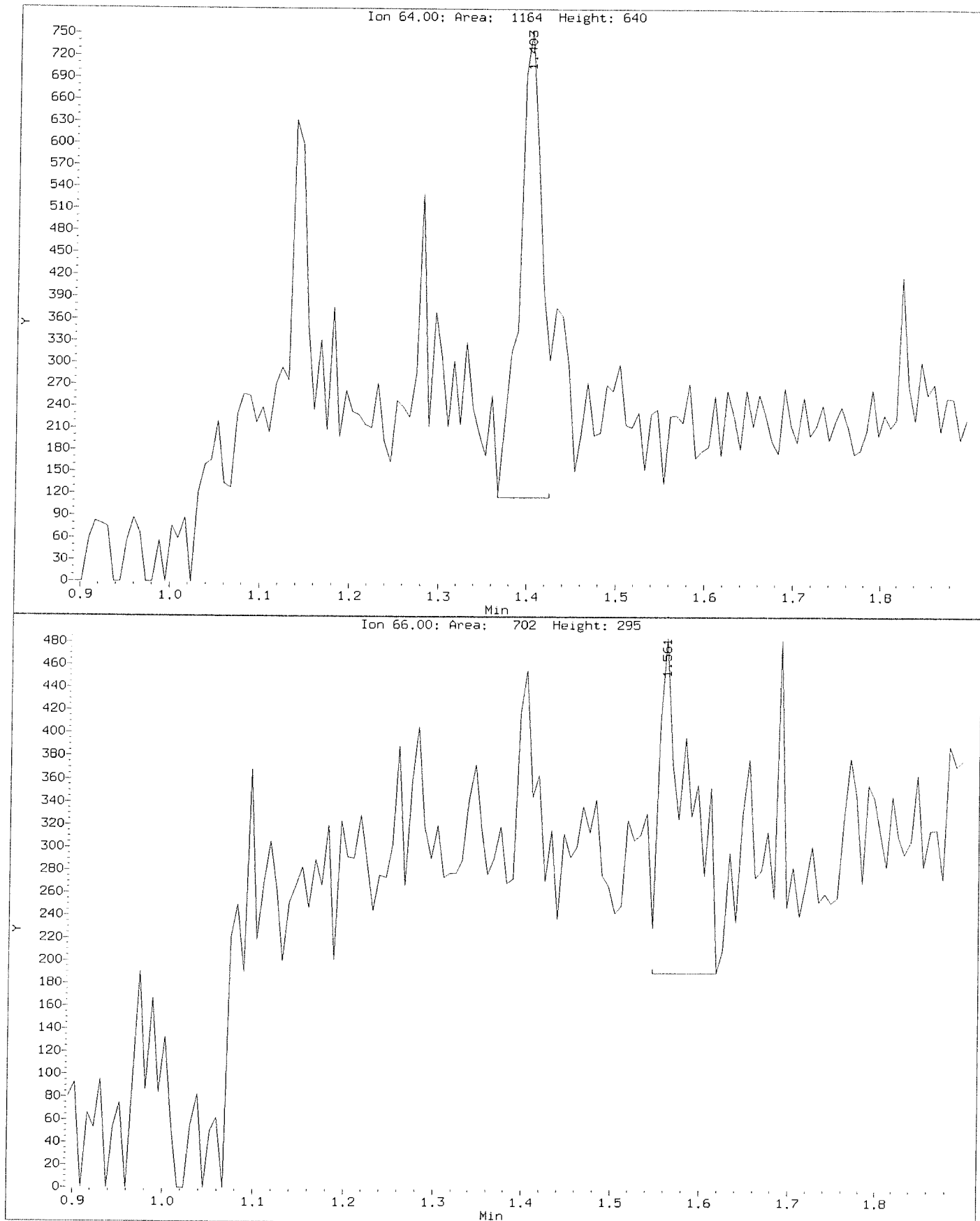
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Injection Date: 18-NOV-2019 14:35
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Client Sample ID: VSTD000.5

Compound: Chloroethane
CAS Number: 75-00-3



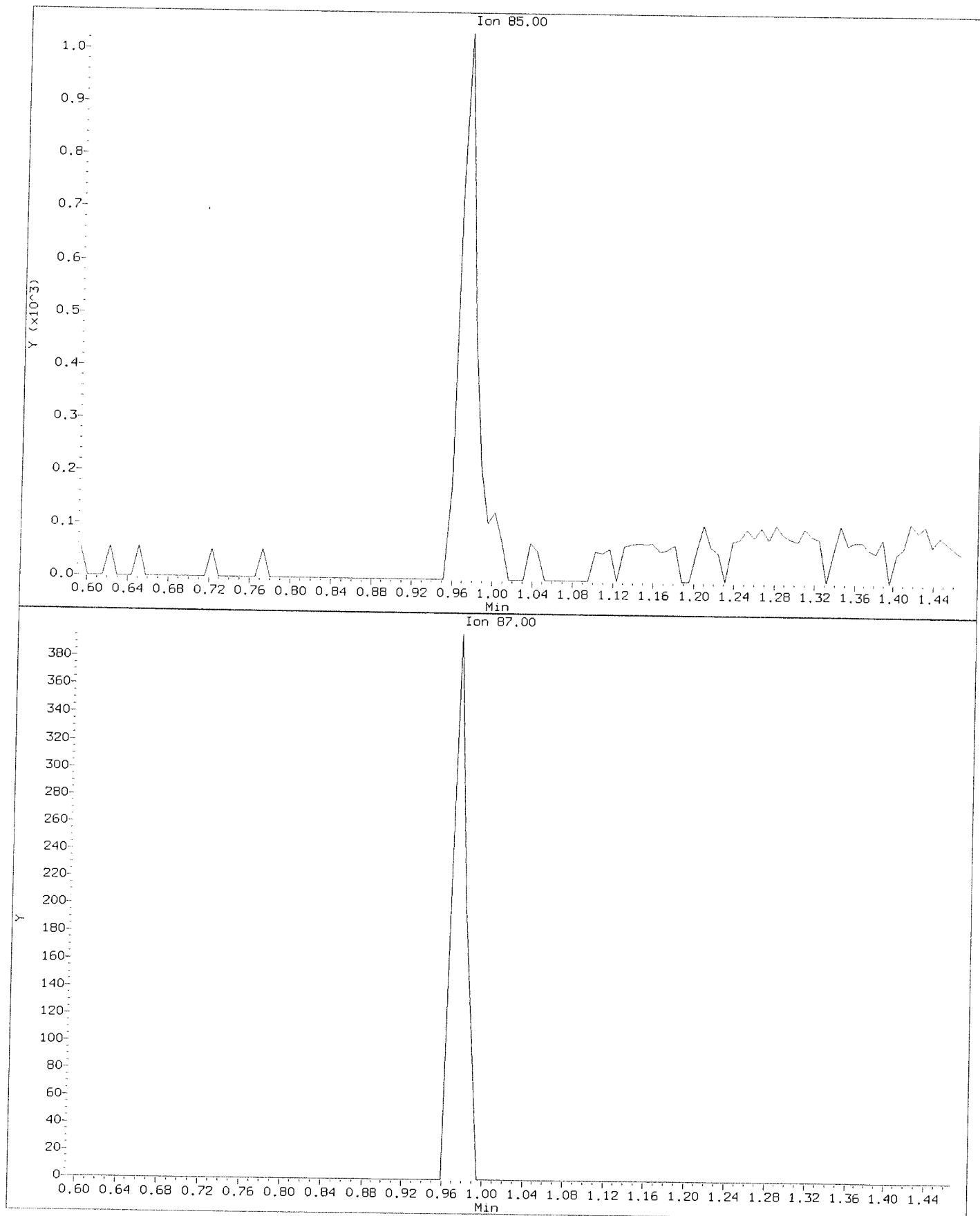
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Client Sample ID: VSTD000.5

Compound: Chloroethane
CAS Number: 75-00-3



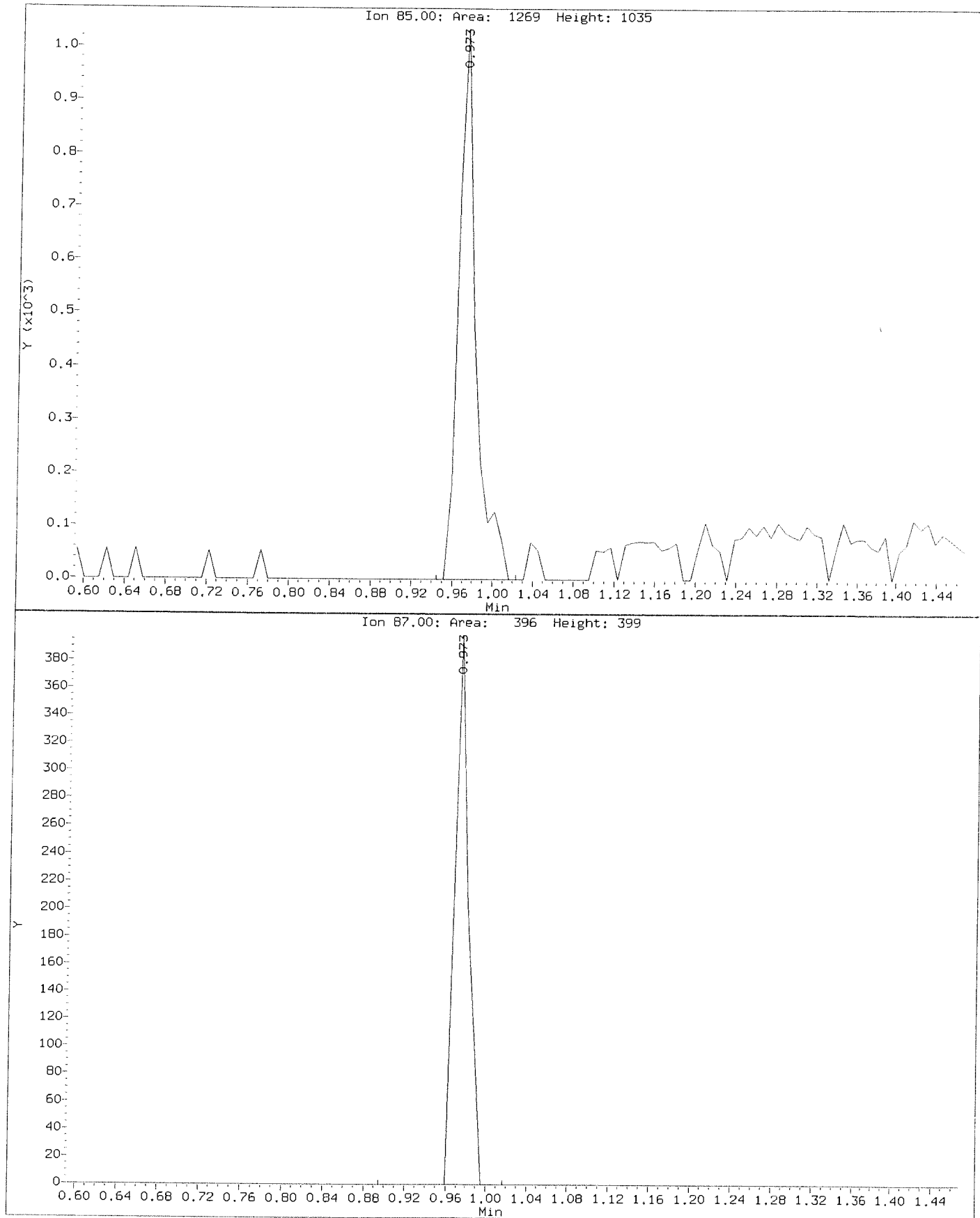
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



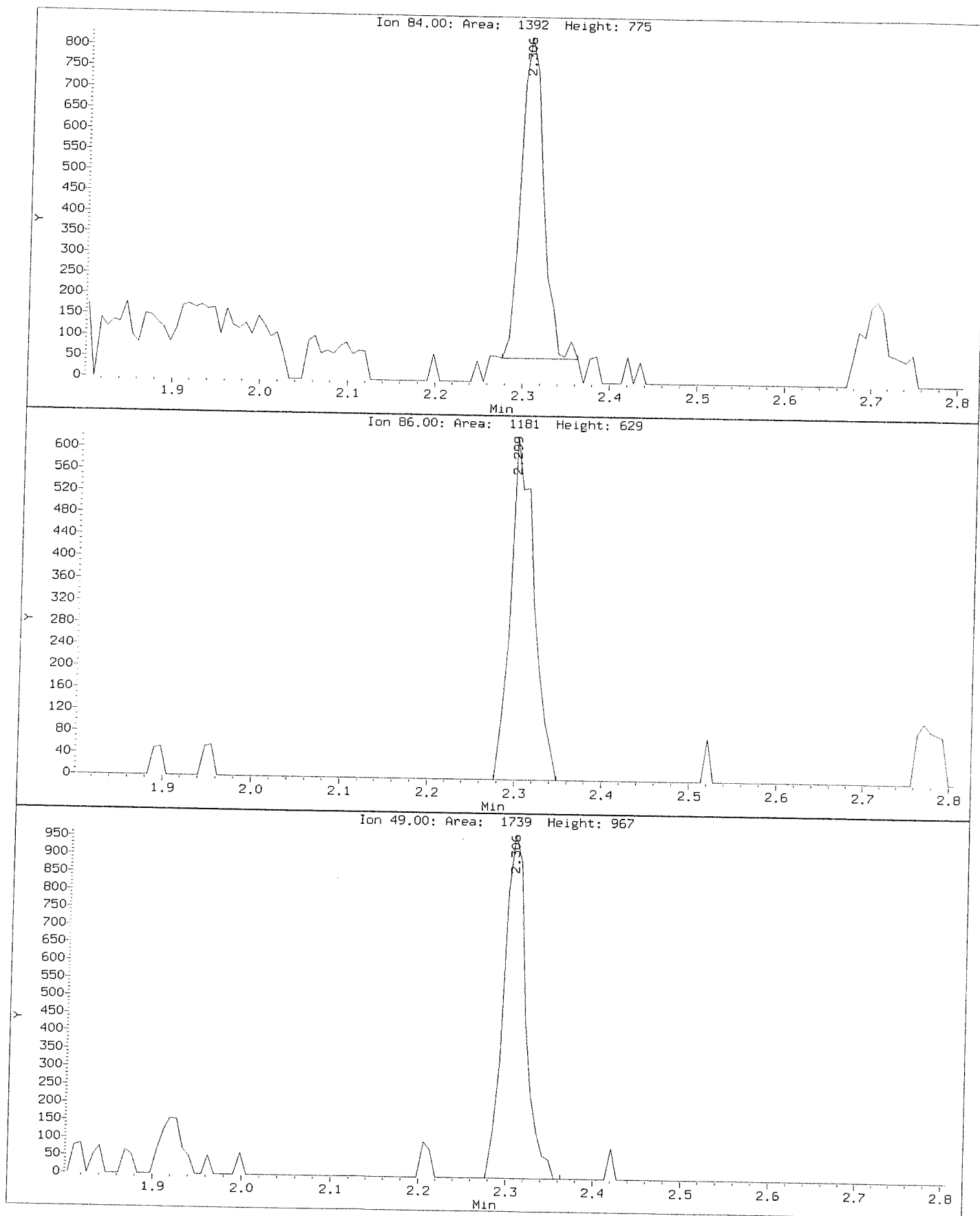
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Client Sample ID: VSTD000.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



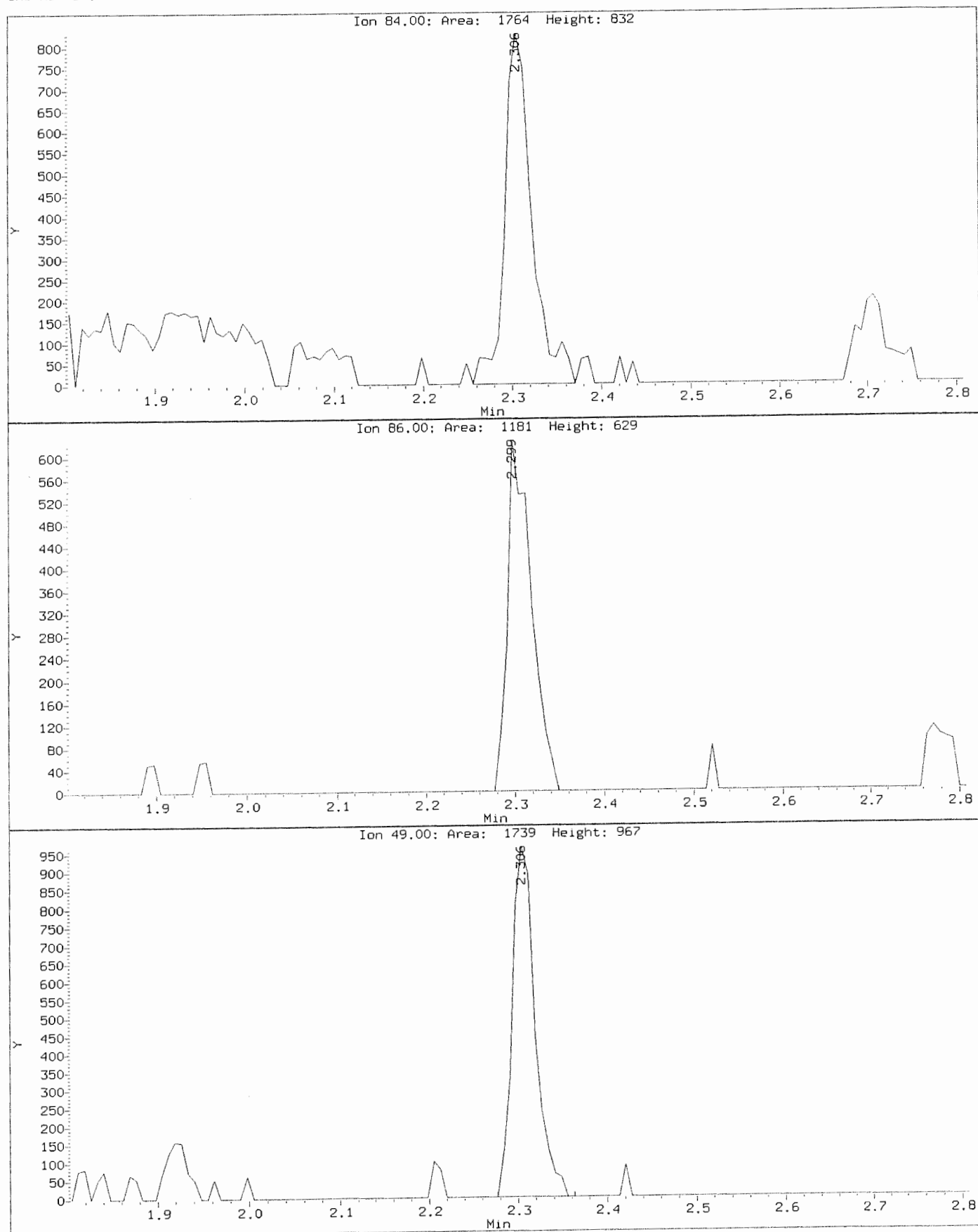
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Methylene Chloride
CAS Number: 75-09-2



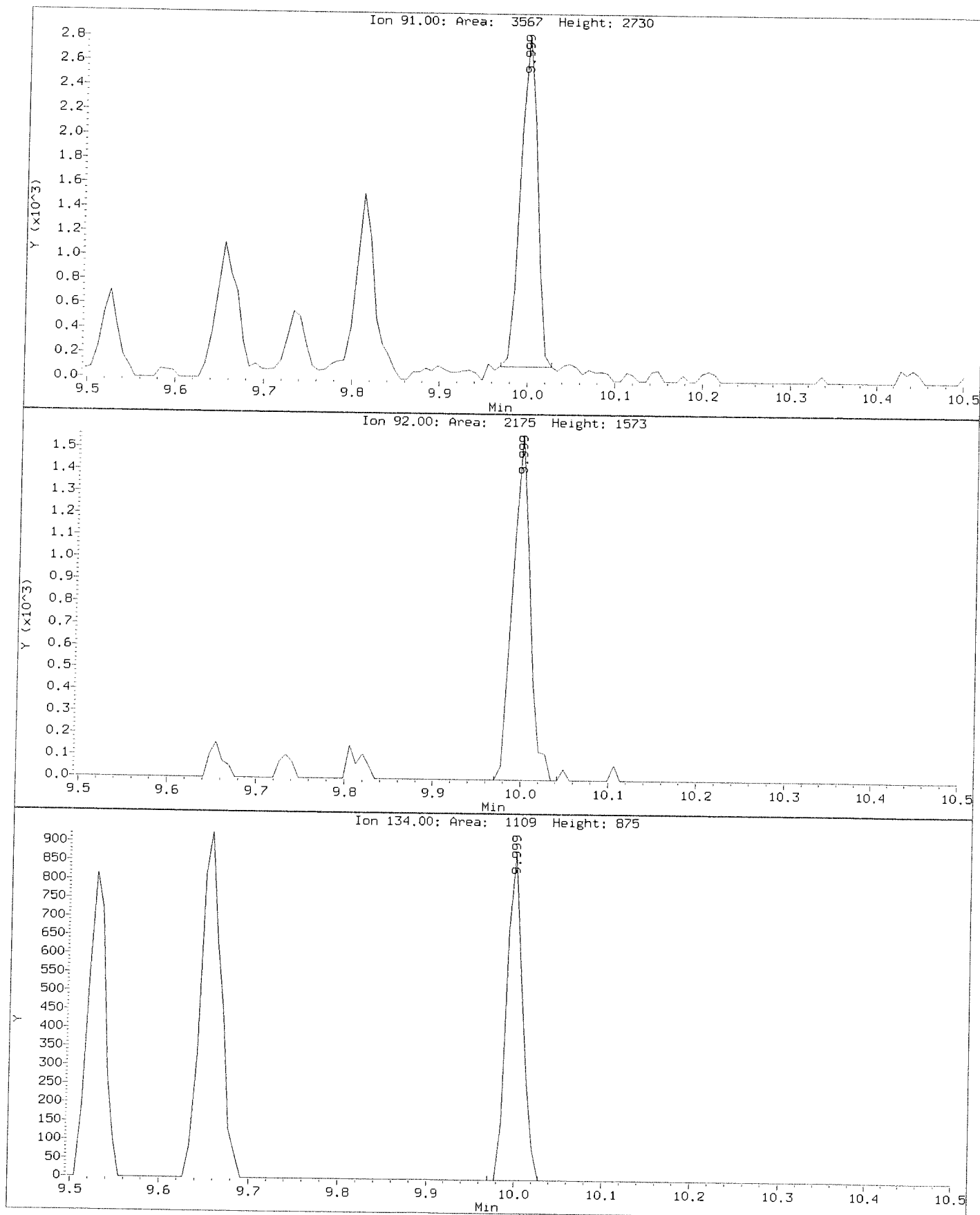
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Client Sample ID: VSTD000.5

Compound: Methylene Chloride
CAS Number: 75-09-2



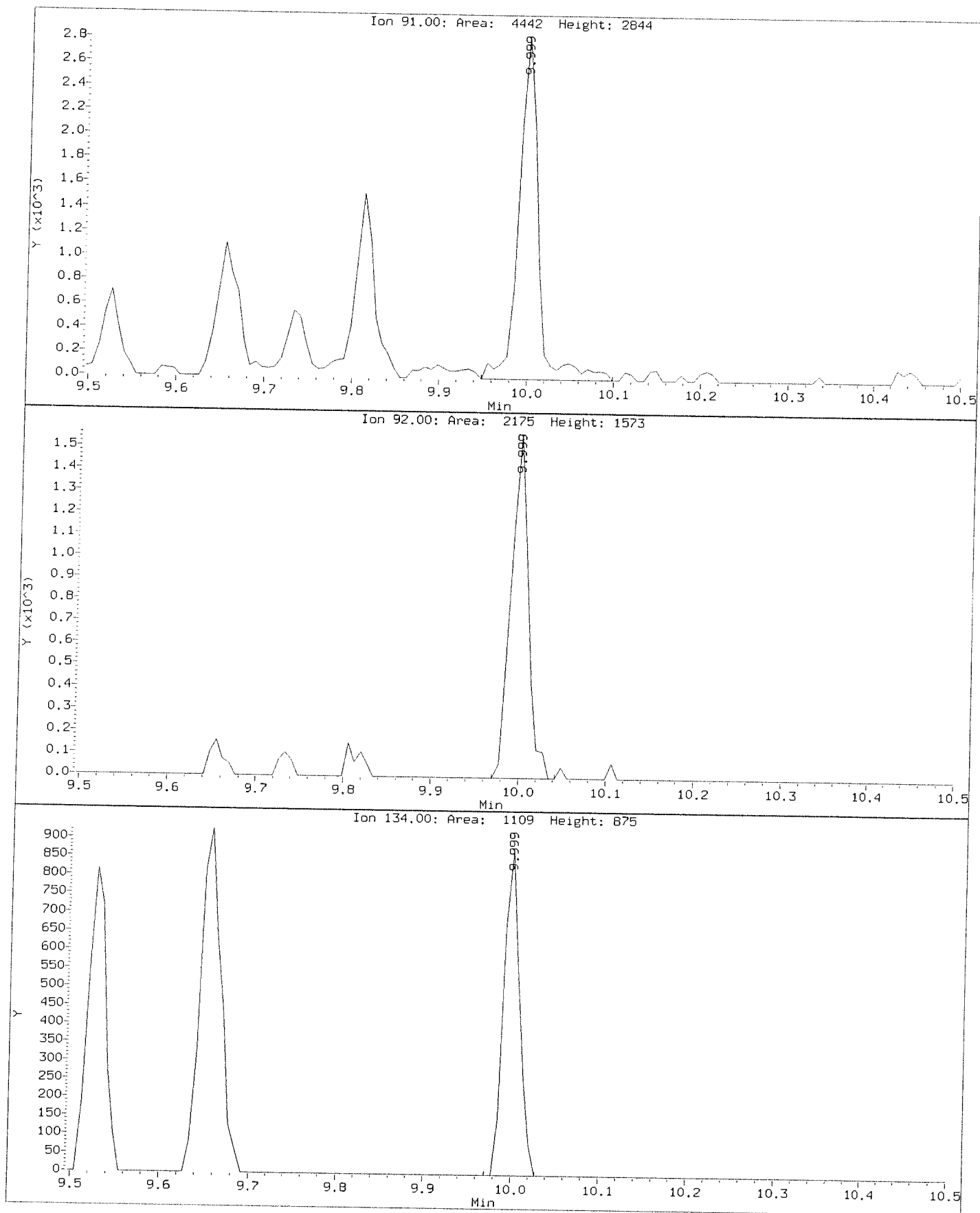
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: n-Butylbenzene
CAS Number: 104-51-8



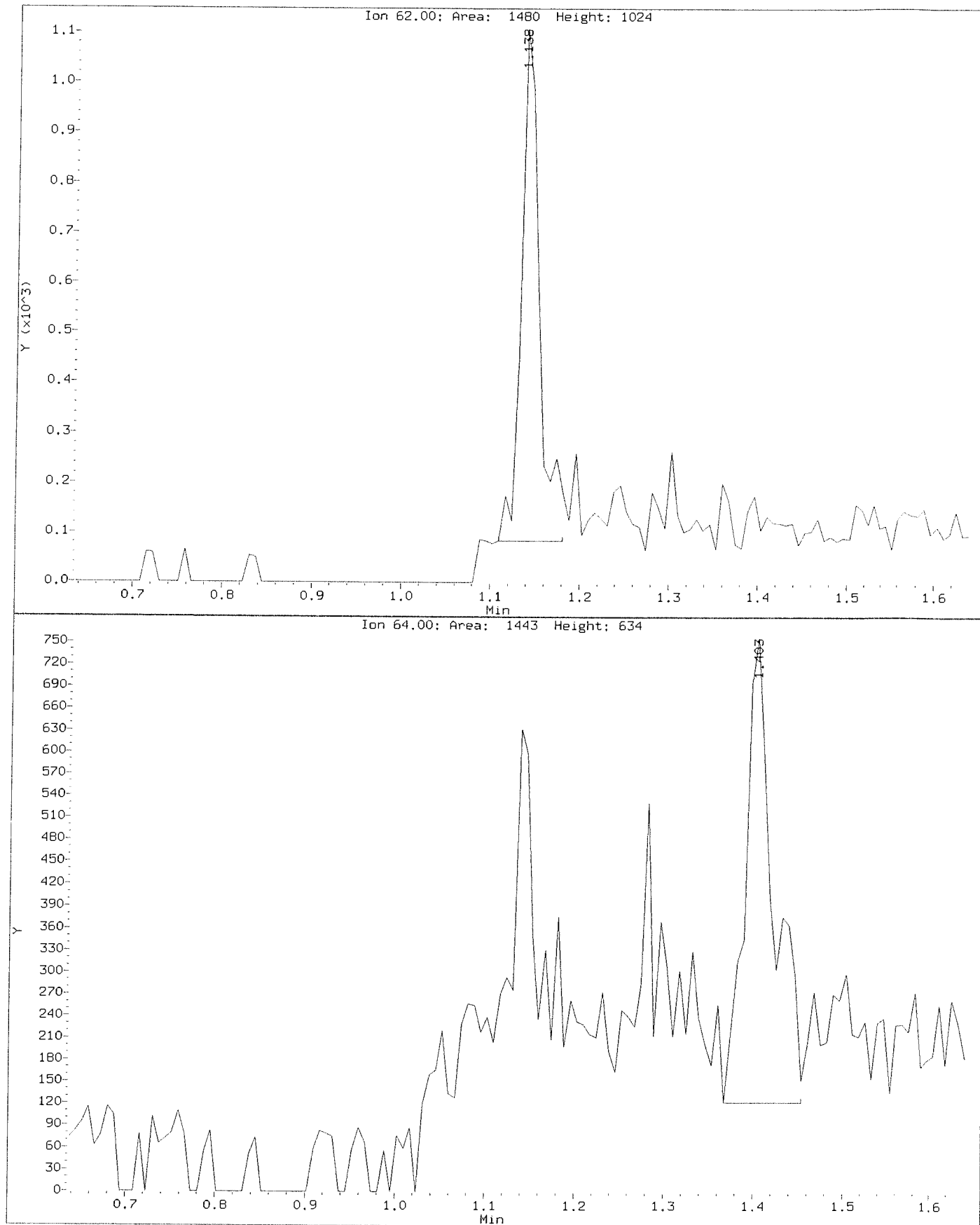
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Client Sample ID: VSTD000.5

Compound: n-Butylbenzene
CAS Number: 104-51-8



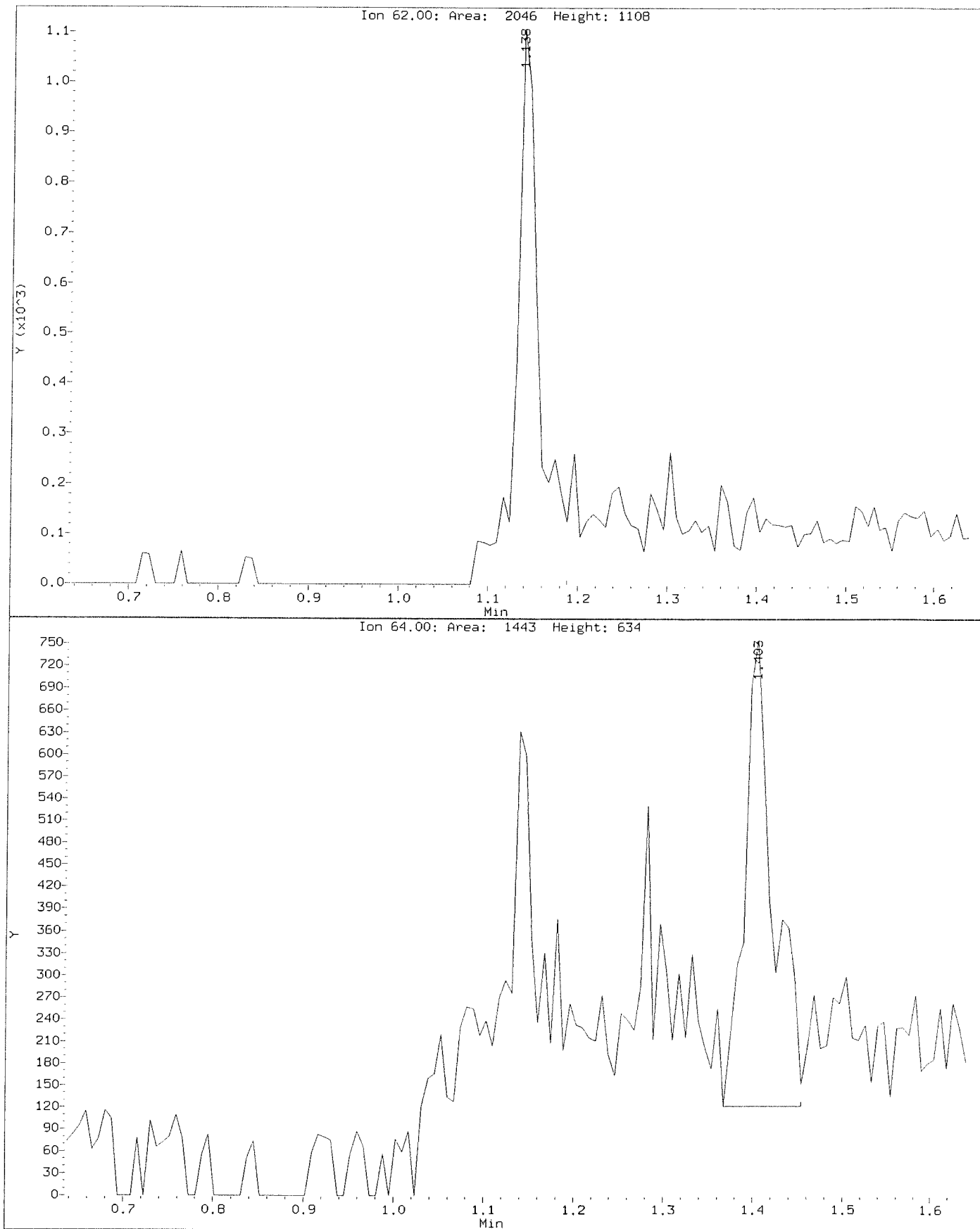
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.1\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D
 Lab Smp Id: VSTD001 Client Smp ID: VSTD001
 Inj Date : 18-NOV-2019 14:59
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD001;VSTD001;1;3;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 14:35 Cal File: X111803.D
 Als bottle: 5 Calibration Sample, Level: 3
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT	ON-COL
	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	416007	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	570122	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	516622	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	279609	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	4458	1.00000	1.85 (a)
\$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	5731	1.00000	1.60 (a)
\$ 30 Dibromofluoromethane	113	4.104	4.104	(0.981)	3882	1.00000	1.38 (a)
\$ 48 Toluene-d8	98	6.389	6.389	(0.833)	13715	1.00000	1.00 (a)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	4166	1.00000	1.11 (a)
31 1,1,1-Trichloroethane	97	4.082	4.082	(0.976)	6451	1.00000	1.14 (a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	4719	1.00000	1.20 (aM)
138 Freon TF	101	1.919	1.919	(0.459)	4065	1.00000	1.12 (a)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	3216	1.00000	1.19 (a)
22 1,1-Dichloroethane	63	2.929	2.929	(0.700)	6907	1.00000	1.14 (a)
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	3522	1.00000	0.99 (a)
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	5427	1.00000	1.18 (a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	1182	1.00000	0.29 (a)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	4081	1.00000	1.22 (aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	2432	1.00000	1.03 (aM)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	14648	1.00000	1.10 (a)
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	464	1.00000	0.73 (aM)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	3982	1.00000	1.09 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG				AMOUNTS		
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	8297	1.00000	1.11(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	5359	1.00000	1.18(a)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	3352	1.00000	0.98(aM)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	13162	1.00000	1.03(a)
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	8955	1.00000	1.11(a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	6334	1.00000	1.15(a)
84 1,4-Dichlorobenzene	146	9.684	9.684	(1.001)	9129	1.00000	1.12(a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	6785	1.00000	1.23(a)
24 2-Butanone	43	3.588	3.588	(0.858)	2602	2.00000	2.03(a)
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	11127	1.00000	1.10(a)
52 2-Hexanone	43	7.090	7.090	(0.924)	4893	2.00000	2.30(a)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	13982	1.00000	1.14(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	14705	1.00000	1.07(a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	6643	2.00000	2.19(a)
10 Acetone	43	1.969	1.969	(0.471)	5956	2.00000	1.88(a)
37 Benzene	78	4.519	4.519	(0.909)	15129	1.00000	1.16(a)
74 Bromobenzene	156	8.810	8.810	(0.911)	5611	1.00000	1.15(a)
29 Bromochloromethane	128	3.803	3.803	(0.909)	2687	1.00000	1.19(a)
39 Bromodichloromethane	83	5.730	5.730	(1.153)	5583	1.00000	1.18(aM)
66 Bromoform	173	8.416	8.416	(1.097)	3197	1.00000	2.01(Ta)
6 Bromomethane	94	1.339	1.339	(0.320)	6334	1.00000	(aM)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	20920	2.00000	2.18(a)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	5740	1.00000	1.13(aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	11449	1.00000	1.13(a)
7 Chloroethane	64	1.403	1.403	(0.336)	3001	1.00000	1.14(aM)
28 Chloroform	83	3.910	3.910	(0.935)	8234	1.00000	1.22(a)
3 Chloromethane	50	1.074	1.074	(0.257)	6118	1.00000	1.53(aM)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	4494	1.00000	1.13(a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	6302	1.00000	1.13(a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	4470	1.00000	1.13(a)
44 Dibromomethane	93	5.558	5.558	(1.118)	2789	1.00000	1.15(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	3829	1.00000	1.87(aM)
61 Ethylbenzene	106	7.800	7.800	(1.017)	5813	1.00000	1.11(a)
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	2468	1.00000	0.76(a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	16809	1.00000	1.08(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	13495	2.00000	2.14(a)
17 Methylene Chloride	84	2.306	2.306	(0.551)	4626	1.00000	1.22(a)
87 n-Butylbenzene	91	9.999	9.999	(1.034)	11491	1.00000	1.00(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	18779	1.00000	1.08(a)
92 Naphthalene	128	11.553	11.553	(1.195)	3182	1.00000	1.05(a)
63 o-Xylene	106	8.244	8.244	(1.075)	6995	1.00000	1.12(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	15987	1.00000	1.06(a)
64 Styrene	104	8.265	8.265	(1.078)	11719	1.00000	1.08(a)
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	12122	1.00000	1.11(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	4263	1.00000	1.17(a)
50 Toluene	91	6.453	6.453	(0.841)	16346	1.00000	1.11(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	4068	1.00000	1.18(a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	5295	1.00000	1.04(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	4445	1.00000	1.11(a)
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	6912	1.00000	1.07(a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	4533	1.00000	1.06(aM)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D Page 3
Report Date: 06-Dec-2019 19:56

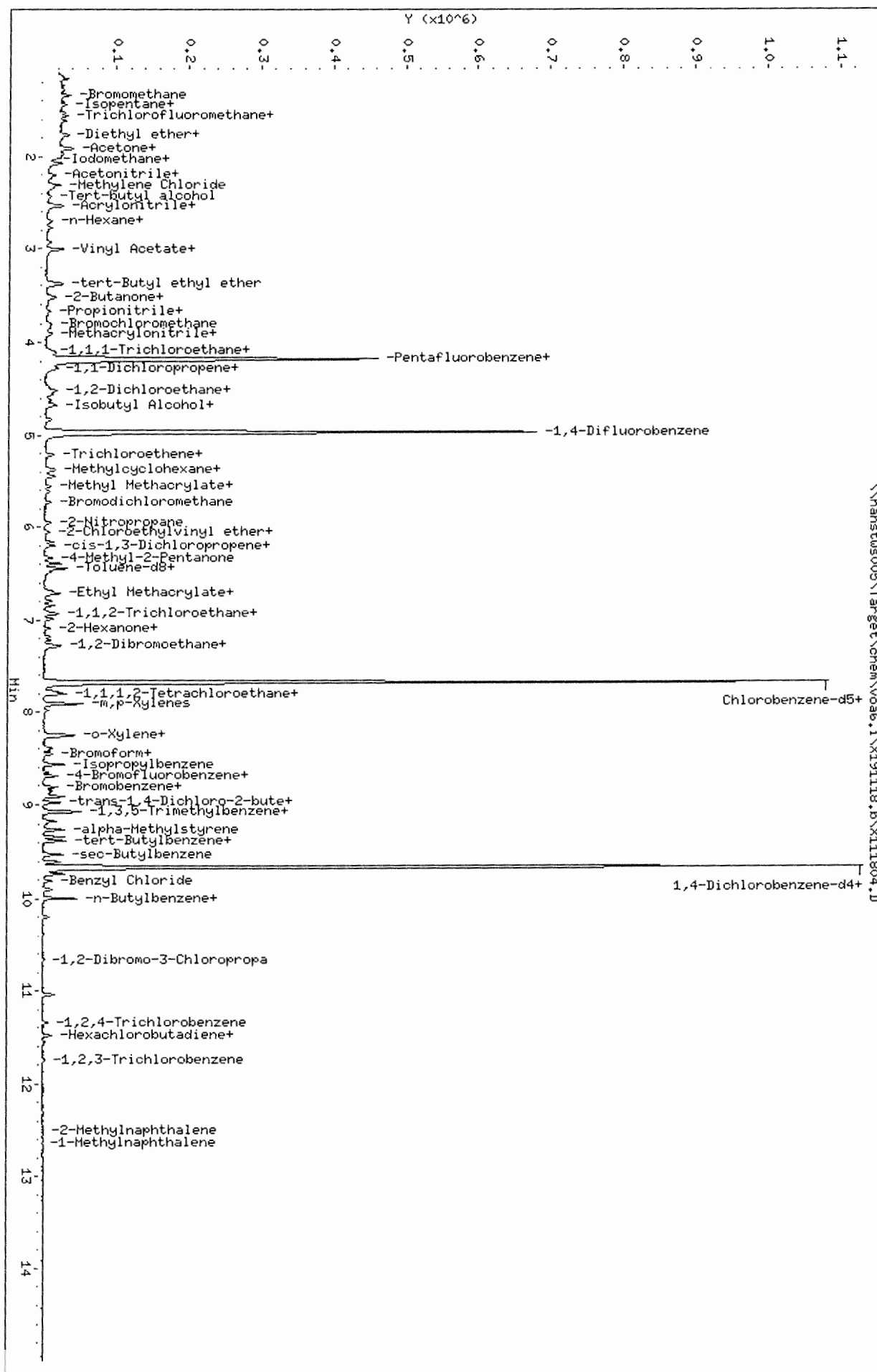
QC Flag Legend

- T - Target compound detected outside RT window.
- a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
- M - Compound response manually integrated.



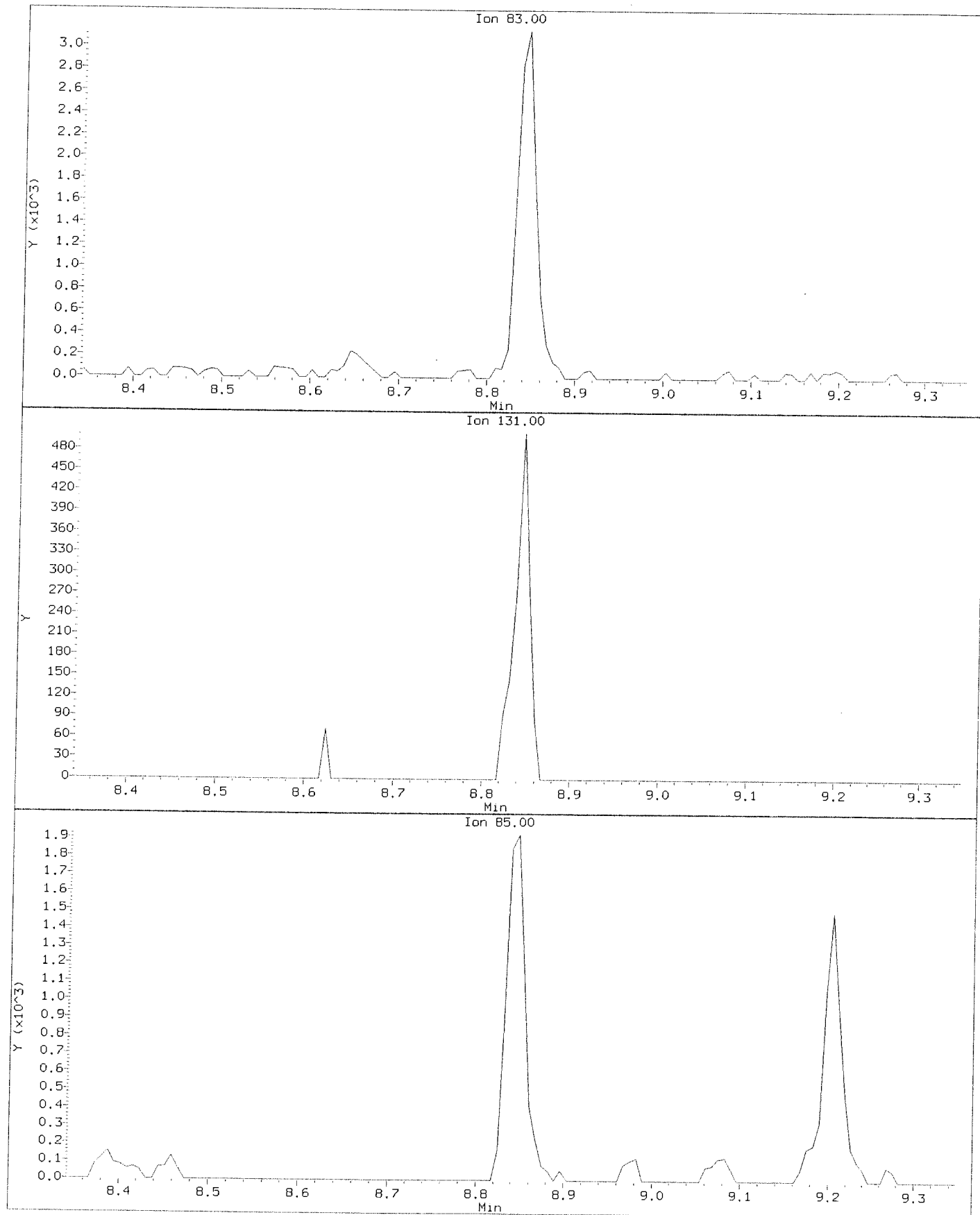
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 Client ID: VSTD001
 Sample Info: VSTD001;VSTD001;1.3;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



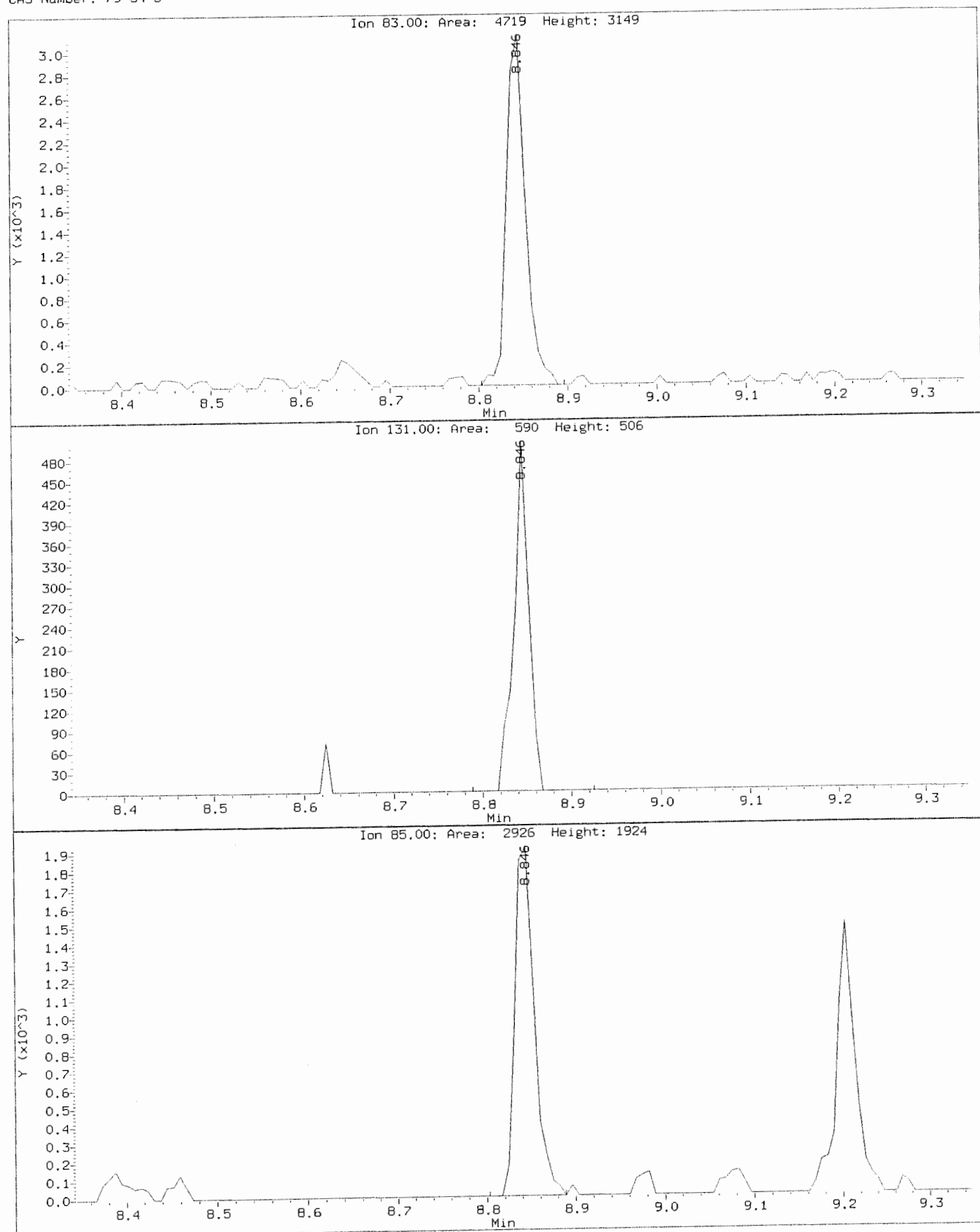
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Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



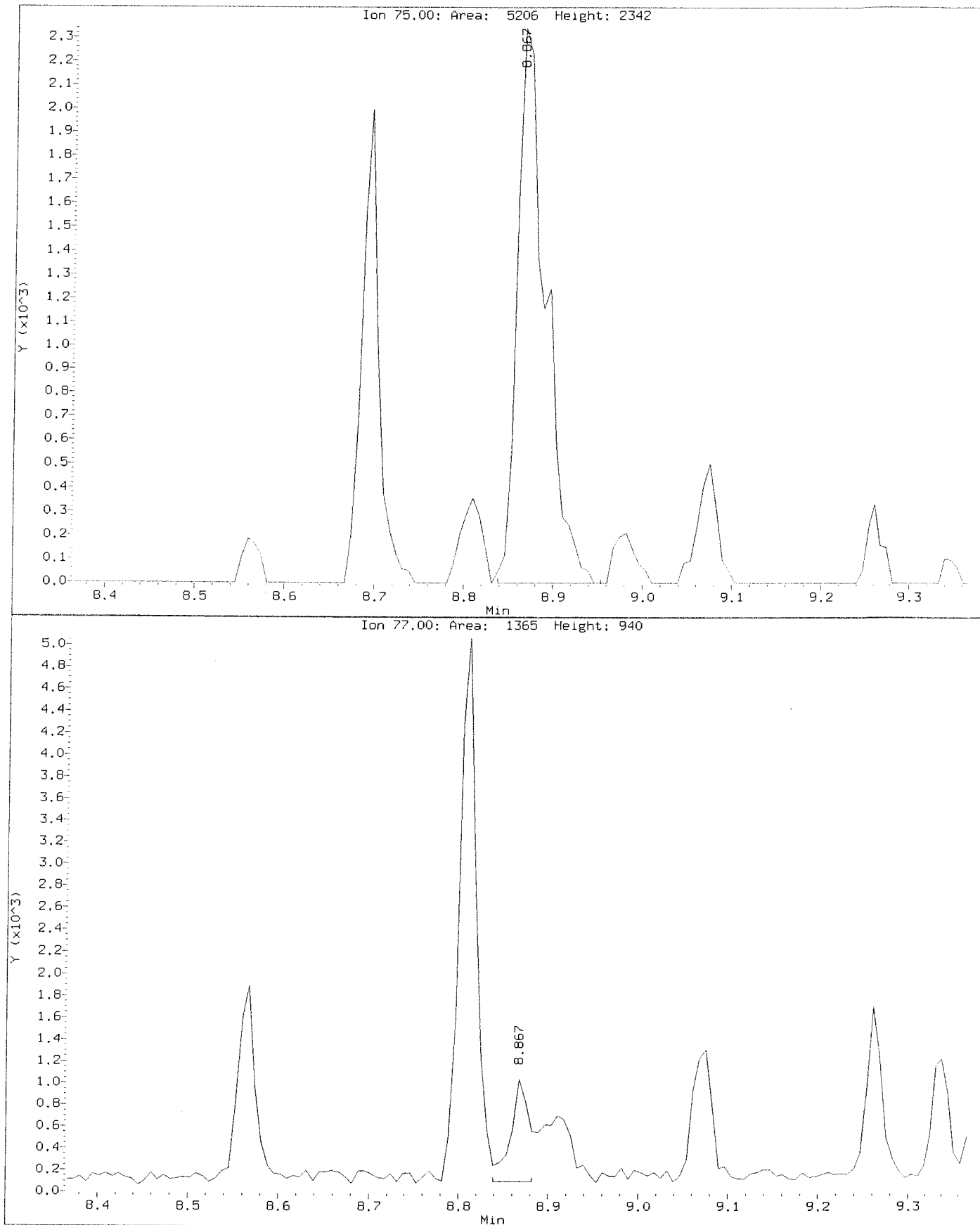
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Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



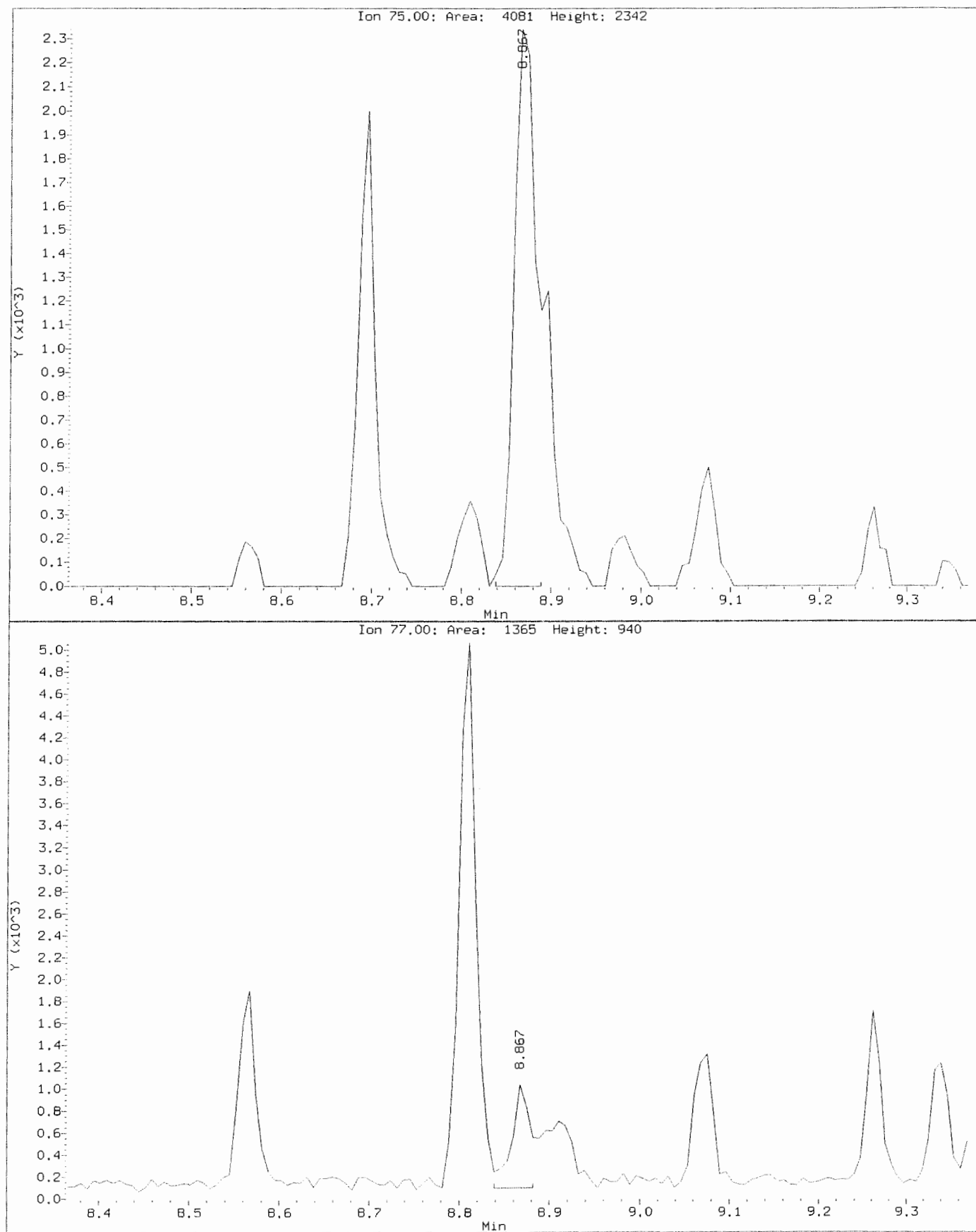
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Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



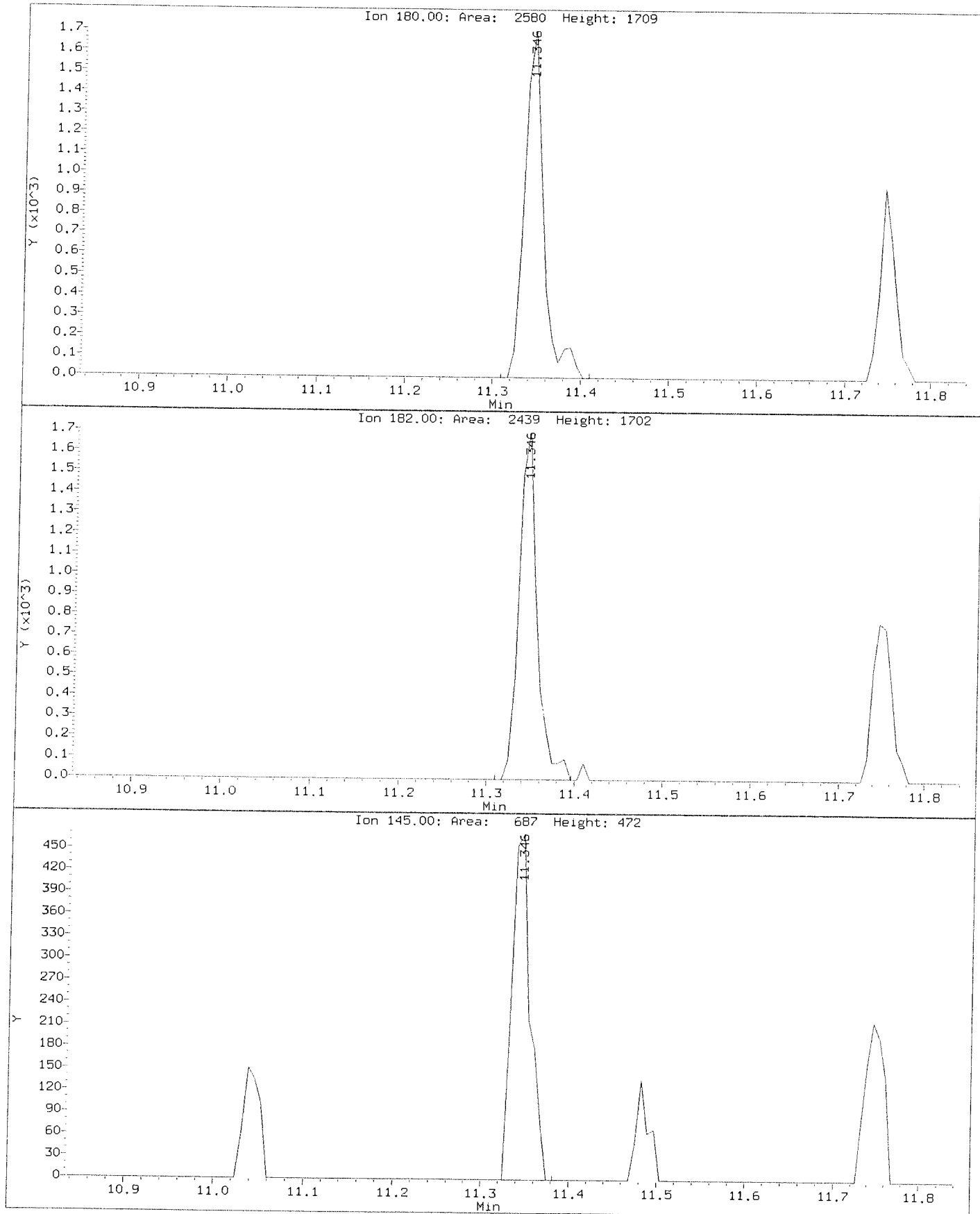
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Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



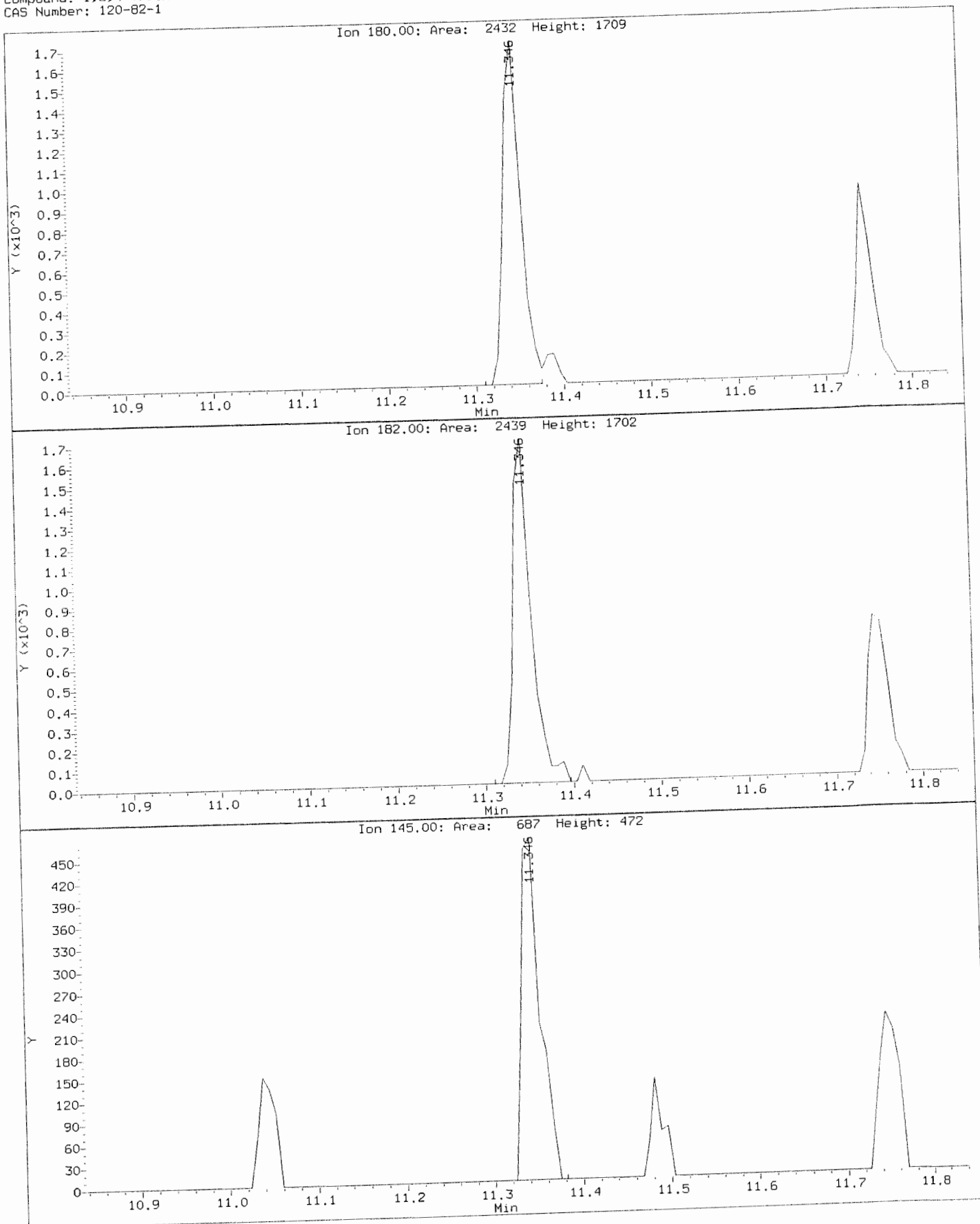
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Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



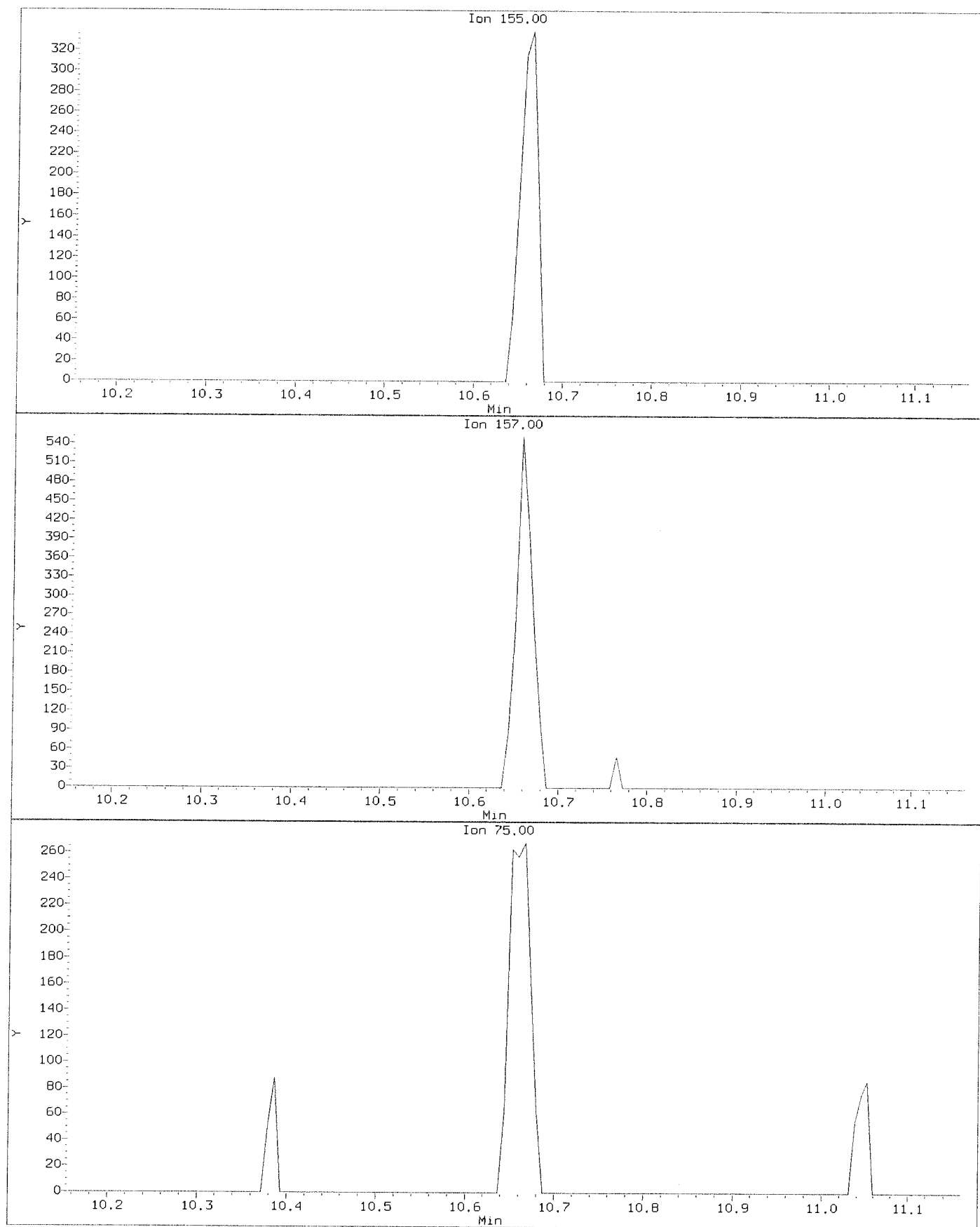
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Instrument: voa6.1
Client Sample ID: VSTD001

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



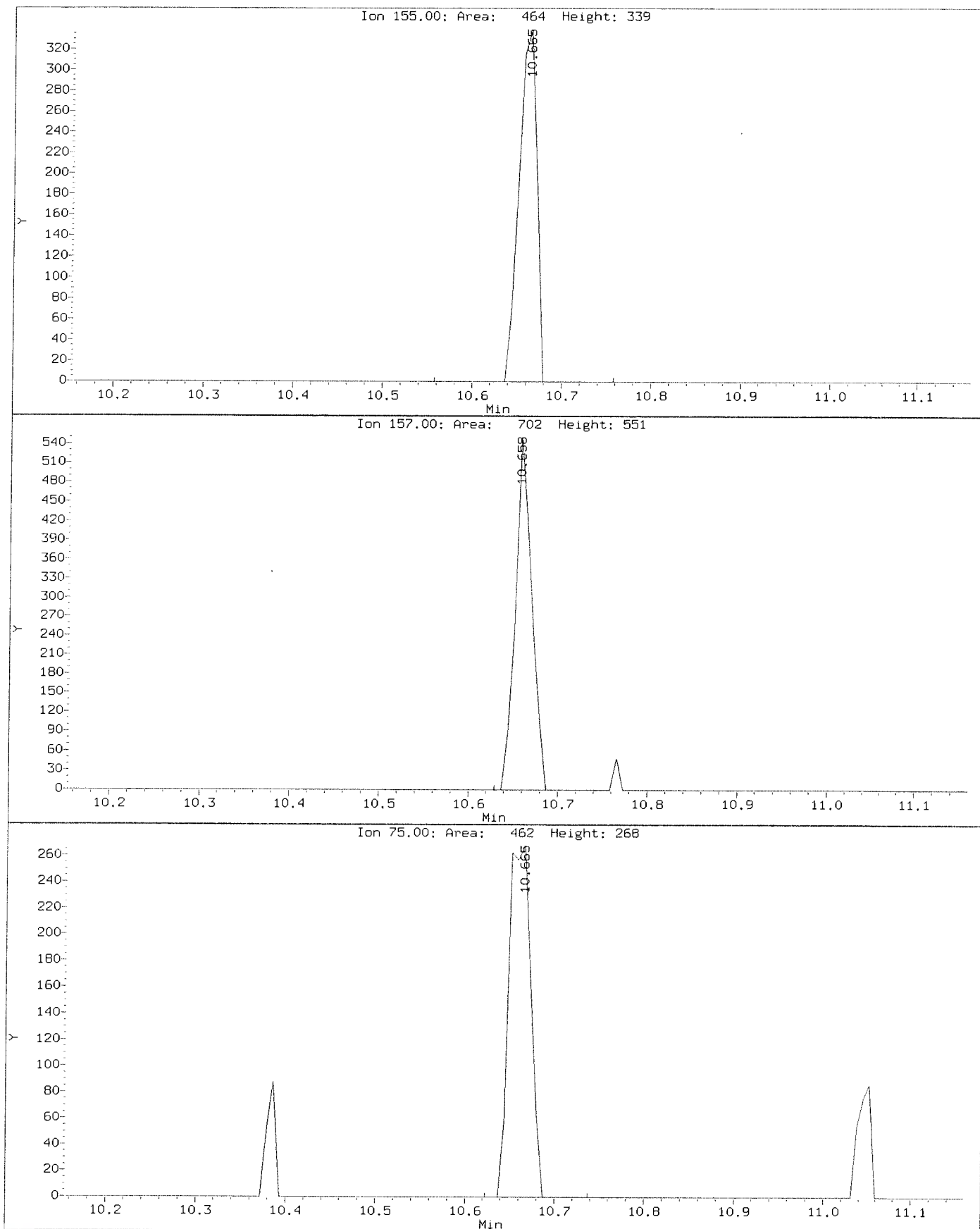
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Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



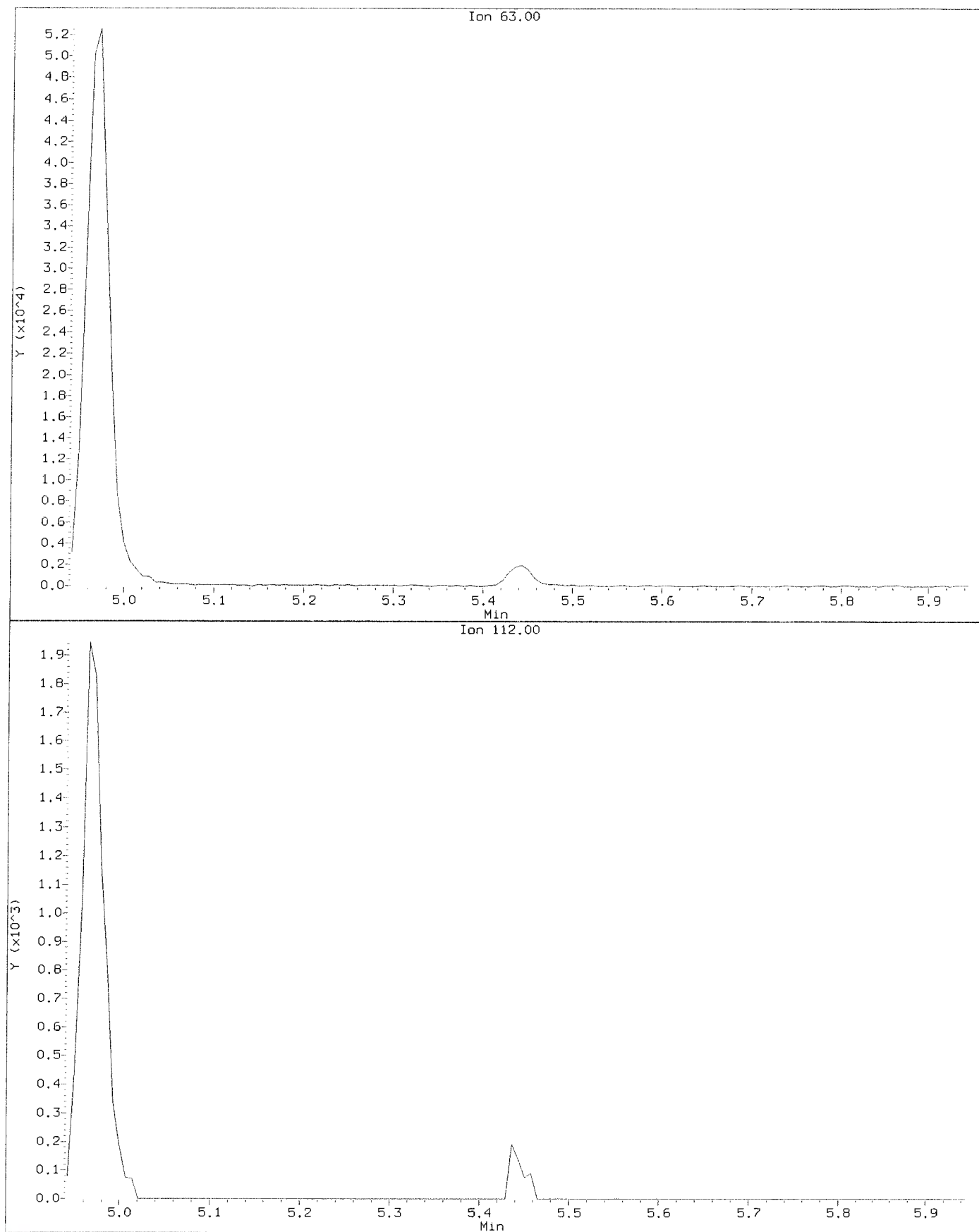
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Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



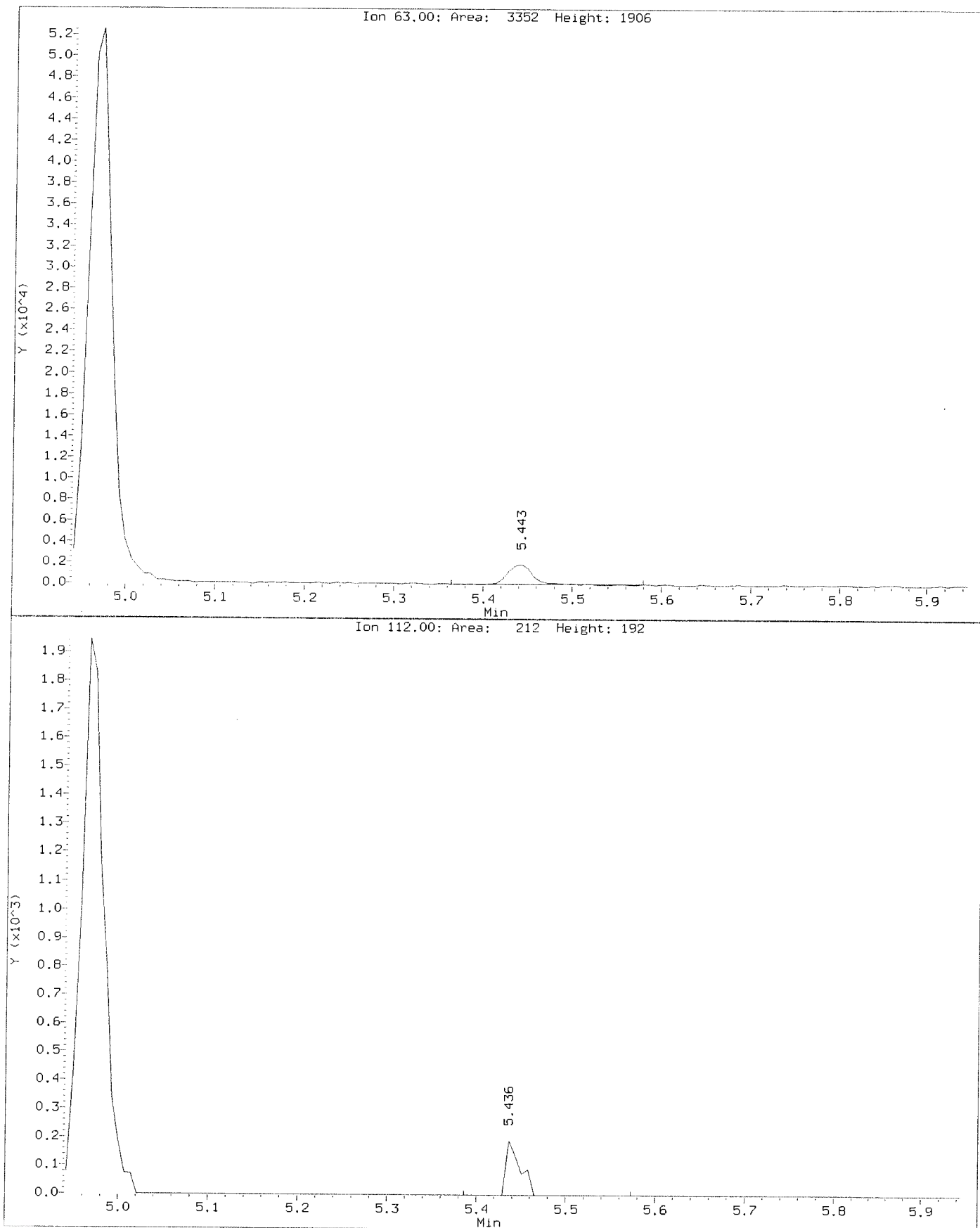
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Instrument: voa6.1
Client Sample ID: VSTD001

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



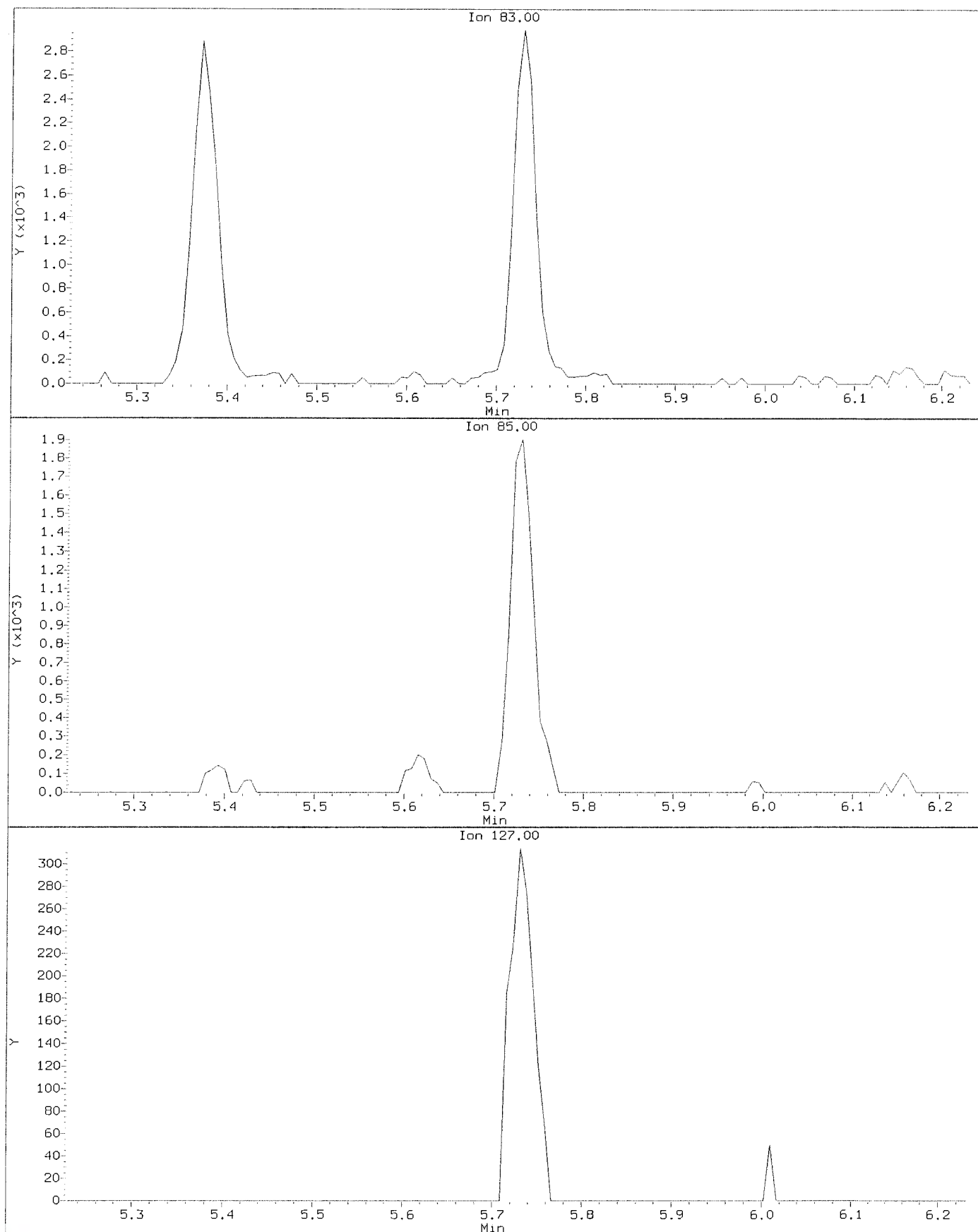
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Client Sample ID: VSTD001

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



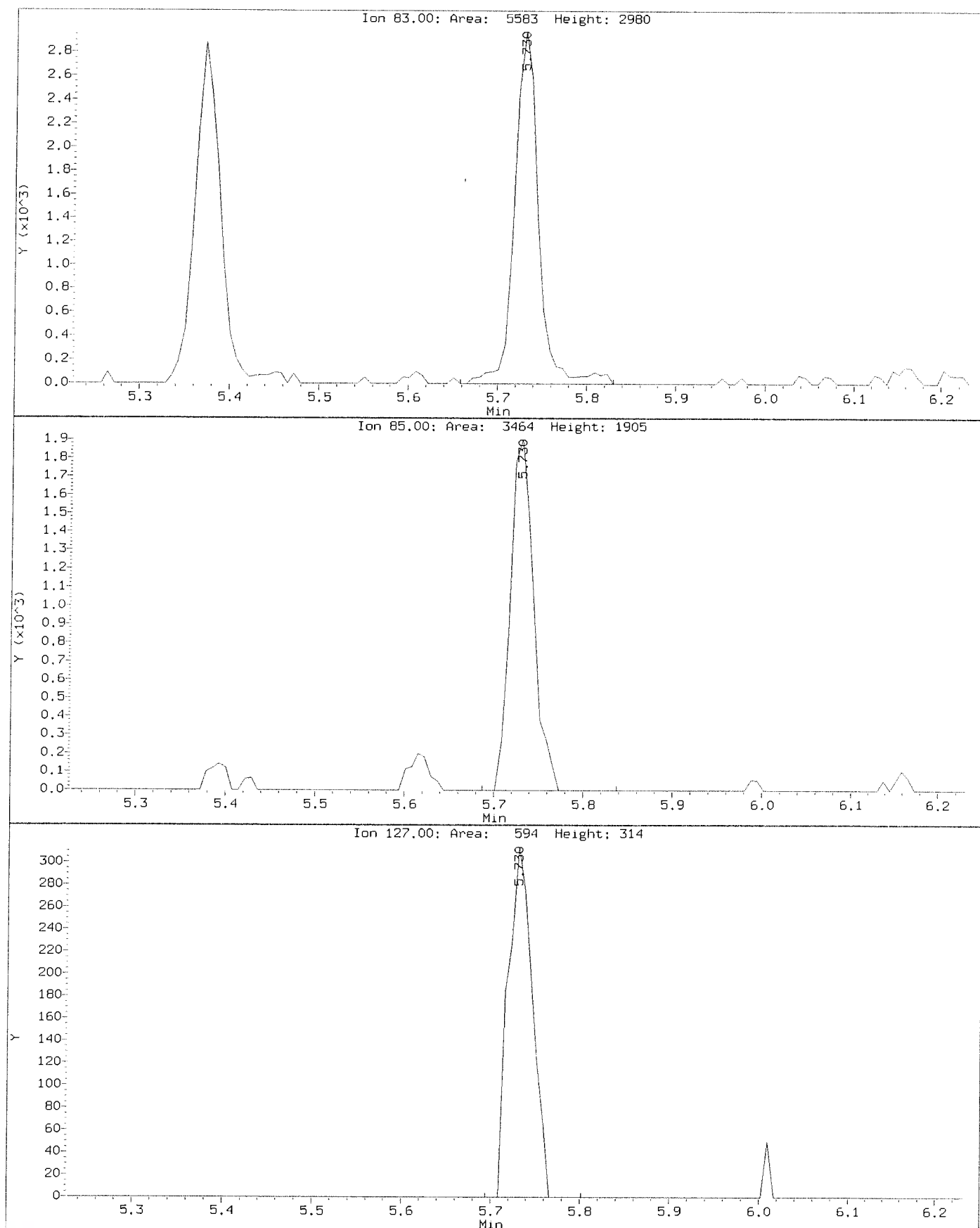
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Compound: Bromodichloromethane
CAS Number: 75-27-4



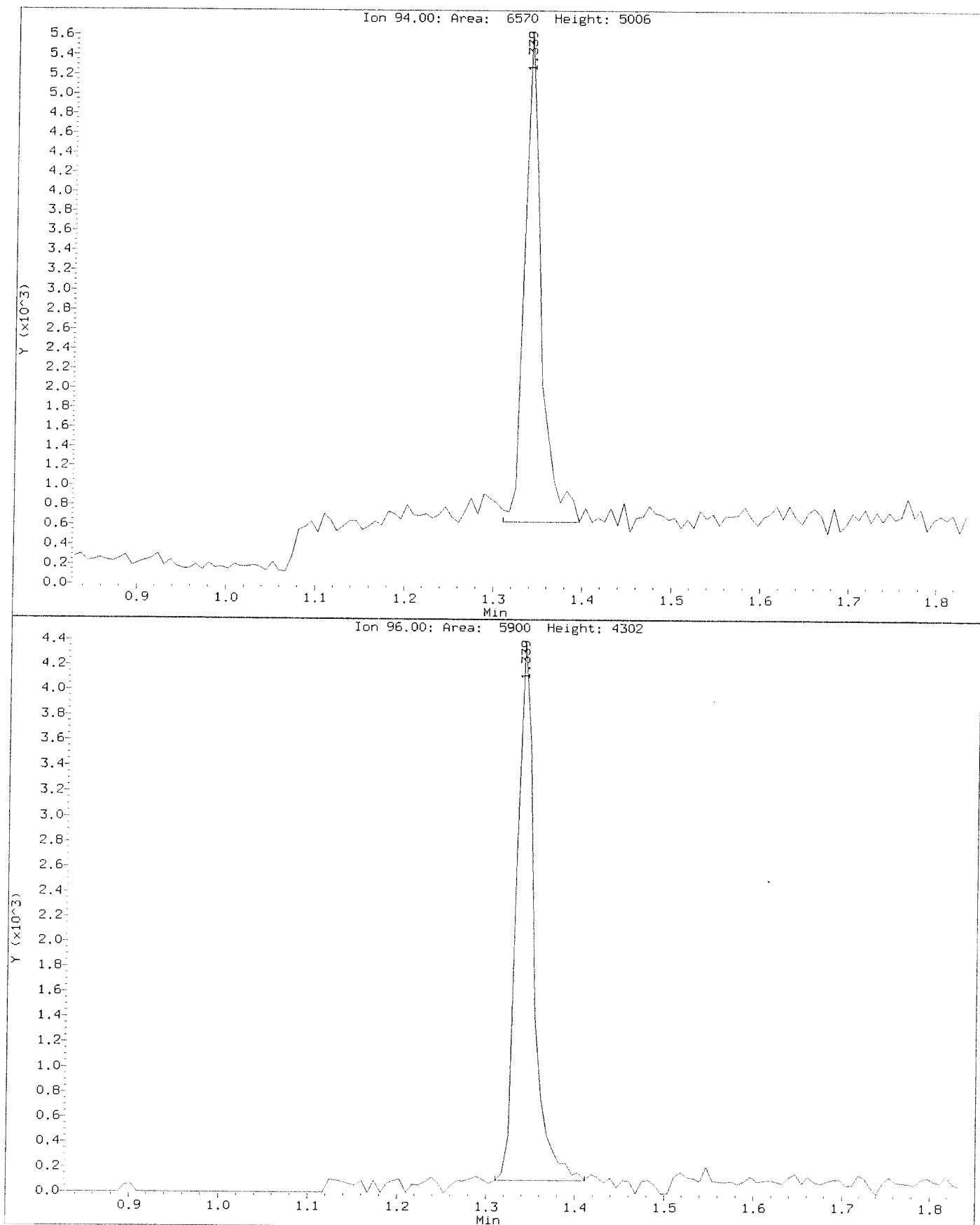
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Compound: Bromodichloromethane
CAS Number: 75-27-4



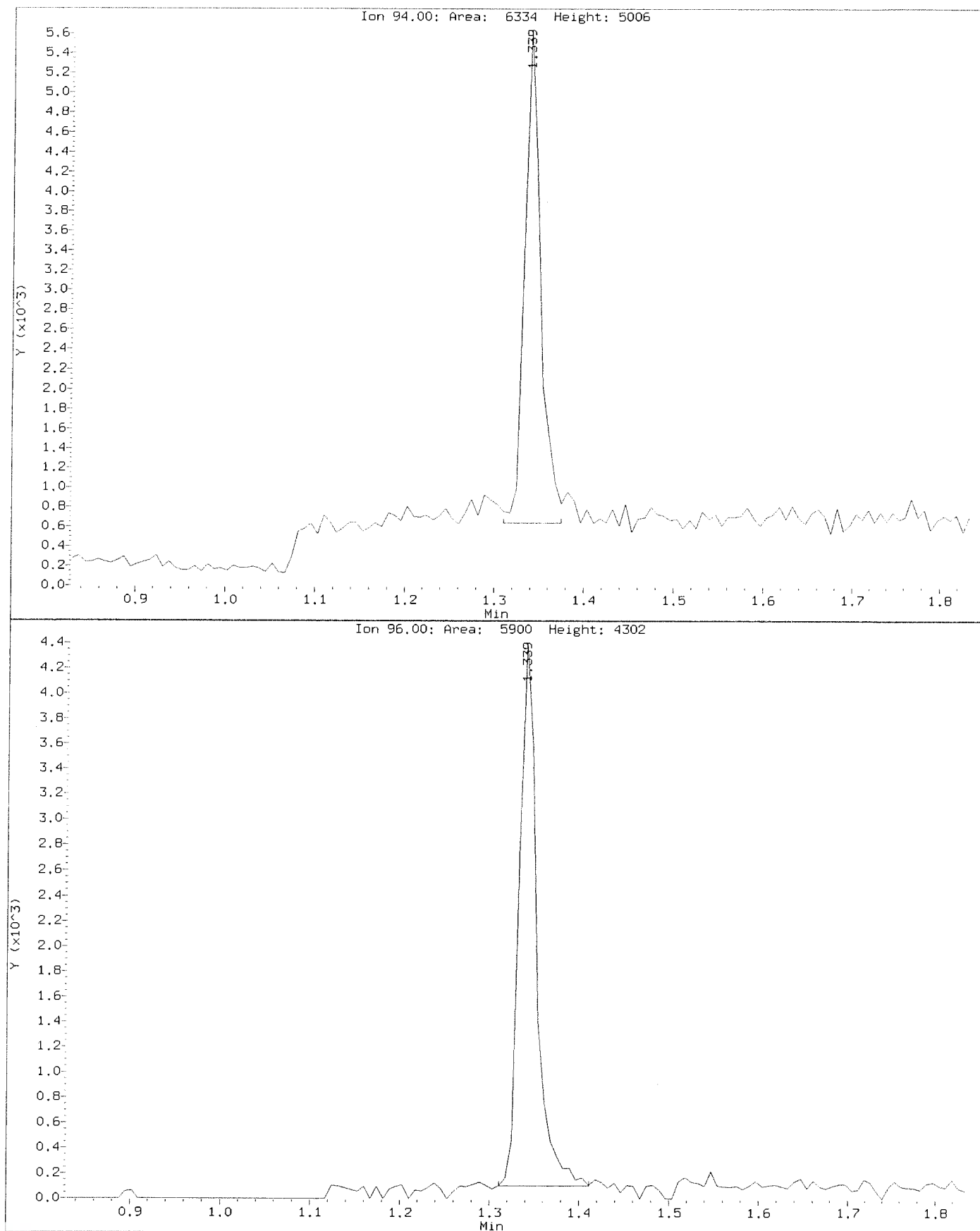
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Client Sample ID: VSTD001

Compound: Bromomethane
CAS Number: 74-83-9



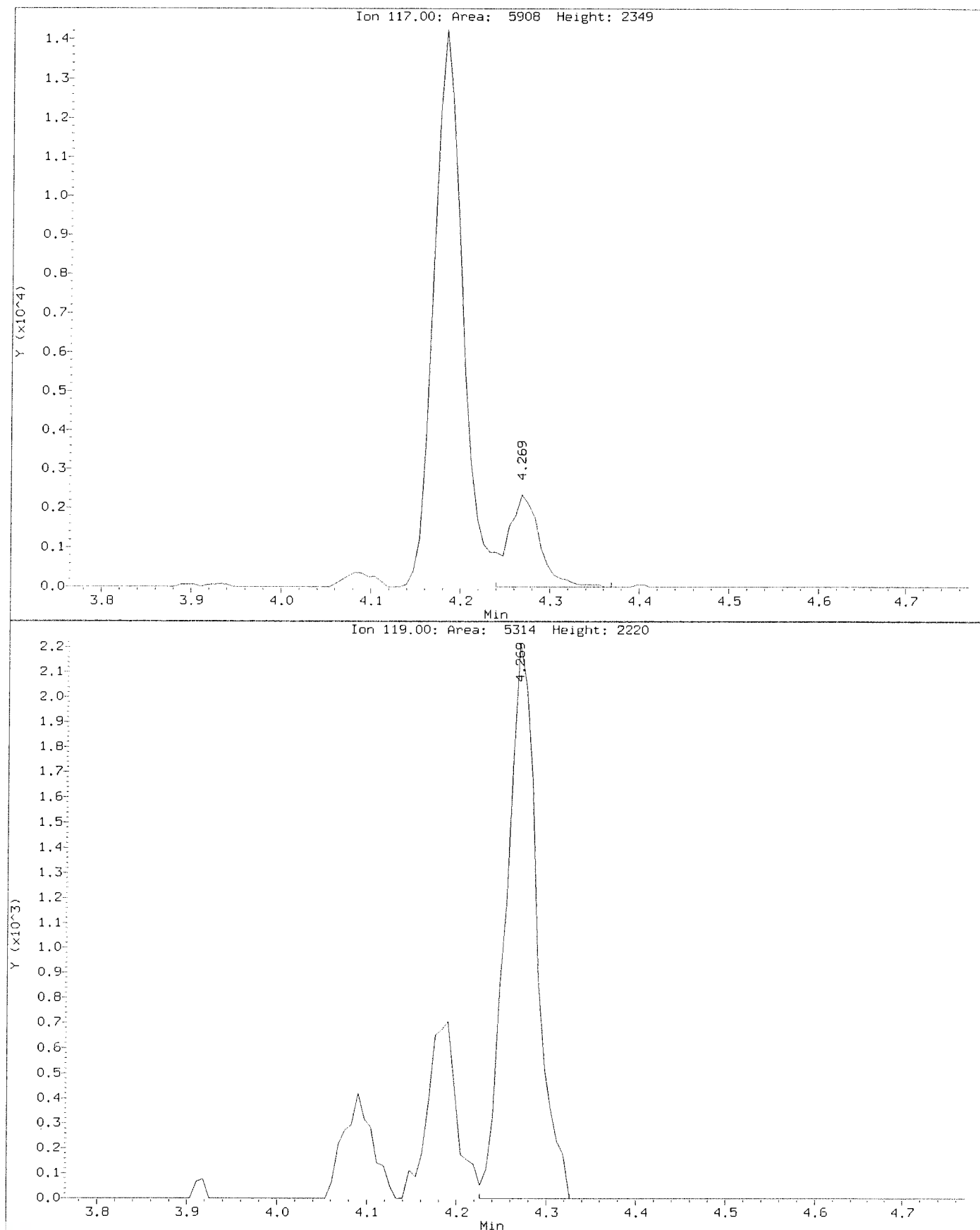
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Client Sample ID: VSTD001

Compound: Bromomethane
CAS Number: 74-83-9



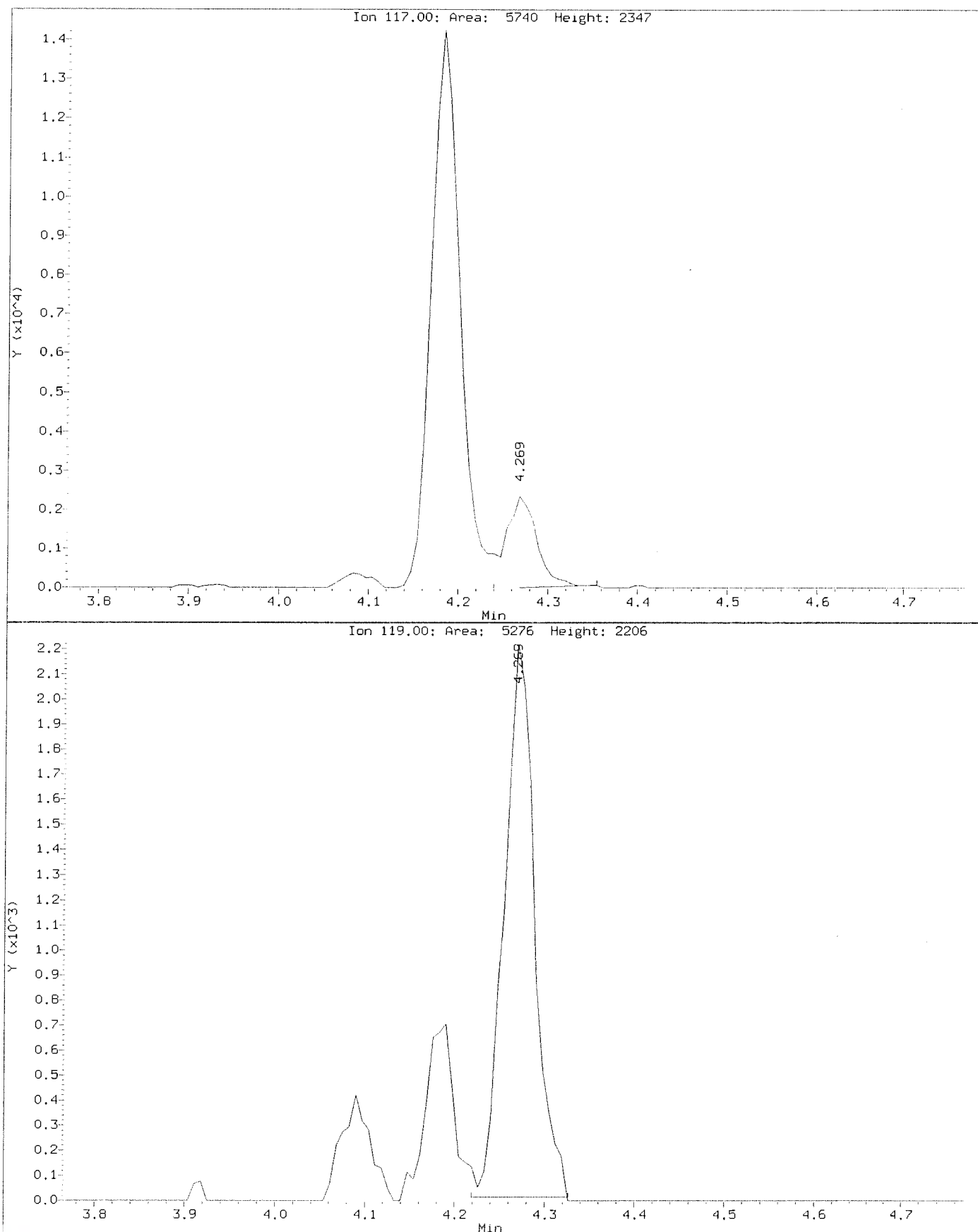
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Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



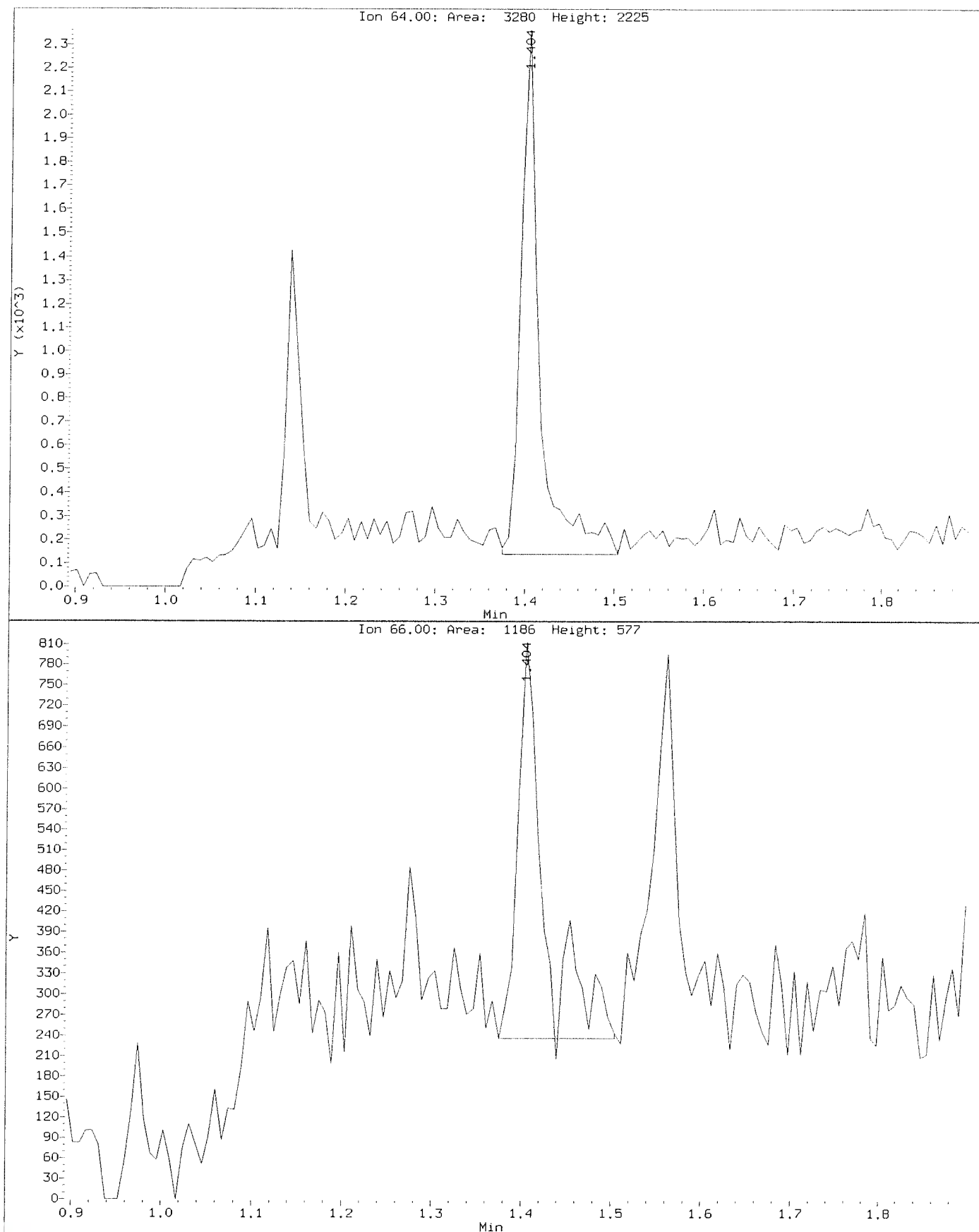
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Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



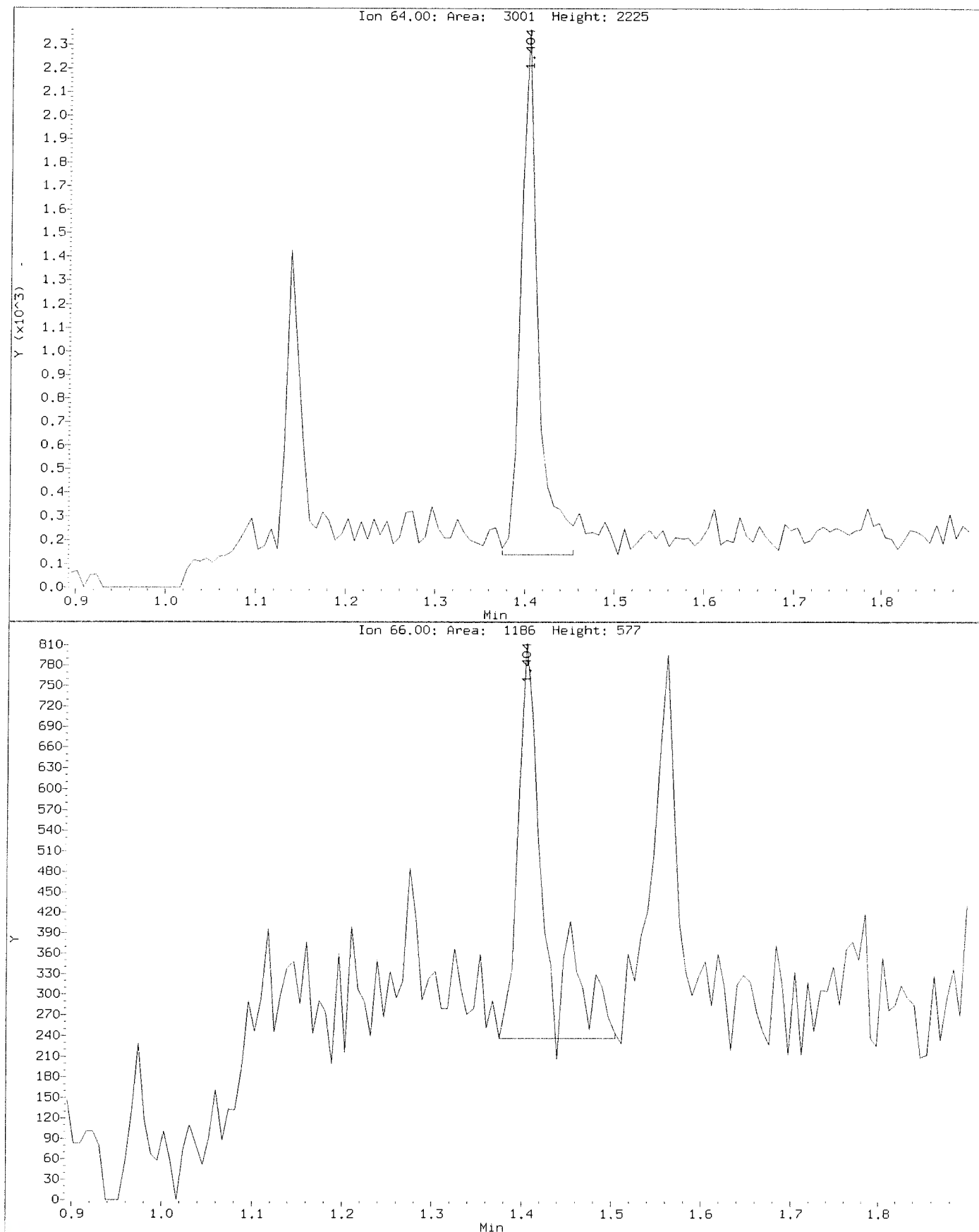
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Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3



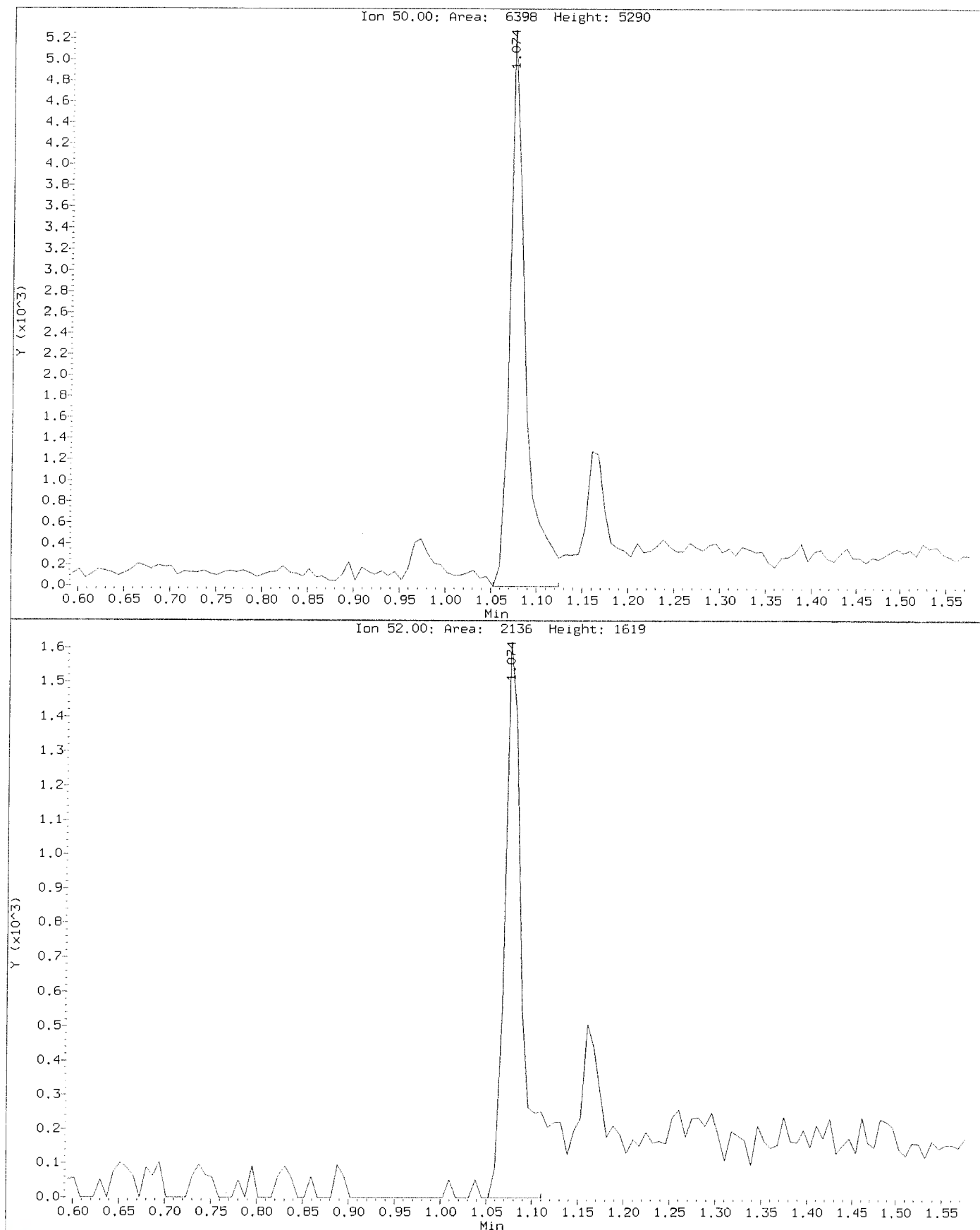
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Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3



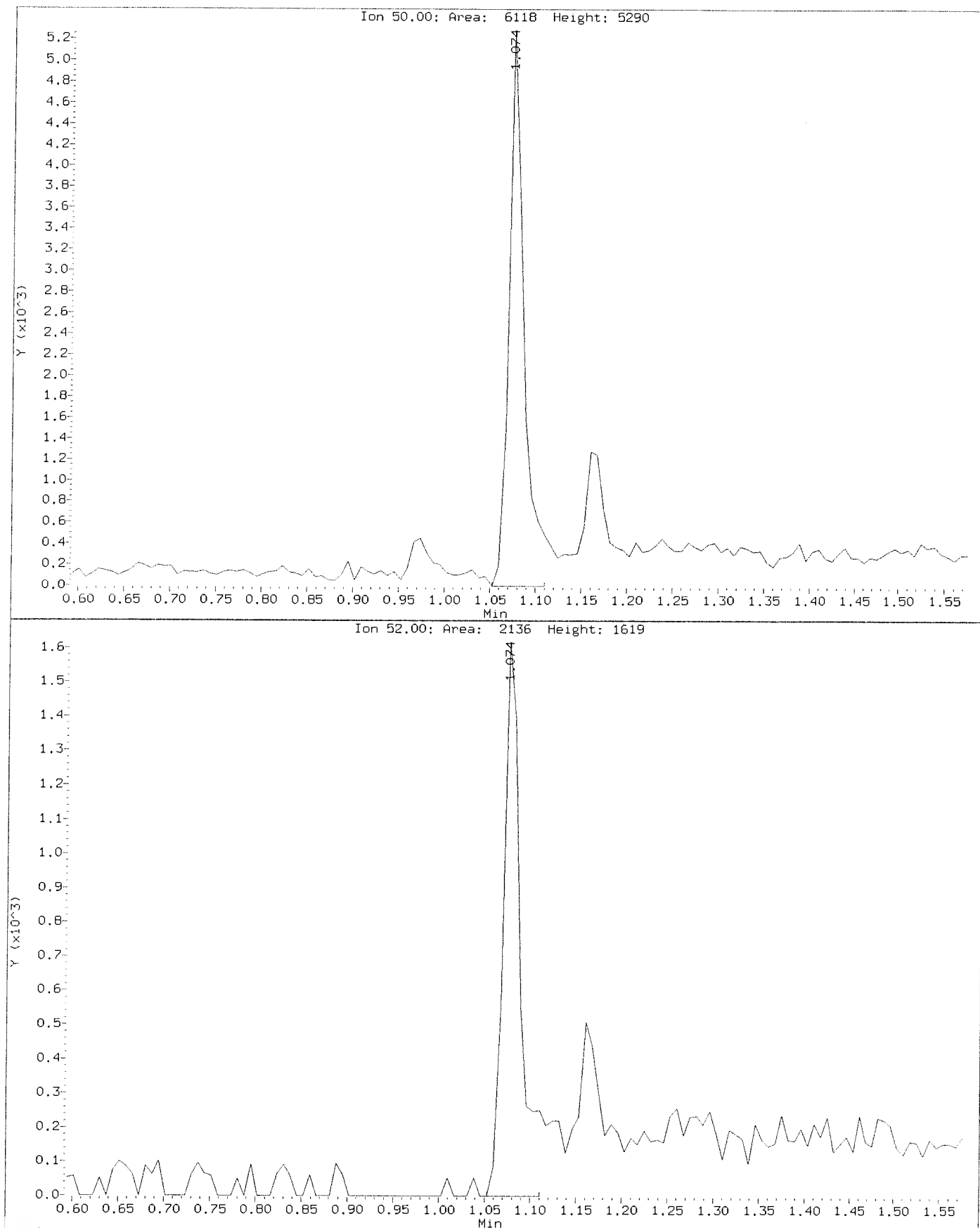
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Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloromethane
CAS Number: 74-87-3



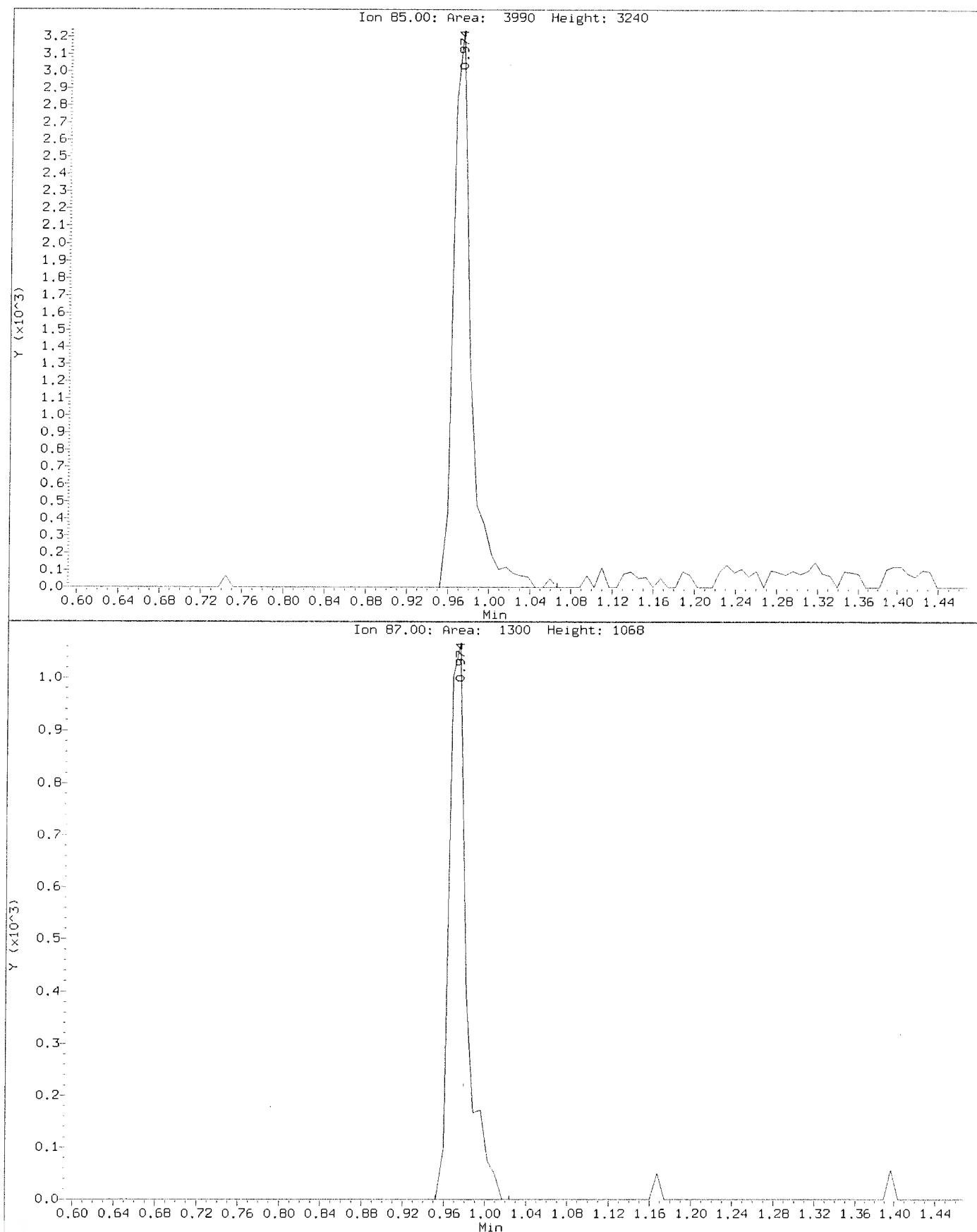
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Client Sample ID: VSTD001

Compound: Chloromethane
CAS Number: 74-87-3



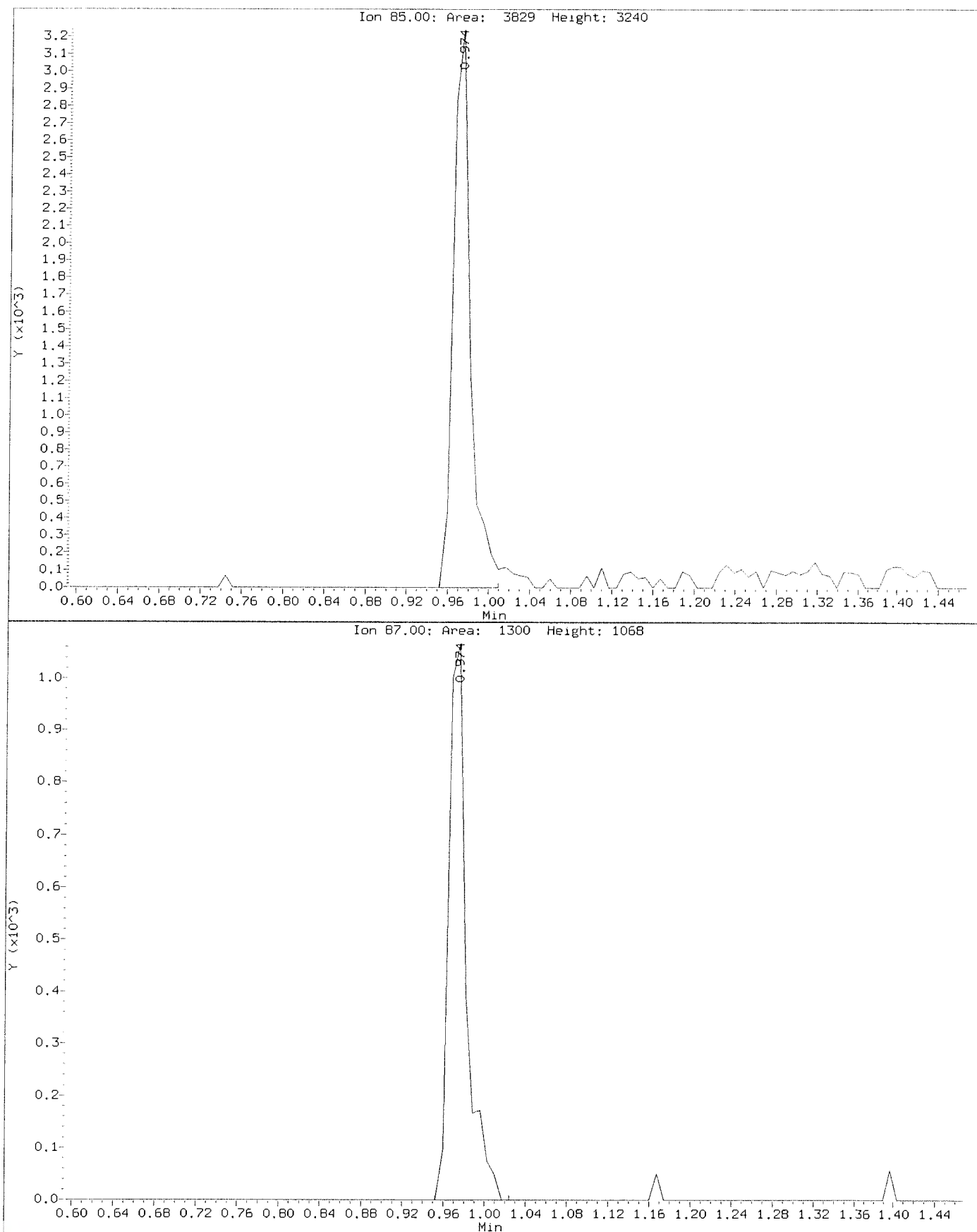
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Instrument: voa6.1
Client Sample ID: VSTD001

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



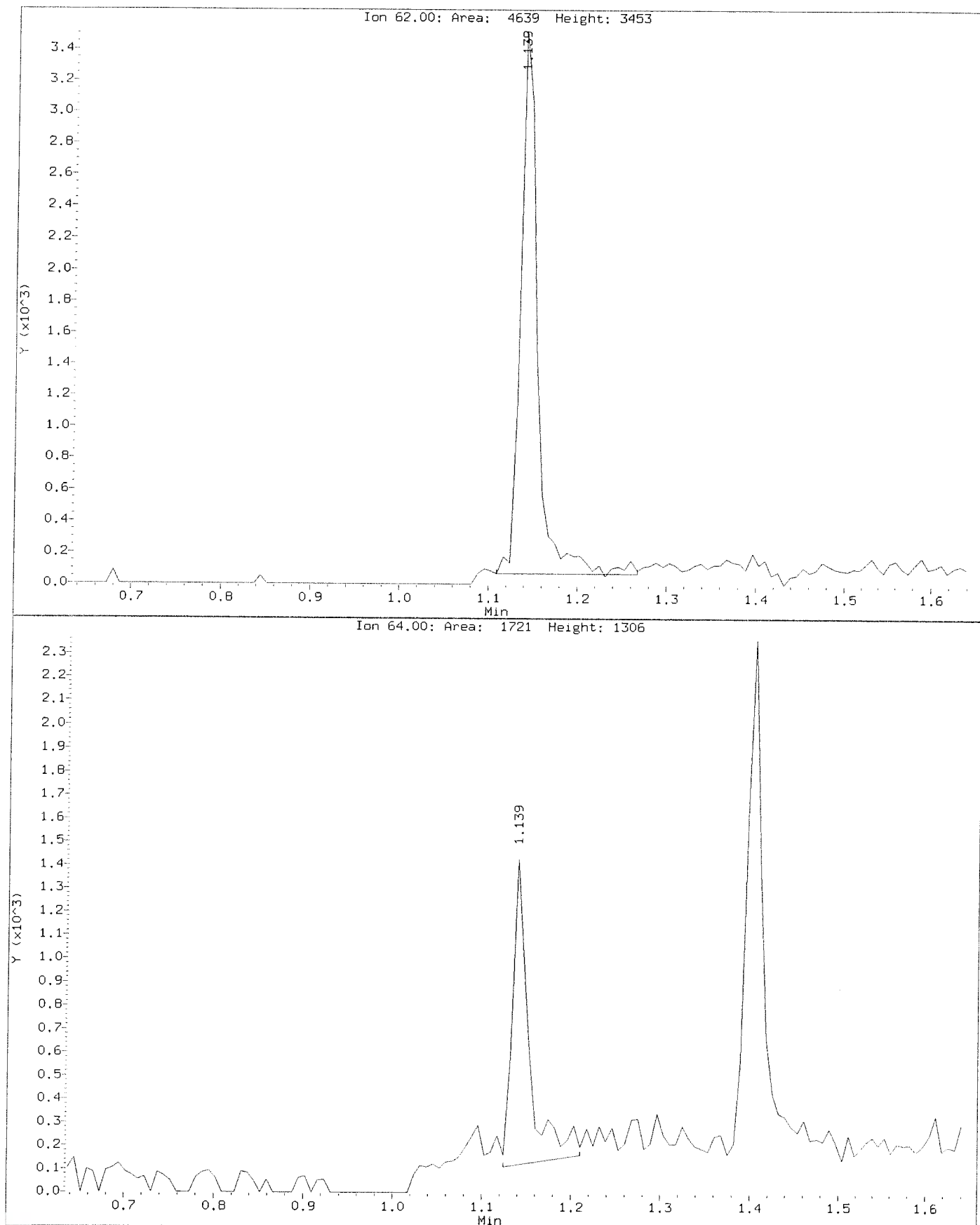
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Client Sample ID: VSTD001

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



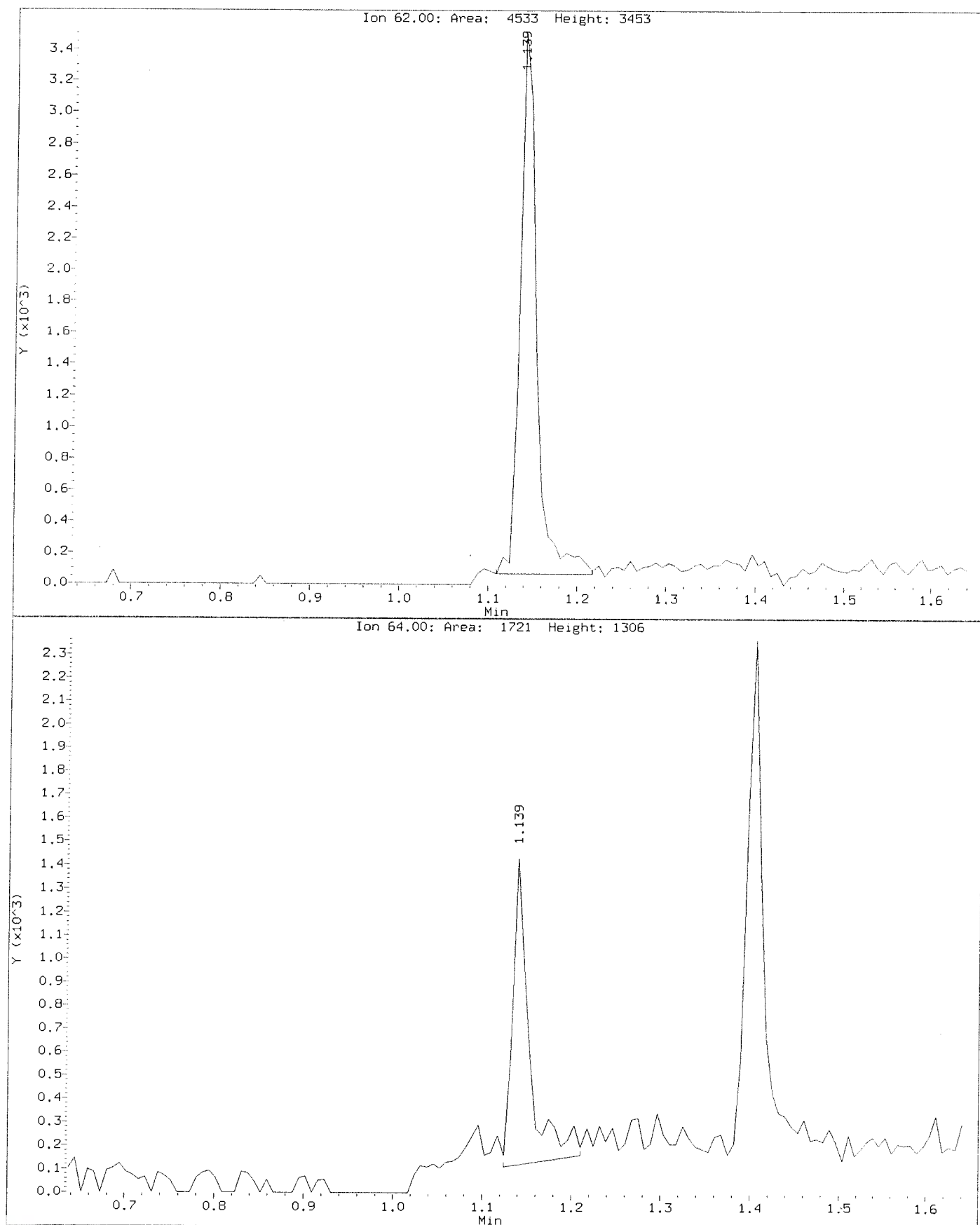
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Injection Date: 18-NOV-2019 14:59
Instrument: voa6.1
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D
 Lab Smp Id: VSTD002 Client Smp ID: VSTD002
 Inj Date : 18-NOV-2019 15:23
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD002;VSTD002;1;4;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 14:59 Cal File: X111804.D
 Als bottle: 6 Calibration Sample, Level: 4
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG						AMOUNTS	
		MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
*****	*****	*****	*****	*****	*****	*****	*****	*****
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	415277	50.0000		
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	574320	50.0000		
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	519547	50.0000		
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	278615	50.0000		
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	8034	2.00000	2.76 (a)	
\$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	10468	2.00000	2.56 (a)	
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	8127	2.00000	2.50 (a)	
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	28201	2.00000	2.06 (a)	
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	7788	2.00000	2.06 (a)	
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	12006	2.00000	2.14 (a)	
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	8194	2.00000	2.09 (a)	
138 Freon TF	101	1.911	1.911	(0.457)	7504	2.00000	2.07 (a)	
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	5924	2.00000	2.18 (a)	
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	12973	2.00000	2.14 (a)	
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	7795	2.00000	2.21 (a)	
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	10135	2.00000	2.18 (a)	
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	2753	2.00000	1.85 (a)	
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	7810	2.00000	2.35 (aM)	
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	5184	2.00000	2.20 (a)	
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	27218	2.00000	2.05 (a)	
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	859	2.00000	1.65 (a)	
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	7900	2.00000	2.16 (a)	



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT	ON-COL
	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	15931	2.00000	2.15 (a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	9378	2.00000	2.05 (a)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	7169	2.00000	2.08 (aM)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	26432	2.00000	2.08 (a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	17183	2.00000	2.15 (a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	11850	2.00000	2.14 (a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	17620	2.00000	2.17 (a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	11201	2.00000	2.04 (a)
24 2-Butanone	43	3.588	3.588	(0.858)	5067	4.00000	3.97 (a)
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	21210	2.00000	2.11 (a)
52 2-Hexanone	43	7.090	7.090	(0.924)	8468	4.00000	3.96 (a)
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	24759	2.00000	2.03 (a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	28289	2.00000	2.07 (a)
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	13007	4.00000	4.27 (a)
10 Acetone	43	1.976	1.976	(0.473)	7954	4.00000	3.82 (a)
37 Benzene	78	4.519	4.519	(0.909)	28031	2.00000	2.13 (a)
74 Bromobenzene	156	8.809	8.809	(0.911)	10482	2.00000	2.16 (a)
29 Bromochloromethane	128	3.795	3.795	(0.908)	5128	2.00000	2.27 (a)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	9742	2.00000	2.04 (a)
66 Bromoform	173	8.415	8.415	(1.097)	5989	2.00000	2.89 (a)
6 Bromomethane	94	1.338	1.338	(0.320)	12041	2.00000	0.69 (a)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	40384	4.00000	4.21 (a)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	11097	2.00000	2.18 (aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	21369	2.00000	2.10 (a)
7 Chloroethane	64	1.403	1.403	(0.336)	5731	2.00000	2.19 (a)
28 Chloroform	83	3.910	3.910	(0.935)	14792	2.00000	2.19 (a)
3 Chloromethane	50	1.073	1.073	(0.257)	10461	2.00000	2.49 (a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	8197	2.00000	2.08 (a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	11415	2.00000	2.03 (a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	8154	2.00000	2.06 (a)
44 Dibromomethane	93	5.557	5.557	(1.118)	5355	2.00000	2.20 (a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	7335	2.00000	2.78 (a)
61 Ethylbenzene	106	7.799	7.799	(1.017)	10700	2.00000	2.04 (a)
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	4522	2.00000	1.82 (a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	32629	2.00000	2.10 (a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	26786	4.00000	4.23 (a)
17 Methylene Chloride	84	2.305	2.305	(0.551)	8025	2.00000	2.13 (a)
87 n-Butylbenzene	91	9.998	9.998	(1.034)	22333	2.00000	1.96 (a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	35573	2.00000	2.06 (a)
92 Naphthalene	128	11.553	11.553	(1.195)	6733	2.00000	2.23 (a)
63 o-Xylene	106	8.244	8.244	(1.075)	13637	2.00000	2.18 (a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	31860	2.00000	2.12 (a)
64 Styrene	104	8.265	8.265	(1.078)	22366	2.00000	2.06 (a)
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	22956	2.00000	2.11 (a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	8185	2.00000	2.24 (a)
50 Toluene	91	6.453	6.453	(0.841)	31139	2.00000	2.11 (a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	7239	2.00000	2.11 (a)
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	10523	2.00000	2.06 (a)
38 Trichloroethene	130	5.214	5.214	(1.049)	8894	2.00000	2.21 (a)
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	13581	2.00000	2.10 (a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	9073	2.00000	2.14 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D Page 3
Report Date: 06-Dec-2019 19:56

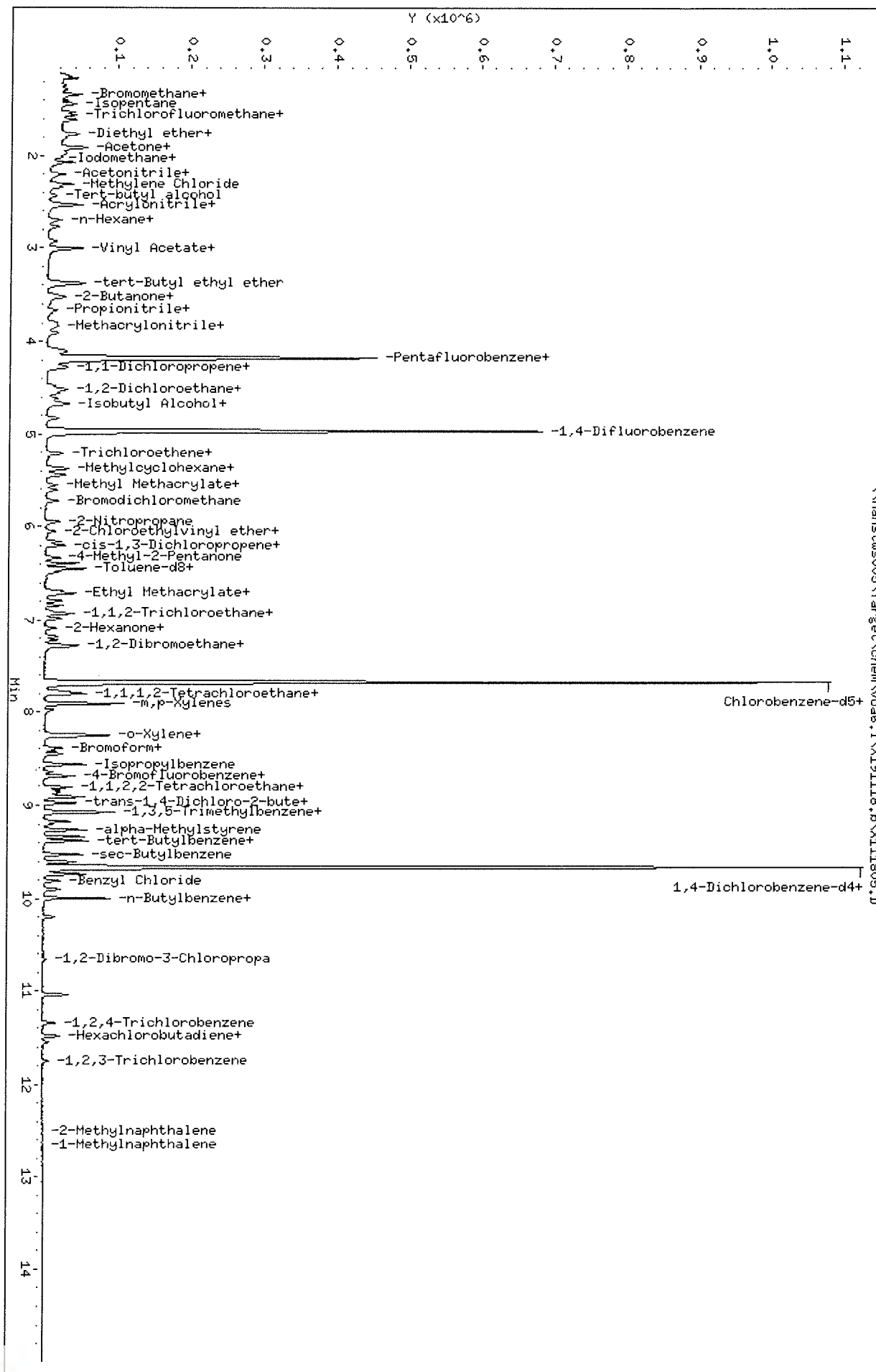
QC Flag Legend

- a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
- M - Compound response manually integrated.



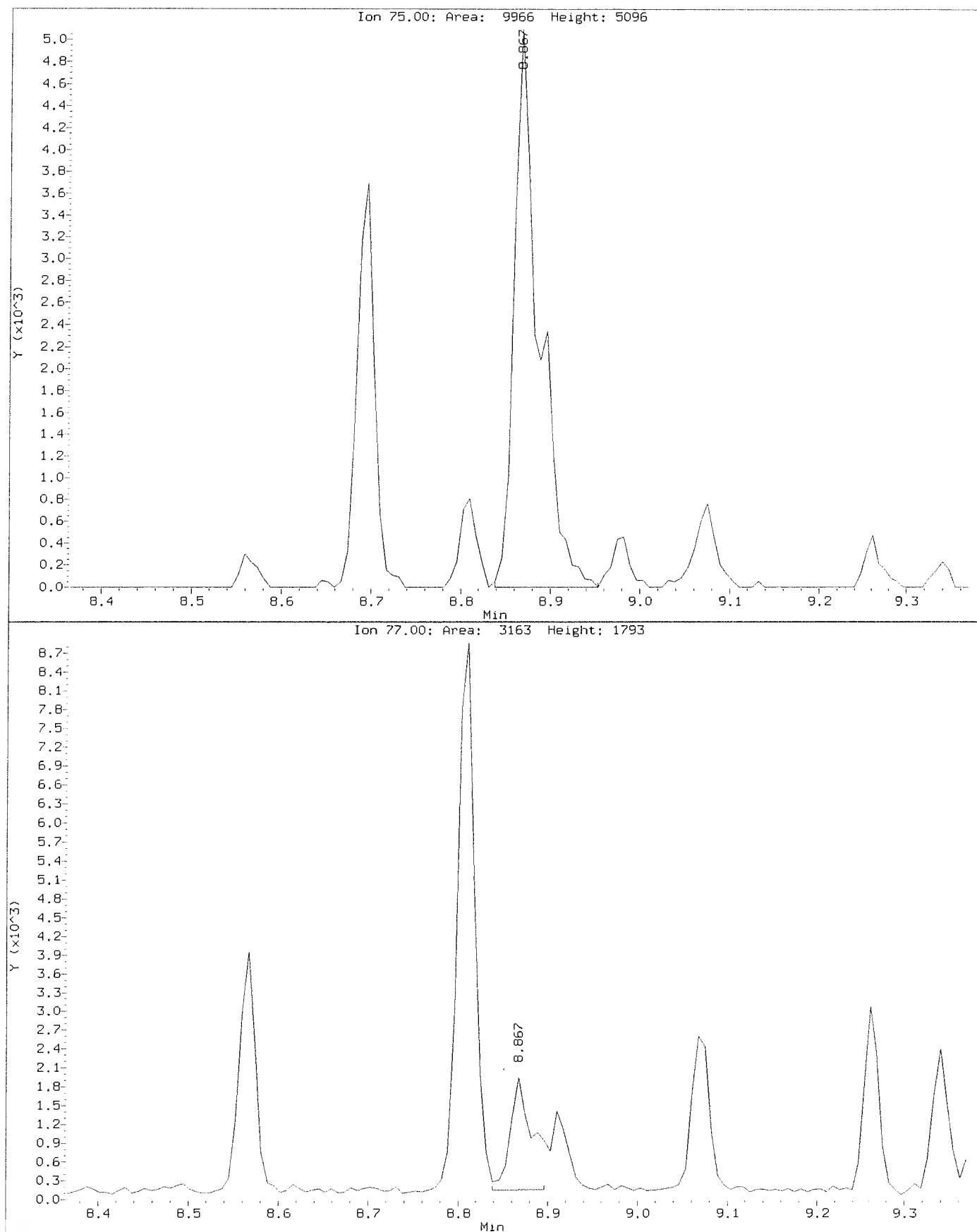
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 Date : 18-NOV-2019 15:23
 Client ID: VSTD002
 Sample Info: VSTD002;VSTD002;1;4;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



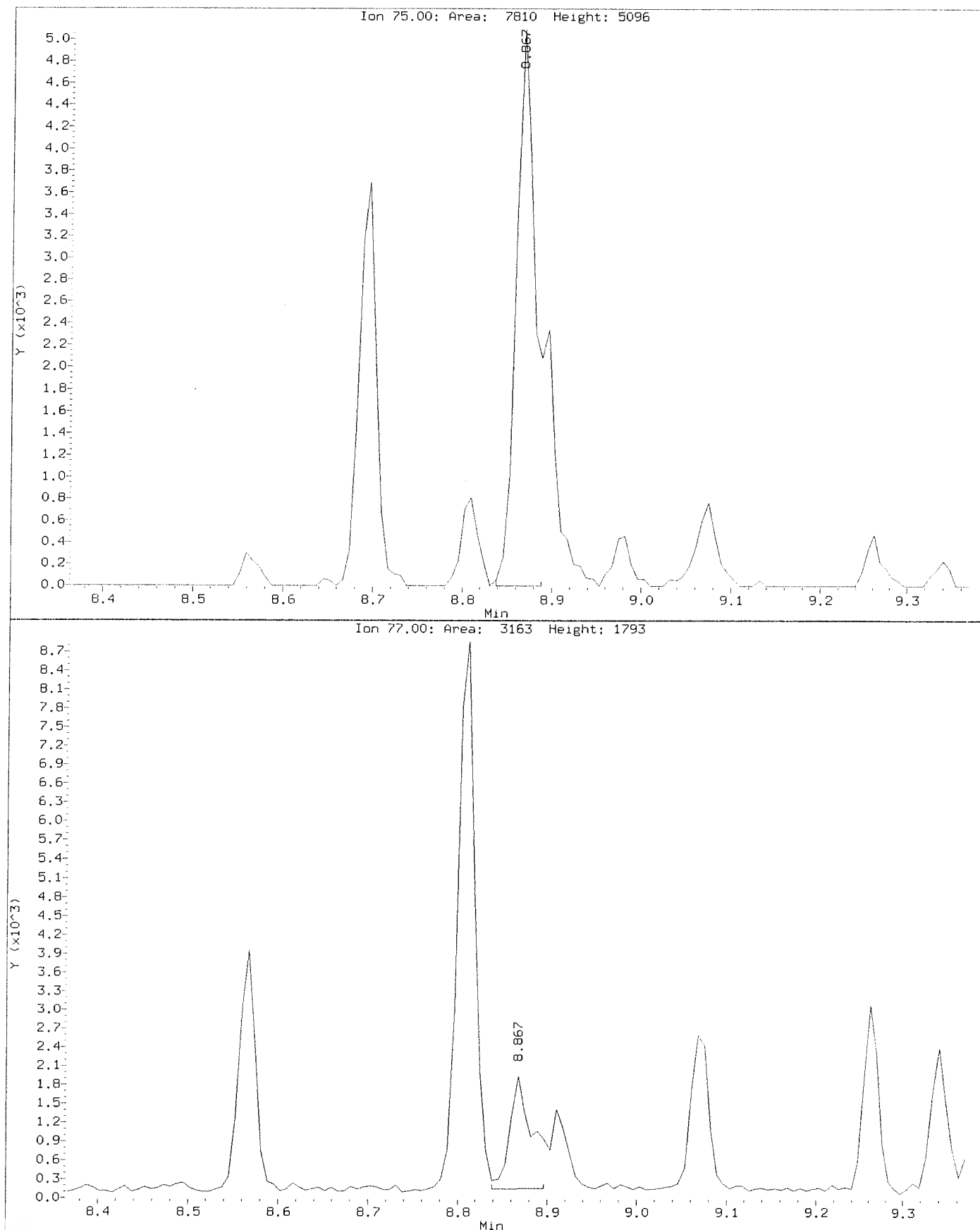
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Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



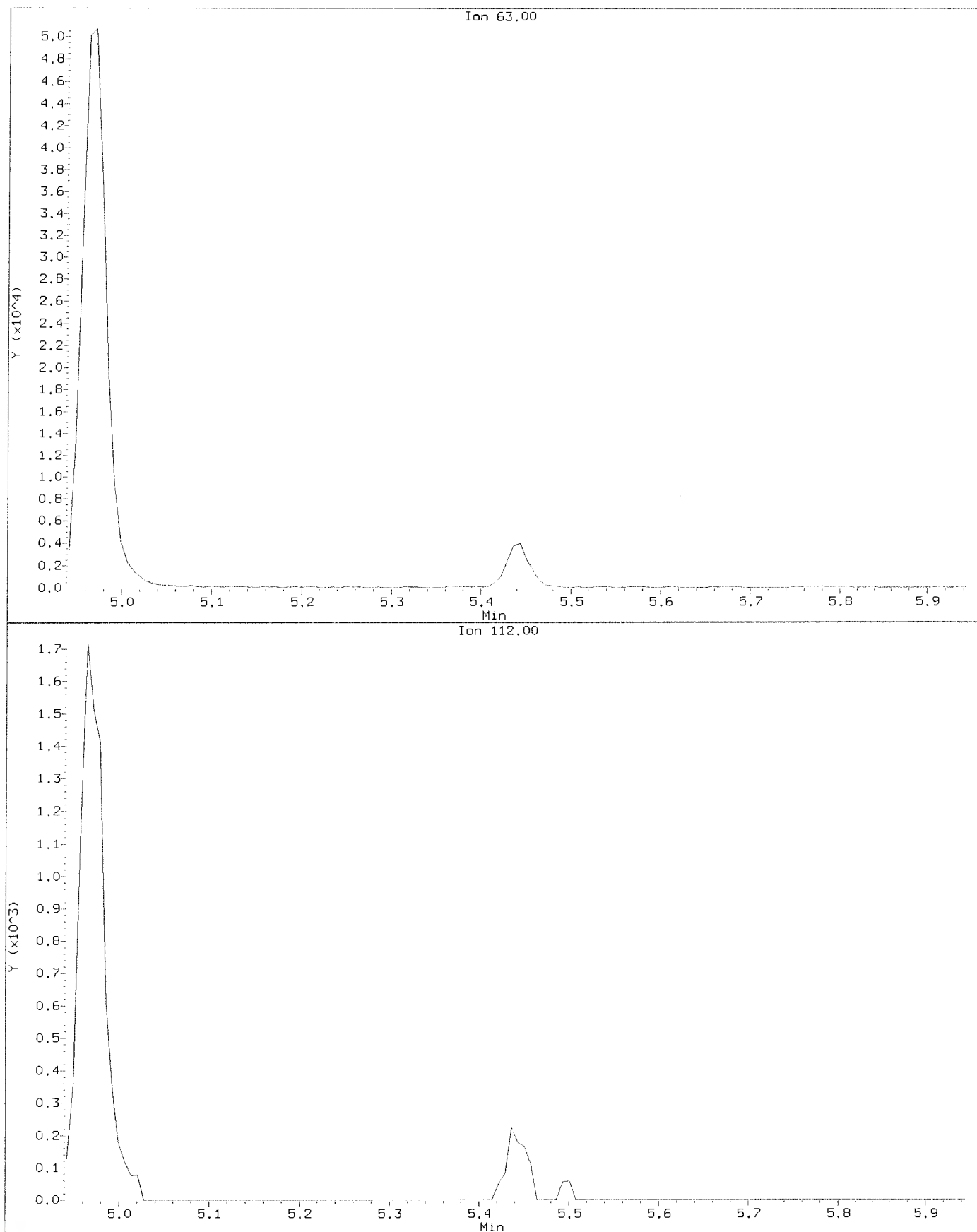
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Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



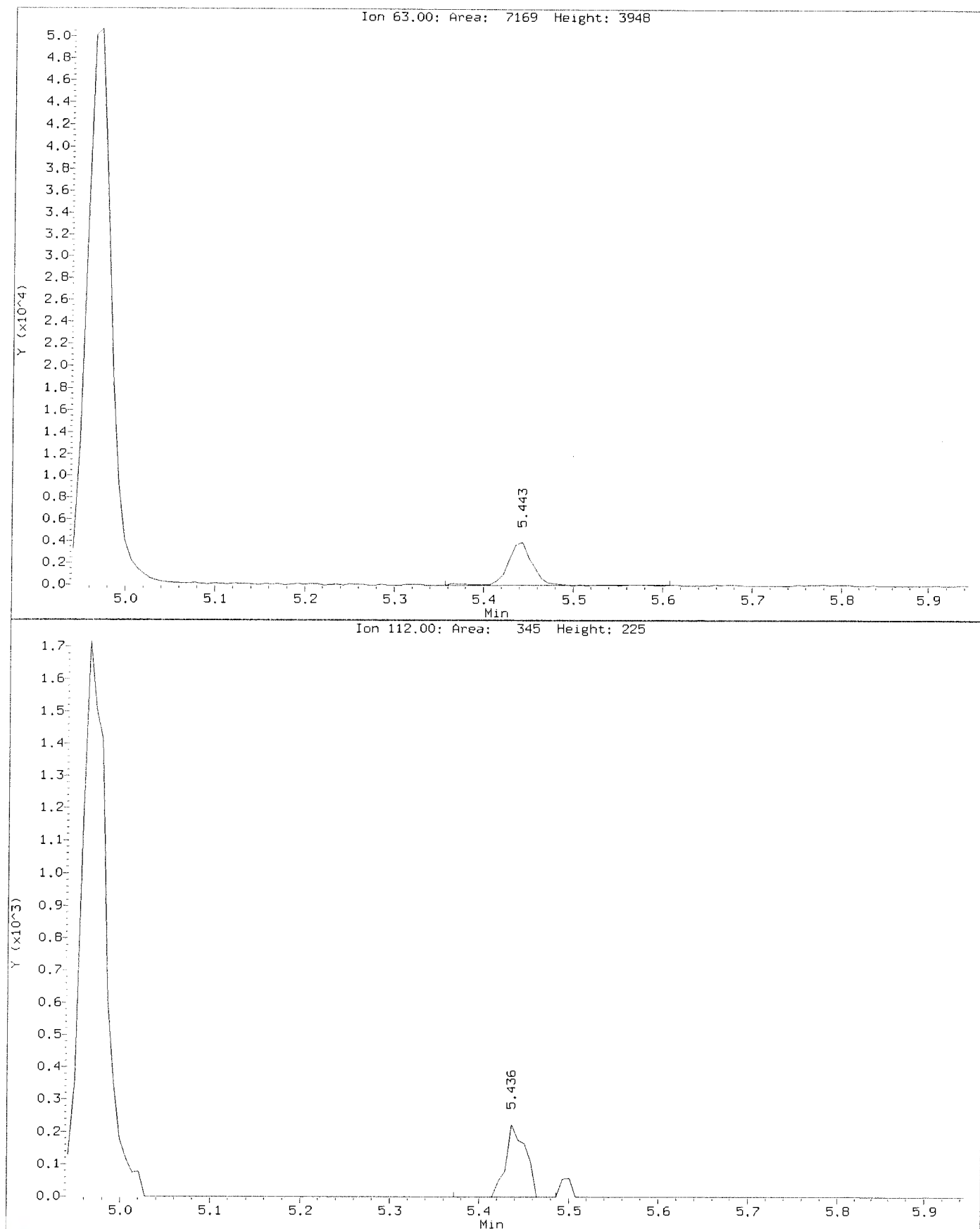
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Instrument: voa6.1
Client Sample ID: VSTD002

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



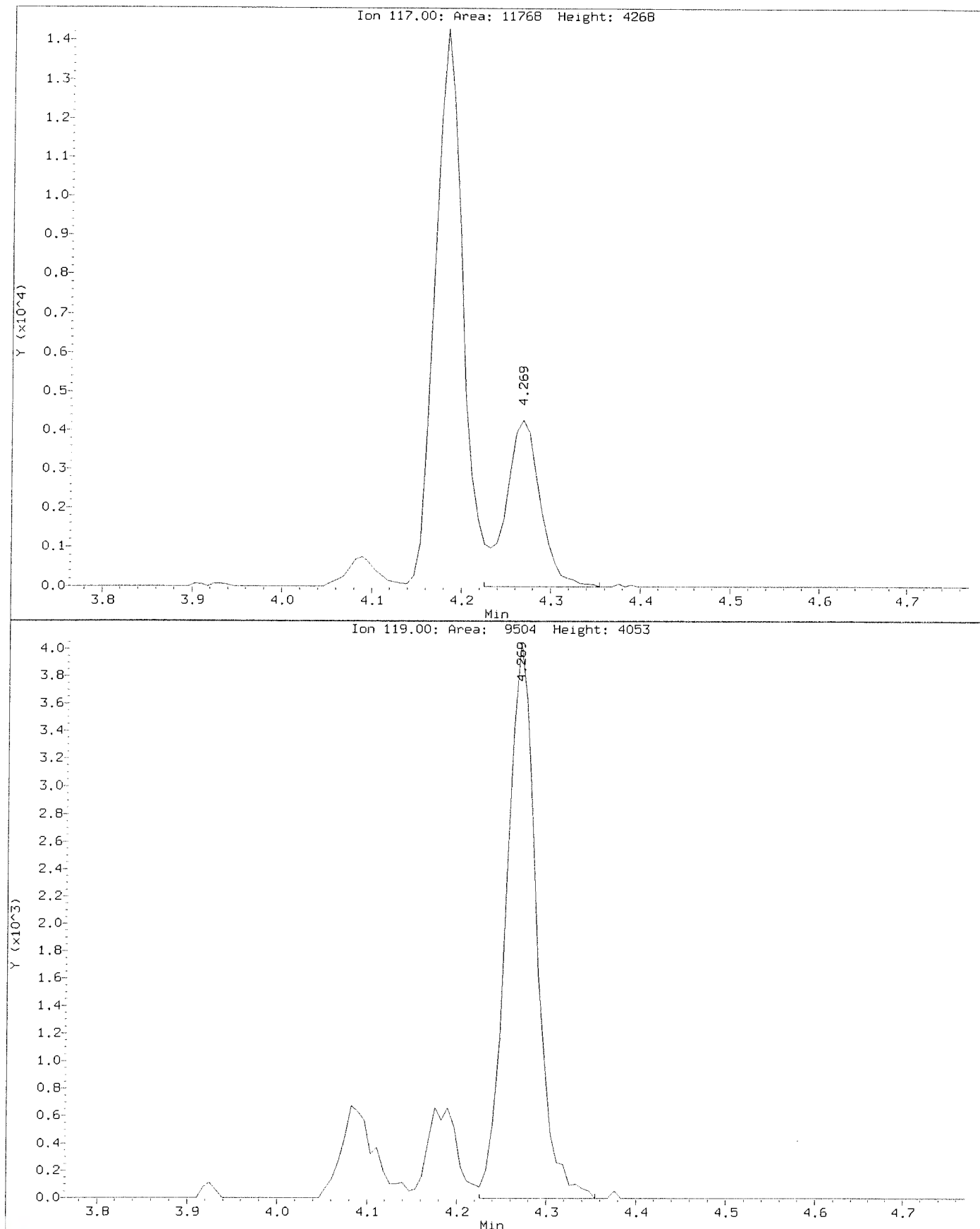
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Injection Date: 18-NOV-2019 15:23
Instrument: voa6.1
Client Sample ID: VSTD002

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



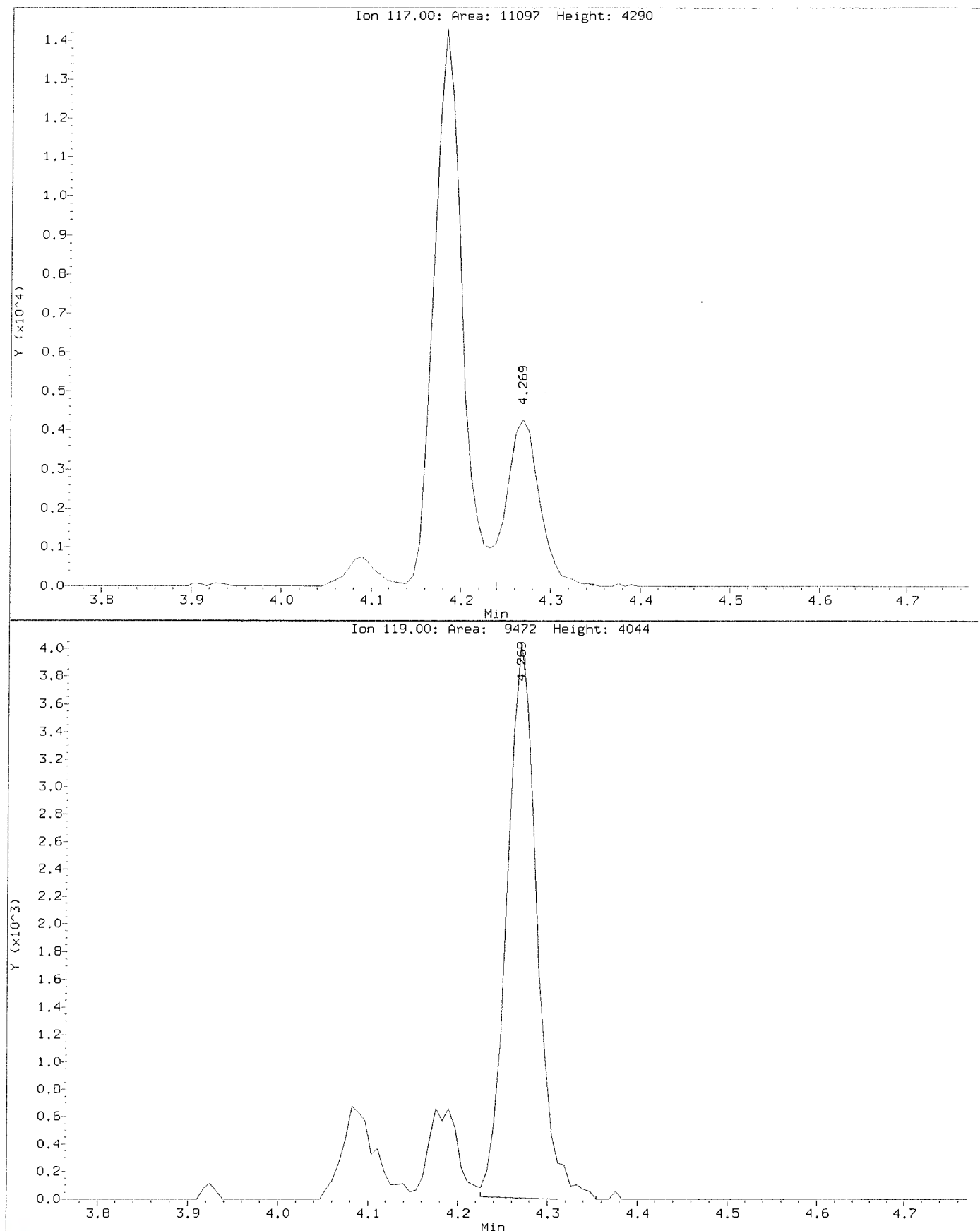
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Injection Date: 18-NOV-2019 15:23
Instrument: voa6.1
Client Sample ID: VSTD002

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D
Injection Date: 18-NOV-2019 15:23
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D
 Lab Smp Id: VSTD005 Client Smp ID: VSTD005
 Inj Date : 18-NOV-2019 15:47
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD005;VSTD005;1;5;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 15:23 Cal File: X111805.D
 Als bottle: 7 Calibration Sample, Level: 5
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG					AMOUNTS	
			RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
*****	****		====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168		4.182	4.182	(1.000)	410845	50.0000	
* 36 1,4-Difluorobenzene	114		4.970	4.970	(1.000)	563063	50.0000	
* 47 Chlorobenzene-d5	117		7.671	7.671	(1.000)	510927	50.0000	
* 70 1,4-Dichlorobenzene-d4	152		9.669	9.669	(1.000)	277846	50.0000	
\$ 35 1,2-Dichloroethane-d4	65		4.476	4.476	(1.070)	20921	5.00000	6.06
\$ 69 4-Bromofluorobenzene	95		8.695	8.695	(1.134)	25804	5.00000	5.80
\$ 30 Dibromofluoromethane	113		4.103	4.103	(0.981)	20237	5.00000	5.74
\$ 48 Toluene-d8	98		6.388	6.388	(0.833)	69936	5.00000	5.19
60 1,1,1,2-Tetrachloroethane	131		7.778	7.778	(1.014)	20728	5.00000	5.59
31 1,1,1-Trichloroethane	97		4.089	4.089	(0.978)	29459	5.00000	5.31
68 1,1,2,2-Tetrachloroethane	83		8.838	8.838	(0.914)	22230	5.00000	5.68
138 Freon TF	101		1.919	1.919	(0.459)	18786	5.00000	5.25
53 1,1,2-Trichloroethane	83		6.840	6.840	(0.892)	15003	5.00000	5.61
22 1,1-Dichloroethane	63		2.922	2.922	(0.699)	32313	5.00000	5.40
11 1,1-Dichloroethene	96		1.912	1.912	(0.457)	19077	5.00000	5.47
32 1,1-Dichloropropene	75		4.283	4.283	(0.862)	24310	5.00000	5.35
93 1,2,3-Trichlorobenzene	180		11.746	11.746	(1.215)	6553	5.00000	5.62
71 1,2,3-Trichloropropane	75		8.867	8.867	(0.917)	18403	5.00000	5.55 (M)
90 1,2,4-Trichlorobenzene	180		11.338	11.338	(1.173)	14399	5.00000	6.15
79 1,2,4-Trimethylbenzene	105		9.383	9.383	(0.970)	71210	5.00000	5.40
89 1,2-Dibromo-3-Chloropropane	155		10.658	10.658	(1.102)	2641	5.00000	5.82
57 1,2-Dibromoethane	107		7.262	7.262	(0.947)	20565	5.00000	5.73



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	41602	5.00000	5.64
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	24346	5.00000	5.44
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	19076	5.00000	5.67
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	68944	5.00000	5.45
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	45064	5.00000	5.65
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	29776	5.00000	5.49
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	44703	5.00000	5.52
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	28965	5.00000	5.33
24 2-Butanone	43	3.581	3.581	(0.856)	13522	10.0000	10.72
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	56464	5.00000	5.64
52 2-Hexanone	43	7.090	7.090	(0.924)	23980	10.0000	11.42
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	66074	5.00000	5.45
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	71485	5.00000	5.25
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	33803	10.0000	11.29
10 Acetone	43	1.969	1.969	(0.471)	15992	10.0000	11.75
37 Benzene	78	4.512	4.512	(0.908)	72584	5.00000	5.63
74 Bromobenzene	156	8.810	8.810	(0.911)	27619	5.00000	5.71
29 Bromochloromethane	128	3.795	3.795	(0.908)	11669	5.00000	5.24
39 Bromodichloromethane	83	5.729	5.729	(1.153)	26638	5.00000	5.71
66 Bromoform	173	8.416	8.416	(1.097)	16084	5.00000	6.17
6 Bromomethane	94	1.338	1.338	(0.320)	28671	5.00000	4.99 (a)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	103008	10.0000	10.87
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	26931	5.00000	5.41 (M)
59 Chlorobenzene	112	7.699	7.699	(1.004)	55668	5.00000	5.58
7 Chloroethane	64	1.403	1.403	(0.336)	13261	5.00000	5.12
28 Chloroform	83	3.910	3.910	(0.935)	34944	5.00000	5.25
3 Chloromethane	50	1.073	1.073	(0.257)	24949	5.00000	5.75
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	22227	5.00000	5.70
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	31191	5.00000	5.68
55 Dibromochloromethane	129	7.176	7.176	(0.936)	21920	5.00000	5.64
44 Dibromomethane	93	5.558	5.558	(1.118)	13775	5.00000	5.78
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	18346	5.00000	5.69
61 Ethylbenzene	106	7.800	7.800	(1.017)	29424	5.00000	5.70
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	11525	5.00000	5.47
67 Isopropylbenzene	105	8.566	8.566	(1.117)	81869	5.00000	5.36
62 m,p-Xylenes	106	7.907	7.907	(1.031)	69325	10.0000	11.14
17 Methylene Chloride	84	2.306	2.306	(0.551)	20180	5.00000	5.43
87 n-Butylbenzene	91	9.999	9.999	(1.034)	57498	5.00000	5.08
73 n-Propylbenzene	91	8.917	8.917	(0.922)	92937	5.00000	5.41
92 Naphthalene	128	11.546	11.546	(1.194)	17063	5.00000	5.68
63 o-Xylene	106	8.244	8.244	(1.075)	33646	5.00000	5.48
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	78149	5.00000	5.23
64 Styrene	104	8.258	8.258	(1.077)	58650	5.00000	5.49
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	59074	5.00000	5.45
56 Tetrachloroethene	164	6.933	6.933	(0.904)	20334	5.00000	5.66
50 Toluene	91	6.446	6.446	(0.840)	80201	5.00000	5.53
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	18086	5.00000	5.35
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	28395	5.00000	5.67
38 Trichloroethene	130	5.207	5.207	(1.048)	22280	5.00000	5.65
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	33411	5.00000	5.24
5 Vinyl Chloride	62	1.138	1.138	(0.272)	20691	5.00000	4.94 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D Page 3
Report Date: 06-Dec-2019 19:56

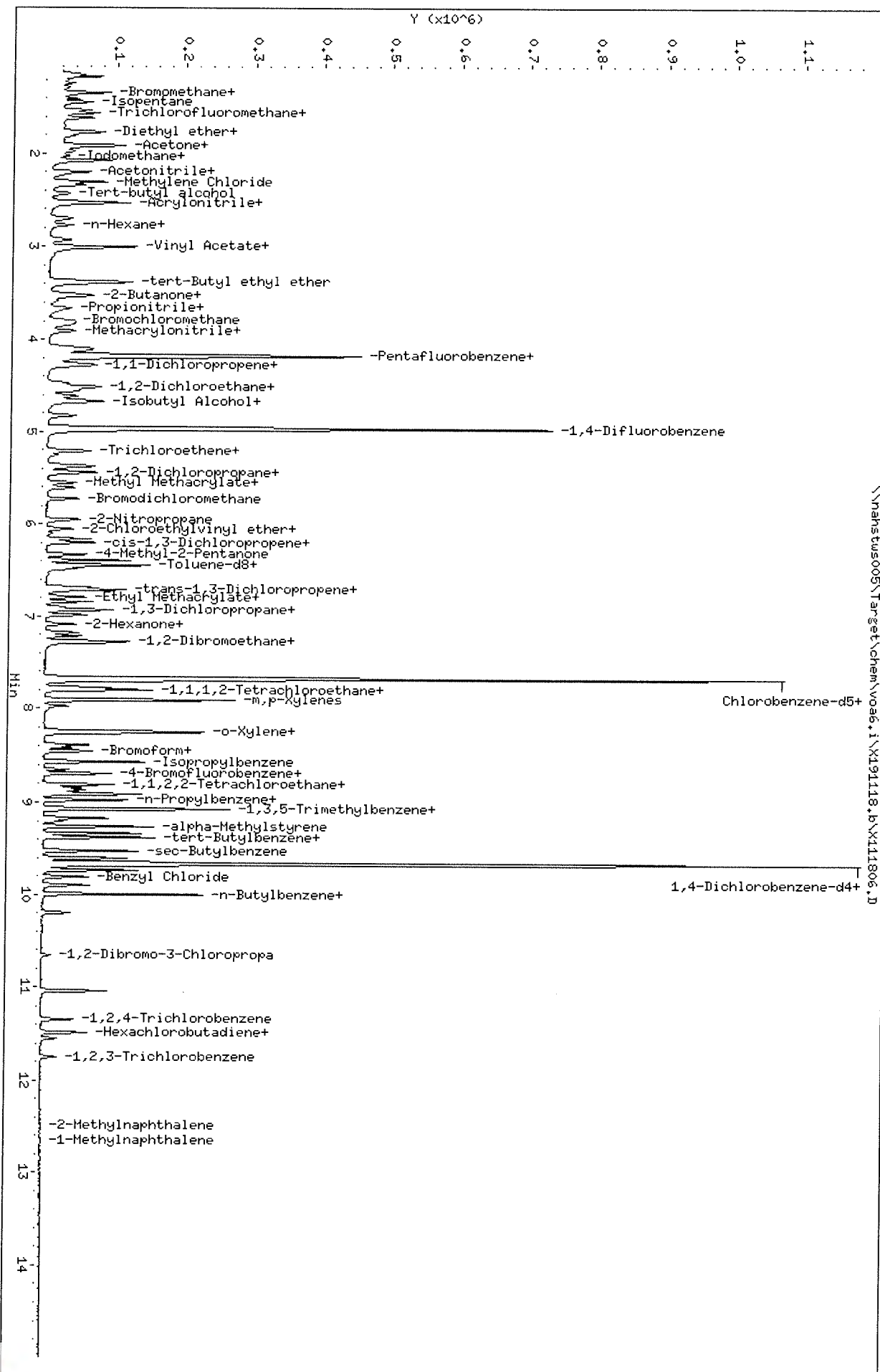
QC Flag Legend

- a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
- M - Compound response manually integrated.



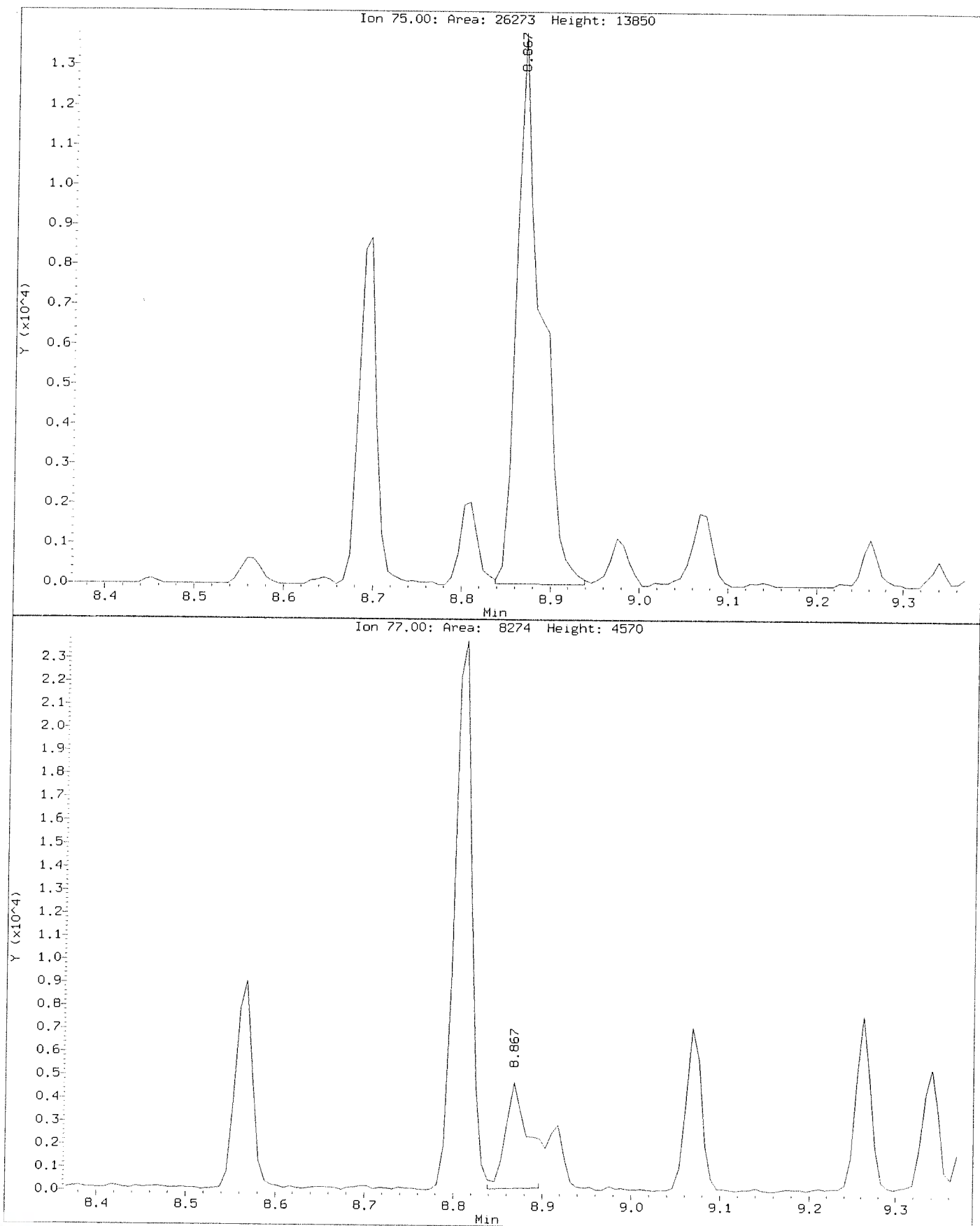
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 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



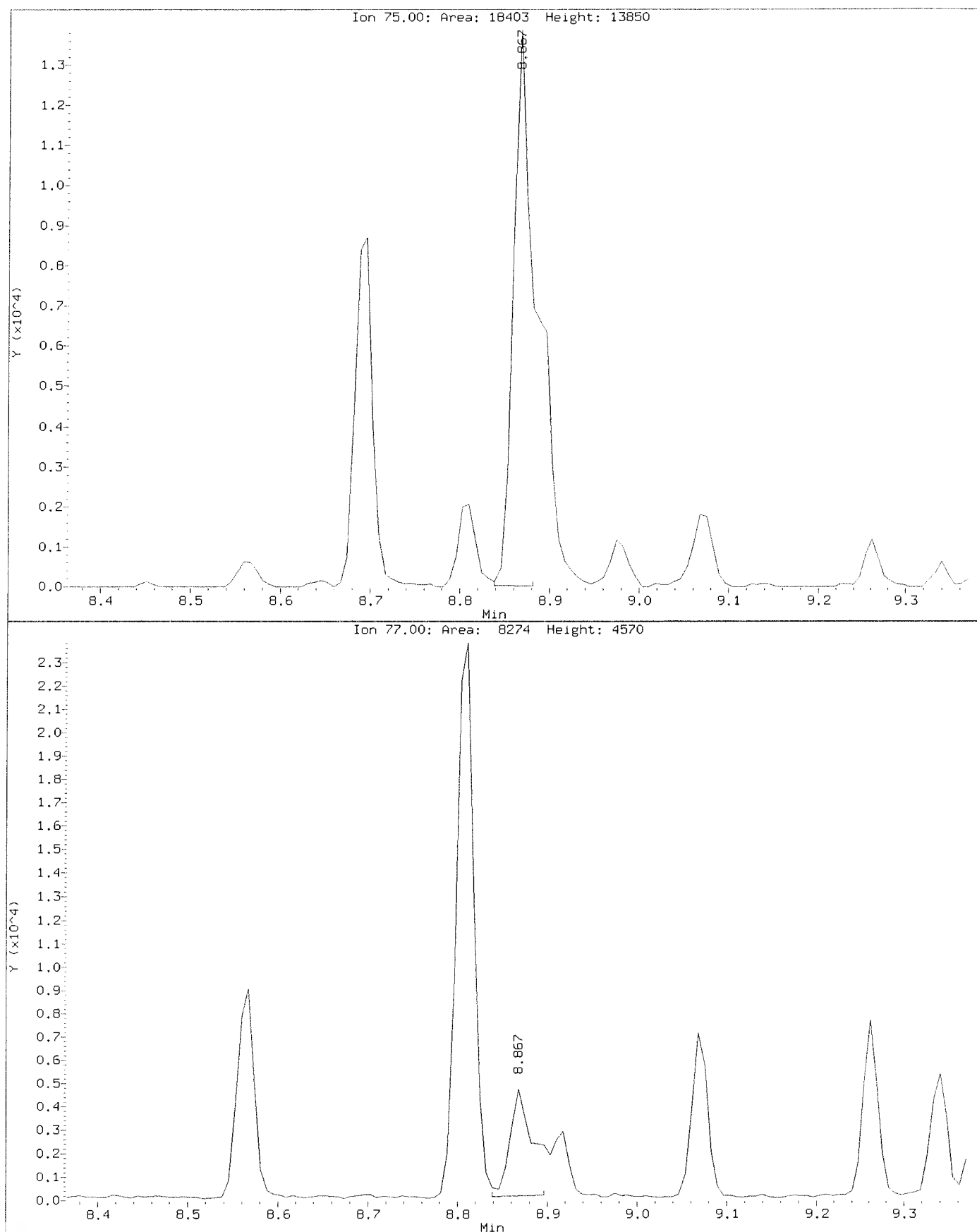
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Instrument: voa6.1
Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



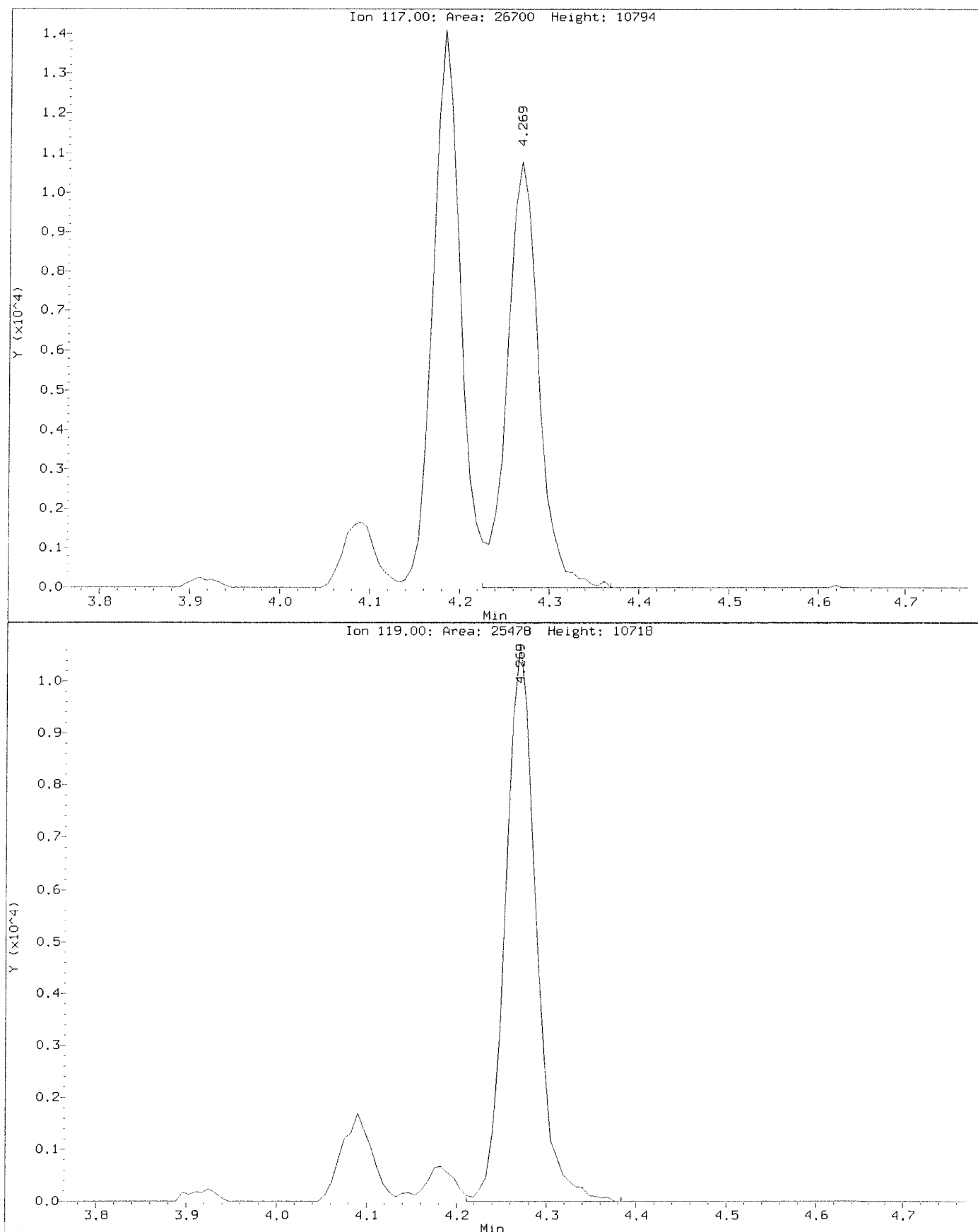
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Instrument: voa6.i
Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



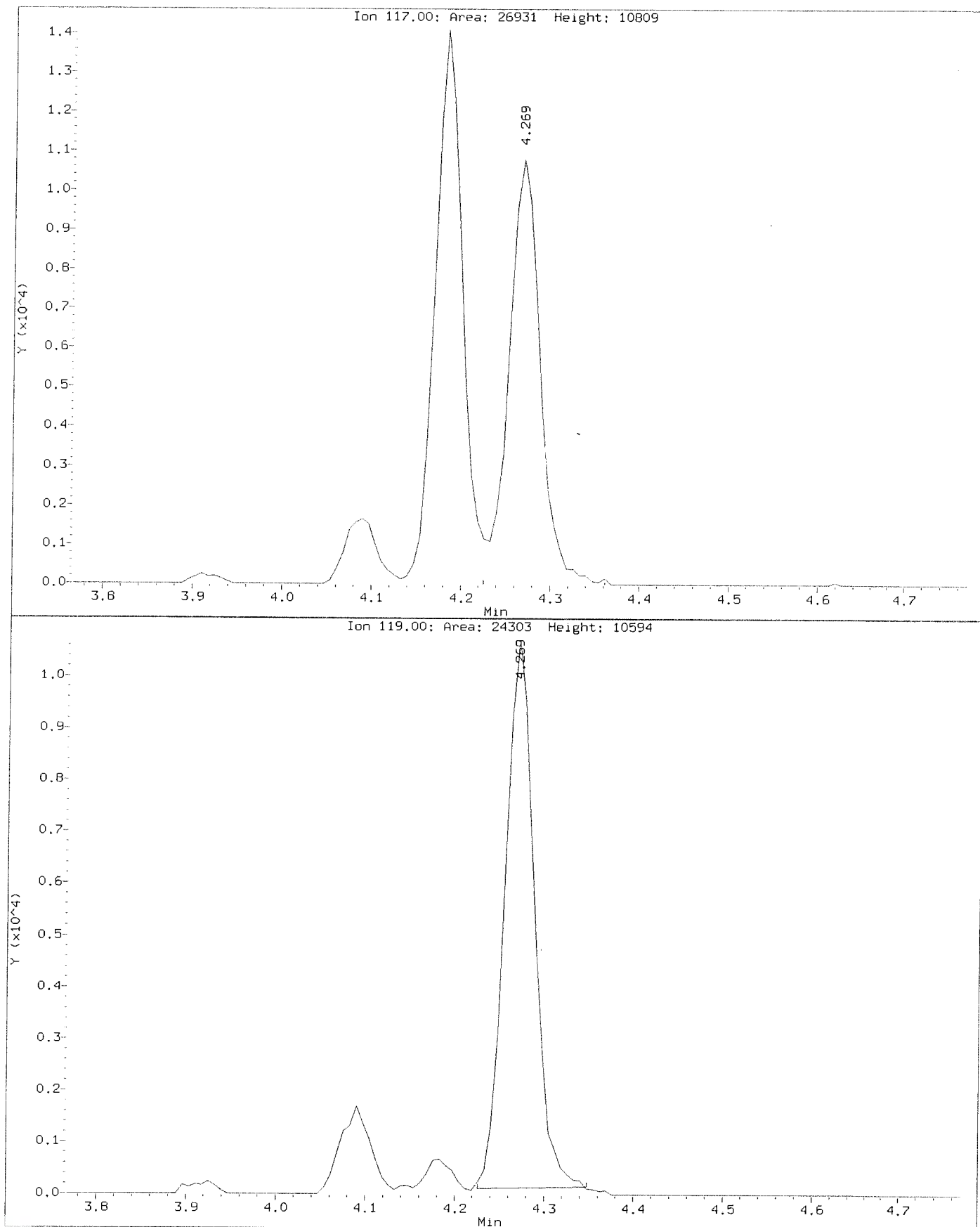
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Instrument: voa6.i
Client Sample ID: VSTD005

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.1\X191118.b\X111806.D
Injection Date: 18-NOV-2019 15:47
Instrument: voa6.1
Client Sample ID: VSTD005

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D
 Lab Smp Id: VSTD020 Client Smp ID: VSTD020
 Inj Date : 18-NOV-2019 16:11
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD020;VSTD020;1;6;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 15:47 Cal File: X111806.D
 Als bottle: 8 Calibration Sample, Level: 6
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

							AMOUNTS	
QUANT SIG							CAL-AMT	ON-COL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)	
=====	=====	=====	=====	=====	=====	=====	=====	
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	411693	50.0000		
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	563792	50.0000		
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	515046	50.0000		
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	278890	50.0000		
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	75813	20.0000	20.02	
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	94194	20.0000	19.91	
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	75094	20.0000	20.28	
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	260273	20.0000	19.17	
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	73347	20.0000	19.62	
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	105363	20.0000	18.97	
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	75821	20.0000	19.33	
138 Freon TF	101	1.919	1.919	(0.459)	62543	20.0000	17.44	
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	52184	20.0000	19.38	
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	113669	20.0000	18.97	
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	64160	20.0000	18.38	
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	84000	20.0000	18.47	
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	21856	20.0000	20.64	
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	64689	20.0000	19.46 (M)	
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	46623	20.0000	19.84	
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.971)	254992	20.0000	19.26	
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.103)	8805	20.0000	20.13	
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	71738	20.0000	19.85	



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG				RESPONSE	AMOUNTS	
	MASS	RT	EXP RT	REL RT		CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.035)	144121	20.0000	19.47
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	88277	20.0000	19.72
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	64004	20.0000	19.00
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	247054	20.0000	19.45
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.994)	157428	20.0000	19.68
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	105400	20.0000	19.28
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	158049	20.0000	19.44
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	100376	20.0000	18.46
24 2-Butanone	43	3.580	3.580	(0.856)	48098	40.0000	38.07
76 2-Chlorotoluene	91	8.974	8.974	(0.929)	193547	20.0000	19.28
52 2-Hexanone	43	7.083	7.083	(0.923)	78795	40.0000	37.24
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	231980	20.0000	19.07
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	257377	20.0000	18.86
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	115695	40.0000	38.33
10 Acetone	43	1.976	1.976	(0.473)	43200	40.0000	38.23
37 Benzene	78	4.512	4.512	(0.908)	250181	20.0000	19.39
74 Bromobenzene	156	8.809	8.809	(0.912)	97394	20.0000	20.09
29 Bromochloromethane	128	3.795	3.795	(0.908)	41933	20.0000	18.80
39 Bromodichloromethane	83	5.729	5.729	(1.153)	89170	20.0000	19.11
66 Bromoform	173	8.415	8.415	(1.097)	56416	20.0000	19.02
6 Bromomethane	94	1.338	1.338	(0.320)	93456	20.0000	21.54
19 Carbon Disulfide	76	2.069	2.069	(0.495)	362755	40.0000	38.21
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	90839	20.0000	18.23 (M)
59 Chlorobenzene	112	7.699	7.699	(1.004)	192384	20.0000	19.13
7 Chloroethane	64	1.403	1.403	(0.336)	46616	20.0000	17.98
28 Chloroform	83	3.910	3.910	(0.935)	121141	20.0000	18.16
3 Chloromethane	50	1.073	1.073	(0.257)	85402	20.0000	19.21
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	74754	20.0000	19.14
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	107408	20.0000	19.53
55 Dibromochloromethane	129	7.176	7.176	(0.936)	76215	20.0000	19.48
44 Dibromomethane	93	5.557	5.557	(1.118)	46676	20.0000	19.58
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	63810	20.0000	17.59
61 Ethylbenzene	106	7.799	7.799	(1.017)	101554	20.0000	19.54
91 Hexachlorobutadiene	225	11.481	11.481	(1.188)	37789	20.0000	19.03
67 Isopropylbenzene	105	8.566	8.566	(1.117)	293670	20.0000	19.08
62 m,p-Xylenes	106	7.907	7.907	(1.031)	243460	40.0000	38.83
17 Methylene Chloride	84	2.305	2.305	(0.551)	66846	20.0000	17.95
87 n-Butylbenzene	91	9.998	9.998	(1.035)	210608	20.0000	18.54
73 n-Propylbenzene	91	8.917	8.917	(0.923)	331965	20.0000	19.25
92 Naphthalene	128	11.546	11.546	(1.195)	57138	20.0000	18.96
63 o-Xylene	106	8.244	8.244	(1.075)	119876	20.0000	19.37
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	278964	20.0000	18.62
64 Styrene	104	8.258	8.258	(1.077)	206802	20.0000	19.22
78 tert-Butylbenzene	119	9.339	9.339	(0.967)	208031	20.0000	19.13
56 Tetrachloroethene	164	6.933	6.933	(0.904)	68625	20.0000	18.96
50 Toluene	91	6.446	6.446	(0.840)	280019	20.0000	19.17
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	63600	20.0000	18.77
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	100272	20.0000	20.00
38 Trichloroethene	130	5.206	5.206	(1.048)	77608	20.0000	19.68
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	116474	20.0000	18.23
5 Vinyl Chloride	62	1.138	1.138	(0.272)	74818	20.0000	17.83



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D Page 3
Report Date: 06-Dec-2019 19:56

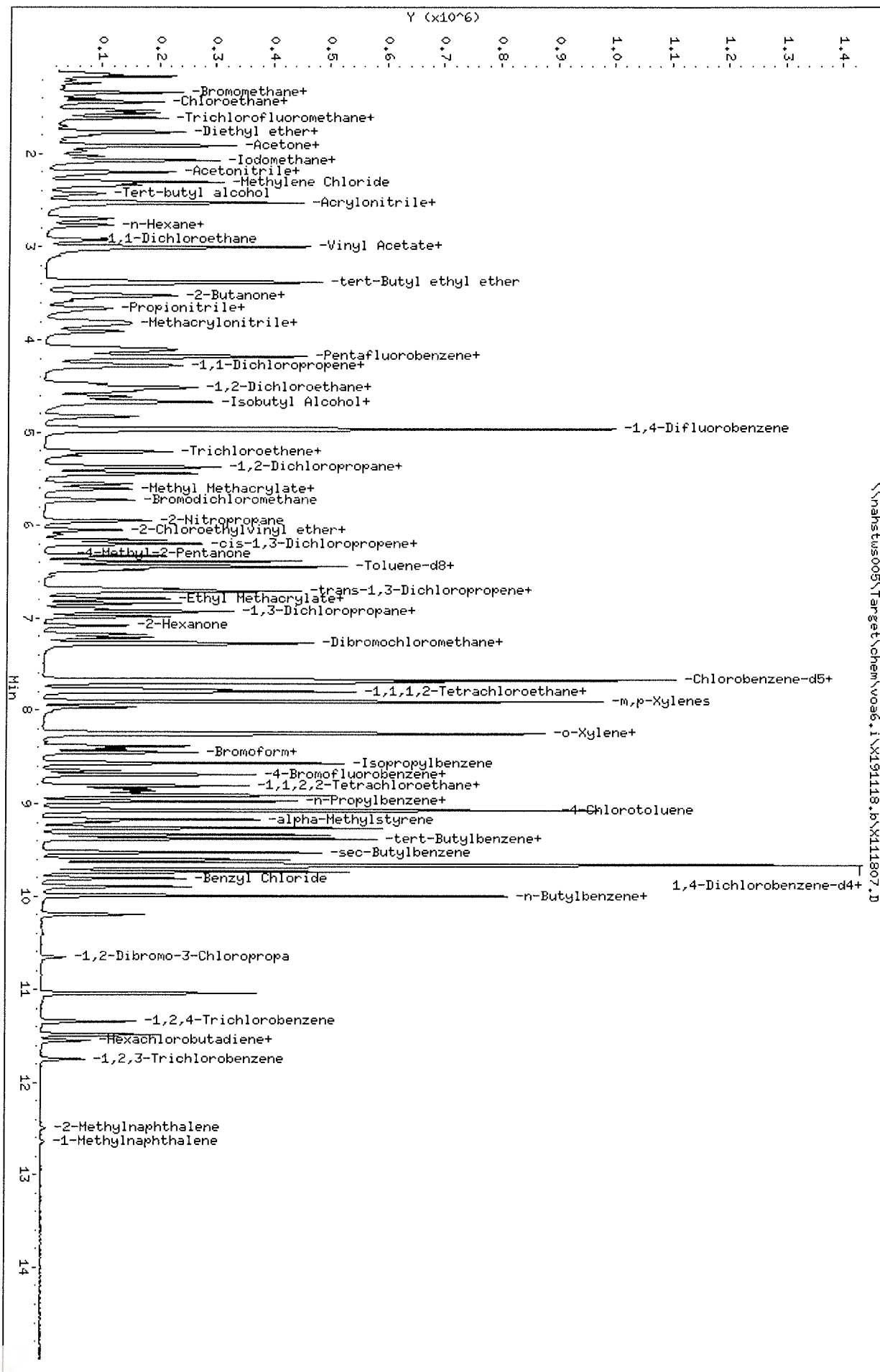
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M - Compound response manually integrated.



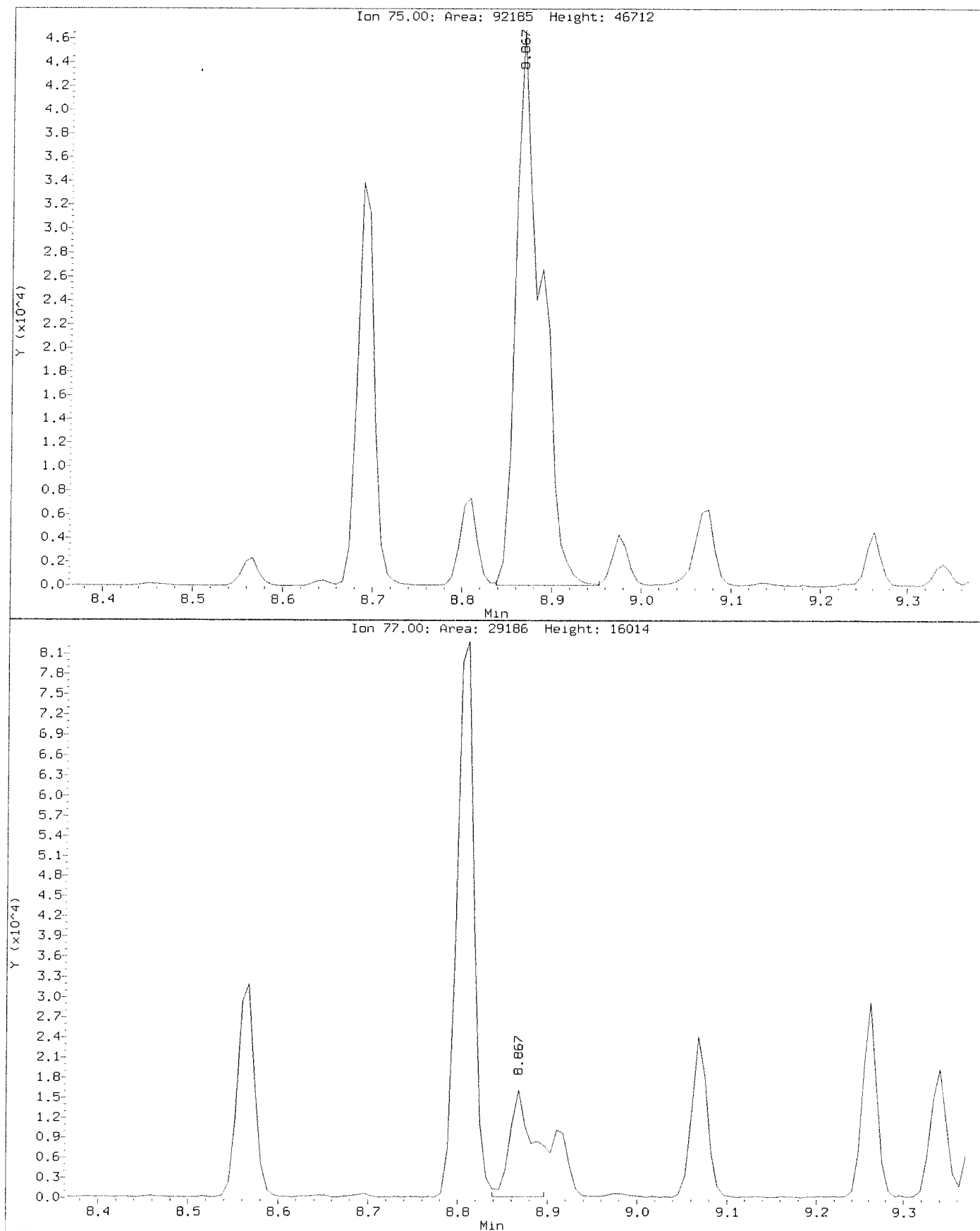
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 Sample Info: VSTD020;VSTD020;1;6;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



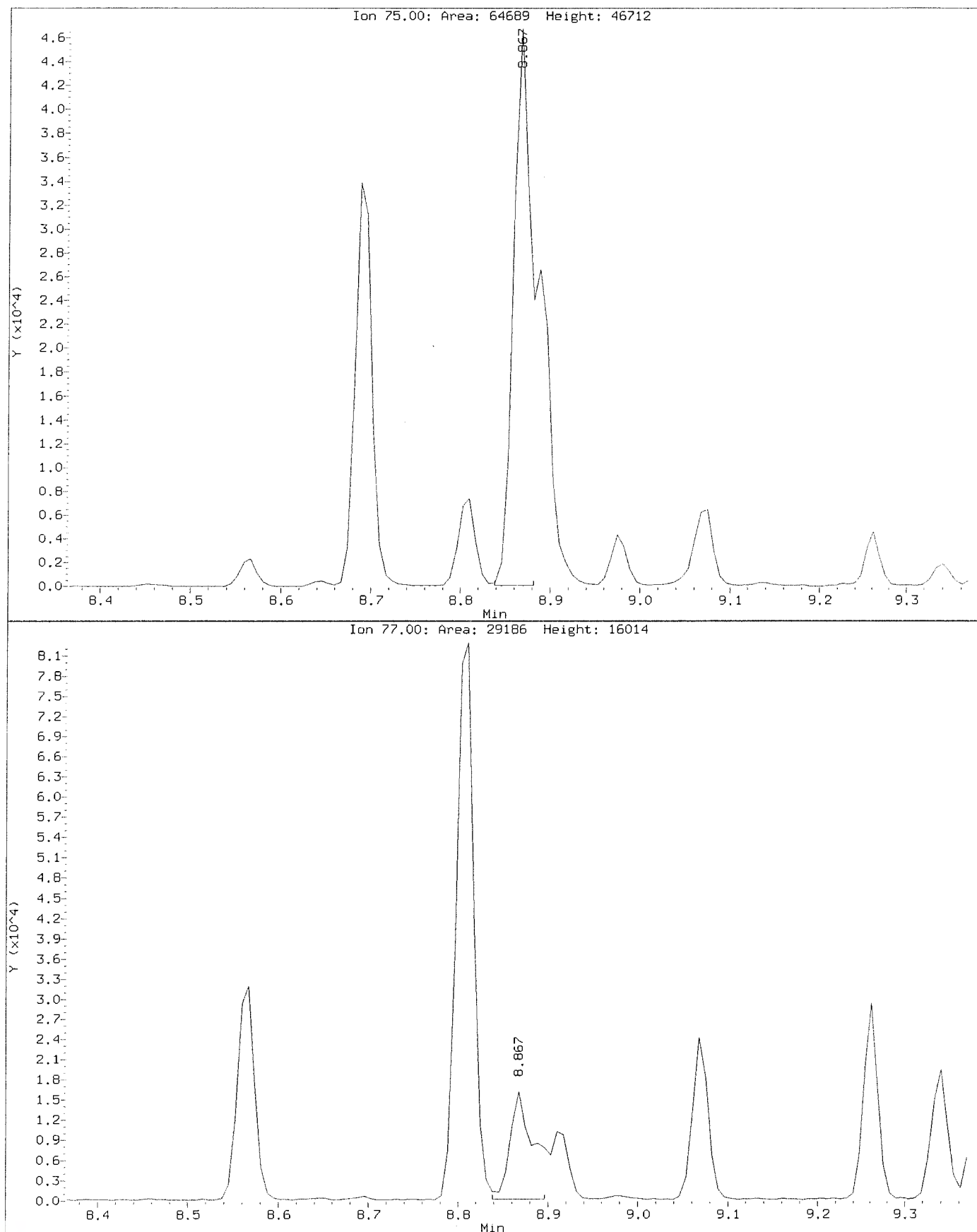
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Instrument: voa6.i
Client Sample ID: VSTD020

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



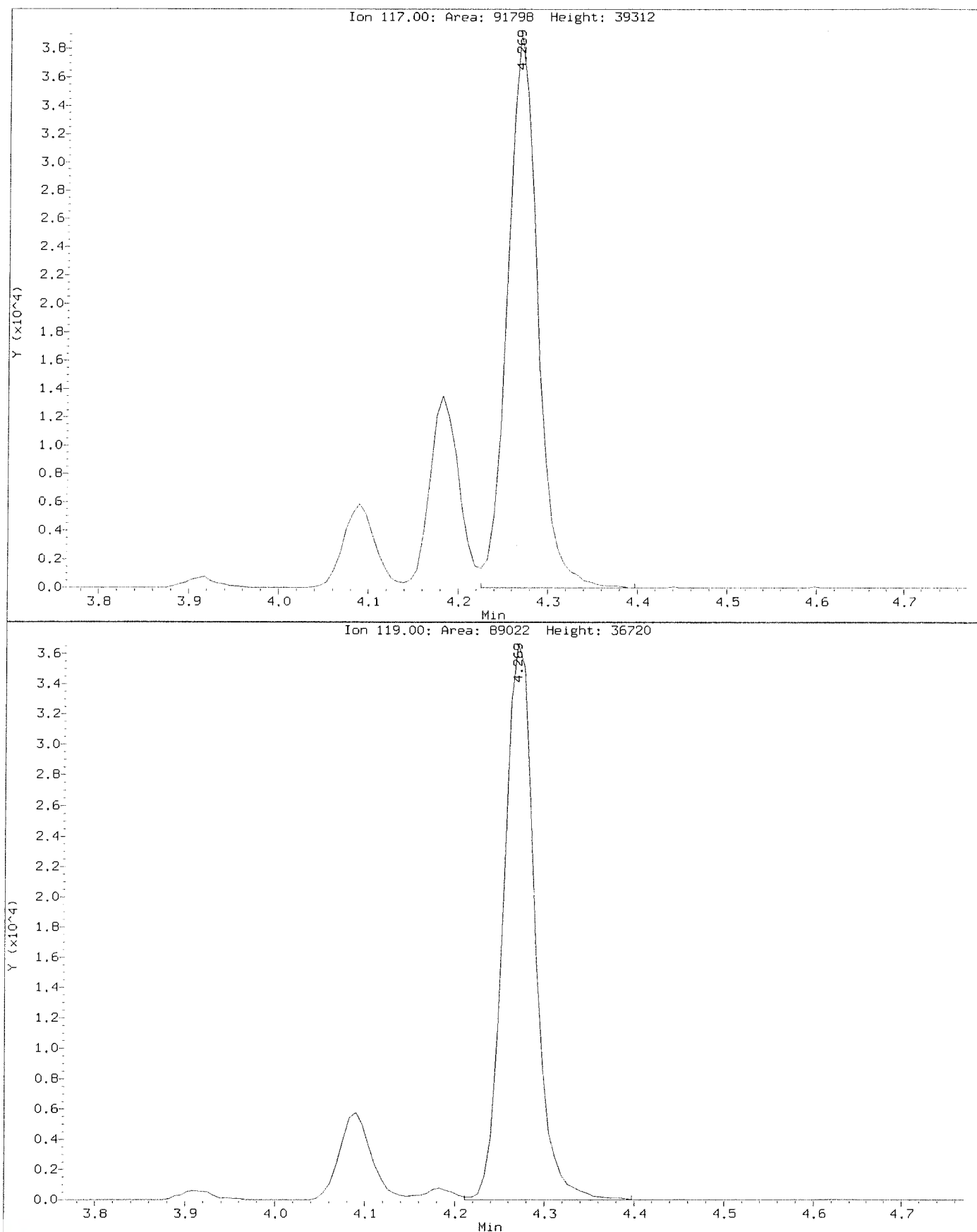
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Instrument: voa6.i
Client Sample ID: VSTD020

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



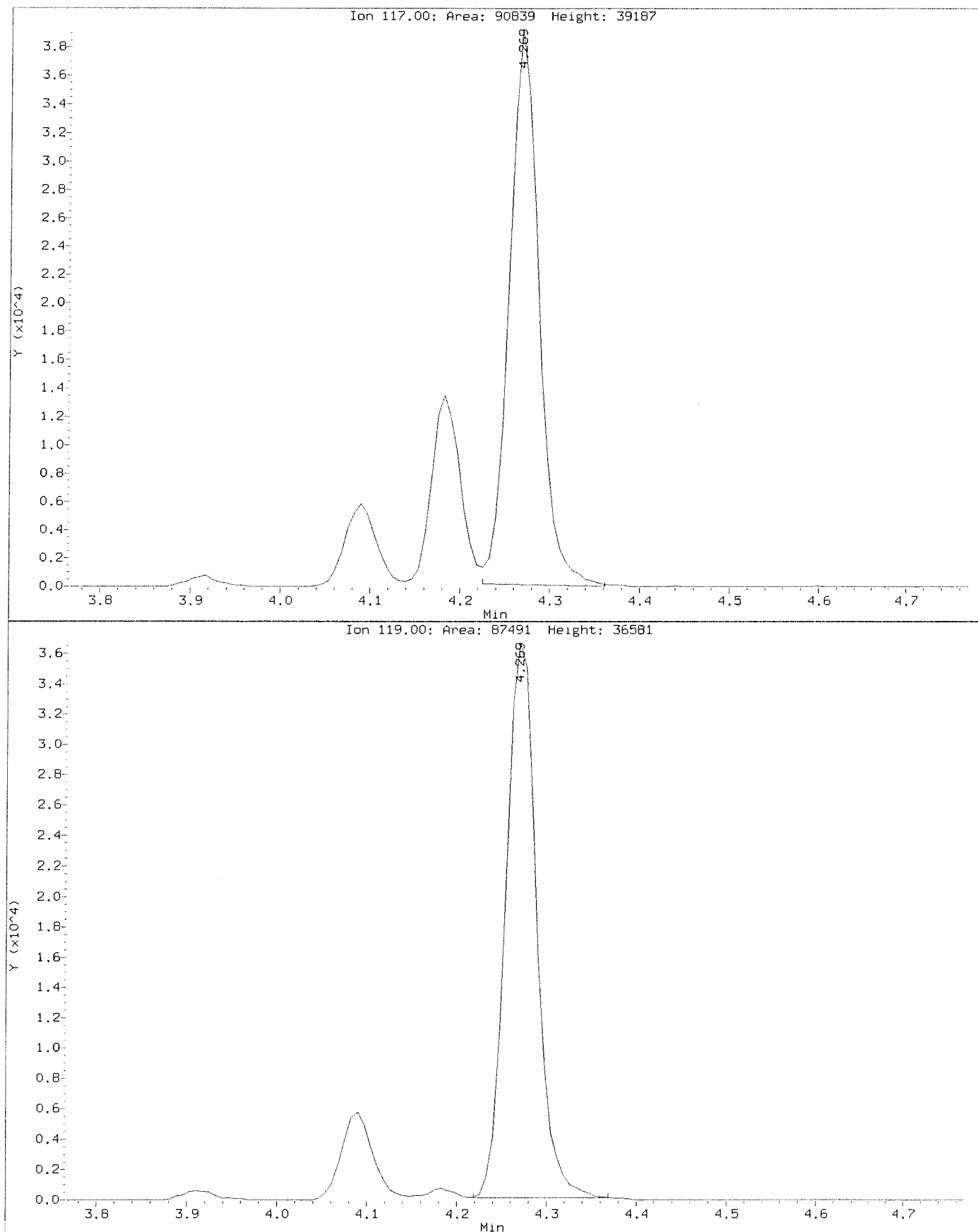
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Injection Date: 18-NOV-2019 16:11
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D
Injection Date: 18-NOV-2019 16:11
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D
 Lab Smp Id: VSTD050 Client Smp ID: VSTD050
 Inj Date : 18-NOV-2019 16:35
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD050;VSTD050;1;7;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:11 Cal File: X111807.D
 Als bottle: 9 Calibration Sample, Level: 7
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

QUANT SIG						AMOUNTS	
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	399282	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	548073	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	502523	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	273444	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	178006	50.0000	47.42
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	222328	50.0000	47.57
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	173990	50.0000	47.93
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	608955	50.0000	45.99
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	184913	50.0000	50.72
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	268813	50.0000	49.90
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	183844	50.0000	47.81
138 Freon TF	101	1.911	1.911	(0.457)	183115	50.0000	52.67
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	128481	50.0000	48.90
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	283343	50.0000	48.77
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	171500	50.0000	50.68
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	220463	50.0000	49.86
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	52554	50.0000	51.69
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	157820	50.0000	48.44 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	115181	50.0000	50.00
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	661580	50.0000	50.99
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	21800	50.0000	51.36
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	174730	50.0000	49.57



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT	ON-COL
	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	363670	50.0000	50.11
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	219760	50.0000	50.51
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	161607	50.0000	49.36
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	647527	50.0000	52.01
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	398343	50.0000	50.79
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	259218	50.0000	48.60
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	400593	50.0000	50.27
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	257082	50.0000	48.75
24 2-Butanone	43	3.573	3.573	(0.854)	116745	100.000	95.28
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	506692	50.0000	51.50
52 2-Hexanone	43	7.090	7.090	(0.924)	193251	100.000	93.61
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	603806	50.0000	50.63
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	703086	50.0000	52.54
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	284508	100.000	96.62
10 Acetone	43	1.976	1.976	(0.473)	103091	100.000	99.72
37 Benzene	78	4.512	4.512	(0.908)	637799	50.0000	50.87
74 Bromobenzene	156	8.809	8.809	(0.911)	240153	50.0000	50.53
29 Bromochloromethane	128	3.795	3.795	(0.908)	105150	50.0000	48.61
39 Bromodichloromethane	83	5.729	5.729	(1.153)	226127	50.0000	49.85
66 Bromoform	173	8.416	8.416	(1.097)	143798	50.0000	48.09
6 Bromomethane	94	1.338	1.338	(0.320)	215480	50.0000	54.47
19 Carbon Disulfide	76	2.069	2.069	(0.495)	951783	100.000	103.39
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	247524	50.0000	51.11 (M)
59 Chlorobenzene	112	7.699	7.699	(1.004)	485055	50.0000	49.44
7 Chloroethane	64	1.403	1.403	(0.336)	124291	50.0000	49.44
28 Chloroform	83	3.910	3.910	(0.935)	300015	50.0000	46.39
3 Chloromethane	50	1.073	1.073	(0.257)	215753	50.0000	49.75
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	187629	50.0000	49.55
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	273432	50.0000	51.15
55 Dibromochloromethane	129	7.176	7.176	(0.936)	191497	50.0000	50.17
44 Dibromomethane	93	5.557	5.557	(1.118)	115707	50.0000	49.94
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	186161	50.0000	51.14
61 Ethylbenzene	106	7.799	7.799	(1.017)	257283	50.0000	50.75
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	99881	50.0000	52.17
67 Isopropylbenzene	105	8.566	8.566	(1.117)	765390	50.0000	50.97
62 m,p-Xylenes	106	7.907	7.907	(1.031)	625932	100.000	102.32
17 Methylene Chloride	84	2.305	2.305	(0.551)	168044	50.0000	46.54
87 n-Butylbenzene	91	9.999	9.999	(1.034)	591076	50.0000	53.08
73 n-Propylbenzene	91	8.917	8.917	(0.922)	884464	50.0000	52.32
92 Naphthalene	128	11.546	11.546	(1.194)	142473	50.0000	48.22
63 o-Xylene	106	8.244	8.244	(1.075)	301622	50.0000	49.96
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	772064	50.0000	52.58
64 Styrene	104	8.258	8.258	(1.077)	530825	50.0000	50.56
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	550071	50.0000	51.60
56 Tetrachloroethene	164	6.933	6.933	(0.904)	176674	50.0000	50.03
50 Toluene	91	6.446	6.446	(0.840)	709296	50.0000	49.77
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	163591	50.0000	49.79
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	247921	50.0000	50.89
38 Trichloroethene	130	5.206	5.206	(1.048)	196625	50.0000	51.29
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	328789	50.0000	53.08
5 Vinyl Chloride	62	1.138	1.138	(0.272)	201503	50.0000	49.51



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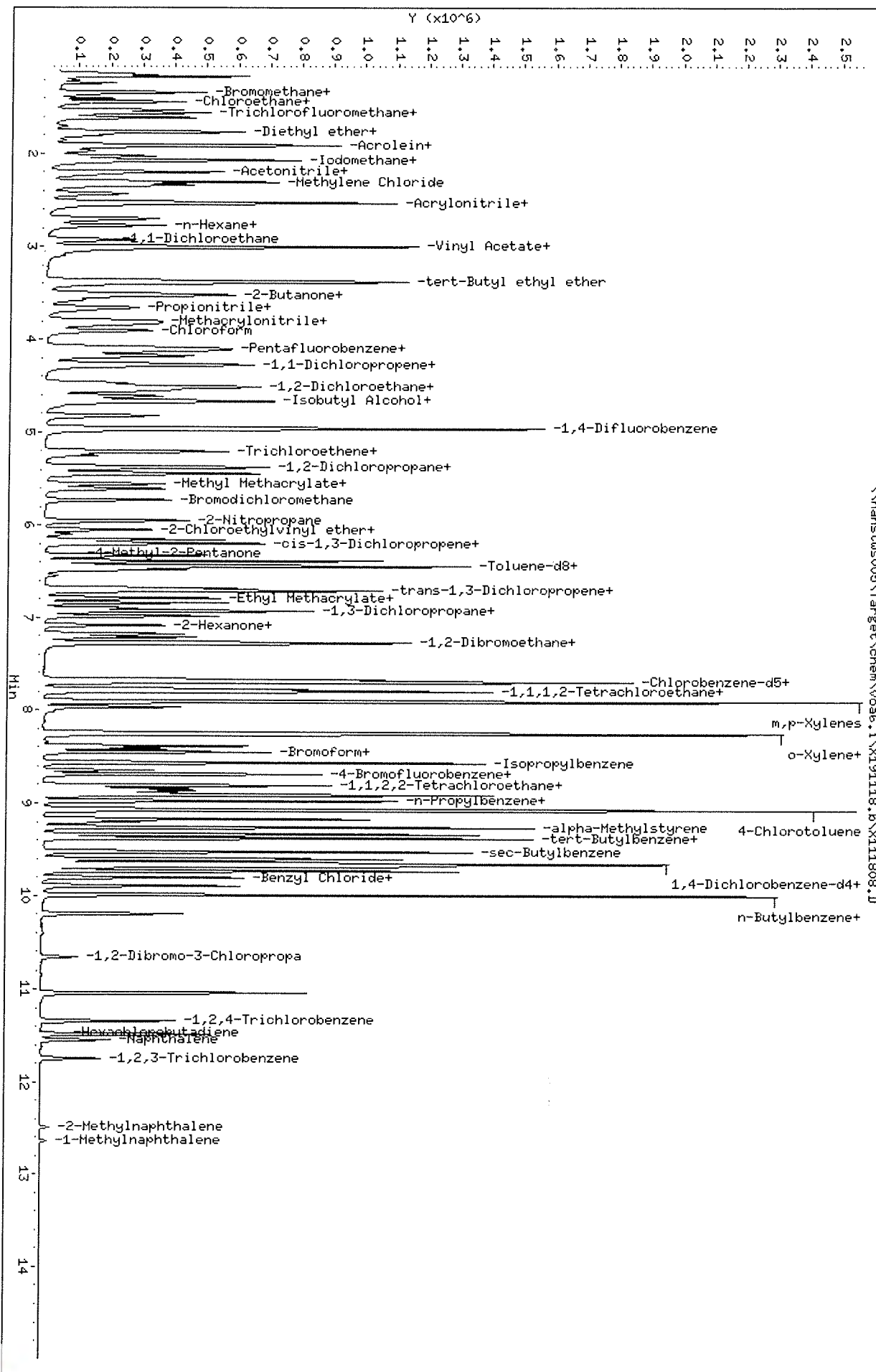
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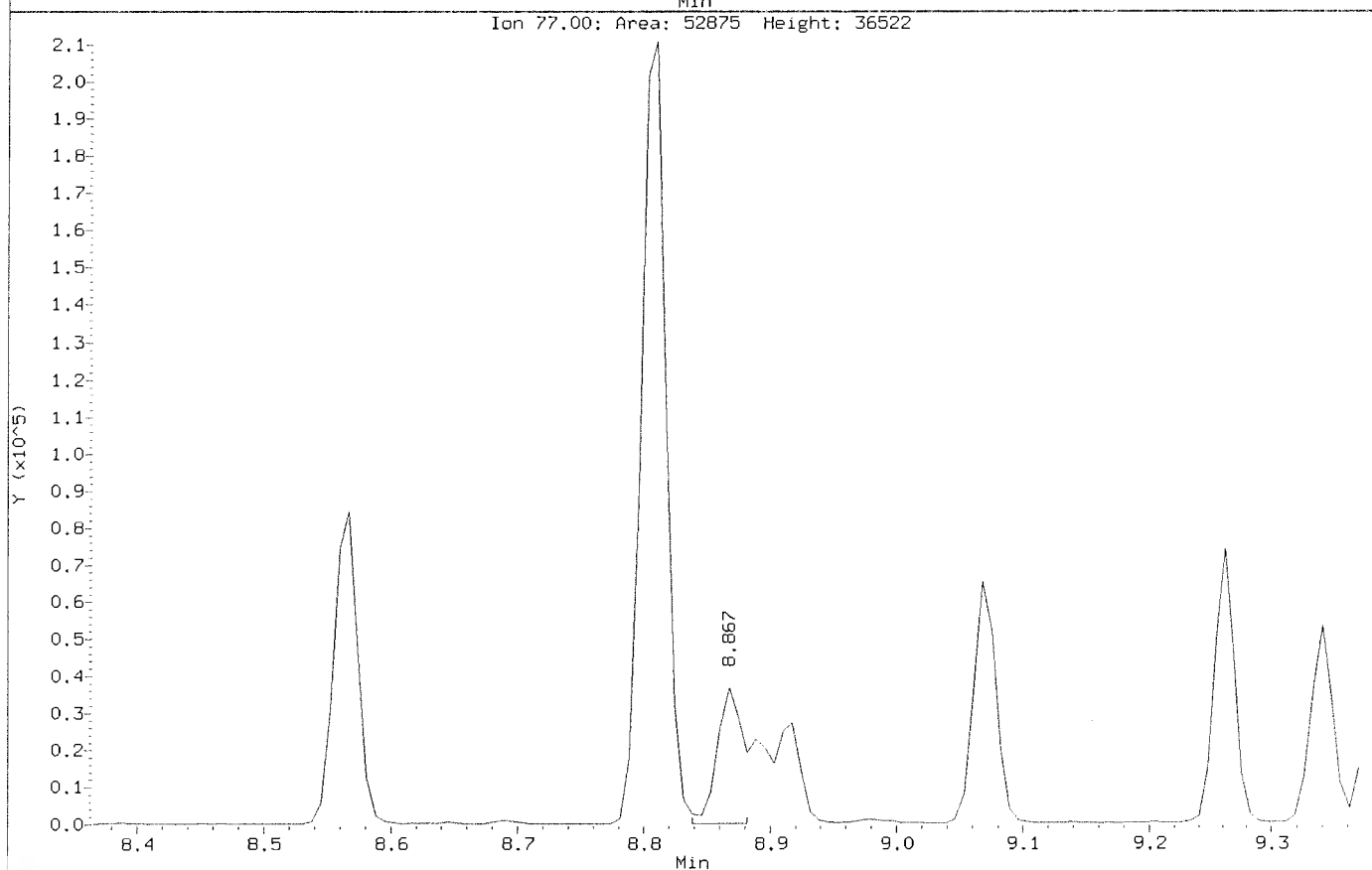
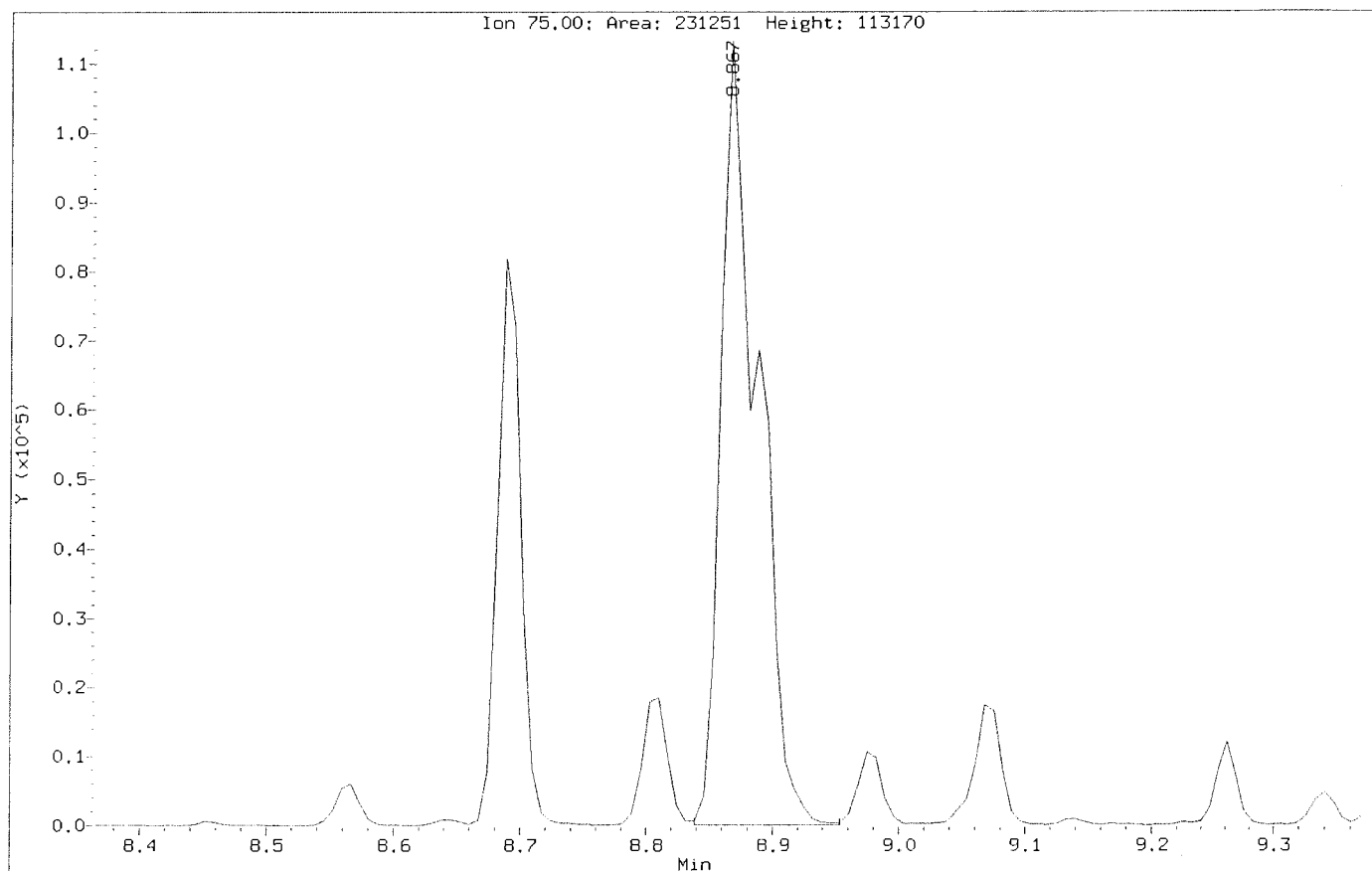
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 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



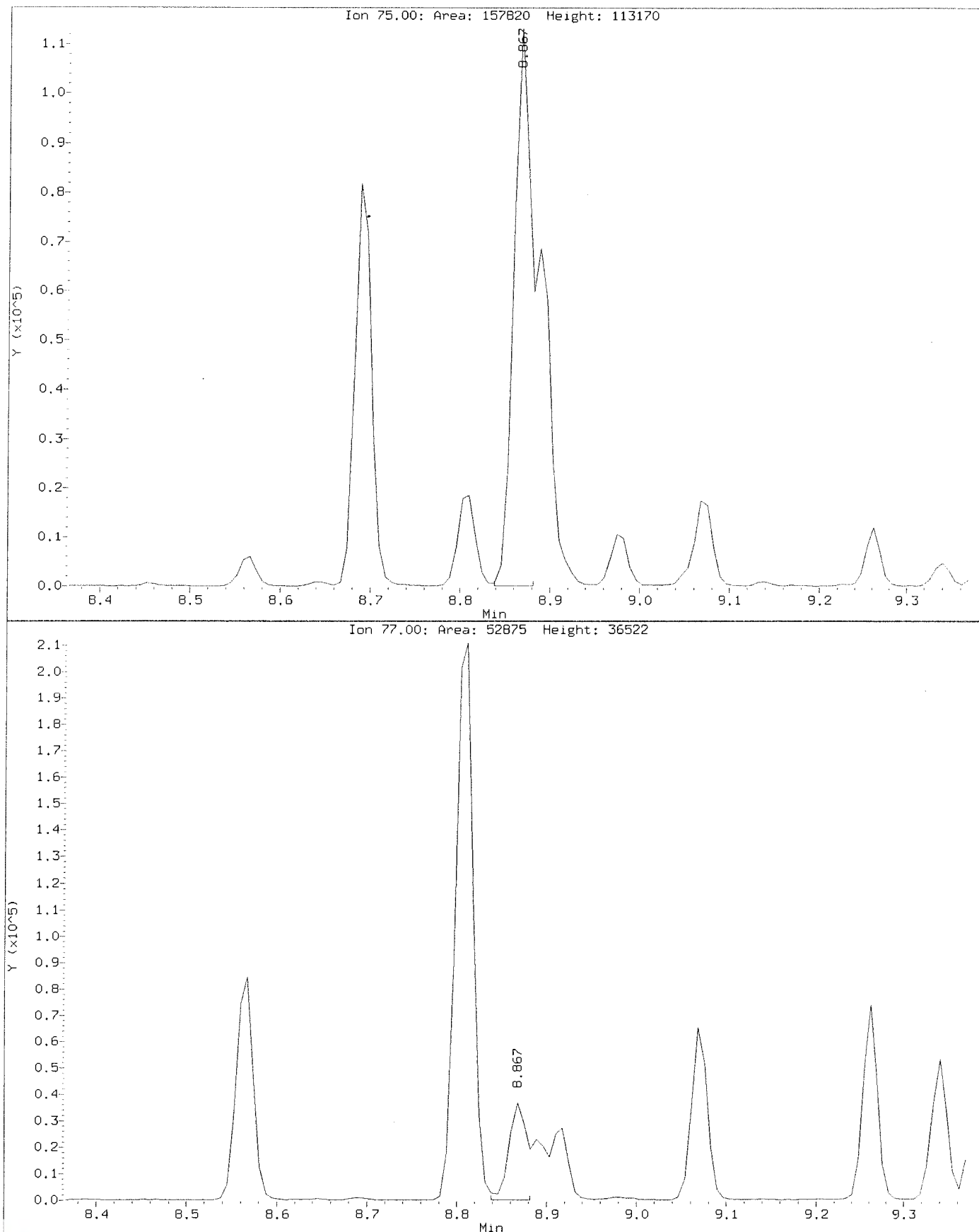
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Instrument: voa6.i
Client Sample ID: VSTD050

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



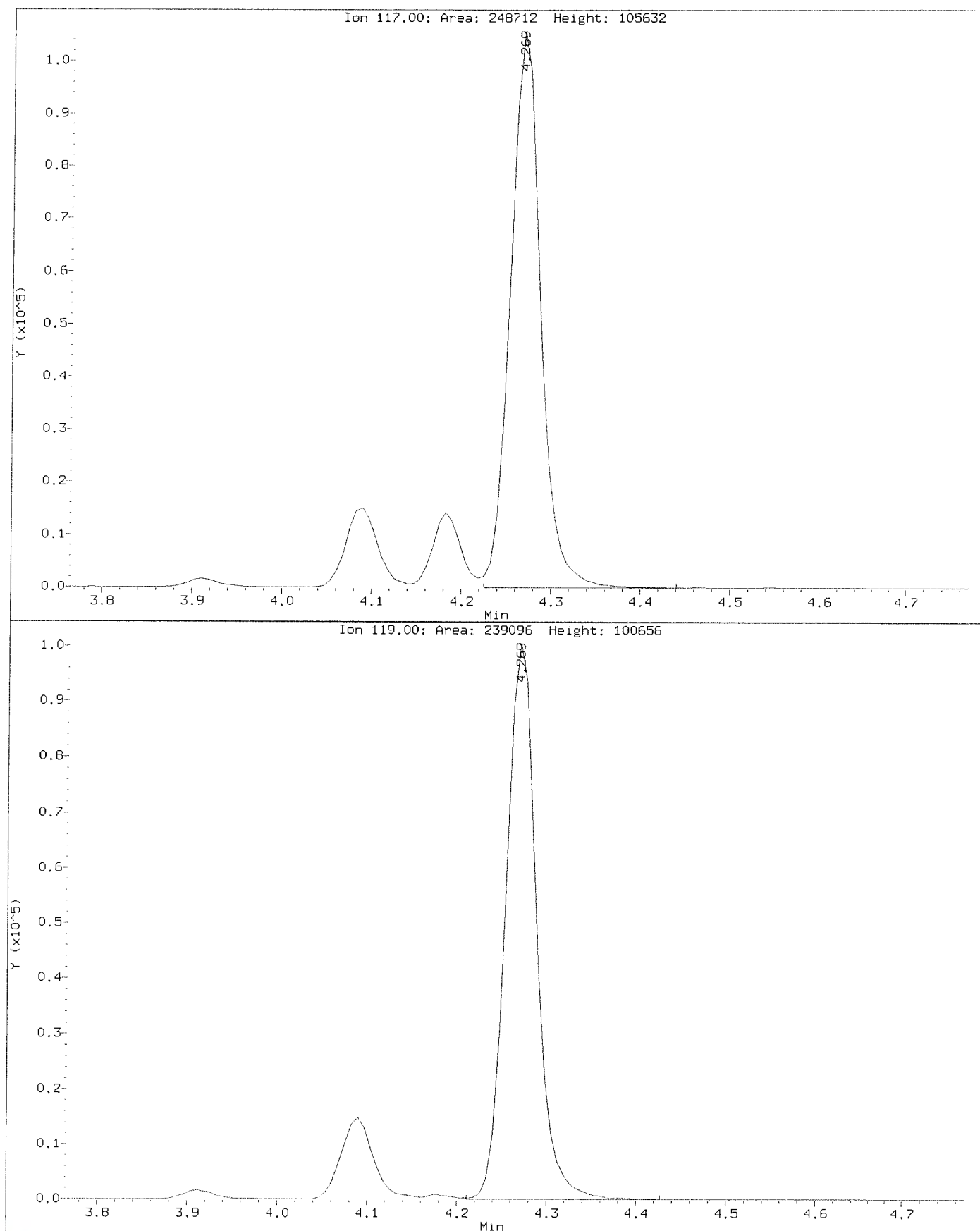
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Instrument: voa6.i
Client Sample ID: VSTD050

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



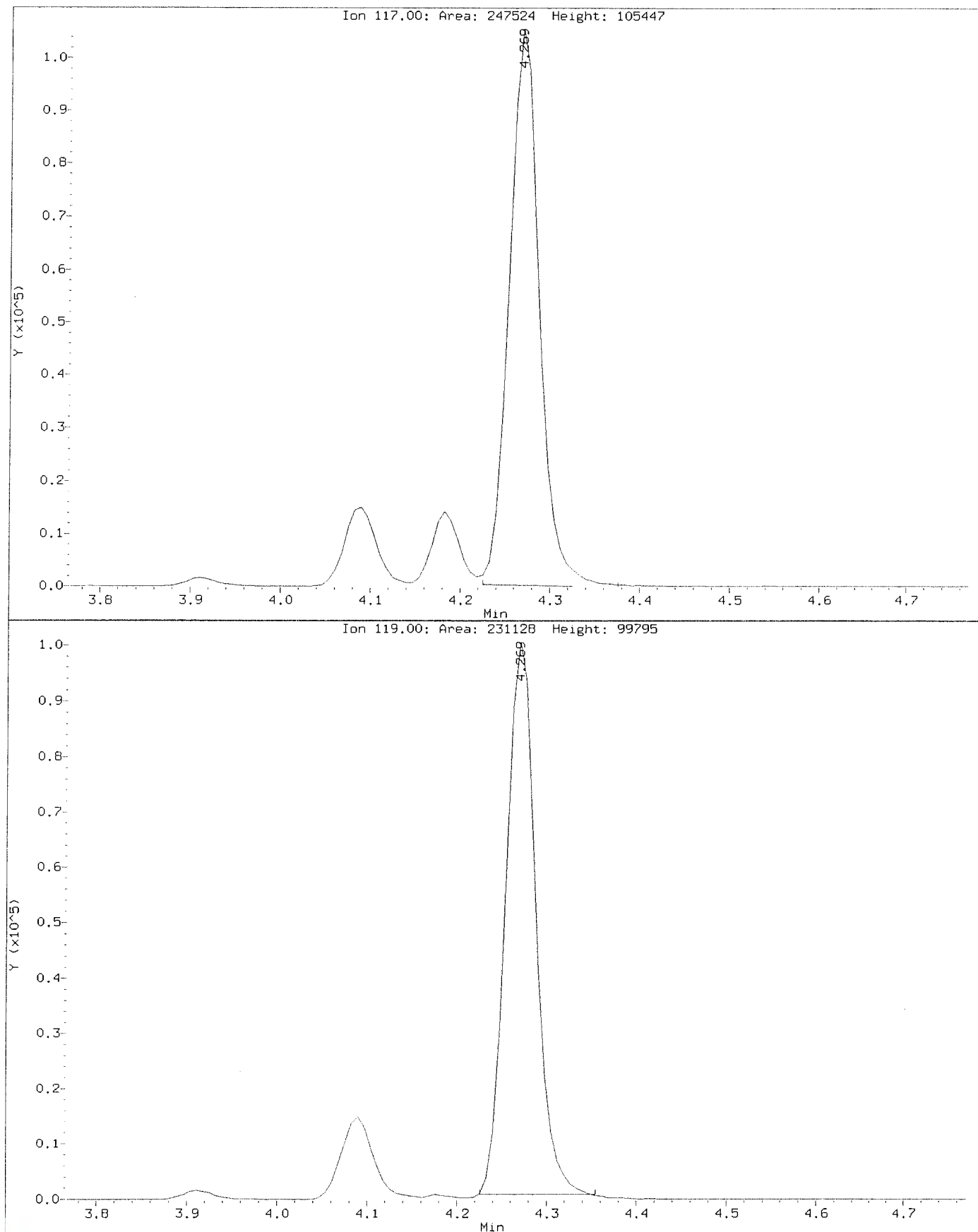
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Instrument: voa6.i
Client Sample ID: VSTD050

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D
Injection Date: 18-NOV-2019 16:35
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D
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 Operator : PC Inst ID: voa6.i
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 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 10 Calibration Sample, Level: 8
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

QUANT SIG							AMOUNTS	
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)	
=====	=====	=====	=====	=====	=====	=====	=====	
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	392699	50.0000		
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	554744	50.0000		
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	502006	50.0000		
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	278931	50.0000		
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	364646	100.000	97.98	
\$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	465570	100.000	99.26	
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	354918	100.000	99.03	
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1251601	100.000	94.62	
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	370675	100.000	101.77	
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	531073	100.000	100.24	
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	374065	100.000	95.36	
138 Freon TF	101	1.911	1.911	(0.457)	363001	100.000	106.17	
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	259169	100.000	98.76	
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	562516	100.000	98.44	
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	336639	100.000	101.15	
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	435155	100.000	97.24	
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	102660	100.000	99.24	
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	314678	100.000	94.68 (M)	
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	224252	100.000	95.44	
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	1360930	100.000	102.82	
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	42468	100.000	98.40	
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	348356	100.000	98.94	



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	740257	100.000	99.99
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	440676	100.000	100.06
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	322033	100.000	97.17
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1326043	100.000	104.41
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	793024	100.000	99.13
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	523367	100.000	98.23
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	805891	100.000	99.14
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	505741	100.000	97.52
24 2-Butanone	43	3.580	3.580	(0.856)	231090	200.000	191.78
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	1019206	100.000	101.56
52 2-Hexanone	43	7.090	7.090	(0.924)	404339	200.000	196.07
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	1244013	100.000	102.27
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	1420650	100.000	104.09
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	584699	200.000	198.78
10 Acetone	43	1.976	1.976	(0.473)	202207	200.000	202.71 (A)
37 Benzene	78	4.519	4.519	(0.909)	1259183	100.000	99.22
74 Bromobenzene	156	8.809	8.809	(0.911)	477901	100.000	98.58
29 Bromochloromethane	128	3.795	3.795	(0.908)	204995	100.000	96.36
39 Bromodichloromethane	83	5.729	5.729	(1.153)	453036	100.000	98.68
66 Bromoform	173	8.415	8.415	(1.097)	293256	100.000	97.14
6 Bromomethane	94	1.331	1.331	(0.318)	396733	100.000	104.04
19 Carbon Disulfide	76	2.069	2.069	(0.495)	1866170	200.000	206.12 (A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	490954	100.000	100.15 (H)
59 Chlorobenzene	112	7.699	7.699	(1.004)	969904	100.000	98.96
7 Chloroethane	64	1.396	1.396	(0.334)	244234	100.000	98.78
28 Chloroform	83	3.910	3.910	(0.935)	592217	100.000	93.11
3 Chloromethane	50	1.073	1.073	(0.257)	420936	100.000	98.51
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	373378	100.000	100.25
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	548280	100.000	101.34
55 Dibromochloromethane	129	7.176	7.176	(0.936)	387071	100.000	101.53
44 Dibromomethane	93	5.557	5.557	(1.118)	228649	100.000	97.50
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	359790	100.000	99.65
61 Ethylbenzene	106	7.799	7.799	(1.017)	511284	100.000	100.96
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	192455	100.000	99.01
67 Isopropylbenzene	105	8.566	8.566	(1.117)	1550450	100.000	103.37
62 m,p-Xylenes	106	7.907	7.907	(1.031)	1262031	200.000	206.53 (A)
17 Methylene Chloride	84	2.305	2.305	(0.551)	333987	100.000	94.05
87 n-Butylbenzene	91	9.999	9.999	(1.034)	1214189	100.000	106.90
73 n-Propylbenzene	91	8.917	8.917	(0.922)	1771664	100.000	102.75
92 Naphthalene	128	11.546	11.546	(1.194)	281768	100.000	93.49
63 o-Xylene	106	8.244	8.244	(1.075)	610719	100.000	101.26
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	1561099	100.000	104.22
64 Styrene	104	8.258	8.258	(1.077)	1077784	100.000	102.77
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	1121644	100.000	103.15
56 Tetrachloroethene	164	6.933	6.933	(0.904)	341567	100.000	96.83
50 Toluene	91	6.446	6.446	(0.840)	1413996	100.000	99.32
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	324394	100.000	100.39
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	504686	100.000	102.35
38 Trichloroethene	130	5.206	5.206	(1.048)	388311	100.000	100.09
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	647137	100.000	106.23
5 Vinyl Chloride	62	1.138	1.138	(0.272)	400884	100.000	100.16



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D Page 3
Report Date: 06-Dec-2019 19:56

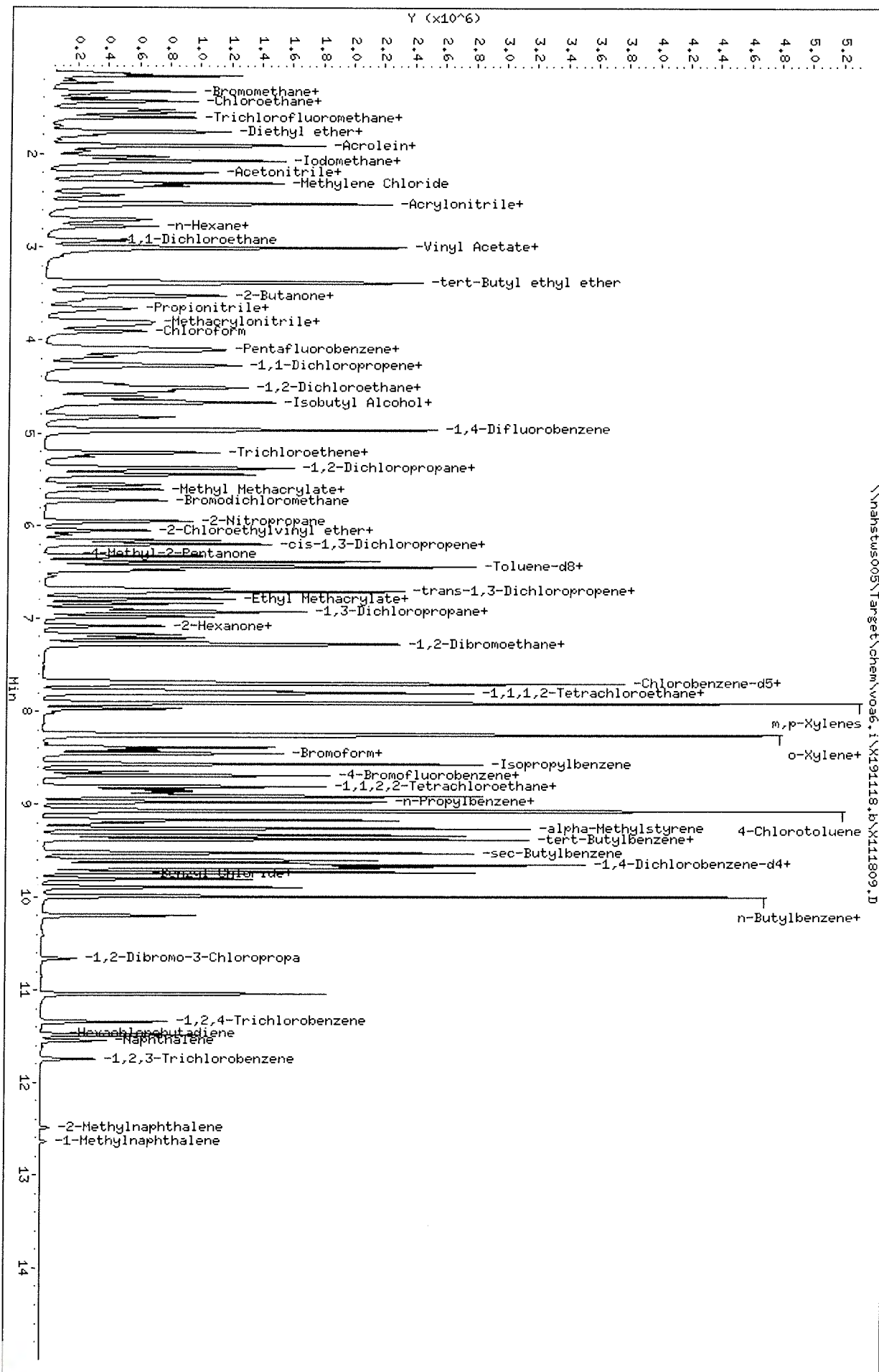
QC Flag Legend

- A - Target compound detected but, quantitated amount exceeded maximum amount.
- M - Compound response manually integrated.
- H - Operator selected an alternate compound hit.



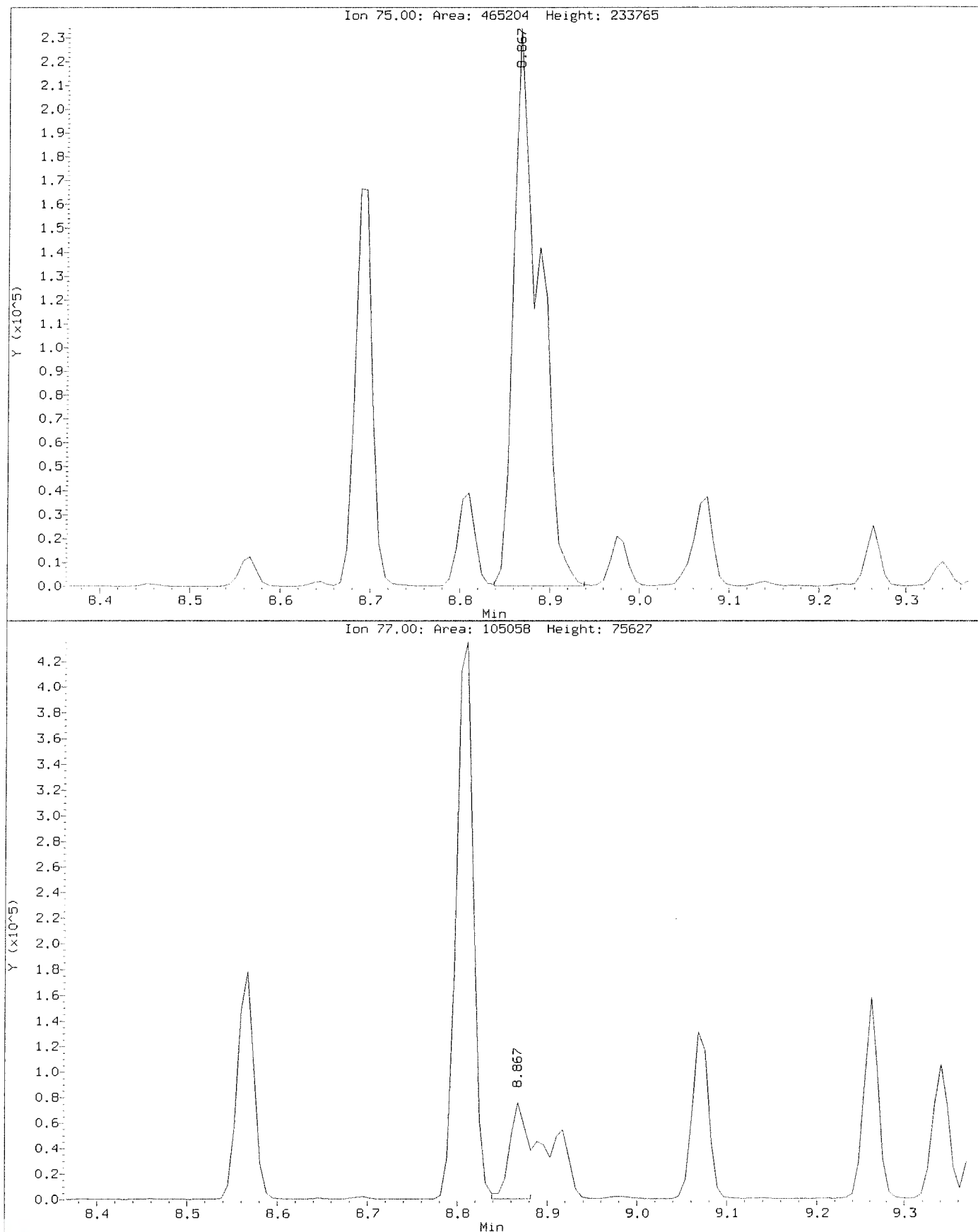
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 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



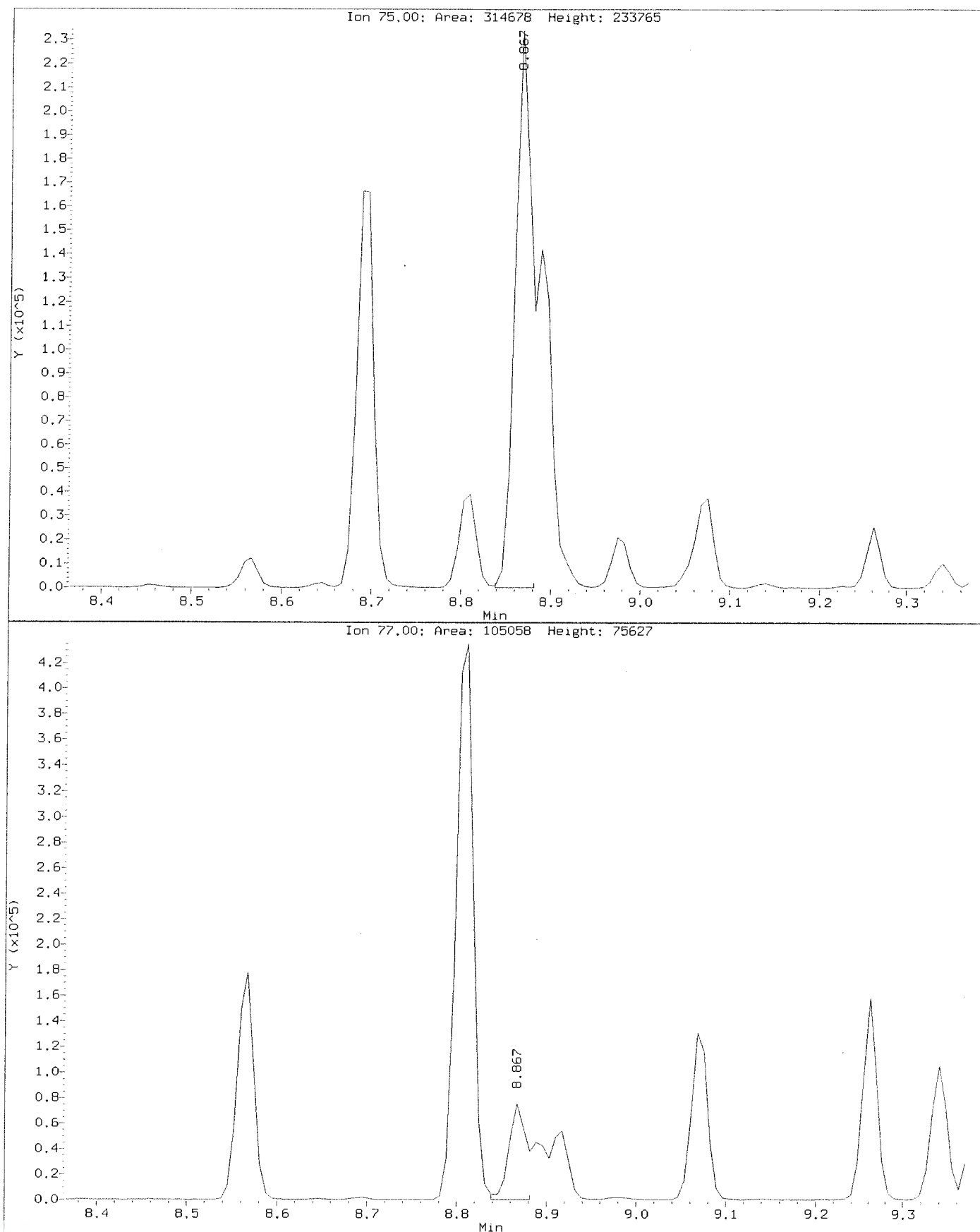
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Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



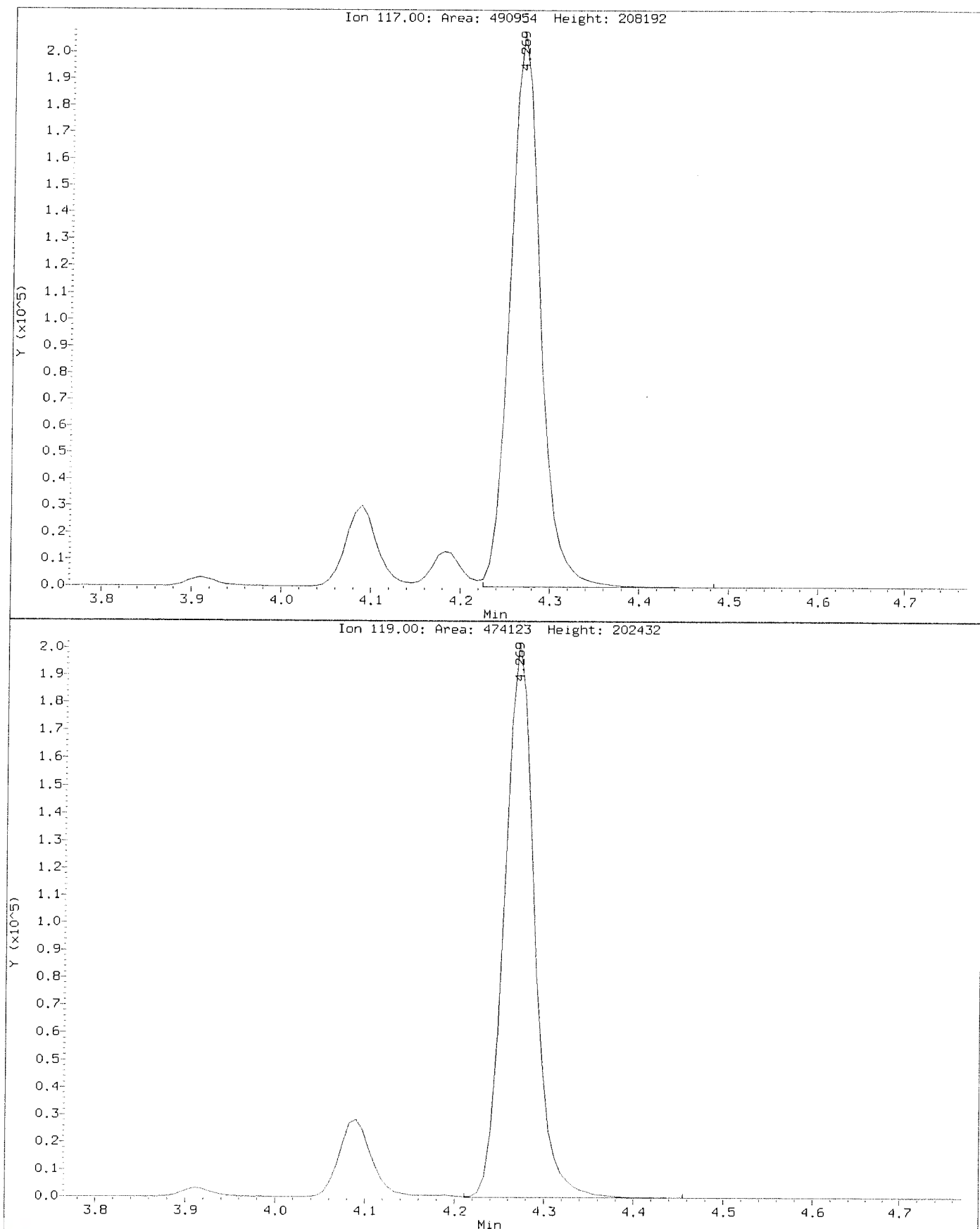
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Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



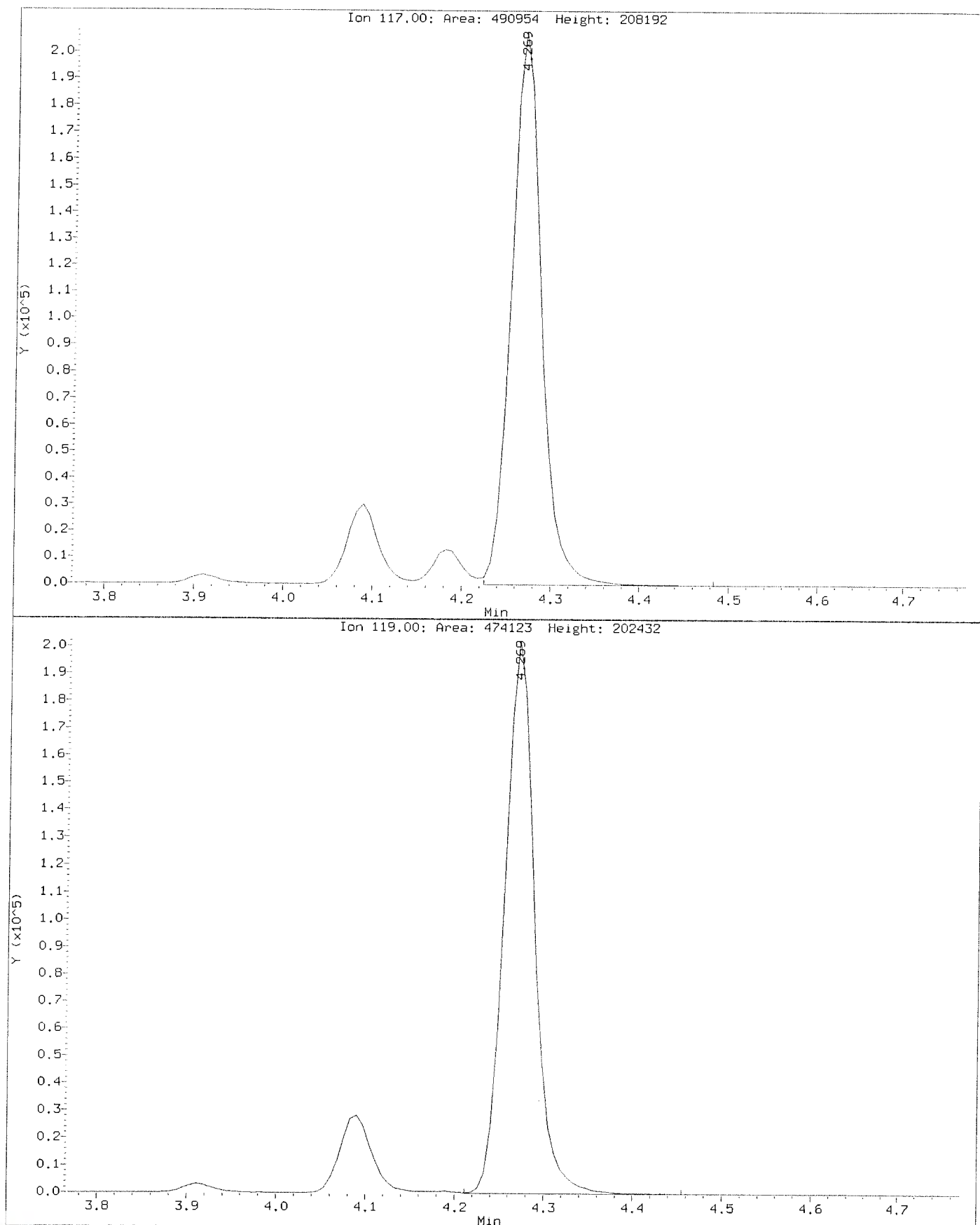
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Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.1\X191118.b\X111809.D
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.1
Client Sample ID: VSTD100

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D
 Lab Smp Id: VSTD150 Client Smp ID: VSTD150
 Inj Date : 18-NOV-2019 17:22
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD150;VSTD150;1;9;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:59 Cal File: X111809.D
 Als bottle: 11 Calibration Sample, Level: 9
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG						AMOUNTS	
		MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
*****	=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	378157	50.0000		
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	542191	50.0000		
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	494760	50.0000		
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	282310	50.0000		
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	532181	150.000	148.11	
\$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	688600	150.000	148.76	
\$ 30 Dibromofluoromethane	113	4.104	4.104	(0.981)	514854	150.000	148.99	
\$ 48 Toluene-d8	98	6.389	6.389	(0.833)	1815269	150.000	139.25	
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	548257	150.000	152.74	
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	768782	150.000	150.69	
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	560927	150.000	141.29	
138 Freon TF	101	1.912	1.912	(0.457)	513260	150.000	155.89	
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	380298	150.000	147.04	
22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	825788	150.000	150.08	
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	483391	150.000	150.83	
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	635821	150.000	145.37	
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	156391	150.000	148.93	
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	465353	150.000	138.34 (M)	
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	338737	150.000	142.44	
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	2030171	150.000	151.55	
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	65470	150.000	150.06	
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	518766	150.000	149.49	



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D Page 2

Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	1121580	150.000	149.69
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	645436	150.000	149.95
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	471959	150.000	145.71
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1980658	150.000	154.09
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1183710	150.000	146.20
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	763789	150.000	145.46
84 1,4-Dichlorobenzene	146	9.684	9.684	(1.001)	1195790	150.000	145.34
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	732900	150.000	146.75
24 2-Butanone	43	3.573	3.573	(0.854)	346972	300.000	299.02 (A)
76 2-Chlorotoluene	91	8.982	8.982	(0.929)	1513395	150.000	149.00
52 2-Hexanone	43	7.090	7.090	(0.924)	606144	300.000	298.23 (A)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	1867848	150.000	151.71
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	2100293	150.000	152.04
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	884349	300.000	305.06 (A)
10 Acetone	43	1.976	1.976	(0.473)	284604	300.000	298.06 (A)
37 Benzene	78	4.512	4.512	(0.908)	1843665	150.000	148.64
74 Bromobenzene	156	8.810	8.810	(0.911)	709083	150.000	144.52
29 Bromochloromethane	128	3.795	3.795	(0.908)	294445	150.000	143.73
39 Bromodichloromethane	83	5.730	5.730	(1.153)	669356	150.000	149.18
66 Bromoform	173	8.416	8.416	(1.097)	447981	150.000	150.02
6 Bromomethane	94	1.331	1.331	(0.318)	529714	150.000	145.16
19 Carbon Disulfide	76	2.069	2.069	(0.495)	2705391	300.000	310.30 (A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	707541	150.000	147.68 (H)
59 Chlorobenzene	112	7.699	7.699	(1.004)	1445648	150.000	149.66
7 Chloroethane	64	1.396	1.396	(0.334)	351927	150.000	147.81
28 Chloroform	83	3.910	3.910	(0.935)	863467	150.000	140.99
3 Chloromethane	50	1.074	1.074	(0.257)	613254	150.000	148.94
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	542390	150.000	151.24
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	808388	150.000	152.88
55 Dibromochloromethane	129	7.176	7.176	(0.936)	573494	150.000	152.63
44 Dibromomethane	93	5.558	5.558	(1.118)	338759	150.000	147.80
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	504807	150.000	144.79
61 Ethylbenzene	106	7.800	7.800	(1.017)	751250	150.000	150.52
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	279881	150.000	142.49
67 Isopropylbenzene	105	8.566	8.566	(1.117)	2283588	150.000	154.47
62 m,p-Xylenes	106	7.907	7.907	(1.031)	1861660	300.000	309.12 (A)
17 Methylene Chloride	84	2.306	2.306	(0.551)	485622	150.000	142.02
87 n-Butylbenzene	91	9.999	9.999	(1.034)	1823176	150.000	158.59
73 n-Propylbenzene	91	8.917	8.917	(0.922)	2616190	150.000	149.92
92 Naphthalene	128	11.546	11.546	(1.194)	435593	150.000	142.81
63 o-Xylene	106	8.244	8.244	(1.075)	906786	150.000	152.56
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	2308597	150.000	152.28
64 Styrene	104	8.258	8.258	(1.077)	1622659	150.000	156.99
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	1665732	150.000	151.35
56 Tetrachloroethene	164	6.933	6.933	(0.904)	493485	150.000	141.95
50 Toluene	91	6.446	6.446	(0.840)	2107838	150.000	150.23
20 trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	472385	150.000	151.82
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	741568	150.000	153.87
38 Trichloroethene	130	5.207	5.207	(1.048)	566006	150.000	149.27
8 Trichlorofluoromethane	101	1.553	1.553	(0.372)	922117	150.000	157.19
5 Vinyl Chloride	62	1.138	1.138	(0.272)	578026	150.000	149.97



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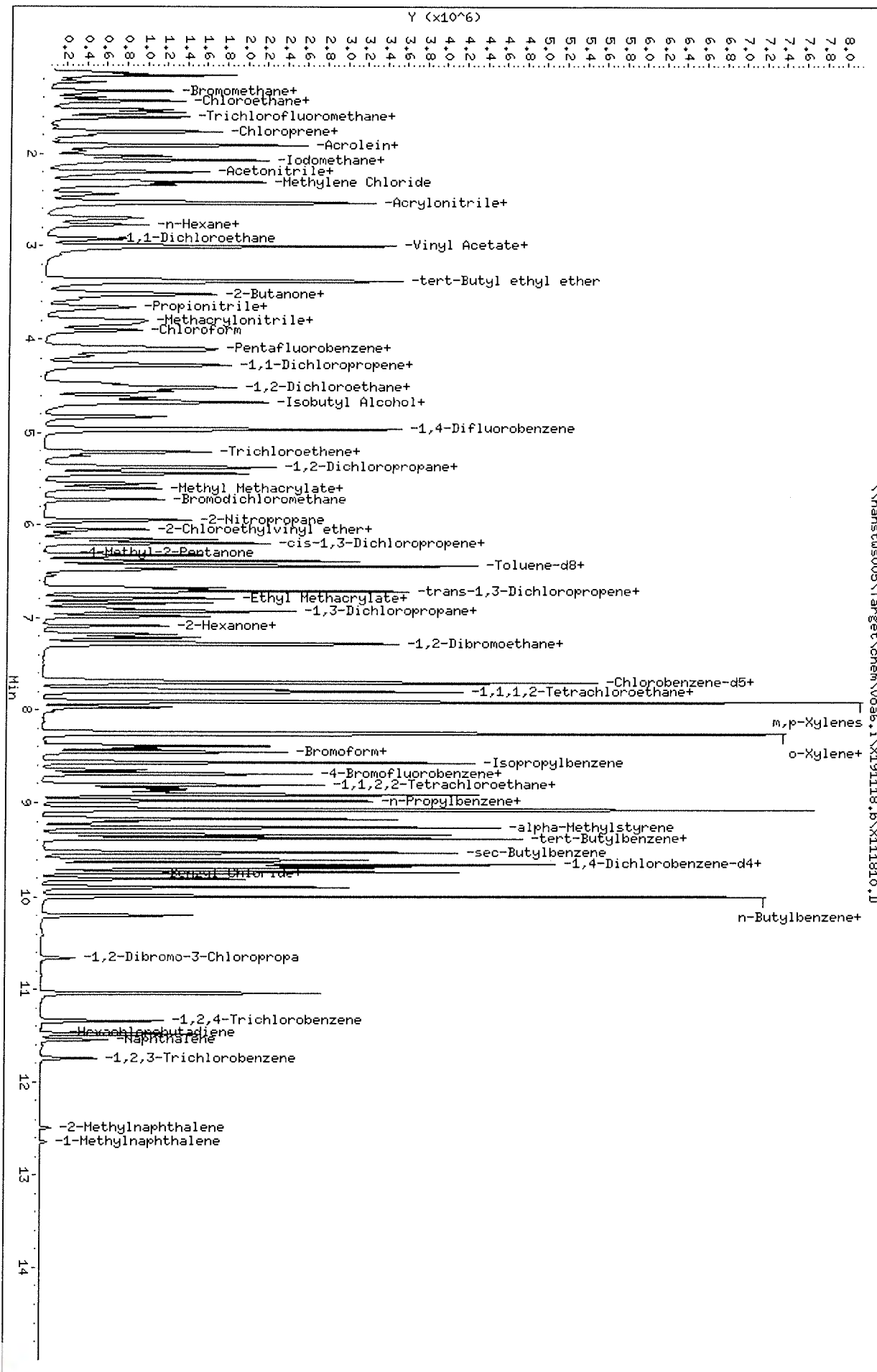
QC Flag Legend

- A - Target compound detected but, quantitated amount exceeded maximum amount.
- M - Compound response manually integrated.
- H - Operator selected an alternate compound hit.



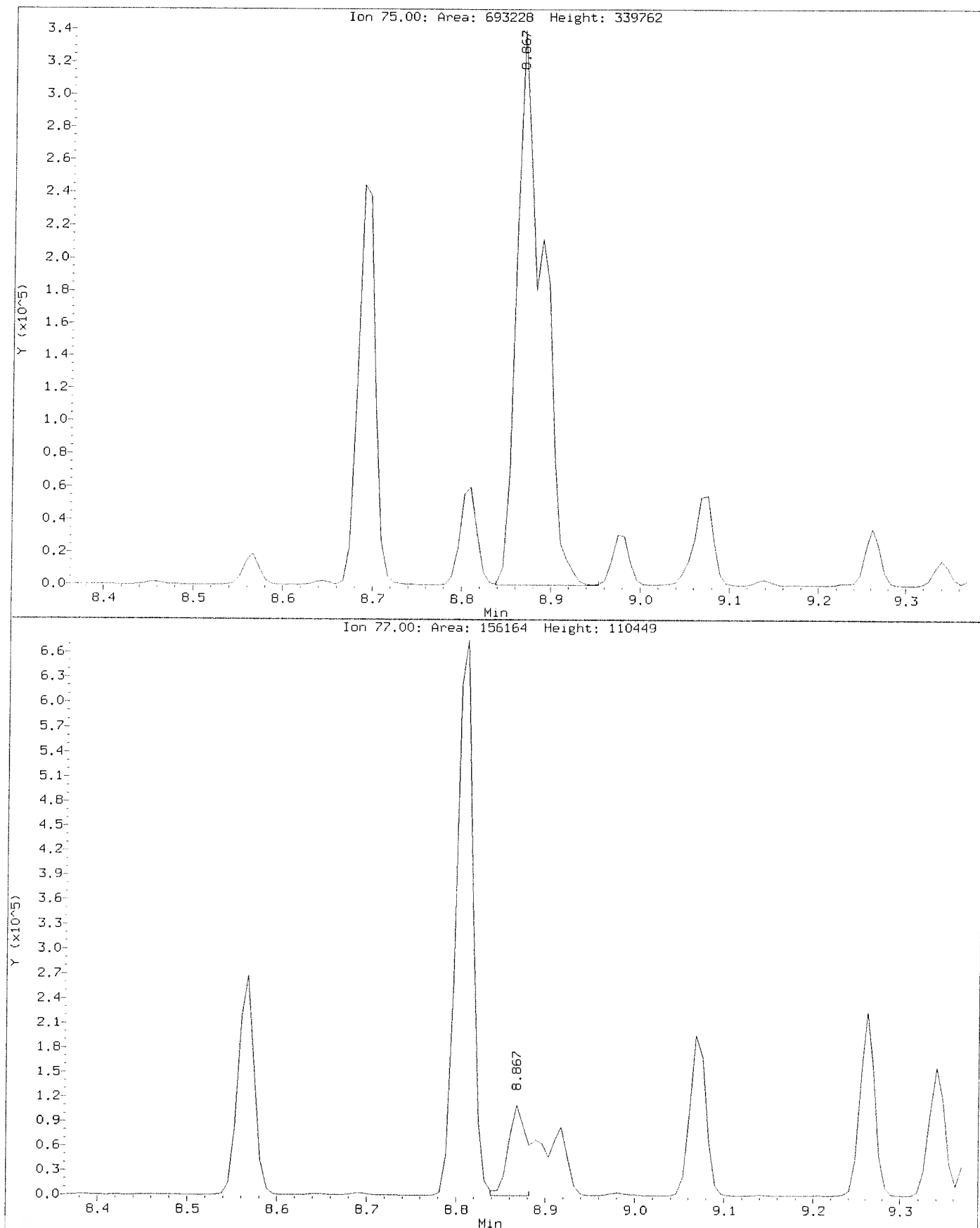
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 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



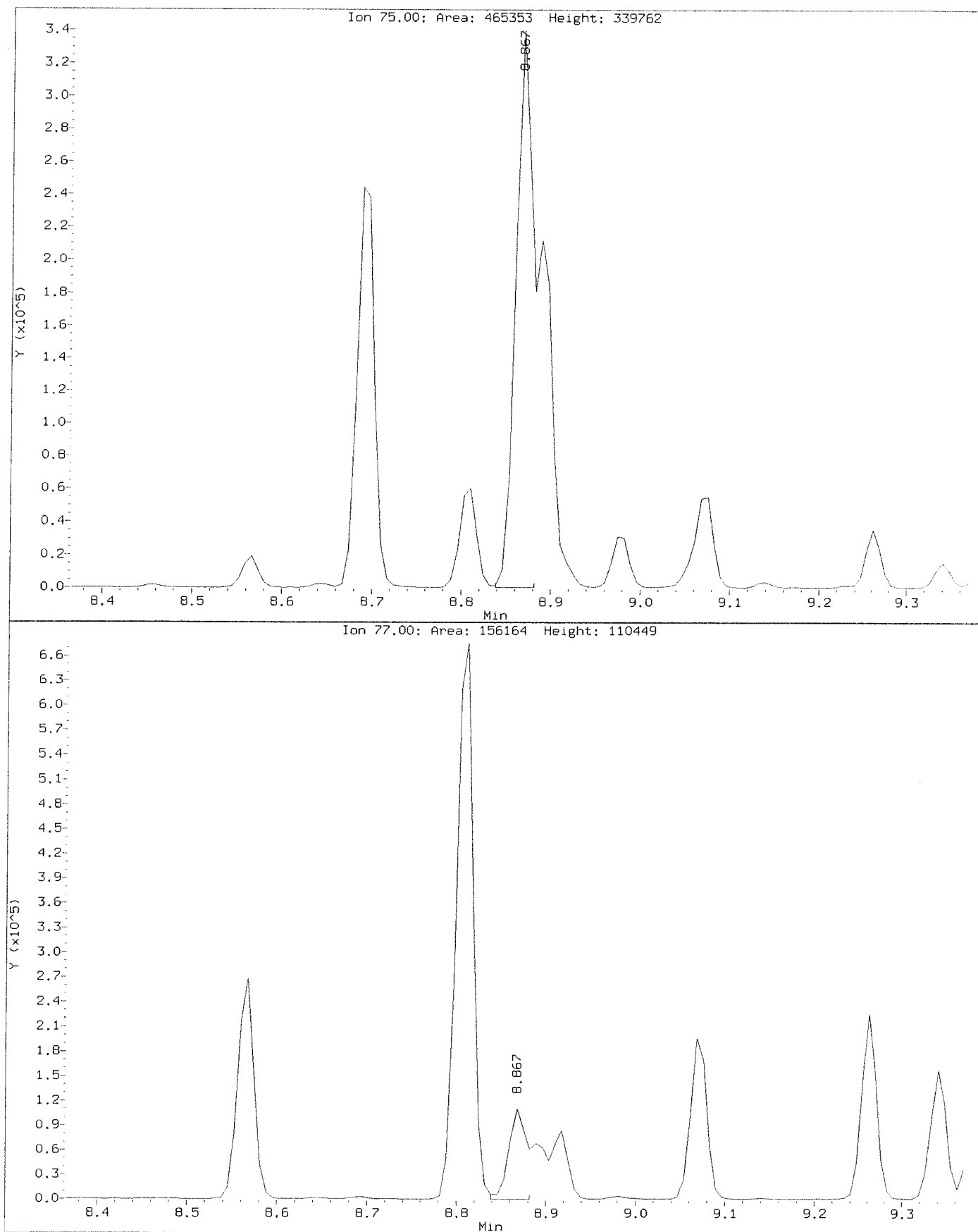
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Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



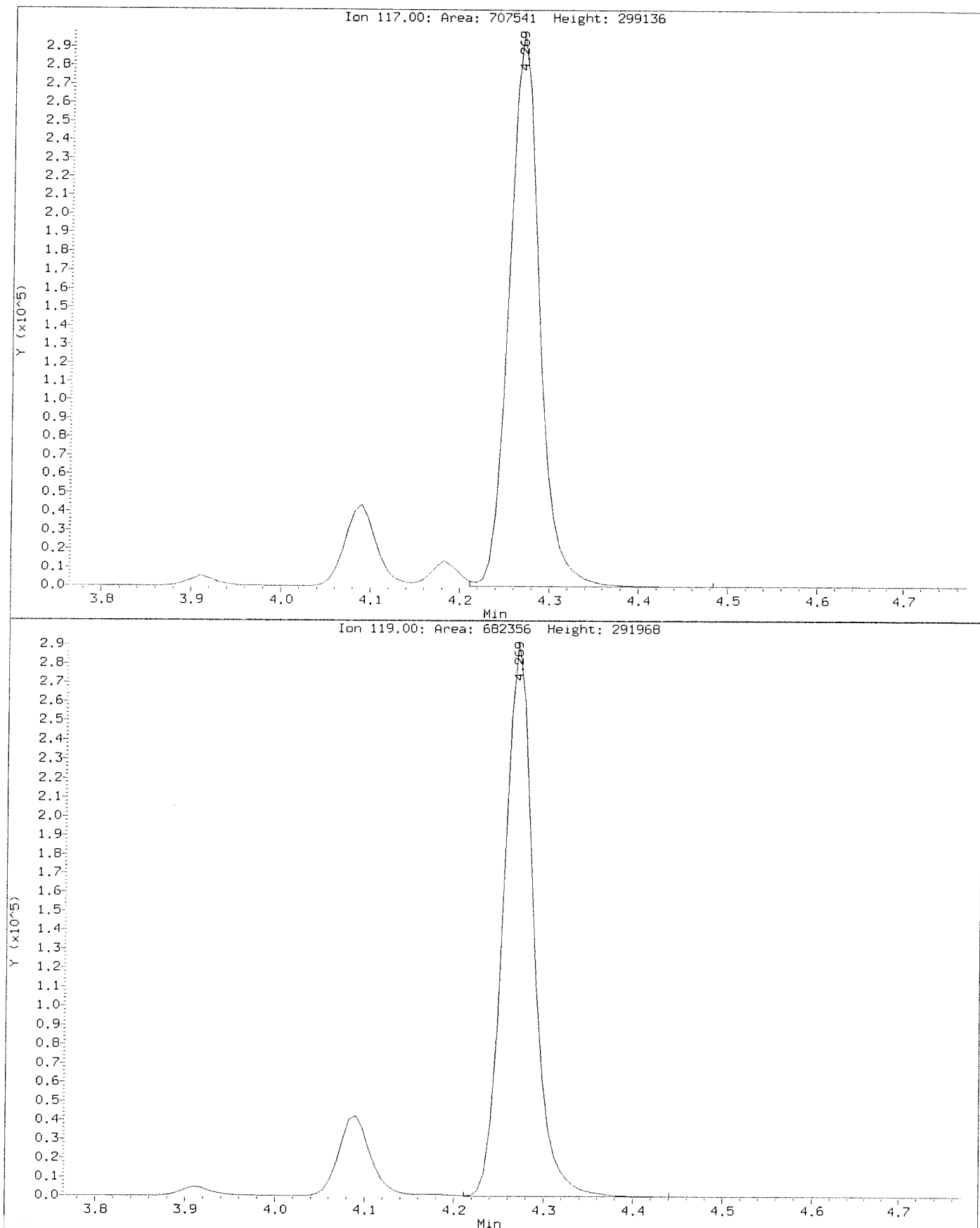
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Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



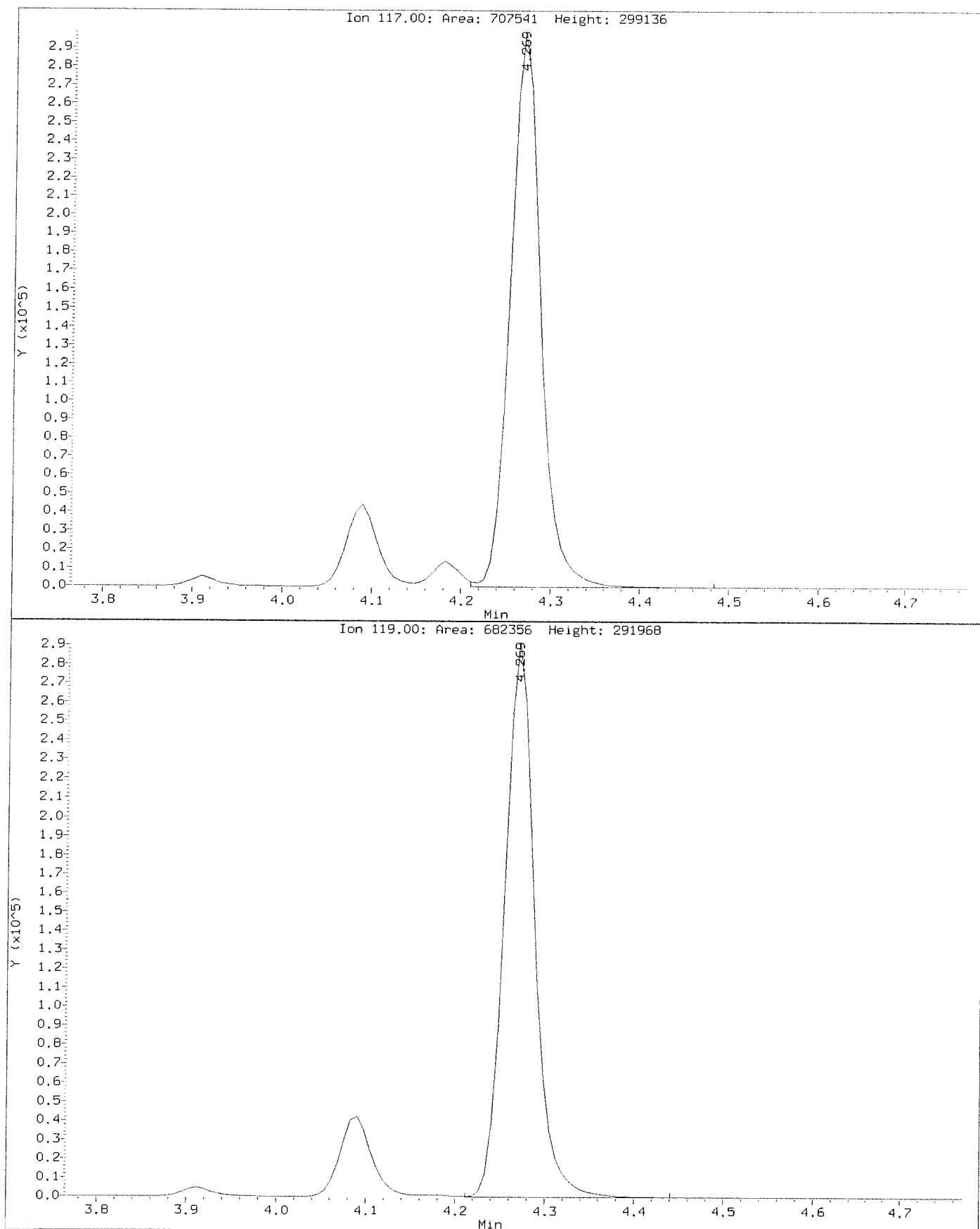
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Instrument: voa6.i
Client Sample ID: VSTD150

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X19111B.b\X111B10.D
Injection Date: 18-NOV-2019 17:22
Instrument: voa6.1
Client Sample ID: VSTD150

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D
 Lab Smp Id: VSTD200 Client Smp ID: VSTD200
 Inj Date : 18-NOV-2019 17:46
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD200;VSTD200;1;10;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 17:22 Cal File: X111810.D
 Als bottle: 12 Calibration Sample, Level: 10
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG						AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE		CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====		=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182 (1.000)		369517		50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970 (1.000)		542684		50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670 (1.000)		493817		50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669 (1.000)		280605		50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476 (1.070)		713282		200.000	202.89 (A)
\$ 69 4-Bromofluorobenzene	95	8.695	8.695 (1.134)		933083		200.000	201.81 (A)
\$ 30 Dibromofluoromethane	113	4.103	4.103 (0.981)		681300		200.000	201.64 (A)
\$ 48 Toluene-d8	98	6.388	6.388 (0.833)		2431773		200.000	186.90
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778 (1.014)		731912		200.000	204.29 (A)
31 1,1,1-Trichloroethane	97	4.089	4.089 (0.978)		1030058		200.000	206.62 (A)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845 (0.915)		742176		200.000	188.09
138 Freon TF	101	1.911	1.911 (0.457)		696977		200.000	216.65 (A)
53 1,1,2-Trichloroethane	83	6.847	6.847 (0.893)		511936		200.000	198.31
22 1,1-Dichloroethane	63	2.921	2.921 (0.699)		1089650		200.000	202.66 (A)
11 1,1-Dichloroethene	96	1.911	1.911 (0.457)		641291		200.000	204.78 (A)
32 1,1-Dichloropropene	75	4.282	4.282 (0.862)		849992		200.000	194.17
93 1,2,3-Trichlorobenzene	180	11.746	11.746 (1.215)		210414		200.000	200.64 (A)
71 1,2,3-Trichloropropane	75	8.867	8.867 (0.917)		609450		200.000	182.28 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338 (1.173)		455609		200.000	192.75
79 1,2,4-Trimethylbenzene	105	9.382	9.382 (0.970)		2745695		200.000	206.21 (A)
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657 (1.102)		86827		200.000	200.34 (A)
57 1,2-Dibromoethane	107	7.262	7.262 (0.947)		693307		200.000	200.18 (A)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS					AMOUNTS	
		RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	1508205	200.000	202.51 (A)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	865099	200.000	200.81 (A)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	629023	200.000	194.03
75 1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	2668415	200.000	208.86 (A)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1590132	200.000	197.60
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	1018788	200.000	194.39
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	1621999	200.000	198.35
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	972273	200.000	199.24
24 2-Butanone	43	3.580	3.580	(0.856)	437867	400.000	386.18 (A)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	2019887	200.000	200.07 (A)
52 2-Hexanone	43	7.090	7.090	(0.924)	806375	400.000	397.51 (A)
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	2525879	200.000	206.41 (A)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	2843849	200.000	207.12 (A)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	1178590	400.000	407.33 (A)
10 Acetone	43	1.976	1.976	(0.473)	372223	400.000	400.25 (A)
37 Benzene	78	4.512	4.512	(0.908)	2449808	200.000	197.34
74 Bromobenzene	156	8.809	8.809	(0.911)	958177	200.000	196.47
29 Bromochloromethane	128	3.795	3.795	(0.908)	376537	200.000	188.10
39 Bromodichloromethane	83	5.729	5.729	(1.153)	893499	200.000	198.95
66 Bromoform	173	8.415	8.415	(1.097)	602595	200.000	201.83 (A)
6 Bromomethane	94	1.331	1.331	(0.318)	631015	200.000	177.48 (M)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	3628864	400.000	425.96 (A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	954439	200.000	199.03 (H)
59 Chlorobenzene	112	7.699	7.699	(1.004)	1940751	200.000	201.30 (A)
7 Chloroethane	64	1.396	1.396	(0.334)	459143	200.000	197.35
28 Chloroform	83	3.910	3.910	(0.935)	1152726	200.000	192.62
3 Chloromethane	50	1.073	1.073	(0.257)	811388	200.000	201.60 (A)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	721487	200.000	205.88 (A)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1069987	200.000	202.17 (A)
55 Dibromochloromethane	129	7.183	7.183	(0.937)	764698	200.000	203.91 (A)
44 Dibromomethane	93	5.557	5.557	(1.118)	451528	200.000	196.82
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	695305	200.000	203.74 (A)
61 Ethylbenzene	106	7.807	7.807	(1.018)	1011964	200.000	203.15 (A)
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	373475	200.000	191.48
67 Isopropylbenzene	105	8.566	8.566	(1.117)	3082382	200.000	208.91 (A)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	2525960	400.000	420.22 (A)
17 Methylene Chloride	84	2.305	2.305	(0.551)	644942	200.000	193.02
87 n-Butylbenzene	91	9.998	9.998	(1.034)	2465783	200.000	215.80 (A)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	3540988	200.000	204.15 (A)
92 Naphthalene	128	11.546	11.546	(1.194)	574298	200.000	189.43
63 o-Xylene	106	8.244	8.244	(1.075)	1231007	200.000	207.50 (A)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	3131997	200.000	207.86 (A)
64 Styrene	104	8.265	8.265	(1.078)	2199171	200.000	213.18 (A)
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	2240944	200.000	204.85 (A)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	660581	200.000	190.38
50 Toluene	91	6.453	6.453	(0.841)	2834294	200.000	202.39 (A)
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	630988	200.000	207.54 (A)
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	1000892	200.000	207.50 (A)
38 Trichloroethene	130	5.206	5.206	(1.048)	754871	200.000	198.90
8 Trichlorofluoromethane	101	1.553	1.553	(0.371)	1241567	200.000	216.59 (A)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	773023	200.000	205.26 (A)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D Page 3
Report Date: 06-Dec-2019 19:56

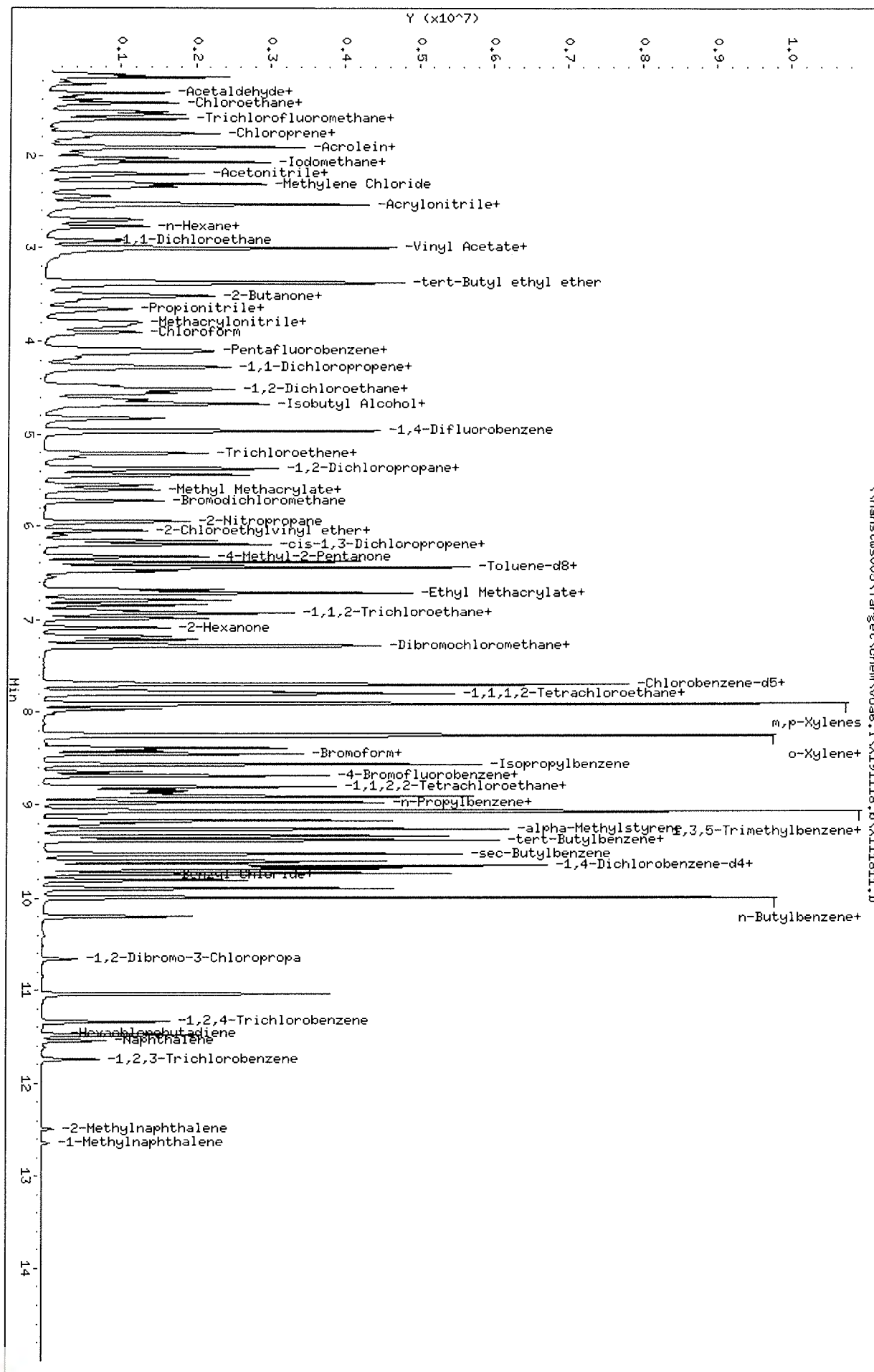
QC Flag Legend

- A - Target compound detected but, quantitated amount exceeded maximum amount.
- M - Compound response manually integrated.
- H - Operator selected an alternate compound hit.



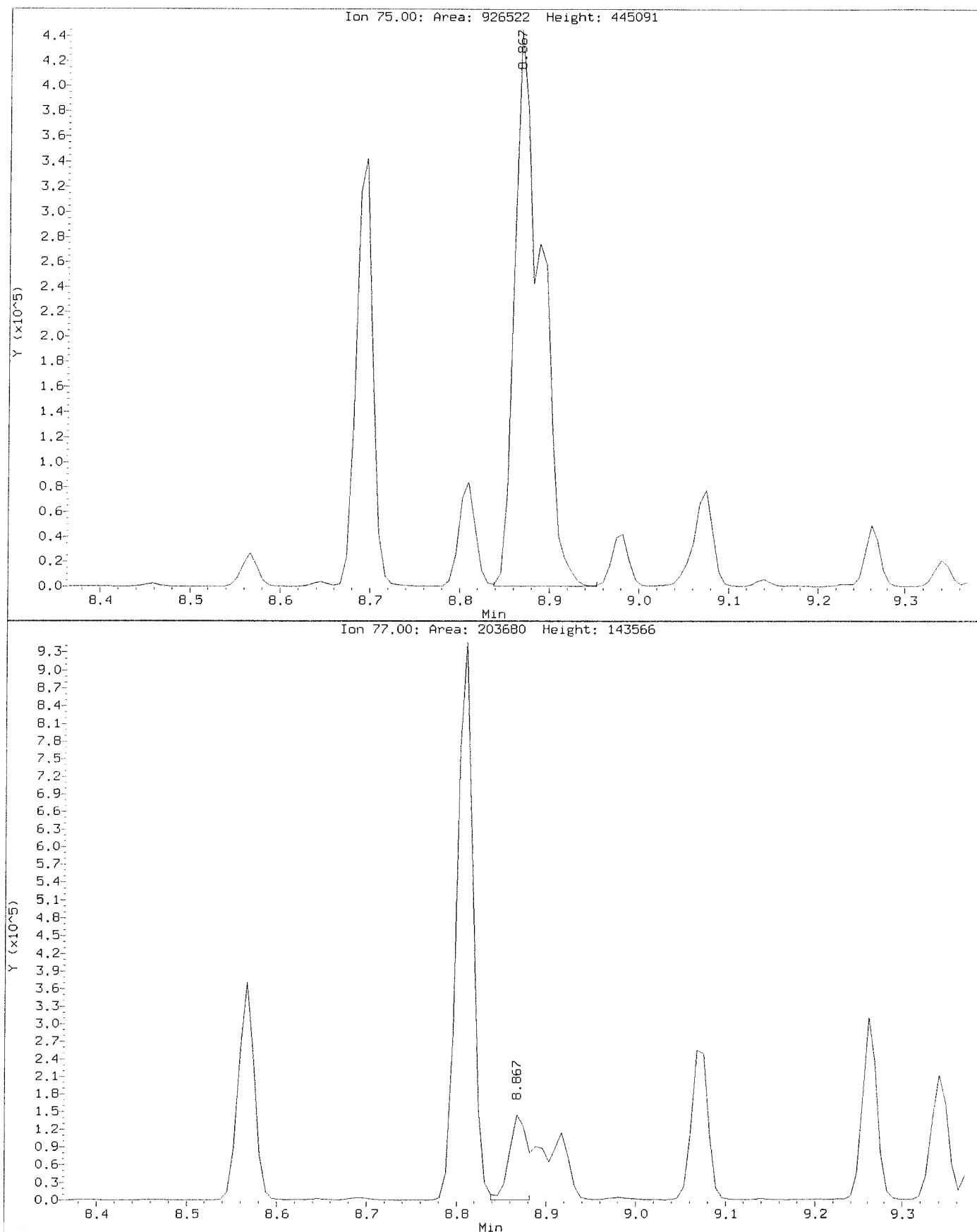
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 Date: 18-Nov-2019 17:46
 Client ID: VSTD200
 Sample Info: VSTD200;VSTD200;1;10;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



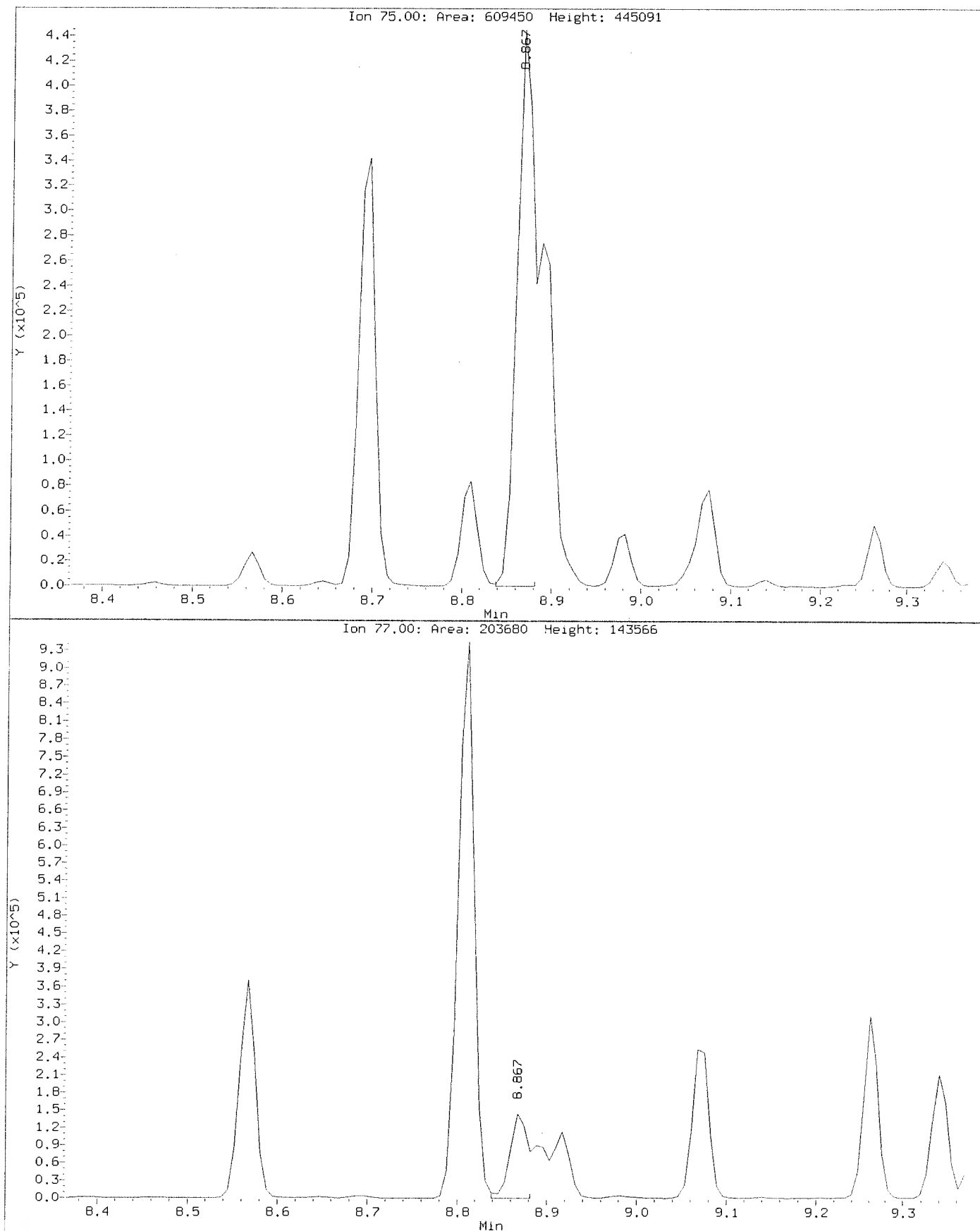
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Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



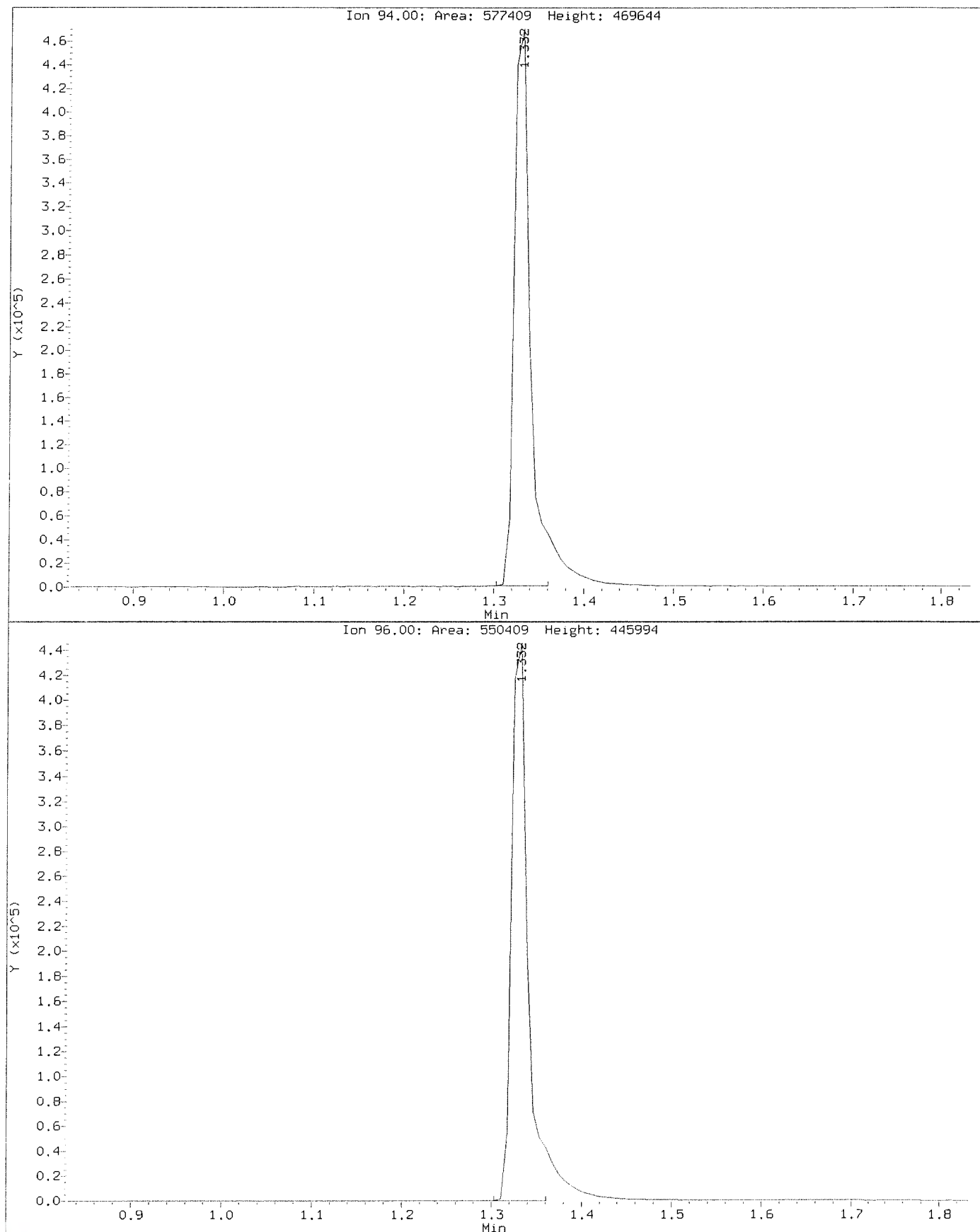
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Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



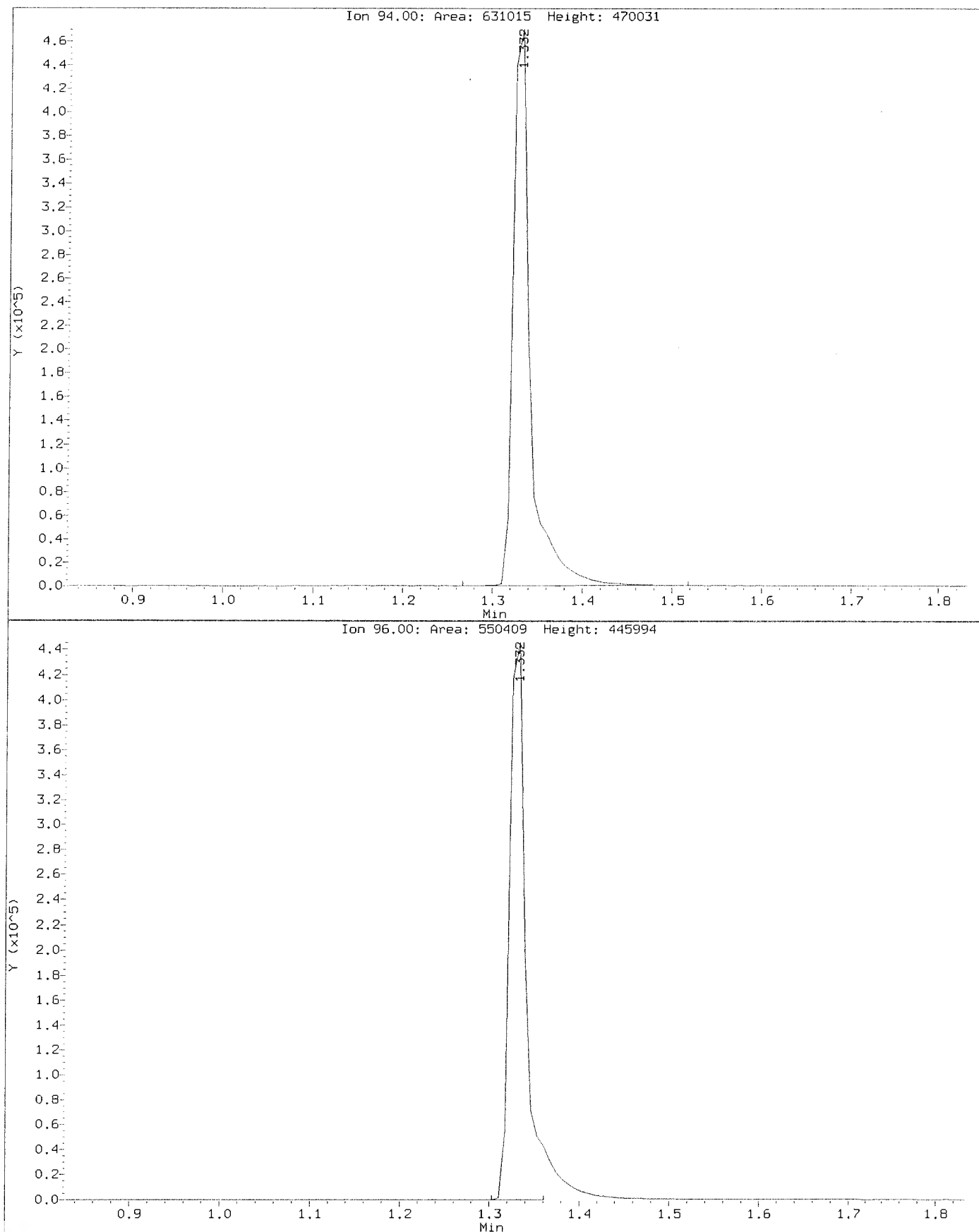
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Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Bromomethane
CAS Number: 74-83-9



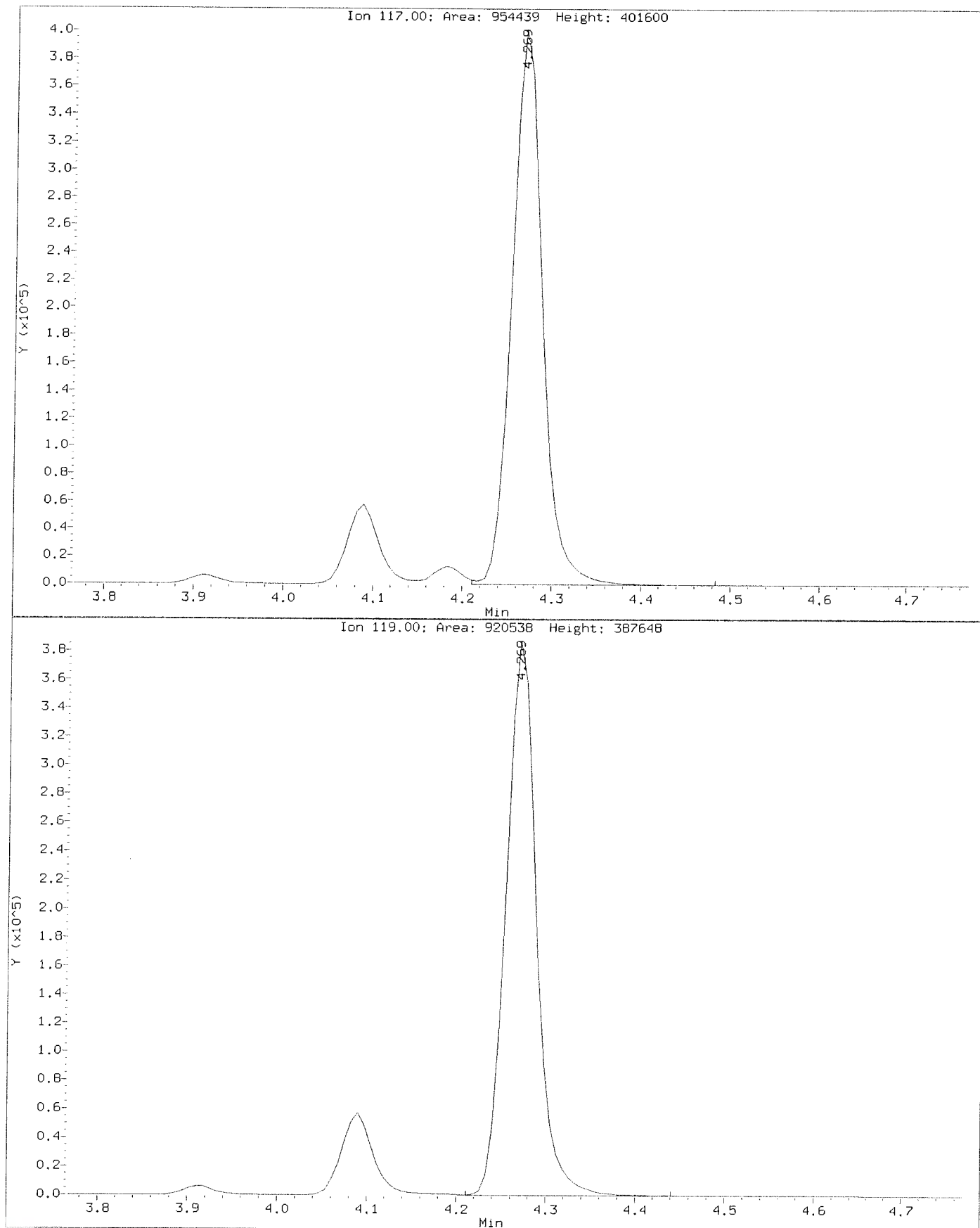
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Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Bromomethane
CAS Number: 74-83-9



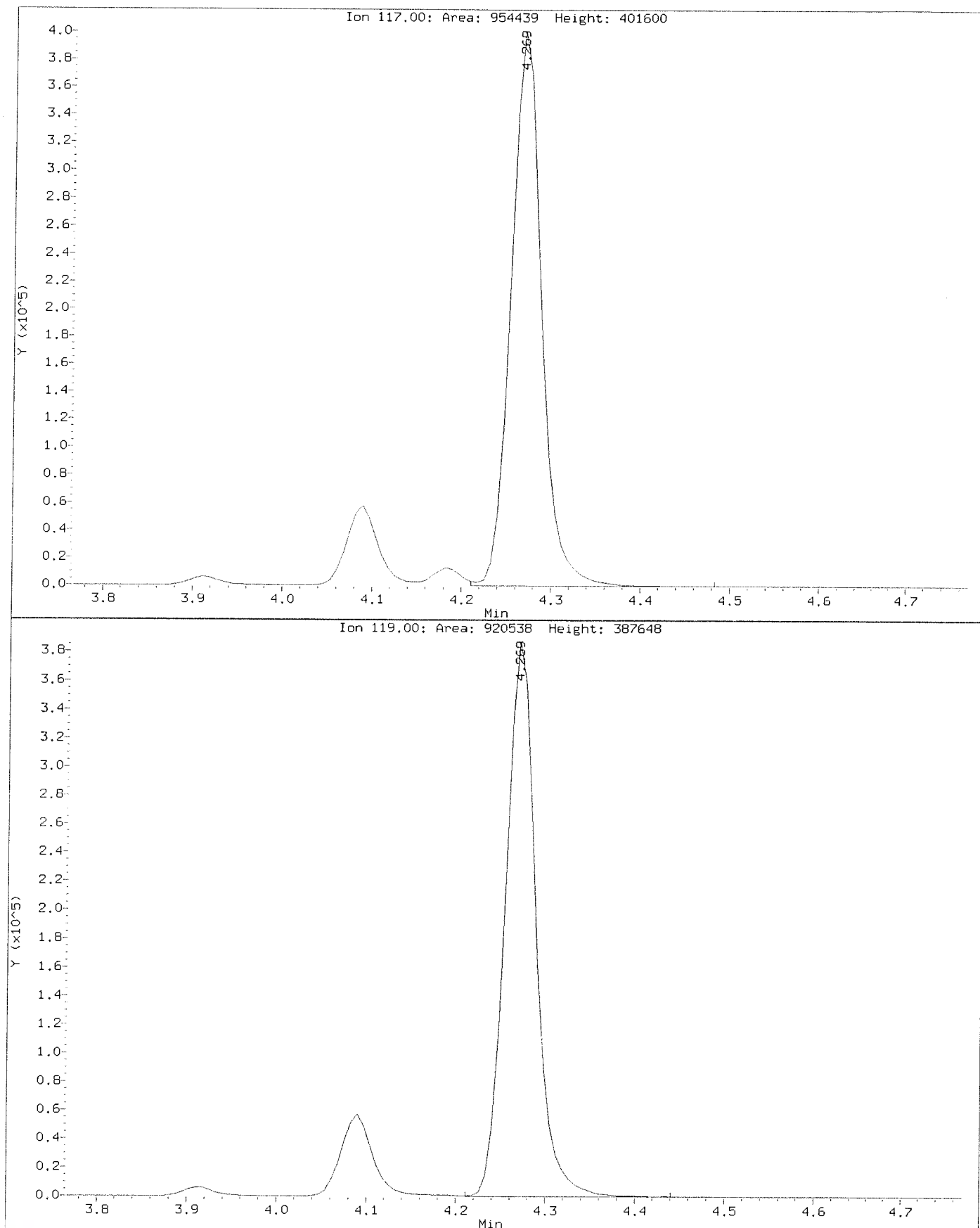
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Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D Page 1
 Report Date: 06-Dec-2019 19:56

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Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D
 Lab Smp Id: ICV Client Smp ID: ICV
 Inj Date : 18-NOV-2019 18:58
 Operator : PC Inst ID: voa6.i
 Smp Info : CCV;CCV;2;;ICV
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 17:46 Cal File: X111811.D
 Als bottle: 15 QC Sample: METHSPIKE
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

							CONCENTRATIONS	
QUANT SIG							ON- COLUMN	FINAL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)	
=====	=====	=====	=====	=====	=====	=====	=====	
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	365284	50.0000		
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	526230	50.0000		
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	487659	50.0000		
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	262170	50.0000		
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	177715	51.6875	51.68	
\$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	217553	47.9674	47.96	
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	172534	51.9307	51.93	
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	603087	46.9372	46.93	
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	181751	51.3728	51.37	
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	259914	52.7430	52.74	
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	183157	49.6822	49.68	
138 Freon TF	101	1.919	1.911	(0.459)	177448	55.7980	55.79	
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	125473	49.2205	49.22	
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	273555	51.4692	51.46	
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	164159	53.0287	53.02	
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	211745	49.8829	49.88	
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	56746	58.2884	58.28	
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	154338	49.4088	49.40 (M)	
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	122229	55.3465	55.34	
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	627033	50.4058	50.40	
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	20914	51.3981	51.39	
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	171012	50.0005	50.00	



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN (ug/l)	FINAL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	343886	49.4226	49.42
33 1,2-Dichloroethane	62	4.555	4.562	(0.916)	214666	51.3880	51.38
42 1,2-Dichloropropane	63	5.436	5.443	(1.094)	155619	49.5052	49.50
75 1,3,5-Trimethylbenzene	105	9.067	9.074	(0.938)	621241	52.0454	52.04
83 1,3-Dichlorobenzene	146	9.604	9.612	(0.993)	380305	50.5823	50.58
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	254579	49.1895	49.18
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	379206	49.6335	49.63
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	252567	52.3575	52.35
24 2-Butanone	43	3.573	3.580	(0.854)	117980	105.260	105.25
76 2-Chlorotoluene	91	8.974	8.981	(0.928)	475545	50.4166	50.41
52 2-Hexanone	43	7.090	7.090	(0.924)	192493	96.0902	96.09
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	578291	50.5814	50.58
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	664137	51.7722	51.77
45 4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	279109	97.6823	97.68
10 Acetone	43	1.969	1.976	(0.471)	104925	111.376	111.37
37 Benzene	78	4.512	4.512	(0.908)	612198	50.8565	50.85
74 Bromobenzene	156	8.809	8.809	(0.911)	233126	51.1647	51.16
29 Bromochloromethane	128	3.795	3.795	(0.908)	101596	51.3407	51.34
39 Bromodichloromethane	83	5.729	5.729	(1.153)	222106	51.0024	51.00
66 Bromoform	173	8.415	8.415	(1.097)	142491	49.0895	49.08
6 Bromomethane	94	1.338	1.331	(0.320)	208417	57.7314	57.73
19 Carbon Disulfide	76	2.069	2.069	(0.495)	924383	109.763	109.76
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	237498	51.0754	51.07
59 Chlorobenzene	112	7.699	7.699	(1.004)	468418	49.2009	49.20
7 Chloroethane	64	1.403	1.396	(0.336)	118785	51.6484	51.64
28 Chloroform	83	3.910	3.910	(0.935)	292027	49.3641	49.36
3 Chloromethane	50	1.073	1.073	(0.257)	200113	50.4397	50.43
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	184183	53.1686	53.16
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	267228	52.0716	52.07
55 Dibromochloromethane	129	7.176	7.183	(0.936)	184910	49.9303	49.93
44 Dibromomethane	93	5.557	5.557	(1.118)	112351	50.5059	50.50
2 Dichlorodifluoromethane	85	0.973	0.966	(0.233)	176572	52.9949	52.99
61 Ethylbenzene	106	7.799	7.807	(1.017)	247055	50.2234	50.22
91 Hexachlorobutadiene	225	11.481	11.488	(1.187)	113053	61.6918	61.69 (R)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	730633	50.1455	50.14
62 m,p-Xylenes	106	7.907	7.907	(1.031)	603641	101.692	101.69
17 Methylene Chloride	84	2.305	2.305	(0.551)	164000	49.6528	49.65
87 n-Butylbenzene	91	9.998	9.998	(1.034)	555875	52.0702	52.07
73 n-Propylbenzene	91	8.917	8.917	(0.922)	841108	51.9034	51.90
92 Naphthalene	128	11.546	11.546	(1.194)	144573	51.0408	51.04
63 o-Xylene	106	8.243	8.244	(1.075)	291303	49.7239	49.72
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	728868	51.7743	51.77
64 Styrene	104	8.258	8.265	(1.077)	512981	50.3548	50.35
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	525095	51.3776	51.37
56 Tetrachloroethene	164	6.933	6.933	(0.904)	169030	49.3314	49.33
50 Toluene	91	6.446	6.453	(0.840)	685240	49.5512	49.55
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	157233	52.3156	52.31
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	242451	51.8354	51.83
38 Trichloroethene	130	5.206	5.206	(1.048)	190582	51.7868	51.78
8 Trichlorofluoromethane	101	1.560	1.553	(0.373)	314898	55.5726	55.57
5 Vinyl Chloride	62	1.138	1.138	(0.272)	193522	51.9818	51.98



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D Page 3
Report Date: 06-Dec-2019 19:56

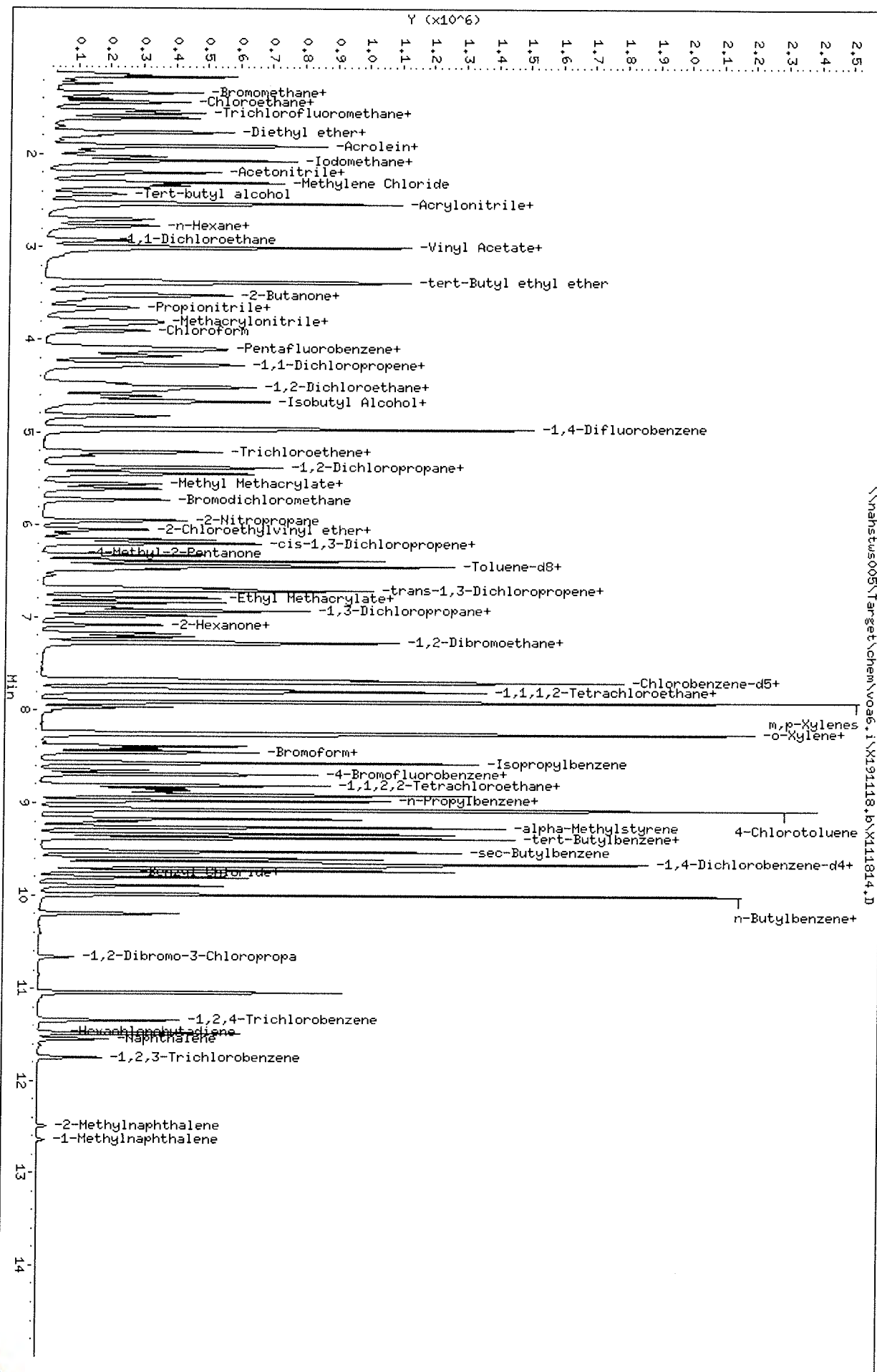
QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.



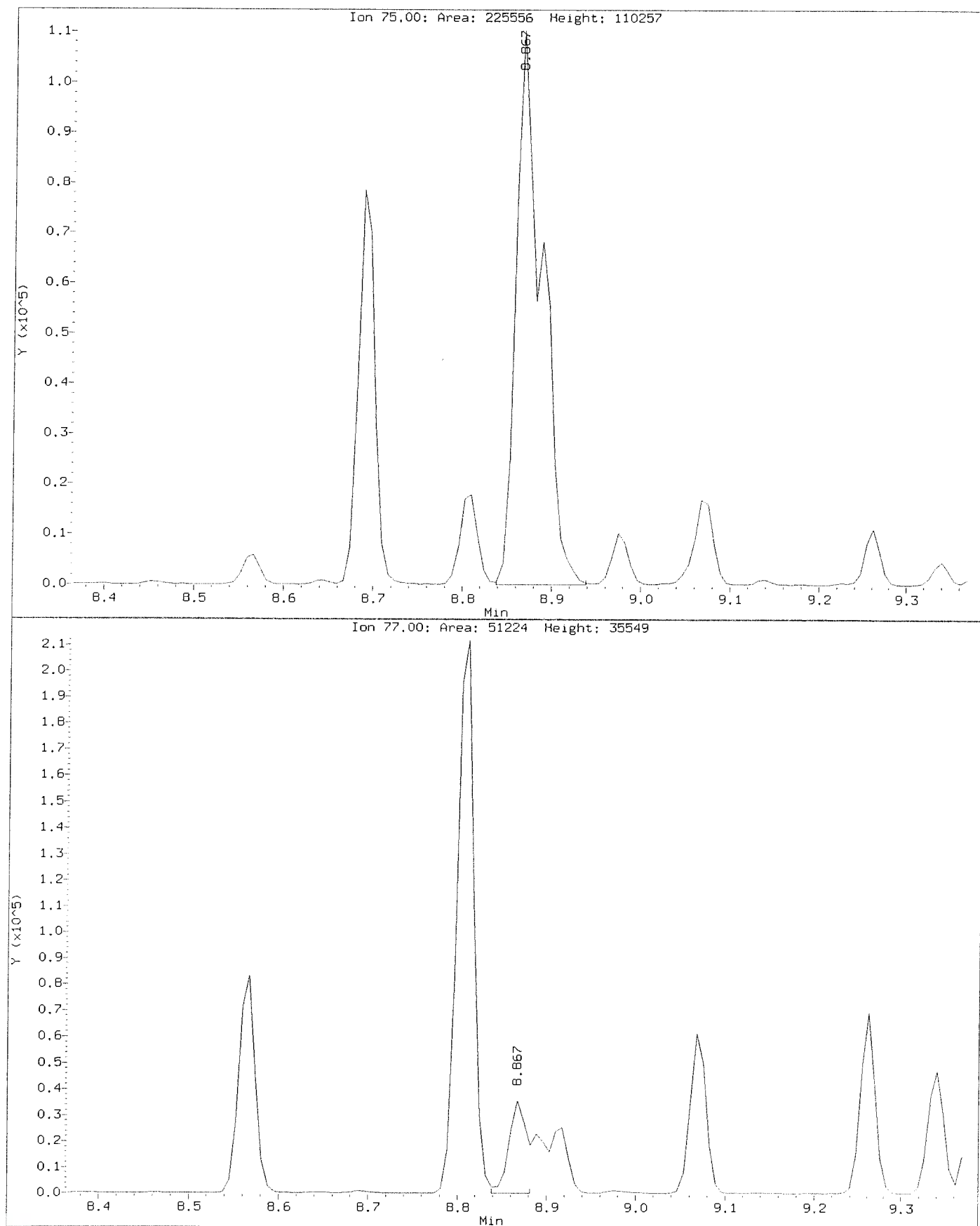
Data File: \\nahstus005\Target\chem\voa6.i\X191118.b\X111814.D
 Date : 18-NOV-2019 18:58
 Client ID: ICV
 Sample Info: CCV;CCV;2;ICV
 Purge Volume: 5.0
 Column Phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



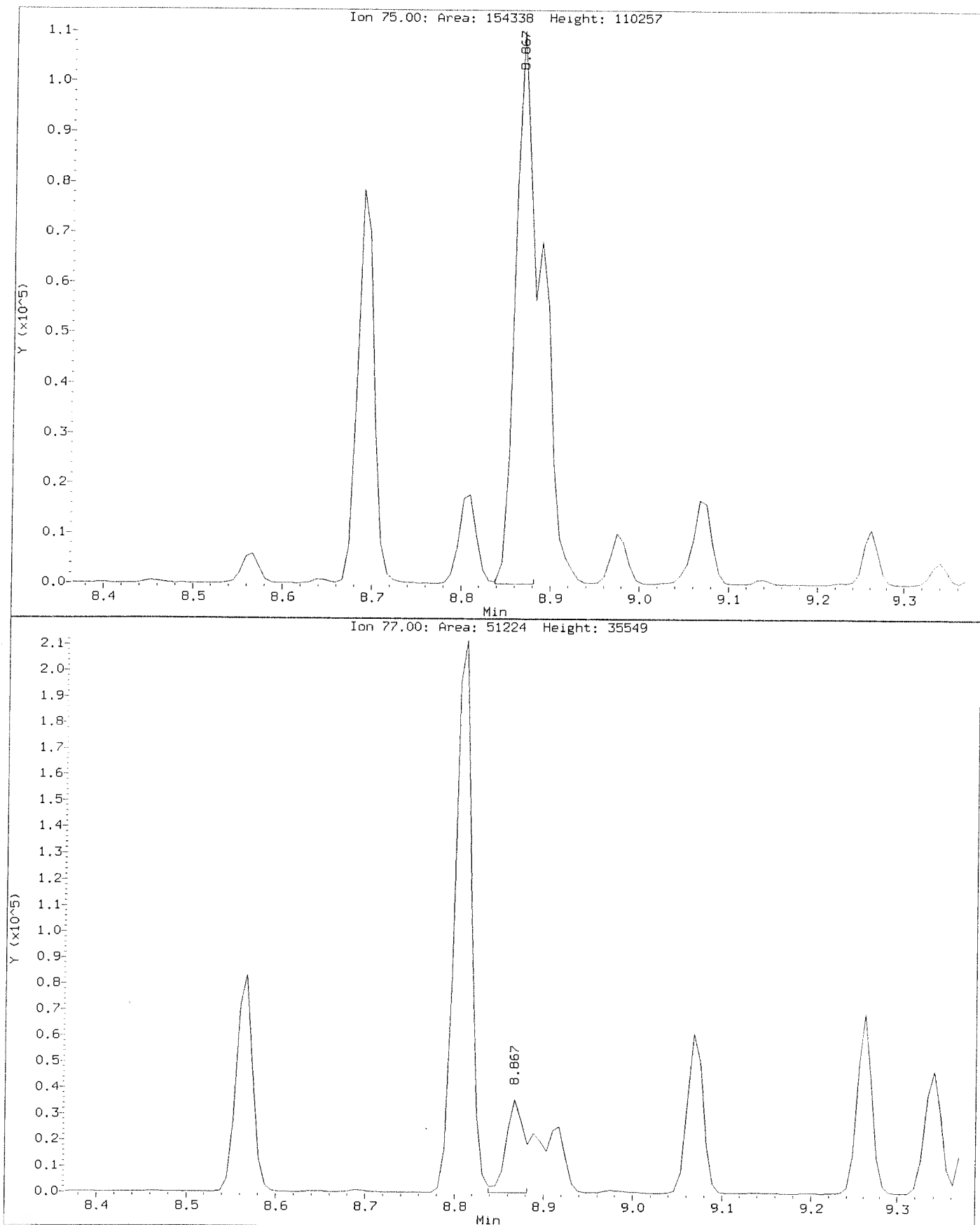
Data File: \\nahstws005\Target\chem\voa6.1\X191118.b\BEFORE\X111814.D
Injection Date: 18-NOV-2019 18:58
Instrument: voa6.1
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.1\X191118.b\X111814.D
Injection Date: 18-NOV-2019 18:58
Instrument: voa6.1
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



MSVOA06 -Logbook

Batch: 38384
 Date: 11-24-2019
 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	11-24-2019 12:12 pm	1.00	50 mL	50 mL	X112401.D	Liquid	Y	na
	<i>Auto find/ purged</i>									
2	CCV	CCV	11-24-2019 12:36 pm	1.00	50 mL	50 mL	X112402a.D	Liquid	Y	na
	<i>10 uL cal std/50 mL DI/not used</i>									
3	CCV	CCV	11-24-2019 01:00 pm	1.00	50 mL	50 mL	X112403.D	Liquid	Y	na
	<i>10 uL cal std/50 mL DI</i>									
4	CCB	SAMP	11-24-2019 01:24 pm	1.00	50 mL	50 mL	X112404.D	Liquid	Y	na
5	VLCSW-191124	LCS	11-24-2019 01:48 pm	1.00	50 mL	50 mL	X112405.D	Liquid	Y	na
	<i>4.0 uL cal std/50 mL DI</i>									
6	BLK	SAMP	11-24-2019 02:12 pm	1.00	50 mL	50 mL	X112406.D	Liquid	Y	na
7	VLKW-191124	MBLK	11-24-2019 02:36 pm	1.00	50 mL	50 mL	X112407.D	Liquid	Y	na
8	HS19111153-09	SAMP	11-24-2019 03:00 pm	1.00	50 mL	50 mL	X112408.D	Liquid	Y	>2
9	HS19111239-07	SAMP	11-24-2019 03:24 pm	1.00	50 mL	50 mL	X112409.D	Liquid	Y	>2
10	HS19111239-05	SAMP	11-24-2019 03:48 pm	1.00	50 mL	50 mL	X112410.D	Liquid	Y	>2
11	HS19111239-05MS	MS	11-24-2019 04:13 pm	1.00	50 mL	50 mL	X112411.D	Liquid	Y	>2
	<i>3.5 uL cal std/40 mL samp</i>									
12	HS19111239-05MSD	MSD	11-24-2019 04:37 pm	1.00	50 mL	50 mL	X112412.D	Liquid	Y	>2
	<i>3.5 uL cal std/40 mL samp</i>									
13	HS19111040-15	SAMP	11-24-2019 05:01 pm	1.00	50 mL	50 mL	X112413.D	Liquid	Y	>2
14	HS19111153-01	SAMP	11-24-2019 05:25 pm	1.00	50 mL	50 mL	X112414.D	Liquid	Y	>2
15	HS19111153-02	SAMP	11-24-2019 05:49 pm	1.00	50 mL	50 mL	X112415.D	Liquid	Y	>2
16	HS19111153-03	SAMP	11-24-2019 06:13 pm	1.00	50 mL	50 mL	X112416.D	Liquid	Y	>2
17	HS19111153-04	SAMP	11-24-2019 06:37 pm	1.00	50 mL	50 mL	X112417.D	Liquid	Y	>2
18	HS19111153-05	SAMP	11-24-2019 07:01 pm	1.00	50 mL	50 mL	X112418.D	Liquid	Y	>2
19	HS19111153-06	SAMP	11-24-2019 07:25 pm	1.00	50 mL	50 mL	X112419.D	Liquid	Y	>2
20	HS19111153-07	SAMP	11-24-2019 07:49 pm	1.00	50 mL	50 mL	X112420.D	Liquid	Y	>2
21	HS19111153-08	SAMP	11-24-2019 08:13 pm	1.00	50 mL	50 mL	X112421.D	Liquid	Y	>2
22	HS19111239-01	SAMP	11-24-2019 08:37 pm	1.00	50 mL	50 mL	X112422.D	Liquid	Y	>2
23	HS19111239-02	SAMP	11-24-2019 09:01 pm	1.00	50 mL	50 mL	X112423.D	Liquid	Y	>2
24	HS19111239-03	SAMP	11-24-2019 09:25 pm	1.00	50 mL	50 mL	X112424.D	Liquid	Y	>2
25	HS19111239-04	SAMP	11-24-2019 09:49 pm	1.00	50 mL	50 mL	X112425.D	Liquid	Y	>2
26	HS19111239-06	SAMP	11-24-2019 10:13 pm	1.00	50 mL	50 mL	X112426.D	Liquid	Y	>2
27	CCV-END	CCV	11-24-2019 10:37 pm	1.00	50 mL	50 mL	X112427.D	Liquid	Y	na
	<i>10 uL cal std/50 mL DI</i>									
28	HS19111042-15	SAMP	11-24-2019 11:01 pm	1.00	50 mL	50 mL	X112428.D	Liquid	Y	>2
29	HS19111193-01	SAMP	11-24-2019 11:25 pm	1.00	50 mL	50 mL	X112429.D	Liquid	Y	>2
30	HS19111193-04	SAMP	11-24-2019 11:50 pm	1.00	50 mL	50 mL	X112430.D	Liquid	Y	>2
31	BFB	TUNE	11-25-2019 12:13 am	1.00	50 mL	50 mL	Y112401.D	Liquid	Y	na
	<i>Auto find/ purged</i>									
32	CCV	CCV	11-25-2019 12:37 am	1.00	50 mL	50 mL	Y112402a.D	Liquid	Y	na
	<i>10 uL cal std/50 mL DI/not used</i>									
33	CCV	CCV	11-25-2019 01:01 am	1.00	50 mL	50 mL	Y112403.D	Liquid	Y	na
	<i>10 uL cal std/50 mL DI</i>									
34	CCB	SAMP	11-25-2019 01:25 am	1.00	50 mL	50 mL	Y112404.D	Liquid	Y	na
35	VLCSW-191124	LCS	11-25-2019 01:49 am	1.00	50 mL	50 mL	Y112405.D	Liquid	Y	na
	<i>4.0 uL cal std/50 mL DI</i>									



MSVOA06 -Logbook

#	<u>Samp ID</u>	<u>Type</u>	<u>Analyzed</u>	<u>DF</u>	<u>Init Wt/Vol</u>	<u>Final Vol</u>	<u>File ID</u>	<u>Matrix</u>	<u>Status</u>	<u>pH</u>
36	BLK	SAMP	11-25-2019 02:13 am	1.00	50 mL	50 mL	Y112406.D	Liquid	Y	na
37	VBLKW-191124	MBLK	11-25-2019 02:37 am	1.00	50 mL	50 mL	Y112407.D	Liquid	Y	na
38	HS19111226-01	SAMP	11-25-2019 03:01 am	1.00	50 mL	50 mL	Y112408.D	Liquid	Y	>2
39	HS19111226-01MS	MS	11-25-2019 03:25 am	1.00	50 mL	50 mL	Y112409.D	Liquid	Y	>2
	<i>3.5 uL cal std/40 mL samp</i>									
40	HS19111226-01MSD	MSD	11-25-2019 03:50 am	1.00	50 mL	50 mL	Y112410.D	Liquid	Y	>2
	<i>3.5 uL cal std/40 mL samp</i>									
41	HS19110933-03	SAMP	11-25-2019 04:16 am	5.00	10 mL	50 mL	Y112411.D	Liquid	Y	>2
42	HS19110933-12	SAMP	11-25-2019 04:43 am	5.00	10 mL	50 mL	Y112412.D	Liquid	Y	>2
43	HS19111140-02	SAMP	11-25-2019 05:07 am	1.00	50 mL	50 mL	Y112413.D	Liquid	Y	>2
44	HS19111194-14	SAMP	11-25-2019 05:31 am	1.00	50 mL	50 mL	Y112414.D	Liquid	Y	>2
45	HS19111194-20	SAMP	11-25-2019 05:55 am	1.00	50 mL	50 mL	Y112415.D	Liquid	Y	>2
46	HS19111194-21	SAMP	11-25-2019 06:19 am	1.00	50 mL	50 mL	Y112416.D	Liquid	Y	>2
47	HS19111194-22	SAMP	11-25-2019 06:43 am	1.00	50 mL	50 mL	Y112417.D	Liquid	Y	>2
48	HS19111194-23	SAMP	11-25-2019 07:07 am	1.00	50 mL	50 mL	Y112418.D	Liquid	Y	>2
49	HS19111229-07	SAMP	11-25-2019 07:31 am	1.00	50 mL	50 mL	Y112419.D	Liquid	Y	>2
50	HS19111229-08	SAMP	11-25-2019 07:55 am	1.00	50 mL	50 mL	Y112420.D	Liquid	Y	>2
51	HS19111228-05	SAMP	11-25-2019 08:19 am	1.00	50 mL	50 mL	Y112421.D	Liquid	Y	>2
52	HS19111228-06	SAMP	11-25-2019 08:43 am	1.00	50 mL	50 mL	Y112422.D	Liquid	Y	>2
53	HS19111233-11	SAMP	11-25-2019 09:07 am	1.00	50 mL	50 mL	Y112423.D	Liquid	Y	>2
54	HS19111237-25	SAMP	11-25-2019 09:31 am	1.00	50 mL	50 mL	Y112424.D	Liquid	Y	>2
55	HS19111238-17	SAMP	11-25-2019 09:55 am	1.00	50 mL	50 mL	Y112425.D	Liquid	Y	>2
56	MBLK-147908	MBLK	11-25-2019 10:20 am	20.00	2.5 mL	50 mL	Y112426.D	Liquid	Y	na
57	HS19111086-01	SAMP	11-25-2019 10:44 am	20.00	2.5 mL	50 mL	Y112427.D	Liquid	Y	na
58	HS19111092-01	SAMP	11-25-2019 11:08 am	20.00	2.5 mL	50 mL	Y112428.D	Liquid	Y	na
59	HS19111124-01	SAMP	11-25-2019 11:32 am	20.00	2.5 mL	50 mL	Y112429.D	Liquid	Y	na
60	HS19111145-01	SAMP	11-25-2019 11:56 am	20.00	2.5 mL	50 mL	Y112430.D	Liquid	Y	na

Chemical	Value
SURR SPK ID	31106-04-03
IS ID	31106-04-04
LCS/MS ID	30603-92-01
CAL STD ID	31106-04-01/02
BFB ID	31106-04-03
pH Paper	634-64-11



FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111153

	CLIENT SAMPLE NO.	SMC1 #	SMC2 #	SMC3 (TOL) #	OTHER (DCE) #	TOT OUT
01	VLCSW-19124	94	100	93	101	0
02	VBLKW-191124	91	96	98	92	0
03	HS19111153-09	94	96	97	93	0
04	HS19111153-01	94	96	96	93	0
05	HS19111153-02	93	96	98	92	0
06	HS19111153-03	92	96	98	93	0
07	HS19111153-04	93	96	97	92	0
08	HS19111153-05	94	98	98	94	0
09	HS19111153-06	93	97	98	93	0
10	HS19111153-07	95	98	98	94	0
11	HS19111153-08	92	96	96	93	0
12						
13						
14						
15						
16						
17						
18						
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22						
23						
24						
25						
26						
27						
28						

QC LIMITS

SMC1 = 4-Bromofluorobenzene (70-130)
 SMC2 = Dibromofluoromethane (70-130)
 SMC3 (TOL) = Toluene-d8 (0-130)
 OTHER(DCE) = 1,2-Dichloroethane-d4 (0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out



FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-191124

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111153

Lab File ID: X112407

Lab Sample ID: VBLKW-191124

Date Analyzed: 11/24/19

Time Analyzed: 1436

GC Column: DB624 ID: 0.18 (mm)

Heated Purge: (Y/N) N

Instrument ID: VOA6

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
	=====	=====	=====	=====
01	VLCSW-19124	VLCSW-191124	X112405	1348
02	HS19111153-0	HS19111153-09	X112408	1500
03	HS19111239-0	HS19111239-05M	X112411	1613
04	HS19111239-0	HS19111239-05M	X112412	1637
05	HS19111153-0	HS19111153-01	X112414	1725
06	HS19111153-0	HS19111153-02	X112415	1749
07	HS19111153-0	HS19111153-03	X112416	1813
08	HS19111153-0	HS19111153-04	X112417	1837
09	HS19111153-0	HS19111153-05	X112418	1901
10	HS19111153-0	HS19111153-06	X112419	1925
11	HS19111153-0	HS19111153-07	X112420	1949
12	HS19111153-0	HS19111153-08	X112421	2013
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:



FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111153

Lab File ID: X112401

BFB Injection Date: 11/24/19

Instrument ID: VOA6

BFB Injection Time: 1212

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	52.5
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.7 (0.9)1
174	Greater than 50.0% of mass 95	78.4
175	5.0 - 9.0% of mass 174	6.2 (7.9)1
176	95.0 - 101.0% of mass 174	75.4 (96.2)1
177	5.0 - 9.0% of mass 176	5.7 (7.5)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	CCV	CCV	X112403	11/24/19	1300
02	VLCSW-19124	VLCSW-191124	X112405	11/24/19	1348
03	VLKWK-191124	VLKWK-191124	X112407	11/24/19	1436
04	HS19111153-0	HS19111153-09	X112408	11/24/19	1500
05	HS19111239-0	HS19111239-05M	X112411	11/24/19	1613
06	HS19111239-0	HS19111239-05M	X112412	11/24/19	1637
07	HS19111153-0	HS19111153-01	X112414	11/24/19	1725
08	HS19111153-0	HS19111153-02	X112415	11/24/19	1749
09	HS19111153-0	HS19111153-03	X112416	11/24/19	1813
10	HS19111153-0	HS19111153-04	X112417	11/24/19	1837
11	HS19111153-0	HS19111153-05	X112418	11/24/19	1901
12	HS19111153-0	HS19111153-06	X112419	11/24/19	1925
13	HS19111153-0	HS19111153-07	X112420	11/24/19	1949
14	HS19111153-0	HS19111153-08	X112421	11/24/19	2013
15	CCV-END	CCV-END	X112427	11/24/19	2237
16					
17					
18					
19					
20					
21					
22					

page 1 of 1

FORM V VOA



FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111153

Instrument ID: VOA6

Calibration Date: 11/24/19 Time: 1300

Lab File ID: X112403

Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624

ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
=====	=====	=====	=====	=====	=====	=====	=====
cis-1,3-Dichloropropene	0.4880000	0.5368675	0.5368675	0.2	-10.01	20.00	AVRG
trans-1,3-Dichloropropene	0.4440000	0.4928203	0.4928203	0.1	-11.00	20.00	AVRG
1,3-Dichlorobenzene	1.4340000	1.5498848	1.5498848	0.6	-8.08	20.00	AVRG
2,2-Dichloropropane	0.6600000	0.7359097	0.7359097	0.1	-11.50	20.00	AVRG
1,1-Dichloropropene	0.4030000	0.4275042	0.4275042	0.1	-6.08	20.00	AVRG
Dibromomethane	0.2110000	0.2311425	0.2311425	0.1	-9.55	20.00	AVRG
1,2-Dibromoethane	0.3510000	0.3802645	0.3802645	0.1	-8.34	20.00	AVRG
trans-1,2-Dichloroethene	0.4110000	0.4705113	0.4705113	0.1	-14.48	20.00	AVRG
1,1,1,2-Tetrachloroethane	0.3630000	0.3931101	0.3931101	0.1	-8.29	20.00	AVRG
1,1,1-Trichloroethane	0.6740000	0.7622326	0.7622326	0.1	-13.09	20.00	AVRG
1,1,2,2-Tetrachloroethane	0.7030000	0.7508510	0.7508510	0.3	-6.81	20.00	AVRG
Toluene	1.4180000	1.5200719	1.5200719	0.4	-7.20	20.00	AVRG
1,1,2-Trichloroethane	0.2610000	0.2799293	0.2799293	0.1	-7.25	20.00	AVRG
1,1-Dichloroethane	0.7270000	0.8097068	0.8097068	0.2	-11.38	20.00	AVRG
1,1-Dichloroethene	0.4240000	0.4610694	0.4610694	0.1	-8.74	20.00	AVRG
Trichlorofluoromethane	0.7760000	0.8757357	0.8757357	0.1	-12.85	20.00	AVRG
1,2,3-Trichlorobenzene	59.869410	50.000000	0.2222731	0.1	-19.74	20.00	2RDR
Tetrachloroethene	0.3510000	0.3606409	0.3606409	0.2	-2.75	20.00	AVRG
1,2,4-Trichlorobenzene	0.4210000	0.4528376	0.4528376	0.2	-7.56	20.00	AVRG
1,2,4-Trimethylbenzene	2.3720000	2.6388075	2.6388075	0.1	-11.25	20.00	AVRG
tert-Butylbenzene	1.9490000	2.1474166	2.1474166	0.1	-10.18	20.00	AVRG
Trichloroethene	0.3500000	0.3847539	0.3847539	0.2	-9.93	20.00	AVRG
1,2-Dichlorobenzene	1.3270000	1.4427857	1.4427857	0.4	-8.72	20.00	AVRG
1,2-Dichloroethane	0.3970000	0.4237764	0.4237764	0.1	-6.74	20.00	AVRG
1,2-Dichloropropane	0.2990000	0.3163490	0.3163490	0.1	-5.80	20.00	AVRG
1,3,5-Trimethylbenzene	2.2760000	2.5219796	2.5219796	0.1	-10.81	20.00	AVRG
1,3-Dichloropropane	0.5310000	0.5564504	0.5564504	0.1	-4.79	20.00	AVRG
1,4-Dichlorobenzene	1.4570000	1.5941882	1.5941882	0.4	-9.42	20.00	AVRG
2-Butanone	0.1530000	0.1750049	0.1750049	0.1	-14.38	20.00	AVRG
2-Chlorotoluene	1.7990000	1.9918861	1.9918861	0.1	-10.72	20.00	AVRG
2-Hexanone	0.2050000	0.2180471	0.2180471	0.1	-6.36	20.00	AVRG
4-Chlorotoluene	2.1800000	2.3894810	2.3894810	0.1	-9.61	20.00	AVRG
Styrene	1.0440000	1.1795658	1.1795658	0.3	-12.98	20.00	AVRG
4-Methyl-2-Pentanone	0.2930000	0.3074384	0.3074384	0.1	-4.93	20.00	AVRG
Acetone	125.85768	100.00000	0.1616705	0.1	-25.86	20.00	LINR <-
Benzene	1.1440000	1.2581264	1.2581264	0.5	-9.98	20.00	AVRG
Bromobenzene	0.8690000	0.9114216	0.9114216	0.1	-4.88	20.00	AVRG
Bromochloromethane	0.2710000	0.2983961	0.2983961	0.1	-10.11	20.00	AVRG
Bromodichloromethane	0.4140000	0.4531664	0.4531664	0.2	-9.46	20.00	AVRG
Bromoform	54.348504	50.000000	0.3241467	0.1	-8.70	20.00	LINR
Bromomethane	56.851028	50.000000	0.5622019	0.1	-13.70	20.00	LINR
Carbon Disulfide	1.1530000	1.3274079	1.3274079	0.1	-15.13	20.00	AVRG

page 1 of 2

FORM VII VOA



FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911115

Instrument ID: VOA6

Calibration Date: 11/24/19

Time: 1300

Lab File ID: X112403

Init. Calib. Date(s): 11/18/19

11/18/19

Init. Calib. Times: 1347

1746

GC Column: DB624

ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	0.4420000	0.4671428	0.4671428	0.1	-5.69	20.00	AVRG
Chlorobenzene	0.9760000	1.0379305	1.0379305	0.5	-6.34	20.00	AVRG
Chloroethane	0.3150000	0.3259909	0.3259909	0.1	-3.49	20.00	AVRG
Chloroform	0.8100000	0.8785306	0.8785306	0.2	-8.46	20.00	AVRG
Chloromethane	40.392158	50.0000000	0.4382946	0.1	19.22	20.00	LINR
cis-1,2-Dichloroethene	0.4740000	0.5473069	0.5473069	0.1	-15.46	20.00	AVRG
Dibromochloromethane	0.3800000	0.4126384	0.4126384	0.1	-8.59	20.00	AVRG
Dichlorodifluoromethane	42.746658	50.0000000	0.3883239	0.1	14.51	20.00	LINR
Ethylbenzene	0.5040000	0.5465037	0.5465037	0.1	-8.43	20.00	AVRG
Hexachlorobutadiene	0.4020000	0.3683374	0.3683374	0.1	8.37	20.00	AVRG
Isopropylbenzene	1.4940000	1.6641173	1.6641173	0.1	-11.39	20.00	AVRG
m,p-Xylenes	0.6080000	0.6690744	0.6690744	0.1	-10.04	20.00	AVRG
Methylene Chloride	0.4520000	0.4842822	0.4842822	0.1	-7.14	20.00	AVRG
n-Butylbenzene	2.0360000	2.3328364	2.3328364	0.5	-14.58	20.00	AVRG
n-Propylbenzene	3.0900000	3.4157713	3.4157713	0.1	-10.54	20.00	AVRG
Naphthalene	0.5400000	0.5863405	0.5863405	0.2	-8.58	20.00	AVRG
o-Xylene	0.6000000	0.6481880	0.6481880	0.3	-8.03	20.00	AVRG
sec-Butylbenzene	2.6850000	2.9950522	2.9950522	0.1	-11.55	20.00	AVRG
Vinyl Chloride	0.5100000	0.4975844	0.4975844	0.1	2.43	20.00	AVRG
1,2,3-Trichloropropane	0.5960000	0.6191795	0.6191795	0.1	-3.89	20.00	AVRG
p-Isopropyltoluene	2.4460000	2.6809955	2.6809955	0.1	-9.61	20.00	AVRG
1,2-Dibromo-3-Chloropropane	55.230831	50.0000000	8.57e-002	0.05	-10.46	20.00	LINR
Freon TF	0.4350000	0.4941619	0.4941619	0.1	-13.60	20.00	AVRG
4-Bromofluorobenzene	51.614238	50.0000000	0.4803318	0.1	-3.23	20.00	LINR
Dibromofluoromethane	53.906503	50.0000000	0.4904270	0.1	-7.81	20.00	LINR
Toluene-d8	1.3170000	1.2341904	1.2341904	0.1	6.29	20.00	AVRG
1,2-Dichloroethane-d4	53.432466	50.0000000	0.5031742	0.1	-6.86	20.00	LINR



FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111153

Instrument ID: VOA6

Calibration Date: 11/24/19 Time: 2237

Lab File ID: X112427

Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624

ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
=====	=====	=====	=====	=====	=====	=====	=====
cis-1,3-Dichloropropene	0.4880000	0.4747030	0.4747030	0.2	2.72	50.00	AVRG
trans-1,3-Dichloropropene	0.4440000	0.4314600	0.4314600	0.1	2.82	50.00	AVRG
1,3-Dichlorobenzene	1.4340000	1.4186410	1.4186410	0.6	1.07	50.00	AVRG
2,2-Dichloropropane	0.6600000	0.5907701	0.5907701	0.1	10.49	50.00	AVRG
1,1-Dichloropropene	0.4030000	0.3824624	0.3824624	0.1	5.10	50.00	AVRG
Dibromomethane	0.2110000	0.2115844	0.2115844	0.1	-0.28	50.00	AVRG
1,2-Dibromoethane	0.3510000	0.3503197	0.3503197	0.1	0.19	50.00	AVRG
trans-1,2-Dichloroethene	0.4110000	0.4304146	0.4304146	0.1	-4.72	50.00	AVRG
1,1,1,2-Tetrachloroethane	0.3630000	0.3612077	0.3612077	0.1	0.49	50.00	AVRG
1,1,1-Trichloroethane	0.6740000	0.6966269	0.6966269	0.1	-3.36	50.00	AVRG
1,1,2,2-Tetrachloroethane	0.7030000	0.6885276	0.6885276	0.3	2.06	50.00	AVRG
Toluene	1.4180000	1.3847759	1.3847759	0.4	2.34	50.00	AVRG
1,1,2-Trichloroethane	0.2610000	0.2617036	0.2617036	0.1	-0.27	50.00	AVRG
1,1-Dichloroethane	0.7270000	0.7466630	0.7466630	0.2	-2.70	50.00	AVRG
1,1-Dichloroethene	0.4240000	0.4110590	0.4110590	0.1	3.05	50.00	AVRG
Trichlorofluoromethane	0.7760000	0.7612427	0.7612427	0.1	1.90	50.00	AVRG
1,2,3-Trichlorobenzene	42.666437	50.000000	0.1589983	0.1	14.67	50.00	2RDR
Tetrachloroethene	0.3510000	0.3299206	0.3299206	0.2	6.00	50.00	AVRG
1,2,4-Trichlorobenzene	0.4210000	0.3558336	0.3558336	0.2	15.48	50.00	AVRG
1,2,4-Trimethylbenzene	2.3720000	2.3771169	2.3771169	0.1	-0.22	50.00	AVRG
tert-Butylbenzene	1.9490000	1.9391360	1.9391360	0.1	0.51	50.00	AVRG
Trichloroethene	0.3500000	0.3483569	0.3483569	0.2	0.47	50.00	AVRG
1,2-Dichlorobenzene	1.3270000	1.3289706	1.3289706	0.4	-0.15	50.00	AVRG
1,2-Dichloroethane	0.3970000	0.3976601	0.3976601	0.1	-0.17	50.00	AVRG
1,2-Dichloropropane	0.2990000	0.2867487	0.2867487	0.1	4.10	50.00	AVRG
1,3,5-Trimethylbenzene	2.2760000	2.2615498	2.2615498	0.1	0.63	50.00	AVRG
1,3-Dichloropropane	0.5310000	0.5137352	0.5137352	0.1	3.25	50.00	AVRG
1,4-Dichlorobenzene	1.4570000	1.4425688	1.4425688	0.4	0.99	50.00	AVRG
2-Butanone	0.1530000	0.1509645	0.1509645	0.1	1.33	50.00	AVRG
2-Chlorotoluene	1.7990000	1.7964626	1.7964626	0.1	0.14	50.00	AVRG
2-Hexanone	0.2050000	0.1967670	0.1967670	0.1	4.02	50.00	AVRG
4-Chlorotoluene	2.1800000	2.1356226	2.1356226	0.1	2.04	50.00	AVRG
Styrene	1.0440000	1.0386862	1.0386862	0.3	0.51	50.00	AVRG
4-Methyl-2-Pentanone	0.2930000	0.2903661	0.2903661	0.1	0.90	50.00	AVRG
Acetone	90.980196	100.00000	0.1182013	0.1	9.02	50.00	LINR
Benzene	1.1440000	1.1502871	1.1502871	0.5	-0.55	50.00	AVRG
Bromobenzene	0.8690000	0.8651221	0.8651221	0.1	0.45	50.00	AVRG
Bromochloromethane	0.2710000	0.2794833	0.2794833	0.1	-3.13	50.00	AVRG
Bromodichloromethane	0.4140000	0.4116628	0.4116628	0.2	0.56	50.00	AVRG
Bromoform	48.626831	50.00000	0.2893826	0.1	2.75	50.00	LINR
Bromomethane	52.683904	50.00000	0.5226341	0.1	-5.37	50.00	LINR
Carbon Disulfide	1.1530000	1.1979251	1.1979251	0.1	-3.90	50.00	AVRG



FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911115

Instrument ID: VOA6

Calibration Date: 11/24/19

Time: 2237

Lab File ID: X112427

Init. Calib. Date(s): 11/18/19

11/18/19

Init. Calib. Times: 1347

1746

GC Column: DB624

ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
=====	=====	=====	=====	=====	=====	=====	=====
Carbon Tetrachloride	0.4420000	0.4195907	0.4195907	0.1	5.07	50.00	AVRG
Chlorobenzene	0.9760000	0.9474375	0.9474375	0.5	2.93	50.00	AVRG
Chloroethane	0.3150000	0.2896801	0.2896801	0.1	8.04	50.00	AVRG
Chloroform	0.8100000	0.8076153	0.8076153	0.2	0.29	50.00	AVRG
Chloromethane	37.363944	50.0000000	0.4052824	0.1	25.27	50.00	LINR
cis-1,2-Dichloroethene	0.4740000	0.5006132	0.5006132	0.1	-5.61	50.00	AVRG
Dibromochloromethane	0.3800000	0.3796339	0.3796339	0.1	0.10	50.00	AVRG
Dichlorodifluoromethane	38.957044	50.0000000	0.3531729	0.1	22.08	50.00	LINR
Ethylbenzene	0.5040000	0.4919353	0.4919353	0.1	2.39	50.00	AVRG
Hexachlorobutadiene	0.4020000	0.2979883	0.2979883	0.1	25.87	50.00	AVRG
Isopropylbenzene	1.4940000	1.4587607	1.4587607	0.1	2.36	50.00	AVRG
m,p-Xylenes	0.6080000	0.5939111	0.5939111	0.1	2.32	50.00	AVRG
Methylene Chloride	0.4520000	0.4584510	0.4584510	0.1	-1.43	50.00	AVRG
n-Butylbenzene	2.0360000	2.0336559	2.0336559	0.5	0.12	50.00	AVRG
n-Propylbenzene	3.0900000	3.0647036	3.0647036	0.1	0.82	50.00	AVRG
Naphthalene	0.5400000	0.4567759	0.4567759	0.2	15.41	50.00	AVRG
o-Xylene	0.6000000	0.5852126	0.5852126	0.3	2.46	50.00	AVRG
sec-Butylbenzene	2.6850000	2.6671752	2.6671752	0.1	0.66	50.00	AVRG
Vinyl Chloride	0.5100000	0.4438793	0.4438793	0.1	12.96	50.00	AVRG
1,2,3-Trichloropropane	0.5960000	0.5738977	0.5738977	0.1	3.71	50.00	AVRG
p-Isopropyltoluene	2.4460000	2.3948475	2.3948475	0.1	2.09	50.00	AVRG
1,2-Dibromo-3-Chloropropane	50.403168	50.0000000	7.82e-002	0.05	-0.81	50.00	LINR
Freon TF	0.4350000	0.4217177	0.4217177	0.1	3.05	50.00	AVRG
=====	=====	=====	=====	=====	=====	=====	=====
4-Bromofluorobenzene	47.970747	50.0000000	0.4461481	0.1	4.06	50.00	LINR
Dibromofluoromethane	52.345892	50.0000000	0.4761314	0.1	-4.69	50.00	LINR
Toluene-d8	1.3170000	1.2115552	1.2115552	0.1	8.01	50.00	AVRG
1,2-Dichloroethane-d4	52.170618	50.0000000	0.4911253	0.1	-4.34	50.00	LINR



FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111153

Lab File ID (Standard): X112403

Date Analyzed: 11/24/19

Instrument ID: VOA6

Time Analyzed: 1300

GC Column: DB624

ID: 0.18 (mm)

Heated Purge: (Y/N) N

	IS1 (DCB) AREA #	RT #	IS2 (CBZ) AREA #	RT #	IS3 (DFB) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	281739	9.67	492928	7.67	527389	4.97
UPPER LIMIT	563478	10.17	985856	8.17	1054778	5.47
LOWER LIMIT	140870	9.17	246464	7.17	263695	4.47
=====	=====	=====	=====	=====	=====	=====
CLIENT SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 VLCSW-19124	266132	9.67	504151	7.67	550313	4.97
02 VBLKW-191124	275898	9.66	581309	7.67	666006	4.97
03 HS19111153-09	309576	9.67	604211	7.67	671293	4.97
04 HS19111239-05	312391	9.66	592999	7.67	653867	4.97
05 HS19111239-05	313244	9.66	584590	7.67	652154	4.97
06 HS19111153-01	298914	9.66	585647	7.67	659523	4.97
07 HS19111153-02	293650	9.67	583117	7.67	659984	4.97
08 HS19111153-03	293035	9.67	584329	7.67	662716	4.97
09 HS19111153-04	299918	9.67	590794	7.67	665789	4.97
10 HS19111153-05	293356	9.66	576684	7.67	662171	4.97
11 HS19111153-06	284404	9.67	580473	7.67	664407	4.97
12 HS19111153-07	301309	9.67	579509	7.67	660206	4.97
13 HS19111153-08	305975	9.67	597931	7.67	676586	4.97
14						
15						
16						
17						
18						
19						
20						

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (CBZ) = Chlorobenzene-d5

IS3 (DFB) = 1,4-Difluorobenzene

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

page 1 of 2

FORM VIII VOA



FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111153

Lab File ID (Standard): X112403

Date Analyzed: 11/24/19

Instrument ID: VOA6

Time Analyzed: 1300

GC Column: DB624

ID: 0.18 (mm)

Heated Purge: (Y/N) N

	IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	358510	4.18				
UPPER LIMIT	717020	4.68				
LOWER LIMIT	179255	3.68				
=====	=====	=====	=====	=====	=====	=====
CLIENT SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 VLCSW-19124	388055	4.18				
02 VBLKW-191124	484385	4.18				
03 HS19111153-09	491442	4.18				
04 HS19111239-05	477258	4.18				
05 HS19111239-05	472494	4.18				
06 HS19111153-01	481308	4.18				
07 HS19111153-02	481747	4.18				
08 HS19111153-03	484797	4.18				
09 HS19111153-04	491312	4.18				
10 HS19111153-05	477552	4.18				
11 HS19111153-06	481405	4.18				
12 HS19111153-07	478123	4.18				
13 HS19111153-08	492619	4.18				
14						
15						
16						
17						
18						
19						
20						

IS4 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112401.D

Page 1

Date : 24-NOV-2019 12:12

Client ID: BFB

Instrument: voa6.i

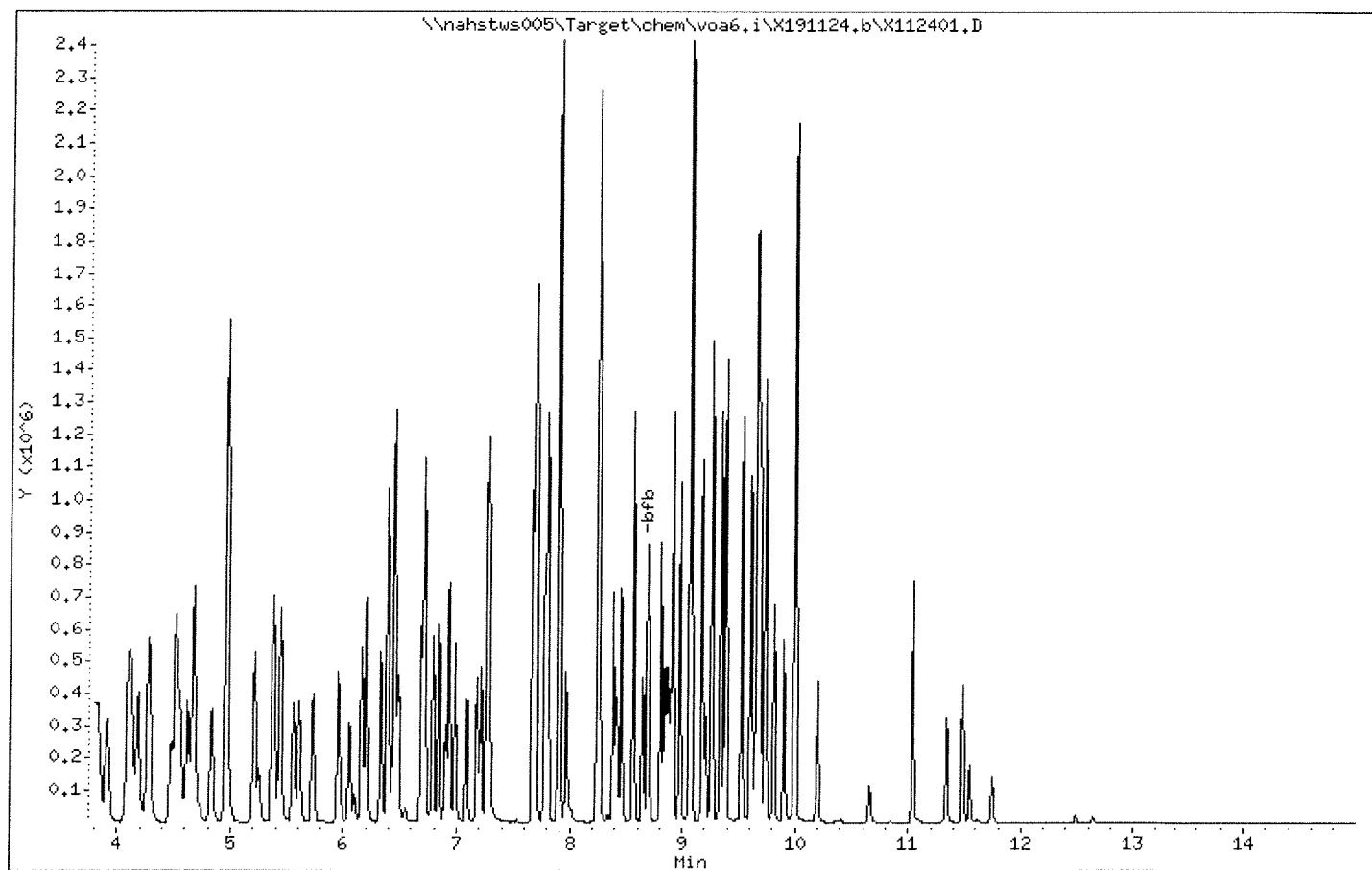
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112401.D

Page 2

Date : 24-NOV-2019 12:12

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

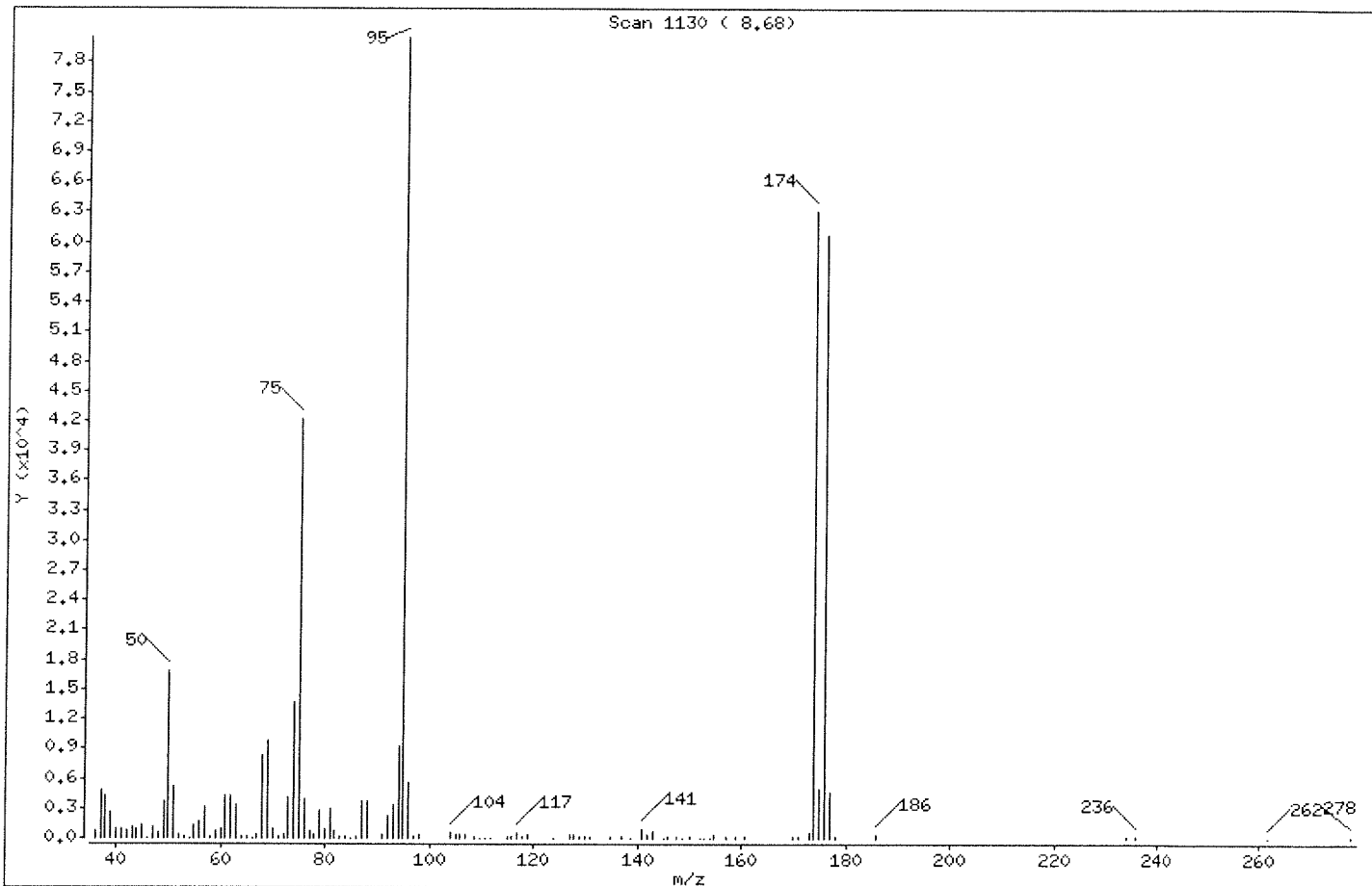
Volume Injected (uL): 2.0

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	20.97
75	30.00 - 60.00% of mass 95	52.51
96	5.00 - 9.00% of mass 95	6.88
173	Less than 2.00% of mass 174	0.67 (0.86)
174	Greater than 50.00% of mass 95	78.38
175	5.00 - 9.00% of mass 174	6.20 (7.91)
176	95.00 - 101.00% of mass 174	75.42 (96.23)
177	5.00 - 9.00% of mass 176	5.67 (7.52)

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112401.D

Page 3

Date : 24-NOV-2019 12:12

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: X112401.D

Spectrum: Scan 1130 (8.68)

Location of Maximum: 95.00

Number of points: 111

m/z	Y	m/z	Y	m/z	Y	m/z	Y
+-----+-----+-----+-----+-----+-----+-----+-----+							
36.00	727	64.00	274	94.00	9304	142.00	305
37.00	4823	65.00	114	95.00	90464	142.90	730
38.00	4282	66.10	68	96.00	5535	145.00	54
39.00	2641	67.00	293	96.90	213	145.80	152
40.00	855	68.00	8379	98.00	391	147.70	180
+-----+-----+-----+-----+-----+-----+-----+-----+							
41.10	1012	69.00	9736	103.90	472	148.80	88
42.00	810	69.90	887	105.00	285	149.90	102
43.00	1161	71.10	105	105.90	384	152.30	71
44.00	968	72.00	439	106.90	448	152.90	74
45.00	1211	73.00	4066	108.80	267	153.80	63
+-----+-----+-----+-----+-----+-----+-----+-----+							
46.00	83	74.00	13658	109.80	70	154.80	328
47.00	1039	75.00	42248	110.90	86	157.00	172
48.00	500	76.00	3862	111.80	60	158.80	120
49.00	3688	77.00	733	115.00	160	160.80	98
50.00	16872	77.90	413	115.80	224	170.00	107
+-----+-----+-----+-----+-----+-----+-----+-----+							
51.00	5102	78.90	2744	116.90	619	170.90	180
52.00	284	79.90	858	117.90	248	172.90	541
53.00	134	80.90	3029	118.80	360	173.90	63064
54.00	59	81.90	708	123.90	59	174.90	4987
55.00	1350	82.90	200	126.90	429	175.90	60688
+-----+-----+-----+-----+-----+-----+-----+-----+							
56.00	1754	84.00	161	127.80	407	176.90	4562
57.00	3126	84.90	69	128.80	154	177.90	137
58.00	250	85.90	105	129.90	237	185.90	417
59.10	788	86.90	3767	130.80	123	233.90	100
60.00	843	88.00	3694	134.80	162	235.70	104
+-----+-----+-----+-----+-----+-----+-----+-----+							
61.00	4184	90.80	438	136.80	110	261.90	58
62.00	4180	92.00	2304	138.80	84	277.90	117
63.00	3319	93.00	3386	140.90	840		
+-----+-----+-----+-----+-----+-----+-----+-----+							

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112403.D Page 1
 Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112403.D
 Lab Smp Id: CCV Client Smp ID: CCV
 Inj Date : 24-NOV-2019 13:00
 Operator : PC Inst ID: voa6.i
 Smp Info : CCV;CCV;2;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 3 Continuing Calibration Sample
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.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

						AMOUNTS	
QUANT SIG						CAL-AMT	ON-COL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	358510	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	527389	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	492928	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	281739	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	180393	50.0000	53.43
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	236769	50.0000	51.61
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	175823	50.0000	53.90
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	608367	50.0000	46.84
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	193775	50.0000	54.18
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	273268	50.0000	56.50
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	211544	50.0000	53.39
138 Freon TF	101	1.919	1.919	(0.459)	177162	50.0000	56.76
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	137985	50.0000	53.55
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	290288	50.0000	55.64
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	165298	50.0000	54.40
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	225461	50.0000	52.99
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	62623	50.0000	59.86
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	174447	50.0000	51.96 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	127582	50.0000	53.75
79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	743455	50.0000	55.61
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.102)	24140	50.0000	55.23
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	187443	50.0000	54.21
88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	406489	50.0000	54.36



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112403.D Page 2
 Report Date: 17-Dec-2019 15:49

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	223495	50.0000	53.38
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	166839	50.0000	52.95
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	710540	50.0000	55.39
83 1,3-Dichlorobenzene	146	9.605	9.612	(0.993)	436663	50.0000	54.04
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	274290	50.0000	52.43
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	449145	50.0000	54.70
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	263831	50.0000	55.72
24 2-Butanone	43	3.580	3.573	(0.856)	125482	100.000	114.06
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	561192	50.0000	55.36
52 2-Hexanone	43	7.090	7.090	(0.924)	214963	100.000	106.15
77 4-Chlorotoluene	91	9.074	9.075	(0.939)	673210	50.0000	54.79
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	755341	50.0000	54.79
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	303090	100.000	104.94
10 Acetone	43	1.976	1.976	(0.473)	115921	100.000	125.85
37 Benzene	78	4.512	4.512	(0.908)	663522	50.0000	54.99
74 Bromobenzene	156	8.809	8.809	(0.911)	256783	50.0000	52.44
29 Bromochloromethane	128	3.795	3.795	(0.908)	106978	50.0000	55.08
39 Bromodichloromethane	83	5.729	5.729	(1.153)	238995	50.0000	54.76
66 Bromoform	173	8.415	8.416	(1.097)	159781	50.0000	54.34
6 Bromomethane	94	1.338	1.338	(0.320)	201555	50.0000	56.85
19 Carbon Disulfide	76	2.069	2.069	(0.495)	951778	100.000	115.15
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	246366	50.0000	52.86
59 Chlorobenzene	112	7.699	7.699	(1.004)	511625	50.0000	53.16
7 Chloroethane	64	1.403	1.403	(0.336)	116871	50.0000	51.77
28 Chloroform	83	3.910	3.910	(0.935)	314962	50.0000	54.24
3 Chloromethane	50	1.073	1.073	(0.257)	157133	50.0000	40.39 (M)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	196215	50.0000	57.71
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	283138	50.0000	55.05
55 Dibromochloromethane	129	7.176	7.176	(0.936)	203401	50.0000	54.33
44 Dibromomethane	93	5.557	5.557	(1.118)	121902	50.0000	54.67
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	139218	50.0000	42.74
61 Ethylbenzene	106	7.799	7.799	(1.017)	269387	50.0000	54.17
91 Hexachlorobutadiene	225	11.481	11.488	(1.187)	103775	50.0000	45.83
67 Isopropylbenzene	105	8.566	8.566	(1.117)	820290	50.0000	55.69
62 m,p-Xylenes	106	7.907	7.907	(1.031)	659611	100.000	109.93
17 Methylene Chloride	84	2.305	2.305	(0.551)	173620	50.0000	53.55
87 n-Butylbenzene	91	9.998	9.999	(1.034)	657251	50.0000	57.29
73 n-Propylbenzene	91	8.917	8.917	(0.922)	962356	50.0000	55.26
92 Naphthalene	128	11.546	11.546	(1.194)	165195	50.0000	54.27
63 o-Xylene	106	8.244	8.244	(1.075)	319510	50.0000	53.95
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	843823	50.0000	55.77
64 Styrene	104	8.258	8.258	(1.077)	581441	50.0000	56.46
78 tert-Butylbenzene	119	9.339	9.340	(0.966)	605011	50.0000	55.08
56 Tetrachloroethene	164	6.933	6.933	(0.904)	177770	50.0000	51.32
50 Toluene	91	6.446	6.446	(0.840)	749286	50.0000	53.60
20 trans-1,2-Dichloroethene	96	2.527	2.528	(0.604)	168683	50.0000	57.18
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	259908	50.0000	55.44
38 Trichloroethene	130	5.206	5.206	(1.048)	202915	50.0000	55.01
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	313960	50.0000	56.45
5 Vinyl Chloride	62	1.138	1.138	(0.272)	178389	50.0000	48.82



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112403.D Page 3
Report Date: 17-Dec-2019 15:49

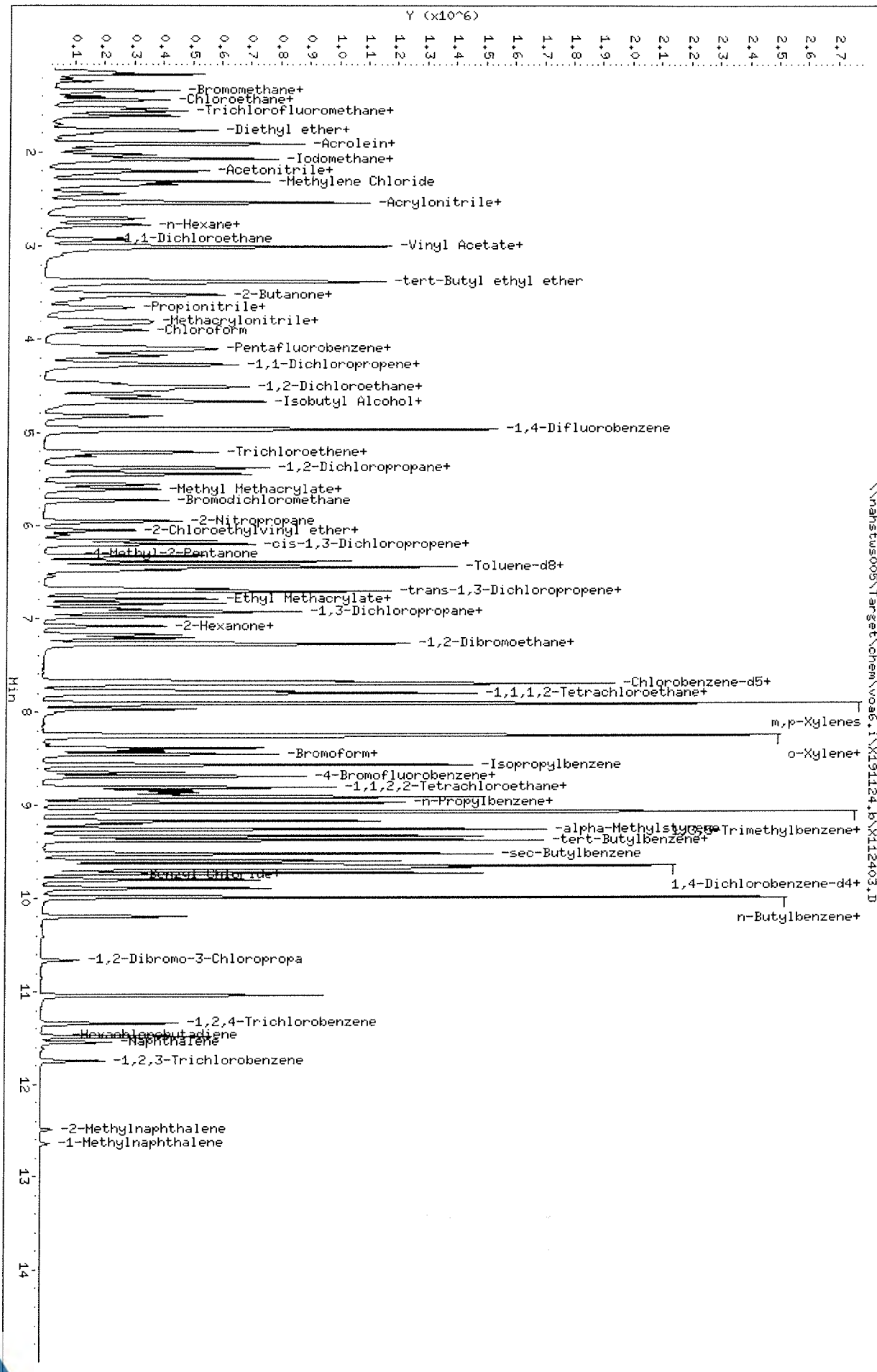
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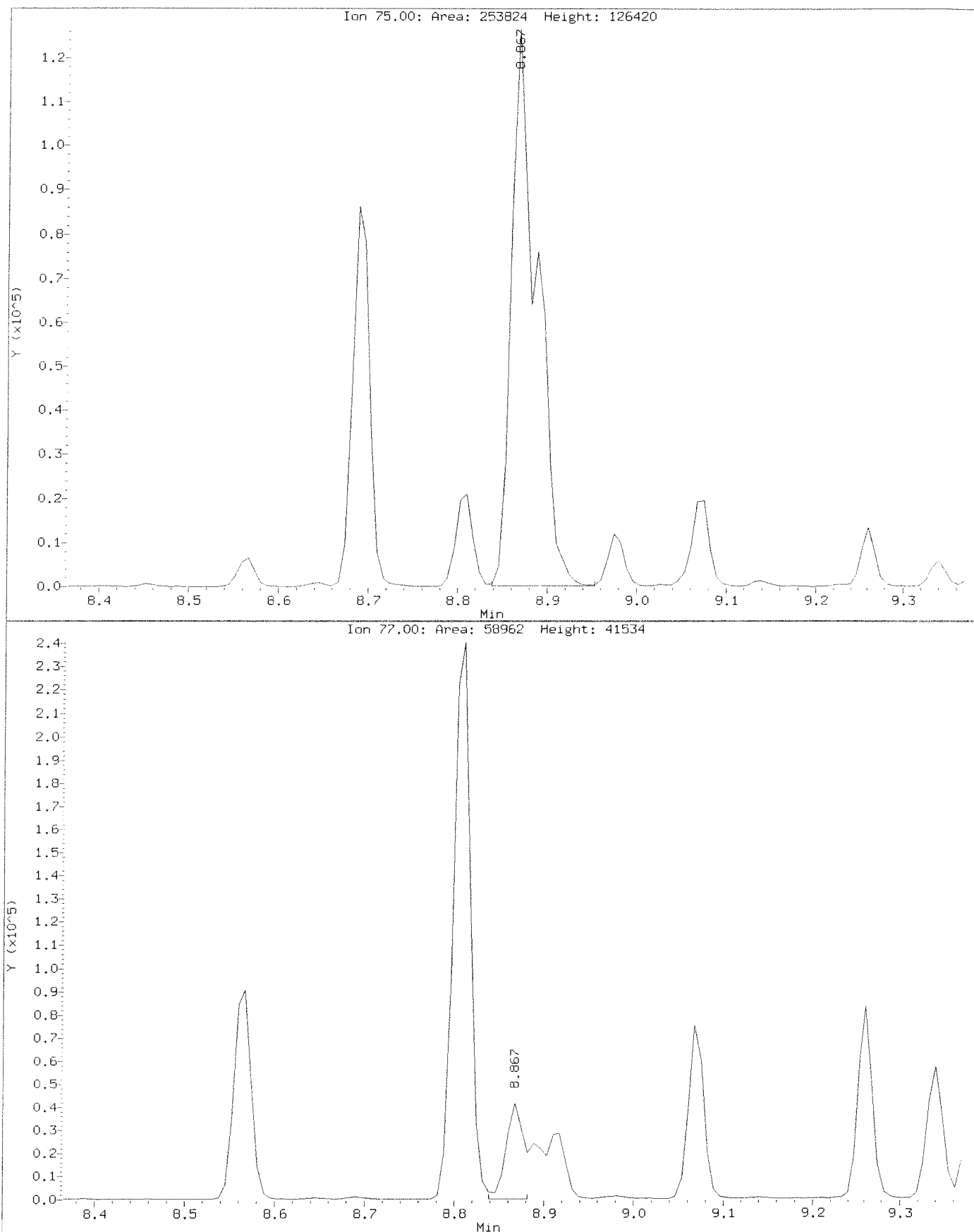
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 Purge Volume: 5.0
 Column phase: DB624

Instrument: v0a6.1
 Operator: PC
 Column diameter: 0.18



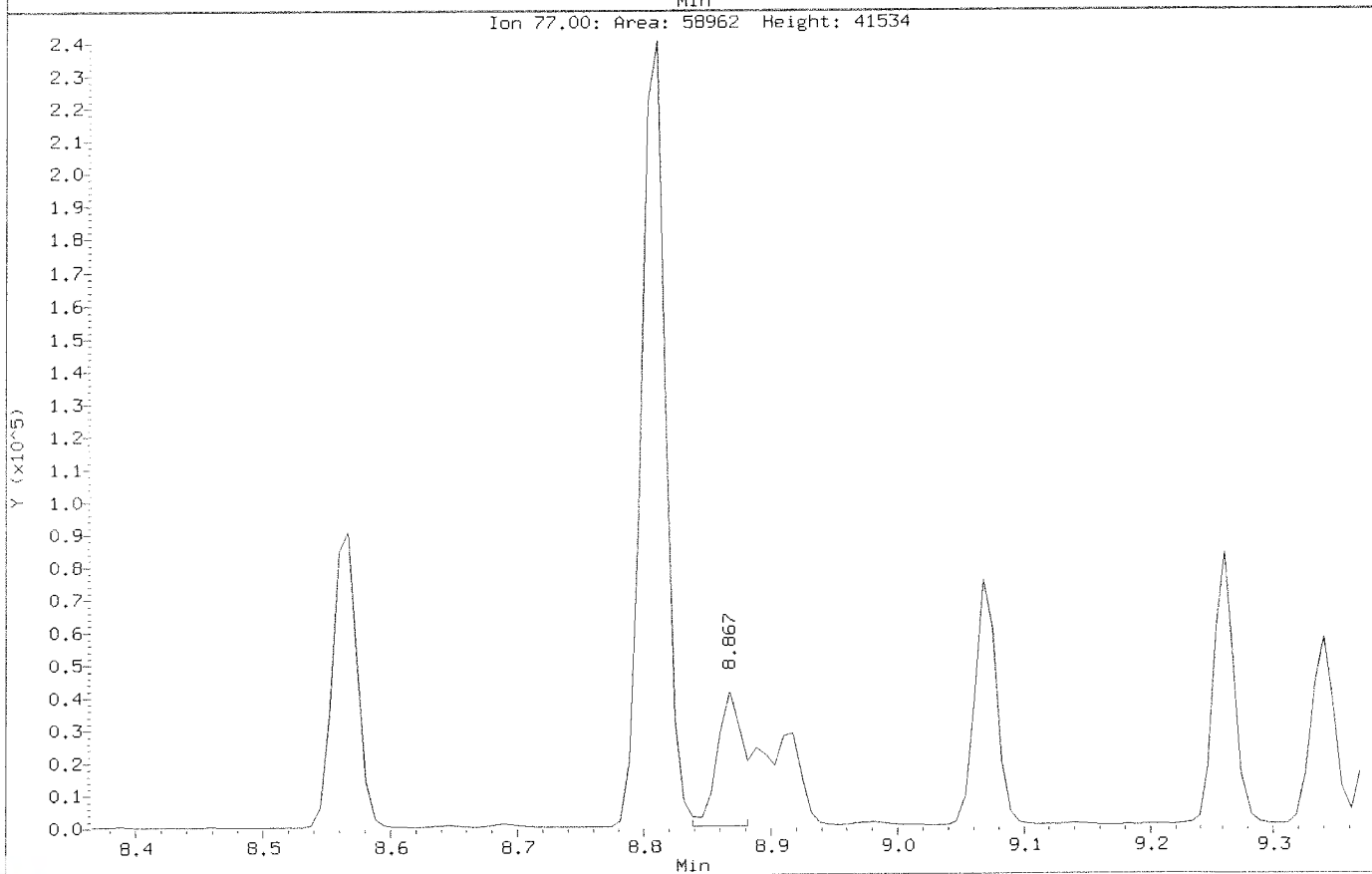
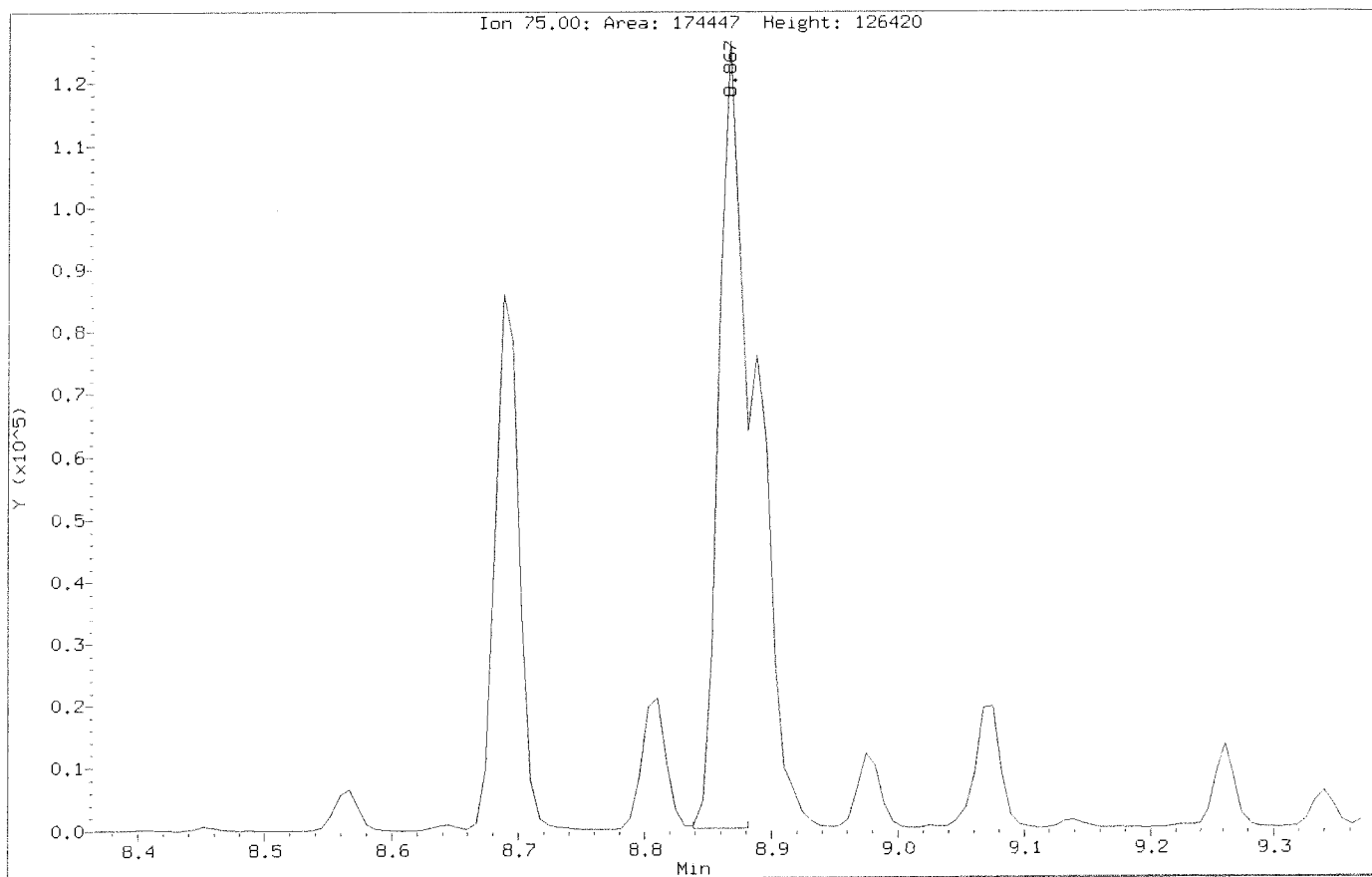
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Instrument: voa6.1
Client Sample ID: CCV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



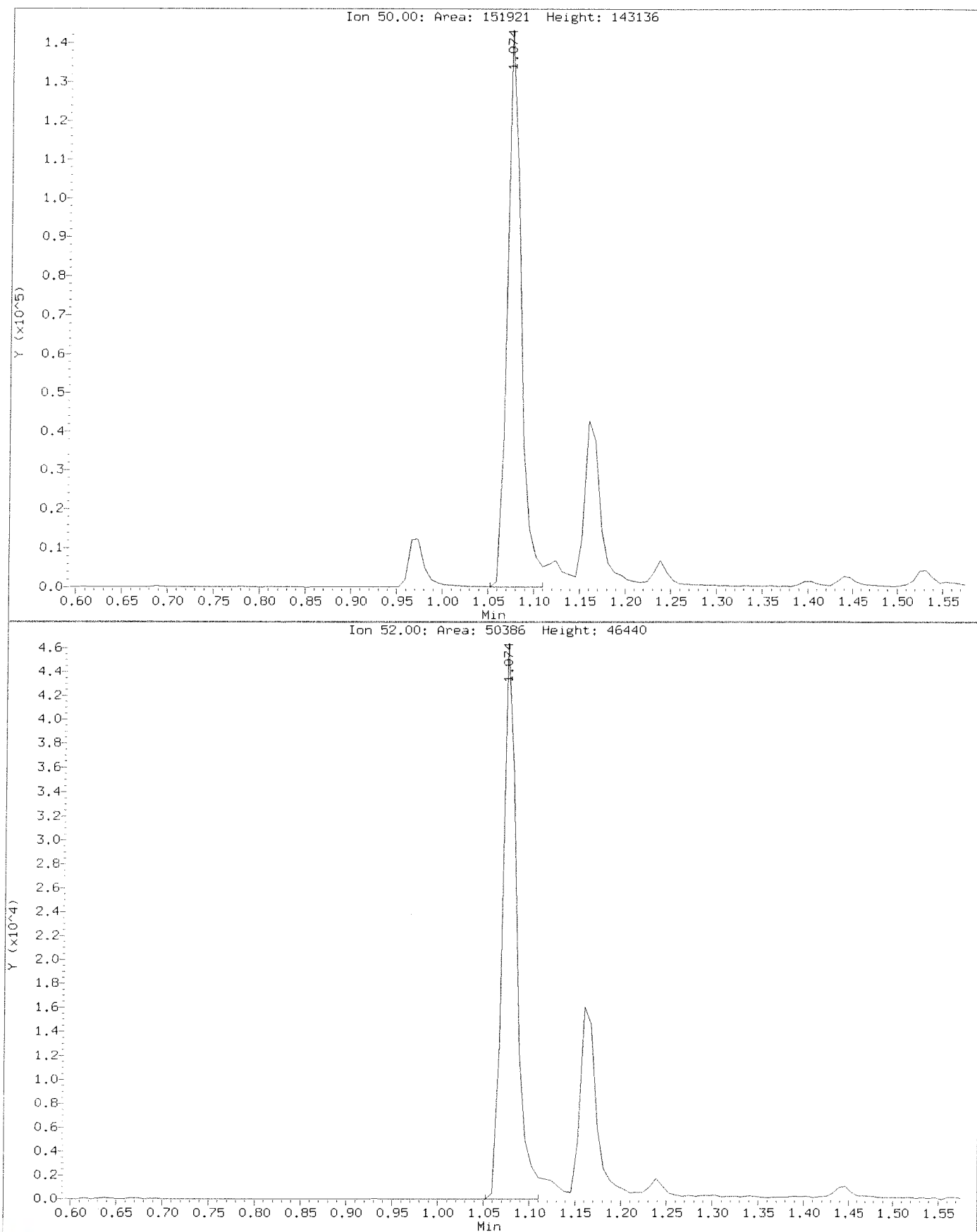
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Instrument: voa6.1
Client Sample ID: CCV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



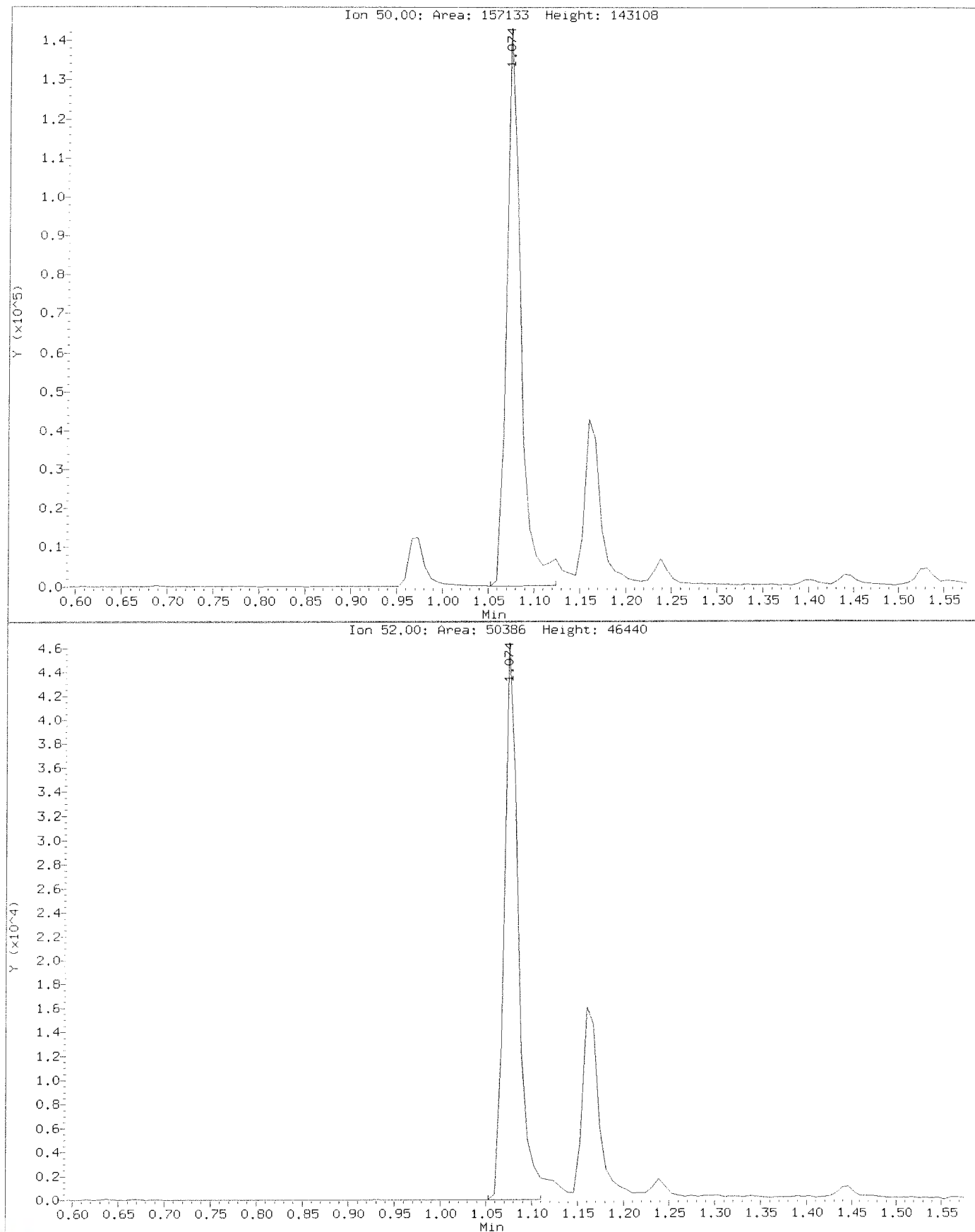
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Injection Date: 24-NOV-2019 13:00
Instrument: voa6.i
Client Sample ID: CCV

Compound: Chloromethane
CAS Number: 74-87-3



Data File: \\nahstws005\Target\chem\voa6.1\X191124.b\X112403.D
Injection Date: 24-NOV-2019 13:00
Instrument: voa6.1
Client Sample ID: CCV

Compound: Chloromethane
CAS Number: 74-87-3



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112405.D Page 1
 Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112405.D
 Lab Smp Id: VLCSW-191124 Client Smp ID: VLCSW-19124
 Inj Date : 24-NOV-2019 13:48
 Operator : PC Inst ID: voa6.i
 Smp Info : VLCSW-191124;VLCSW-19124;3;;LCS
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 5 QC Sample: LCS
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.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	CONCENTRATIONS					
		ON-COLUMN	FINAL				
	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)
*****	****	*****	*****	*****	*****	*****	*****
* 1 Pentafluorobenzene	168	4.182	4.182 (1.000)		388055	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970 (1.000)		550313	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671 (1.000)		504151	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669 (1.000)		266132	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476 (1.070)		183657	50.3013	50.30
\$ 69 4-Bromofluorobenzene	95	8.688	8.688 (1.133)		220276	46.9877	46.98
\$ 30 Dibromofluoromethane	113	4.103	4.103 (0.981)		177170	50.2092	50.20
\$ 48 Toluene-d8	98	6.388	6.388 (0.833)		617598	46.4941	46.49
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778 (1.014)		75422	20.6210	20.62
31 1,1,1-Trichloroethane	97	4.089	4.089 (0.978)		108042	20.6379	20.63
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838 (0.914)		76156	20.3501	20.35
138 Freon TF	101	1.919	1.919 (0.459)		67205	19.8924	19.89
53 1,1,2-Trichloroethane	83	6.840	6.840 (0.892)		53715	20.3820	20.38
22 1,1-Dichloroethane	63	2.921	2.921 (0.699)		116042	20.5520	20.55
11 1,1-Dichloroethene	96	1.911	1.911 (0.457)		63884	19.4257	19.42
32 1,1-Dichloropropene	75	4.282	4.282 (0.862)		89644	20.1942	20.19
93 1,2,3-Trichlorobenzene	180	11.746	11.746 (1.215)		22116	21.9417	21.94
71 1,2,3-Trichloropropane	75	8.867	8.867 (0.917)		63337	19.9745	19.97 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338 (1.173)		47850	21.3444	21.34
79 1,2,4-Trimethylbenzene	105	9.382	9.383 (0.970)		257494	20.3912	20.39
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658 (1.102)		8410	20.1551	20.15
57 1,2-Dibromoethane	107	7.262	7.262 (0.947)		70877	20.0451	20.04
88 1,2-Dichlorobenzene	146	9.998	9.999 (1.034)		144657	20.4803	20.48



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112405.D Page 2
 Report Date: 17-Dec-2019 15:49

Compounds	QUANT SIG MASS						CONCENTRATIONS	
		RT	EXP RT	REL RT	RESPONSE		ON-COLUMN (ug/l)	FINAL (ug/l)
=====	=====	=====	=====	=====	=====		=====	=====
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	88620		20.2860	20.28
42 1,2-Dichloropropane	63	5.443	5.436	(1.095)	66609		20.2622	20.26
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	250392		20.6647	20.66
83 1,3-Dichlorobenzene	146	9.605	9.612	(0.993)	157151		20.5906	20.59
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	105292		19.6789	19.67
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	158993		20.5005	20.50
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	104881		20.4662	20.46
24 2-Butanone	43	3.580	3.573	(0.856)	47024		39.4922	39.49
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	204142		21.3207	21.32
52 2-Hexanone	43	7.083	7.090	(0.923)	82392		39.7837	39.78
77 4-Chlorotoluene	91	9.074	9.075	(0.939)	238168		20.5217	20.52
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	266591		20.4725	20.47
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	114520		38.7685	38.76
10 Acetone	43	1.976	1.976	(0.473)	45525		43.2057	43.20
37 Benzene	78	4.512	4.512	(0.908)	260754		20.7134	20.71
74 Bromobenzene	156	8.809	8.809	(0.911)	96965		20.9643	20.96
29 Bromochloromethane	128	3.802	3.795	(0.909)	42939		20.4256	20.42
39 Bromodichloromethane	83	5.729	5.729	(1.153)	93422		20.5138	20.51
66 Bromoform	173	8.415	8.416	(1.097)	58399		20.0636	20.06
6 Bromomethane	94	1.338	1.338	(0.320)	88012		21.5281	21.52
19 Carbon Disulfide	76	2.069	2.069	(0.495)	375038		41.9195	41.91
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	97153		19.9790	19.97
59 Chlorobenzene	112	7.699	7.699	(1.004)	195902		19.9037	19.90
7 Chloroethane	64	1.403	1.403	(0.336)	44399		18.1721	18.17
28 Chloroform	83	3.910	3.910	(0.935)	126568		20.1396	20.13
3 Chloromethane	50	1.073	1.073	(0.257)	63669		15.2377	15.23
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	78451		21.3178	21.31
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	110281		20.5487	20.54
55 Dibromochloromethane	129	7.176	7.176	(0.936)	77681		20.2896	20.28
44 Dibromomethane	93	5.557	5.557	(1.118)	48147		20.6967	20.69
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	53453		15.7319	15.73
61 Ethylbenzene	106	7.799	7.799	(1.017)	102753		20.2052	20.20
91 Hexachlorobutadiene	225	11.481	11.488	(1.187)	44230		20.6802	20.68
67 Isopropylbenzene	105	8.566	8.566	(1.117)	301546		20.0190	20.01
62 m,p-Xylenes	106	7.907	7.907	(1.031)	247364		40.3090	40.30
17 Methylene Chloride	84	2.305	2.305	(0.551)	69553		19.8223	19.82
87 n-Butylbenzene	91	9.998	9.999	(1.034)	227429		20.9867	20.98
73 n-Propylbenzene	91	8.917	8.917	(0.922)	347351		21.1154	21.11
92 Naphthalene	128	11.546	11.546	(1.194)	53313		18.5417	18.54
63 o-Xylene	106	8.244	8.244	(1.075)	121724		20.0980	20.09
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	299048		20.9263	20.92
64 Styrene	104	8.258	8.258	(1.077)	211547		20.0864	20.08
78 tert-Butylbenzene	119	9.339	9.340	(0.966)	216302		20.8488	20.84
56 Tetrachloroethene	164	6.933	6.933	(0.904)	70420		19.8798	19.87
50 Toluene	91	6.446	6.446	(0.840)	289815		20.2716	20.27
20 trans-1,2-Dichloroethene	96	2.527	2.528	(0.604)	66159		20.7211	20.72
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	98261		20.0886	20.08
38 Trichloroethene	130	5.206	5.206	(1.048)	79569		20.6751	20.67
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	117968		19.5971	19.59
5 Vinyl Chloride	62	1.138	1.138	(0.272)	67139		16.9759	16.97



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112405.D Page 3
Report Date: 17-Dec-2019 15:49

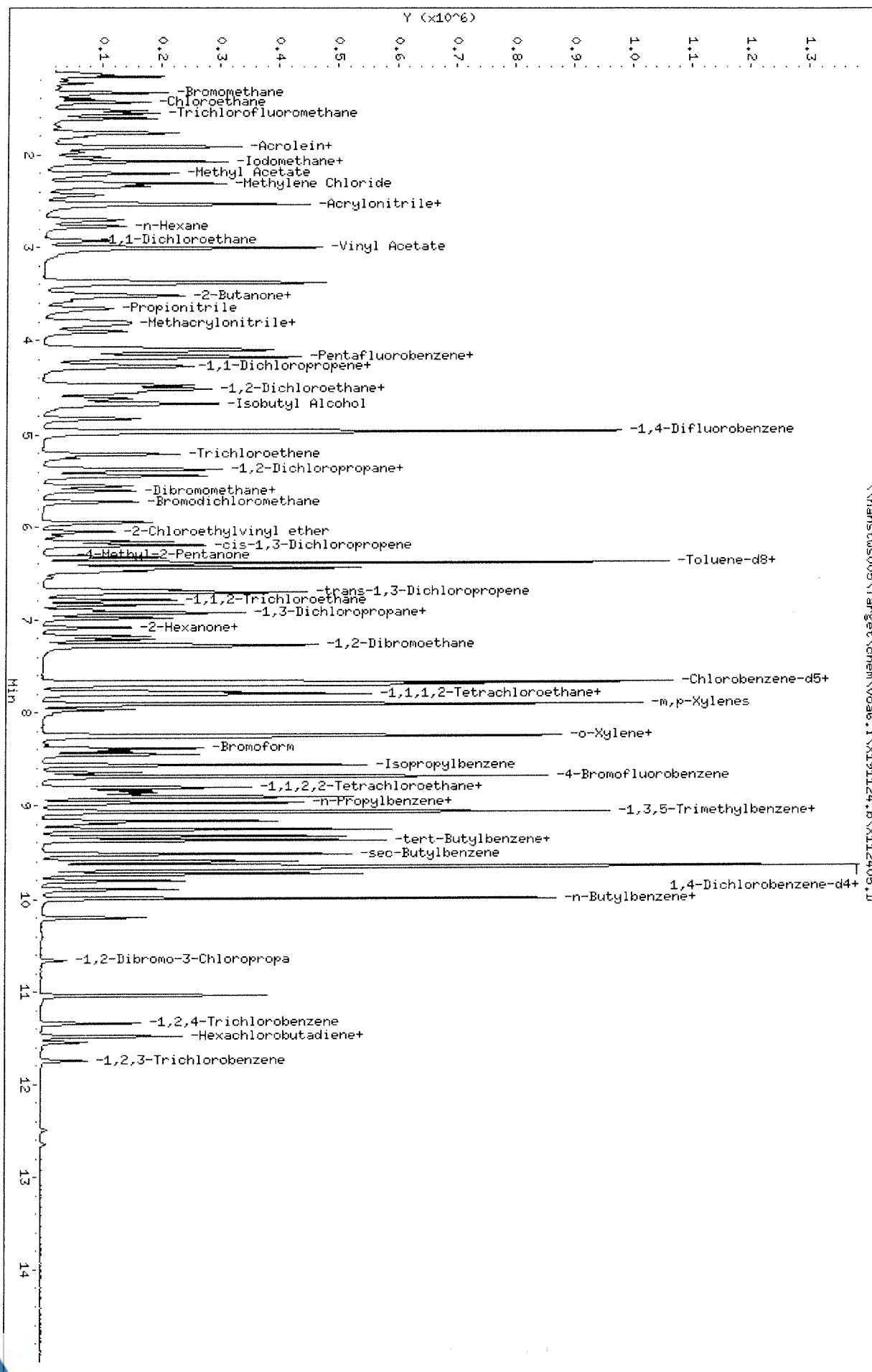
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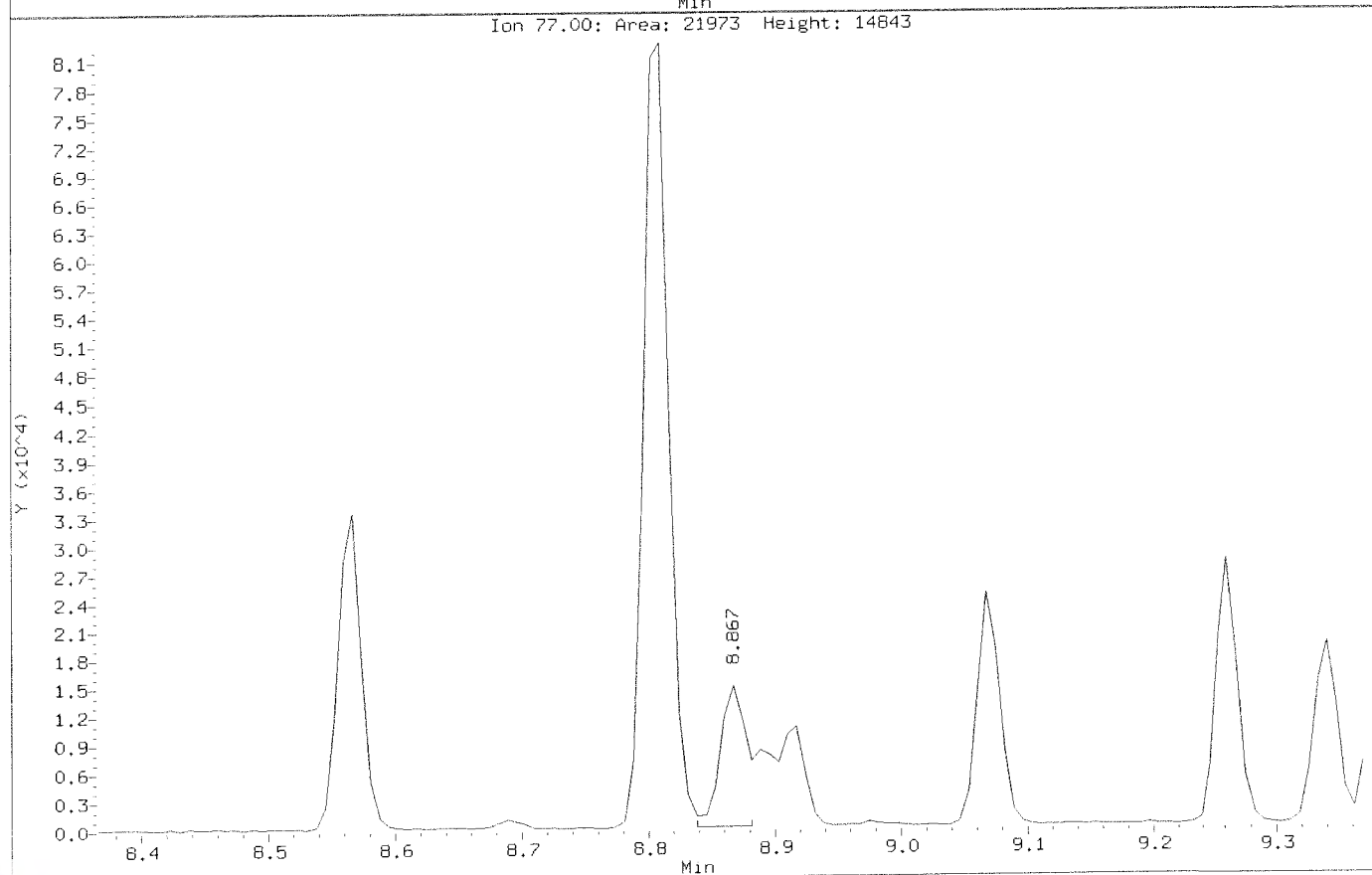
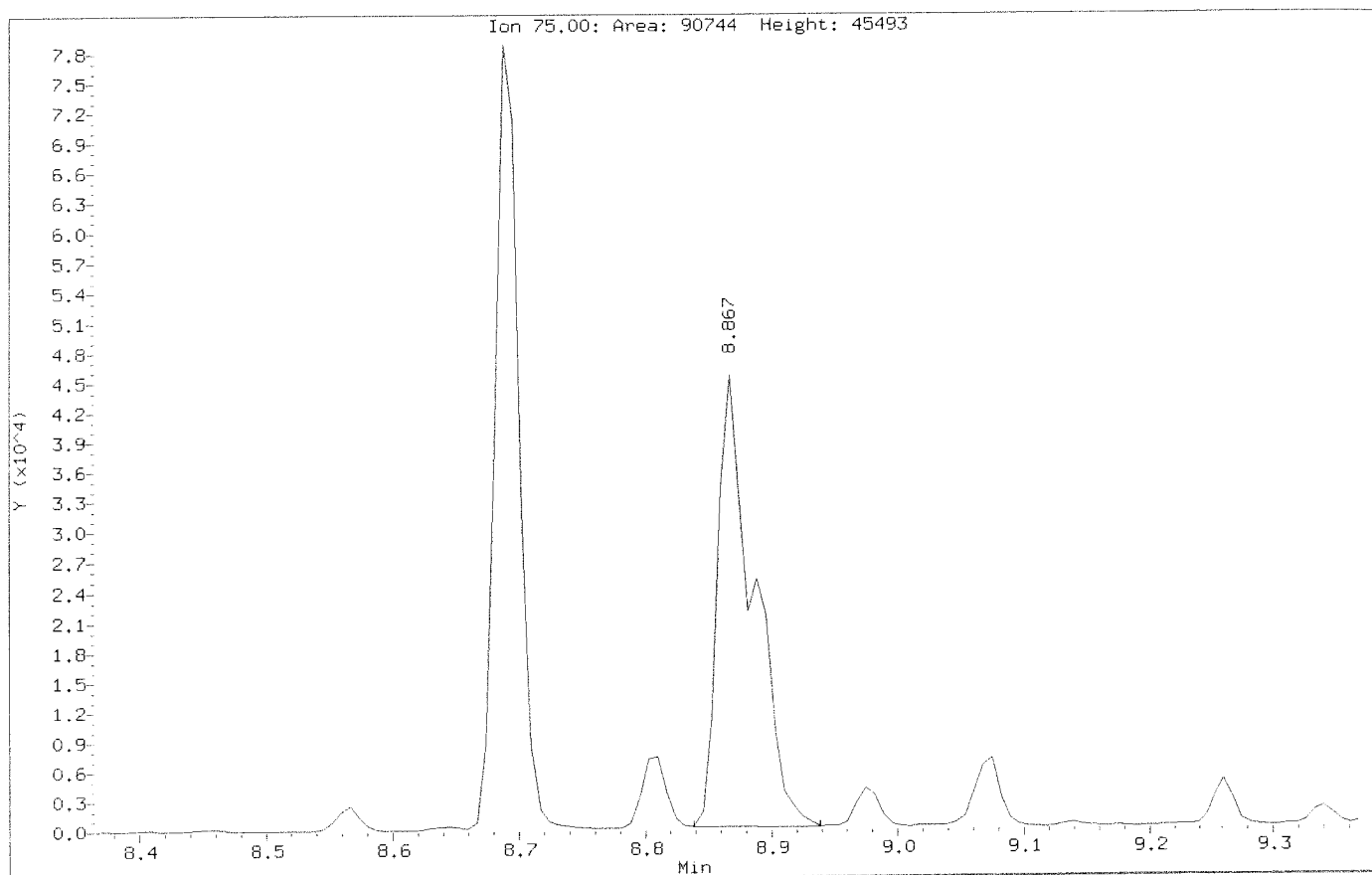
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 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



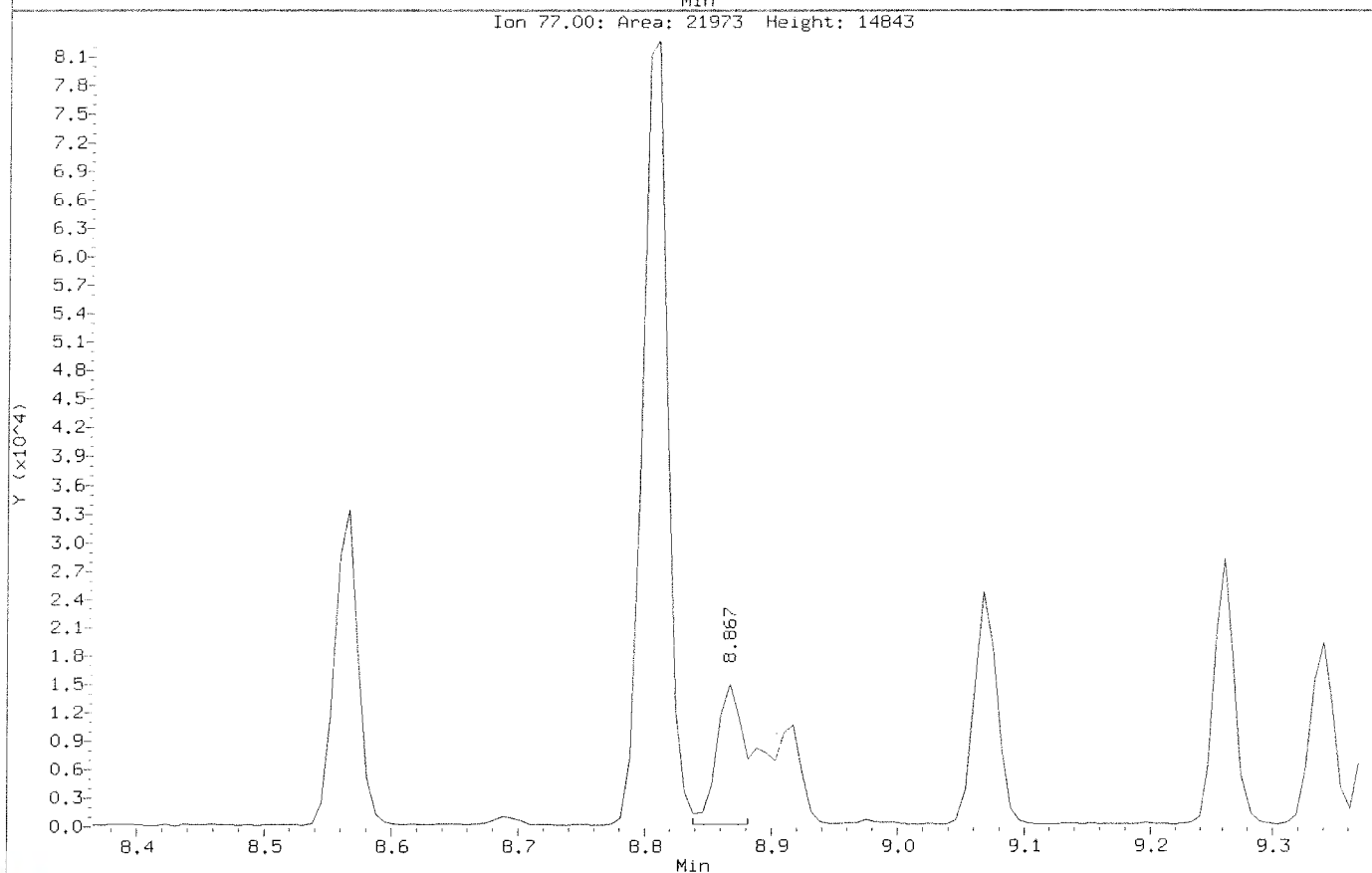
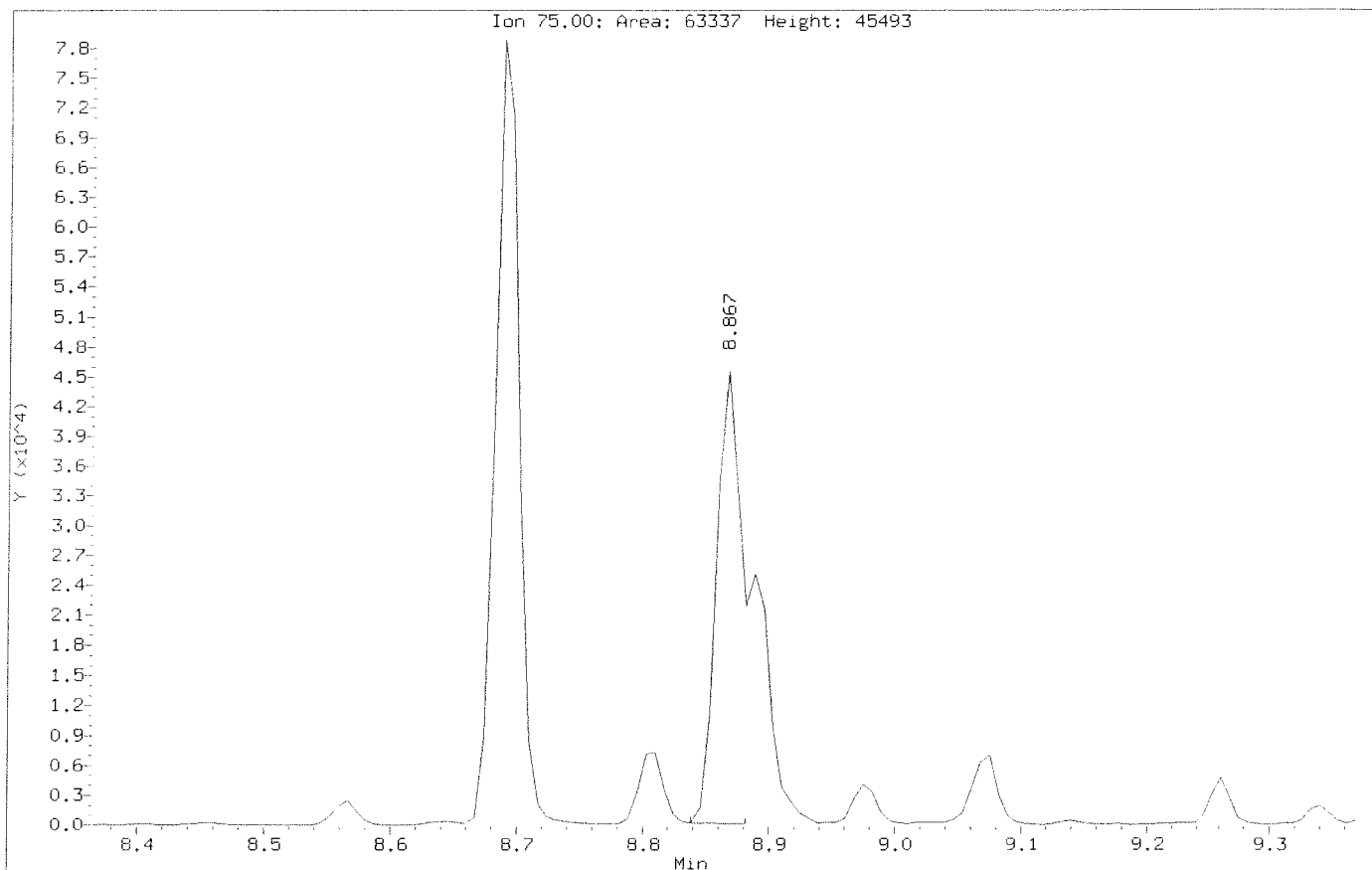
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Injection Date: 24-NOV-2019 13:48
Instrument: voa6.i
Client Sample ID: VLCSW-19124

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112405.D
Injection Date: 24-NOV-2019 13:48
Instrument: voa6.i
Client Sample ID: VLCSW-19124

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112407.D Page 1
 Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112407.D
 Lab Smp Id: VBLKW-191124 Client Smp ID: VBLKW-191124
 Inj Date : 24-NOV-2019 14:36
 Operator : PC Inst ID: voa6.i
 Smp Info : VBLKW-191124;VBLKW-191124;3;;BLANK
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 7 QC Sample: BLANK
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

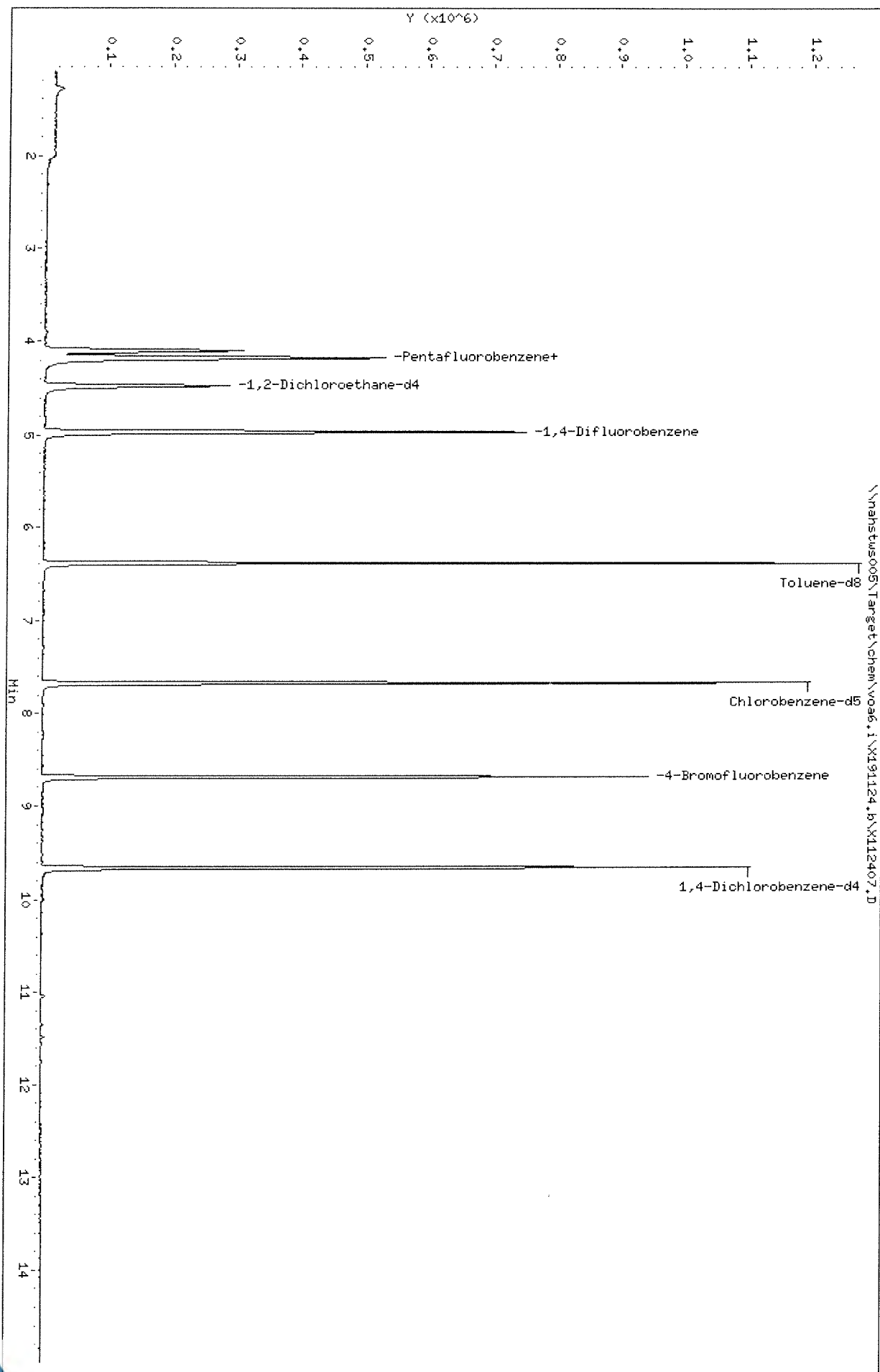
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG	CONCENTRATIONS					
		ON-COLUMN	FINAL				
	MASS	(ug/l)	(ug/l)	RT	EXP RT	REL RT	RESPONSE
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182 (1.000)	484385	50.0000		
* 36 1,4-Difluorobenzene	114	4.970	4.970 (1.000)	666006	50.0000		
* 47 Chlorobenzene-d5	117	7.671	7.671 (1.000)	581309	50.0000		
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669 (1.000)	275898	50.0000		
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476 (1.070)	208585	45.8339	45.83	
\$ 69 4-Bromofluorobenzene	95	8.688	8.688 (1.133)	246158	45.5520	45.55	
\$ 30 Dibromofluoromethane	113	4.103	4.103 (0.981)	210671	47.8475	47.84	
\$ 48 Toluene-d8	98	6.388	6.388 (0.833)	747496	48.8039	48.80	



Data File: \\nahstus005\Target\chem\voa6.i\X191124.b\X112407.D
Date : 24-NOV-2019 14:36
Client ID: VBLKM-191124
Sample Info: VBLKM-191124;VBLKM-191124;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112408.D Page 1
 Report Date: 17-Dec-2019 15:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112408.D
 Lab Smp Id: HS19111153-09 Client Smp ID: HS19111153-09
 Inj Date : 24-NOV-2019 15:00
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111153-09;HS19111153-09;;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 8
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

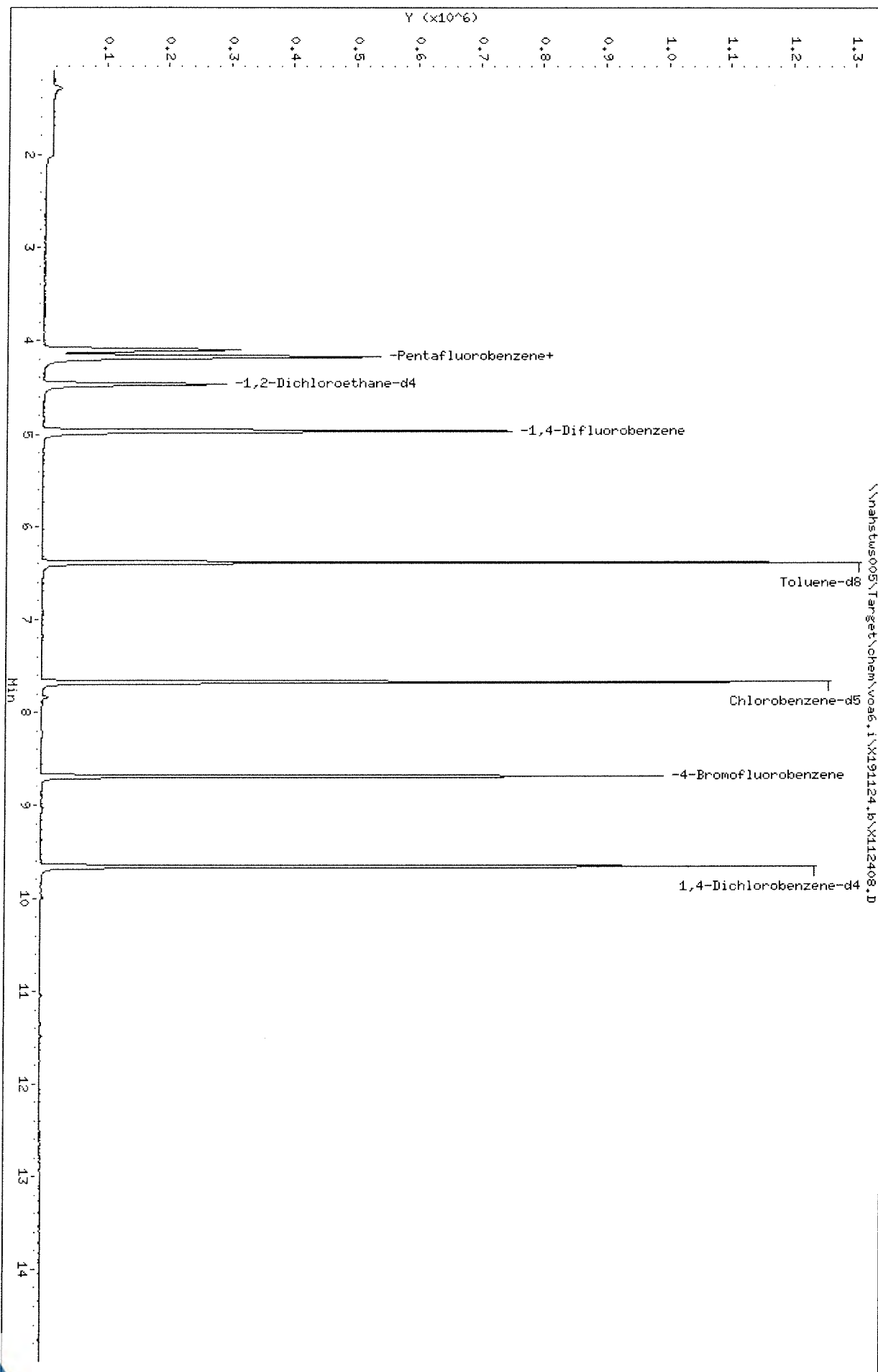
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG	CONCENTRATIONS					
		ON-COLUMN	FINAL				
	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	491442	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	671293	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	604211	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	309576	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	215566	46.6740	46.67
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	262714	46.7617	46.76
\$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	214719	48.0649	48.06
\$ 48 Toluene-d8	98	6.389	6.388	(0.833)	770222	48.3816	48.38



Data File: \\nahstus005\Target\chem\woa6.i\X191124.b\X112408.D
Date : 24-NOV-2019 15:00
Client ID: H519111153-09
Sample Info: H519111153-09;H519111153-09;??
Purge Volume: 5.0
Column phase: DB624

Instrument: woa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112411.D Page 1
 Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112411.D
 Lab Smp Id: HS19111239-05MS Client Smp ID: HS19111239-05MS
 Inj Date : 24-NOV-2019 16:13
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111239-05MS;HS19111239-05MS;3;;MS
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 11 QC Sample: MS
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.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

							CONCENTRATIONS	
QUANT SIG							ON-COLUMN	FINAL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)	
=====	=====	=====	=====	=====	=====	=====	=====	
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	477258	50.0000		
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	653867	50.0000		
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	592999	50.0000		
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	312391	50.0000		
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	209623	46.7351	46.73	
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	261165	47.3596	47.35	
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	211339	48.7093	48.70	
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	745667	47.7248	47.72	
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	78468	18.2394	18.23	
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	121582	18.8835	18.88	
68 1,1,2,2-Tetrachloroethane	83	8.845	8.838	(0.915)	79097	18.0062	18.00	
138 Freon TF	101	1.912	1.919	(0.457)	78919	18.9936	18.99	
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	56552	18.2434	18.24	
22 1,1-Dichloroethane	63	2.922	2.921	(0.699)	127407	18.3473	18.34	
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	73287	18.1197	18.11	
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	100844	19.1194	19.11	
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	17373	14.4113	14.41	
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	64183	17.2439	17.24 (M)	
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	40144	15.2553	15.25	
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	282667	19.0699	19.06	
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	8108	16.4932	16.49	
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	73944	17.7792	17.77	
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	154553	18.6412	18.64	



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112411.D Page 2
 Report Date: 17-Dec-2019 15:49

Compounds	QUANT SIG MASS					CONCENTRATIONS	
		RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	94771	18.2583	18.25
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	70628	18.0822	18.08
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	279278	19.6356	19.63
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	172281	19.2304	19.23
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	111206	17.6701	17.67
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	171321	18.8189	18.81
26 2,2-Dichloropropane	77	3.509	3.516	(0.839)	114522	18.1706	18.17
24 2-Butanone	43	3.581	3.573	(0.856)	44128	30.1333	30.13
76 2-Chlorotoluene	91	8.974	8.974	(0.929)	221959	19.7487	19.74
52 2-Hexanone	43	7.090	7.090	(0.924)	77587	31.8504	31.85
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	258653	18.9866	18.98
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	297755	19.4797	19.47
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	112354	32.3365	32.33
10 Acetone	43	1.976	1.976	(0.473)	34905	25.4821	25.48
37 Benzene	78	4.512	4.512	(0.908)	286765	19.1720	19.17
74 Bromobenzene	156	8.810	8.809	(0.912)	103662	19.0934	19.09
29 Bromochloromethane	128	3.795	3.795	(0.908)	45574	17.6271	17.62
39 Bromodichloromethane	83	5.729	5.729	(1.153)	98855	18.2690	18.26
66 Bromoform	173	8.416	8.416	(1.097)	60507	17.7922	17.79
6 Bromomethane	94	1.338	1.338	(0.320)	100077	19.7260	19.72
19 Carbon Disulfide	76	2.069	2.069	(0.495)	431683	39.2325	39.23
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	111172	19.2413	19.24
59 Chlorobenzene	112	7.699	7.699	(1.004)	212140	18.3242	18.32
7 Chloroethane	64	1.403	1.403	(0.336)	51130	17.0157	17.01
28 Chloroform	83	3.910	3.910	(0.935)	134484	17.3995	17.39
3 Chloromethane	50	1.073	1.073	(0.257)	76212	14.8355	14.83
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	84750	18.7250	18.72
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	117301	18.3953	18.39
55 Dibromochloromethane	129	7.176	7.176	(0.936)	81954	18.1985	18.19
44 Dibromomethane	93	5.558	5.557	(1.118)	50135	18.1381	18.13
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	77408	18.3676	18.36
61 Ethylbenzene	106	7.800	7.799	(1.017)	112709	18.8423	18.84
91 Hexachlorobutadiene	225	11.489	11.488	(1.189)	39301	15.6545	15.65
67 Isopropylbenzene	105	8.566	8.566	(1.117)	339340	19.1527	19.15
62 m,p-Xylenes	106	7.907	7.907	(1.031)	271586	37.6253	37.62
17 Methylene Chloride	84	2.305	2.305	(0.551)	74200	17.1942	17.19
87 n-Butylbenzene	91	9.999	9.999	(1.035)	253912	19.9609	19.96
73 n-Propylbenzene	91	8.917	8.917	(0.923)	388610	20.1253	20.12
92 Naphthalene	128	11.546	11.546	(1.195)	46422	13.7543	13.75
63 o-Xylene	106	8.244	8.244	(1.075)	130735	18.3516	18.35
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	335752	20.0156	20.01
64 Styrene	104	8.258	8.258	(1.077)	229668	18.5397	18.53
78 tert-Butylbenzene	119	9.340	9.340	(0.967)	242255	19.8927	19.89
56 Tetrachloroethene	164	6.933	6.933	(0.904)	95174	22.8423	22.84
50 Toluene	91	6.446	6.446	(0.840)	317877	18.9031	18.90
20 trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	74024	18.8511	18.85
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	102349	17.6105	17.61
38 Trichloroethene	130	5.207	5.206	(1.048)	89959	19.6729	19.67
8 Trichlorofluoromethane	101	1.561	1.560	(0.373)	141771	19.1494	19.14
5 Vinyl Chloride	62	1.138	1.138	(0.272)	83033	17.0706	17.07



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112411.D Page 3
Report Date: 17-Dec-2019 15:49

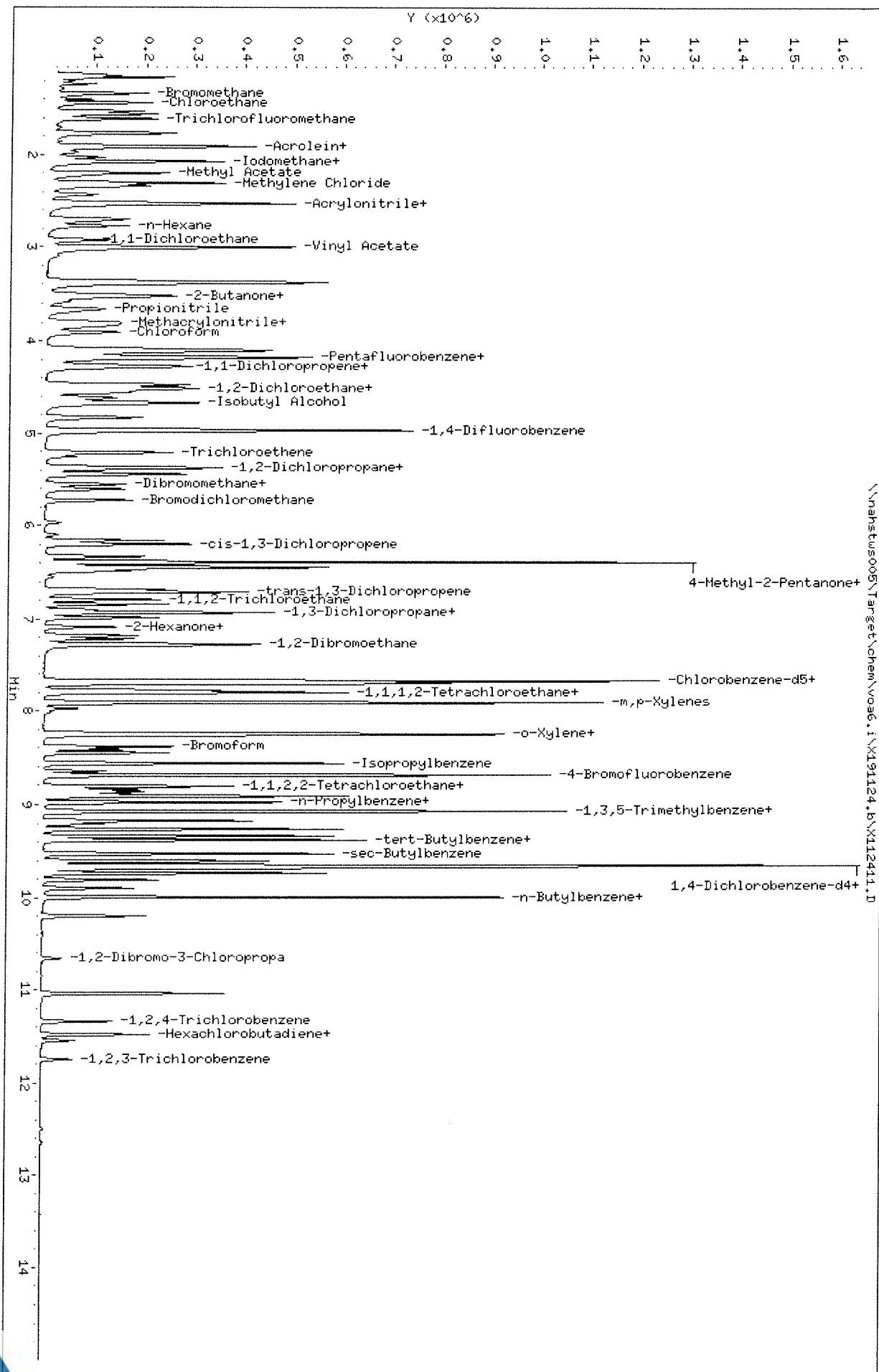
QC Flag Legend

M - Compound response manually integrated.



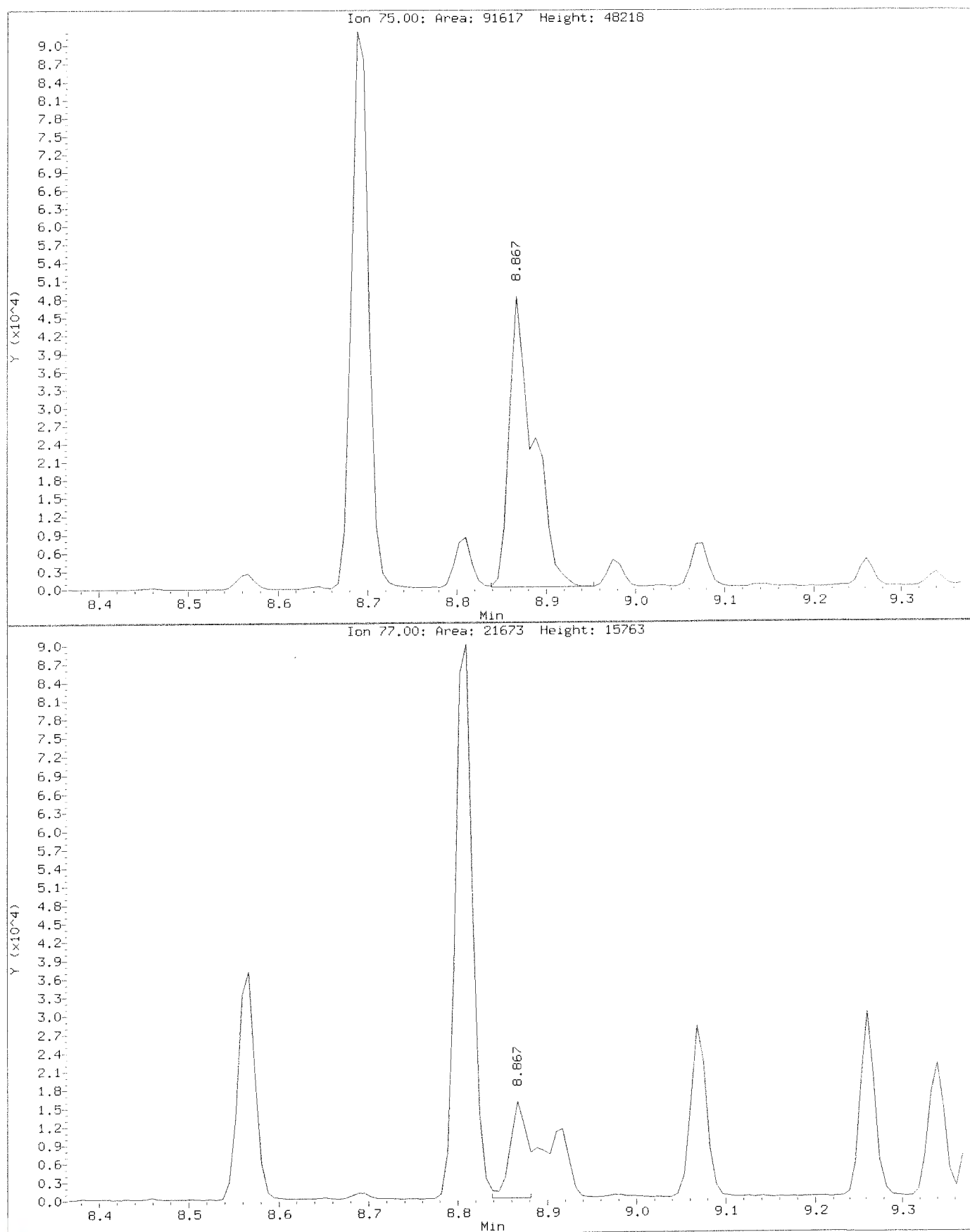
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 Client ID: H51911239-05MS
 Sample Info: H51911239-05MS;H51911239-05MS;3;IMS
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



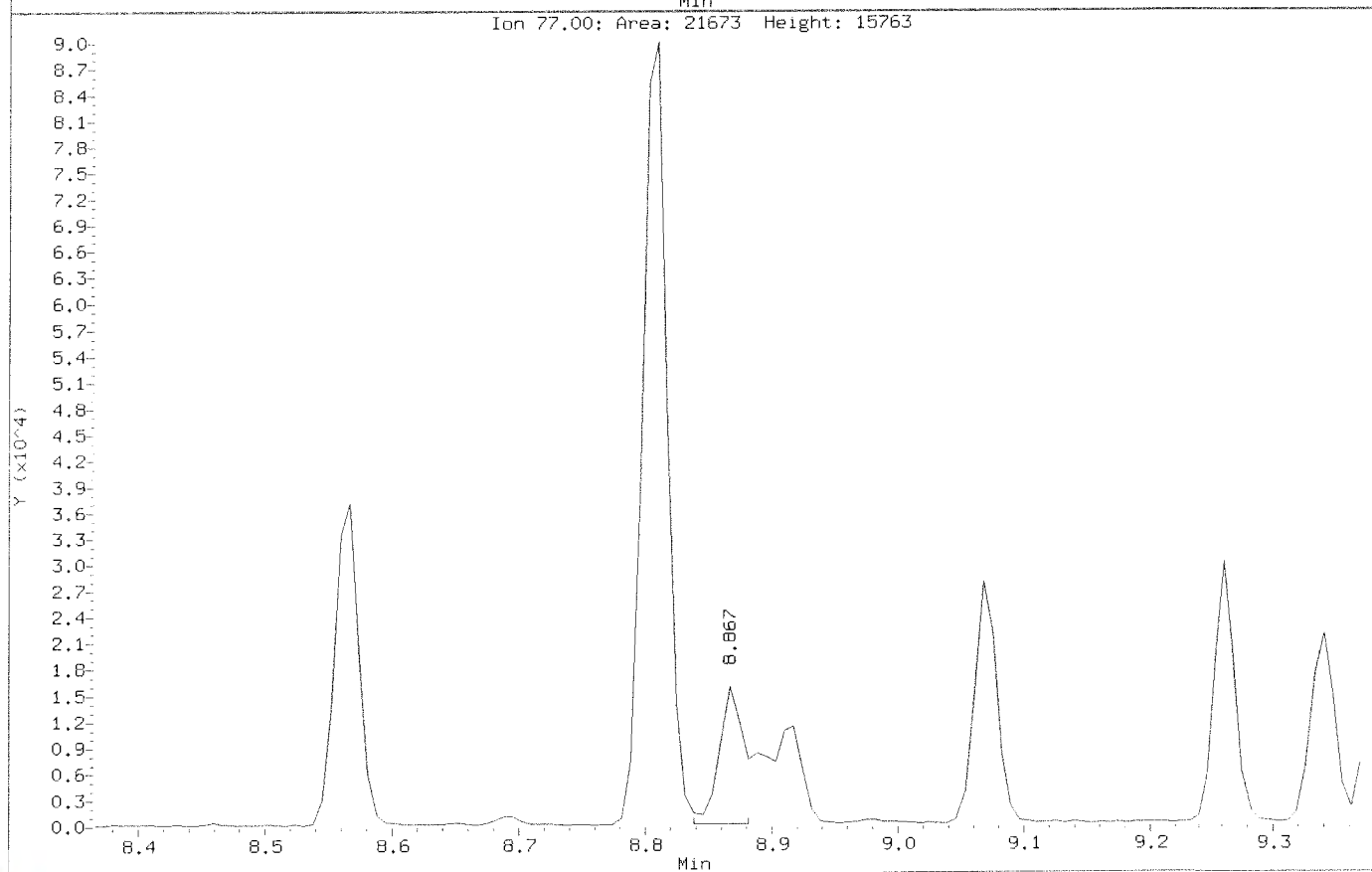
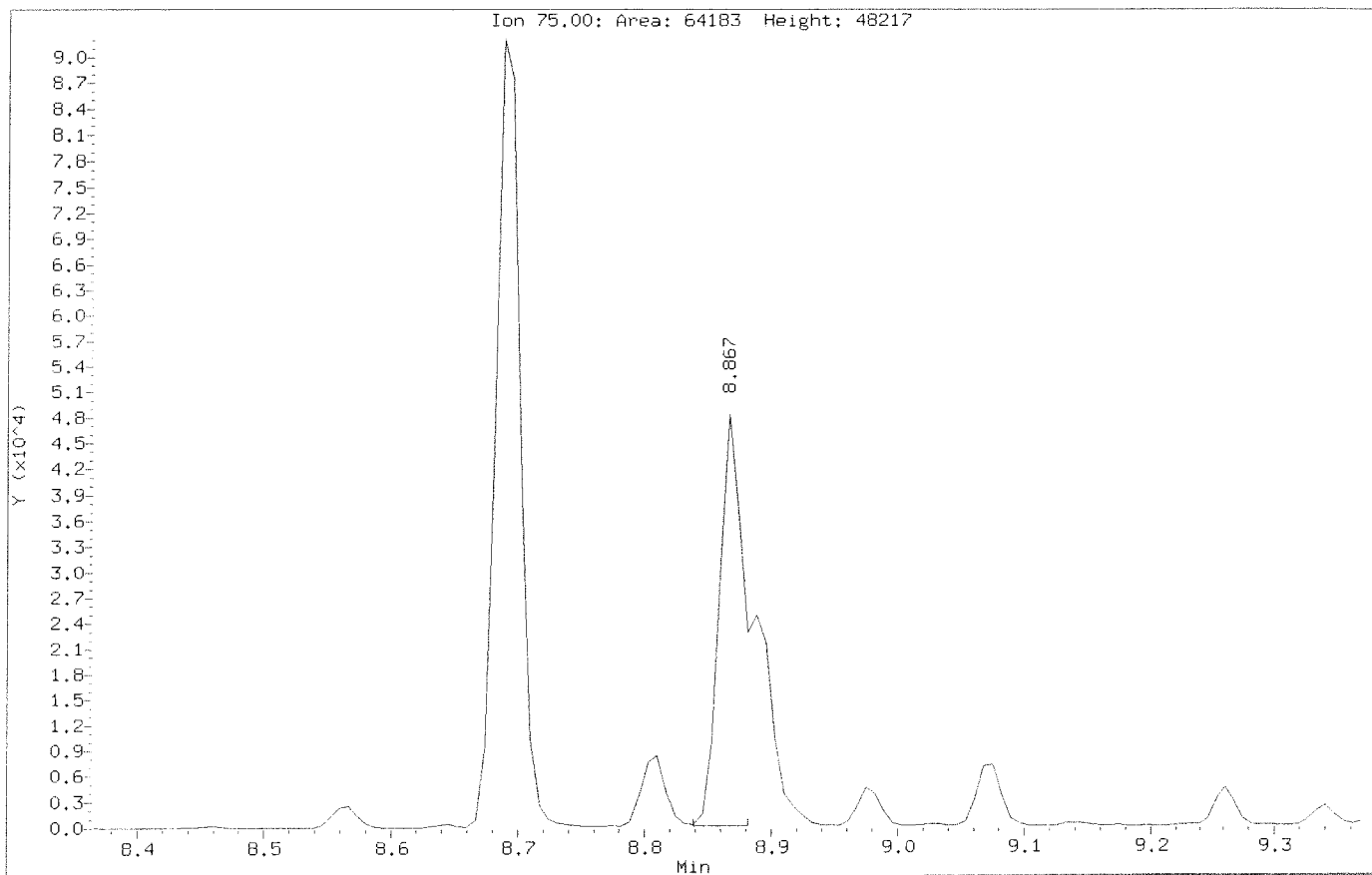
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Injection Date: 24-NOV-2019 16:13
Instrument: voa6.i
Client Sample ID: HS19111239-05MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112411.D
Injection Date: 24-NOV-2019 16:13
Instrument: voa6.i
Client Sample ID: HS19111239-05MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112412.D Page 1
 Report Date: 17-Dec-2019 15:49

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Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112412.D
 Lab Smp Id: HS19111239-05MSD Client Smp ID: HS19111239-05MSD
 Inj Date : 24-NOV-2019 16:37
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111239-05MSD;HS19111239-05MSD;3;;MSD
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 11 QC Sample: MSD
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.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						CONCENTRATIONS	
			MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168		4.182	4.182	(1.000)		472494	50.0000	
* 36 1,4-Difluorobenzene	114		4.970	4.970	(1.000)		652154	50.0000	
* 47 Chlorobenzene-d5	117		7.670	7.671	(1.000)		584590	50.0000	
* 70 1,4-Dichlorobenzene-d4	152		9.662	9.669	(1.000)		313244	50.0000	
\$ 35 1,2-Dichloroethane-d4	65		4.476	4.476	(1.070)		206148	46.4287	46.42
\$ 69 4-Bromofluorobenzene	95		8.688	8.688	(1.133)		261285	48.0567	48.05
\$ 30 Dibromofluoromethane	113		4.103	4.103	(0.981)		208060	48.4391	48.43
\$ 48 Toluene-d8	98		6.388	6.388	(0.833)		733983	47.6527	47.65
60 1,1,1,2-Tetrachloroethane	131		7.778	7.778	(1.014)		76846	18.1193	18.11
31 1,1,1-Trichloroethane	97		4.089	4.089	(0.978)		115462	18.1138	18.11
68 1,1,2,2-Tetrachloroethane	83		8.838	8.838	(0.915)		77463	17.5862	17.58
138 Freon TF	101		1.911	1.919	(0.457)		71843	17.4649	17.46
53 1,1,2-Trichloroethane	83		6.840	6.840	(0.892)		55130	18.0405	18.04
22 1,1-Dichloroethane	63		2.921	2.921	(0.699)		120770	17.5669	17.56
11 1,1-Dichloroethene	96		1.911	1.911	(0.457)		69527	17.3634	17.36
32 1,1-Dichloropropene	75		4.282	4.282	(0.862)		93629	17.7981	17.79
93 1,2,3-Trichlorobenzene	180		11.746	11.746	(1.216)		21781	18.2264	18.22
71 1,2,3-Trichloropropane	75		8.867	8.867	(0.918)		63475	17.0073	17.00(M)
90 1,2,4-Trichlorobenzene	180		11.338	11.338	(1.173)		46412	17.5892	17.58
79 1,2,4-Trimethylbenzene	105		9.382	9.383	(0.971)		272441	18.3300	18.33
89 1,2-Dibromo-3-Chloropropane	155		10.657	10.658	(1.103)		8188	16.6130	16.61
57 1,2-Dibromoethane	107		7.262	7.262	(0.947)		73515	17.9303	17.93
88 1,2-Dichlorobenzene	146		9.998	9.999	(1.035)		149754	18.0131	18.01



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112412.D Page 2
 Report Date: 17-Dec-2019 15:49

Compounds	QUANT SIG							CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)		
=====	=====	=====	=====	=====	=====	=====	=====		
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	91522	17.6786	17.67		
42 1,2-Dichloropropane	63	5.443	5.436	(1.095)	68371	17.5504	17.55		
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	267622	18.7648	18.76		
83 1,3-Dichlorobenzene	146	9.604	9.612	(0.994)	166009	18.4799	18.47		
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	108734	17.5259	17.52		
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	168293	18.4360	18.43		
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	108858	17.4461	17.44		
24 2-Butanone	43	3.580	3.573	(0.856)	44003	30.3509	30.35		
76 2-Chlorotoluene	91	8.974	8.974	(0.929)	212615	18.8659	18.86		
52 2-Hexanone	43	7.090	7.090	(0.924)	78263	32.5901	32.59		
77 4-Chlorotoluene	91	9.074	9.075	(0.939)	248653	18.2028	18.20		
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	288597	18.8292	18.82		
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	113597	33.1645	33.16		
10 Acetone	43	1.976	1.976	(0.473)	35194	26.0233	26.02		
37 Benzene	78	4.512	4.512	(0.908)	273116	18.3074	18.30		
74 Bromobenzene	156	8.809	8.809	(0.912)	100415	18.4450	18.44		
29 Bromochloromethane	128	3.795	3.795	(0.908)	44263	17.2926	17.29		
39 Bromodichloromethane	83	5.729	5.729	(1.153)	97334	18.0352	18.03		
66 Bromoform	173	8.415	8.416	(1.097)	59985	17.8868	17.88		
6 Bromomethane	94	1.338	1.338	(0.320)	93106	18.3949	18.39		
19 Carbon Disulfide	76	2.069	2.069	(0.495)	402402	36.9401	36.94		
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	104884	18.2006	18.20		
59 Chlorobenzene	112	7.699	7.699	(1.004)	203181	17.8028	17.80		
7 Chloroethane	64	1.403	1.403	(0.336)	49308	16.5748	16.57		
28 Chloroform	83	3.910	3.910	(0.935)	128904	16.8457	16.84		
3 Chloromethane	50	1.073	1.073	(0.257)	71770	14.1208	14.12		
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	81236	18.1296	18.12		
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	114576	18.0151	18.01		
55 Dibromochloromethane	129	7.176	7.176	(0.936)	79747	17.9632	17.96		
44 Dibromomethane	93	5.557	5.557	(1.118)	49076	17.8016	17.80		
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	71993	17.3084	17.30		
61 Ethylbenzene	106	7.799	7.799	(1.017)	108768	18.4450	18.44		
91 Hexachlorobutadiene	225	11.481	11.488	(1.188)	42952	17.0622	17.06		
67 Isopropylbenzene	105	8.566	8.566	(1.117)	321812	18.4247	18.42		
62 m,p-Xylenes	106	7.907	7.907	(1.031)	260394	36.5937	36.59		
17 Methylene Chloride	84	2.305	2.305	(0.551)	71635	16.7672	16.76		
87 n-Butylbenzene	91	9.998	9.999	(1.035)	246391	19.3169	19.31		
73 n-Propylbenzene	91	8.917	8.917	(0.923)	373119	19.2704	19.27		
92 Naphthalene	128	11.546	11.546	(1.195)	54573	16.1253	16.12		
63 o-Xylene	106	8.243	8.244	(1.075)	126953	18.0771	18.07		
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	323762	19.2483	19.24		
64 Styrene	104	8.258	8.258	(1.077)	218409	17.8844	17.88		
78 tert-Butylbenzene	119	9.339	9.340	(0.967)	233410	19.1142	19.11		
56 Tetrachloroethene	164	6.933	6.933	(0.904)	91203	22.2041	22.20		
50 Toluene	91	6.446	6.446	(0.840)	303731	18.3217	18.32		
20 trans-1,2-Dichloroethene	96	2.527	2.528	(0.604)	69681	17.9240	17.92		
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	100251	17.2948	17.29		
38 Trichloroethene	130	5.206	5.206	(1.048)	85604	18.7697	18.76		
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	131338	17.9191	17.91		
5 Vinyl Chloride	62	1.138	1.138	(0.272)	78167	16.2323	16.23		

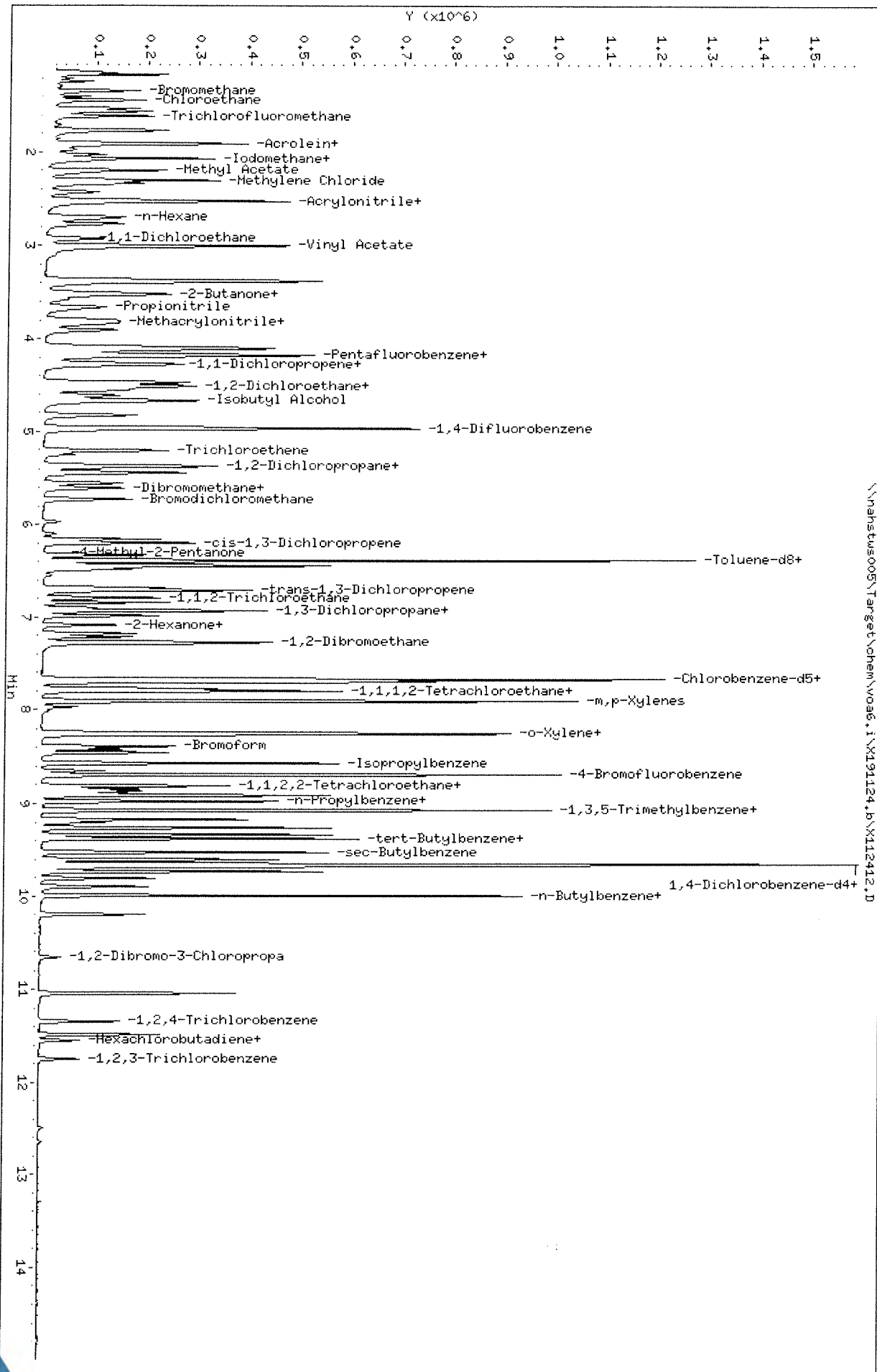


Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112412.D Page 3
Report Date: 17-Dec-2019 15:49

QC Flag Legend

M - Compound response manually integrated.





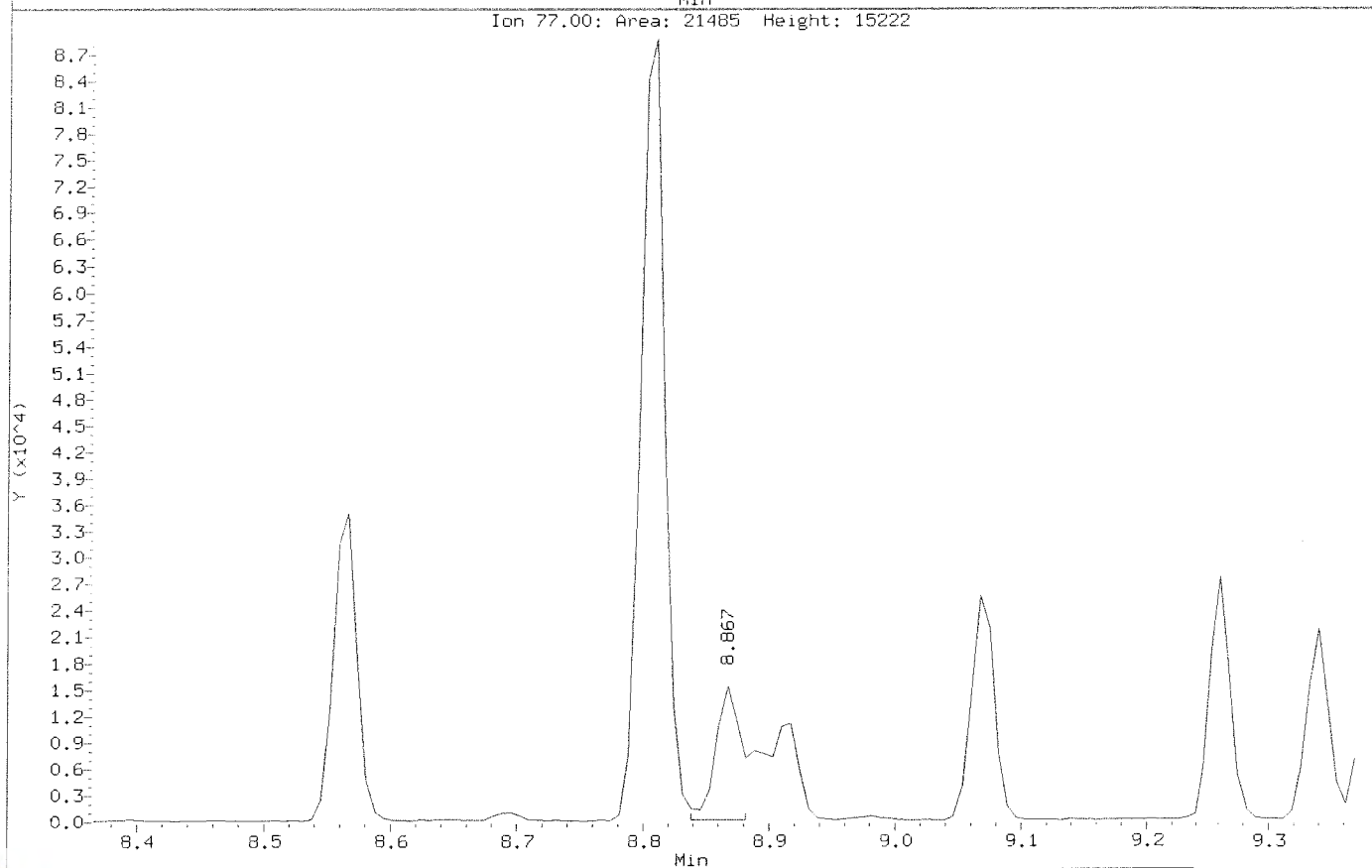
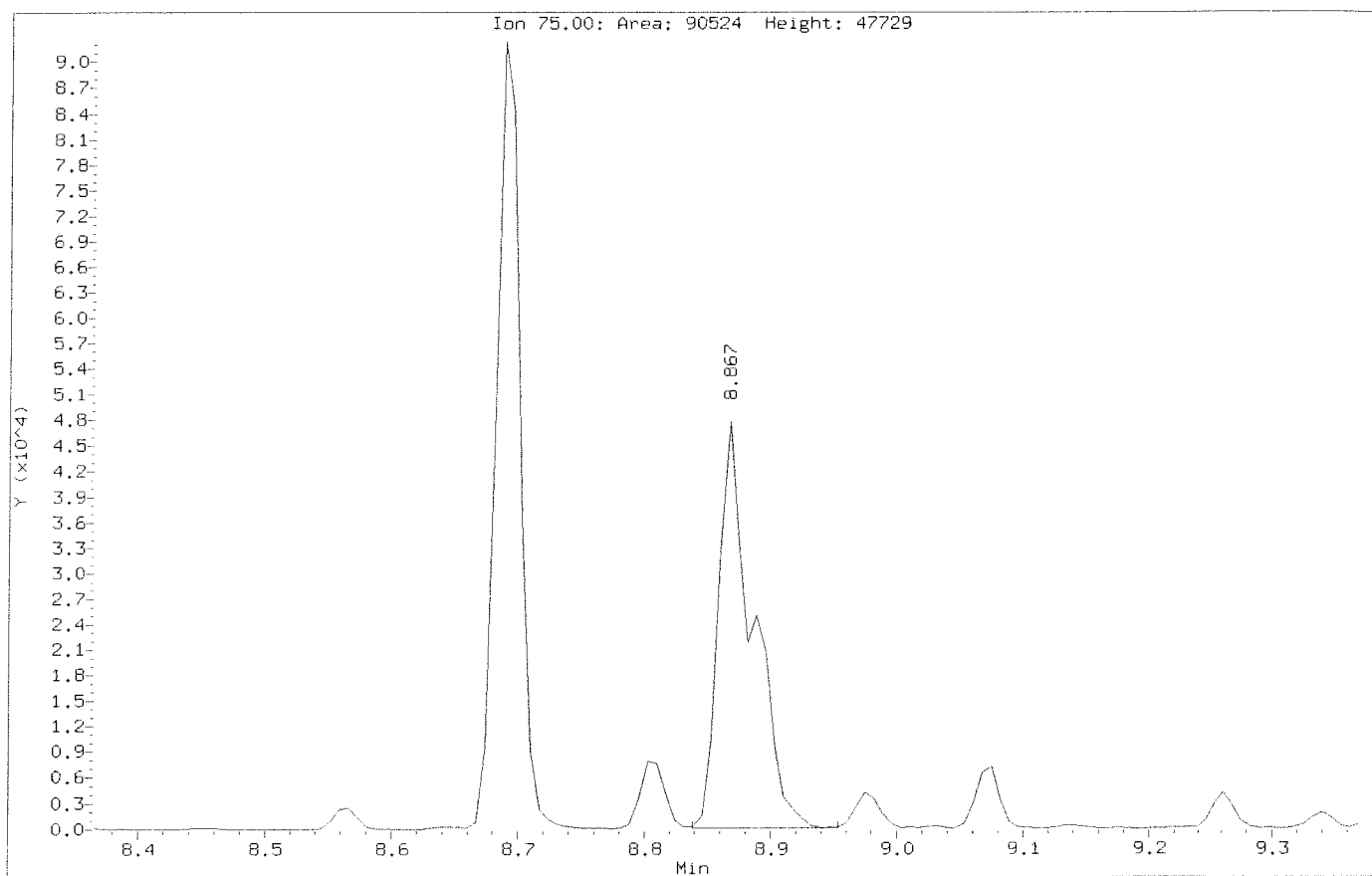
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 Date : 24-Nov-2019 16:37
 Client ID: HSI9111239-05HSD
 Sample Info: HSI9111239-05HSD\HSI9111239-05HSD\3;:NSD
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



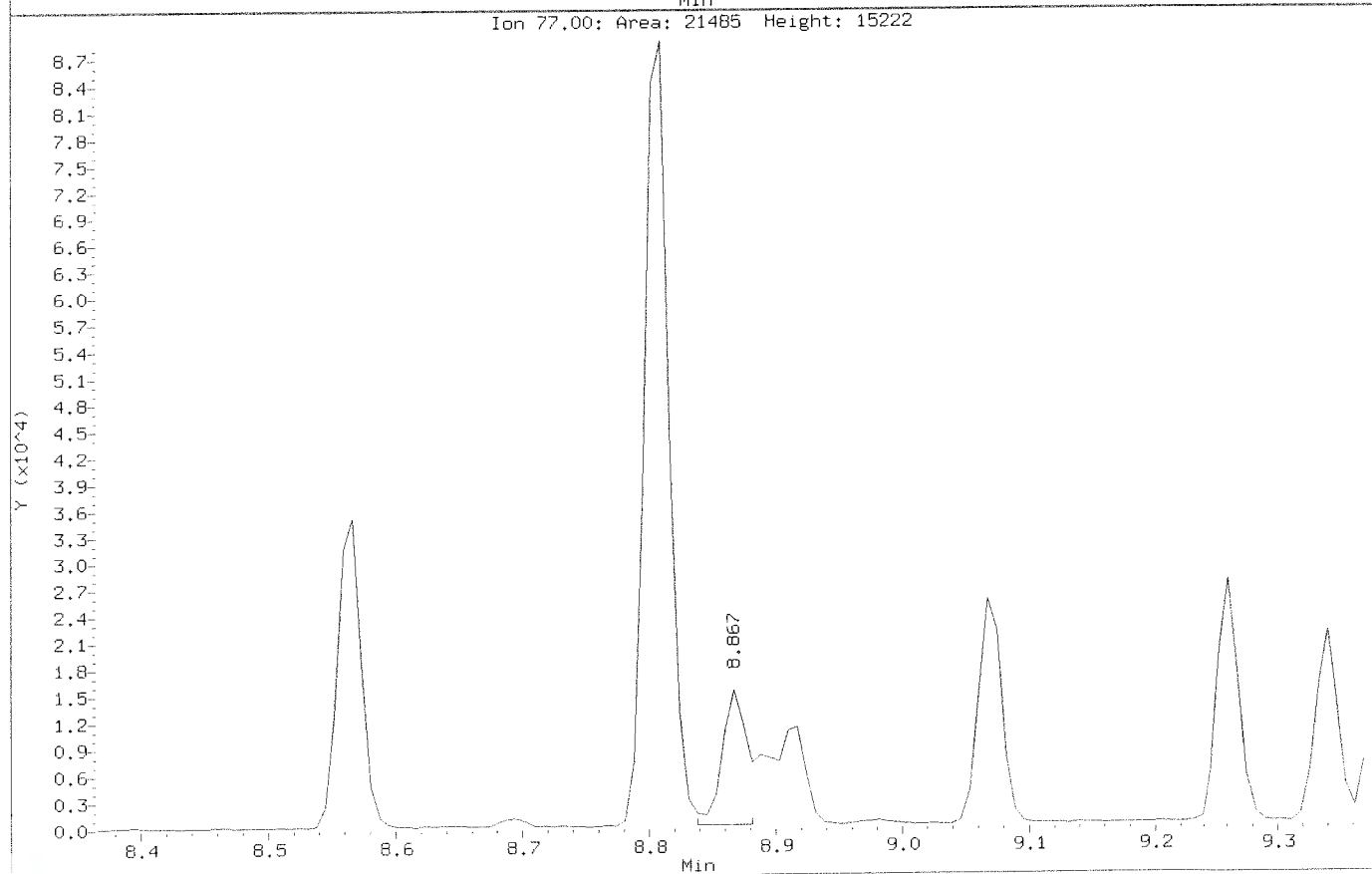
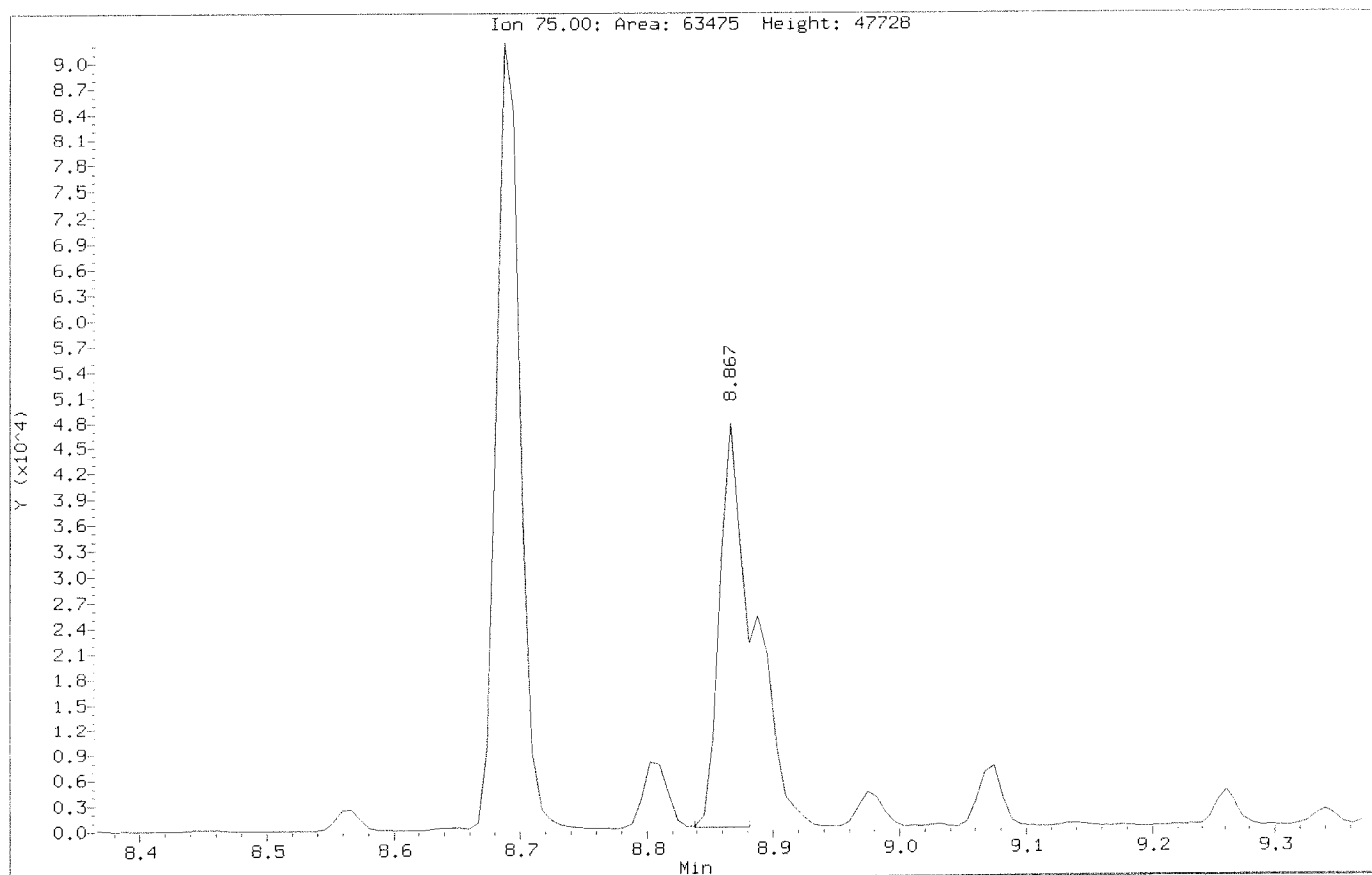
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Injection Date: 24-NOV-2019 16:37
Instrument: voa6.i
Client Sample ID: HS19111239-05MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112412.D
Injection Date: 24-NOV-2019 16:37
Instrument: voa6.i
Client Sample ID: HS19111239-05MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112414.D Page 1
Report Date: 17-Dec-2019 15:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112414.D
Lab Smp Id: HS19111153-01 Client Smp ID: HS19111153-01
Inj Date : 24-NOV-2019 17:25
Operator : PC Inst ID: voa6.i
Smp Info : HS19111153-01;HS19111153-01;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 13
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN (ug/l)	FINAL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182 (1.000)		481308	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970 (1.000)		659523	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671 (1.000)		585647	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669 (1.000)		298914	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476 (1.070)		211440	46.7434	46.74
\$ 69 4-Bromofluorobenzene	95	8.688	8.688 (1.133)		254922	46.8127	46.81
\$ 30 Dibromofluoromethane	113	4.103	4.103 (0.981)		209887	47.9732	47.97
\$ 48 Toluene-d8	98	6.388	6.388 (0.833)		740193	47.9692	47.96
138 Freon TF	101	1.919	1.919 (0.459)		31594	7.53980	7.53
11 1,1-Dichloroethene	96	1.919	1.911 (0.459)		3044	0.74627	0.74(a)
56 Tetrachloroethene	164	6.933	6.933 (0.904)		33224	8.07405	8.07
38 Trichloroethene	130	5.214	5.206 (1.049)		14553	3.15526	3.15(a)

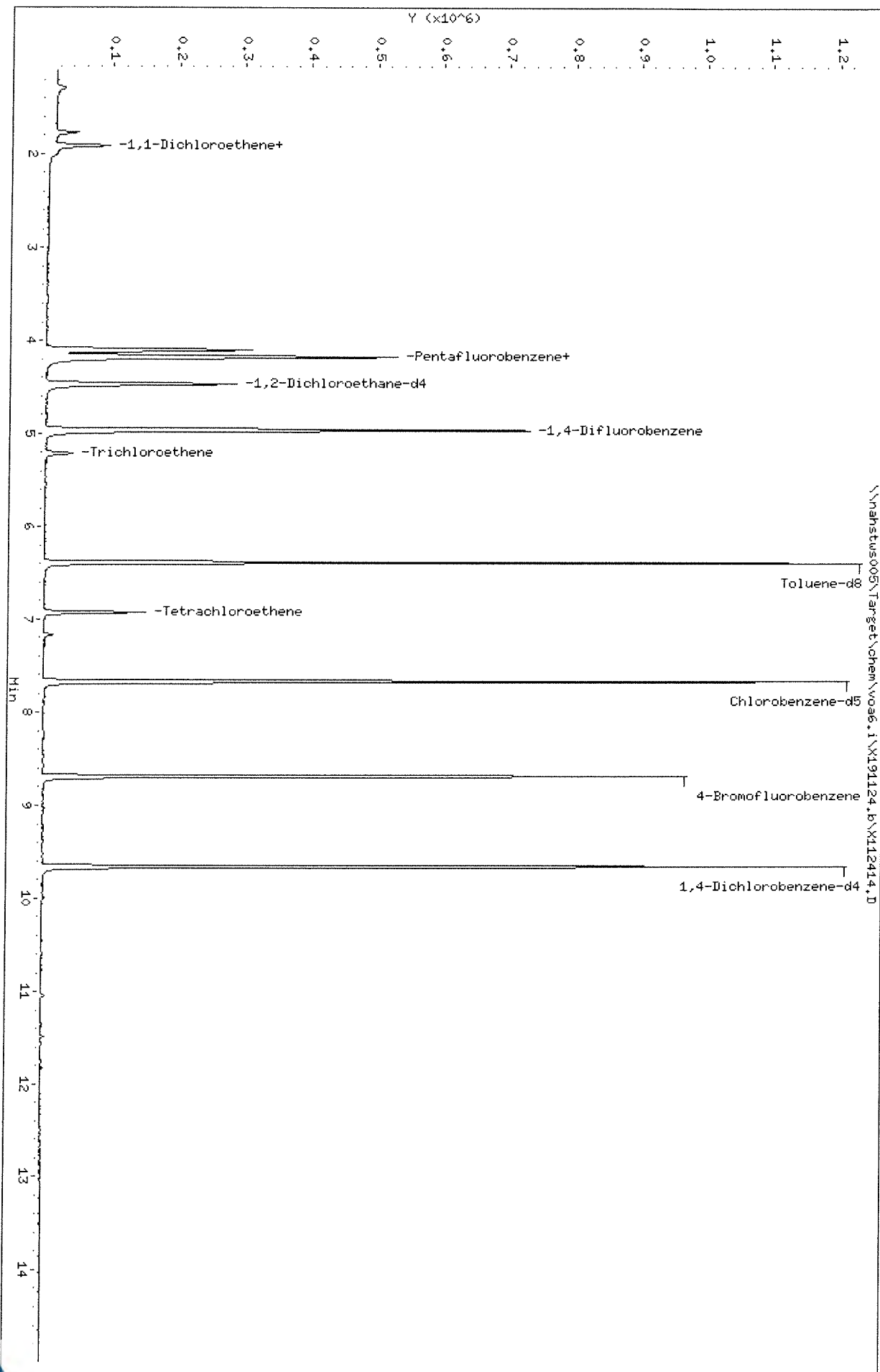
QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



Data File: \\nahstus005\Target\chem\voa6.1\X191124.b\X112414.D
Date: 24-NOV-2019 17:25
Client ID: HSL9111153-01
Sample Info: HSL9111153-01;HSL9111153-01;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.1
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112414.D

Page 3

Date : 24-NOV-2019 17:25

Client ID: HS19111153-01

Instrument: voa6.i

Sample Info: HS19111153-01;HS19111153-01;;

Purge Volume: 5.0

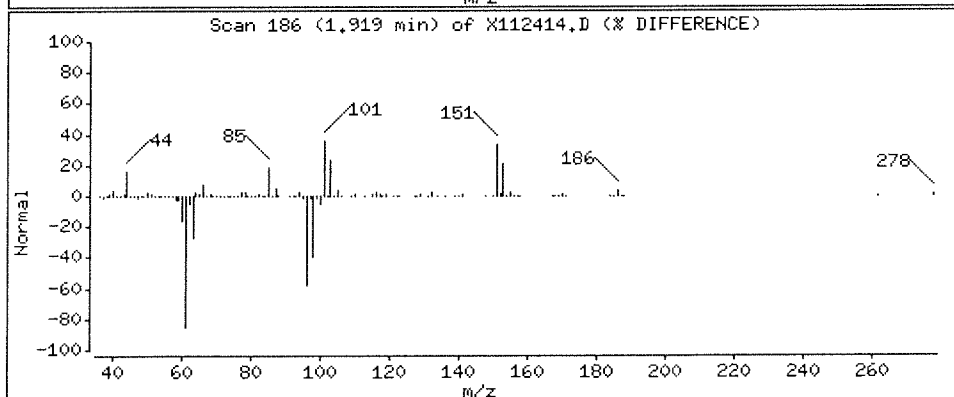
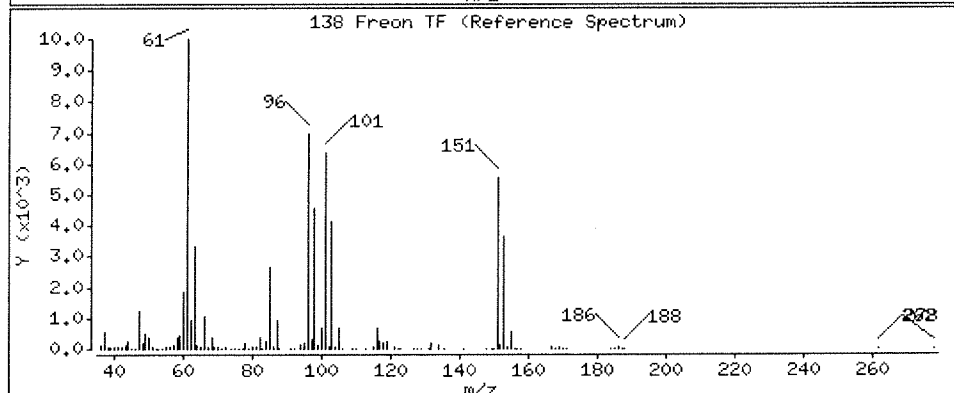
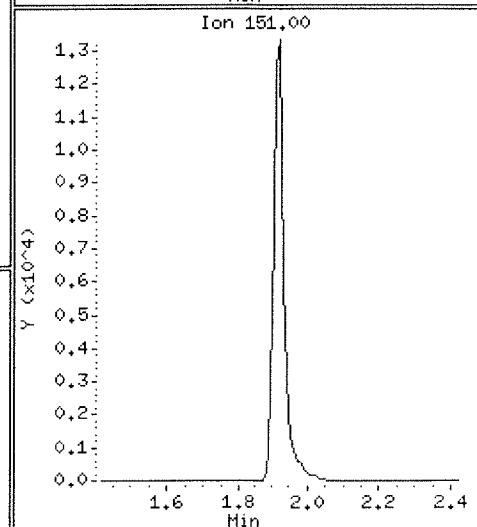
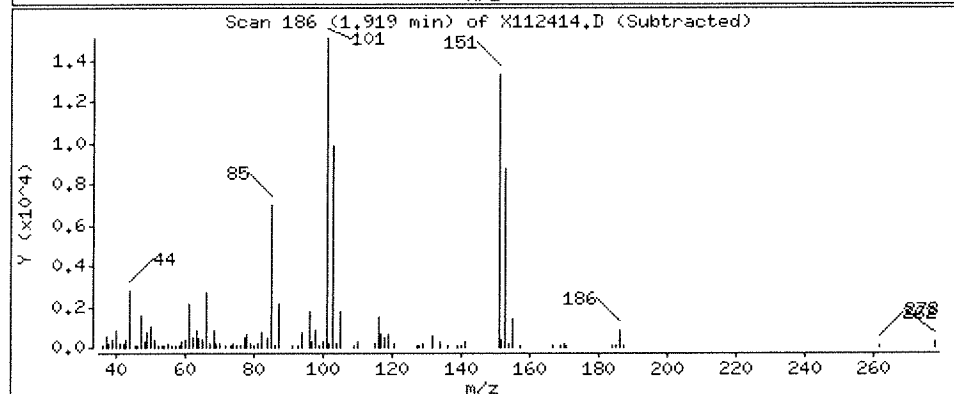
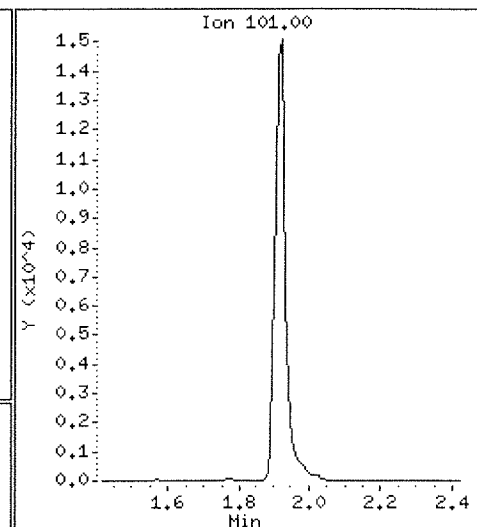
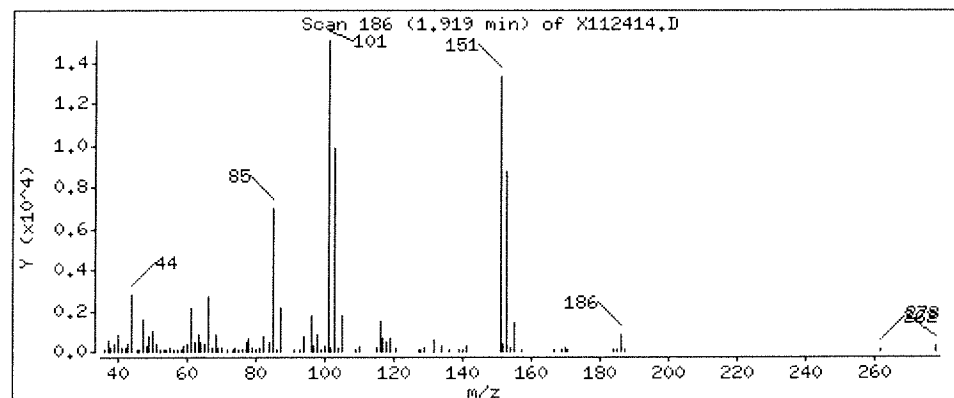
Operator: PC

Column phase: DB624

Column diameter: 0.18

138 Freon TF

Concentration: 7.53 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X112414.b\X112414.D

Page 4

Date : 24-NOV-2019 17:25

Client ID: HS19111153-01

Instrument: voa6.i

Sample Info: HS19111153-01;HS19111153-01;;;

Purge Volume: 5.0

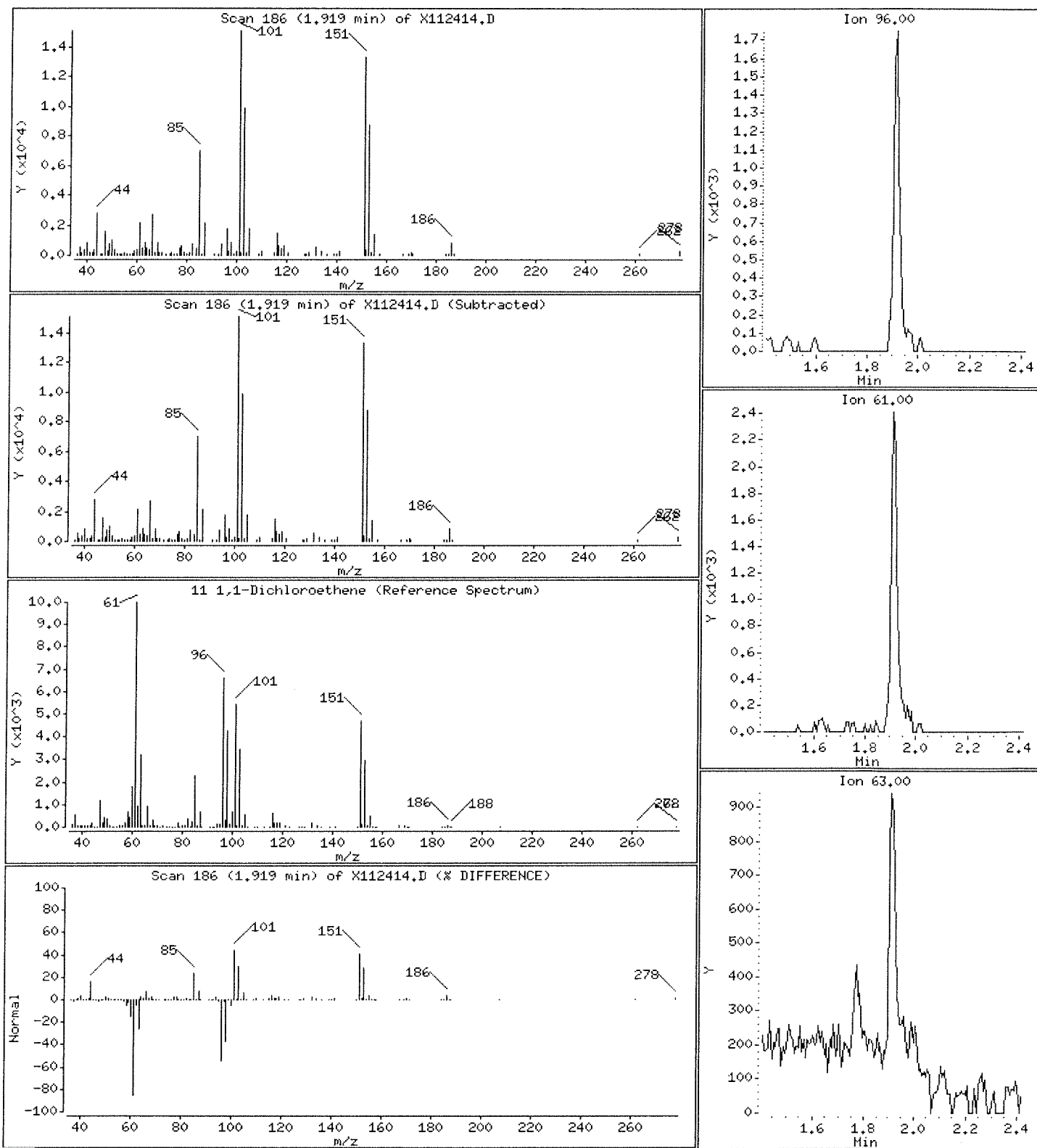
Operator: PC

Column phase: DB624

Column diameter: 0.18

11 1,1-Dichloroethene

Concentration: 0.74 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X1911124.b\X112414.D

Page 5

Date : 24-NOV-2019 17:25

Client ID: HS19111153-01

Instrument: voa6.i

Sample Info: HS19111153-01;HS19111153-01;;;

Purge Volume: 5.0

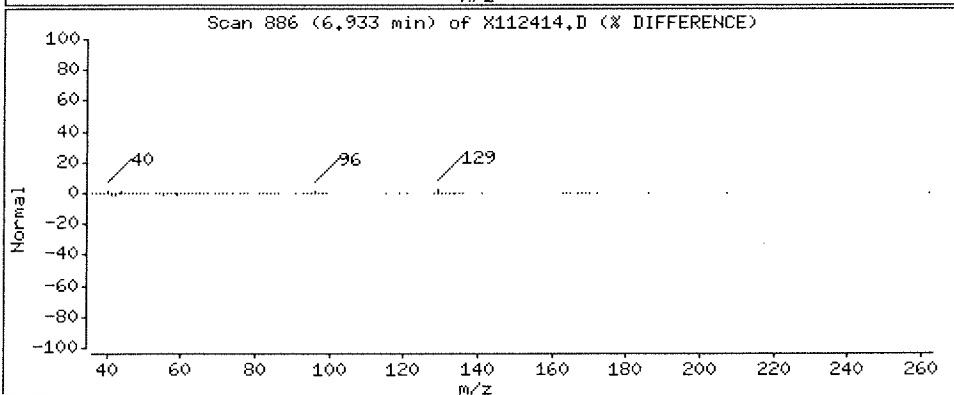
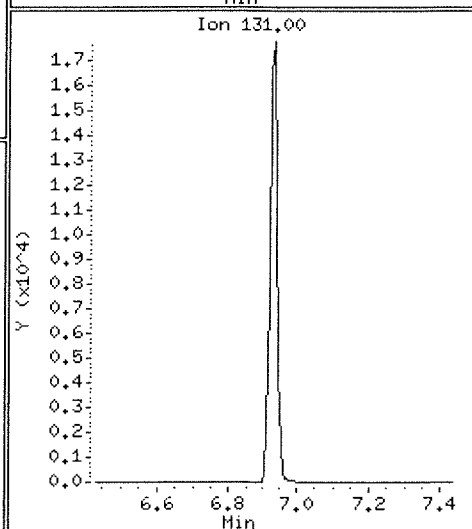
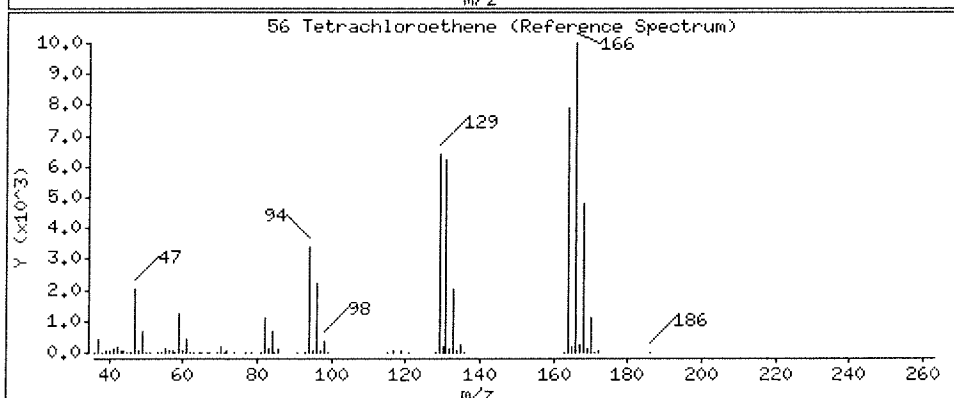
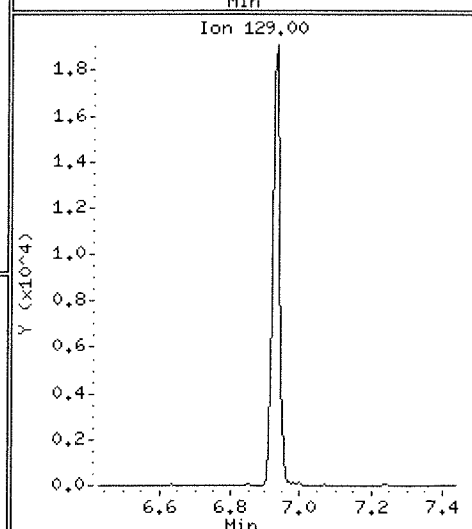
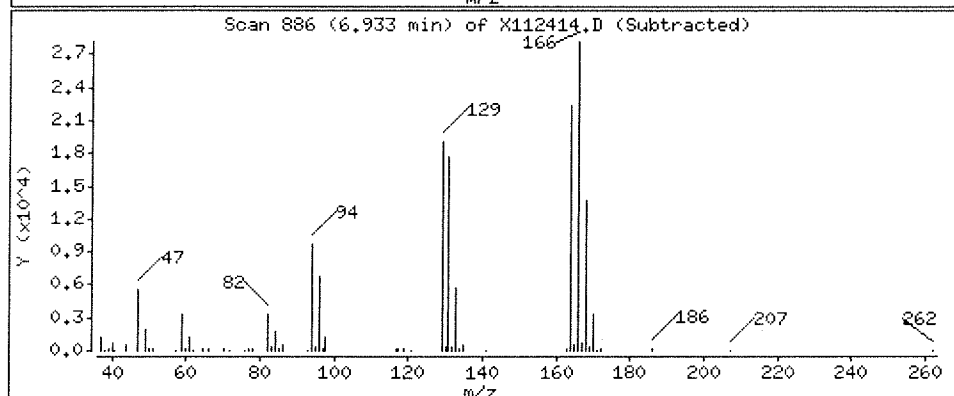
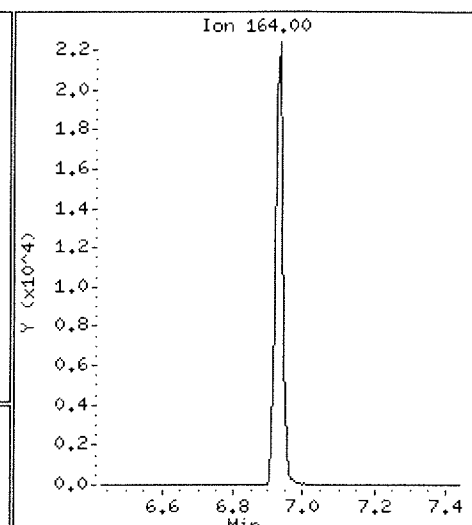
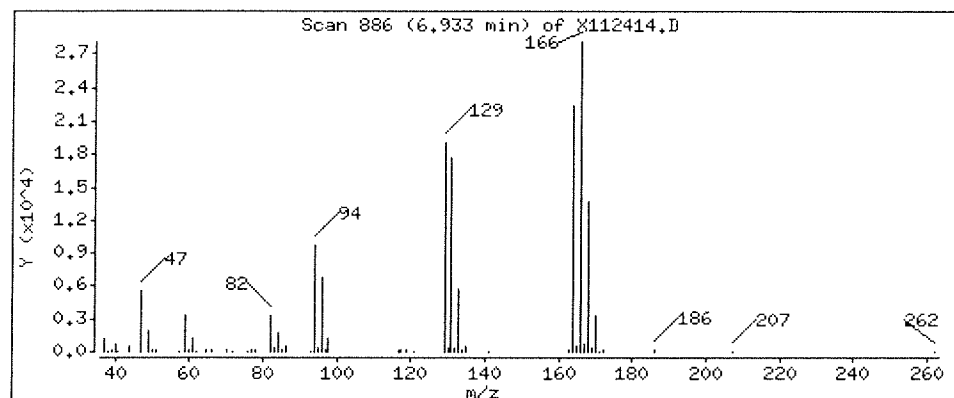
Operator: PC

Column phase: DB624

Column diameter: 0.18

56 Tetrachloroethene

Concentration: 8.07 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112414.D

Page 6

Date : 24-NOV-2019 17:25

Client ID: HS19111153-01

Instrument: voa6.i

Sample Info: HS19111153-01;HS19111153-01;;;

Purge Volume: 5.0

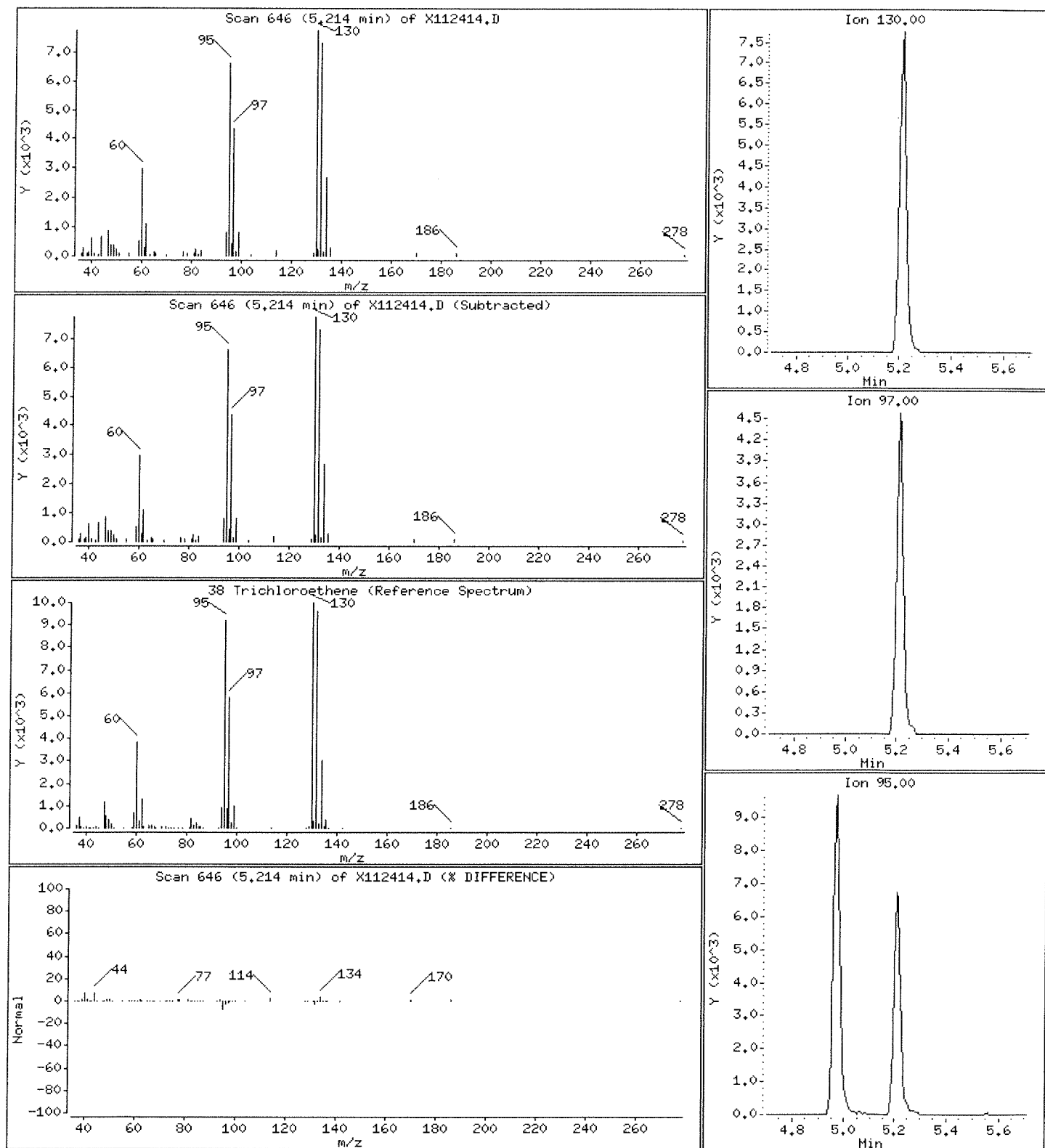
Operator: PC

Column phase: DB624

Column diameter: 0.18

38 Trichloroethene

Concentration: 3.15 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112415.D Page 1
 Report Date: 17-Dec-2019 15:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112415.D
 Lab Smp Id: HS19111153-02 Client Smp ID: HS19111153-02
 Inj Date : 24-NOV-2019 17:49
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111153-02;HS19111153-02;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 14
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

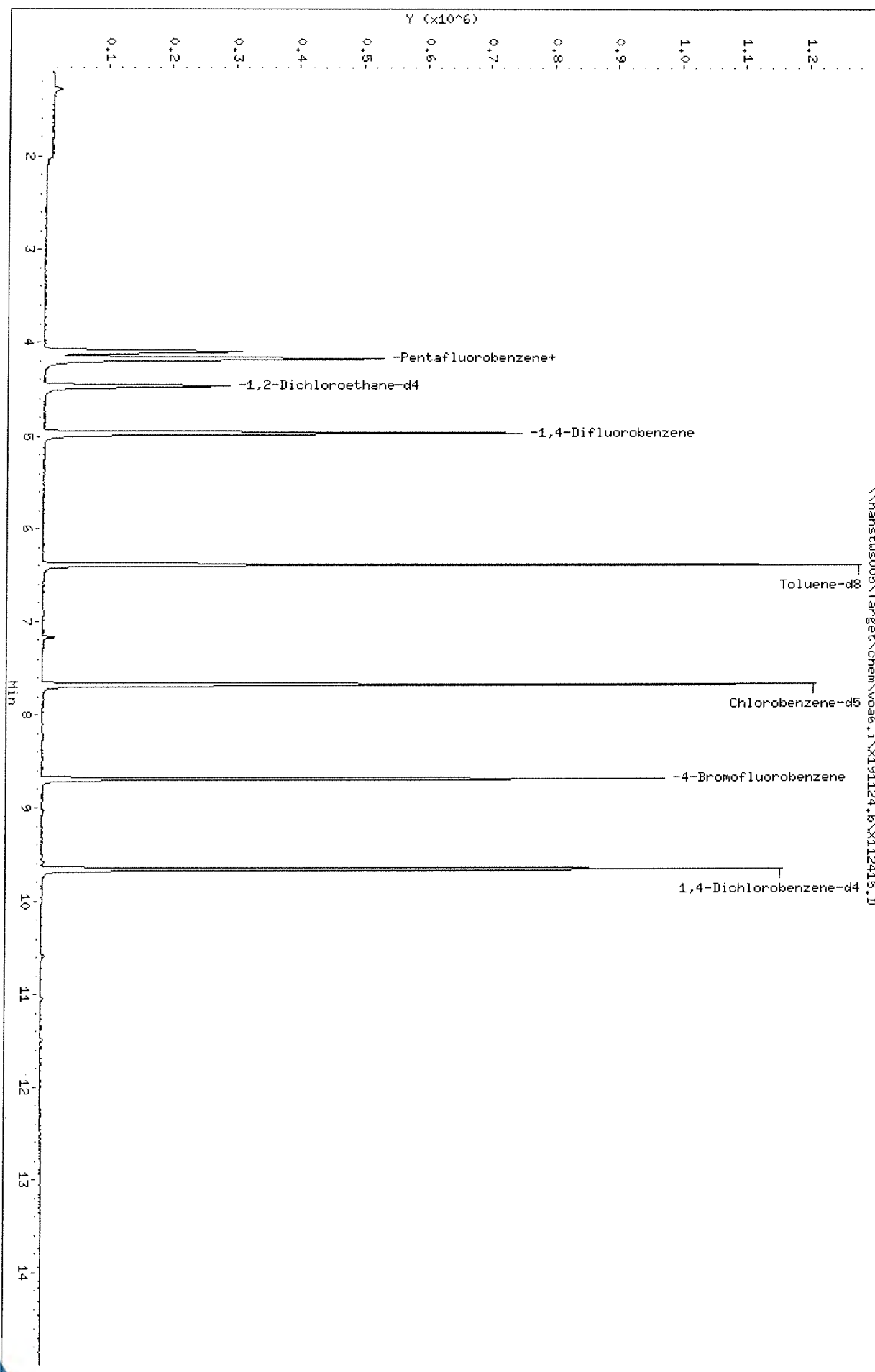
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	481747	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	659984	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	583117	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	293650	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	209007	46.1726	46.17
\$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	252050	46.4890	46.48
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	209931	47.9398	47.93
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	752134	48.9545	48.95



Data File: \\nahstus005\Target\chem\voa6.i\X191124.b\X112415.D
Date : 24-NOV-2019 17:49
Client ID: H81911153-02
Sample Info: H81911153-02;H81911153-02;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112416.D Page 1
 Report Date: 17-Dec-2019 15:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112416.D
 Lab Smp Id: HS19111153-03 Client Smp ID: HS19111153-03
 Inj Date : 24-NOV-2019 18:13
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111153-03;HS19111153-03;;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 15
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG							CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)	
=====	=====	=====	=====	=====	=====	=====	=====	=====	
* 1 Pentafluorobenzene		168	4.182	4.182 (1.000)		484797	50.0000		
* 36 1,4-Difluorobenzene		114	4.970	4.970 (1.000)		662716	50.0000		
* 47 Chlorobenzene-d5		117	7.670	7.671 (1.000)		584329	50.0000		
* 70 1,4-Dichlorobenzene-d4		152	9.669	9.669 (1.000)		293035	50.0000		
\$ 35 1,2-Dichloroethane-d4		65	4.476	4.476 (1.070)		211454	46.4154	46.41	
\$ 69 4-Bromofluorobenzene		95	8.695	8.688 (1.134)		250961	46.1948	46.19	
\$ 30 Dibromofluoromethane		113	4.103	4.103 (0.981)		212333	48.1814	48.18	
\$ 48 Toluene-d8		98	6.388	6.388 (0.833)		751292	48.7983	48.79	
56 Tetrachloroethene		164	6.933	6.933 (0.904)		33936	8.26568	8.26	
38 Trichloroethene		130	5.206	5.206 (1.048)		4306	0.92909	0.92 (a)	

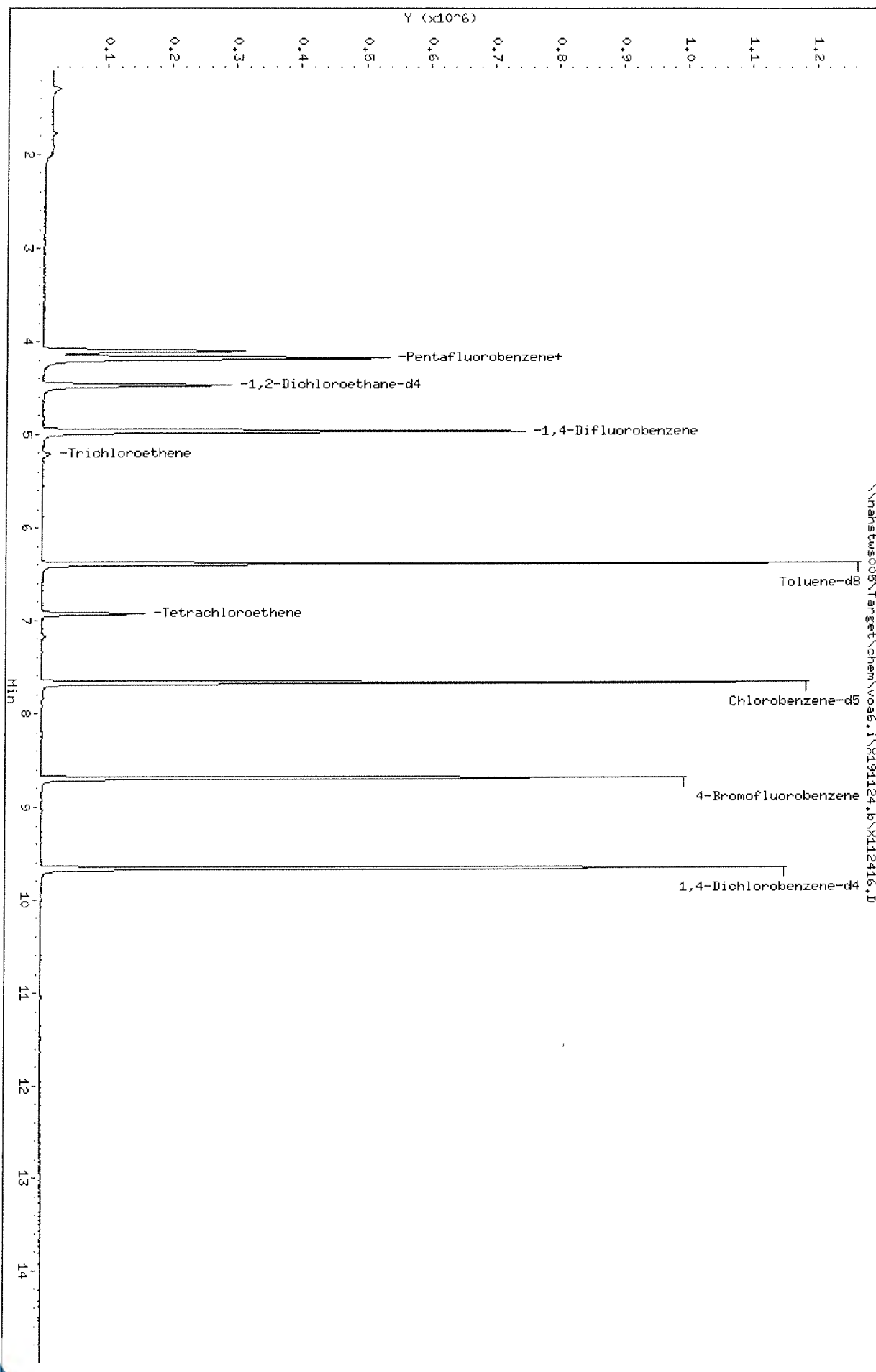
QC Flag Legend

a - Target compound detected but, quantitated amount
 Below Limit Of Quantitation(BLOQ).



Data File: \\nahstus005\Target\chem\voa6.i\X191124.b\X112416.D
Date: 24-NOV-2019 18:13
Client ID: H51911153-03
Sample Info: H51911153-03;H51911153-03;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X112416.D

Page 3

Date : 24-NOV-2019 18:13

Client ID: HS19111153-03

Instrument: voa6.i

Sample Info: HS19111153-03;HS19111153-03;;

Purge Volume: 5.0

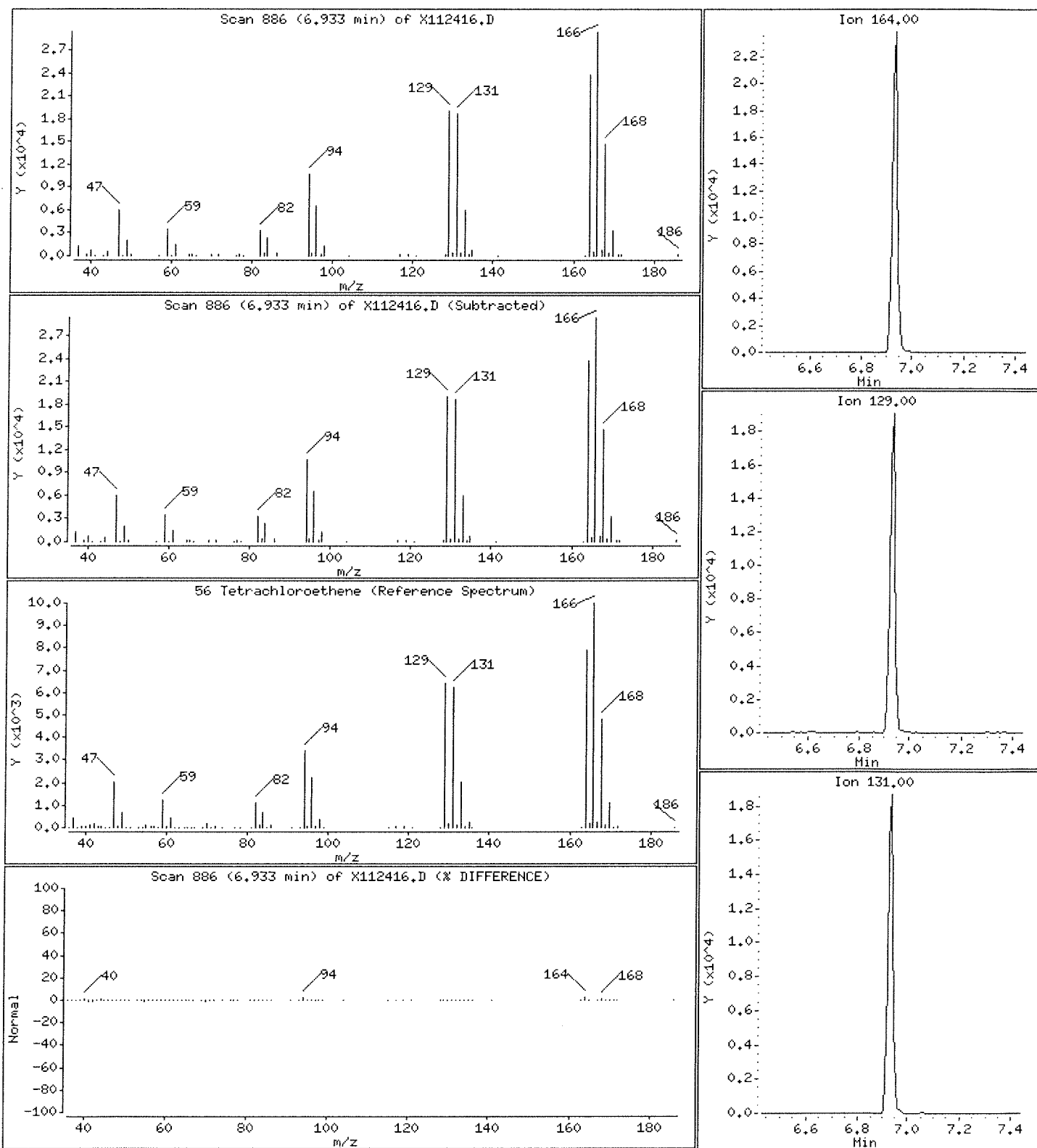
Operator: PC

Column phase: DB624

Column diameter: 0.18

56 Tetrachloroethene

Concentration: 8.26 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X1911124.b\X112416.D

Page 4

Date : 24-NOV-2019 18:13

Client ID: HS19111153-03

Instrument: voa6.i

Sample Info: HS19111153-03;HS19111153-03;;

Purge Volume: 5.0

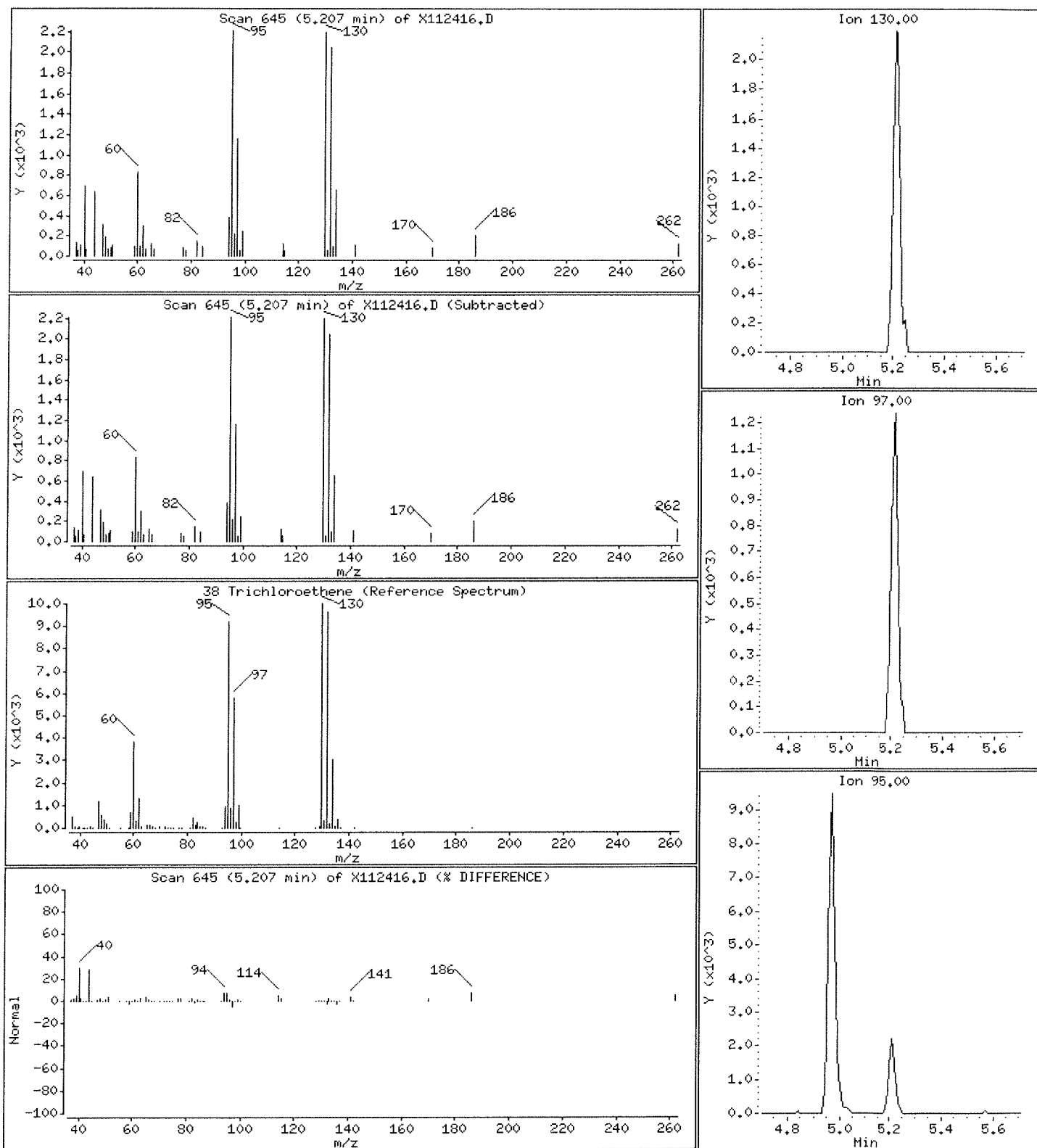
Operator: PC

Column phase: DB624

Column diameter: 0.18

38 Trichloroethene

Concentration: 0.92 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112417.D Page 1
 Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112417.D
 Lab Smp Id: HS19111153-04 Client Smp ID: HS19111153-04
 Inj Date : 24-NOV-2019 18:37
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111153-04;HS19111153-04;;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 16
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG							CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)	
* 1 Pentafluorobenzene	168		4.182	4.182	(1.000)	491312	50.0000		
* 36 1,4-Difluorobenzene	114		4.970	4.970	(1.000)	665789	50.0000		
* 47 Chlorobenzene-d5	117		7.671	7.671	(1.000)	590794	50.0000		
* 70 1,4-Dichlorobenzene-d4	152		9.669	9.669	(1.000)	299918	50.0000		
\$ 35 1,2-Dichloroethane-d4	65		4.476	4.476	(1.070)	213116	46.1639	46.16	
\$ 69 4-Bromofluorobenzene	95		8.688	8.688	(1.133)	254824	46.3908	46.39	
\$ 30 Dibromofluoromethane	113		4.103	4.103	(0.981)	214180	47.9577	47.95	
\$ 48 Toluene-d8	98		6.388	6.388	(0.833)	757745	48.6788	48.67	
56 Tetrachloroethene	164		6.933	6.933	(0.904)	31993	7.70716	7.70	
38 Trichloroethene	130		5.214	5.206	(1.049)	4326	0.92910	0.92(a)	

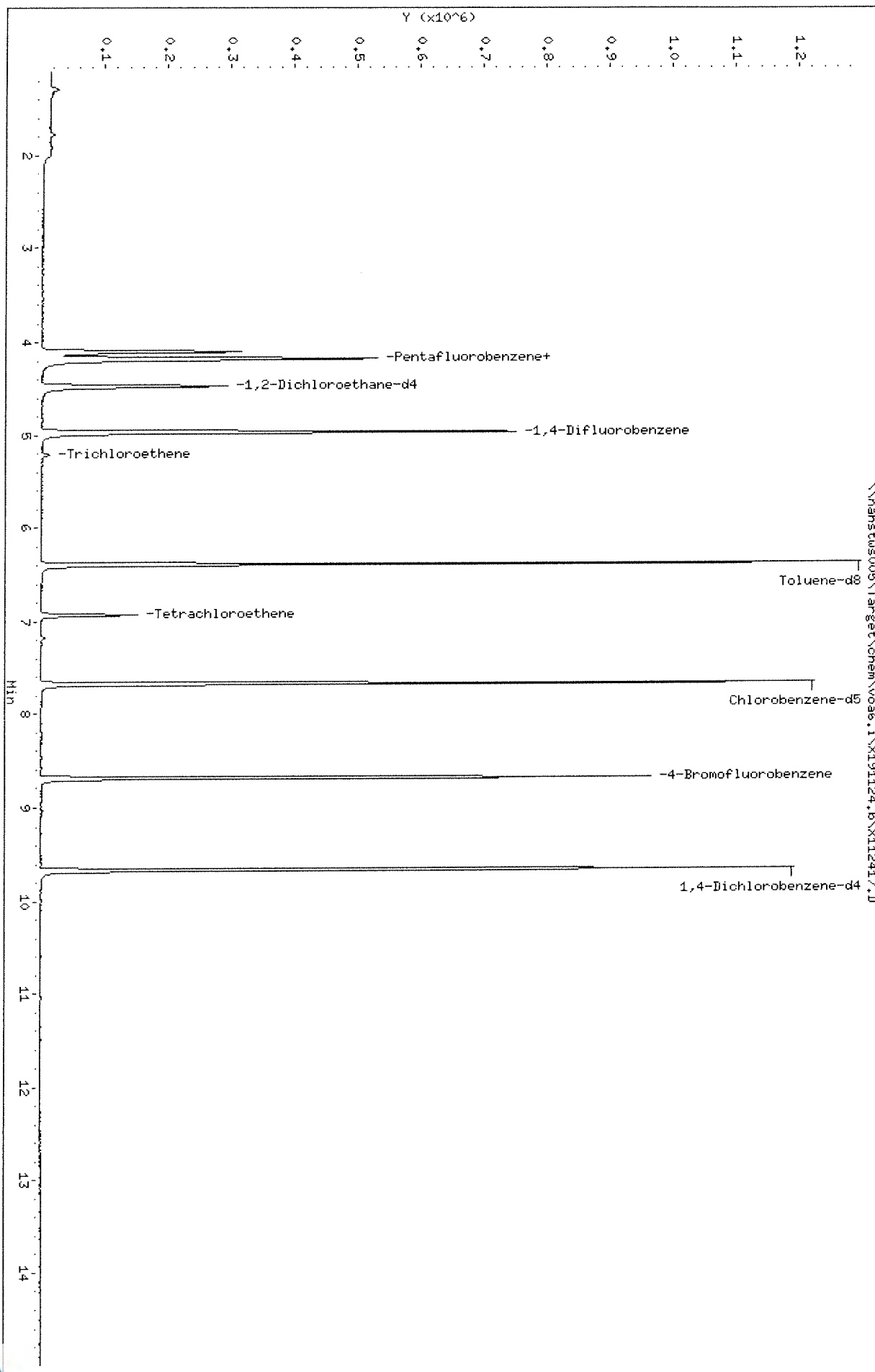
QC Flag Legend

a - Target compound detected but, quantitated amount
 Below Limit Of Quantitation(BLOQ).



Data File: \\nahstus005\Target\chem\voa6.i\X191124.b\X112417.D
Date : 24-NOV-2019 18:37
Client ID: HS1911153-04
Sample Info: HS1911153-04;HS1911153-04;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstus005\Target\chem\voa6.i\X112417.D

Page 3

Date : 24-NOV-2019 18:37

Client ID: HS19111153-04

Instrument: voa6.i

Sample Info: HS19111153-04;HS19111153-04;;;

Purge Volume: 5.0

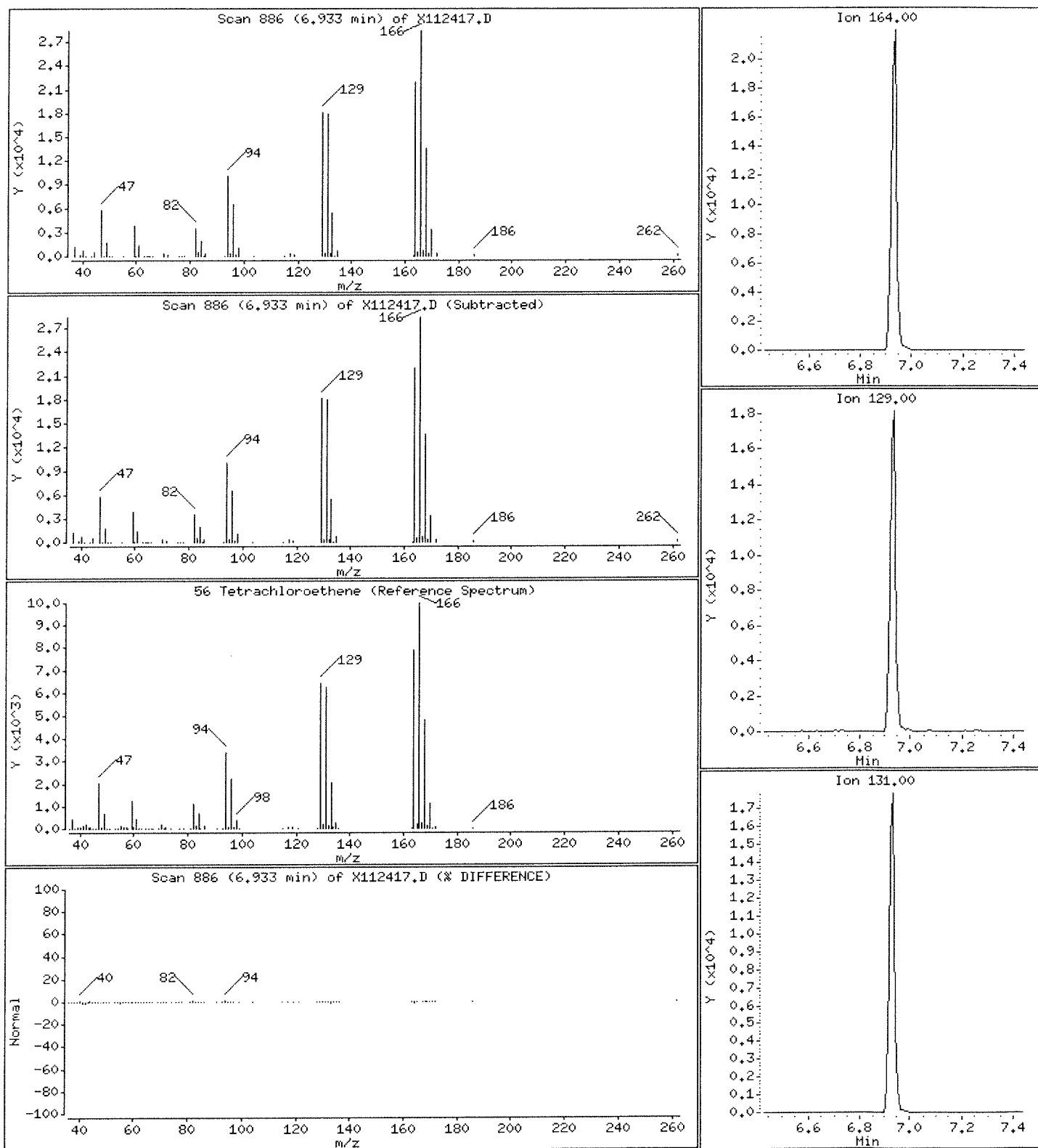
Operator: PC

Column phase: DB624

Column diameter: 0.18

56 Tetrachloroethene

Concentration: 7.70 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112417.D

Page 4

Date : 24-NOV-2019 18:37

Client ID: HS19111153-04

Instrument: voa6.i

Sample Info: HS19111153-04;HS19111153-04;;;

Purge Volume: 5.0

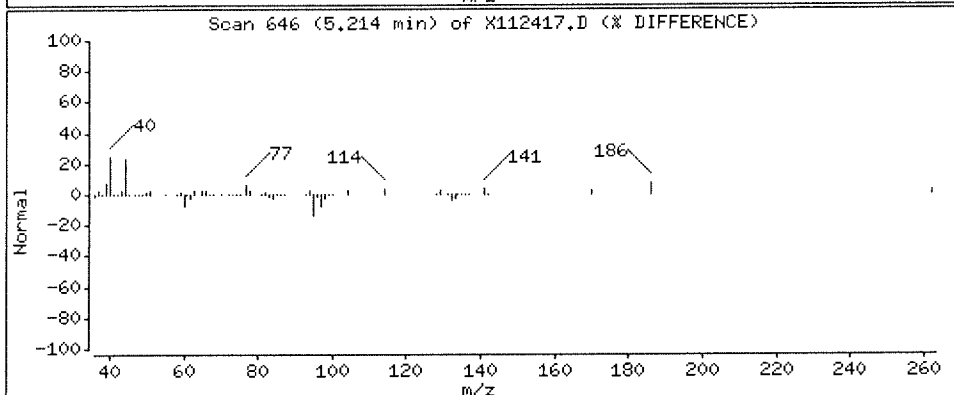
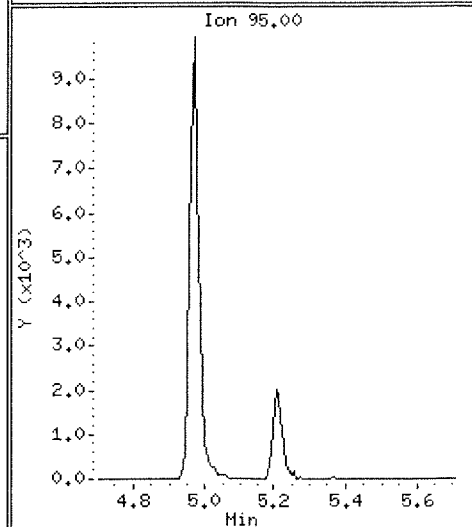
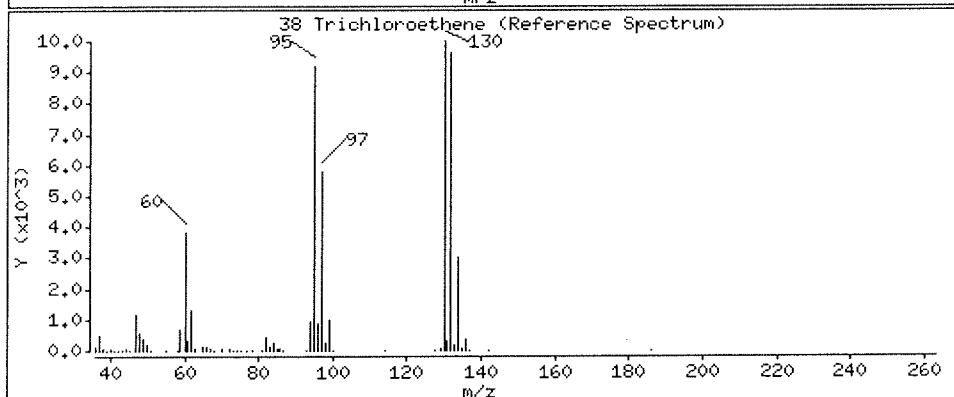
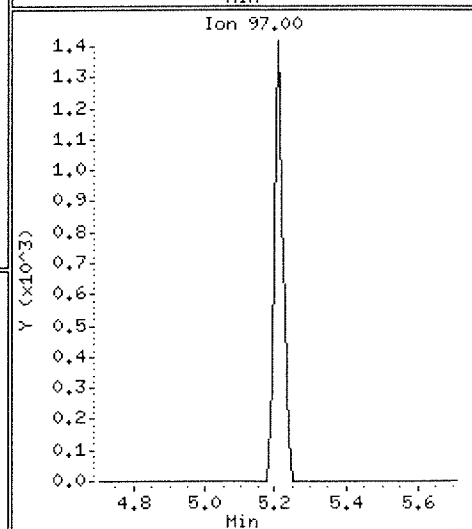
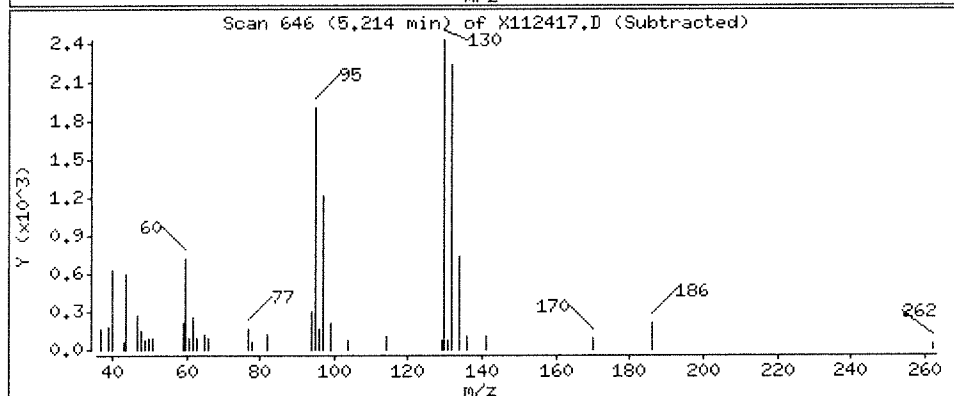
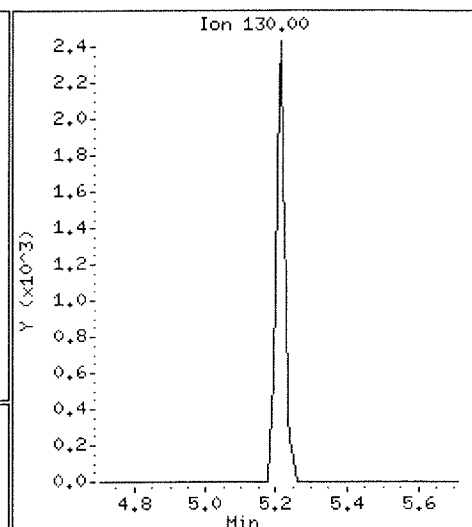
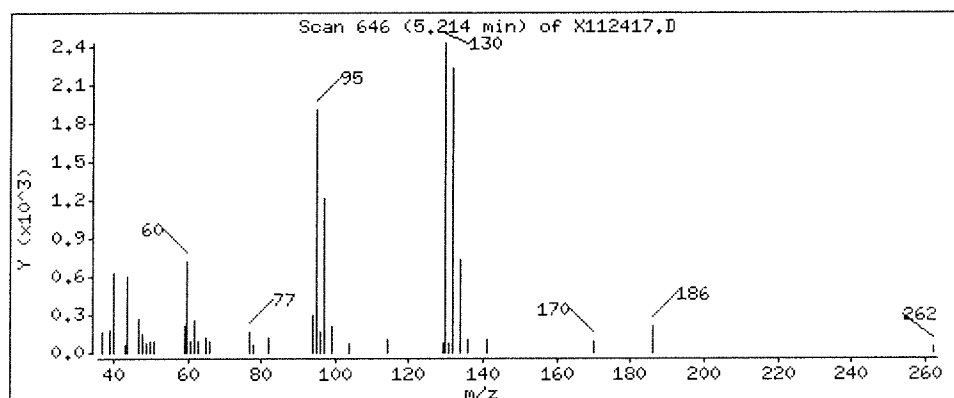
Operator: PC

Column phase: DB624

Column diameter: 0.18

38 Trichloroethene

Concentration: 0.92 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112418.D Page 1
 Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112418.D
 Lab Smp Id: HS19111153-05 Client Smp ID: HS19111153-05
 Inj Date : 24-NOV-2019 19:01
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111153-05;HS19111153-05;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 17
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

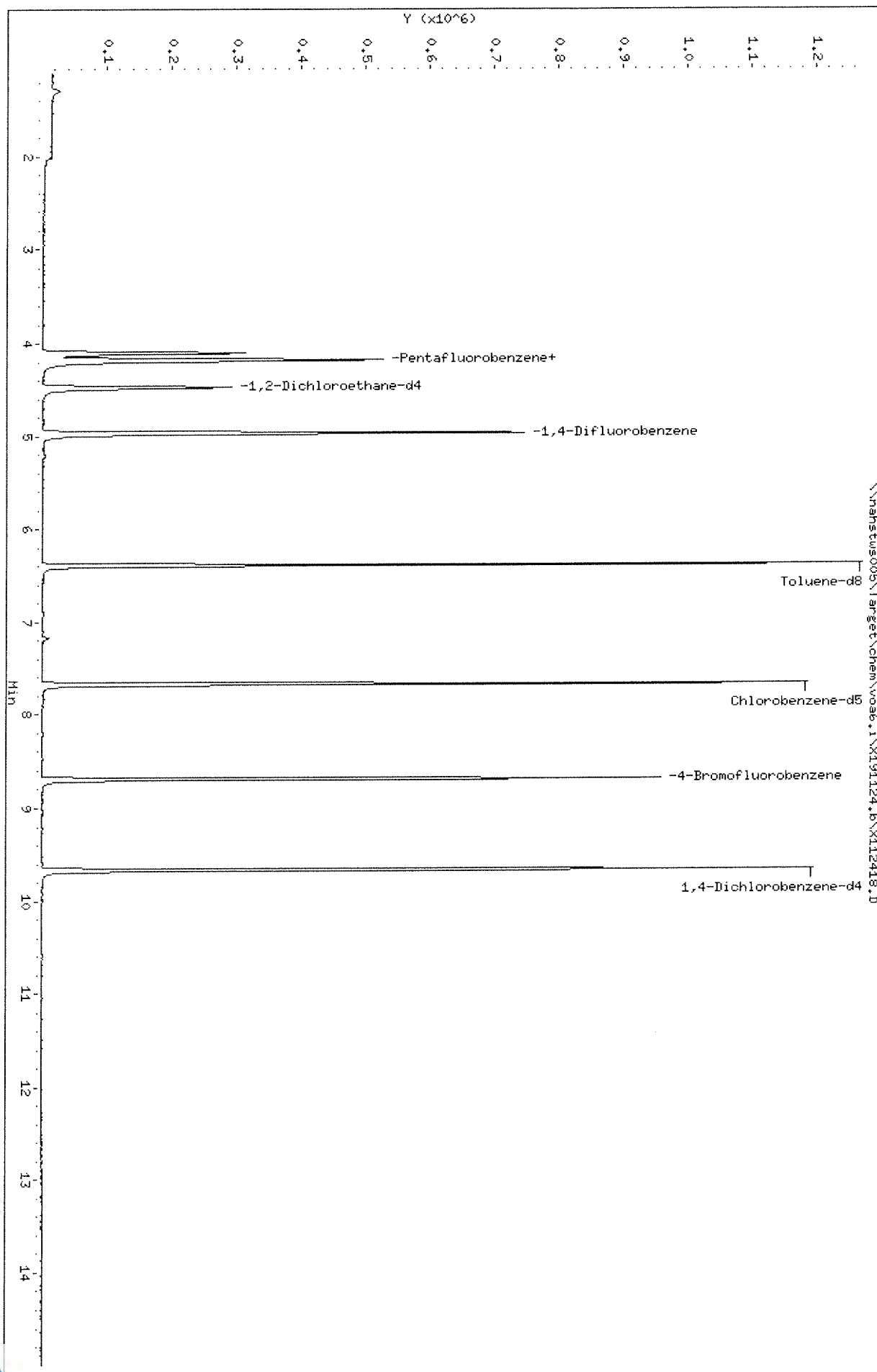
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG	CONCENTRATIONS					
		ON-COLUMN	FINAL				
	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	477552	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	662171	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	576684	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	293356	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	212227	47.2779	47.27
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	252893	47.1587	47.15
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	212726	48.9966	48.99
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	742517	48.8677	48.86



Data File: \\nahstus005\Target\chem\voa6.i\X191124.b\X112418.D
Date : 24-NOV-2019 19:01
Client ID: HS1911153-05
Sample Info: HS1911153-05;HS1911153-05;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112419.D Page 1
 Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112419.D
 Lab Smp Id: HS19111153-06 Client Smp ID: HS19111153-06
 Inj Date : 24-NOV-2019 19:25
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111153-06;HS19111153-06;;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 18
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	481405	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	664407	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	580473	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	284404	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	210566	46.5440	46.54
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	250574	46.4278	46.42
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	212848	48.6351	48.63
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	746380	48.8013	48.80



Data File: \\nahstus005\Target\chem\voa6.i\X191124.b\X112419.D

Date : 24-NOV-2019 19:25

Client ID: HS1911153-06

Sample Info: HS1911153-06;HS1911153-06;;

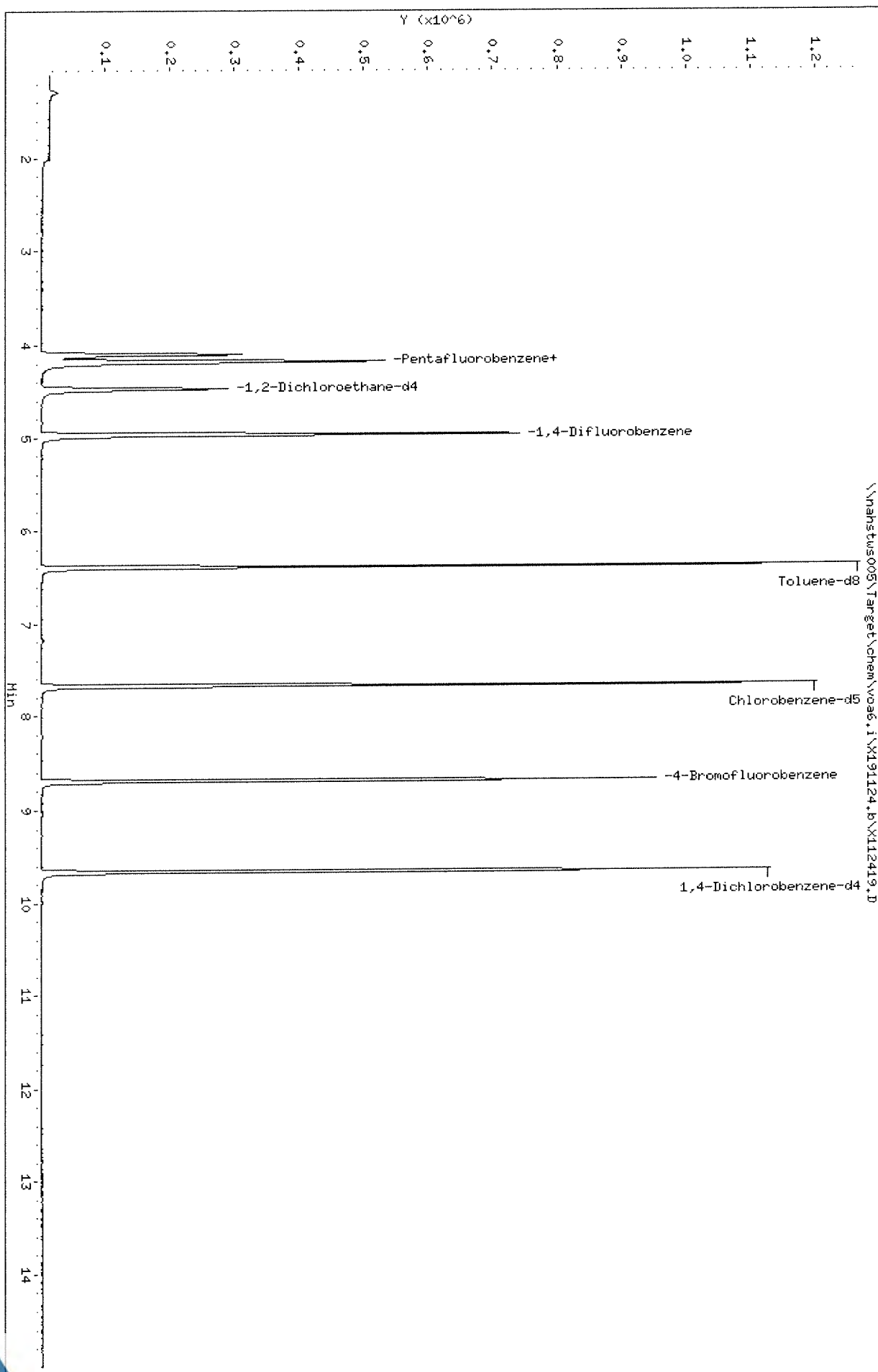
Purge Volume: 5.0

Column phase: DB624

Instrument: voa6.i

Operator: PC

Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112420.D Page 1
 Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112420.D
 Lab Smp Id: HS19111153-07 Client Smp ID: HS19111153-07
 Inj Date : 24-NOV-2019 19:49
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111153-07;HS19111153-07;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 19
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

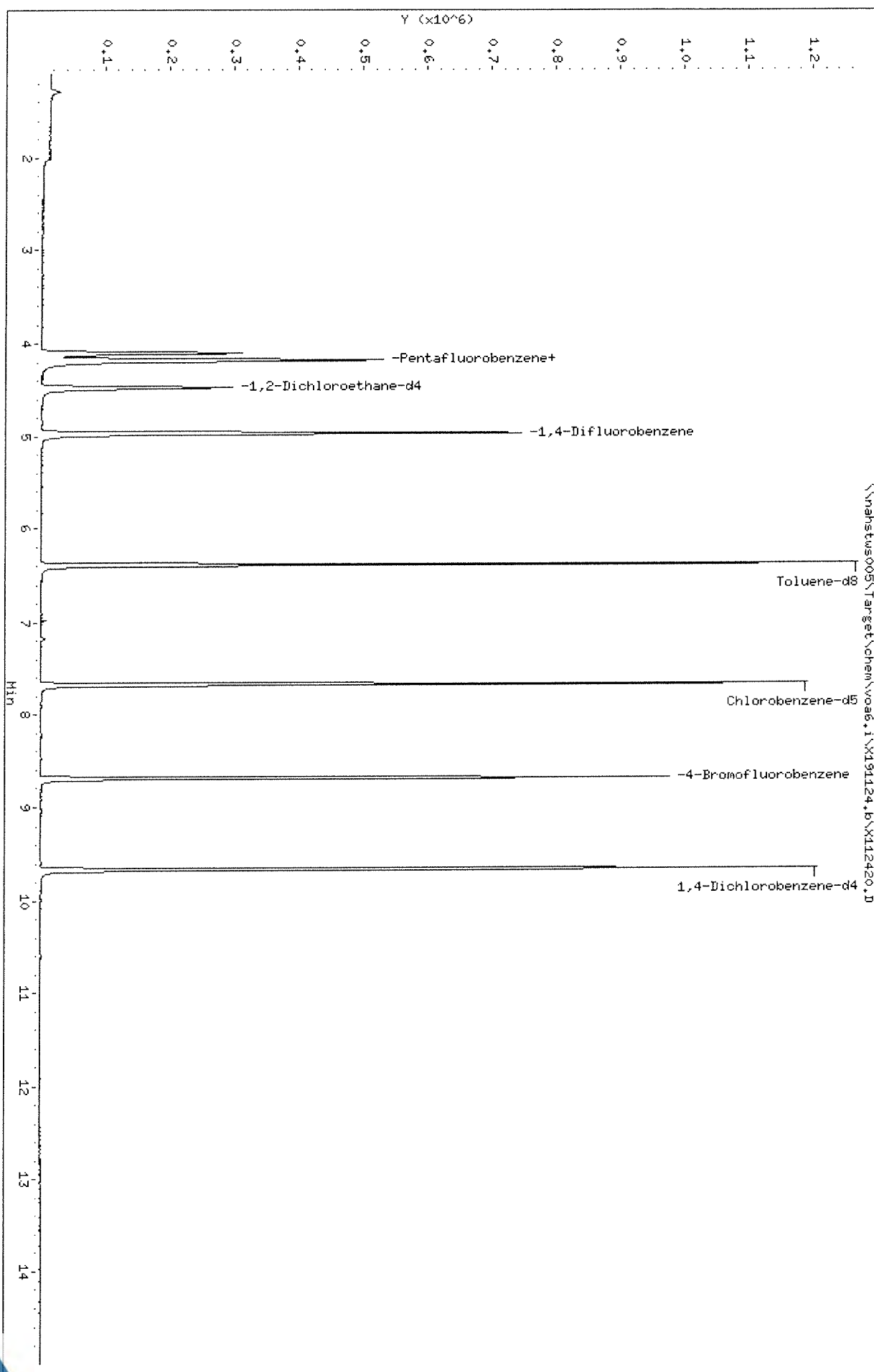
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG	CONCENTRATIONS					
		ON-COLUMN	FINAL				
	MASS	(ug/l)	(ug/l)	RT	EXP RT	REL RT	RESPONSE
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	50.0000		4.182	4.182 (1.000)		478123
* 36 1,4-Difluorobenzene	114	50.0000		4.970	4.970 (1.000)		660206
* 47 Chlorobenzene-d5	117	50.0000		7.671	7.671 (1.000)		579509
* 70 1,4-Dichlorobenzene-d4	152	50.0000		9.669	9.669 (1.000)		301309
\$ 35 1,2-Dichloroethane-d4	65	47.1778	47.17	4.476	4.476 (1.070)		212024
\$ 69 4-Bromofluorobenzene	95	47.4424	47.44	8.688	8.688 (1.133)		255674
\$ 30 Dibromofluoromethane	113	48.8645	48.86	4.103	4.103 (0.981)		212402
\$ 48 Toluene-d8	98	48.9612	48.96	6.388	6.388 (0.833)		747582



Data File: \\nahstus005\Target\chem\voa6.i\X191124.b\X112420.D
Date : 24-NOV-2019 19:49
Client ID: HS1911153-07
Sample Info: HS1911153-07;HS1911153-07;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112421.D Page 1
 Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112421.D
 Lab Smp Id: HS19111153-08 Client Smp ID: HS19111153-08
 Inj Date : 24-NOV-2019 20:13
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111153-08;HS19111153-08;;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 20
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

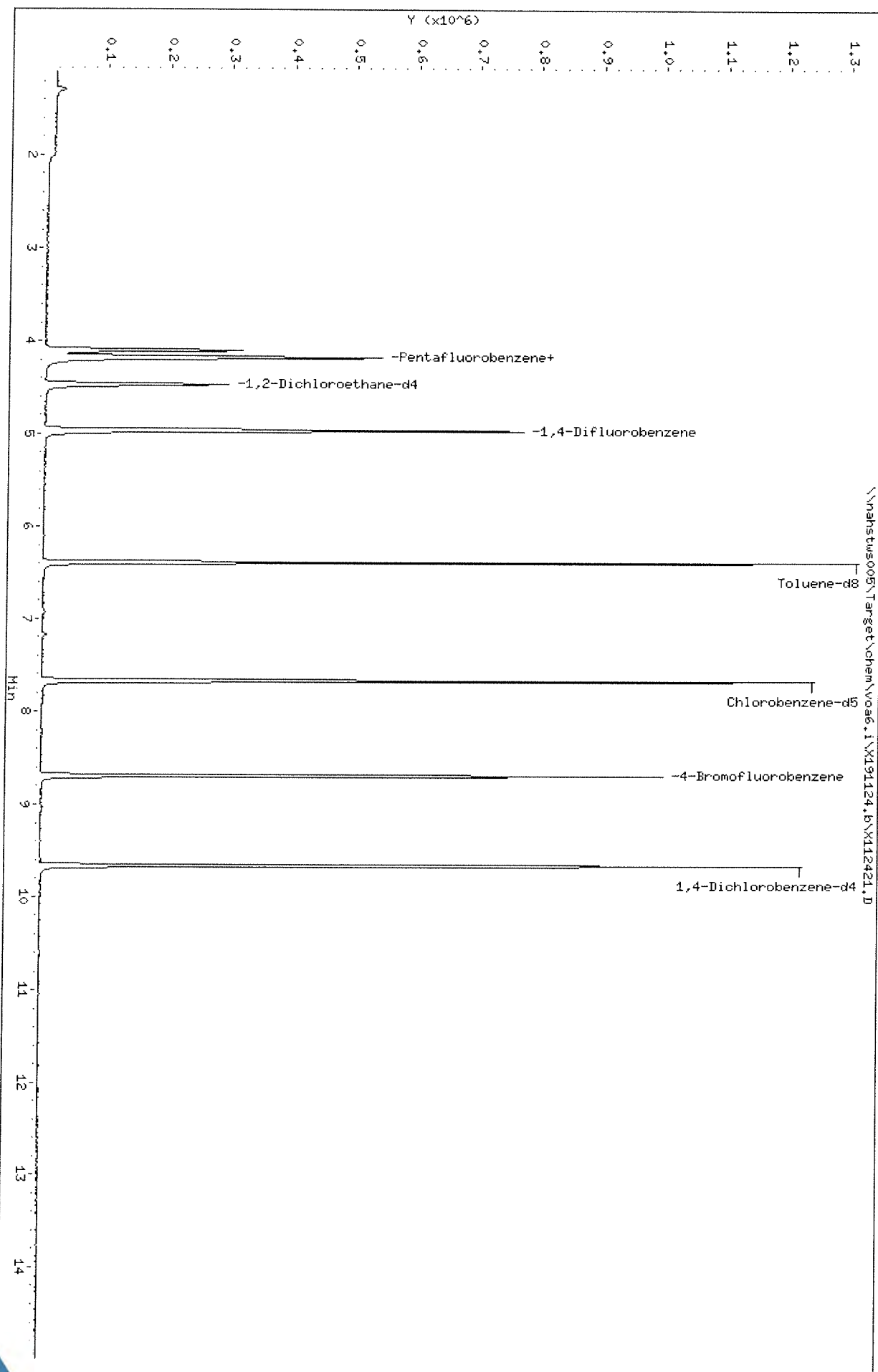
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	CONCENTRATIONS					
			MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168		4.182	4.182	(1.000)	492619	50.0000	
* 36 1,4-Difluorobenzene	114		4.970	4.970	(1.000)	676586	50.0000	
* 47 Chlorobenzene-d5	117		7.670	7.671	(1.000)	597931	50.0000	
* 70 1,4-Dichlorobenzene-d4	152		9.669	9.669	(1.000)	305975	50.0000	
\$ 35 1,2-Dichloroethane-d4	65		4.476	4.476	(1.070)	214491	46.3357	46.33
\$ 69 4-Bromofluorobenzene	95		8.688	8.688	(1.133)	256523	46.1449	46.14
\$ 30 Dibromofluoromethane	113		4.103	4.103	(0.981)	214909	47.9930	47.99
\$ 48 Toluene-d8	98		6.388	6.388	(0.833)	757853	48.1046	48.10



Data File: \\nahstus005\Target\chem\voa6.i\X191124.b\X112421.D
Date: 24-NOV-2019 20:13
Client ID: HS19111153-08
Sample Info: HS19111153-08;HS19111153-08;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112427.D Page 1
Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112427.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 24-NOV-2019 22:37
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 26 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.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

QUANT SIG						AMOUNTS	
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	376688	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	553108	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	503306	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	275286	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	185001	50.0000	52.17
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	224549	50.0000	47.97
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	179353	50.0000	52.34
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	609783	50.0000	45.98
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	181798	50.0000	49.78
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	262411	50.0000	51.63
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	189542	50.0000	48.96
138 Freon TF	101	1.919	1.919	(0.459)	158856	50.0000	48.43
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	131717	50.0000	50.06
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	281259	50.0000	51.31
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	154841	50.0000	48.50
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	211543	50.0000	47.41
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	43770	50.0000	42.66
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	157986	50.0000	48.16 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	97956	50.0000	42.24
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	654387	50.0000	50.09
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	21538	50.0000	50.40
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	176318	50.0000	49.94
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	365847	50.0000	50.07



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112427.D Page 2
 Report Date: 17-Dec-2019 15:49

Compounds	QUANT SIG						AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE		CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====		=====	=====
33 1,2-Dichloroethane	62	4.562	4.562 (0.918)		219949		50.0000	50.09
42 1,2-Dichloropropane	63	5.436	5.436 (1.094)		158603		50.0000	48.00
75 1,3,5-Trimethylbenzene	105	9.067	9.067 (0.938)		622573		50.0000	49.67
83 1,3-Dichlorobenzene	146	9.612	9.612 (0.994)		390532		50.0000	49.46
54 1,3-Dichloropropane	76	6.983	6.983 (0.910)		258566		50.0000	48.40
84 1,4-Dichlorobenzene	146	9.683	9.683 (1.001)		397119		50.0000	49.50
26 2,2-Dichloropropane	77	3.516	3.516 (0.841)		222536		50.0000	44.73
24 2-Butanone	43	3.573	3.573 (0.854)		113733		100.000	98.39
76 2-Chlorotoluene	91	8.974	8.974 (0.928)		494541		50.0000	49.93
52 2-Hexanone	43	7.090	7.090 (0.924)		198068		100.000	95.79
77 4-Chlorotoluene	91	9.075	9.075 (0.939)		587907		50.0000	48.97
82 p-Isopropyltoluene	119	9.655	9.655 (0.999)		659268		50.0000	48.94
45 4-Methyl-2-Pentanone	43	6.324	6.324 (0.824)		292286		100.000	99.11
10 Acetone	43	1.976	1.976 (0.473)		89050		100.000	90.98
37 Benzene	78	4.512	4.512 (0.908)		636233		50.0000	50.28
74 Bromobenzene	156	8.809	8.809 (0.911)		238156		50.0000	49.77
29 Bromochloromethane	128	3.795	3.795 (0.908)		105278		50.0000	51.59
39 Bromodichloromethane	83	5.729	5.729 (1.153)		227694		50.0000	49.74
66 Bromoform	173	8.416	8.416 (1.097)		145648		50.0000	48.62
6 Bromomethane	94	1.338	1.338 (0.320)		196870		50.0000	52.68
19 Carbon Disulfide	76	2.069	2.069 (0.495)		902488		100.000	103.91
34 Carbon Tetrachloride	117	4.268	4.268 (0.859)		232079		50.0000	47.48
59 Chlorobenzene	112	7.699	7.699 (1.004)		476851		50.0000	48.52
7 Chloroethane	64	1.403	1.403 (0.336)		109119		50.0000	46.00
28 Chloroform	83	3.910	3.910 (0.935)		304219		50.0000	49.86
3 Chloromethane	50	1.073	1.073 (0.257)		152665		50.0000	37.36
27 cis-1,2-Dichloroethene	96	3.530	3.530 (0.844)		188575		50.0000	52.78
46 cis-1,3-Dichloropropene	75	6.159	6.159 (1.239)		262562		50.0000	48.67
55 Dibromochloromethane	129	7.176	7.176 (0.936)		191072		50.0000	49.99
44 Dibromomethane	93	5.557	5.557 (1.118)		117029		50.0000	50.05
2 Dichlorodifluoromethane	85	0.973	0.973 (0.233)		133036		50.0000	38.95
61 Ethylbenzene	106	7.799	7.799 (1.017)		247594		50.0000	48.76
91 Hexachlorobutadiene	225	11.488	11.488 (1.188)		82032		50.0000	37.07
67 Isopropylbenzene	105	8.566	8.566 (1.117)		734203		50.0000	48.82
62 m,p-Xylenes	106	7.907	7.907 (1.031)		597838		100.000	97.58
17 Methylene Chloride	84	2.305	2.305 (0.551)		172693		50.0000	50.70
87 n-Butylbenzene	91	9.999	9.999 (1.034)		559837		50.0000	49.94
73 n-Propylbenzene	91	8.917	8.917 (0.922)		843670		50.0000	49.58
92 Naphthalene	128	11.546	11.546 (1.194)		125744		50.0000	42.27
63 o-Xylene	106	8.244	8.244 (1.075)		294541		50.0000	48.71
81 sec-Butylbenzene	105	9.526	9.526 (0.985)		734236		50.0000	49.67
64 Styrene	104	8.258	8.258 (1.077)		522777		50.0000	49.72
78 tert-Butylbenzene	119	9.340	9.340 (0.966)		533817		50.0000	49.74
56 Tetrachloroethene	164	6.933	6.933 (0.904)		166051		50.0000	46.95
50 Toluene	91	6.446	6.446 (0.840)		696966		50.0000	48.83
20 trans-1,2-Dichloroethene	96	2.528	2.528 (0.604)		162132		50.0000	52.31
51 trans-1,3-Dichloropropene	75	6.682	6.682 (1.344)		238644		50.0000	48.54
38 Trichloroethene	130	5.206	5.206 (1.048)		192679		50.0000	49.81
8 Trichlorofluoromethane	101	1.560	1.560 (0.373)		286751		50.0000	49.07
5 Vinyl Chloride	62	1.138	1.138 (0.272)		167204		50.0000	43.55



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Report Date: 17-Dec-2019 15:49

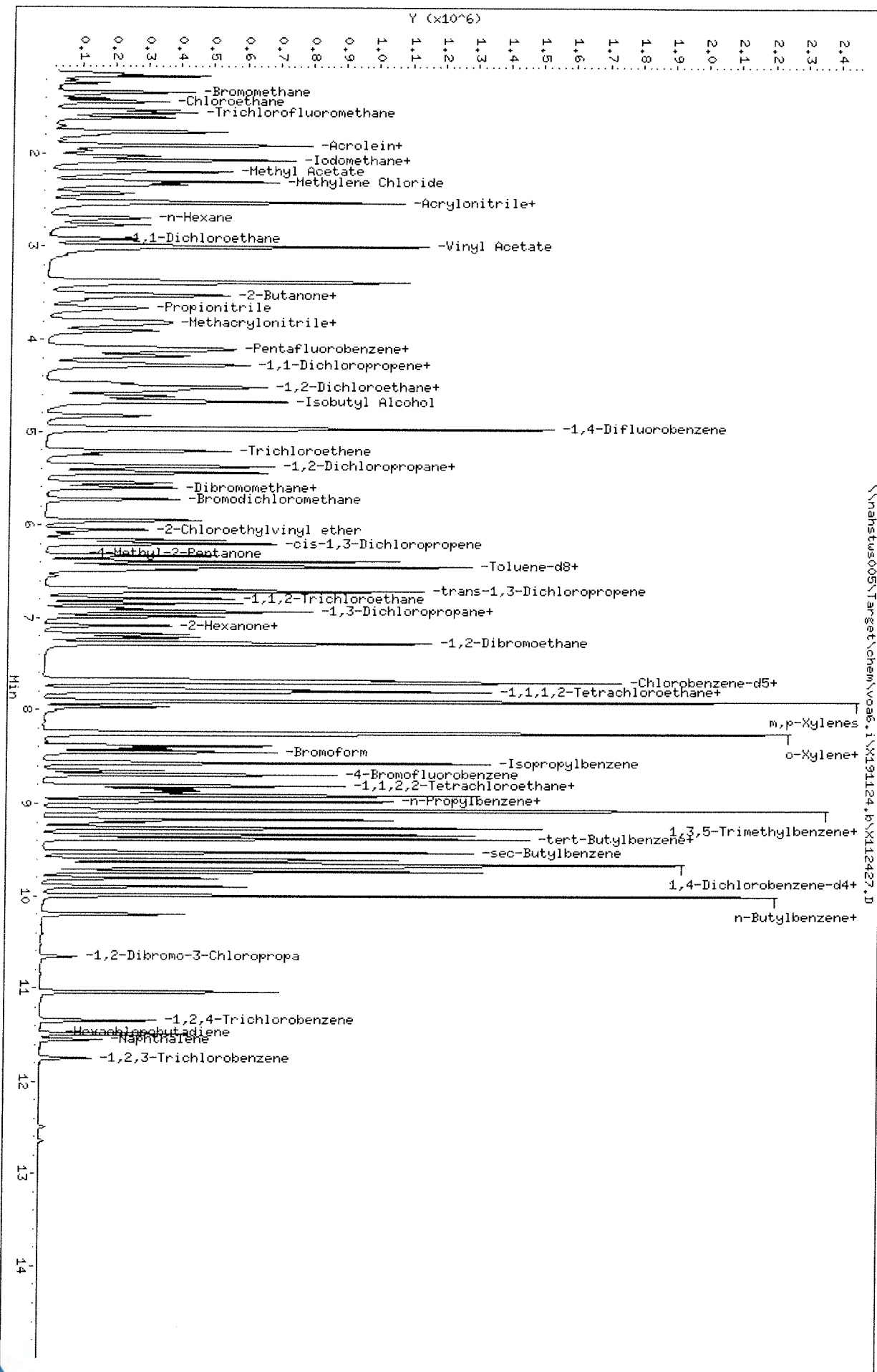
QC Flag Legend

M - Compound response manually integrated.



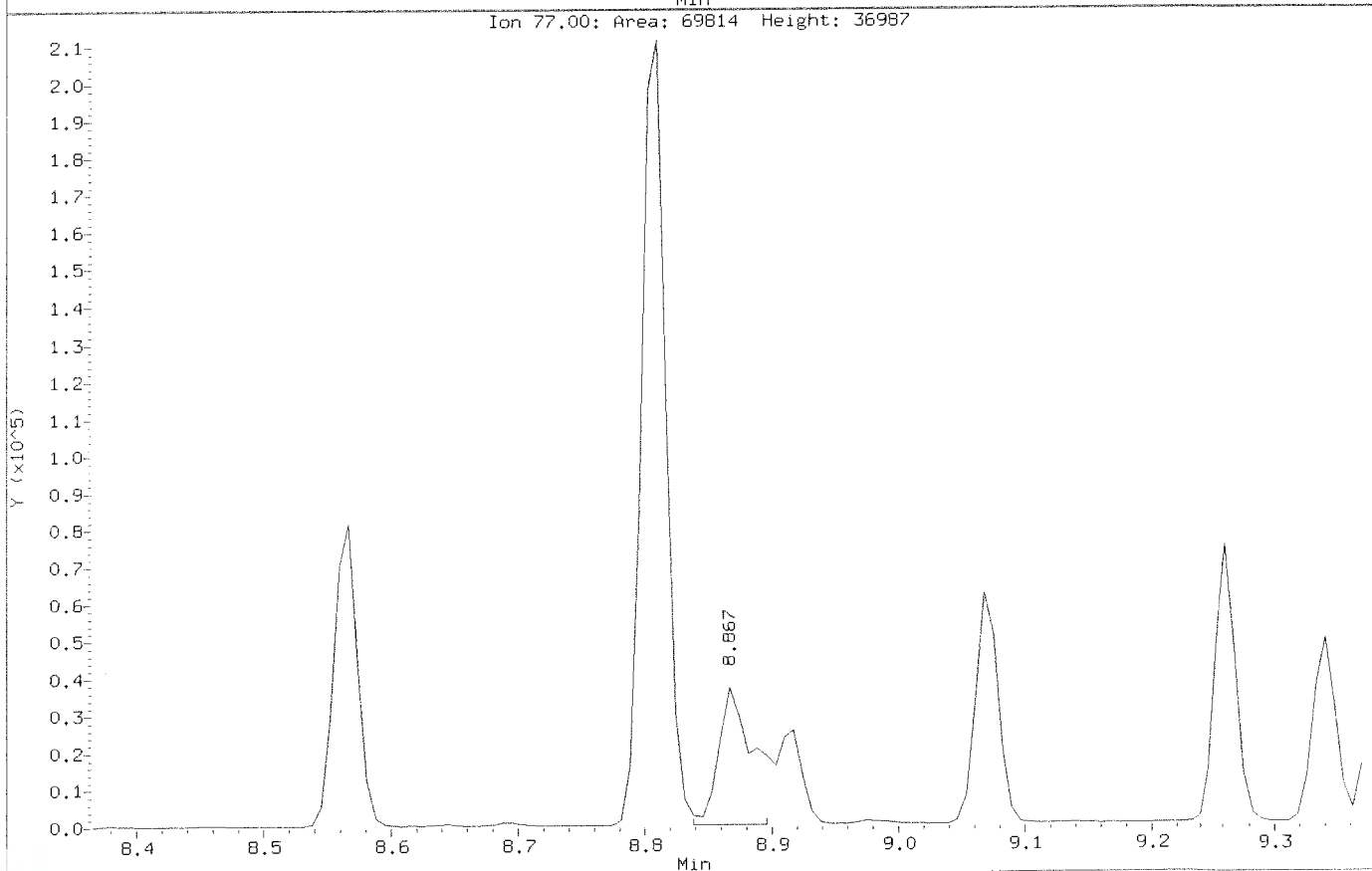
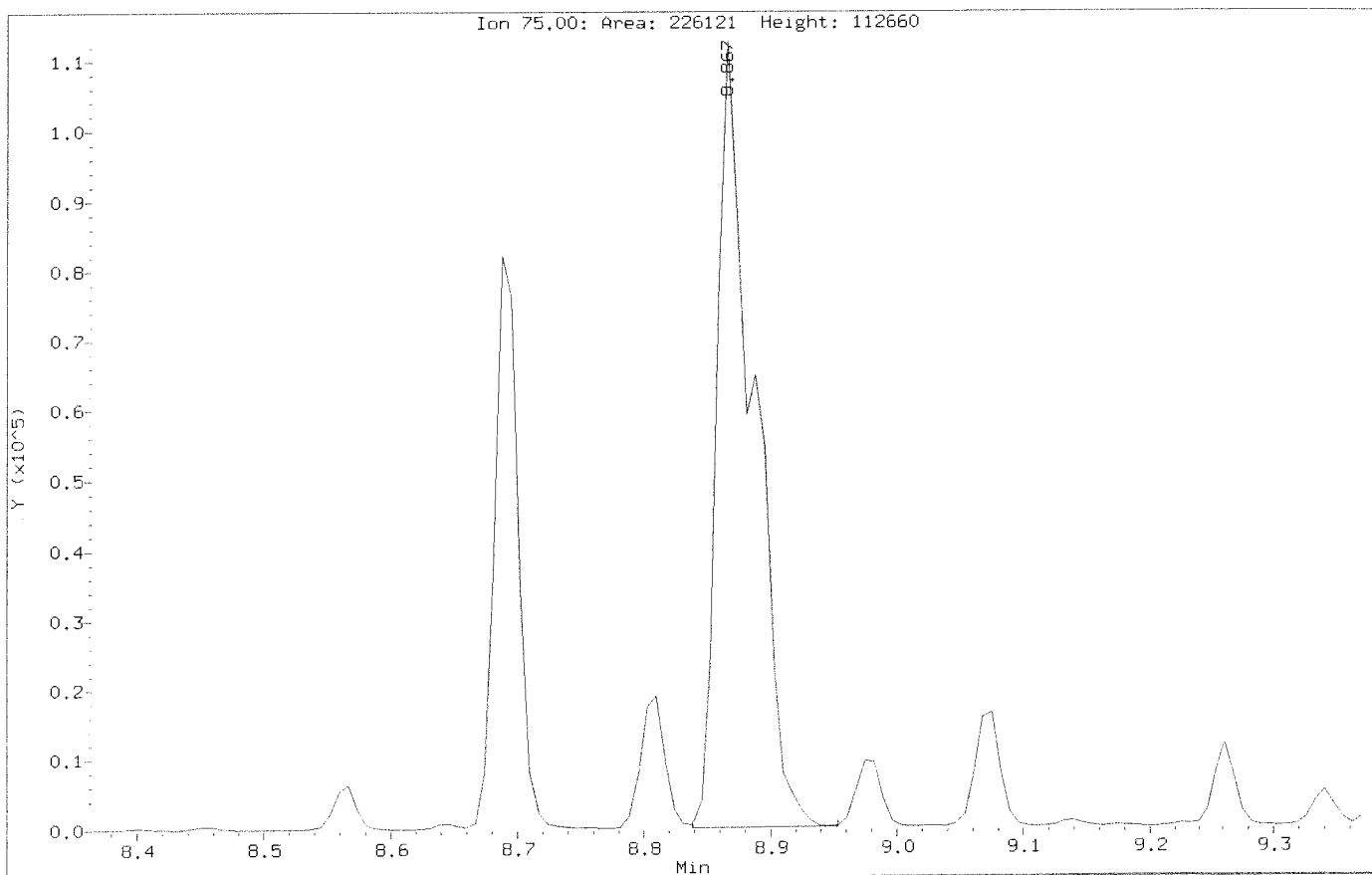
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 Client ID: CCV-END
 Sample Info: CCV-END;CCV-END;2;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



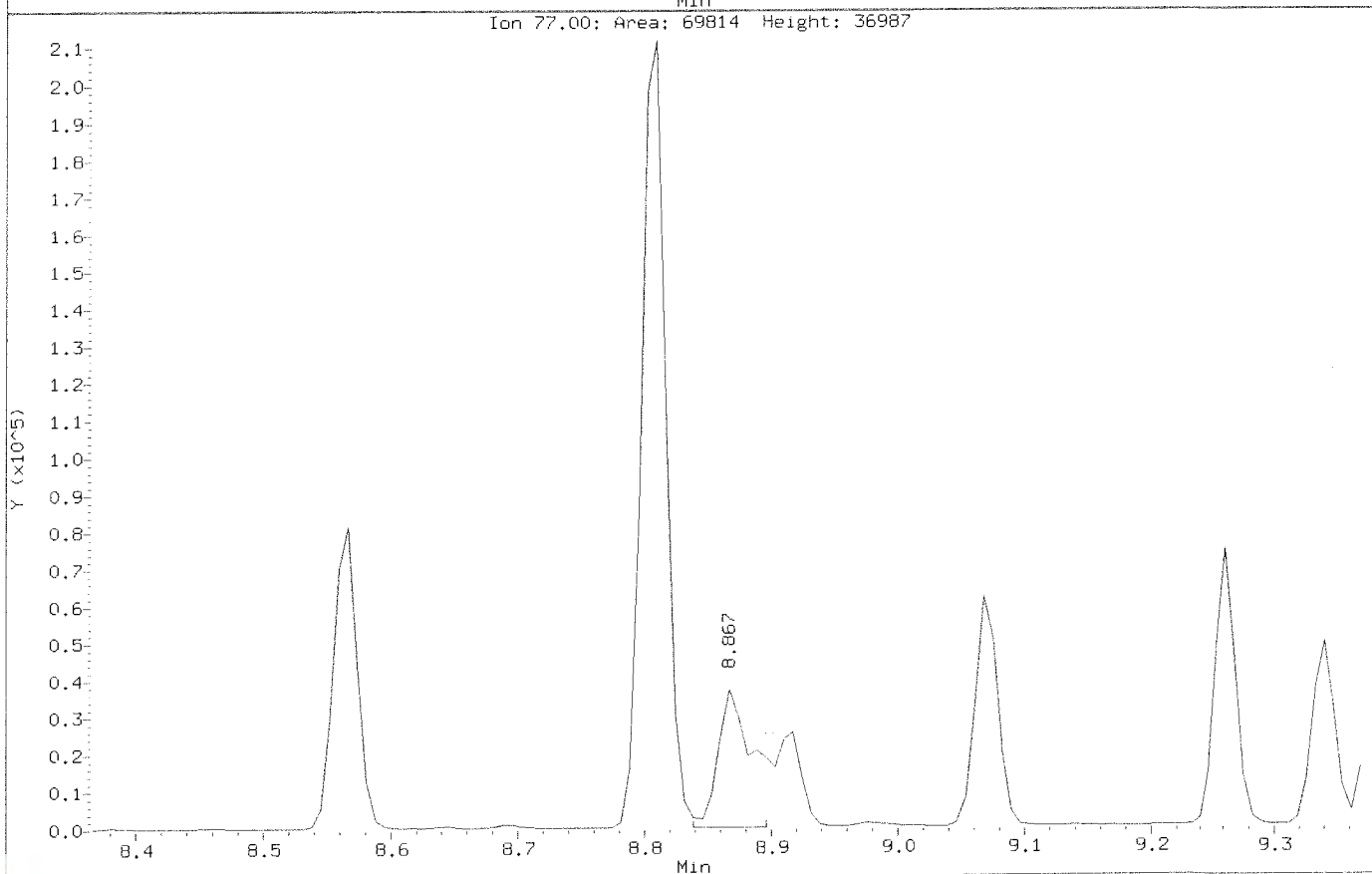
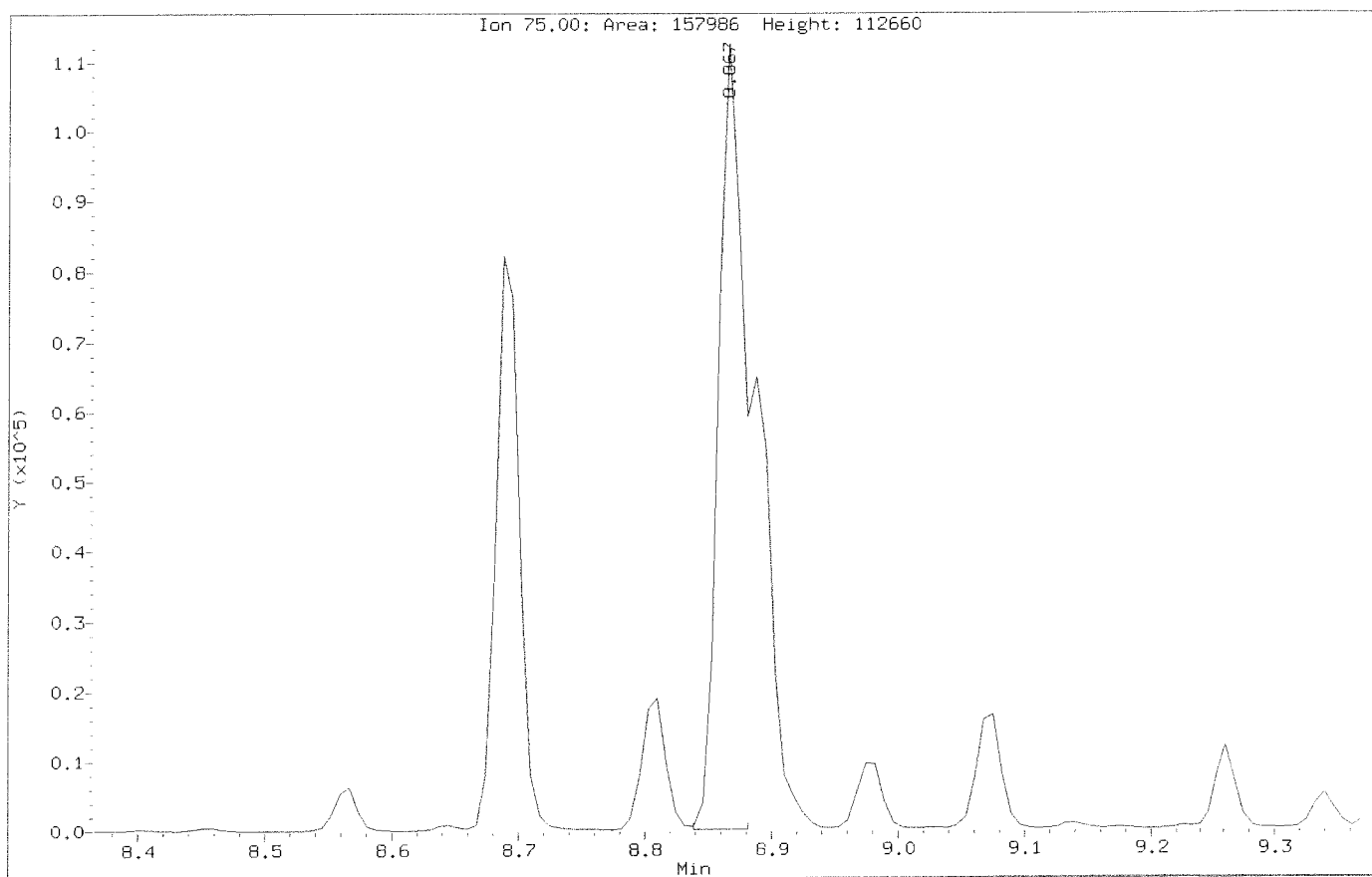
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Instrument: voa6.i
Client Sample ID: CCV-END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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Injection Date: 24-NOV-2019 22:37
Instrument: voa6.i
Client Sample ID: CCV-END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



HS19111153 Wet Chem Raw Data

ALS WO# HS19111153



Sequence: 112119
Last Update Operator: alshs.nouser

HS1911153

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Injection	Volume	Status	Inject Time
	STD1	2970209205	Calibration	GA1	1.0000	1	Anions Pro	Anions Pro	5.0	Finished	8/12/2019 2:08:06 PM -05:00
	STD2		Calibration	GA2	1.0000	2	Anions Pro	Anions Pro	5.0	Finished	8/12/2019 2:24:42 PM -05:00
	STD3		Calibration	GA3	1.0000	3	Anions Pro	Anions Pro	5.0	Finished	8/12/2019 2:41:19 PM -05:00
	STD4		Calibration	GA4	1.0000	4	Anions Pro	Anions Pro	5.0	Finished	8/12/2019 2:57:54 PM -05:00
	STD5		Calibration	GA5	1.0000	5	Anions Pro	Anions Pro	5.0	Finished	8/12/2019 3:14:30 PM -05:00
	STD6		Calibration	GB8	1.0000	6	Anions Pro	Anions Pro	5.0	Finished	8/12/2019 6:37:32 PM -05:00
	ICV	F, NO2 MAX 10PPM 2970209123	Unknown	GA7	1.0000		Anions Pro	Anions Pro	5.0	Finished	8/12/2019 6:54:07 PM -05:00
	ICB		Unknown	GB8	1.0000		Anions Pro	Anions Pro	5.0	Finished	8/12/2019 7:29:52 PM -05:00
	CCV1		Unknown	BA7	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 12:05:48 PM -06:00
	CCB		Unknown	BA8	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 12:22:24 PM -06:00
	WBLKW1-112219		Unknown	RC6	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 1:35:35 PM -06:00
	WLC SW1-112219		Unknown	RC7	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 1:52:13 PM -06:00
	WLCSDW1-112219		Unknown	RC8	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 2:08:48 PM -06:00
	HS19111104-01		Unknown	RD1	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 2:25:26 PM -06:00
	HS19111104-01MS		Unknown	RD2	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 2:42:01 PM -06:00
	HS19111104-01MSD		Unknown	RD3	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 2:58:38 PM -06:00
	HS19111104-02		Unknown	RD4	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 3:15:12 PM -06:00
	HS19111104-03		Unknown	RD5	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 3:31:47 PM -06:00
	HS19111104-04		Unknown	RD6	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 3:48:22 PM -06:00
	HS19111104-05		Unknown	RD7	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 4:04:59 PM -06:00
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	CCB		Unknown	BA6	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 4:38:14 PM -06:00
	HS19111104-06		Unknown	RD8	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 4:54:54 PM -06:00
	CCV1		Unknown	BA7	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 7:41:11 PM -06:00
	CCB		Unknown	BA8	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 7:57:47 PM -06:00
	HS19111190-01DF2		Unknown	BD2	2.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 9:54:19 PM -06:00
	HS19111190-01DF5		Unknown	BD3	5.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 10:10:55 PM -06:00
	HS19111190-01DF50		Unknown	BD4	50.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 10:27:30 PM -06:00
	HS19111153-03		Unknown	GA4	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 10:44:08 PM -06:00
	CCV		Unknown	BA5	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 11:00:46 PM -06:00
	CCB		Unknown	BA6	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 11:17:21 PM -06:00
	HS19111153-04		Unknown	GA5	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 11:33:57 PM -06:00
	HS19111153-05		Unknown	GA6	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/22/2019 11:50:35 PM -06:00
	HS19111153-06		Unknown	GA7	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/23/2019 12:07:11 AM -06:00
	CCV1		Unknown	BA7	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/23/2019 12:56:59 AM -06:00
	CCB		Unknown	BA8	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/23/2019 1:13:35 AM -06:00



Sequence: 112119
Injection #6: STD6

Calibration

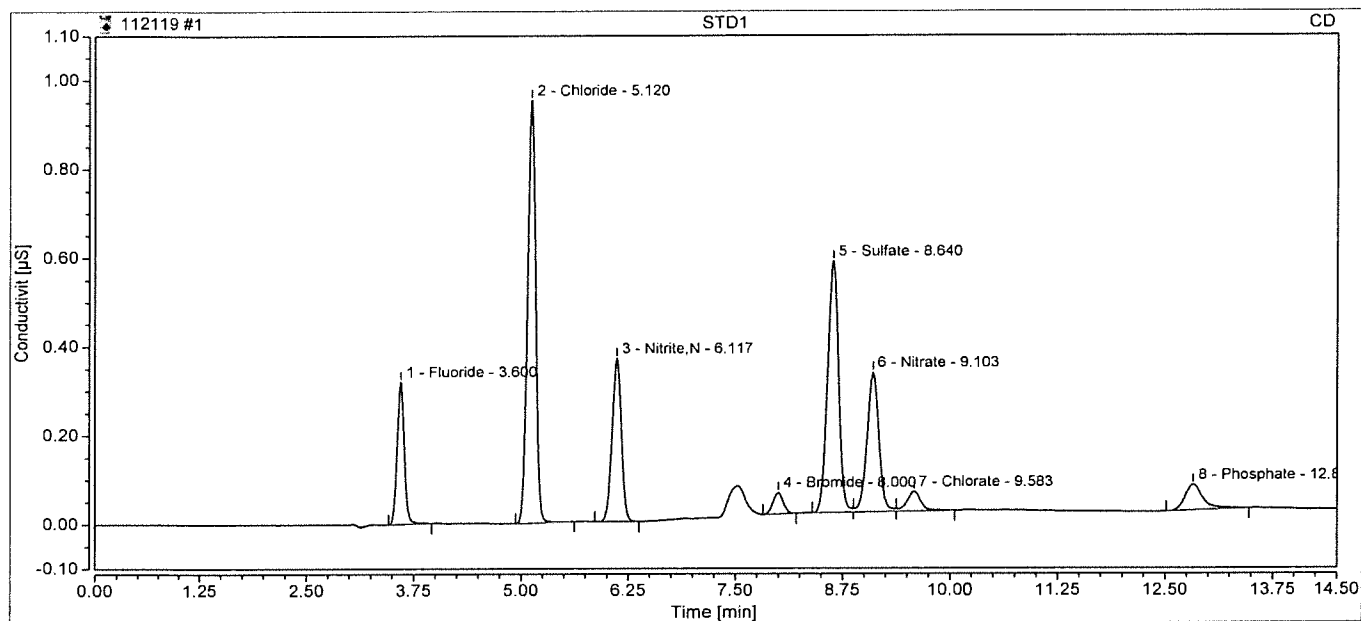
Peak No.	Peak Name	Cal.Type	Eval.Type	Number of Points	Rel.Std.Dev. %	Coeff.of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)
1	Fluoride	Lin, WithOffset, 1/	Area	5	10.1532	0.99927	-0.0056	0.3716	0.0000
2	Chloride	Lin, WithOffset, 1/	Area	6	0.2804	1.00000	-0.0135	0.2355	0.0000
3	Nitrite,N	Lin, WithOffset, 1/	Area	5	15.1147	0.99824	0.0003	0.5120	0.0000
4	Bromide	Lin, WithOffset, 1/	Area	6	14.0217	0.99919	-0.0052	0.1009	0.0000
5	Sulfate	Lin, WithOffset, 1/	Area	6	1.1258	0.99999	-0.0022	0.1717	0.0000
6	Nitrate	Lin, WithOffset, 1/	Area	6	2.2249	0.99998	-0.0102	0.5876	0.0000
7	Chlorate	Lin, WithOffset, 1/	Area	6	10.0265	0.99953	-0.0024	0.0944	0.0000
8	Phosphate	Lin, WithOffset, 1/	Area	6	6.6198	0.99981	-0.0110	0.2321	0.0000
Maximum					15.1147	1.00000			
Minimum					0.2804	0.99824			



1 STD1

Sample Name: STD1
 Vial Number: GA1
 Sample Type: Calibration Standard
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 08/12/2019 14:08
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



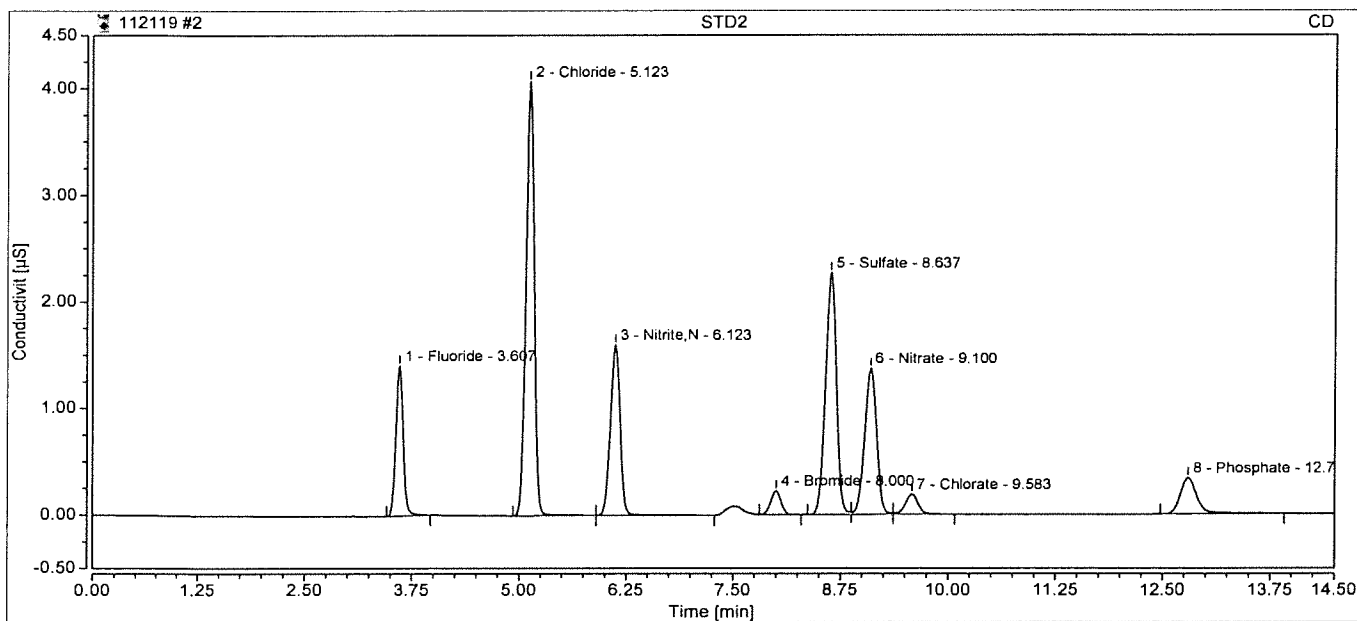
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.031	0.0973	0.0973	1.0000
2	5.12	Chloride	BMB	0.105	0.5026	0.5026	1.0000
3	6.12	Nitrite, N	BMB	0.046	0.0893	0.0893	1.0000
4	8.00	Bromide	BMB	0.007	0.1192	0.1192	1.0000
5	8.64	Sulfate	BM	0.084	0.5042	0.5042	1.0000
6	9.10	Nitrate	M	0.051	0.1034	0.1034	1.0000
7	9.58	Chlorate	MB	0.008	0.1143	0.1143	1.0000
8	12.83	Phosphate	BMB	0.014	0.1085	0.1085	1.0000
Total:			0.000	0.346	1.64		

2 STD2

Sample Name: STD2
 Vial Number: GA2
 Sample Type: Calibration Standard
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 08/12/2019 14:24
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



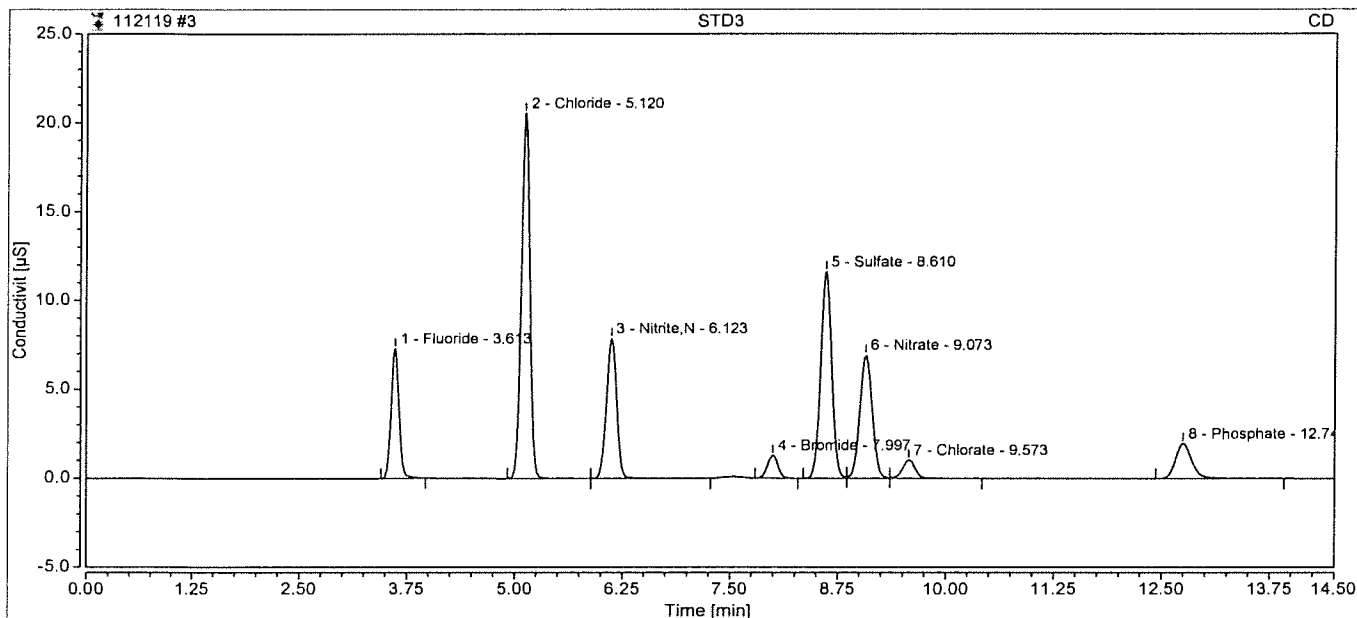
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.140	0.3929	0.3929	1.0000
2	5.12	Chloride	BMB	0.456	1.9918	1.9918	1.0000
3	6.12	Nitrite, N	BMB	0.211	0.4119	0.4119	1.0000
4	8.00	Bromide	BMB	0.031	0.3593	0.3593	1.0000
5	8.64	Sulfate	BM	0.337	1.9733	1.9733	1.0000
6	9.10	Nitrate	M	0.220	0.3917	0.3917	1.0000
7	9.58	Chlorate	MB	0.033	0.3704	0.3704	1.0000
8	12.80	Phosphate	BMB	0.078	0.3841	0.3841	1.0000
Total:			0.000	1.506	6.28		

3 STD3

Sample Name: STD3
 Vial Number: GA3
 Sample Type: Calibration Standard
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 08/12/2019 14:41
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



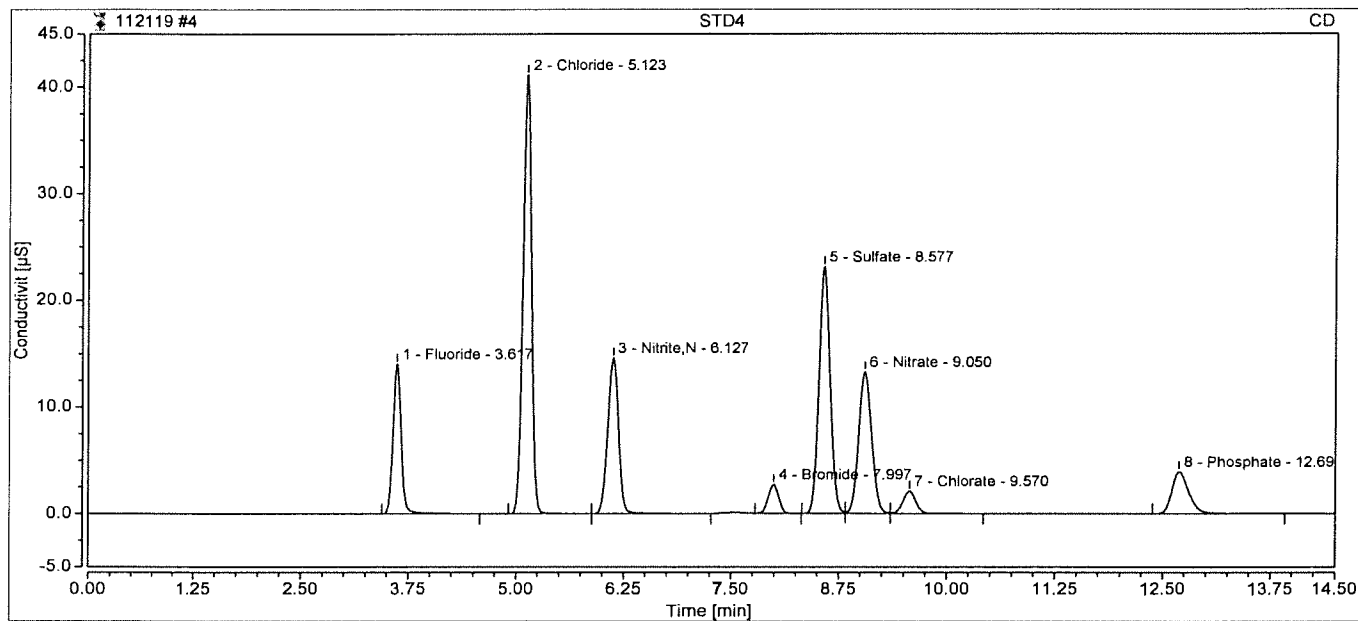
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.758	2.0551	2.0551	1.0000
2	5.12	Chloride	BMB	2.339	9.9888	9.9888	1.0000
3	6.12	Nitrite, N	BMB	1.091	2.1305	2.1305	1.0000
4	8.00	Bromide	BMB	0.182	1.8590	1.8590	1.0000
5	8.61	Sulfate	BM	1.715	10.0007	10.0007	1.0000
6	9.07	Nitrate	M	1.153	1.9792	1.9792	1.0000
7	9.57	Chlorate	MB	0.176	1.8940	1.8940	1.0000
8	12.75	Phosphate	BMB	0.436	1.9269	1.9269	1.0000
Total:			0.000	7.851		31.83	

4 STD4

Sample Name: STD4
 Vial Number: GA4
 Sample Type: Calibration Standard
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 08/12/2019 14:57
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



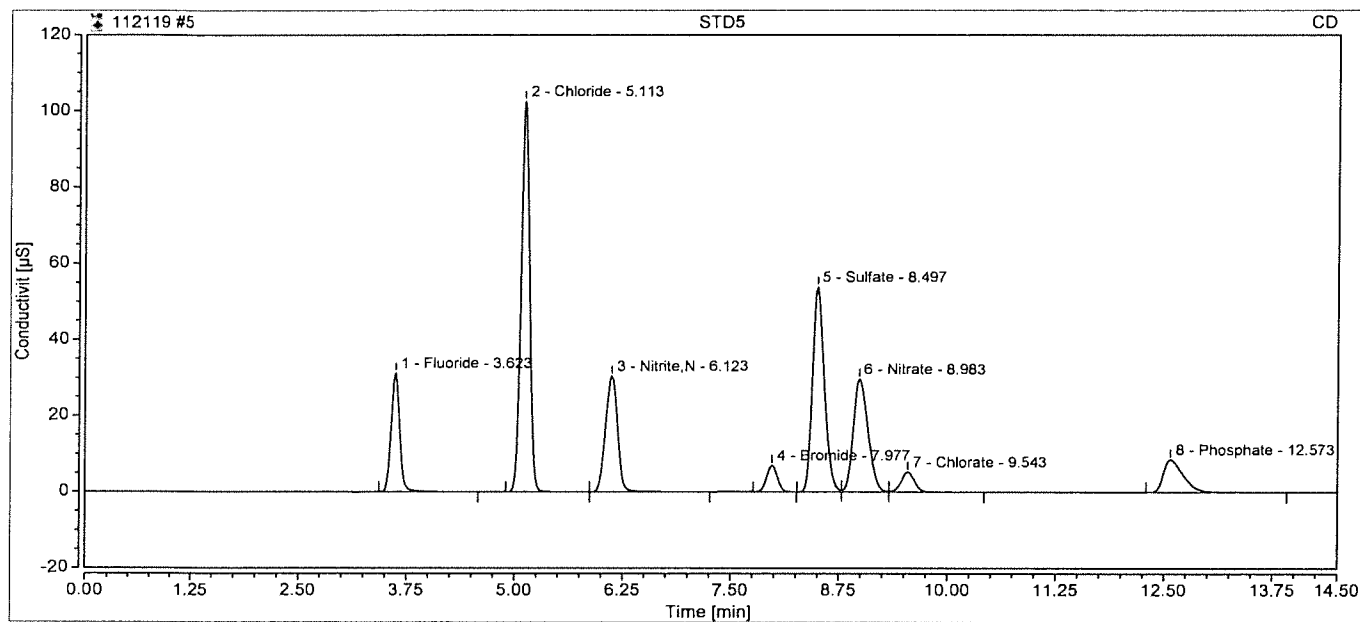
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	1.535	4.1457	4.1457	1.0000
2	5.12	Chloride	BMB	4.695	19.9948	19.9948	1.0000
3	6.13	Nitrite, N	BMB	2.133	4.1659	4.1659	1.0000
4	8.00	Bromide	BMB	0.385	3.8642	3.8642	1.0000
5	8.58	Sulfate	BM	3.451	20.1082	20.1082	1.0000
6	9.05	Nitrate	M	2.330	3.9823	3.9823	1.0000
7	9.57	Chlorate	MB	0.365	3.8956	3.8956	1.0000
8	12.69	Phosphate	BMB	0.903	3.9395	3.9395	1.0000
Total:			0.000	15.798		64.10	

5 STD5

Sample Name: STD5
 Vial Number: GA5
 Sample Type: Calibration Standard
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 08/12/2019 15:14
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



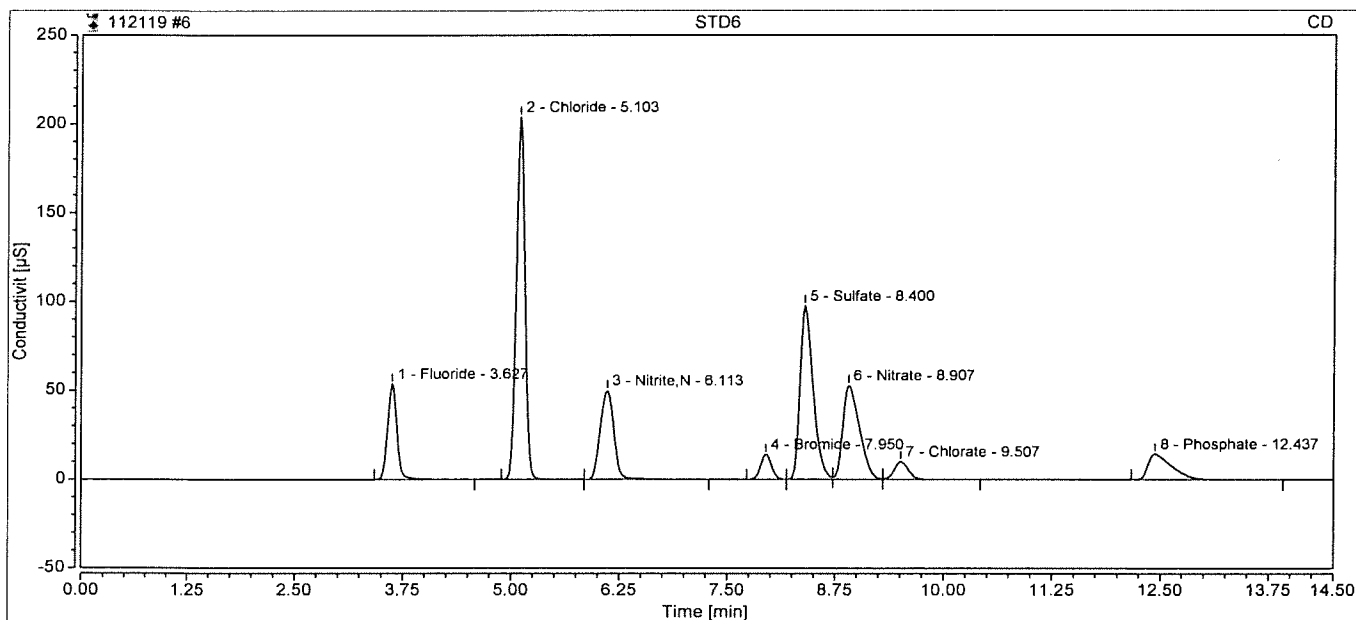
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	3.639	9.8090	9.8090	1.0000
2	5.11	Chloride	BMB	11.762	49.9996	49.9996	1.0000
3	6.12	Nitrite, N	BMB	4.968	9.7023	9.7023	1.0000
4	7.98	Bromide	BMB	1.001	9.9786	9.9786	1.0000
5	8.50	Sulfate	BM	8.590	50.0271	50.0271	1.0000
6	8.98	Nitrate	M	5.854	9.9805	9.9805	1.0000
7	9.54	Chlorate	MB	0.939	9.9670	9.9670	1.0000
8	12.57	Phosphate	BMB	2.305	9.9803	9.9803	1.0000
Total:			0.000	39.057	159.44		

6 STD6

Sample Name: STD6
 Vial Number: GB8
 Sample Type: Calibration Standard
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 08/12/2019 18:37
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



Integration Results

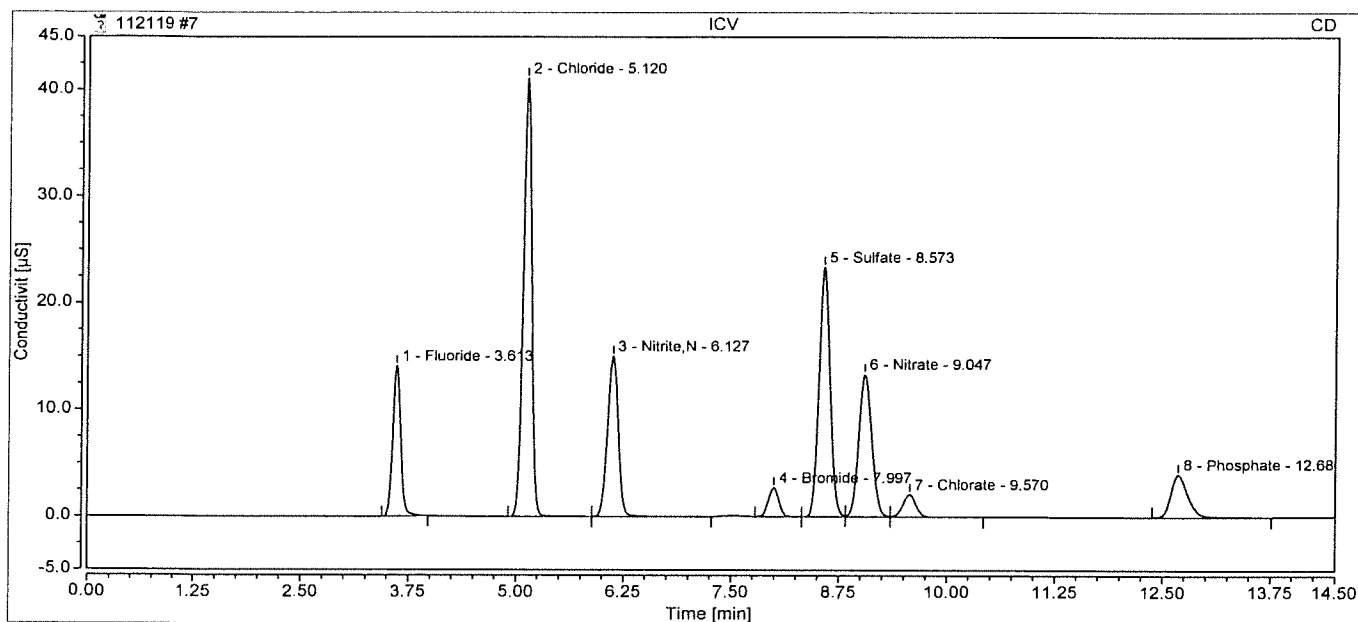
No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.63	Fluoride	BMB	6.773	18.2418	18.2418	1.0000
2	5.10	Chloride	BMB	23.542	100.0224	100.0224	1.0000
3	6.11	Nitrite, N	BMB	9.157	17.8850	17.8850	1.0000
4	7.95	Bromide	BM	2.045	20.3197	20.3197	1.0000
5	8.40	Sulfate	M	17.153	99.8863	99.8863	1.0000
6	8.91	Nitrate	M	11.778	20.0629	20.0629	1.0000
7	9.51	Chlorate	MB	1.910	20.2586	20.2586	1.0000
8	12.44	Phosphate	BMB	4.668	20.1606	20.1606	1.0000
Total:			0.000	77.025	316.84		

7 ICV

Sample Name: ICV
 Vial Number: GA7
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 08/12/2019 18:54

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000

Run Time:



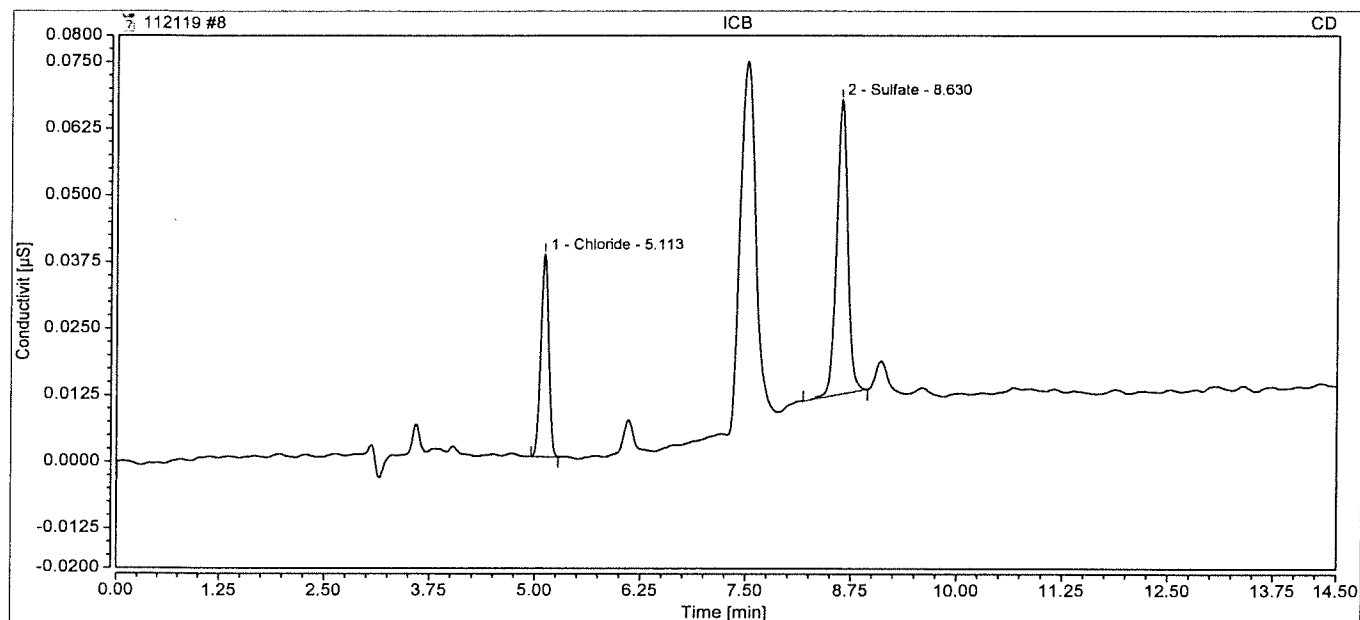
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	1.495	4.0374	4.0374	1.0000
2	5.12	Chloride	BMB	4.681	19.9333	19.9333	1.0000
3	6.13	Nitrite,N	BMB	2.195	4.2858	4.2858	1.0000
4	8.00	Bromide	BMB	0.384	3.8585	3.8585	1.0000
5	8.57	Sulfate	BM	3.469	20.2132	20.2132	1.0000
6	9.05	Nitrate	M	2.340	3.9993	3.9993	1.0000
7	9.57	Chlorate	MB	0.367	3.9104	3.9104	1.0000
8	12.68	Phosphate	BMB	0.911	3.9732	3.9732	1.0000
Total:			0.000	15.841	64.21		

8 ICB

Sample Name: ICB
 Vial Number: GB8
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 08/12/2019 19:29
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



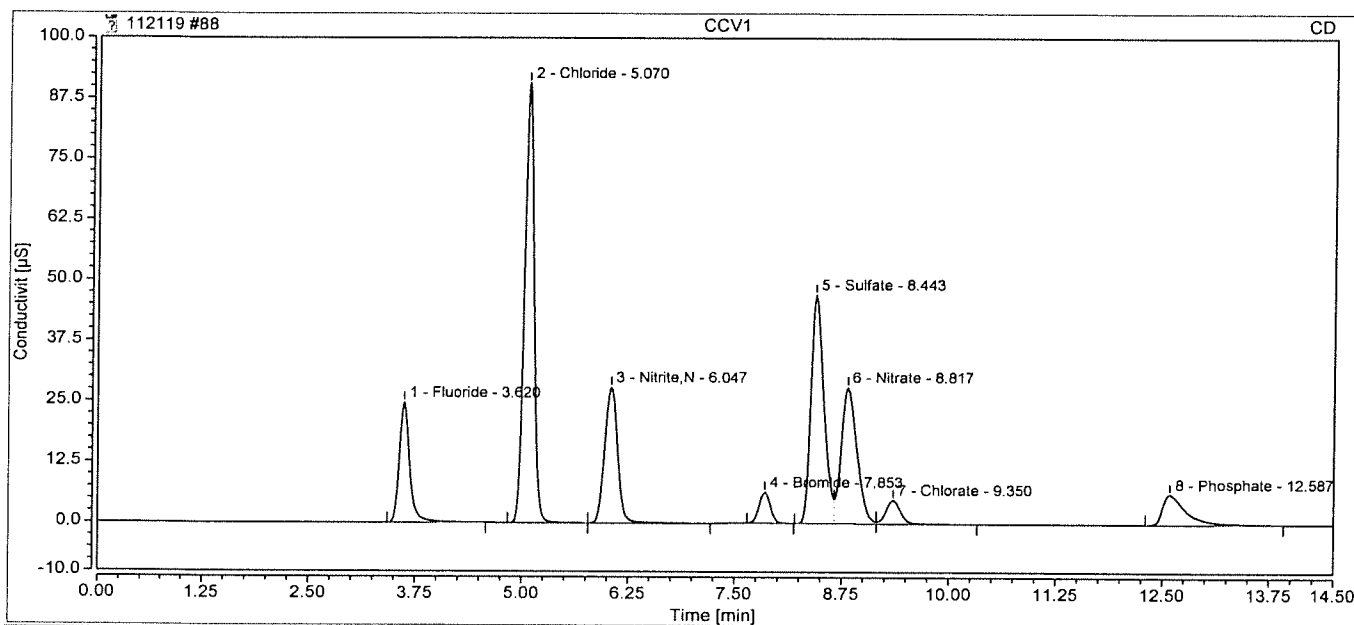
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.11	Chloride	BMB	0.004	0.0748	0.0748	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
2	8.63	Sulfate	BMB	0.008	0.0618	0.0618	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	0.013	0.14		

88 CCV1

Sample Name: CCV1
 Vial Number: BA7
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/22/2019 12:05
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



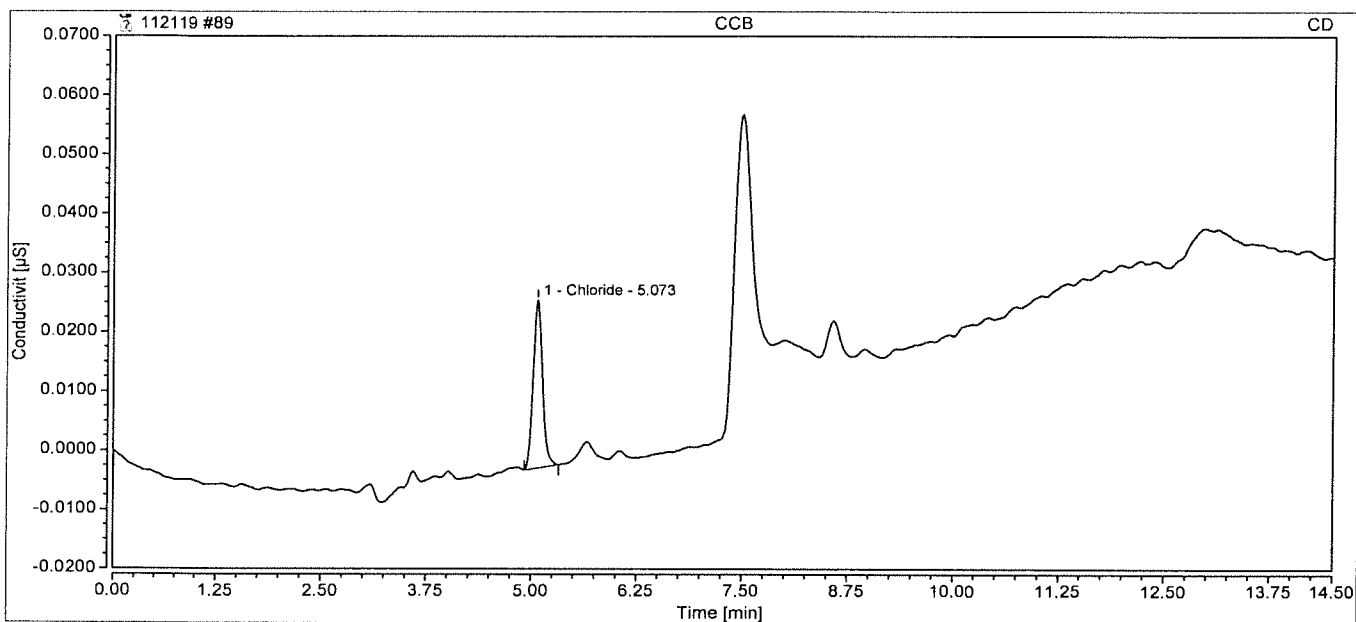
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	3.548	9.5639	9.5639	1.0000
2	5.07	Chloride	BMB	11.667	49.6000	49.6000	1.0000
3	6.05	Nitrite, N	BMB	4.944	9.6547	9.6547	1.0000
4	7.85	Bromide	BMB	0.976	9.7250	9.7250	1.0000
5	8.44	Sulfate	BM	8.334	48.5365	48.5365	1.0000
6	8.82	Nitrate	M	5.978	10.1921	10.1921	1.0000
7	9.35	Chlorate	MB	0.967	10.2637	10.2637	1.0000
8	12.59	Phosphate	BMB	2.061	8.9276	8.9276	1.0000
Total:			0.000	38.474	156.46		

89 CCB

Sample Name: CCB
 Vial Number: BA8
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/22/2019 12:22
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.07	Chloride	BMB	0.004	0.0727	0.0727	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	0.004	0.07		

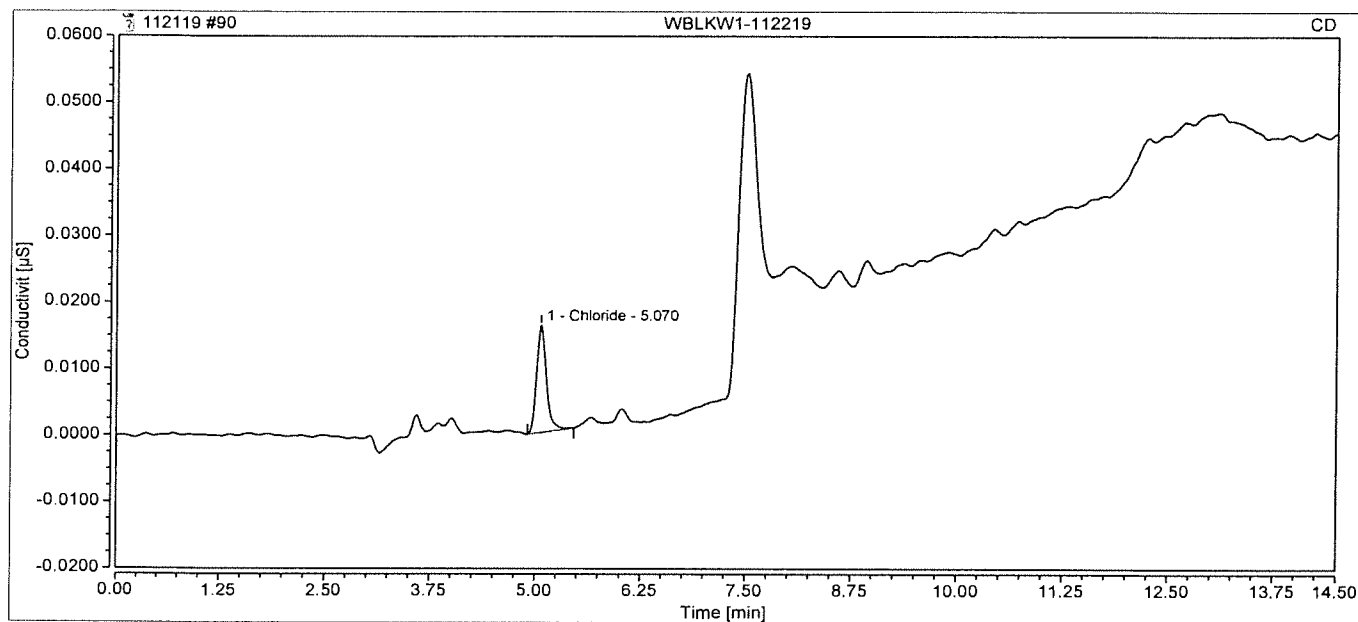
90 WBLKW1-112219

Sample Name: WBLKW1-112219
 Vial Number: RC6
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000

Recording Time: 11/22/2019 13:35

Run Time:



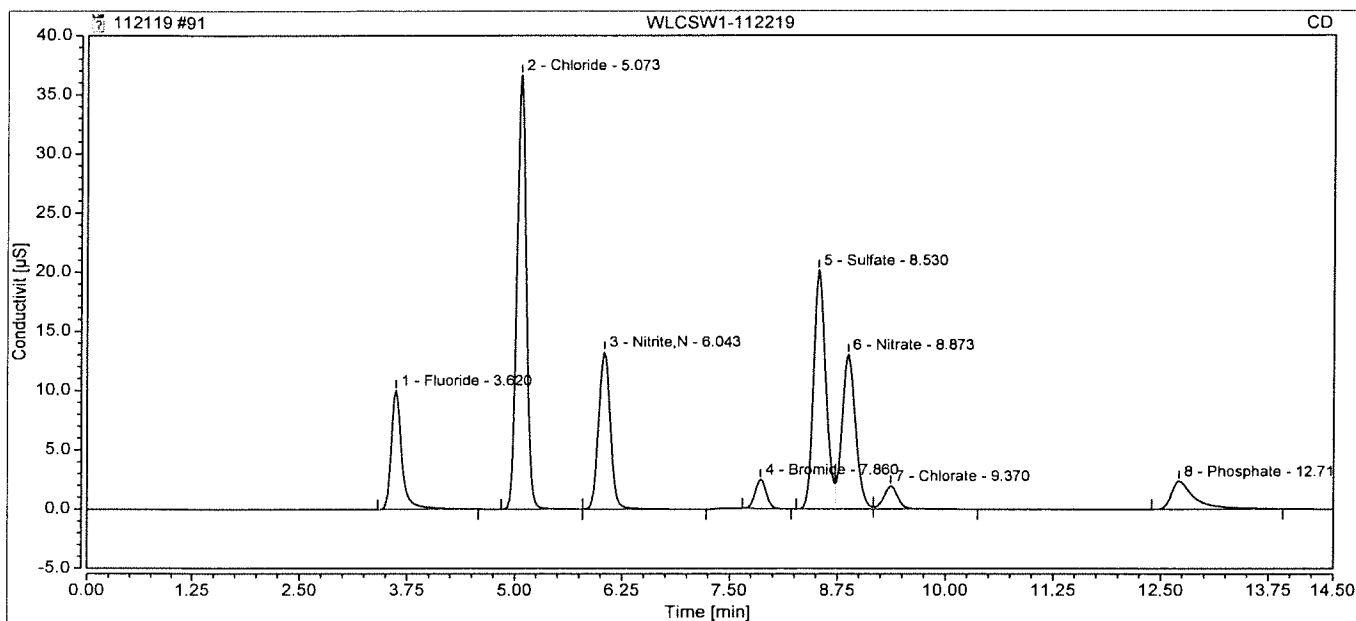
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.07	Chloride	BMB	0.002	0.0665	0.0665	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	0.002	0.07		

91 WLCSW1-112219

Sample Name: WLCSW1-112219
 Vial Number: RC7
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/22/2019 13:52
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



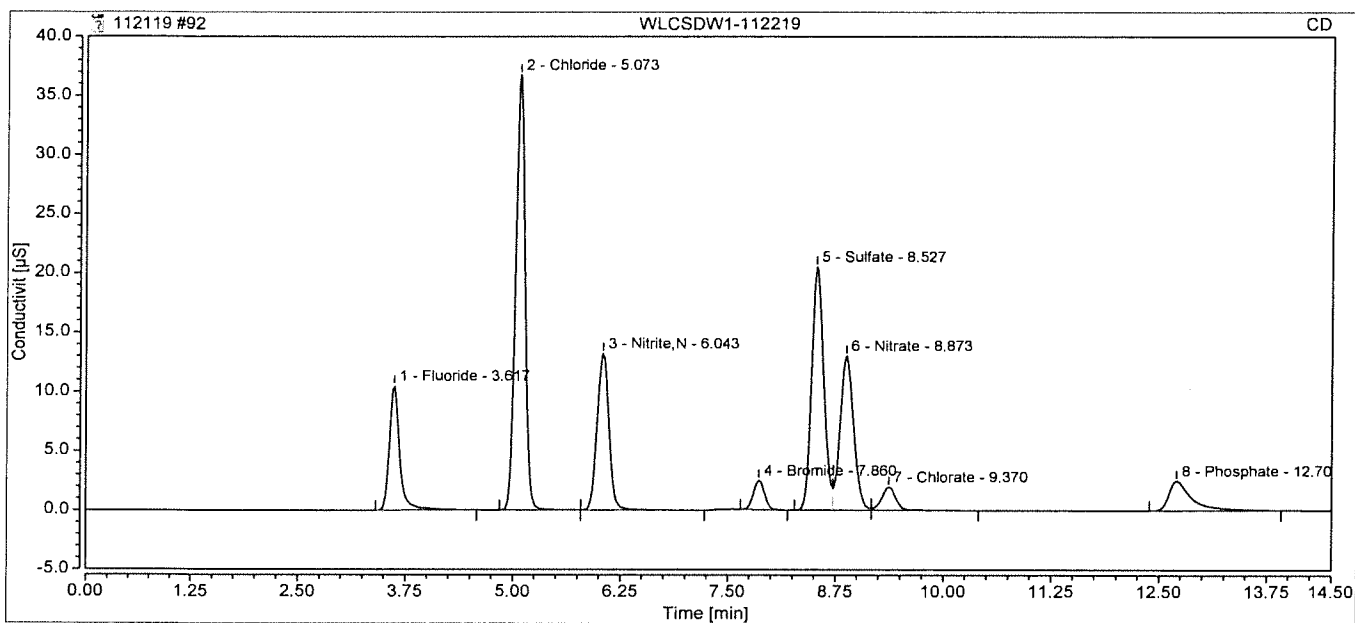
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	1.456	3.9331	3.9331	1.0000
2	5.07	Chloride	BMB	4.681	19.9354	19.9354	1.0000
3	6.04	Nitrite,N	BMB	2.117	4.1332	4.1332	1.0000
4	7.86	Bromide	BMB	0.369	3.7063	3.7063	1.0000
5	8.53	Sulfate	BM	3.313	19.3011	19.3011	1.0000
6	8.87	Nitrate	M	2.389	4.0828	4.0828	1.0000
7	9.37	Chlorate	MB	0.379	4.0446	4.0446	1.0000
8	12.71	Phosphate	BMB	0.753	3.2942	3.2942	1.0000
Total:			0.000	15.457		62.43	

92 WLCSDW1-112219

Sample Name: WLCSDW1-112219
 Vial Number: RC8
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/22/2019 14:08
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



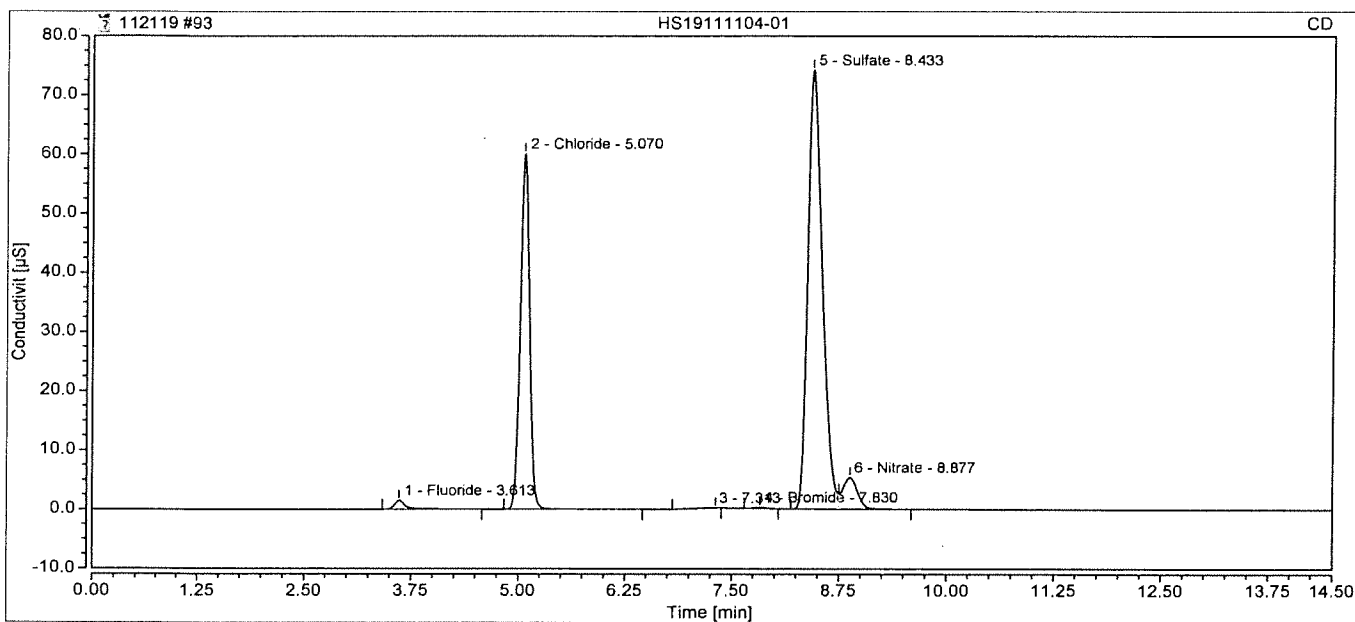
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	1.469	3.9680	3.9680	1.0000
2	5.07	Chloride	BMB	4.689	19.9680	19.9680	1.0000
3	6.04	Nitrite, N	BMB	2.120	4.1405	4.1405	1.0000
4	7.86	Bromide	BMB	0.370	3.7187	3.7187	1.0000
5	8.53	Sulfate	BM	3.354	19.5396	19.5396	1.0000
6	8.87	Nitrate	M	2.379	4.0663	4.0663	1.0000
7	9.37	Chlorate	MB	0.380	4.0493	4.0493	1.0000
8	12.70	Phosphate	BMB	0.787	3.4389	3.4389	1.0000
Total:			0.000	15.548	62.89		

93 HS19111104-01

Sample Name: HS19111104-01
 Vial Number: RD1
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/22/2019 14:25
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



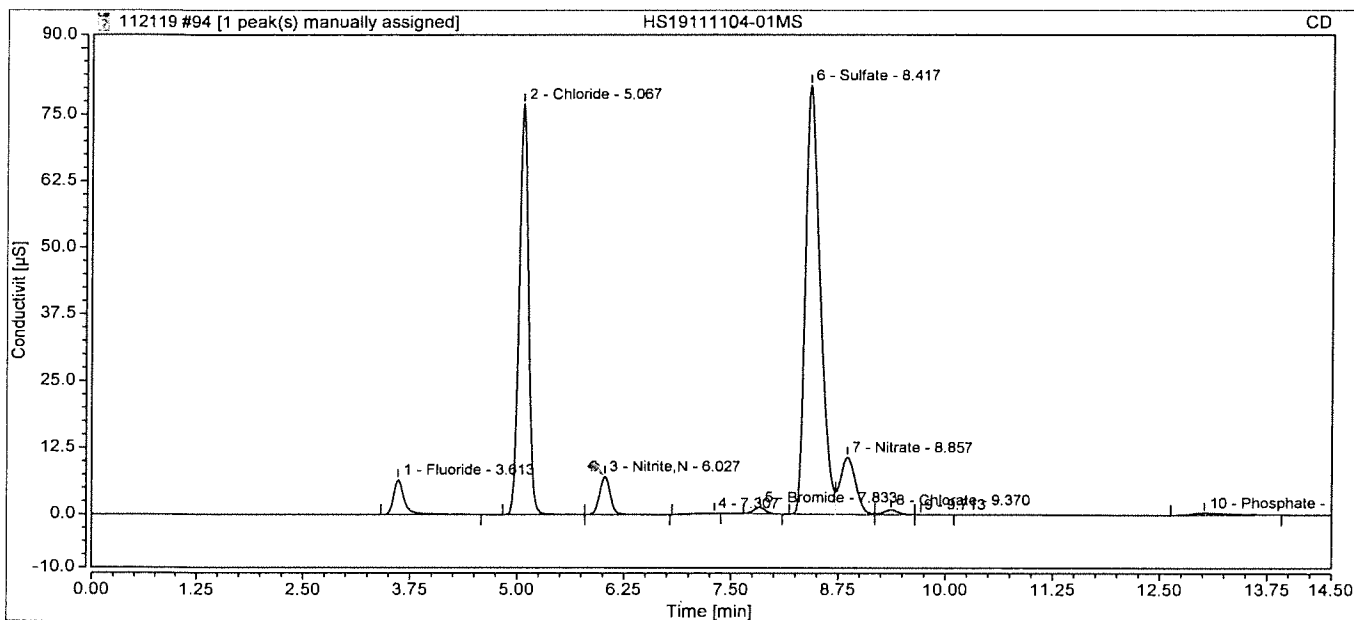
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.242	0.6652	0.6652	1.0000
2	5.07	Chloride	BMB	7.582	32.2514	32.2514	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	7.83	Bromide	BMB	0.030	0.3511	0.3511	1.0000
5	8.43	Sulfate	BM	14.646	85.2885	85.2885	1.0000
6	8.88	Nitrate	MB	1.077	1.8500	1.8500	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	23.576	120.41		

94 HS19111104-01MS

Sample Name: HS19111104-01MS
 Vial Number: RD2
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/22/2019 14:42
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



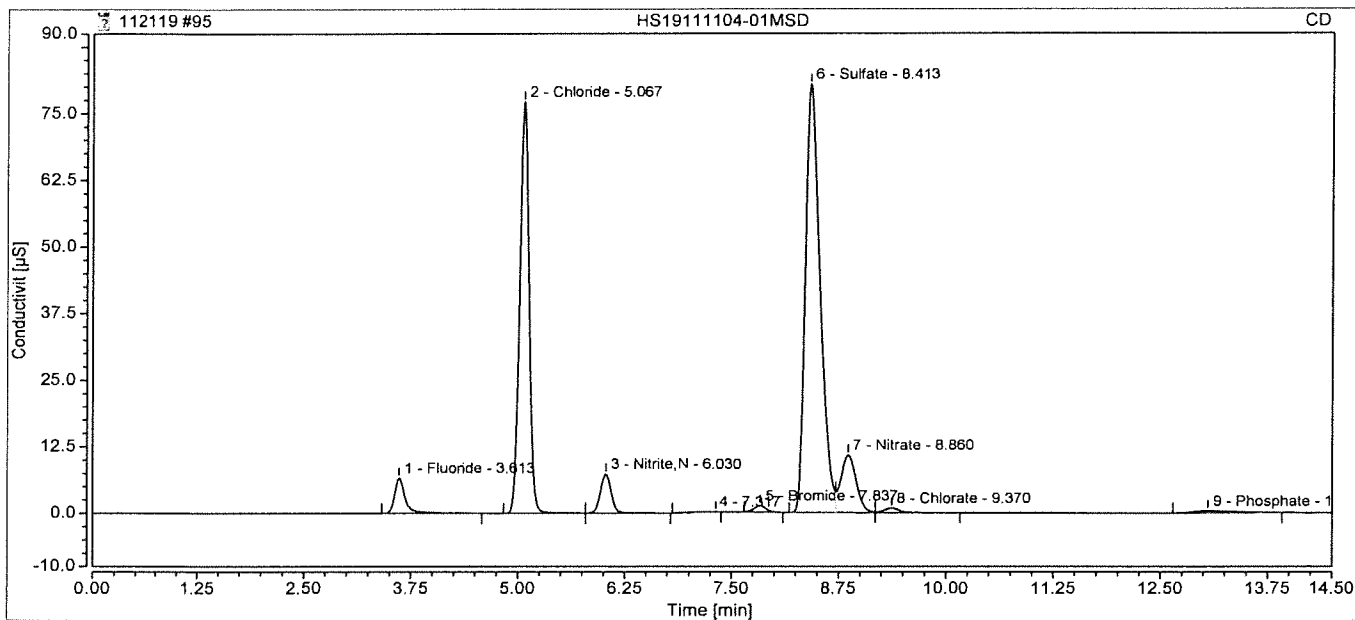
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.951	2.5741	2.5741	1.0000
2	5.07	Chloride	BMB	9.728	41.3662	41.3662	1.0000
3	6.03	Nitrite, N	BMB^	1.037	2.0248	2.0248	1.0000
5	7.83	Bromide	BMB	0.191	1.9432	1.9432	1.0000
6	8.42	Sulfate	BM	16.098	93.7454	93.7454	1.0000
7	8.86	Nitrate	M	2.218	3.7927	3.7927	1.0000
8	9.37	Chlorate	M	0.171	1.8411	1.8411	1.0000
10	13.02	Phosphate	BMB	0.216	0.9761	0.9761	1.0000
Total:			0.000	30.610		148.26	

95 HS19111104-01MSD

Sample Name: HS19111104-01MSD
 Vial Number: RD3
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/22/2019 14:58
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



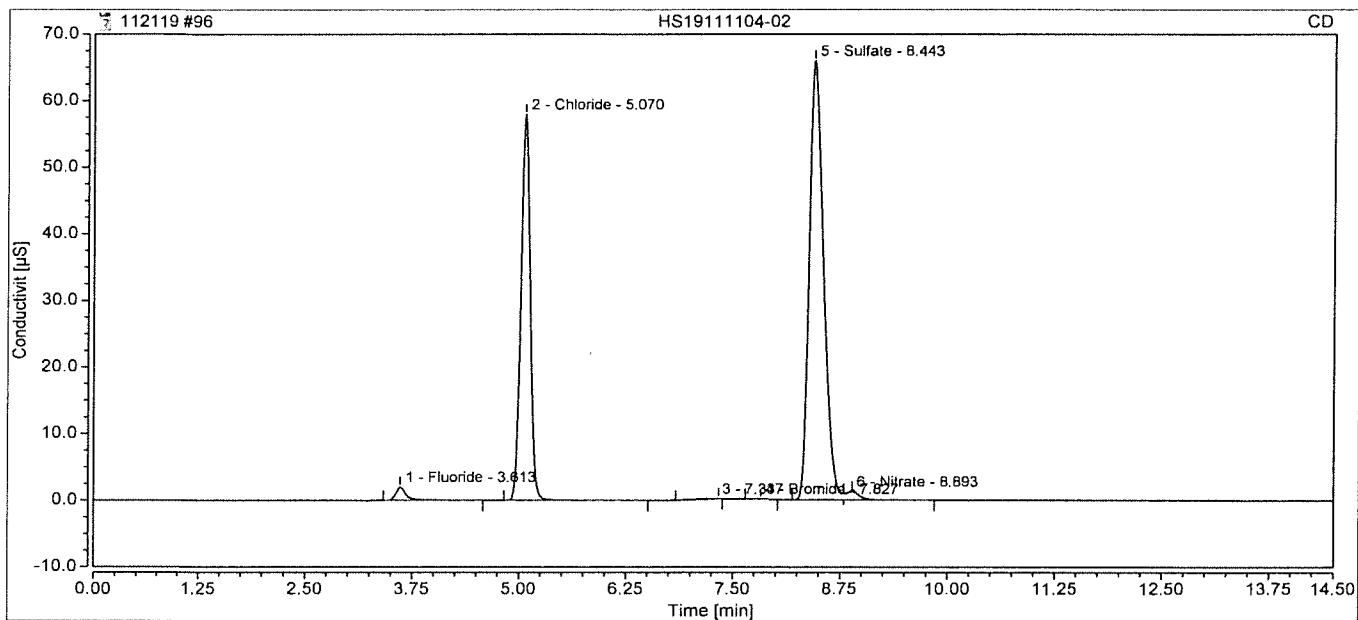
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.965	2.6119	2.6119	1.0000
2	5.07	Chloride	BMB	9.772	41.5511	41.5511	1.0000
3	6.03	Nitrite, N	BMB	1.064	2.0778	2.0778	1.0000
5	7.84	Bromide	BMB	0.196	1.9955	1.9955	1.0000
6	8.41	Sulfate	BM	16.041	93.4142	93.4142	1.0000
7	8.86	Nitrate	M	2.244	3.8374	3.8374	1.0000
8	9.37	Chlorate	MB	0.180	1.9346	1.9346	1.0000
9	13.05	Phosphate	BMB	0.207	0.9408	0.9408	1.0000
Total:			0.000	30.670	148.36		

96 HS19111104-02

Sample Name: HS19111104-02
 Vial Number: RD4
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/22/2019 15:15
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



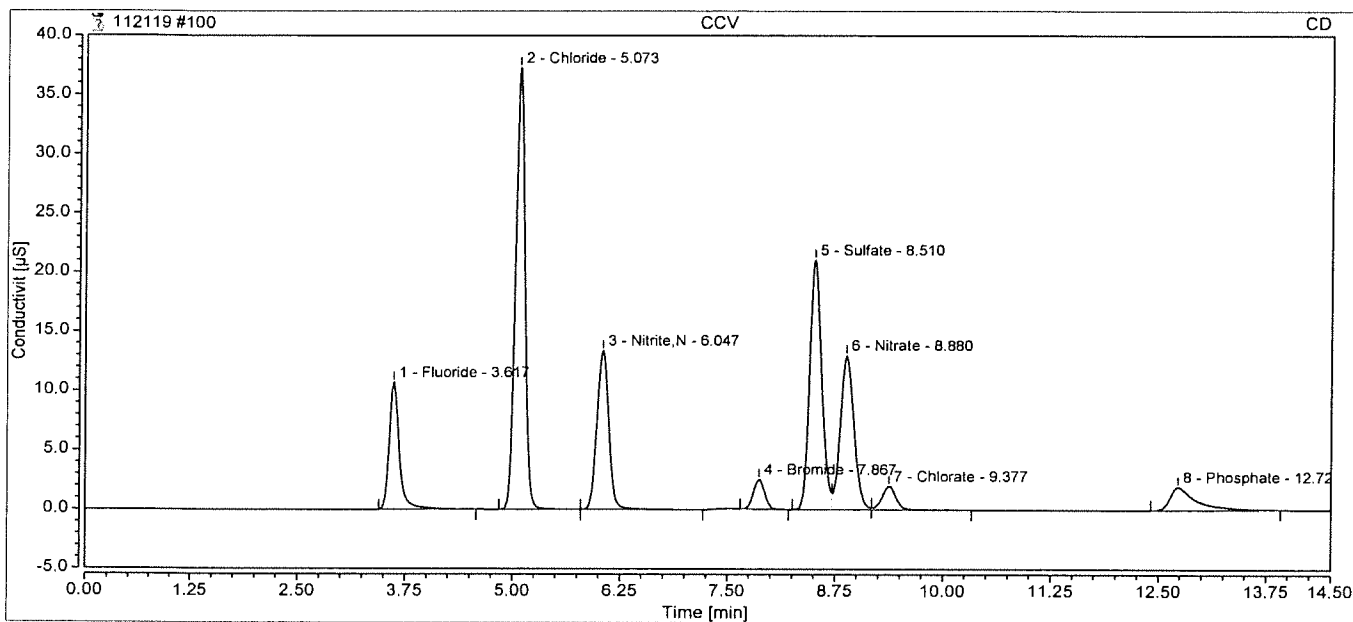
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.308	0.8441	0.8441	1.0000
2	5.07	Chloride	BMB	7.367	31.3401	31.3401	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	7.83	Bromide	BMB	0.010	0.1537	0.1537	1.0000
5	8.44	Sulfate	BM	12.773	74.3841	74.3841	1.0000
6	8.89	Nitrate	MB	0.248	0.4392	0.4392	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	20.706	107.16		

100 CCV

Sample Name: CCV
 Vial Number: BA5
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/22/2019 16:21
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



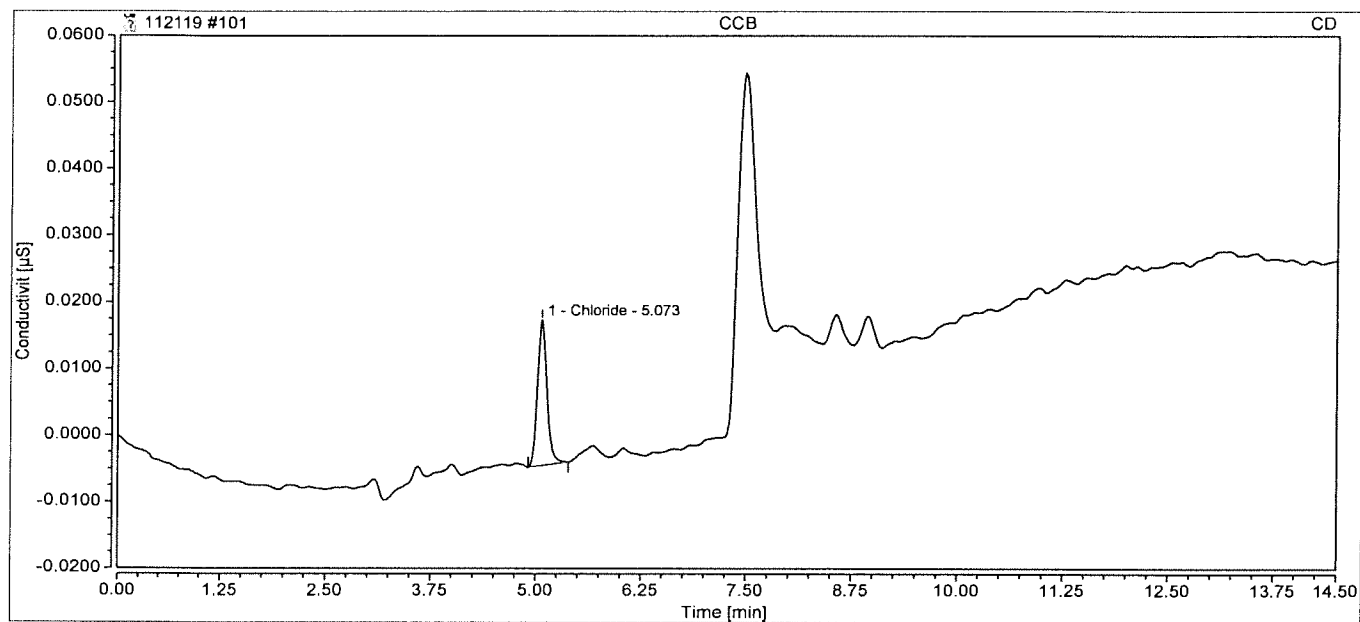
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	1.483	4.0068	4.0068	1.0000
2	5.07	Chloride	BMB	4.765	20.2925	20.2925	1.0000
3	6.05	Nitrite, N	BMB	2.154	4.2056	4.2056	1.0000
4	7.87	Bromide	BMB	0.378	3.7967	3.7967	1.0000
5	8.51	Sulfate	BM	3.414	19.8886	19.8886	1.0000
6	8.88	Nitrate	M	2.405	4.1103	4.1103	1.0000
7	9.38	Chlorate	MB	0.386	4.1189	4.1189	1.0000
8	12.73	Phosphate	BMB	0.719	3.1437	3.1437	1.0000
Total:			0.000	15.703		63.56	

101 CCB

Sample Name: CCB
 Vial Number: BA6
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/22/2019 16:38
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000

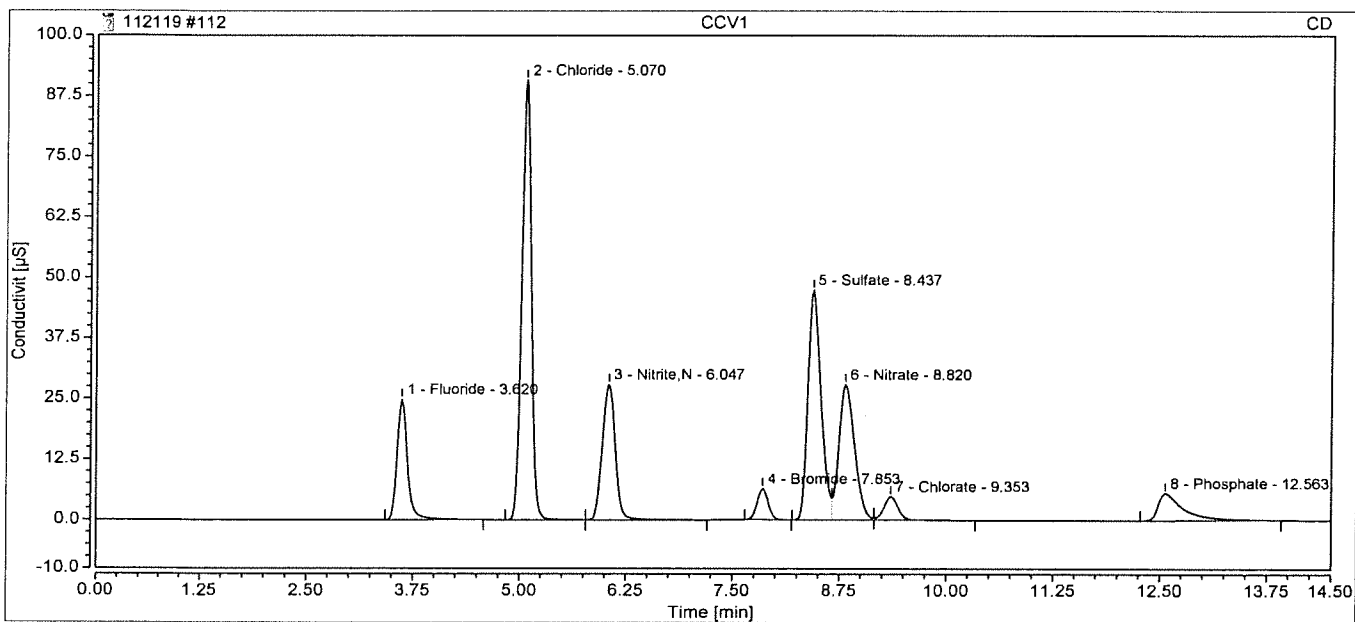
**Integration Results**

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.07	Chloride	BMB	0.003	0.0694	0.0694	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	0.003	0.07		

112 CCV1

Sample Name: CCV1
 Vial Number: BA7
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/22/2019 19:41
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	3.563	9.6035	9.6035	1.0000
2	5.07	Chloride	BMB	11.668	49.6018	49.6018	1.0000
3	6.05	Nitrite, N	BMB	4.942	9.6511	9.6511	1.0000
4	7.85	Bromide	BMB	0.976	9.7220	9.7220	1.0000
5	8.44	Sulfate	BM	8.400	48.9243	48.9243	1.0000
6	8.82	Nitrate	M	5.948	10.1400	10.1400	1.0000
7	9.35	Chlorate	MB	0.955	10.1372	10.1372	1.0000
8	12.56	Phosphate	BMB	2.005	8.6865	8.6865	1.0000
Total:			0.000	38.455	156.47		

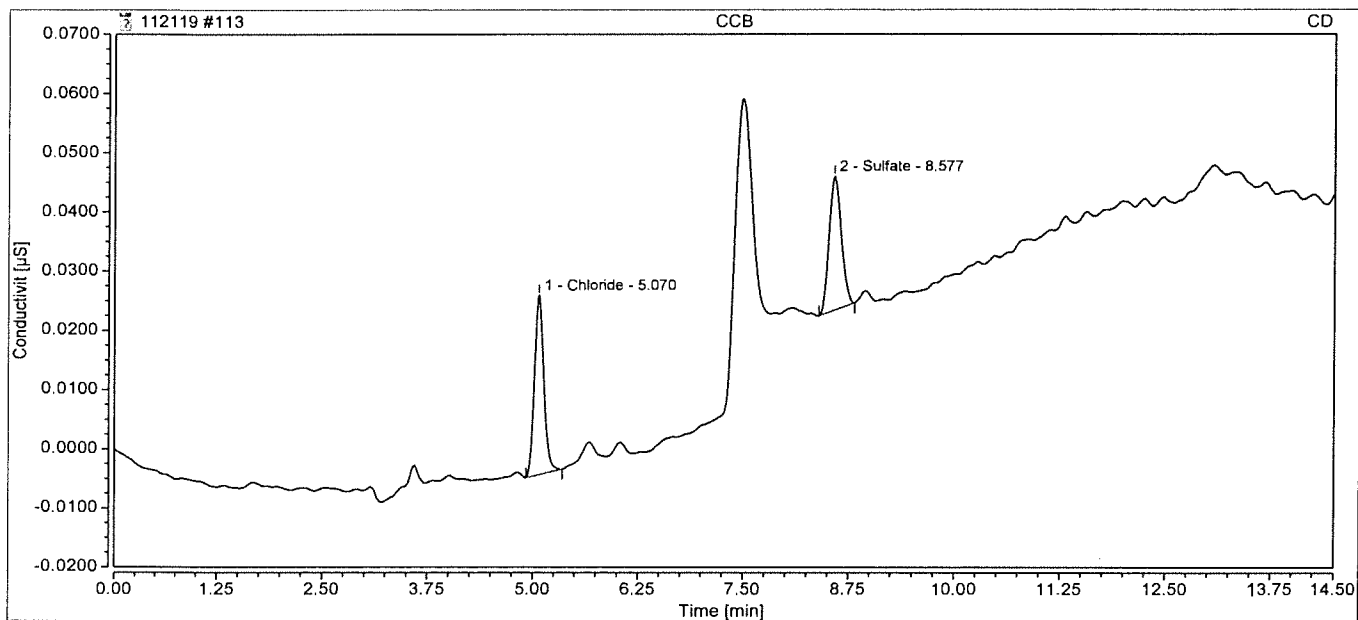
113 CCB

Sample Name: CCB
 Vial Number: BA8
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method

Recording Time: 11/22/2019 19:57

Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



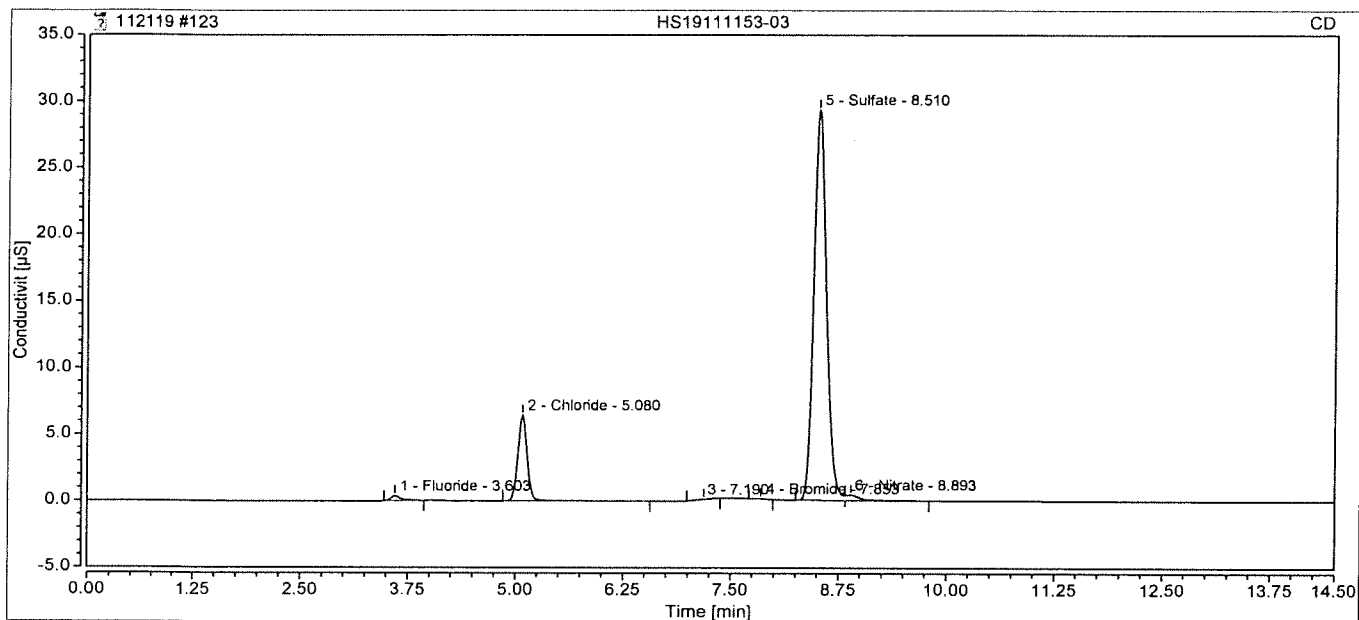
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.07	Chloride	BMB	0.004	0.0739	0.0739	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
2	8.58	Sulfate	BMB	0.004	0.0348	0.0348	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	0.008	0.11		

123 HS19111153-03

Sample Name: HS19111153-03
 Vial Number: GA4
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/22/2019 22:44
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



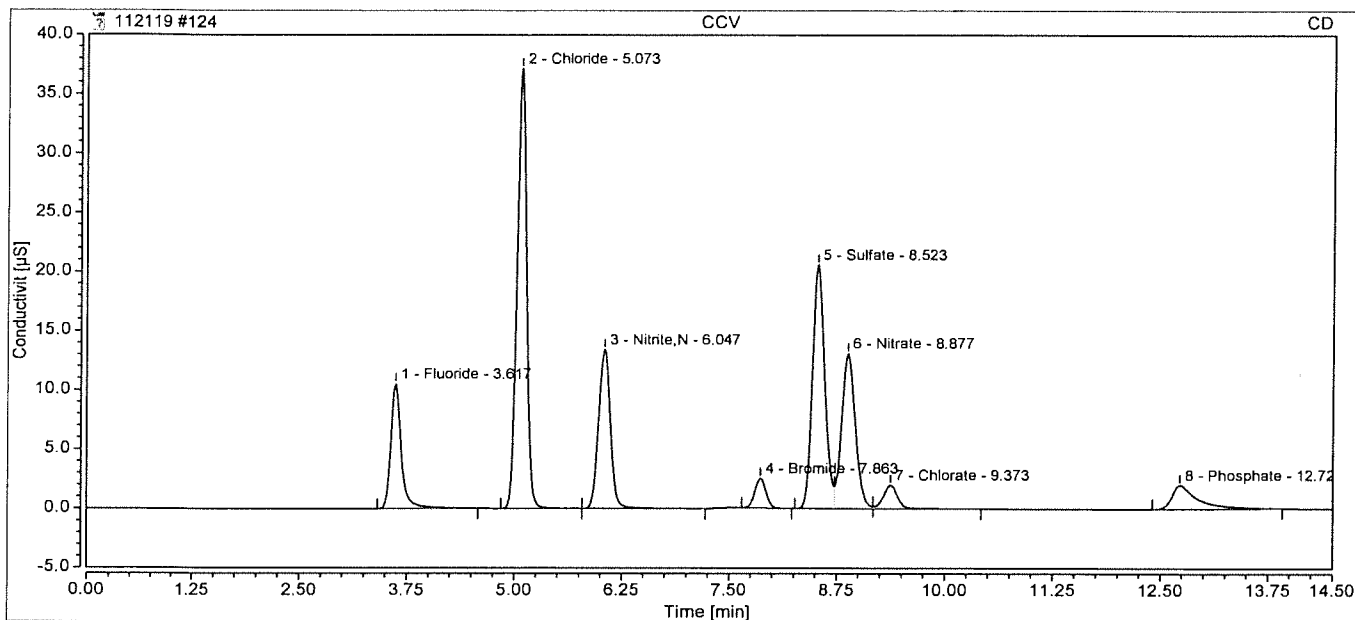
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.050	0.1499	0.1499	1.0000
2	5.08	Chloride	BMB	0.812	3.5071	3.5071	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	7.85	Bromide	BMB	0.002	0.0754	0.0754	1.0000
5	8.51	Sulfate	BM	4.967	28.9338	28.9338	1.0000
6	8.89	Nitrate	MB	0.075	0.1452	0.1452	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	5.907	32.81		

124 CCV

Sample Name: CCV
 Vial Number: BA5
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/22/2019 23:00
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



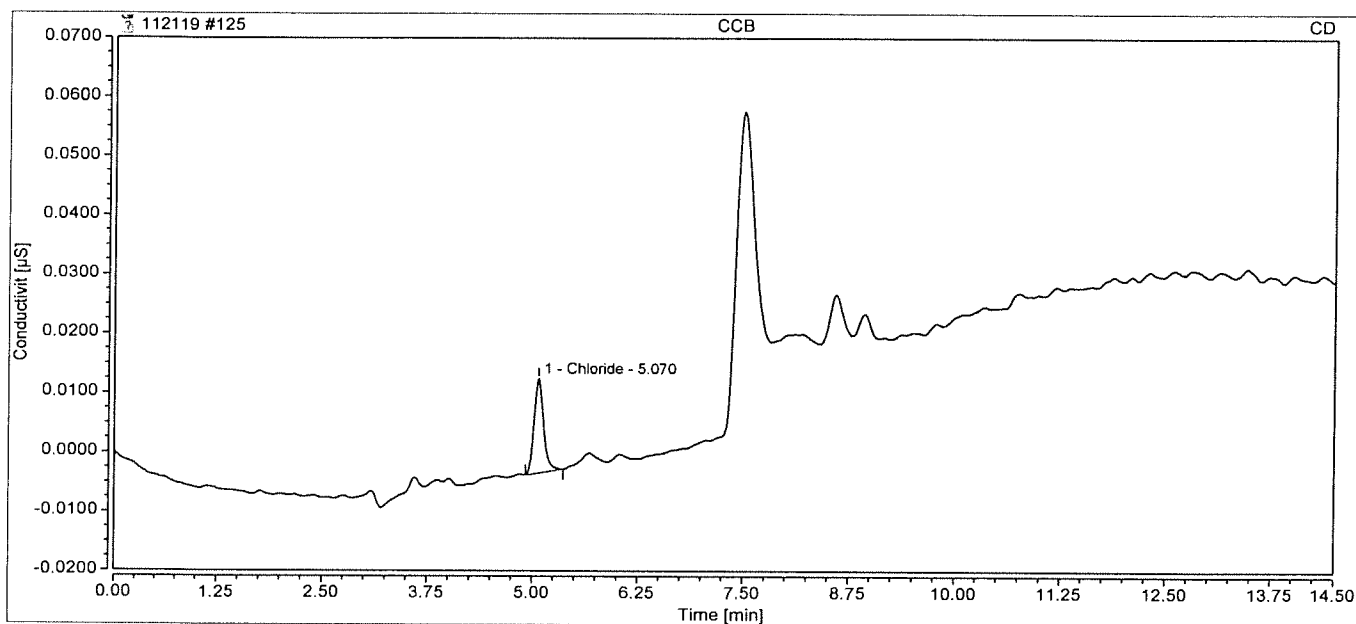
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	1.489	4.0233	4.0233	1.0000
2	5.07	Chloride	BMB	4.760	20.2682	20.2682	1.0000
3	6.05	Nitrite, N	BMB	2.155	4.2078	4.2078	1.0000
4	7.86	Bromide	BMB	0.375	3.7680	3.7680	1.0000
5	8.52	Sulfate	BM	3.398	19.7964	19.7964	1.0000
6	8.88	Nitrate	M	2.420	4.1359	4.1359	1.0000
7	9.37	Chlorate	MB	0.388	4.1394	4.1394	1.0000
8	12.73	Phosphate	BMB	0.721	3.1546	3.1546	1.0000
Total:			0.000	15.706		63.49	

125 CCB

Sample Name: CCB
 Vial Number: BA6
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/22/2019 23:17
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



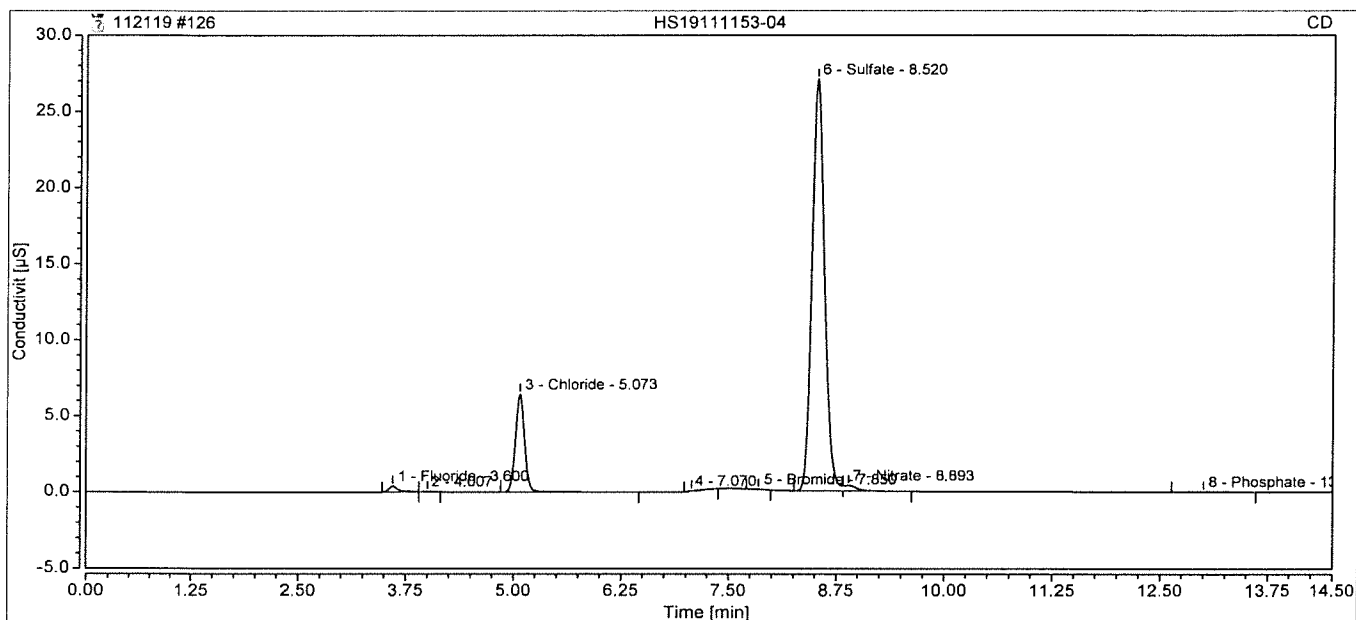
Integration Results

No.	Retention min	Peak Name	Peak Type	Area $\mu\text{S}\cdot\text{min}$	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.07	Chloride	BMB	0.002	0.0661	0.0661	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	0.002	0.07		

126 HS19111153-04

Sample Name: HS19111153-04
 Vial Number: GA5
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/22/2019 23:33
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



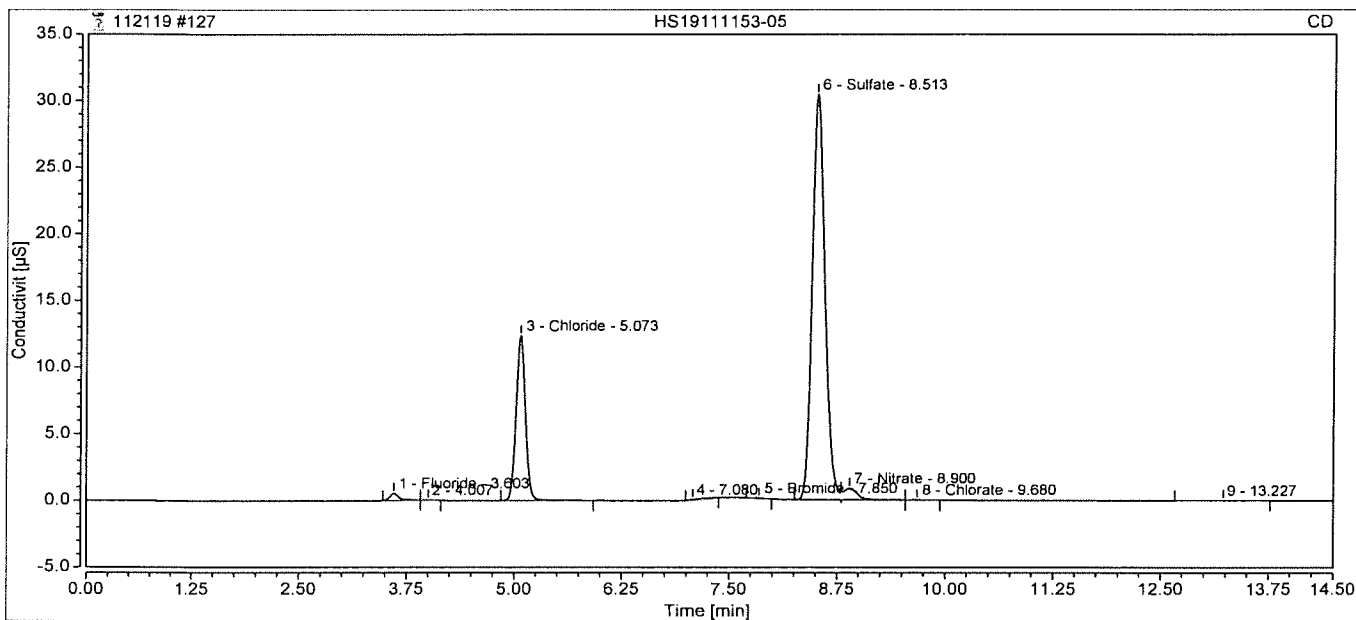
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.050	0.1498	0.1498	1.0000
3	5.07	Chloride	BMB	0.807	3.4851	3.4851	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	7.85	Bromide	BMB	0.002	0.0757	0.0757	1.0000
6	8.52	Sulfate	BM	4.557	26.5449	26.5449	1.0000
7	8.89	Nitrate	MB	0.068	0.1325	0.1325	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
8	13.00	Phosphate	BMB	0.003	0.0622	0.0622	1.0000
Total:			0.000	5.488	30.45		

127 HS19111153-05

Sample Name: HS19111153-05
 Vial Number: GA6
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/22/2019 23:50
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



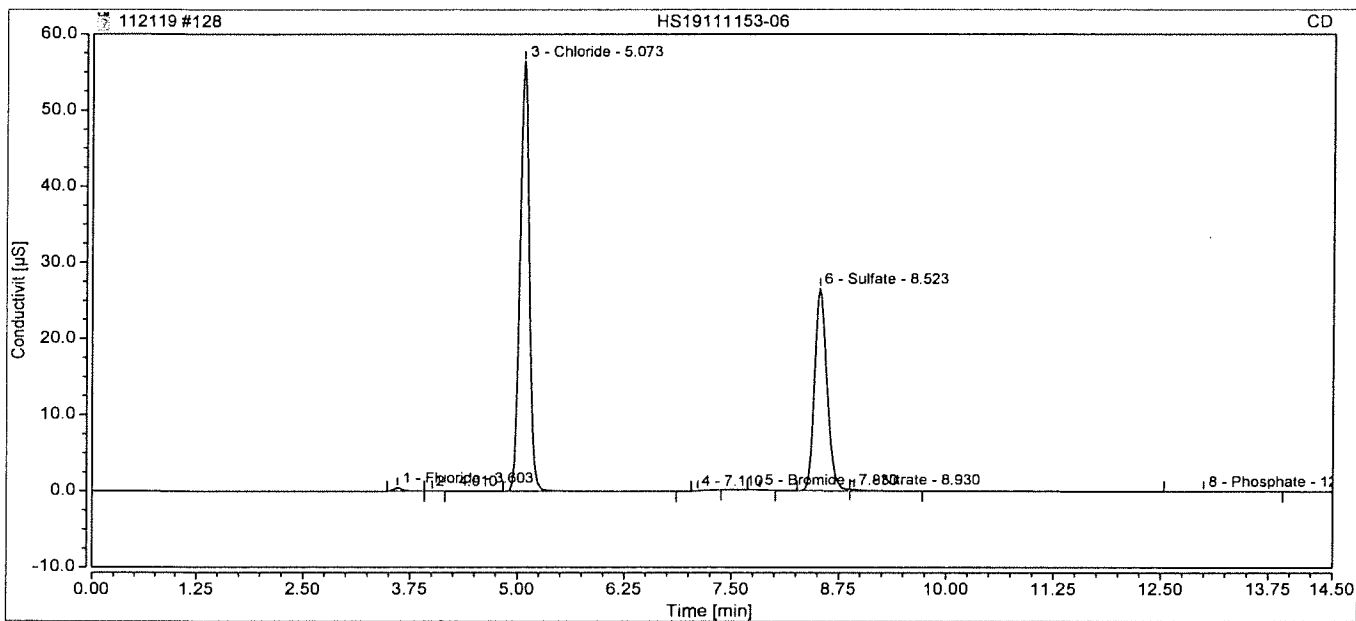
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.068	0.1992	0.1992	1.0000
3	5.07	Chloride	BMB	1.554	6.6552	6.6552	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	7.85	Bromide	BMB	0.003	0.0802	0.0802	1.0000
6	8.51	Sulfate	BM	5.175	30.1462	30.1462	1.0000
7	8.90	Nitrate	M	0.167	0.3008	0.3008	1.0000
8	9.68	Chlorate	MB	0.003	0.0586	0.0586	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	6.970	37.44		

128 HS19111153-06

Sample Name: HS19111153-06
 Vial Number: GA7
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/23/2019 00:07
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



Integration Results

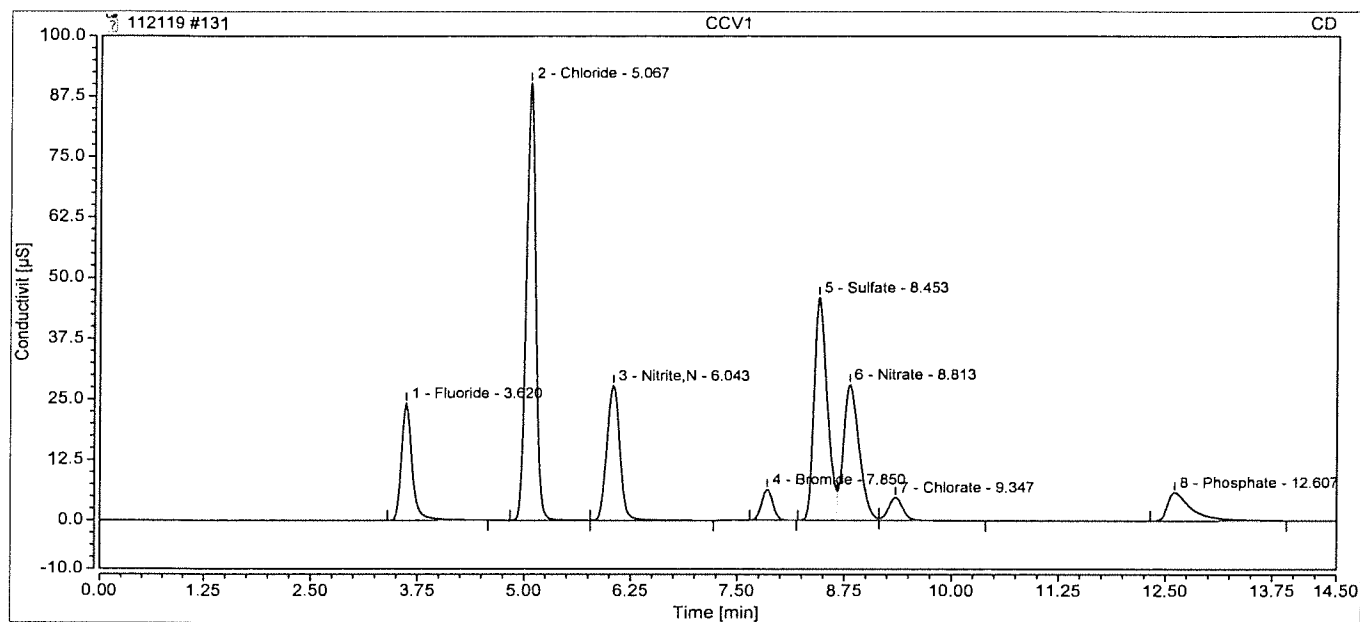
No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.058	0.1712	0.1712	1.0000
3	5.07	Chloride	BMB	7.185	30.5648	30.5648	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	7.83	Bromide	BMB	0.006	0.1117	0.1117	1.0000
6	8.52	Sulfate	BM	4.461	25.9875	25.9875	1.0000
7	8.93	Nitrate	MB	0.033	0.0743	0.0743	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
8	13.00	Phosphate	BMB	0.010	0.0893	0.0893	1.0000
Total:			0.000	11.753	57.00		

131 CCV1

Sample Name: CCV1
 Vial Number: BA7
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/23/2019 00:56

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000

Run Time:



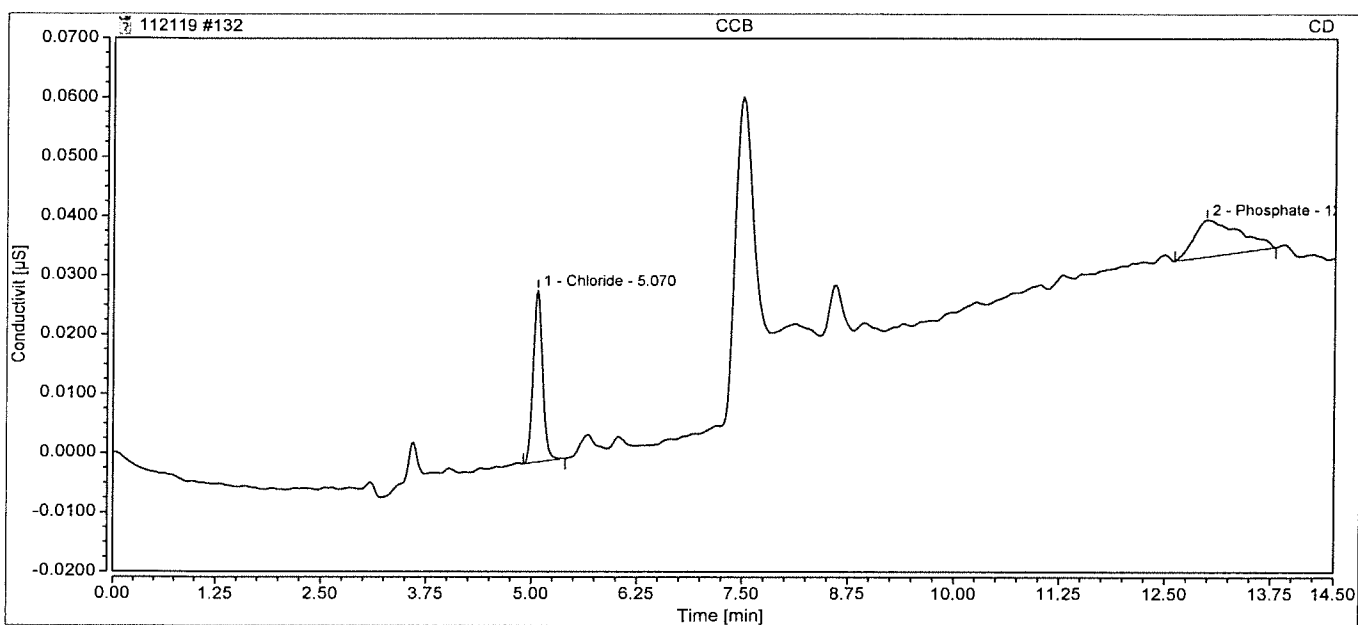
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	3.541	9.5435	9.5435	1.0000
2	5.07	Chloride	BMB	11.619	49.3958	49.3958	1.0000
3	6.04	Nitrite,N	BMB	4.931	9.6304	9.6304	1.0000
4	7.85	Bromide	BMB	0.969	9.6592	9.6592	1.0000
5	8.45	Sulfate	BM	8.240	47.9888	47.9888	1.0000
6	8.81	Nitrate	M	6.005	10.2371	10.2371	1.0000
7	9.35	Chlorate	MB	0.956	10.1482	10.1482	1.0000
8	12.61	Phosphate	BMB	1.977	8.5645	8.5645	1.0000
Total:			0.000	38.237	155.17		

132 CCB

Sample Name: CCB
 Vial Number: BA8
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/23/2019 01:13
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.07	Chloride	BMB	0.004	0.0731	0.0731	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
2	12.98	Phosphate	BMB	0.004	0.0642	0.0642	1.0000
Total:			0.000	0.008	0.14		



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WorkOrder: HS19111239

Longhorn Army Ammunition Plant LHAAP-37

Aptim Environmental & Infrastructure, Inc.

Susan Huang
2500 City West Blvd., Suite 1700
Houston TX 77042

18-Dec-2019





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ALS WO# HS19111239





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November 25, 2019

Susan Huang
Aptim Environmental & Infrastructure, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS19111239**

Laboratory Results for: **Longhorn Army Ammunition Plant LHAAP-37**

Dear Susan,

ALS Environmental received 7 sample(s) on Nov 23, 2019 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL

RJ Modashia
Project Manager



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
Work Order: HS19111239

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19111239-01	35BWW25-191122	Groundwater		22-Nov-2019 08:05	23-Nov-2019 09:20	☐
HS19111239-02	35BWW25-191122-FD	Groundwater		22-Nov-2019 08:05	23-Nov-2019 09:20	☐
HS19111239-03	35BWW15-191122	Groundwater		22-Nov-2019 08:55	23-Nov-2019 09:20	☐
HS19111239-04	35BWW15-191122-FD	Groundwater		22-Nov-2019 08:55	23-Nov-2019 09:20	☐
HS19111239-05	LHSMW58-191122	Groundwater		22-Nov-2019 09:45	23-Nov-2019 09:20	☐
HS19111239-06	35BMW20-191122	Groundwater		22-Nov-2019 10:30	23-Nov-2019 09:20	☐
HS19111239-07	Trip Blank	Groundwater	CG 101419 -07	22-Nov-2019 00:00	23-Nov-2019 09:20	☐



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
Work Order: HS19111239

CASE NARRATIVE

GCMS Volatiles by Method SW8260**Batch ID: R351197****Sample ID: CCV**

- Acetone exceeded %D limits for CCV. Samples are ND for this compound.

Sample ID: LHSMW58-191122 (HS19111239-05MSD)

- The RPD between the MS and MSD was outside of the control limit. 1,2,3-Trichlorobenzene
-

ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP-37
 Sample ID: 35BWW25-191122
 Collection Date: 22-Nov-2019 08:05

ANALYTICAL REPORT

WorkOrder:HS19111239
 Lab ID:HS19111239-01
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:37
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 20:37
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 20:37
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:37
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 20:37
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 20:37
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 20:37
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37

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



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP-37
 Sample ID: 35BWW25-191122
 Collection Date: 22-Nov-2019 08:05

ANALYTICAL REPORT

WorkOrder:HS19111239
 Lab ID:HS19111239-01
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 20:37
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 20:37
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:37
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Trichloroethene	13		0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
<i>Surr: 1,2-Dichloroethane-d4</i>	93.7			0	<i>81-118</i>	%REC	1	<i>24-Nov-2019 20:37</i>
<i>Surr: 4-Bromofluorobenzene</i>	93.2			0	<i>85-114</i>	%REC	1	<i>24-Nov-2019 20:37</i>
<i>Surr: Dibromofluoromethane</i>	97.1			0	<i>80-119</i>	%REC	1	<i>24-Nov-2019 20:37</i>
<i>Surr: Toluene-d8</i>	96.8			0	<i>89-112</i>	%REC	1	<i>24-Nov-2019 20:37</i>

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



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP-37
 Sample ID: 35BWW25-191122-FD
 Collection Date: 22-Nov-2019 08:05

ANALYTICAL REPORT

WorkOrder: HS19111239
 Lab ID: HS19111239-02
 Matrix: Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method: SW8260						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:01
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 21:01
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 21:01
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:01
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 21:01
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 21:01
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 21:01
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01

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



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP-37
 Sample ID: 35BWW25-191122-FD
 Collection Date: 22-Nov-2019 08:05

ANALYTICAL REPORT

WorkOrder:HS19111239
 Lab ID:HS19111239-02
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 21:01
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 21:01
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:01
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Trichloroethene	13		0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>93.2</i>			0	<i>81-118</i>	%REC	1	<i>24-Nov-2019 21:01</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>93.5</i>			0	<i>85-114</i>	%REC	1	<i>24-Nov-2019 21:01</i>
<i>Surr: Dibromofluoromethane</i>	<i>96.0</i>			0	<i>80-119</i>	%REC	1	<i>24-Nov-2019 21:01</i>
<i>Surr: Toluene-d8</i>	<i>97.0</i>			0	<i>89-112</i>	%REC	1	<i>24-Nov-2019 21:01</i>

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



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP-37
 Sample ID: 35BWW15-191122
 Collection Date: 22-Nov-2019 08:55

ANALYTICAL REPORT

WorkOrder:HS19111239
 Lab ID:HS19111239-03
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,1,2-Trichlor-1,2,2-trifluoroethane	3.0		0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,1-Dichloroethene	1.2		0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 21:25
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 21:25
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:25
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 21:25
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 21:25
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 21:25
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25

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



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP-37
 Sample ID: 35BWW15-191122
 Collection Date: 22-Nov-2019 08:55

ANALYTICAL REPORT

WorkOrder:HS19111239
 Lab ID:HS19111239-03
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 21:25
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 21:25
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:25
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Tetrachloroethene	11		0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Trichloroethene	7.8		0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
<i>Surr: 1,2-Dichloroethane-d4</i>	93.9			0	81-118	%REC	1	24-Nov-2019 21:25
<i>Surr: 4-Bromofluorobenzene</i>	93.9			0	85-114	%REC	1	24-Nov-2019 21:25
<i>Surr: Dibromofluoromethane</i>	97.4			0	80-119	%REC	1	24-Nov-2019 21:25
<i>Surr: Toluene-d8</i>	97.3			0	89-112	%REC	1	24-Nov-2019 21:25

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



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP-37
 Sample ID: 35BWW15-191122-FD
 Collection Date: 22-Nov-2019 08:55

ANALYTICAL REPORT

WorkOrder:HS19111239
 Lab ID:HS19111239-04
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,1,2-Trichlor-1,2,2-trifluoroethane	2.9		0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,1-Dichloroethene	1.1		0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:49
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 21:49
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 21:49
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:49
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 21:49
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 21:49
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 21:49
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49

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



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP-37
 Sample ID: 35BWW15-191122-FD
 Collection Date: 22-Nov-2019 08:55

ANALYTICAL REPORT

WorkOrder:HS19111239
 Lab ID:HS19111239-04
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 21:49
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 21:49
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:49
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Tetrachloroethene	11		0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Trichloroethene	7.6		0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
<i>Surr: 1,2-Dichloroethane-d4</i>	91.3			0	81-118	%REC	1	24-Nov-2019 21:49
<i>Surr: 4-Bromofluorobenzene</i>	94.5			0	85-114	%REC	1	24-Nov-2019 21:49
<i>Surr: Dibromofluoromethane</i>	95.2			0	80-119	%REC	1	24-Nov-2019 21:49
<i>Surr: Toluene-d8</i>	96.4			0	89-112	%REC	1	24-Nov-2019 21:49

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



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP-37
 Sample ID: LHSMW58-191122
 Collection Date: 22-Nov-2019 09:45

ANALYTICAL REPORT

WorkOrder:HS19111239
 Lab ID:HS19111239-05
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:48
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 15:48
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 15:48
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:48
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 15:48
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 15:48
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 15:48
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48

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



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP-37
 Sample ID: LHSMW58-191122
 Collection Date: 22-Nov-2019 09:45

ANALYTICAL REPORT

WorkOrder:HS19111239
 Lab ID:HS19111239-05
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 15:48
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 15:48
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:48
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Tetrachloroethene	4.2		0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>93.3</i>			0	<i>81-118</i>	<i>%REC</i>	<i>1</i>	<i>24-Nov-2019 15:48</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>92.4</i>			0	<i>85-114</i>	<i>%REC</i>	<i>1</i>	<i>24-Nov-2019 15:48</i>
<i>Surr: Dibromofluoromethane</i>	<i>97.2</i>			0	<i>80-119</i>	<i>%REC</i>	<i>1</i>	<i>24-Nov-2019 15:48</i>
<i>Surr: Toluene-d8</i>	<i>99.1</i>			0	<i>89-112</i>	<i>%REC</i>	<i>1</i>	<i>24-Nov-2019 15:48</i>

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



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP-37
 Sample ID: 35BMW20-191122
 Collection Date: 22-Nov-2019 10:30

ANALYTICAL REPORT

WorkOrder:HS19111239
 Lab ID:HS19111239-06
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,1,2-Trichlor-1,2,2-trifluoroethane	2.2		0.50	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 22:13
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 22:13
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 22:13
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 22:13
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 22:13
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 22:13
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 22:13
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13

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



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP-37
 Sample ID: 35BMW20-191122
 Collection Date: 22-Nov-2019 10:30

ANALYTICAL REPORT

WorkOrder:HS19111239
 Lab ID:HS19111239-06
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 22:13
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 22:13
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 22:13
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Tetrachloroethene	15		0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Trichloroethene	3.1		0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>95.1</i>			0	<i>81-118</i>	<i>%REC</i>	<i>1</i>	<i>24-Nov-2019 22:13</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>94.0</i>			0	<i>85-114</i>	<i>%REC</i>	<i>1</i>	<i>24-Nov-2019 22:13</i>
<i>Surr: Dibromofluoromethane</i>	<i>97.0</i>			0	<i>80-119</i>	<i>%REC</i>	<i>1</i>	<i>24-Nov-2019 22:13</i>
<i>Surr: Toluene-d8</i>	<i>99.3</i>			0	<i>89-112</i>	<i>%REC</i>	<i>1</i>	<i>24-Nov-2019 22:13</i>

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



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP-37
 Sample ID: Trip Blank
 Collection Date: 22-Nov-2019 00:00

ANALYTICAL REPORT

WorkOrder: HS19111239
 Lab ID: HS19111239-07
 Matrix: Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method: SW8260						Analyst: PC
8260C								
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:24
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 15:24
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 15:24
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:24
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 15:24
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 15:24
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 15:24
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24

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



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP-37
 Sample ID: Trip Blank
 Collection Date: 22-Nov-2019 00:00

ANALYTICAL REPORT

WorkOrder:HS19111239
 Lab ID:HS19111239-07
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 15:24
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 15:24
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:24
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
<i>Surr: 1,2-Dichloroethane-d4</i>	92.4			0	81-118	%REC	1	24-Nov-2019 15:24
<i>Surr: 4-Bromofluorobenzene</i>	93.6			0	85-114	%REC	1	24-Nov-2019 15:24
<i>Surr: Dibromofluoromethane</i>	96.4			0	80-119	%REC	1	24-Nov-2019 15:24
<i>Surr: Toluene-d8</i>	97.2			0	89-112	%REC	1	24-Nov-2019 15:24

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



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R351197 (0)		Test Name : VOLATILES ORGANICS BY METHOD 8260C			Matrix: Groundwater	
HS19111239-01	35BWW25-191122	22 Nov 2019 08:05			24 Nov 2019 20:37	1
HS19111239-02	35BWW25-191122-FD	22 Nov 2019 08:05			24 Nov 2019 21:01	1
HS19111239-03	35BWW15-191122	22 Nov 2019 08:55			24 Nov 2019 21:25	1
HS19111239-04	35BWW15-191122-FD	22 Nov 2019 08:55			24 Nov 2019 21:49	1
HS19111239-05	LHSMW58-191122	22 Nov 2019 09:45			24 Nov 2019 15:48	1
HS19111239-06	35BMW20-191122	22 Nov 2019 10:30			24 Nov 2019 22:13	1
HS19111239-07	Trip Blank	22 Nov 2019 00:00			24 Nov 2019 15:24	1



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MBLK	Sample ID: VBLKW-191124	Units: UG/L		Analysis Date: 24-Nov-2019 14:36					
Client ID:	Run ID: VOA6_351197	SeqNo: 5359047		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
1,1,1,2-Tetrachloroethane	0.50	1.0							U
1,1,1-Trichloroethane	0.50	1.0							U
1,1,2,2-Tetrachloroethane	0.50	1.0							U
1,1,2-Trichlor-1,2,2-trifluoroethane	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



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MBLK	Sample ID: VBLKW-191124	Units: UG/L		Analysis Date: 24-Nov-2019 14:36					
Client ID:	Run ID: VOA6_351197	SeqNo: 5359047		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromomethane	0.50	1.0							U
Carbon disulfide	1.0	2.0							U
Carbon tetrachloride	0.50	1.0							U
Chlorobenzene	0.50	1.0							U
Chloroethane	0.50	1.0							U
Chloroform	0.50	1.0							U
Chloromethane	0.50	1.0							U
cis-1,2-Dichloroethene	0.50	1.0							U
cis-1,3-Dichloropropene	0.50	1.0							U
Dibromochloromethane	0.50	1.0							U
Dibromomethane	0.50	1.0							U
Dichlorodifluoromethane	0.50	1.0							U
Ethylbenzene	0.50	1.0							U
Hexachlorobutadiene	0.50	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	45.83	1.0	50	0	91.7	81 - 118			
Surr: 4-Bromofluorobenzene	45.55	1.0	50	0	91.1	85 - 114			
Surr: Dibromofluoromethane	47.85	1.0	50	0	95.7	80 - 119			



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MBLK	Sample ID: VBLKW-191124	Units: UG/L		Analysis Date: 24-Nov-2019 14:36					
Client ID:	Run ID: VOA6_351197		SeqNo: 5359047		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
<i>Surr: Toluene-d8</i>	48.8	1.0	50	0	97.6	89 - 112			



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
LCS		Sample ID: VLCSW-191124		Units: UG/L		Analysis Date: 24-Nov-2019 13:48			
Client ID:		Run ID: VOA6_351197		SeqNo: 5359046		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	20.62	1.0	20	0	103	78 - 124			
1,1,1-Trichloroethane	20.64	1.0	20	0	103	74 - 131			
1,1,2,2-Tetrachloroethane	20.35	1.0	20	0	102	71 - 121			
1,1,2-Trichloro-1,2,2-trifluoroethane	19.89	1.0	20	0	99.5	70 - 136			
1,1,2-Trichloroethane	20.38	1.0	20	0	102	80 - 119			
1,1-Dichloroethane	20.55	1.0	20	0	103	77 - 125			
1,1-Dichloroethene	19.43	1.0	20	0	97.1	71 - 131			
1,1-Dichloropropene	20.19	1.0	20	0	101	78 - 125			
1,2,3-Trichlorobenzene	21.94	1.0	20	0	110	69 - 129			
1,2,3-Trichloropropane	19.97	1.0	20	0	99.9	73 - 122			
1,2,4-Trichlorobenzene	21.34	1.0	20	0	107	69 - 130			
1,2,4-Trimethylbenzene	20.39	1.0	20	0	102	76 - 124			
1,2-Dibromo-3-chloropropane	20.16	1.0	20	0	101	62 - 128			
1,2-Dibromoethane	20.05	1.0	20	0	100	77 - 121			
1,2-Dichlorobenzene	20.48	1.0	20	0	102	80 - 119			
1,2-Dichloroethane	20.29	1.0	20	0	101	73 - 128			
1,2-Dichloropropane	20.26	1.0	20	0	101	78 - 122			
1,3,5-Trimethylbenzene	20.66	1.0	20	0	103	75 - 124			
1,3-Dichlorobenzene	20.59	1.0	20	0	103	80 - 119			
1,3-Dichloropropane	19.68	1.0	20	0	98.4	80 - 119			
1,4-Dichlorobenzene	20.5	1.0	20	0	103	79 - 118			
2,2-Dichloropropane	20.47	1.0	20	0	102	60 - 139			
2-Butanone	39.49	2.0	40	0	98.7	56 - 143			
2-Chlorotoluene	21.32	1.0	20	0	107	79 - 122			
2-Hexanone	39.78	2.0	40	0	99.5	57 - 139			
4-Chlorotoluene	20.52	1.0	20	0	103	78 - 122			
4-Isopropyltoluene	20.47	1.0	20	0	102	77 - 127			
4-Methyl-2-pentanone	38.77	2.0	40	0	96.9	67 - 130			
Acetone	43.21	2.0	40	0	108	39 - 160			
Benzene	20.71	1.0	20	0	104	79 - 120			
Bromobenzene	20.96	1.0	20	0	105	80 - 120			
Bromochloromethane	20.43	1.0	20	0	102	78 - 123			
Bromodichloromethane	20.51	1.0	20	0	103	79 - 125			
Bromoform	20.06	1.0	20	0	100	66 - 130			



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
LCS		Sample ID: VLCSW-191124		Units: UG/L		Analysis Date: 24-Nov-2019 13:48			
Client ID:		Run ID: VOA6_351197		SeqNo: 5359046		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromomethane	21.53	1.0	20	0	108	53 - 141			
Carbon disulfide	41.92	2.0	40	0	105	64 - 133			
Carbon tetrachloride	19.98	1.0	20	0	99.9	72 - 136			
Chlorobenzene	19.9	1.0	20	0	99.5	82 - 118			
Chloroethane	18.17	1.0	20	0	90.9	60 - 138			
Chloroform	20.14	1.0	20	0	101	79 - 124			
Chloromethane	15.24	1.0	20	0	76.2	50 - 139			
cis-1,2-Dichloroethene	21.32	1.0	20	0	107	78 - 123			
cis-1,3-Dichloropropene	20.55	1.0	20	0	103	75 - 124			
Dibromochloromethane	20.29	1.0	20	0	101	74 - 126			
Dibromomethane	20.7	1.0	20	0	103	79 - 123			
Dichlorodifluoromethane	15.73	1.0	20	0	78.7	32 - 152			
Ethylbenzene	20.21	1.0	20	0	101	79 - 121			
Hexachlorobutadiene	20.68	1.0	20	0	103	66 - 134			
Isopropylbenzene	20.02	1.0	20	0	100	72 - 131			
m,p-Xylene	40.31	2.0	40	0	101	80 - 121			
Methylene chloride	19.82	2.0	20	0	99.1	74 - 124			
Naphthalene	18.54	1.0	20	0	92.7	61 - 128			
n-Butylbenzene	20.99	1.0	20	0	105	75 - 128			
n-Propylbenzene	21.12	1.0	20	0	106	76 - 126			
o-Xylene	20.1	1.0	20	0	100	78 - 122			
sec-Butylbenzene	20.93	1.0	20	0	105	77 - 126			
Styrene	20.09	1.0	20	0	100	78 - 123			
tert-Butylbenzene	20.85	1.0	20	0	104	78 - 124			
Tetrachloroethene	19.88	1.0	20	0	99.4	74 - 129			
Toluene	20.27	1.0	20	0	101	80 - 121			
trans-1,2-Dichloroethene	20.72	1.0	20	0	104	75 - 124			
trans-1,3-Dichloropropene	20.09	1.0	20	0	100	73 - 127			
Trichloroethene	20.68	1.0	20	0	103	79 - 123			
Trichlorofluoromethane	19.6	1.0	20	0	98.0	65 - 141			
Vinyl chloride	16.98	1.0	20	0	84.9	58 - 137			
Surr: 1,2-Dichloroethane-d4	50.3	1.0	50	0	101	81 - 118			
Surr: 4-Bromofluorobenzene	46.99	1.0	50	0	94.0	85 - 114			
Surr: Dibromofluoromethane	50.21	1.0	50	0	100	80 - 119			



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
LCS	Sample ID: VLCSW-191124	Units: UG/L		Analysis Date: 24-Nov-2019 13:48					
Client ID:	Run ID: VOA6_351197		SeqNo: 5359046		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
<i>Surr: Toluene-d8</i>	<i>46.49</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>93.0</i>	<i>89 - 112</i>			



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MS		Sample ID: HS19111239-05MS		Units: UG/L		Analysis Date: 24-Nov-2019 16:13			
Client ID: LHSMW58-191122		Run ID: VOA6_351197		SeqNo: 5359051		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
1,1,1,2-Tetrachloroethane	18.24	1.0	20	0	91.2	78 - 124			
1,1,1-Trichloroethane	18.88	1.0	20	0	94.4	74 - 131			
1,1,2,2-Tetrachloroethane	18.01	1.0	20	0	90.0	71 - 121			
1,1,2-Trichloro-1,2,2-trifluoroethane	18.99	1.0	20	0	95.0	70 - 136			
1,1,2-Trichloroethane	18.24	1.0	20	0	91.2	80 - 119			
1,1-Dichloroethane	18.35	1.0	20	0	91.7	77 - 125			
1,1-Dichloroethene	18.12	1.0	20	0	90.6	71 - 131			
1,1-Dichloropropene	19.12	1.0	20	0	95.6	78 - 125			
1,2,3-Trichlorobenzene	14.41	1.0	20	0	72.1	69 - 129			
1,2,3-Trichloropropane	17.24	1.0	20	0	86.2	73 - 122			
1,2,4-Trichlorobenzene	15.26	1.0	20	0	76.3	69 - 130			
1,2,4-Trimethylbenzene	19.07	1.0	20	0	95.3	76 - 124			
1,2-Dibromo-3-chloropropane	16.49	1.0	20	0	82.5	62 - 128			
1,2-Dibromoethane	17.78	1.0	20	0	88.9	77 - 121			
1,2-Dichlorobenzene	18.64	1.0	20	0	93.2	80 - 119			
1,2-Dichloroethane	18.26	1.0	20	0	91.3	73 - 128			
1,2-Dichloropropane	18.08	1.0	20	0	90.4	78 - 122			
1,3,5-Trimethylbenzene	19.64	1.0	20	0	98.2	75 - 124			
1,3-Dichlorobenzene	19.23	1.0	20	0	96.2	80 - 119			
1,3-Dichloropropane	17.67	1.0	20	0	88.4	80 - 119			
1,4-Dichlorobenzene	18.82	1.0	20	0	94.1	79 - 118			
2,2-Dichloropropane	18.17	1.0	20	0	90.9	60 - 139			
2-Butanone	30.13	2.0	40	0	75.3	56 - 143			
2-Chlorotoluene	19.75	1.0	20	0	98.7	79 - 122			
2-Hexanone	31.85	2.0	40	0	79.6	57 - 139			
4-Chlorotoluene	18.99	1.0	20	0	94.9	78 - 122			
4-Isopropyltoluene	19.48	1.0	20	0	97.4	77 - 127			
4-Methyl-2-pentanone	32.34	2.0	40	0	80.8	67 - 130			
Acetone	25.48	2.0	40	0	63.7	39 - 160			
Benzene	19.17	1.0	20	0	95.9	79 - 120			
Bromobenzene	19.09	1.0	20	0	95.5	80 - 120			
Bromochloromethane	17.63	1.0	20	0	88.1	78 - 123			
Bromodichloromethane	18.27	1.0	20	0	91.3	79 - 125			
Bromoform	17.79	1.0	20	0	89.0	66 - 130			



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MS		Sample ID: HS19111239-05MS		Units: UG/L		Analysis Date: 24-Nov-2019 16:13			
Client ID: LHSMW58-191122		Run ID: VOA6_351197		SeqNo: 5359051		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromomethane	19.73	1.0	20	0	98.6	53 - 141			
Carbon disulfide	39.23	2.0	40	0	98.1	64 - 133			
Carbon tetrachloride	19.24	1.0	20	0	96.2	72 - 136			
Chlorobenzene	18.32	1.0	20	0	91.6	82 - 118			
Chloroethane	17.02	1.0	20	0	85.1	60 - 138			
Chloroform	17.4	1.0	20	0	87.0	79 - 124			
Chloromethane	14.84	1.0	20	0	74.2	50 - 139			
cis-1,2-Dichloroethene	18.73	1.0	20	0	93.6	78 - 123			
cis-1,3-Dichloropropene	18.4	1.0	20	0	92.0	75 - 124			
Dibromochloromethane	18.2	1.0	20	0	91.0	74 - 126			
Dibromomethane	18.14	1.0	20	0	90.7	79 - 123			
Dichlorodifluoromethane	18.37	1.0	20	0	91.8	32 - 152			
Ethylbenzene	18.84	1.0	20	0	94.2	79 - 121			
Hexachlorobutadiene	15.65	1.0	20	0	78.3	66 - 134			
Isopropylbenzene	19.15	1.0	20	0	95.8	72 - 131			
m,p-Xylene	37.63	2.0	40	0	94.1	80 - 121			
Methylene chloride	17.19	2.0	20	0	86.0	74 - 124			
Naphthalene	13.75	1.0	20	0	68.8	61 - 128			
n-Butylbenzene	19.96	1.0	20	0	99.8	75 - 128			
n-Propylbenzene	20.13	1.0	20	0	101	76 - 126			
o-Xylene	18.35	1.0	20	0	91.8	78 - 122			
sec-Butylbenzene	20.02	1.0	20	0	100	77 - 126			
Styrene	18.54	1.0	20	0	92.7	78 - 123			
tert-Butylbenzene	19.89	1.0	20	0	99.5	78 - 124			
Tetrachloroethene	22.84	1.0	20	4.209	93.2	74 - 129			
Toluene	18.9	1.0	20	0	94.5	80 - 121			
trans-1,2-Dichloroethene	18.85	1.0	20	0	94.3	75 - 124			
trans-1,3-Dichloropropene	17.61	1.0	20	0	88.1	73 - 127			
Trichloroethene	19.67	1.0	20	0	98.4	79 - 123			
Trichlorofluoromethane	19.15	1.0	20	0	95.7	65 - 141			
Vinyl chloride	17.07	1.0	20	0	85.4	58 - 137			
Surr: 1,2-Dichloroethane-d4	46.74	1.0	50	0	93.5	81 - 118			
Surr: 4-Bromofluorobenzene	47.36	1.0	50	0	94.7	85 - 114			
Surr: Dibromofluoromethane	48.71	1.0	50	0	97.4	80 - 119			



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MS		Sample ID: HS19111239-05MS		Units: UG/L		Analysis Date: 24-Nov-2019 16:13			
Client ID: LHSMW58-191122		Run ID: VOA6_351197		SeqNo: 5359051		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
<i>Surr: Toluene-d8</i>	47.72	1.0	50	0	95.4	89 - 112			



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MSD		Sample ID: HS19111239-05MSD		Units: UG/L		Analysis Date: 24-Nov-2019 16:37			
Client ID: LHSMW58-191122		Run ID: VOA6_351197		SeqNo: 5359052		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
1,1,1,2-Tetrachloroethane	18.12	1.0	20	0	90.6	78 - 124	18.24	0.661	20
1,1,1-Trichloroethane	18.11	1.0	20	0	90.6	74 - 131	18.88	4.16	20
1,1,2,2-Tetrachloroethane	17.59	1.0	20	0	87.9	71 - 121	18.01	2.36	20
1,1,2-Trichloro-1,2,2-trifluoroethane	17.46	1.0	20	0	87.3	70 - 136	18.99	8.39	20
1,1,2-Trichloroethane	18.04	1.0	20	0	90.2	80 - 119	18.24	1.12	20
1,1-Dichloroethane	17.57	1.0	20	0	87.8	77 - 125	18.35	4.35	20
1,1-Dichloroethene	17.36	1.0	20	0	86.8	71 - 131	18.12	4.26	20
1,1-Dichloropropene	17.8	1.0	20	0	89.0	78 - 125	19.12	7.16	20
1,2,3-Trichlorobenzene	18.23	1.0	20	0	91.1	69 - 129	14.41	23.4	20 R
1,2,3-Trichloropropane	17.01	1.0	20	0	85.0	73 - 122	17.24	1.38	20
1,2,4-Trichlorobenzene	17.59	1.0	20	0	87.9	69 - 130	15.26	14.2	20
1,2,4-Trimethylbenzene	18.33	1.0	20	0	91.6	76 - 124	19.07	3.96	20
1,2-Dibromo-3-chloropropane	16.61	1.0	20	0	83.1	62 - 128	16.49	0.724	20
1,2-Dibromoethane	17.93	1.0	20	0	89.7	77 - 121	17.78	0.846	20
1,2-Dichlorobenzene	18.01	1.0	20	0	90.1	80 - 119	18.64	3.43	20
1,2-Dichloroethane	17.68	1.0	20	0	88.4	73 - 128	18.26	3.23	20
1,2-Dichloropropane	17.55	1.0	20	0	87.8	78 - 122	18.08	2.99	20
1,3,5-Trimethylbenzene	18.76	1.0	20	0	93.8	75 - 124	19.64	4.54	20
1,3-Dichlorobenzene	18.48	1.0	20	0	92.4	80 - 119	19.23	3.98	20
1,3-Dichloropropane	17.53	1.0	20	0	87.6	80 - 119	17.67	0.82	20
1,4-Dichlorobenzene	18.44	1.0	20	0	92.2	79 - 118	18.82	2.06	20
2,2-Dichloropropane	17.45	1.0	20	0	87.2	60 - 139	18.17	4.07	20
2-Butanone	30.35	2.0	40	0	75.9	56 - 143	30.13	0.72	20
2-Chlorotoluene	18.87	1.0	20	0	94.3	79 - 122	19.75	4.57	20
2-Hexanone	32.59	2.0	40	0	81.5	57 - 139	31.85	2.3	20
4-Chlorotoluene	18.2	1.0	20	0	91.0	78 - 122	18.99	4.21	20
4-Isopropyltoluene	18.83	1.0	20	0	94.1	77 - 127	19.48	3.4	20
4-Methyl-2-pentanone	33.16	2.0	40	0	82.9	67 - 130	32.34	2.53	20
Acetone	26.02	2.0	40	0	65.1	39 - 160	25.48	2.1	20
Benzene	18.31	1.0	20	0	91.5	79 - 120	19.17	4.61	20
Bromobenzene	18.45	1.0	20	0	92.2	80 - 120	19.09	3.45	20
Bromochloromethane	17.29	1.0	20	0	86.5	78 - 123	17.63	1.92	20
Bromodichloromethane	18.04	1.0	20	0	90.2	79 - 125	18.27	1.29	20
Bromoform	17.89	1.0	20	0	89.4	66 - 130	17.79	0.53	20



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MSD		Sample ID: HS19111239-05MSD		Units: UG/L		Analysis Date: 24-Nov-2019 16:37			
Client ID: LHSMW58-191122		Run ID: VOA6_351197		SeqNo: 5359052		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromomethane	18.39	1.0	20	0	92.0	53 - 141	19.73	6.98	20
Carbon disulfide	36.94	2.0	40	0	92.4	64 - 133	39.23	6.02	20
Carbon tetrachloride	18.2	1.0	20	0	91.0	72 - 136	19.24	5.56	20
Chlorobenzene	17.8	1.0	20	0	89.0	82 - 118	18.32	2.89	20
Chloroethane	16.57	1.0	20	0	82.9	60 - 138	17.02	2.63	20
Chloroform	16.85	1.0	20	0	84.2	79 - 124	17.4	3.23	20
Chloromethane	14.12	1.0	20	0	70.6	50 - 139	14.84	4.94	20
cis-1,2-Dichloroethene	18.13	1.0	20	0	90.6	78 - 123	18.73	3.23	20
cis-1,3-Dichloropropene	18.02	1.0	20	0	90.1	75 - 124	18.4	2.09	20
Dibromochloromethane	17.96	1.0	20	0	89.8	74 - 126	18.2	1.3	20
Dibromomethane	17.8	1.0	20	0	89.0	79 - 123	18.14	1.87	20
Dichlorodifluoromethane	17.31	1.0	20	0	86.5	32 - 152	18.37	5.94	20
Ethylbenzene	18.45	1.0	20	0	92.2	79 - 121	18.84	2.13	20
Hexachlorobutadiene	17.06	1.0	20	0	85.3	66 - 134	15.65	8.61	20
Isopropylbenzene	18.42	1.0	20	0	92.1	72 - 131	19.15	3.87	20
m,p-Xylene	36.59	2.0	40	0	91.5	80 - 121	37.63	2.78	20
Methylene chloride	16.77	2.0	20	0	83.8	74 - 124	17.19	2.51	20
Naphthalene	16.13	1.0	20	0	80.6	61 - 128	13.75	15.9	20
n-Butylbenzene	19.32	1.0	20	0	96.6	75 - 128	19.96	3.28	20
n-Propylbenzene	19.27	1.0	20	0	96.4	76 - 126	20.13	4.34	20
o-Xylene	18.08	1.0	20	0	90.4	78 - 122	18.35	1.51	20
sec-Butylbenzene	19.25	1.0	20	0	96.2	77 - 126	20.02	3.91	20
Styrene	17.88	1.0	20	0	89.4	78 - 123	18.54	3.6	20
tert-Butylbenzene	19.11	1.0	20	0	95.6	78 - 124	19.89	3.99	20
Tetrachloroethene	22.2	1.0	20	4.209	90.0	74 - 129	22.84	2.83	20
Toluene	18.32	1.0	20	0	91.6	80 - 121	18.9	3.12	20
trans-1,2-Dichloroethene	17.92	1.0	20	0	89.6	75 - 124	18.85	5.04	20
trans-1,3-Dichloropropene	17.29	1.0	20	0	86.5	73 - 127	17.61	1.81	20
Trichloroethene	18.77	1.0	20	0	93.8	79 - 123	19.67	4.7	20
Trichlorofluoromethane	17.92	1.0	20	0	89.6	65 - 141	19.15	6.64	20
Vinyl chloride	16.23	1.0	20	0	81.2	58 - 137	17.07	5.03	20
Surr: 1,2-Dichloroethane-d4	46.43	1.0	50	0	92.9	81 - 118	46.74	0.658	20
Surr: 4-Bromofluorobenzene	48.06	1.0	50	0	96.1	85 - 114	47.36	1.46	20
Surr: Dibromofluoromethane	48.44	1.0	50	0	96.9	80 - 119	48.71	0.556	20



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C						
MSD	Sample ID: HS19111239-05MSD	Units: UG/L		Analysis Date: 24-Nov-2019 16:37						
Client ID: LHSMW58-191122	Run ID: VOA6_351197		SeqNo: 5359052		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
<i>Surr: Toluene-d8</i>	47.65	1.0	50	0	95.3	89 - 112	47.72	0.151	20	

The following samples were analyzed in this batch:

HS19111239-01	HS19111239-02	HS19111239-03	HS19111239-04
HS19111239-05	HS19111239-06	HS19111239-07	



ALS Houston, US

Date: 25-Nov-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

**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 Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program



CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US

Date: 25-Nov-19

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS19111239

Date/Time Received: **23-Nov-2019 09:20**
Received by: **JRM**

Checklist completed by: Jared R. Makan 23-Nov-2019
eSignature Date

Reviewed by: RJ Modashia 25-Nov-2019
eSignature Date

Matrices: **Water**Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Samplers name present on COC?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	1.6°C / 1.6°C UC/C IR25		
Cooler(s)/Kit(s):	24211		
Date/Time sample(s) sent to storage:	11/23/2019 15:00		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☒
pH adjusted?	Yes ☐	No ☐	N/A ☒
pH adjusted by:			

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



APTIM		Page 1 of													
COC ID:		37NOV2019-1911 -ALS				TURNAROUND TIME:				RUSH:					
PROJECT/CLIENT INFO						LABORATORY				OTHER INFO					
Facility Name		Longhorn AAP				Lab Name		ALS Laboratories		Email Invoice To		Fedinvoices@aptim.com			
Project Number		501032				Lab Contact		RJ Modashia		Email Report To		Susan.Huang@aptim.com			
Address		LHAAP-37 1203-B East Grand Avenue PMD 202				Email		R.Modashia@alsglobal.com		Mail Reports To		Susan Huang			
City		Marshall		State		TX		City		Houston		State		TX	
Postal Code		75670		Country		USA		Postal Code		77099		Country		USA	
Phone Number		713.243.7264				Phone Number		281.575.2279 or 281.530.5656				Postal Code		94520	
Project Manager		Praveen Srivastav				Shipping Company									
SAMPLE DETAILS								ANALYSIS REQUESTED							
Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.	Sample Container and Preservatives	ANALYSIS	3-40 ml VOA/HCl	3-40 ml VOA/HCl	3-40 ml VOA/Cncl to 6 deg C	2-40ml Amber/H2SO4	1-250ml/Cool to 6 deg C
35BWW25-191122	LHAAP 37				WG	11/22/19	0805	3		Vocs by 8760B					
35BWW25-191122-FD	LHAAP 37				WG	11/22/19	0805	3							
35BWW15-191122	LHAAP 37				WG	11/22/19	0855	3							
35BWW15-191122-FD	LHAAP 37				WG	11/22/19	0855	3							
35BWW58-191122	LHAAP 37				WG	11/22/19	0945	3							
35BWW58-191122-MS	LHAAP 37				WG	11/22/19	0945	3							
35BWW58-191122-MSD	LHAAP 37				WG	11/22/19	0945	3							
35BWW20-191122	LHAAP 37				WG	11/22/19	1030	3							
TRIP BLANK	LHAAP 37				W	11/22/19		2							
ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS								RELINQUISHED BY/AFFILIATION		DATE/TIME		ACCEPTED BY/AFFILIATION		DATE/TIME	
								Santana/Singh/BHATE		11/23/19 1215		AC /ALS		11/23/19 09:20	

HS19111239

Aptim Environmental & Infrastructure, Inc.
Longhorn Army Ammunition Plant LHAAP-37



VIL 16 12 15 0000 24211





	ALS	Date:
	10450 Starncliff Rd., Suite 210	Name:
	Houston, Texas 77099	Compr:
	Tel. +1 281 530 5656	
	Fax. +1 281 530 5887	

CUSTODY SEAL		Seal Broken By:
Date: 11/23/19	Time: 12:15	Signature: [Signature]
Name: Scott B. Bellingham		Date: 11/23/19
Army: 3 HADTA		



HS19111239 8260 Raw Data

ALS WO# HS19111239



MSVOA06 -Logbook

Batch: 38366
 Date: 11-18-2019
 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	11-18-2019 01:23 pm	1.00	50 mL	50 mL	X111801.D	Liquid	Y	NA
	<i>Auto find/ purged</i>									
2	VSTD000.25	ICAL1	11-18-2019 01:47 pm	1.00	50 mL	50 mL	X111802.D	Liquid	Y	NA
	<i>0.10 uL cal std/100 mL DI</i>									
3	VSTD000.5	ICAL2	11-18-2019 02:35 pm	1.00	50 mL	50 mL	X111803.D	Liquid	Y	NA
	<i>0.10 uL cal std/50 mL DI</i>									
4	VSTD001	ICAL3	11-18-2019 02:59 pm	1.00	50 mL	50 mL	X111804.D	Liquid	Y	NA
	<i>0.20 uL cal std/50 mL DI</i>									
5	VSTD002	ICAL4	11-18-2019 03:23 pm	1.00	50 mL	50 mL	X111805.D	Liquid	Y	NA
	<i>0.40 uL cal std/50 mL DI</i>									
6	VSTD005	ICAL5	11-18-2019 03:47 pm	1.00	50 mL	50 mL	X111806.D	Liquid	Y	NA
	<i>1.0 uL cal std/50 mL DI</i>									
7	VSTD020	ICAL6	11-18-2019 04:11 pm	1.00	50 mL	50 mL	X111807.D	Liquid	Y	NA
	<i>4.0 uL cal std/50 mL DI</i>									
8	VSTD050	ICAL7	11-18-2019 04:35 pm	1.00	50 mL	50 mL	X111808.D	Liquid	Y	NA
	<i>10 uL cal std/50 mL DI</i>									
9	VSTD100	ICAL8	11-18-2019 04:59 pm	1.00	50 mL	50 mL	X111809.D	Liquid	Y	NA
	<i>20 uL cal std/50 mL DI</i>									
10	VSTD150	ICAL9	11-18-2019 05:22 pm	1.00	50 mL	50 mL	X111810.D	Liquid	Y	NA
	<i>30 uL cal std/50 mL DI</i>									
11	VSTD200	ICAL	11-18-2019 05:46 pm	1.00	50 mL	50 mL	X111811.D	Liquid	Y	NA
	<i>40 uL cal std/50 mL DI</i>									
12	BLANK	SAMP	11-18-2019 06:10 pm	1.00	50 mL	50 mL	X111812.D	Liquid	Y	NA
13	BLANK	SAMP	11-18-2019 06:34 pm	1.00	50 mL	50 mL	X111813.D	Liquid	Y	NA
14	CCV	ICCV	11-18-2019 06:58 pm	1.00	50 mL	50 mL	X111814.D	Liquid	Y	NA
	<i>10 uL cal std/50 mL DI</i>									
15	BLANK	SAMP	11-18-2019 07:22 pm	1.00	50 mL	50 mL	X111815.D	Liquid	Y	NA
16	BFB	TUNE	11-18-2019 07:47 pm	1.00	50 mL	50 mL	Y111801.D	Liquid	Y	NA
	<i>Auto find/ purged</i>									
17	CCV	CCV	11-18-2019 08:10 pm	1.00	50 mL	50 mL	Y111802a.D	Liquid	Y	NA
	<i>10 uL cal std/50 mL DI/ not used</i>									
18	CCV	CCV	11-18-2019 08:34 pm	1.00	50 mL	50 mL	Y111803.D	Liquid	Y	NA
	<i>10 uL cal std/50 mL DI</i>									
19	CCB	SAMP	11-18-2019 08:58 pm	1.00	50 mL	50 mL	Y111804.D	Liquid	Y	NA
20	VLCSW-191118	LCS	11-18-2019 09:22 pm	1.00	50 mL	50 mL	Y111805.D	Liquid	Y	NA
	<i>4.0 uL cal std/50 mL DI</i>									
21	BLK	SAMP	11-18-2019 09:46 pm	1.00	50 mL	50 mL	Y111806.D	Liquid	Y	NA
22	VBLKW-191118	MBLK	11-18-2019 10:10 pm	1.00	50 mL	50 mL	Y111807.D	Liquid	Y	NA
23	HS19110861-01	SAMP	11-18-2019 10:34 pm	1.00	50 mL	50 mL	Y111808.D	Liquid	Y	NA
24	HS19110861-02	SAMP	11-18-2019 10:59 pm	1.00	50 mL	50 mL	Y111809.D	Liquid	Y	NA
25	HS19110861-03	SAMP	11-18-2019 11:23 pm	1.00	50 mL	50 mL	Y111810.D	Liquid	Y	NA
26	HS19110861-04	SAMP	11-18-2019 11:47 pm	1.00	50 mL	50 mL	Y111811.D	Liquid	Y	NA
27	HS19110861-05	SAMP	11-19-2019 12:11 am	1.00	50 mL	50 mL	Y111812.D	Liquid	Y	NA
28	HS19110861-06	SAMP	11-19-2019 12:35 am	1.00	50 mL	50 mL	Y111813.D	Liquid	Y	NA
29	HS19110829-13	SAMP	11-19-2019 12:59 am	1.00	50 mL	50 mL	Y111814.D	Liquid	Y	NA
30	HS19110829-11	SAMP	11-19-2019 01:23 am	1.00	50 mL	50 mL	Y111815.D	Liquid	Y	NA
31	HS19110829-01	SAMP	11-19-2019 01:47 am	1.00	50 mL	50 mL	Y111816.D	Liquid	Y	NA
32	HS19110829-01MS	MS	11-19-2019 02:11 am	1.00	50 mL	50 mL	Y111817.D	Liquid	Y	NA
	<i>3.50 uL cal std/40 mL samp</i>									



MSVOA06 -Logbook

#	<u>Samp ID</u>	<u>Type</u>	<u>Analyzed</u>	<u>DF</u>	<u>Init Wt/Vol</u>	<u>Final Vol</u>	<u>File ID</u>	<u>Matrix</u>	<u>Status</u>	<u>pH</u>
33	HS19110829-01MSD	MSD	11-19-2019 02:35 am	1.00	50 mL	50 mL	Y111818.D	Liquid	Y	NA
	<i>3.5 uL cal std/40 mL samp</i>									
34	HS19110829-02	SAMP	11-19-2019 02:59 am	1.00	50 mL	50 mL	Y111819.D	Liquid	Y	NA
35	HS19110829-03	SAMP	11-19-2019 03:23 am	1.00	50 mL	50 mL	Y111820.D	Liquid	Y	NA
36	HS19110829-04	SAMP	11-19-2019 03:47 am	1.00	50 mL	50 mL	Y111821.D	Liquid	Y	NA
37	HS19110829-05	SAMP	11-19-2019 04:11 am	1.00	50 mL	50 mL	Y111822.D	Liquid	Y	NA
38	HS19110829-06	SAMP	11-19-2019 04:35 am	1.00	50 mL	50 mL	Y111823.D	Liquid	Y	NA
39	HS19110829-07	SAMP	11-19-2019 04:59 am	1.00	50 mL	50 mL	Y111824.D	Liquid	Y	NA
40	HS19110829-08	SAMP	11-19-2019 05:23 am	1.00	50 mL	50 mL	Y111825.D	Liquid	Y	NA
41	HS19110829-09	SAMP	11-19-2019 05:47 am	1.00	50 mL	50 mL	Y111826.D	Liquid	Y	NA
42	HS19110829-10	SAMP	11-19-2019 06:11 am	1.00	50 mL	50 mL	Y111827.D	Liquid	Y	NA
43	HS19110829-12	SAMP	11-19-2019 06:36 am	1.00	50 mL	50 mL	Y111828.D	Liquid	Y	NA
44	HS19110716-06	SAMP	11-19-2019 07:00 am	1.00	50 mL	50 mL	Y111829.D	Liquid	Y	NA

Chemical	Value
SURR SPK ID	31106-04-03
IS ID	31106-04-04
ICV STD ID	30603-92-01
LCS/MS ID	30603-92-01
CAL STD ID	31106-04-01/02
BFB ID	31106-04-03
pH Paper	634-64-11



FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111239

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
=====	=====	=====	=====	=====
cis-1,3-Dichloropropene	50.00	52.07	104	80-120
trans-1,3-Dichloroprope	50.00	51.83	104	80-120
1,3-Dichlorobenzene	50.00	50.58	101	80-120
2,2-Dichloropropane	50.00	52.35	105	80-120
1,1-Dichloropropene	50.00	49.88	100	80-120
Dibromomethane	50.00	50.50	101	80-120
1,2-Dibromoethane	50.00	50.00	100	80-120
trans-1,2-Dichloroethen	50.00	52.31	105	80-120
1,1,1,2-Tetrachloroetha	50.00	51.37	103	80-120
1,1,1-Trichloroethane	50.00	52.74	105	80-120
1,1,2,2-Tetrachloroetha	50.00	49.68	99	80-120
Toluene	50.00	49.55	99	80-120
1,1,2-Trichloroethane	50.00	49.22	98	80-120
1,1-Dichloroethane	50.00	51.46	103	80-120
1,1-Dichloroethene	50.00	53.02	106	80-120
Trichlorofluoromethane	50.00	55.57	111	80-120
1,2,3-Trichlorobenzene	50.00	58.28	116	80-120
Tetrachloroethene	50.00	49.33	99	80-120
1,2,4-Trichlorobenzene	50.00	55.34	111	80-120
1,2,4-Trimethylbenzene	50.00	50.40	101	80-120
tert-Butylbenzene	50.00	51.37	103	80-120
Trichloroethene	50.00	51.78	104	80-120
1,2-Dichlorobenzene	50.00	49.42	99	80-120
1,2-Dichloroethane	50.00	51.38	103	80-120
1,2-Dichloropropane	50.00	49.50	99	80-120
1,3,5-Trimethylbenzene	50.00	52.04	104	80-120
1,3-Dichloropropane	50.00	49.18	98	80-120
1,4-Dichlorobenzene	50.00	49.63	99	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: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111239

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
=====	=====	=====	=====	=====
2-Butanone	100.00	105.25	105	80-120
2-Chlorotoluene	50.00	50.41	101	80-120
2-Hexanone	100.00	96.09	96	80-120
4-Chlorotoluene	50.00	50.58	101	80-120
Styrene	50.00	50.35	101	80-120
4-Methyl-2-Pentanone	100.00	97.68	98	80-120
Acetone	100.00	111.37	111	80-120
Benzene	50.00	50.85	102	80-120
Bromobenzene	50.00	51.16	102	80-120
Bromochloromethane	50.00	51.34	103	80-120
Bromodichloromethane	50.00	51.00	102	80-120
Bromoform	50.00	49.08	98	80-120
Bromomethane	50.00	57.73	115	80-120
Carbon Disulfide	100.00	109.76	110	80-120
Carbon Tetrachloride	50.00	51.07	102	80-120
Chlorobenzene	50.00	49.20	98	80-120
Chloroethane	50.00	51.64	103	80-120
Chloroform	50.00	49.36	99	80-120
Chloromethane	50.00	50.43	101	80-120
cis-1,2-Dichloroethene	50.00	53.16	106	80-120
Dibromochloromethane	50.00	49.93	100	80-120
Dichlorodifluoromethane	50.00	52.99	106	80-120
Ethylbenzene	50.00	50.22	100	80-120
Hexachlorobutadiene	50.00	61.69	123*	80-120
Isopropylbenzene	50.00	50.14	100	80-120
m,p-Xylenes	100.00	101.69	102	80-120
Methylene Chloride	50.00	49.65	99	80-120
n-Butylbenzene	50.00	52.07	104	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: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111239

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
=====	=====	=====	=====	=====
n-Propylbenzene	50.00	51.90	104	80-120
Naphthalene	50.00	51.04	102	80-120
o-Xylene	50.00	49.72	99	80-120
sec-Butylbenzene	50.00	51.77	104	80-120
Vinyl Chloride	50.00	51.98	104	80-120
1,2,3-Trichloropropane	50.00	49.40	99	80-120
p-Isopropyltoluene	50.00	51.77	104	80-120
1,2-Dibromo-3-Chloropro	50.00	51.39	103	80-120
Freon TF	50.00	55.79	112	80-120

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

* Values outside of QC limits

COMMENTS:

FORM III VOA



FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111239

Lab File ID: X111801

BFB Injection Date: 11/18/19

Instrument ID: VOA6

BFB Injection Time: 1323

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	20.9
75	30.0 - 60.0% of mass 95	54.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.6
173	Less than 2.0% of mass 174	0.4 (0.7)1
174	Greater than 50.0% of mass 95	65.0
175	5.0 - 9.0% of mass 174	5.8 (8.9)1
176	95.0 - 101.0% of mass 174	62.0 (95.4)1
177	5.0 - 9.0% of mass 176	5.1 (8.2)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	X111802	11/18/19	1347
02	VSTD000.5	VSTD000.5	X111803	11/18/19	1435
03	VSTD001	VSTD001	X111804	11/18/19	1459
04	VSTD002	VSTD002	X111805	11/18/19	1523
05	VSTD005	VSTD005	X111806	11/18/19	1547
06	VSTD020	VSTD020	X111807	11/18/19	1611
07	VSTD050	VSTD050	X111808	11/18/19	1635
08	VSTD100	VSTD100	X111809	11/18/19	1659
09	VSTD150	VSTD150	X111810	11/18/19	1722
10	VSTD200	VSTD200	X111811	11/18/19	1746
11	ICV	ICV	X111814	11/18/19	1858
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

page 1 of 1

FORM V VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111239

Instrument ID: VOA6

Calibration Date(s): 11/18/19 11/18/19

Column: DB624

ID: 0.18 (mm)

Calibration Time(s): 1347

1746

LAB FILE ID: RF0.25: X111802 RF0.5: X111803 RF1: X111804
RF2: X111805 RF5: X111806 RF20: X111807

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
=====	=====	=====	=====	=====	=====	=====
cis-1,3-Dichloropropene		0.326	0.553	0.497	0.554	0.476
trans-1,3-Dichloropropene		0.304	0.464	0.458	0.504	0.445
1,3-Dichlorobenzene		1.036	1.601	1.542	1.622	1.411
2,2-Dichloropropane		0.547	0.815	0.674	0.705	0.610
1,1-Dichloropropene		0.332	0.476	0.441	0.432	0.372
Dibromomethane		0.139	0.244	0.233	0.245	0.207
1,2-Dibromoethane		0.245	0.385	0.380	0.402	0.348
trans-1,2-Dichloroethene		0.285	0.489	0.436	0.440	0.386
1,1,1,2-Tetrachloroethane		0.248	0.403	0.375	0.406	0.356
1,1,1-Trichloroethane		0.492	0.775	0.723	0.717	0.640
1,1,2,2-Tetrachloroethane		0.602	0.844	0.735	0.800	0.680
Toluene		1.077	1.582	1.498	1.570	1.359
1,1,2-Trichloroethane		0.180	0.311	0.285	0.294	0.253
1,1-Dichloroethane		0.569	0.830	0.781	0.786	0.690
1,1-Dichloroethene		0.349	0.423	0.469	0.464	0.390
Trichlorofluoromethane		0.511	0.831	0.818	0.813	0.707
1,2,3-Trichlorobenzene		421	1182	2753	6553	21856
Tetrachloroethene		0.266	0.412	0.394	0.398	0.333
1,2,4-Trichlorobenzene		0.325	0.435	0.465	0.518	0.418
1,2,4-Trimethylbenzene		1.739	2.619	2.442	2.563	2.286
tert-Butylbenzene		1.338	2.168	2.060	2.126	1.865
Trichloroethene		0.226	0.390	0.387	0.396	0.344
1,2-Dichlorobenzene		0.916	1.484	1.429	1.497	1.292
1,2-Dichloroethane		0.277	0.470	0.408	0.432	0.391
1,2-Dichloropropane		0.294	0.294	0.312	0.339	0.284
1,3,5-Trimethylbenzene		1.606	2.354	2.372	2.481	2.215
1,3-Dichloropropane		0.431	0.613	0.570	0.583	0.512
1,4-Dichlorobenzene		1.108	1.632	1.581	1.609	1.417
2-Butanone		0.167	0.156	0.152	0.164	0.146
2-Chlorotoluene		1.263	1.990	1.903	2.032	1.735
2-Hexanone		0.180	0.237	0.204	0.235	0.191
4-Chlorotoluene		1.550	2.500	2.222	2.378	2.079
Styrene		0.702	1.134	1.076	1.148	1.004
4-Methyl-2-Pentanone		0.220	0.321	0.313	0.331	0.281
Acetone		4579	5956	7954	15992	43200
Benzene		0.788	1.327	1.220	1.289	1.109
Bromobenzene		0.584	1.003	0.940	0.994	0.873
Bromochloromethane		0.229	0.323	0.309	0.284	0.255
Bromodichloromethane		0.298	0.490	0.424	0.473	0.395
Bromoform		887	3197	5989	16084	56416
Bromomethane		2741	6334	12041	28671	93456
Carbon Disulfide		0.747	1.257	1.216	1.254	1.101
Carbon Tetrachloride		0.340	0.503	0.483	0.478	0.403
Chlorobenzene		0.738	1.108	1.028	1.090	0.934

FORM VI VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911123

Instrument ID: VOA6

Calibration Date(s): 11/18/19 11/18/19

Column: DB624

ID: 0.18 (mm)

Calibration Time(s): 1347

1746

LAB FILE ID: RF0.25: X111802 RF0.5: X111803 RF1: X111804
RF2: X111805 RF5: X111806 RF20: X111807

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Chloroethane		0.279	0.361	0.345	0.323	0.283
Chloroform		0.775	0.990	0.890	0.850	0.736
Chloromethane		2201	6118	10461	24949	85402
cis-1,2-Dichloroethene		0.327	0.540	0.493	0.541	0.454
Dibromochloromethane		0.253	0.433	0.392	0.429	0.370
Dichlorodifluoromethane		1269	3829	7335	18346	63810
Ethylbenzene		0.353	0.562	0.515	0.576	0.493
Hexachlorobutadiene		1376	2468	4522	11525	37789
Isopropylbenzene		1.054	1.627	1.570	1.602	1.425
m,p-Xylenes		0.393	0.653	0.644	0.678	0.591
Methylene Chloride		0.422	0.556	0.483	0.491	0.406
n-Butylbenzene		1.620	2.055	2.004	2.069	1.888
n-Propylbenzene		2.290	3.358	3.192	3.345	2.976
Naphthalene		0.510	0.569	0.604	0.614	0.512
o-Xylene		0.390	0.677	0.656	0.658	0.582
sec-Butylbenzene		1.995	2.859	2.859	2.813	2.501
Vinyl Chloride		0.490	0.545	0.546	0.504	0.454
1,2,3-Trichloropropane		0.455	0.730	0.701	0.662	0.580
p-Isopropyltoluene		1.839	2.630	2.538	2.573	2.307
1,2-Dibromo-3-Chloropropane		125	464	859	2641	8805
Freon TF		0.296	0.488	0.452	0.457	0.380
4-Bromofluorobenzene		3844	5731	10468	25804	94194
Dibromofluoromethane		2303	3882	8127	20237	75094
Toluene-d8		1.628	1.327	1.357	1.369	1.263
1,2-Dichloroethane-d4		2522	4458	8034	20921	75813

FORM VI VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911123

Instrument ID: VOA6

Calibration Date(s): 11/18/19 11/18/19

Column: DB624

ID: 0.18 (mm)

Calibration Time(s): 1347

1746

LAB FILE ID: RF50: X111808 RF100: X111809 RF150: X111810
RF200: X111811

COMPOUND	RF50	RF100	RF150	RF200
=====	=====	=====	=====	=====
cis-1,3-Dichloropropene	0.499	0.494	0.497	0.493
trans-1,3-Dichloropropene	0.452	0.455	0.456	0.461
1,3-Dichlorobenzene	1.457	1.422	1.398	1.417
2,2-Dichloropropane	0.644	0.644	0.646	0.658
1,1-Dichloropropene	0.402	0.392	0.391	0.392
Dibromomethane	0.211	0.206	0.208	0.208
1,2-Dibromoethane	0.348	0.347	0.350	0.351
trans-1,2-Dichloroethene	0.410	0.413	0.416	0.427
1,1,1,2-Tetrachloroethane	0.368	0.369	0.369	0.370
1,1,1-Trichloroethane	0.673	0.676	0.678	0.697
1,1,2,2-Tetrachloroethane	0.672	0.670	0.662	0.661
Toluene	1.411	1.408	1.420	1.435
1,1,2-Trichloroethane	0.256	0.258	0.256	0.259
1,1-Dichloroethane	0.710	0.716	0.728	0.737
1,1-Dichloroethene	0.430	0.429	0.426	0.434
Trichlorofluoromethane	0.823	0.824	0.813	0.840
1,2,3-Trichlorobenzene	52554	102660	156391	210414
Tetrachloroethene	0.352	0.340	0.332	0.334
1,2,4-Trichlorobenzene	0.421	0.402	0.400	0.406
1,2,4-Trimethylbenzene	2.419	2.440	2.397	2.446
tert-Butylbenzene	2.012	2.011	1.967	1.996
Trichloroethene	0.359	0.350	0.348	0.348
1,2-Dichlorobenzene	1.330	1.327	1.324	1.344
1,2-Dichloroethane	0.401	0.397	0.397	0.398
1,2-Dichloropropane	0.295	0.290	0.290	0.290
1,3,5-Trimethylbenzene	2.368	2.377	2.339	2.377
1,3-Dichloropropane	0.516	0.521	0.514	0.516
1,4-Dichlorobenzene	1.465	1.445	1.412	1.445
2-Butanone	0.146	0.147	0.153	0.148
2-Chlorotoluene	1.853	1.827	1.787	1.800
2-Hexanone	0.192	0.201	0.204	0.204
4-Chlorotoluene	2.208	2.230	2.205	2.250
Styrene	1.056	1.073	1.093	1.113
4-Methyl-2-Pentanone	0.283	0.291	0.298	0.298
Acetone	103091	202207	284604	372223
Benzene	1.164	1.135	1.133	1.128
Bromobenzene	0.878	0.857	0.837	0.854
Bromochloromethane	0.263	0.261	0.260	0.255
Bromodichloromethane	0.412	0.408	0.412	0.412
Bromoform	143798	293256	447981	602595
Bromomethane	215480	396733	529714	
Carbon Disulfide	1.192	1.188	1.192	1.228
Carbon Tetrachloride	0.452	0.442	0.435	0.440
Chlorobenzene	0.965	0.966	0.974	0.982

FORM VI VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911123

Instrument ID: VOA6

Calibration Date(s): 11/18/19 11/18/19

Column: DB624

ID: 0.18 (mm)

Calibration Time(s): 1347 1746

LAB FILE ID: RF50: X111808 RF100: X111809 RF150: X111810
RF200: X111811

COMPOUND	RF50	RF100	RF150	RF200
=====	=====	=====	=====	=====
Chloroethane	0.311	0.311	0.310	0.311
Chloroform	0.751	0.754	0.761	0.780
Chloromethane	215753	420936	613254	811388
cis-1,2-Dichloroethene	0.470	0.475	0.478	0.488
Dibromochloromethane	0.381	0.386	0.386	0.387
Dichlorodifluoromethane	186161	359790	504807	695305
Ethylbenzene	0.512	0.509	0.506	0.512
Hexachlorobutadiene	99881	192455		
Isopropylbenzene	1.523	1.544	1.538	1.560
m,p-Xylenes	0.623	0.628	0.627	0.639
Methylene Chloride	0.421	0.425	0.428	0.436
n-Butylbenzene	2.162	2.176	2.153	2.197
n-Propylbenzene	3.234	3.176	3.089	3.155
Naphthalene	0.521	0.505	0.514	0.512
o-Xylene	0.600	0.608	0.611	0.623
sec-Butylbenzene	2.823	2.798	2.726	2.790
Vinyl Chloride	0.505	0.510	0.510	0.523
1,2,3-Trichloropropane	0.577	0.564	0.549	0.543
p-Isopropyltoluene	2.571	2.546	2.480	2.534
1,2-Dibromo-3-Chloropropane	21800	42468	65470	86827
Freon TF	0.459	0.462	0.452	0.472
=====	=====	=====	=====	=====
4-Bromofluorobenzene	222328	465570	688600	933083
Dibromofluoromethane	173990	354918	514854	681300
Toluene-d8	1.212	1.246	1.223	1.231
1,2-Dichloroethane-d4	178006	364646	532181	713282

FORM VI VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911123

Instrument ID: VOA6

Calibration Date(s): 11/18/19 11/18/19

Column: DB624

ID: 0.18 (mm)

Calibration Time(s): 1347

1746

COMPOUND	CURVE	COEFFICIENTS			%RSD OR R ²	MAX %RSD OR R ²
		A0	A1	A2		
=====	=====	=====	=====	=====	=====	=====
cis-1,3-Dichloropropene	AVRG		0.48761342		13.630	15.000
trans-1,3-Dichloropropene	AVRG		0.44441818		12.432	15.000
1,3-Dichlorobenzene	AVRG		1.43390401		11.978	15.000
2,2-Dichloropropane	AVRG		0.66029305		11.040	15.000
1,1-Dichloropropene	AVRG		0.40332539		10.380	15.000
Dibromomethane	AVRG		0.21136309		14.886	15.000
1,2-Dibromoethane	AVRG		0.35067597		12.763	15.000
trans-1,2-Dichloroethene	AVRG		0.41138839		13.381	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.36274186		12.717	15.000
1,1,1-Trichloroethane	AVRG		0.67453438		11.648	15.000
1,1,2,2-Tetrachloroethane	AVRG		0.70308768		10.825	15.000
Toluene	AVRG		1.41788930		10.479	15.000
1,1,2-Trichloroethane	AVRG		0.26137158		14.102	15.000
1,1-Dichloroethane	AVRG		0.72750643		10.197	15.000
1,1-Dichloroethene	AVRG		0.42373367		8.607	15.000
Trichlorofluoromethane	AVRG		0.77561874		13.736	15.000
1,2,3-Trichlorobenzene	2ORDR	-1.73e-002	5.50264123	-0.1707432	0.9998373	0.9900000
Tetrachloroethene	AVRG		0.35131312		12.801	15.000
1,2,4-Trichlorobenzene	AVRG		0.42118311		12.391	15.000
1,2,4-Trimethylbenzene	AVRG		2.37245105		10.778	15.000
tert-Butylbenzene	AVRG		1.94917789		12.586	15.000
Trichloroethene	AVRG		0.34966887		14.517	15.000
1,2-Dichlorobenzene	AVRG		1.32701574		12.905	15.000
1,2-Dichloroethane	AVRG		0.39691390		12.978	15.000
1,2-Dichloropropane	AVRG		0.29867989		5.660	15.000
1,3,5-Trimethylbenzene	AVRG		2.27648393		11.444	15.000
1,3-Dichloropropane	AVRG		0.53064503		9.928	15.000
1,4-Dichlorobenzene	AVRG		1.45709302		10.715	15.000
2-Butanone	AVRG		0.15342086		5.109	15.000
2-Chlorotoluene	AVRG		1.79889065		12.374	15.000
2-Hexanone	AVRG		0.20539492		9.225	15.000
4-Chlorotoluene	AVRG		2.18043218		12.121	15.000
Styrene	AVRG		1.04451403		12.966	15.000
4-Methyl-2-Pentanone	AVRG		0.29296235		10.958	15.000
Acetone	LINR	-7.72e-002	8.02348321		0.9999004	0.9900000
Benzene	AVRG		1.14377224		13.444	15.000
Bromobenzene	AVRG		0.86897432		14.186	15.000
Bromochloromethane	AVRG		0.27086566		10.835	15.000
Bromodichloromethane	AVRG		0.41377448		13.021	15.000
Bromoform	LINR	1.997e-002	3.29171060		0.9995506	0.9900000
Bromomethane	LINR	-4.72e-002	2.10632186		0.9967362	0.9900000
Carbon Disulfide	AVRG		1.15275096		13.789	15.000
Carbon Tetrachloride	AVRG		0.44181701		10.990	15.000
Chlorobenzene	AVRG		0.97614522		10.975	15.000

FORM VI VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911123

Instrument ID: VOA6

Calibration Date(s): 11/18/19 11/18/19

Column: DB624

ID: 0.18 (mm)

Calibration Time(s): 1347

1746

COMPOUND	CURVE	COEFFICIENTS			%RSD OR R^2	MAX %RSD OR R^2
		A0	A1	A2		
Chloroethane	AVRG		0.31480657		8.302	15.000
Chloroform	AVRG		0.80974969		10.425	15.000
Chloromethane	LINR	3.748e-003	1.83460007		0.9998260	0.9900000
cis-1,2-Dichloroethene	AVRG		0.47416954		13.204	15.000
Dibromochloromethane	AVRG		0.37970849		13.683	15.000
Dichlorodifluoromethane	LINR	1.763e-002	2.15619239		0.9988587	0.9900000
Ethylbenzene	AVRG		0.50436028		12.486	15.000
Hexachlorobutadiene	LINR	-1.03e-002	2.88504774		0.9991601	0.9900000
Isopropylbenzene	AVRG		1.49389834		11.672	15.000
m,p-Xylenes	AVRG		0.60861655		13.850	15.000
Methylene Chloride	AVRG		0.45210476		10.732	15.000
n-Butylbenzene	AVRG		2.03598696		9.063	15.000
n-Propylbenzene	AVRG		3.09059969		10.434	15.000
Naphthalene	AVRG		0.54020307		8.055	15.000
o-Xylene	AVRG		0.60066696		14.145	15.000
sec-Butylbenzene	AVRG		2.68486077		10.468	15.000
Vinyl Chloride	AVRG		0.50958661		5.494	15.000
1,2,3-Trichloropropane	AVRG		0.59573805		14.502	15.000
p-Isopropyltoluene	AVRG		2.44651692		10.015	15.000
1,2-Dibromo-3-Chloropropane	LINR	-6.81e-003	12.9714748		0.9998714	0.9900000
Freon TF	AVRG		0.43530320		13.846	15.000
4-Bromofluorobenzene	LINR	8.357e-003	2.13170980		0.9997055	0.9900000
Dibromofluoromethane	LINR	7.36e-003	2.18334297		0.9997712	0.9900000
Toluene-d8	AVRG		1.31739803		9.895	15.000
1,2-Dichloroethane-d4	LINR	1.473e-002	2.09453233		0.9994184	0.9900000

FORM VI VOA



Data File: \\nahstws005\Target\chem\voa6.i\X191118,b\X111801.D

Page 1

Date : 18-NOV-2019 13:23

Client ID: BFB

Instrument: voa6.i

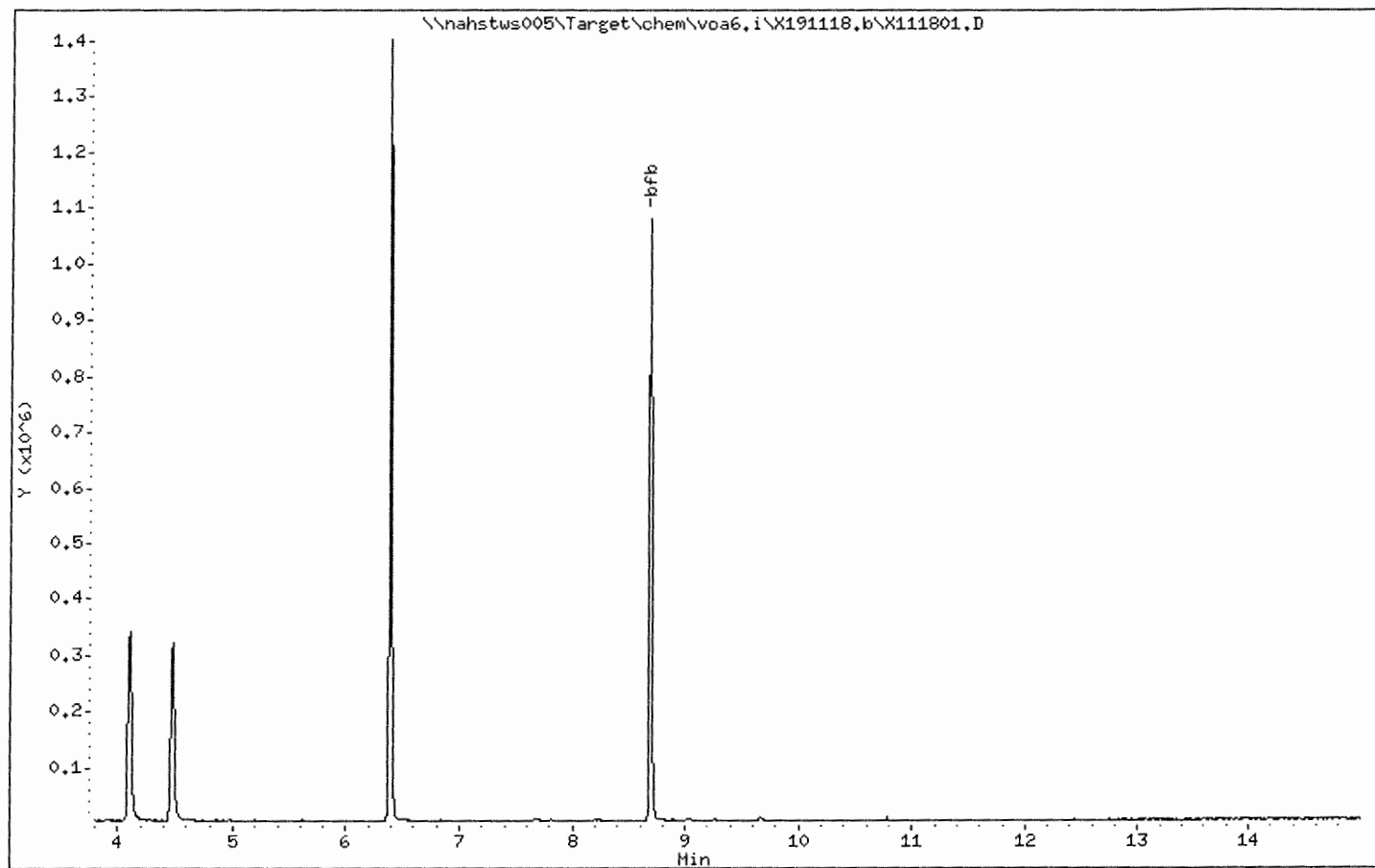
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111801.D

Page 2

Date : 18-NOV-2019 13:23

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

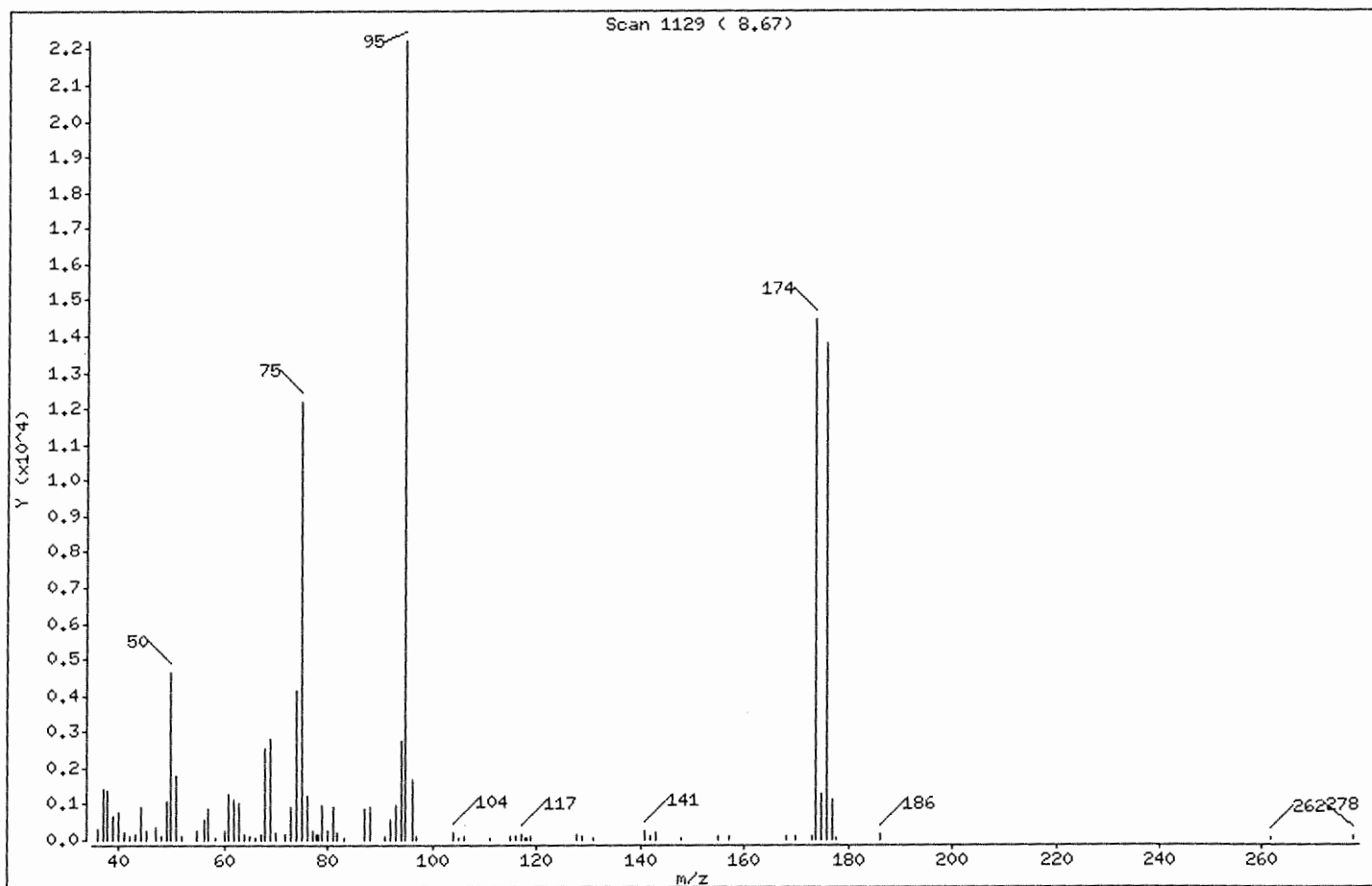
Volume Injected (uL): 2.0

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	20.86
75	30.00 - 60.00% of mass 95	54.86
96	5.00 - 9.00% of mass 95	7.62
173	Less than 2.00% of mass 174	0.43 (0.66)
174	Greater than 50.00% of mass 95	65.03
175	5.00 - 9.00% of mass 174	5.82 (8.95)
176	95.00 - 101.00% of mass 174	62.04 (95.41)
177	5.00 - 9.00% of mass 176	5.11 (8.24)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111801.D

Date : 18-NOV-2019 13:23

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: X111801.D
 Spectrum: Scan 1129 (8.67)
 Location of Maximum: 95.00
 Number of points: 83

m/z	Y	m/z	Y	m/z	Y	m/z	Y
-----+-----+-----+-----+-----+-----+-----+-----							
36.00	329	61.00	1259	81.80	217	127.90	153
37.00	1409	62.00	1149	83.00	50	128.90	116
38.00	1370	62.90	1001	86.90	880	130.90	70
39.00	662	64.00	138	88.00	941	141.00	249
40.00	775	65.10	110	91.10	116	141.90	94
-----+-----+-----+-----+-----+-----+-----+-----							
41.00	191	66.00	72	92.10	565	142.90	216
42.00	77	67.10	153	93.00	990	148.10	62
43.00	166	68.00	2578	94.00	2783	155.00	87
44.10	928	69.00	2816	95.00	22224	157.00	77
45.10	261	69.90	217	96.10	1694	168.00	85
-----+-----+-----+-----+-----+-----+-----+-----							
47.00	367	71.90	143	97.00	111	170.00	86
48.10	104	73.00	931	103.90	180	172.90	96
49.00	1057	74.00	4135	105.10	52	173.90	14452
50.00	4636	75.00	12193	106.00	100	174.90	1293
51.00	1802	76.00	1227	111.10	63	175.90	13788
-----+-----+-----+-----+-----+-----+-----+-----							
52.10	85	77.10	248	115.10	93	176.90	1136
55.00	269	77.80	150	116.00	100	177.80	71
56.10	539	78.10	174	117.00	158	186.00	161
56.90	843	78.90	948	117.70	74	261.90	57
58.20	60	79.90	265	118.10	74	277.90	85
-----+-----+-----+-----+-----+-----+-----+-----							
60.00	231	80.90	936	119.00	127		
-----+-----+-----+-----+-----+-----+-----+-----							

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D
 Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
 Inj Date : 18-NOV-2019 13:47
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD000.25;VSTD000.25;1;1;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 17:46 Cal File: X111811.D
 Als bottle: 2 Calibration Sample, Level: 1
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: $\text{Amt} * \text{DF} * (\text{Uf}/\text{Vo}) * 1 * \text{CpndVariable}$

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					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182 (1.000)		431958	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970 (1.000)		586737	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671 (1.000)		529029	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662 (1.000)		277425	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476 (1.070)		1323	0.25000	1.05 (Ta)
\$ 69 4-Bromofluorobenzene	95	8.695	8.695 (1.134)		3260	0.25000	1.07 (a)
\$ 30 Dibromofluoromethane	113	4.103	4.103 (0.981)		1295	0.25000	0.69 (a)
\$ 48 Toluene-d8	98	6.388	6.388 (0.833)		5247	0.25000	0.37 (Ta)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778 (1.014)		814	0.25000	0.21 (a)
31 1,1,1-Trichloroethane	97	4.089	4.089 (0.978)		1177	0.25000	0.20 (a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845 (0.915)		861	0.25000	0.22 (aM)
138 Freon TF	101	1.912	1.912 (0.457)		755	0.25000	0.20 (aM)
53 1,1,2-Trichloroethane	83	6.847	6.847 (0.893)		656	0.25000	0.23 (aM)
22 1,1-Dichloroethane	63	2.922	2.922 (0.699)		1571	0.25000	0.24 (aM)
11 1,1-Dichloroethene	96	1.919	1.919 (0.459)		909	0.25000	0.24 (a)
32 1,1-Dichloropropene	75	4.283	4.283 (0.862)		1579	0.25000	0.33 (a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746 (1.216)		224	0.25000	(aM)
71 1,2,3-Trichloropropane	75	8.867	8.867 (0.918)		702	0.25000	0.21 (aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345 (1.174)		320	0.25000	0.13 (aM)
79 1,2,4-Trimethylbenzene	105	9.383	9.383 (0.971)		2742	0.25000	0.20 (a)
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658 (1.103)		103	0.25000	(aM)
57 1,2-Dibromoethane	107	7.262	7.262 (0.947)		708	0.25000	0.19 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	1523	0.25000	0.20 (a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	938	0.25000	0.20 (aM)
42 1,2-Dichloropropane	63	5.450	5.450	(1.097)	858	0.25000	0.24 (aM)
75 1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	2444	0.25000	0.19 (a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	1534	0.25000	0.19 (a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	1126	0.25000	0.20 (a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	1760	0.25000	0.21 (a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	1234	0.25000	0.21 (aM)
24 2-Butanone	43	3.588	3.588	(0.858)	827	0.50000	0.62 (aM)
76 2-Chlorotoluene	91	8.974	8.974	(0.929)	2277	0.25000	0.22 (a)
52 2-Hexanone	43	7.090	7.090	(0.924)	809	0.50000	0.37 (Ta)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	2873	0.25000	0.23 (a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	2596	0.25000	0.19 (a)
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	1190	0.50000	0.38 (aM)
10 Acetone	43	1.969	1.969	(0.471)	3213	0.50000	(aM)
37 Benzene	78	4.519	4.519	(0.909)	3088	0.25000	0.23 (a)
74 Bromobenzene	156	8.817	8.817	(0.913)	940	0.25000	0.19 (a)
29 Bromochloromethane	128	3.795	3.795	(0.908)	660	0.25000	0.28 (aM)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	1101	0.25000	0.22 (aM)
66 Bromoform	173	8.416	8.416	(1.097)	495	0.25000	1.15 (aM)
6 Bromomethane	94	1.339	1.339	(0.320)	1552	0.25000	(aM)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	3999	0.50000	0.40 (a)
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	1084	0.25000	0.20 (aM)
59 Chlorobenzene	112	7.692	7.692	(1.003)	2603	0.25000	0.25 (a)
7 Chloroethane	64	1.403	1.403	(0.336)	672	0.25000	0.24 (aM)
28 Chloroform	83	3.910	3.910	(0.935)	2414	0.25000	0.34 (aM)
3 Chloromethane	50	1.074	1.074	(0.257)	1640	0.25000	0.53 (aM)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1103	0.25000	0.26 (a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1351	0.25000	0.23 (aM)
55 Dibromochloromethane	129	7.184	7.184	(0.937)	883	0.25000	0.21 (a)
44 Dibromomethane	93	5.558	5.558	(1.118)	573	0.25000	0.23 (aM)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	642	0.25000	1.04 (aM)
61 Ethylbenzene	106	7.800	7.800	(1.017)	1072	0.25000	0.20 (a)
91 Hexachlorobutadiene	225	11.481	11.481	(1.188)	367	0.25000	(aM)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	2992	0.25000	0.18 (a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	2521	0.50000	0.39 (a)
17 Methylene Chloride	84	2.306	2.306	(0.551)	1174	0.25000	0.30 (a)
87 n-Butylbenzene	91	9.999	9.999	(1.035)	2169	0.25000	0.19 (a)
73 n-Propylbenzene	91	8.917	8.917	(0.923)	3456	0.25000	0.20 (a)
92 Naphthalene	128	11.553	11.553	(1.196)	764	0.25000	0.25 (a)
63 o-Xylene	106	8.244	8.244	(1.075)	1221	0.25000	0.19 (a)
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	3012	0.25000	0.20 (a)
64 Styrene	104	8.265	8.265	(1.078)	2388	0.25000	0.21 (a)
78 tert-Butylbenzene	119	9.340	9.340	(0.967)	2350	0.25000	0.21 (a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	914	0.25000	0.24 (a)
50 Toluene	91	6.453	6.453	(0.841)	3631	0.25000	0.24 (a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	826	0.25000	0.23 (aM)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	996	0.25000	0.19 (a)
38 Trichloroethene	130	5.214	5.214	(1.049)	945	0.25000	0.23 (a)
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	1233	0.25000	0.18 (a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	1052	0.25000	0.23 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D Page 3
Report Date: 06-Dec-2019 19:56

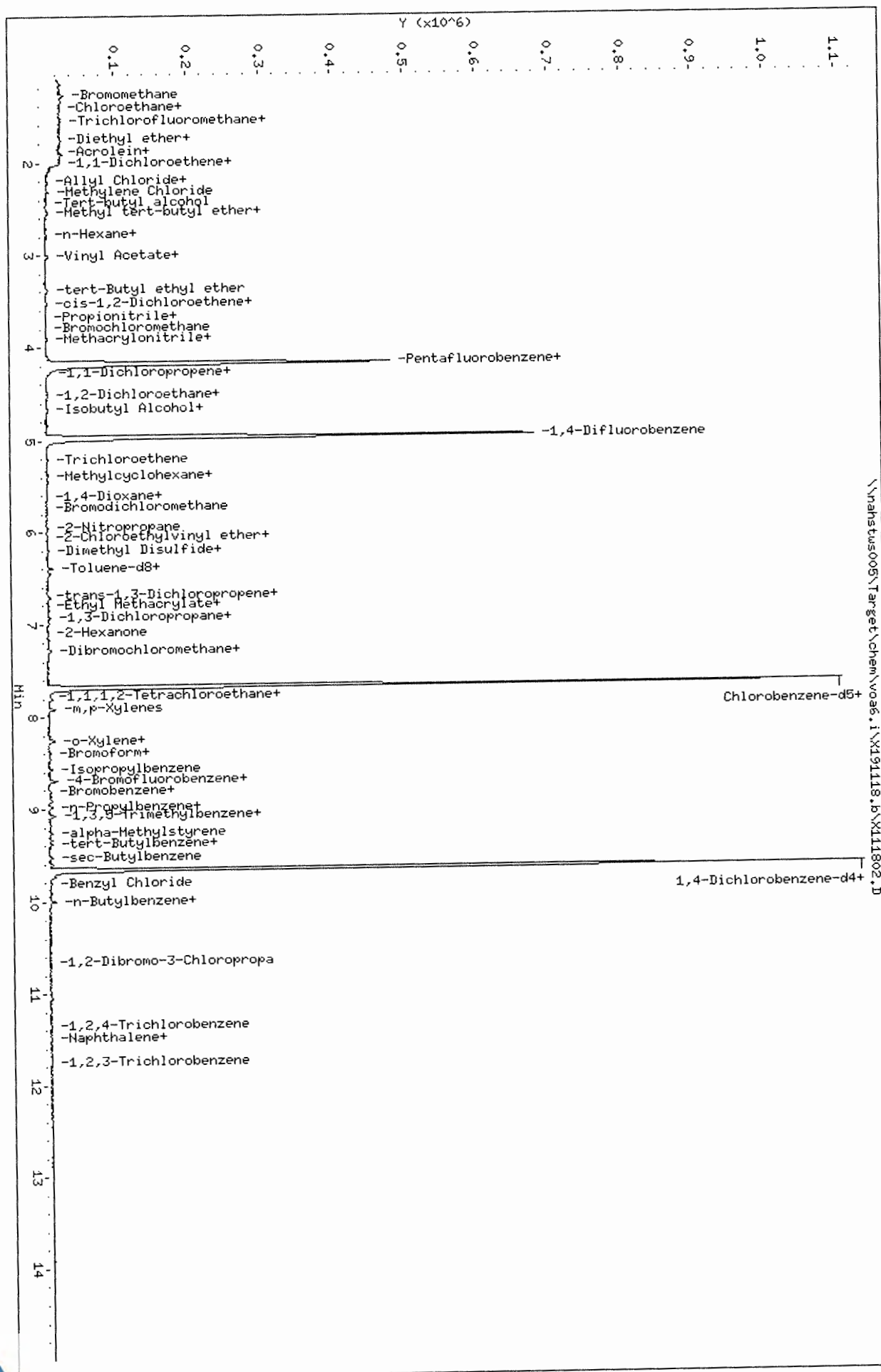
QC Flag Legend

- T - Target compound detected outside RT window.
- a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
- M - Compound response manually integrated.



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 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
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 Inj Date : 18-NOV-2019 14:35
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD000.5;VSTD000.5;1;2;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 13:47 Cal File: X111802.D
 Als bottle: 4 Calibration Sample, Level: 2
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	417797	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	575000	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	520290	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	274172	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	2522	0.50000	1.36 (Ta)
\$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3844	0.50000	1.20 (a)
\$ 30 Dibromofluoromethane	113	4.110	4.110	(0.983)	2303	0.50000	0.96 (a)
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	8468	0.50000	0.61 (a)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	1290	0.50000	0.34 (a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	2055	0.50000	0.36 (a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	1652	0.50000	0.42 (aM)
138 Freon TF	101	1.911	1.911	(0.457)	1235	0.50000	0.33 (a)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	936	0.50000	0.34 (a)
22 1,1-Dichloroethane	63	2.928	2.928	(0.700)	2376	0.50000	0.39 (Ta)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	1458	0.50000	0.41 (aM)
32 1,1-Dichloropropene	75	4.289	4.289	(0.863)	1907	0.50000	0.41 (a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	421	0.50000	(aM)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	1248	0.50000	0.38 (aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	892	0.50000	0.38 (aM)
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	4769	0.50000	0.36 (aM)
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	125	0.50000	(aM)
57 1,2-Dibromoethane	107	7.269	7.269	(0.948)	1273	0.50000	0.34 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT (ug/l)	ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	2511	0.50000	0.34 (a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	1591	0.50000	0.34 (aM)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	1693	0.50000	0.49 (aM)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	4403	0.50000	0.35 (a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	2841	0.50000	0.36 (a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	2241	0.50000	0.40 (a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	3038	0.50000	0.38 (a)
26 2,2-Dichloropropane	77	3.523	3.523	(0.842)	2284	0.50000	0.41 (aM)
24 2-Butanone	43	3.595	3.595	(0.860)	1395	1.00000	1.08 (aM)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	3464	0.50000	0.35 (a)
52 2-Hexanone	43	7.090	7.090	(0.924)	1875	1.00000	0.87 (a)
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	4251	0.50000	0.35 (a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	5043	0.50000	0.37 (a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	2291	1.00000	0.75 (a)
10 Acetone	43	1.976	1.976	(0.473)	4579	1.00000	0.53 (aM)
37 Benzene	78	4.519	4.519	(0.909)	4530	0.50000	0.34 (a)
74 Bromobenzene	156	8.809	8.809	(0.911)	1601	0.50000	0.33 (a)
29 Bromochloromethane	128	3.802	3.802	(0.909)	956	0.50000	0.42 (a)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	1712	0.50000	0.35 (aM)
66 Bromoform	173	8.415	8.415	(1.097)	887	0.50000	1.27 (aM)
6 Bromomethane	94	1.338	1.338	(0.320)	2741	0.50000	(a)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	6243	1.00000	0.64 (aM)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	1955	0.50000	0.38 (aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	3839	0.50000	0.37 (a)
7 Chloroethane	64	1.403	1.403	(0.336)	1164	0.50000	0.44 (aM)
28 Chloroform	83	3.917	3.917	(0.937)	3238	0.50000	0.47 (a)
3 Chloromethane	50	1.073	1.073	(0.257)	2201	0.50000	0.67 (a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1368	0.50000	0.34 (a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1873	0.50000	0.33 (a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	1318	0.50000	0.33 (a)
44 Dibromomethane	93	5.564	5.564	(1.120)	802	0.50000	0.32 (a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	1269	0.50000	1.20 (aM)
61 Ethylbenzene	106	7.807	7.807	(1.018)	1838	0.50000	0.35 (a)
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	1376	0.50000	0.21 (a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	5484	0.50000	0.35 (a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	4089	1.00000	0.64 (a)
17 Methylene Chloride	84	2.305	2.305	(0.551)	1764	0.50000	0.46 (aM)
87 n-Butylbenzene	91	9.998	9.998	(1.034)	4442	0.50000	0.39 (aM)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	6280	0.50000	0.37 (a)
92 Naphthalene	128	11.560	11.560	(1.196)	1399	0.50000	0.47 (a)
63 o-Xylene	106	8.243	8.243	(1.075)	2028	0.50000	0.32 (a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	5469	0.50000	0.37 (a)
64 Styrene	104	8.265	8.265	(1.078)	3653	0.50000	0.33 (a)
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	3670	0.50000	0.34 (a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	1382	0.50000	0.37 (a)
50 Toluene	91	6.453	6.453	(0.841)	5603	0.50000	0.37 (a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	1192	0.50000	0.34 (a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	1749	0.50000	0.34 (a)
38 Trichloroethene	130	5.206	5.206	(1.048)	1298	0.50000	0.32 (a)
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	2137	0.50000	0.32 (a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	2046	0.50000	0.48 (aM)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D Page 3
Report Date: 06-Dec-2019 19:56

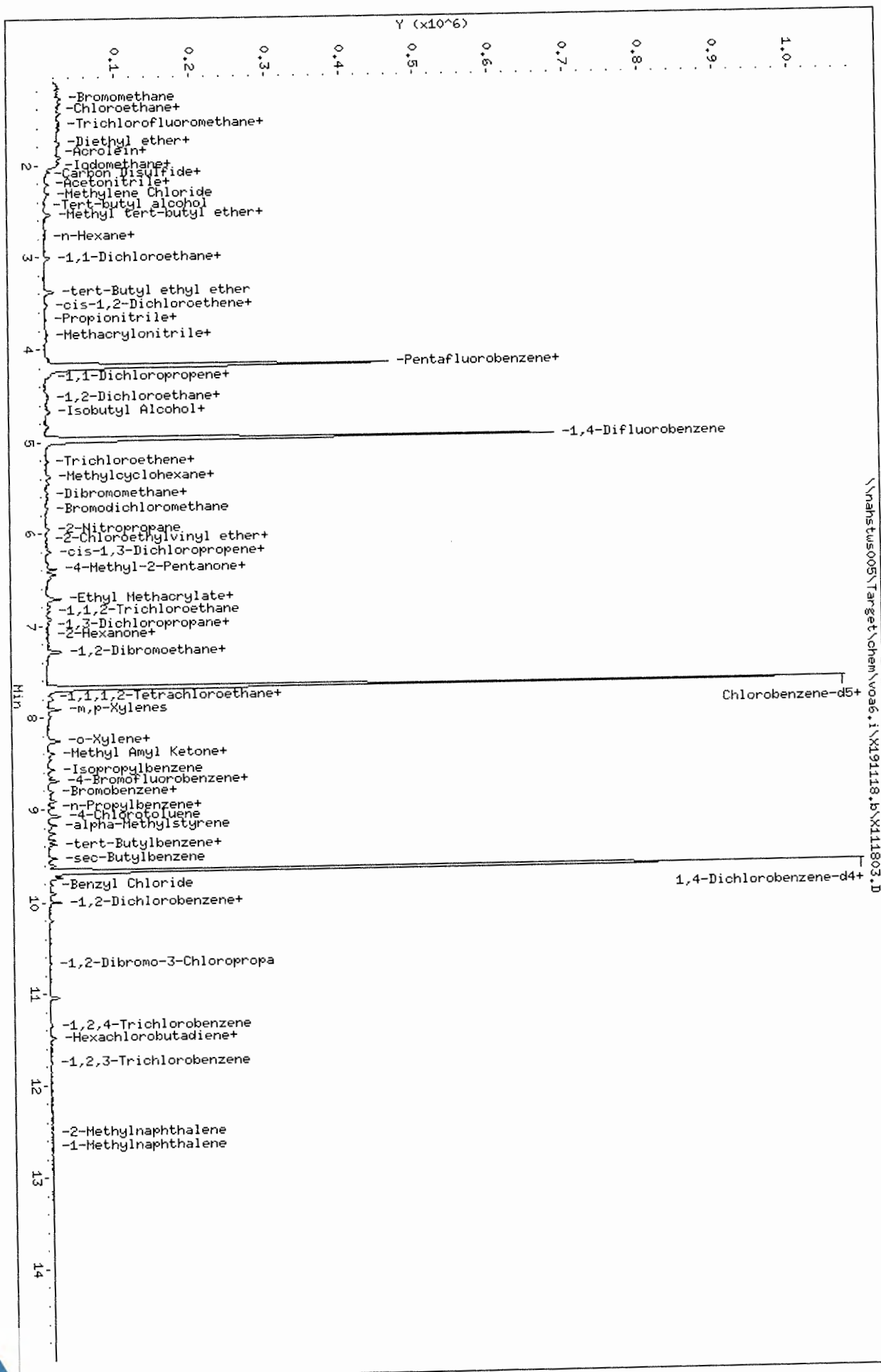
QC Flag Legend

- T - Target compound detected outside RT window.
- a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
- M - Compound response manually integrated.



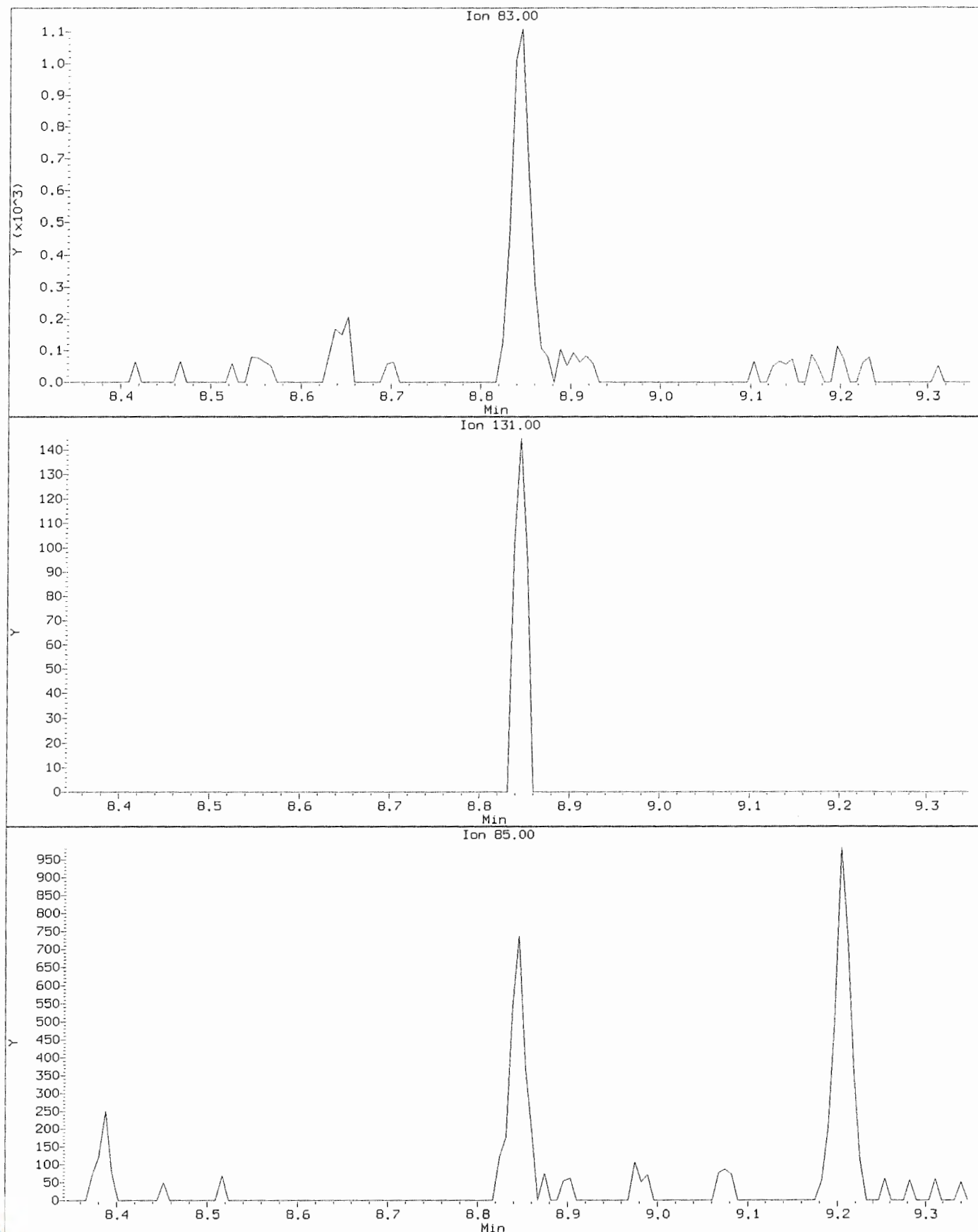
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 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



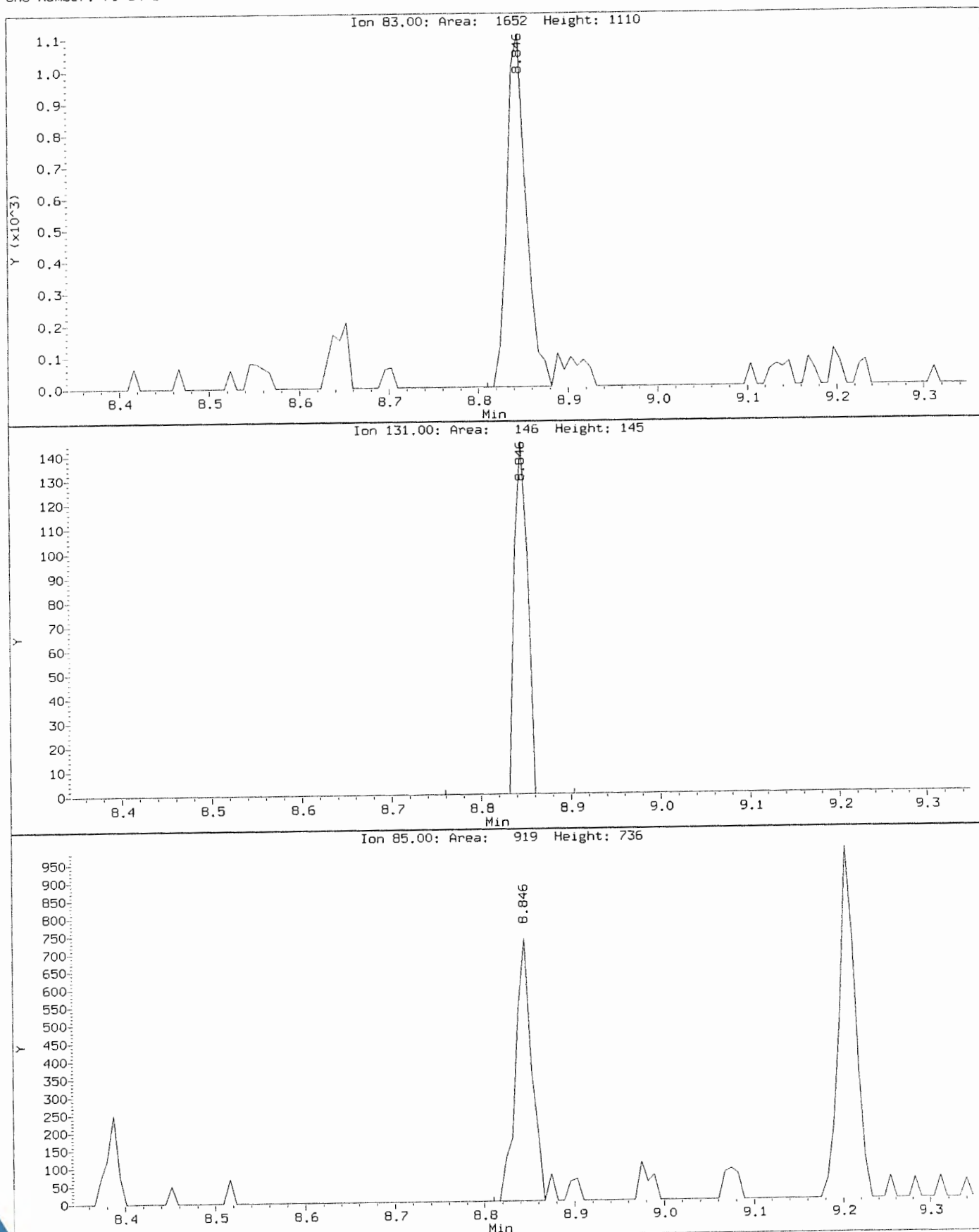
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



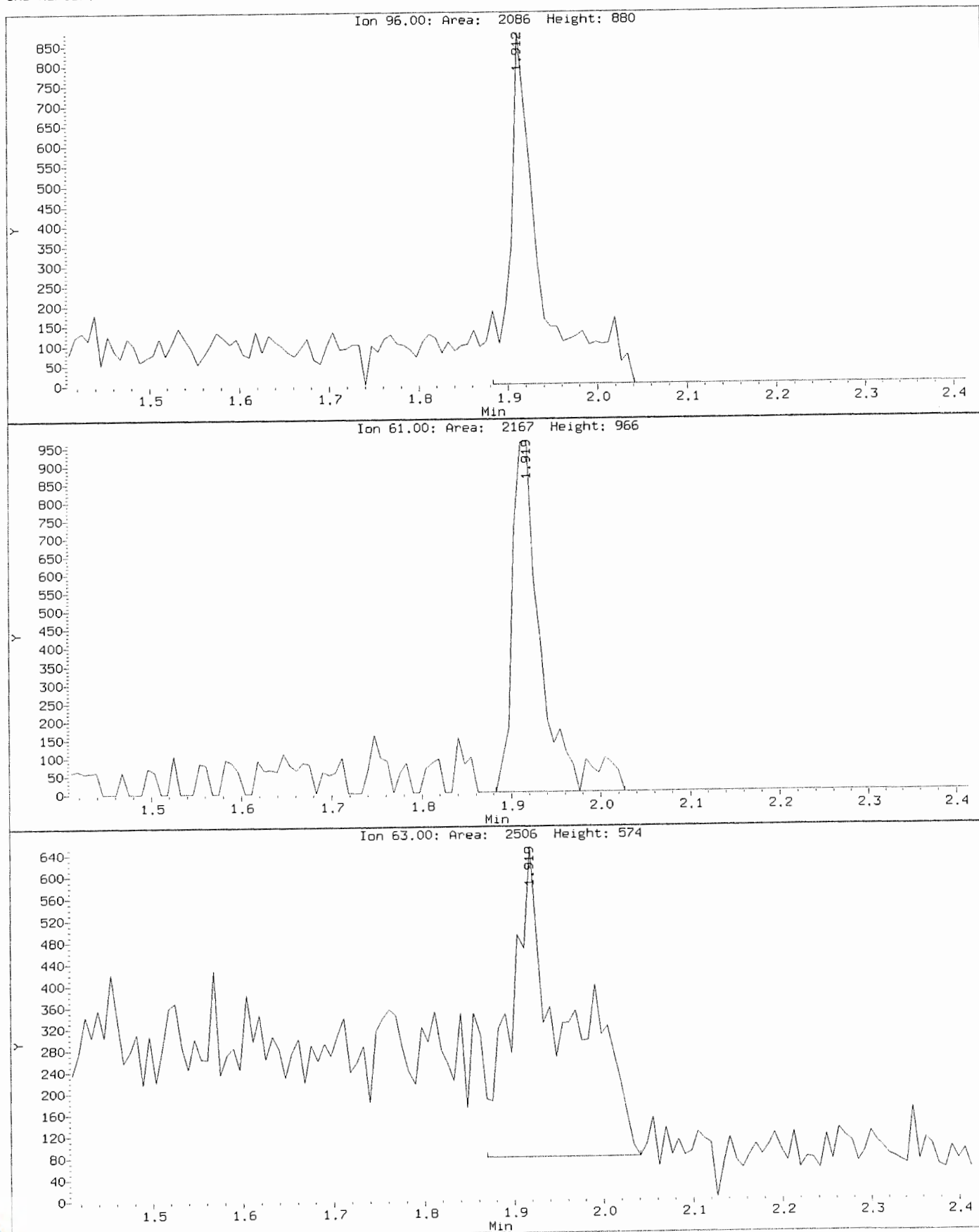
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Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



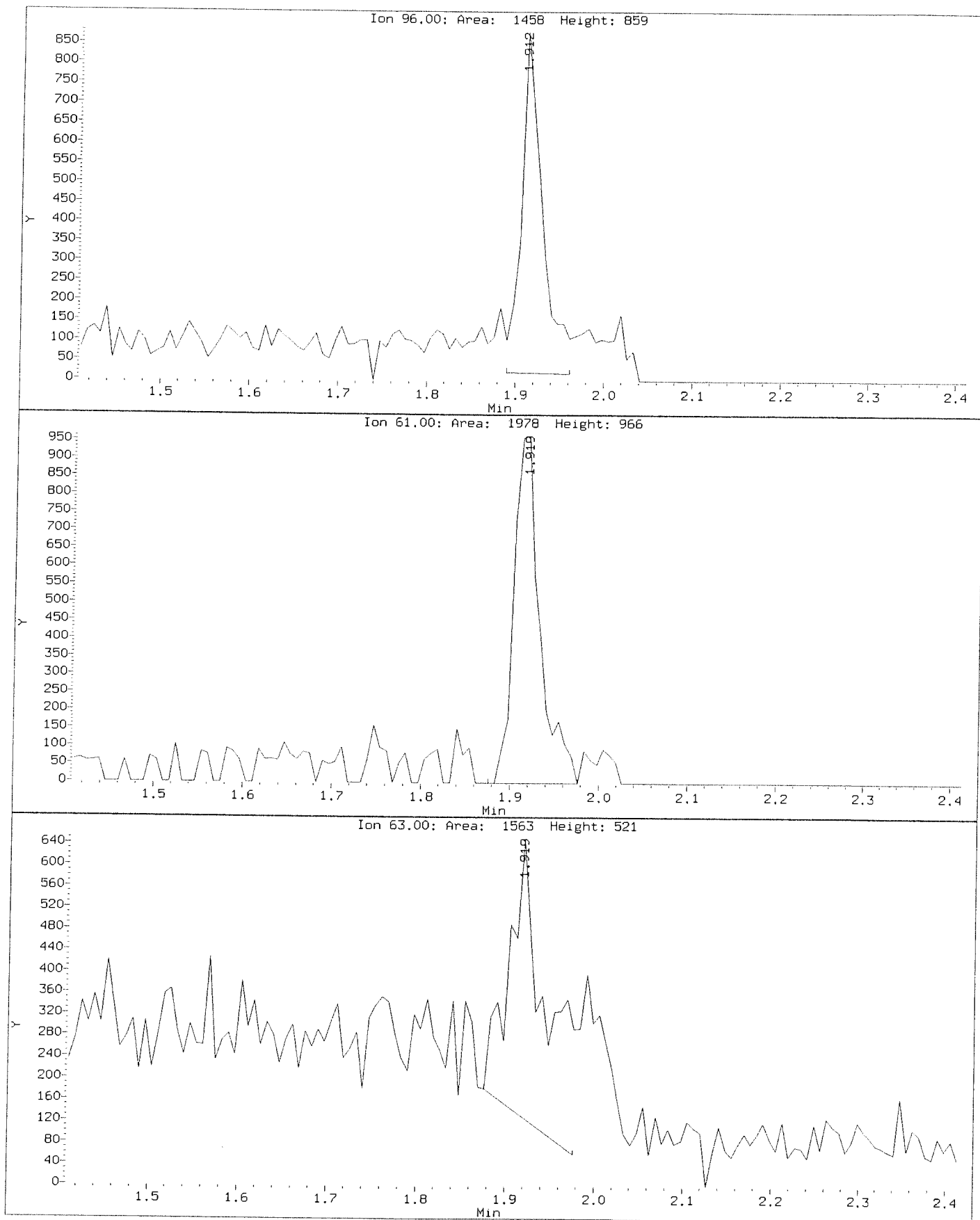
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



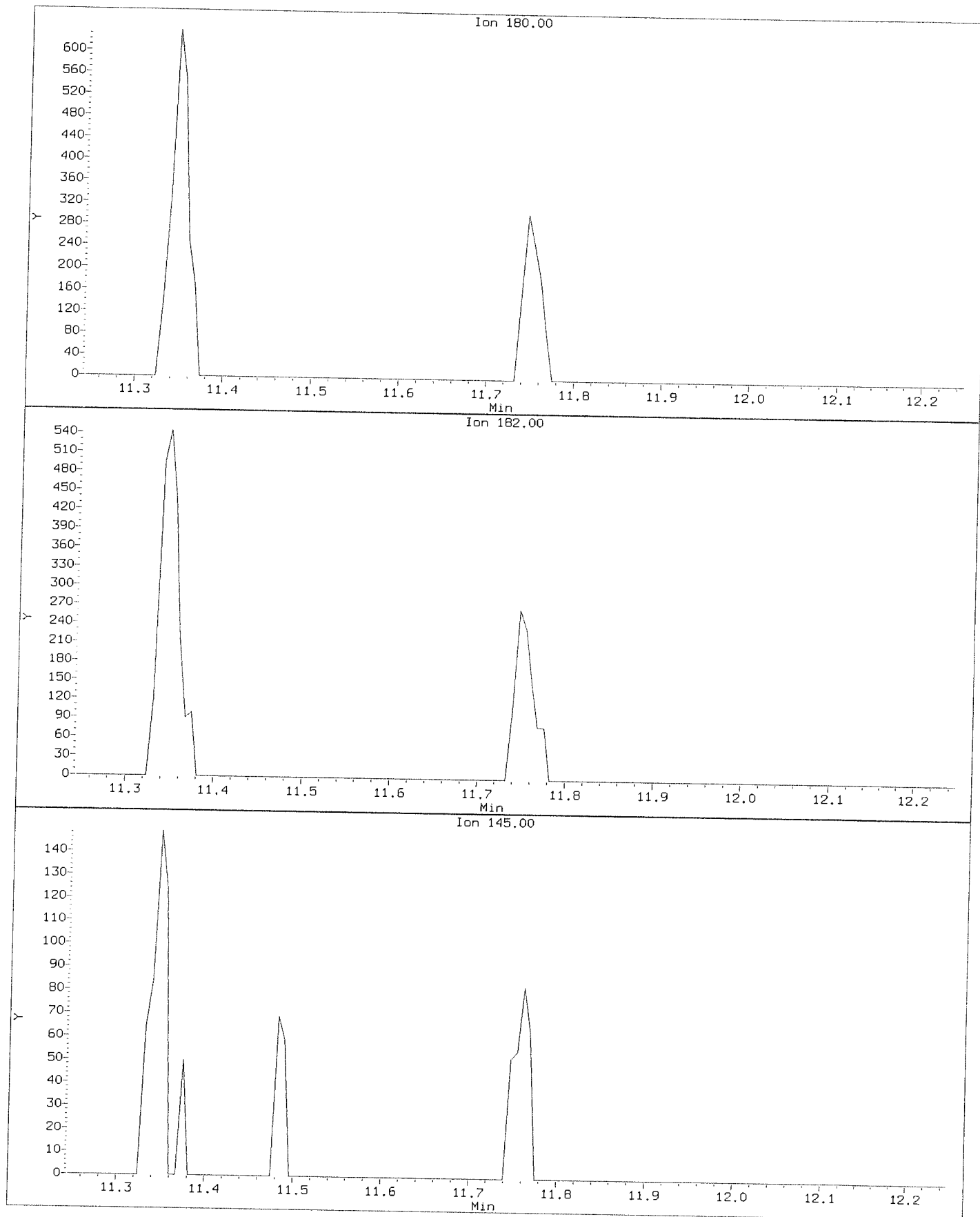
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Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



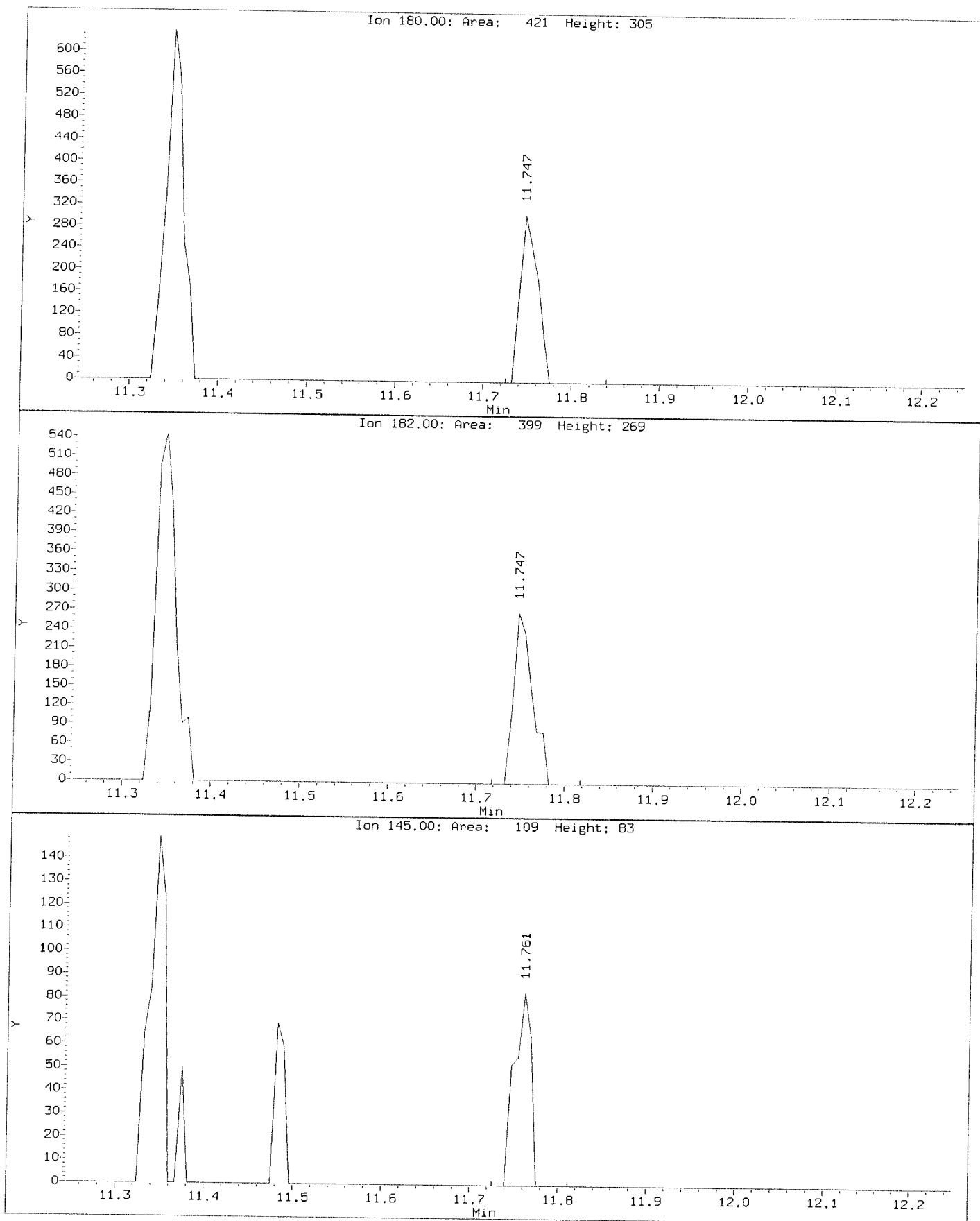
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



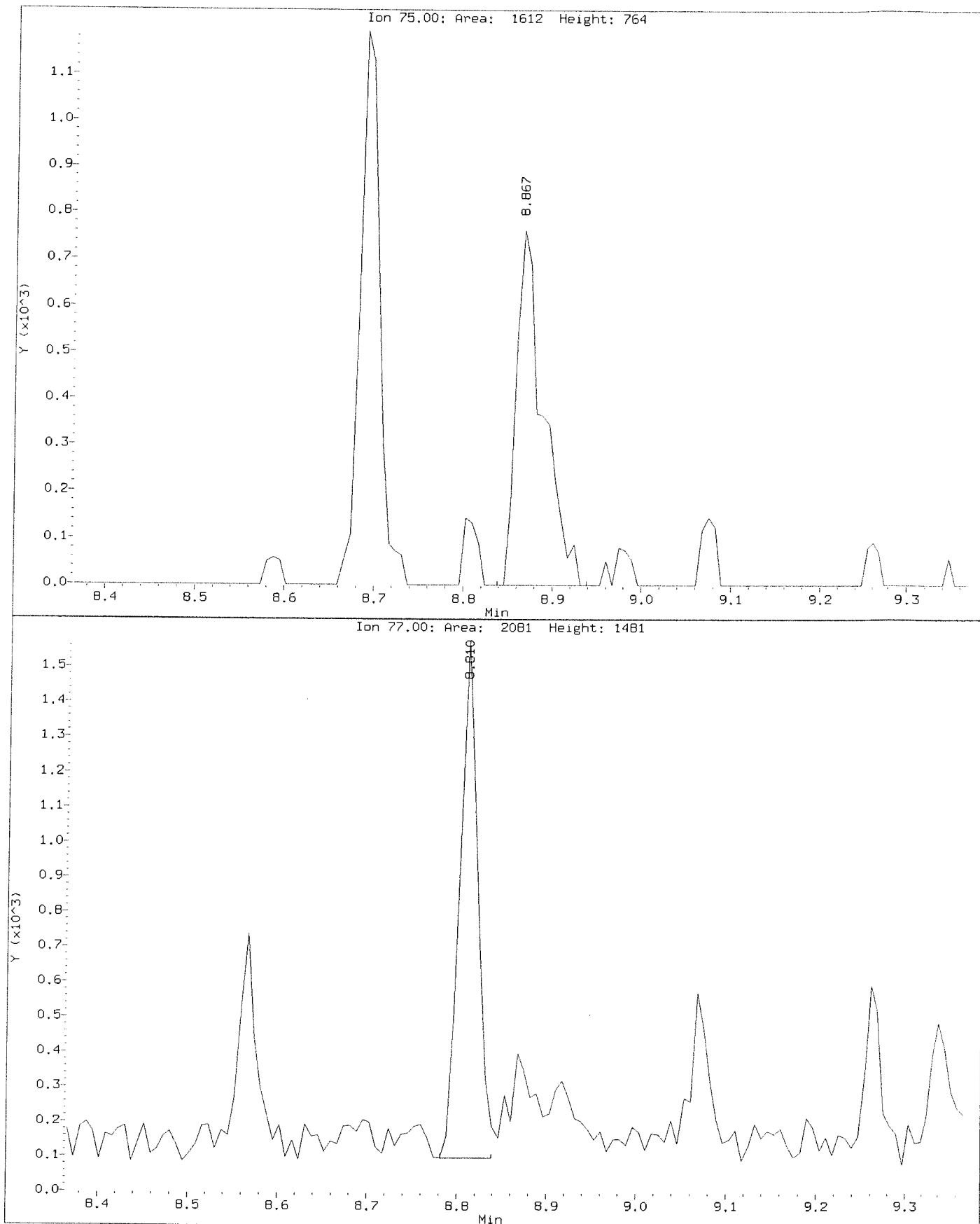
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Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



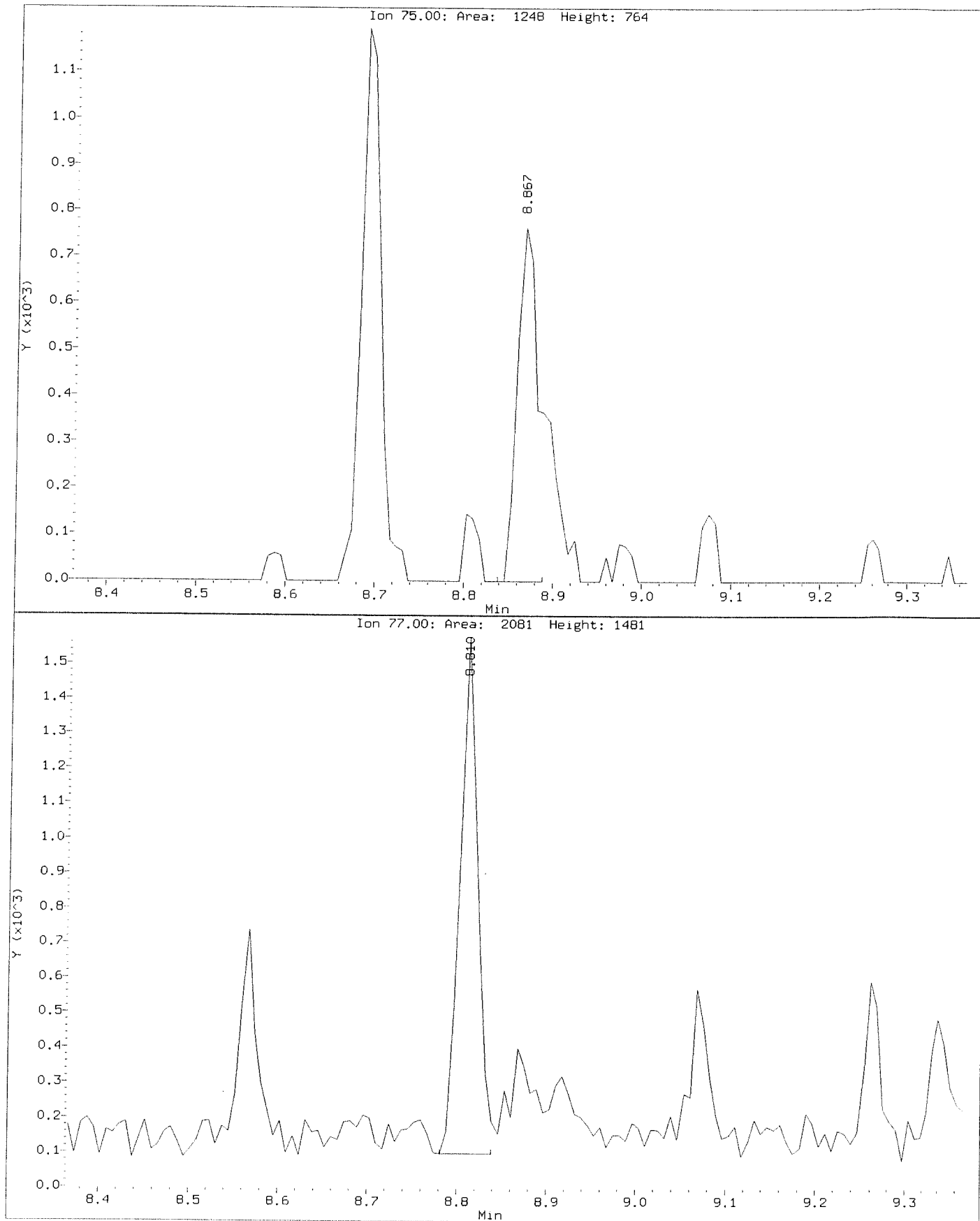
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



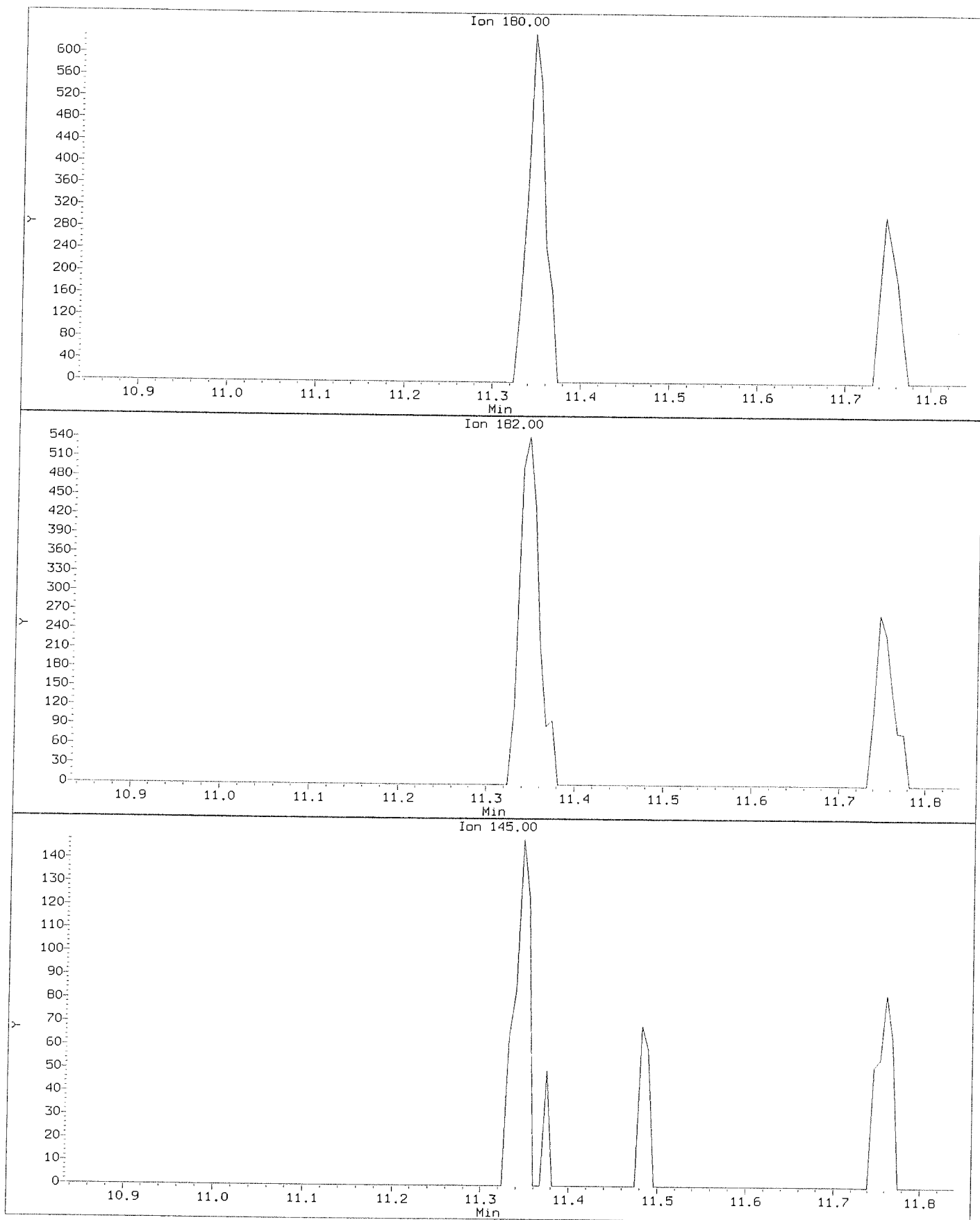
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



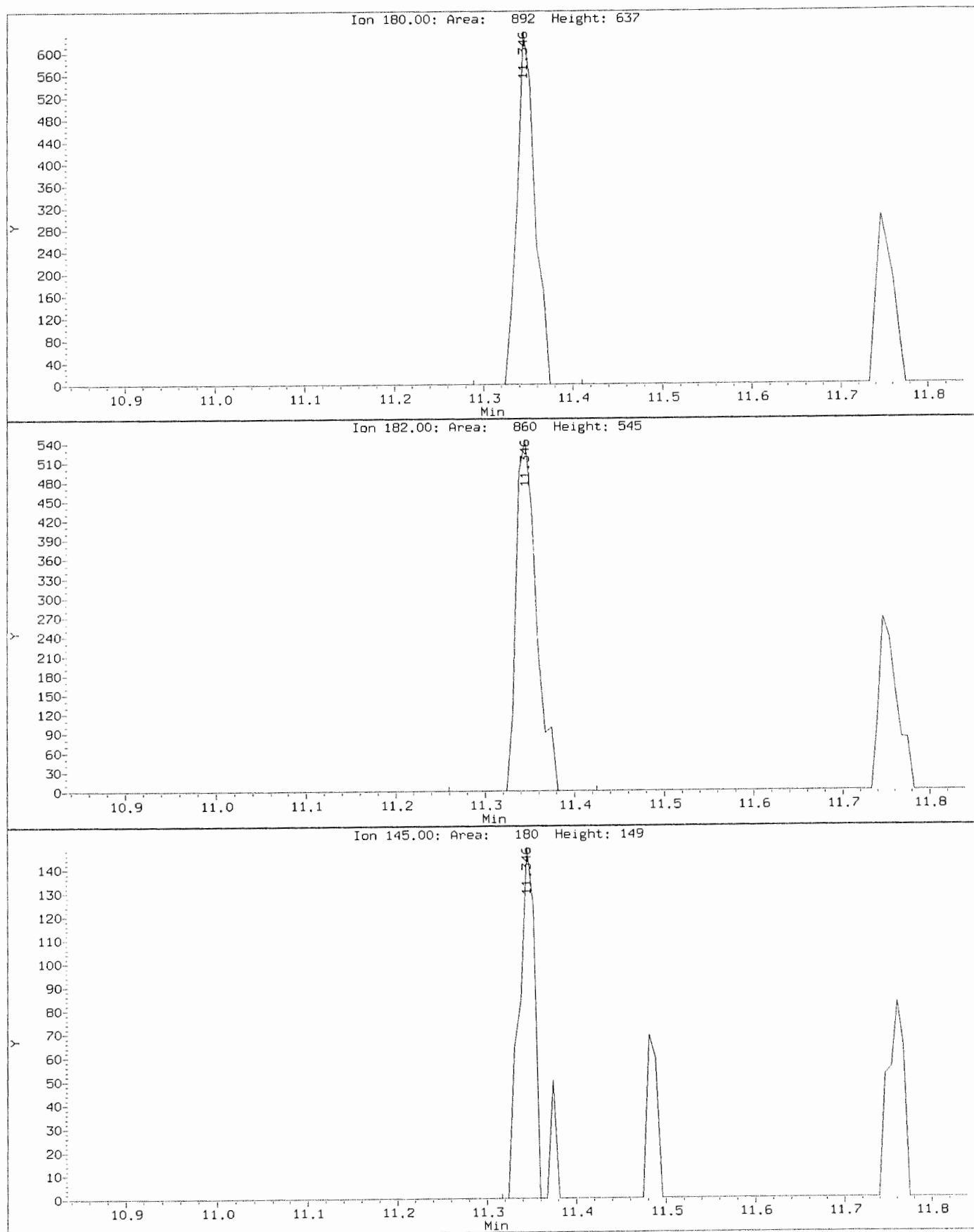
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



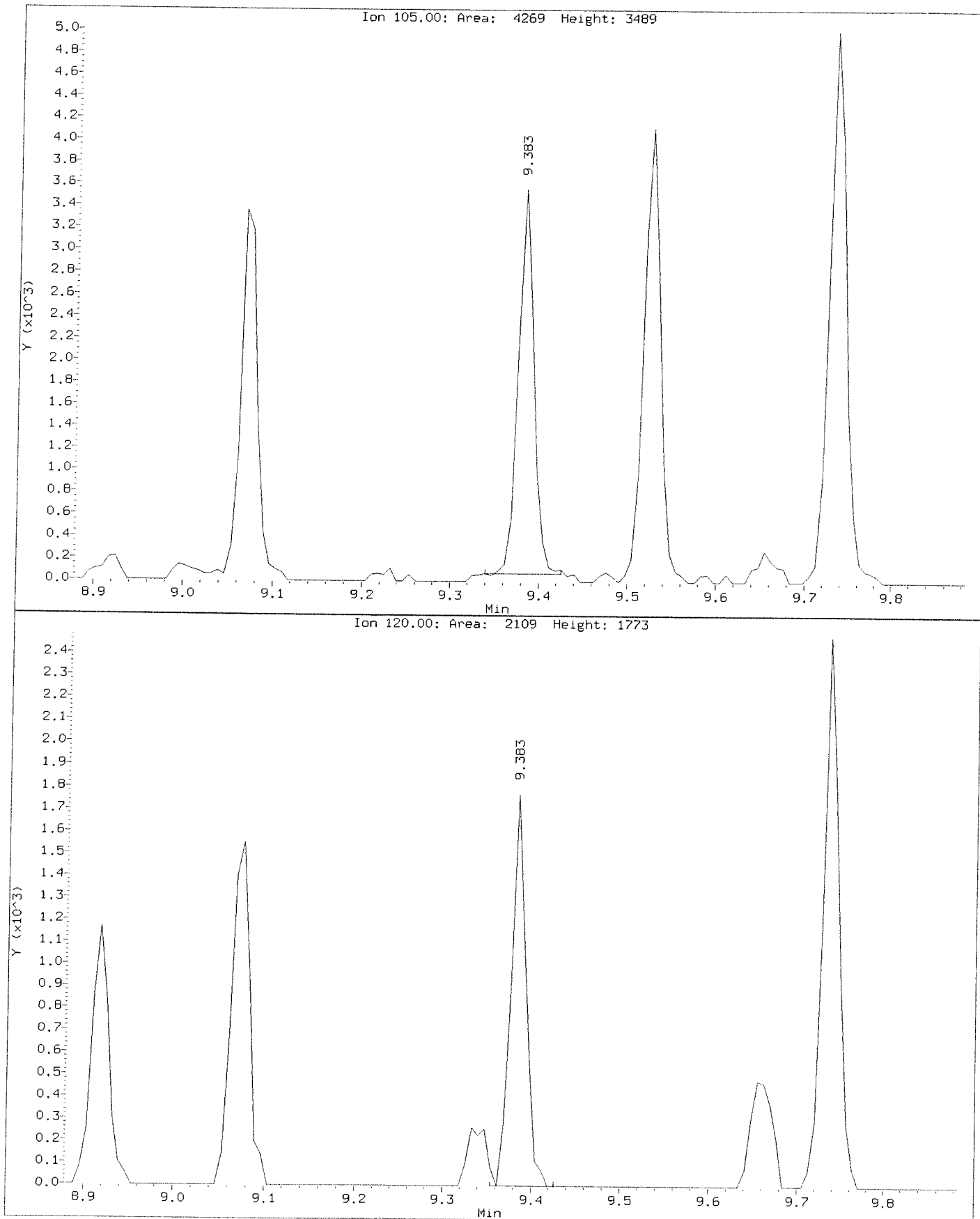
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Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



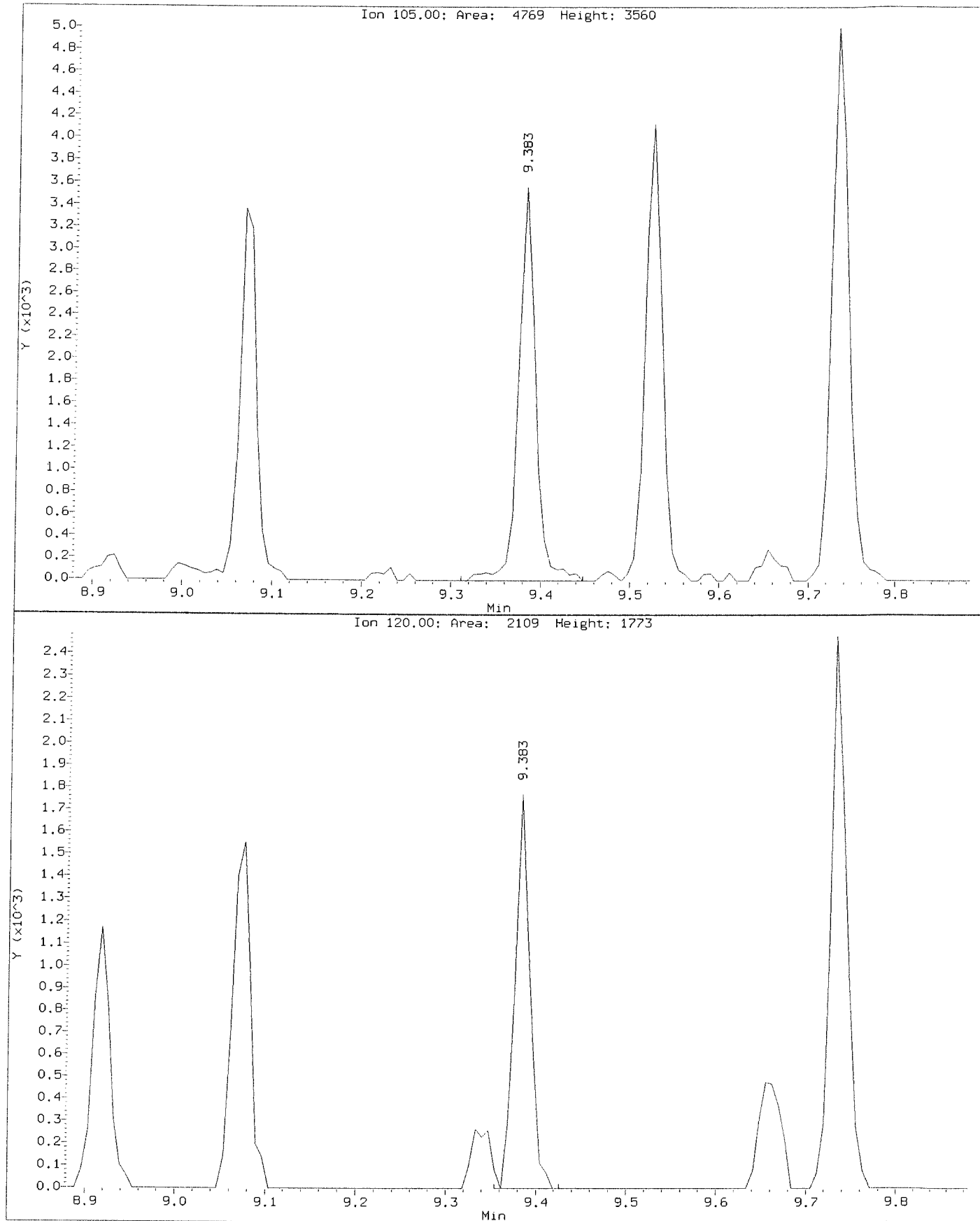
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trimethylbenzene
CAS Number: 95-63-6



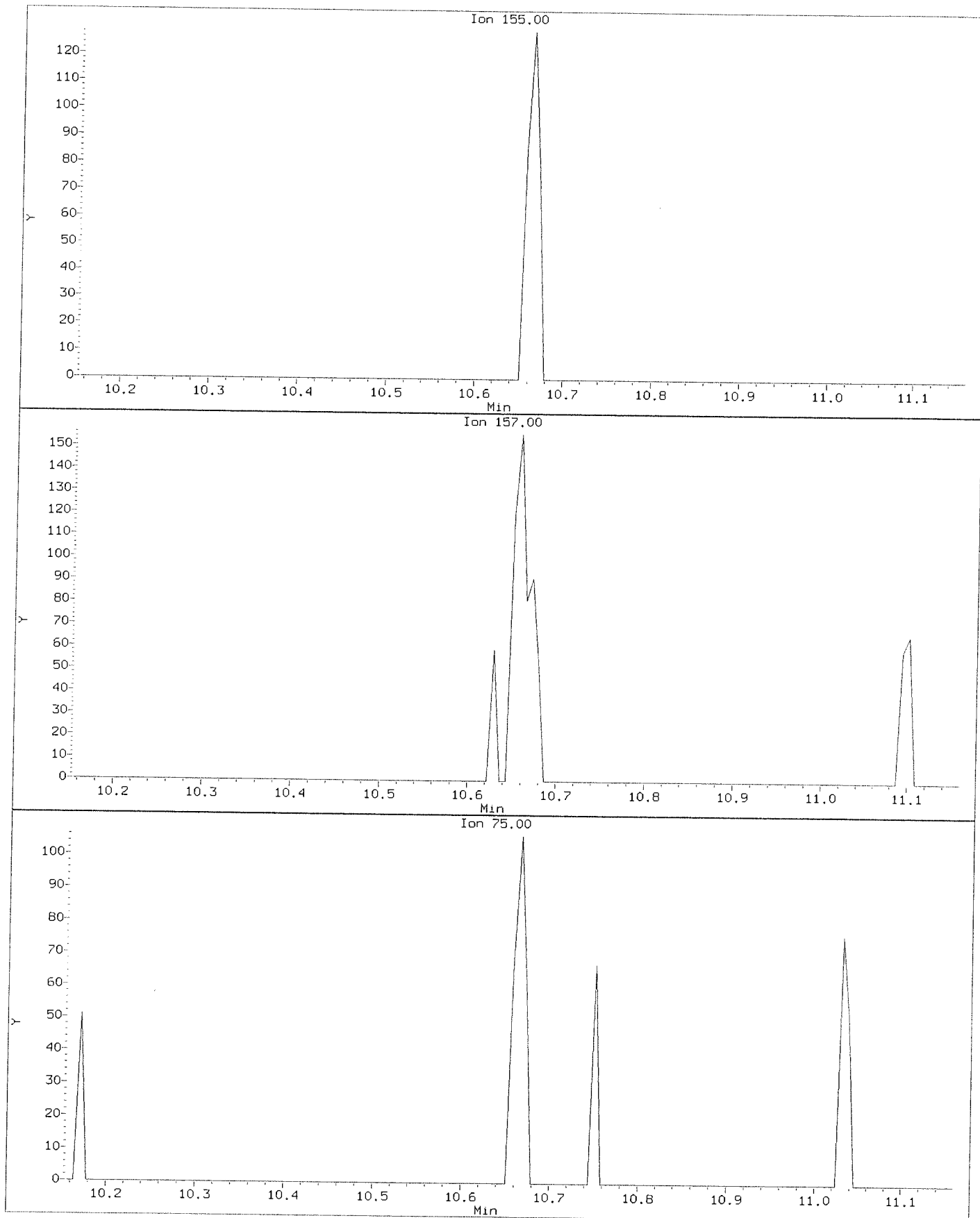
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Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trimethylbenzene
CAS Number: 95-63-6



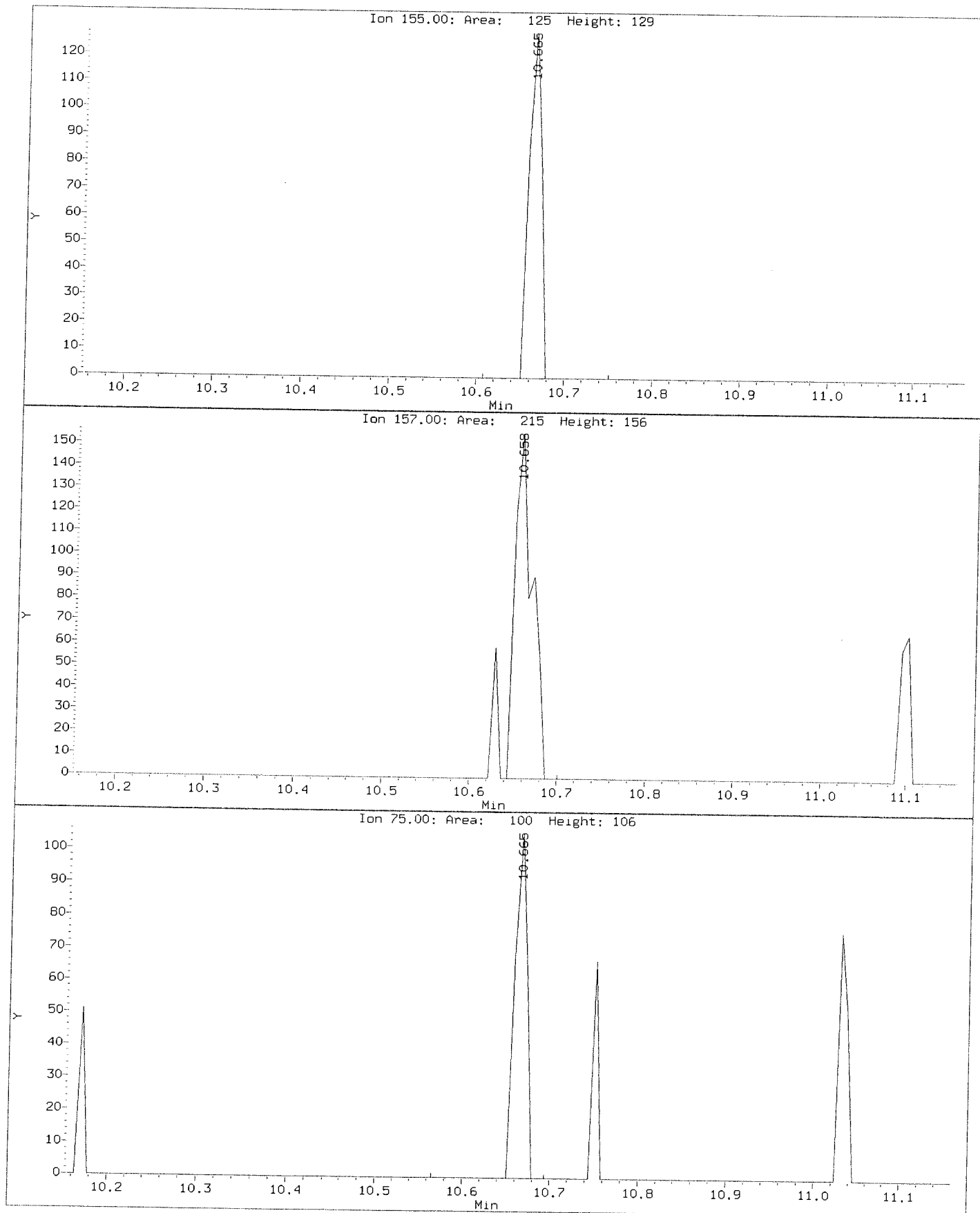
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Injection Date: 18-NOV-2019 14:35
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Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



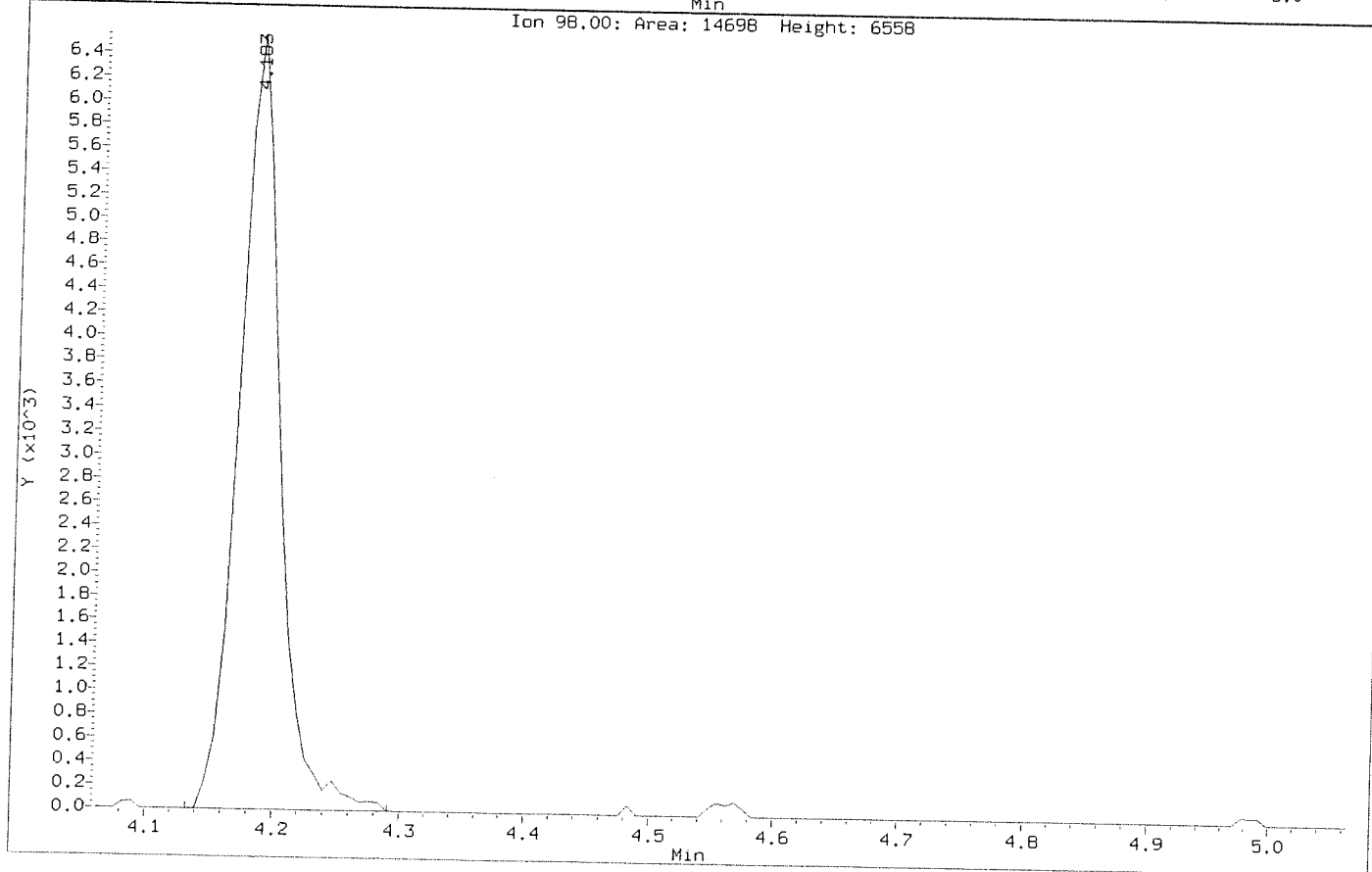
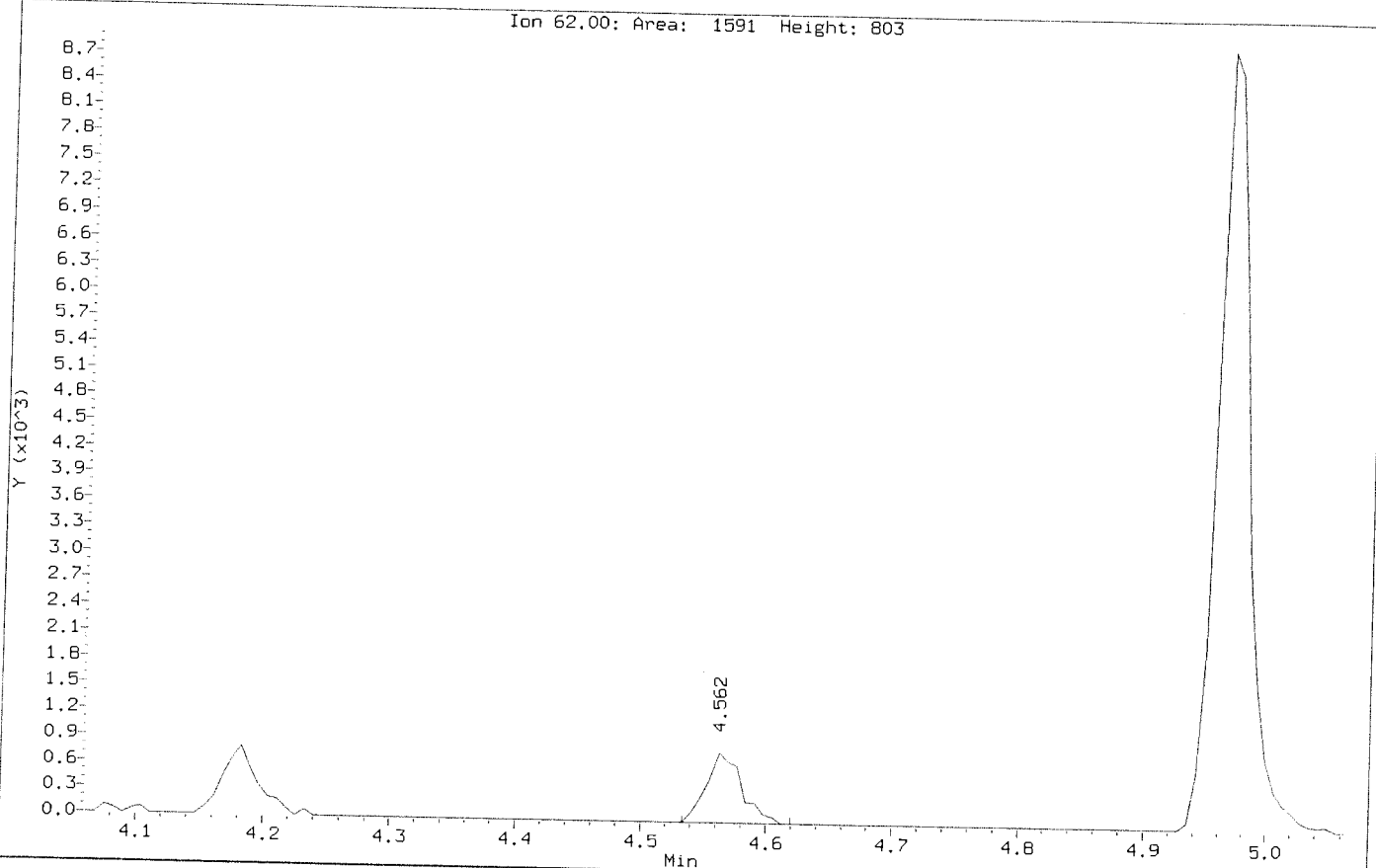
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Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



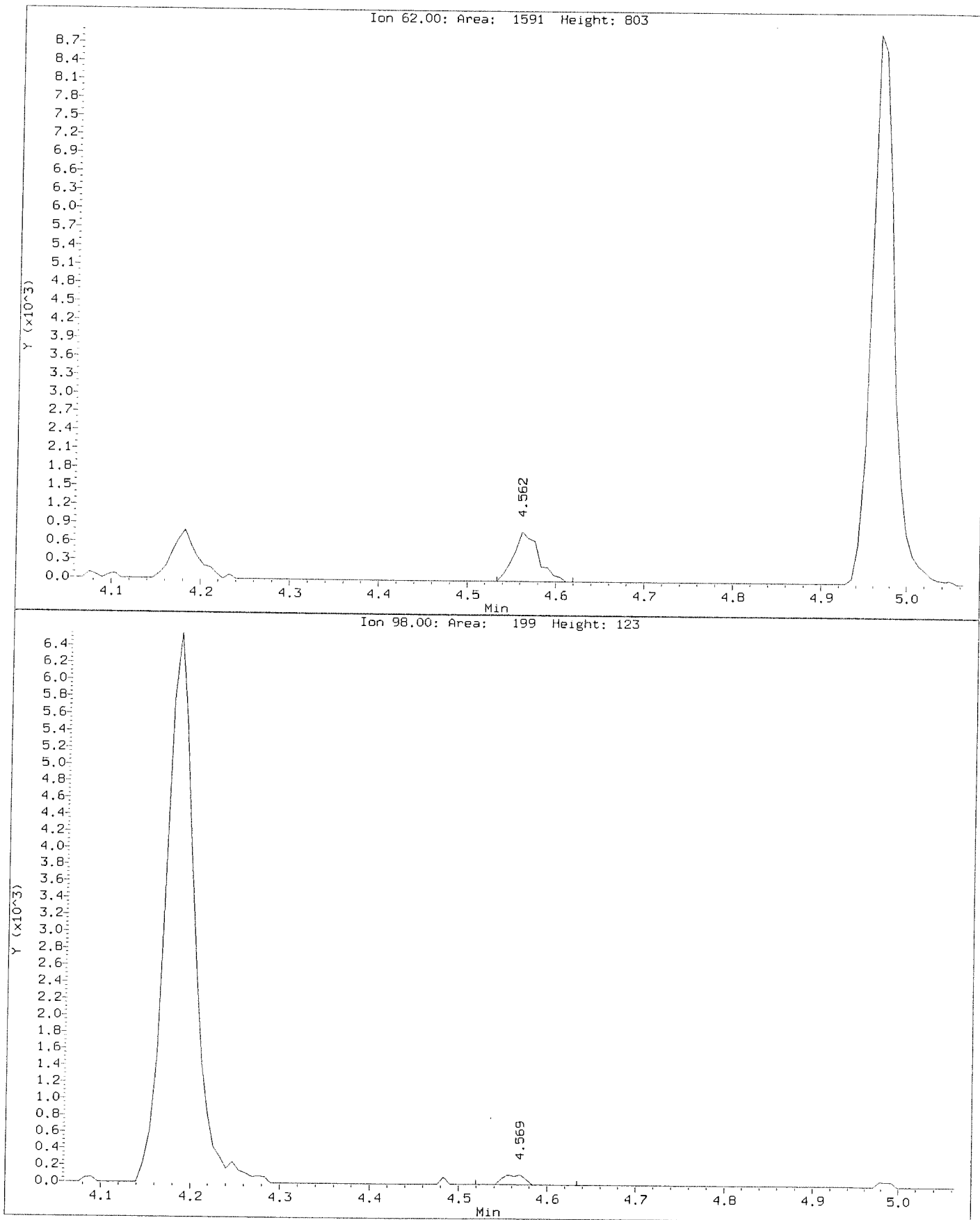
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2



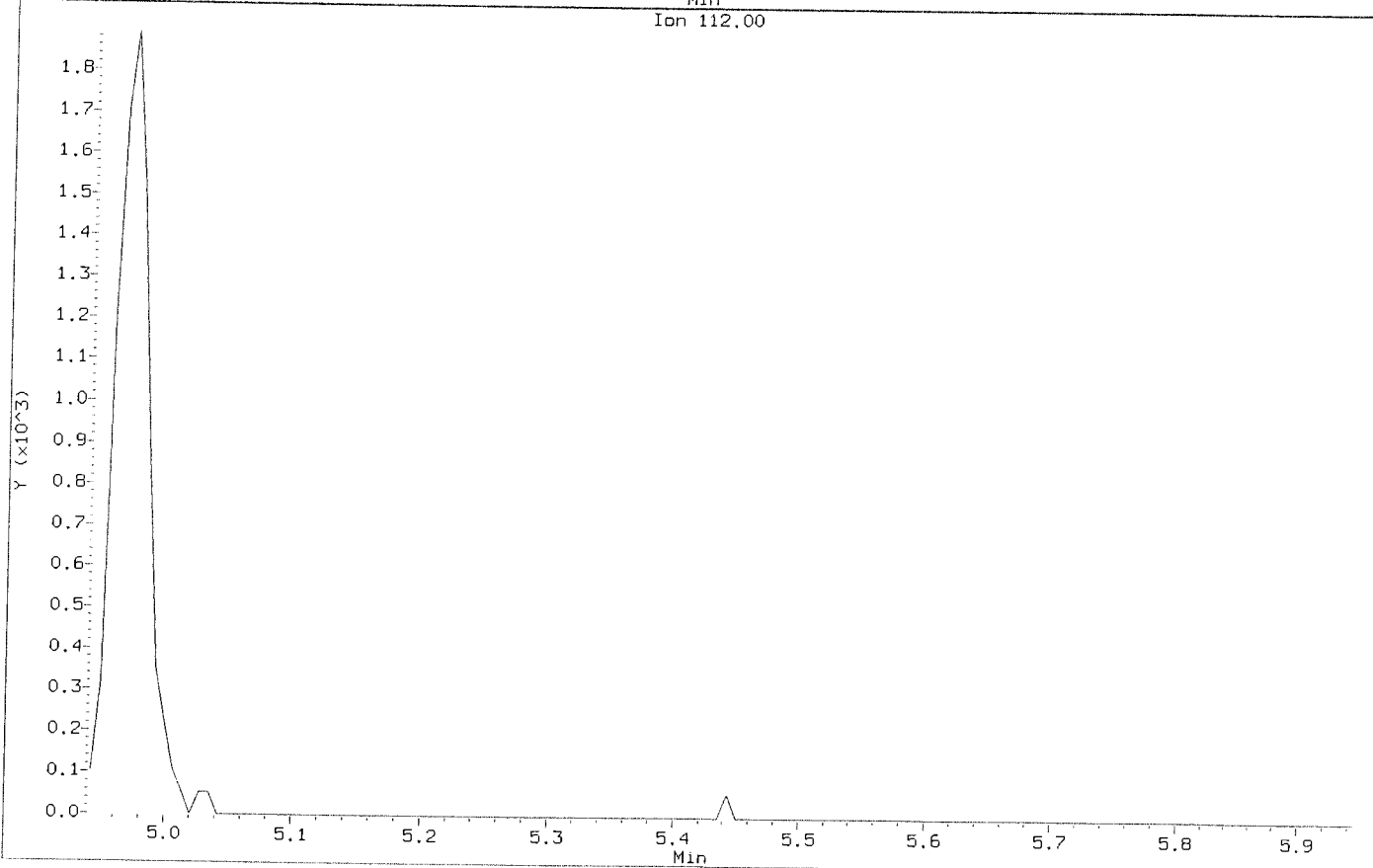
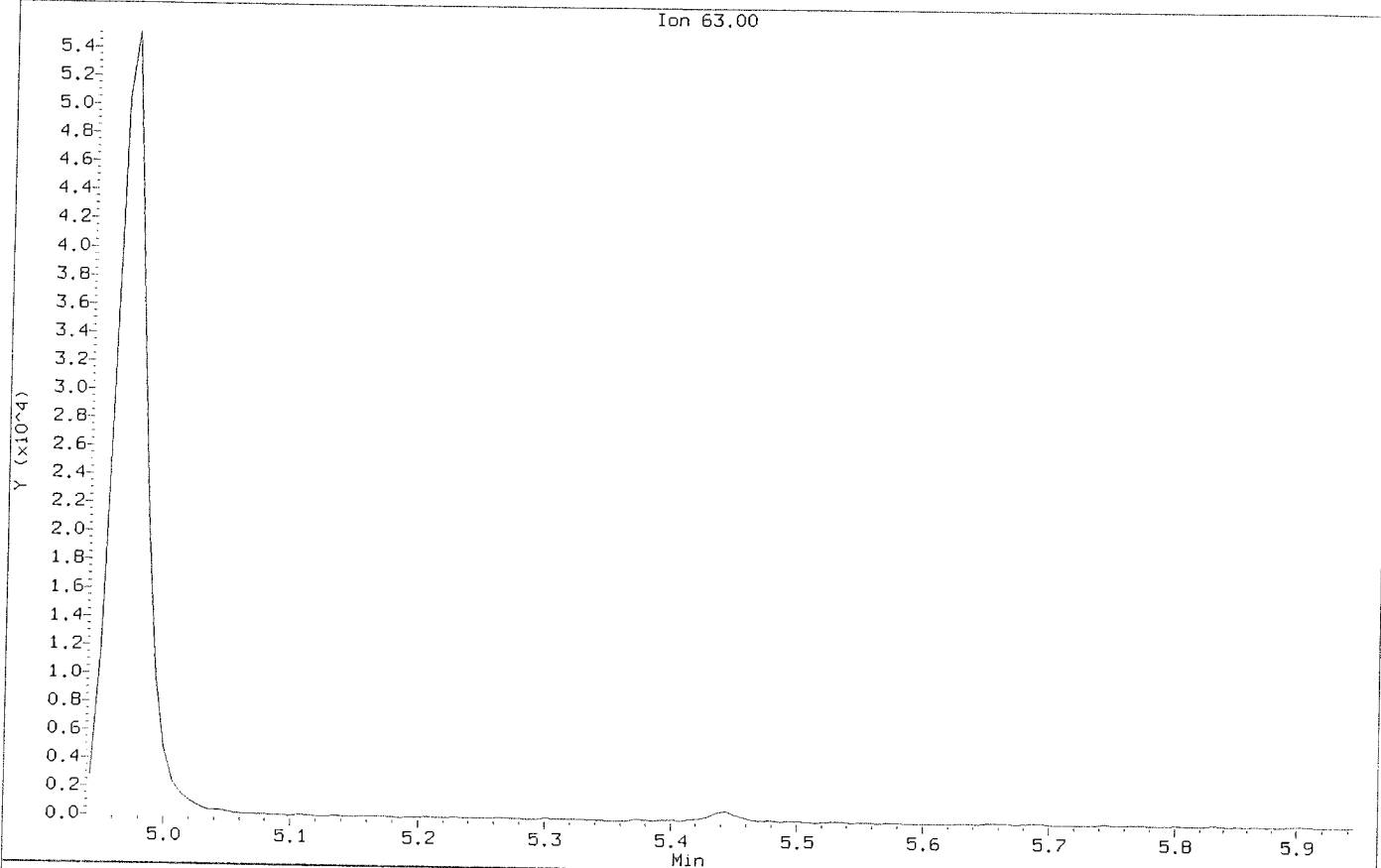
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Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2



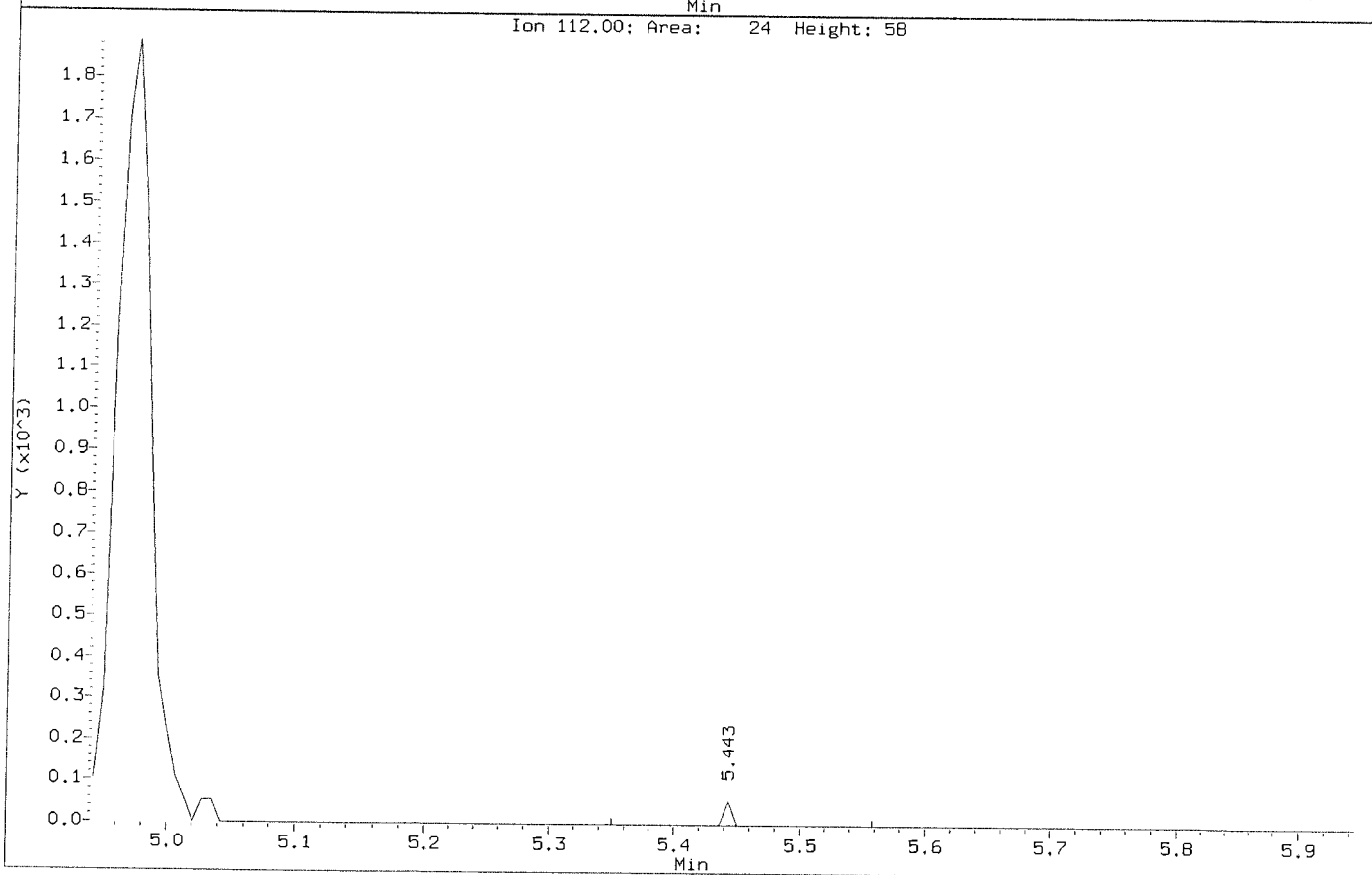
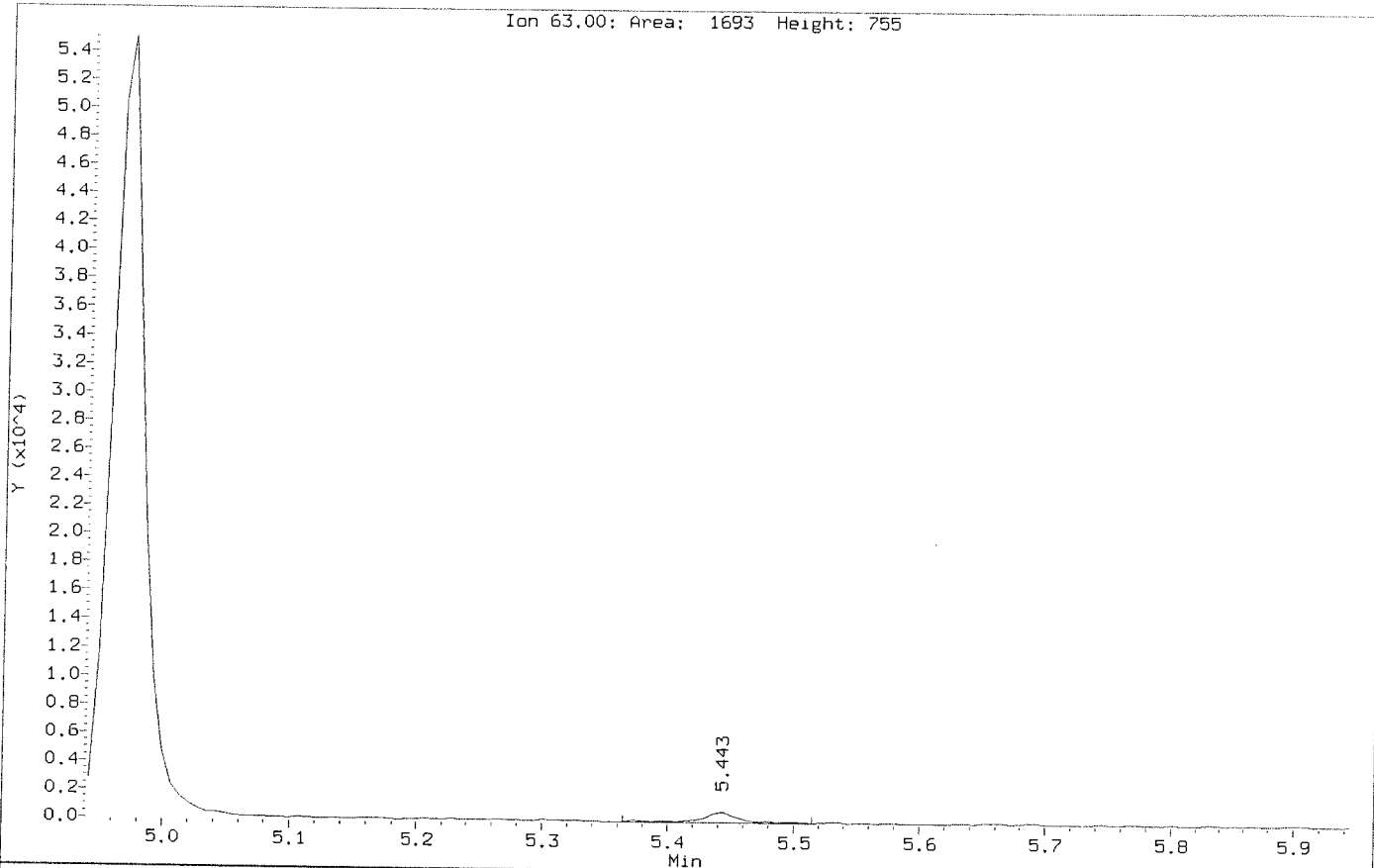
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Client Sample ID: VSTD000.5

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



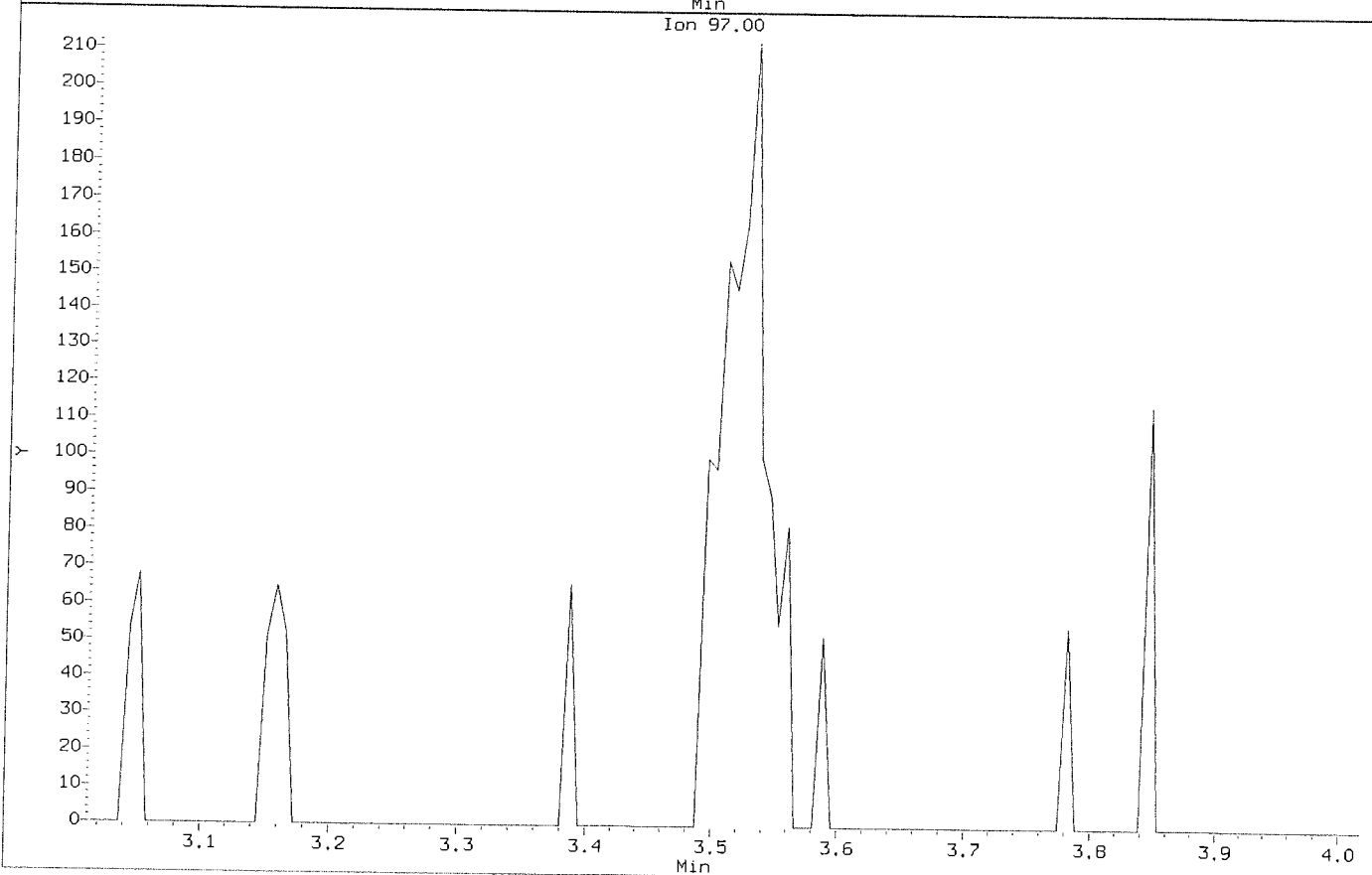
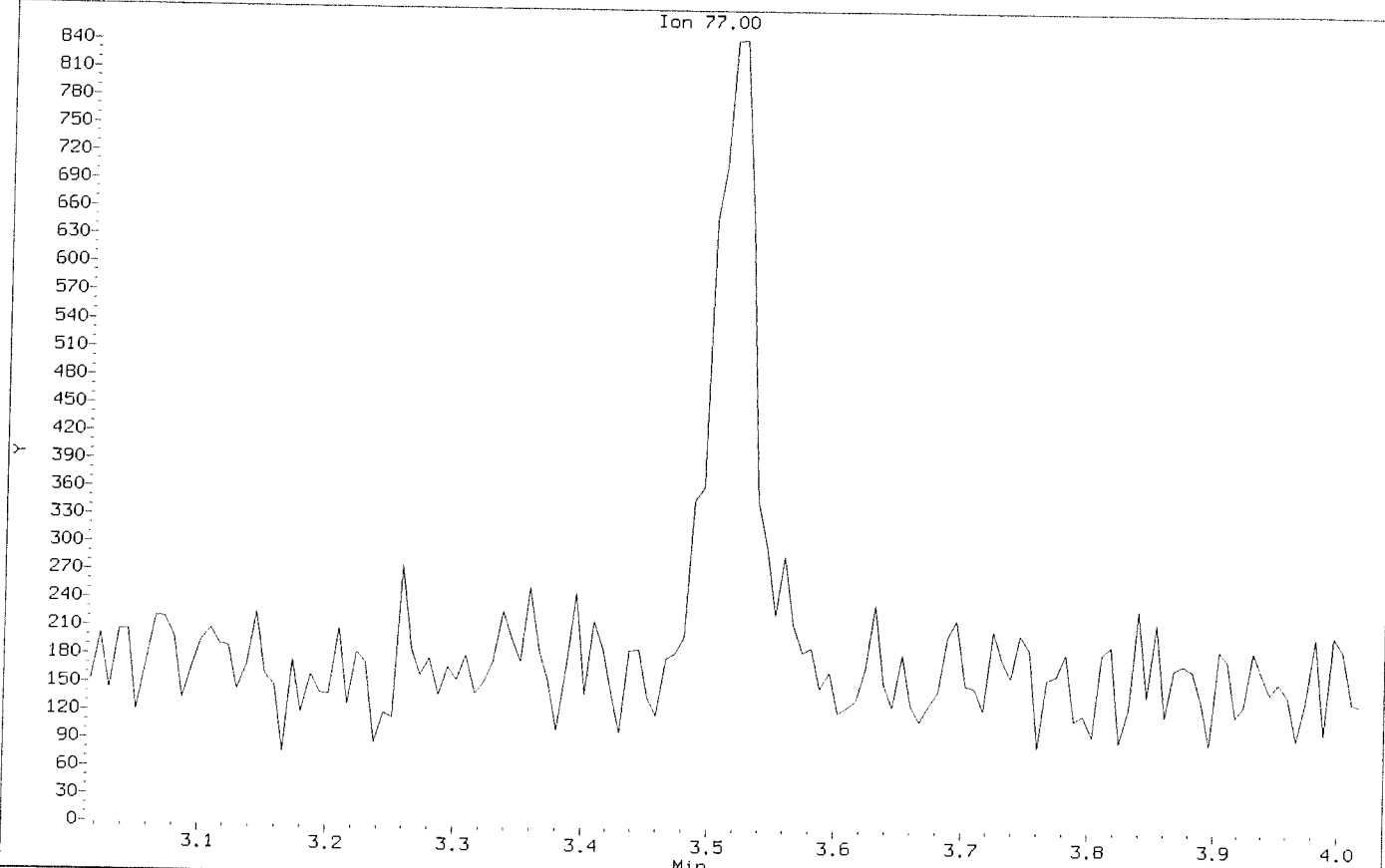
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Client Sample ID: VSTD000,5

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



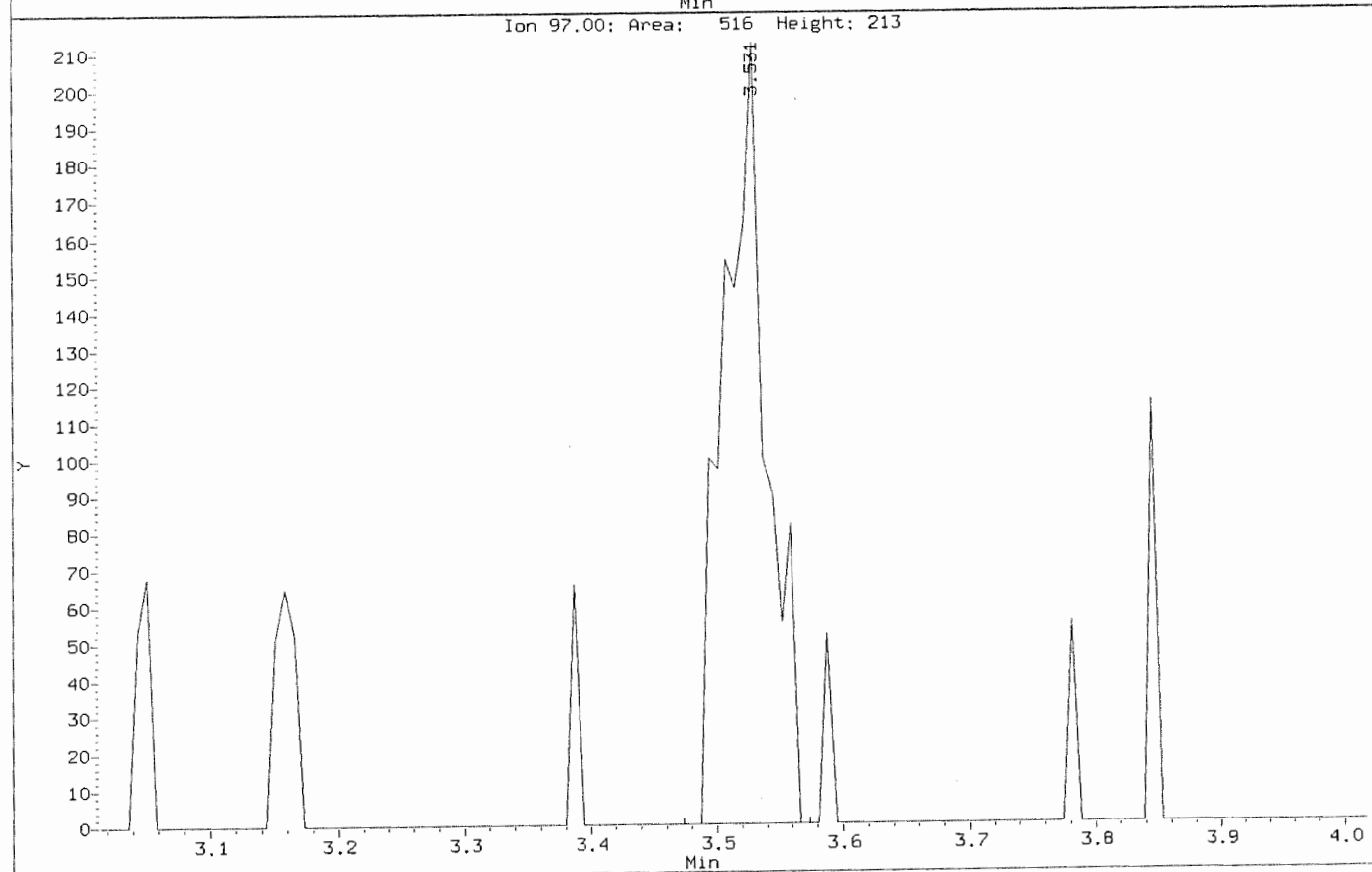
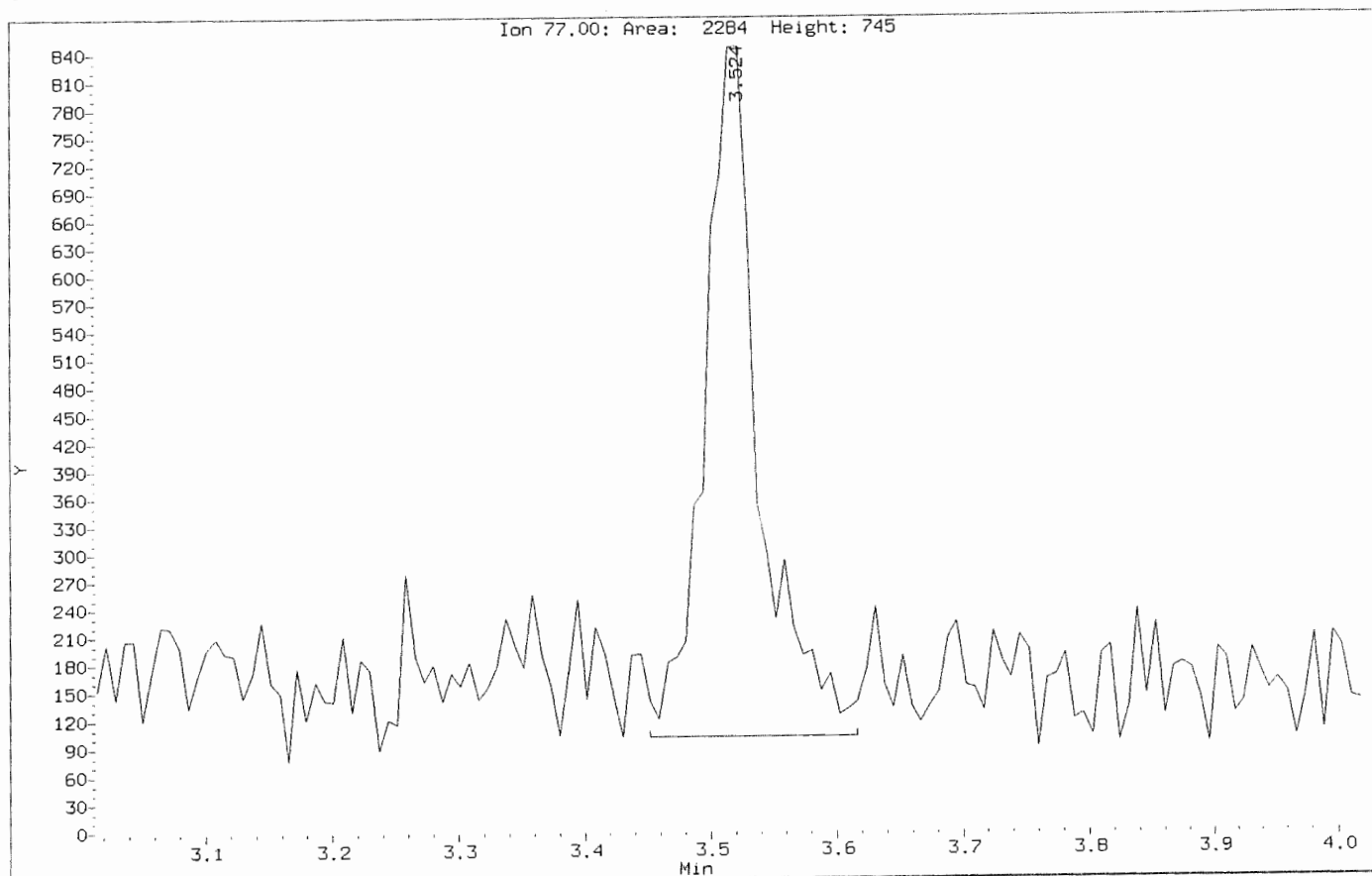
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Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7



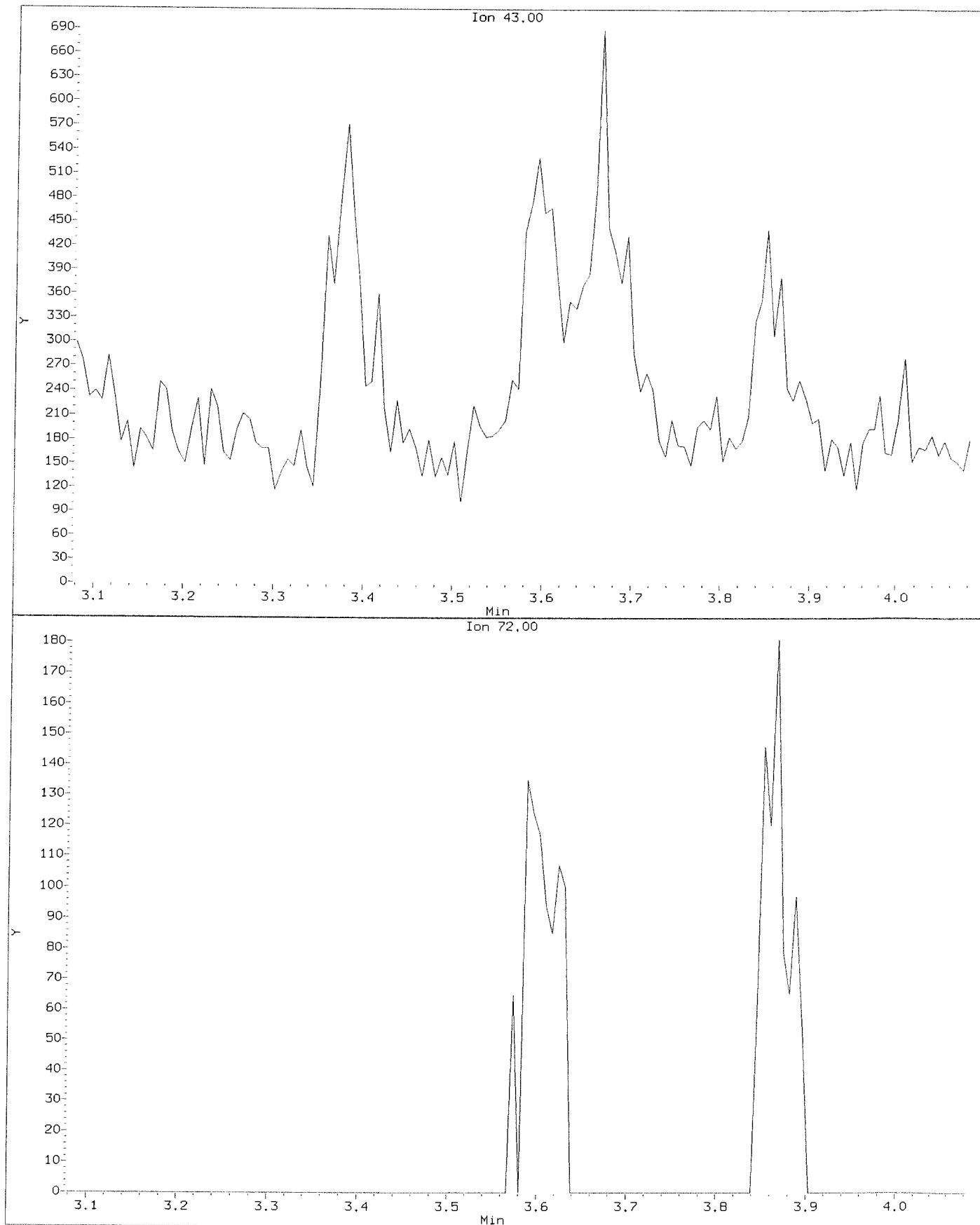
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Client Sample ID: VSTD000.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7



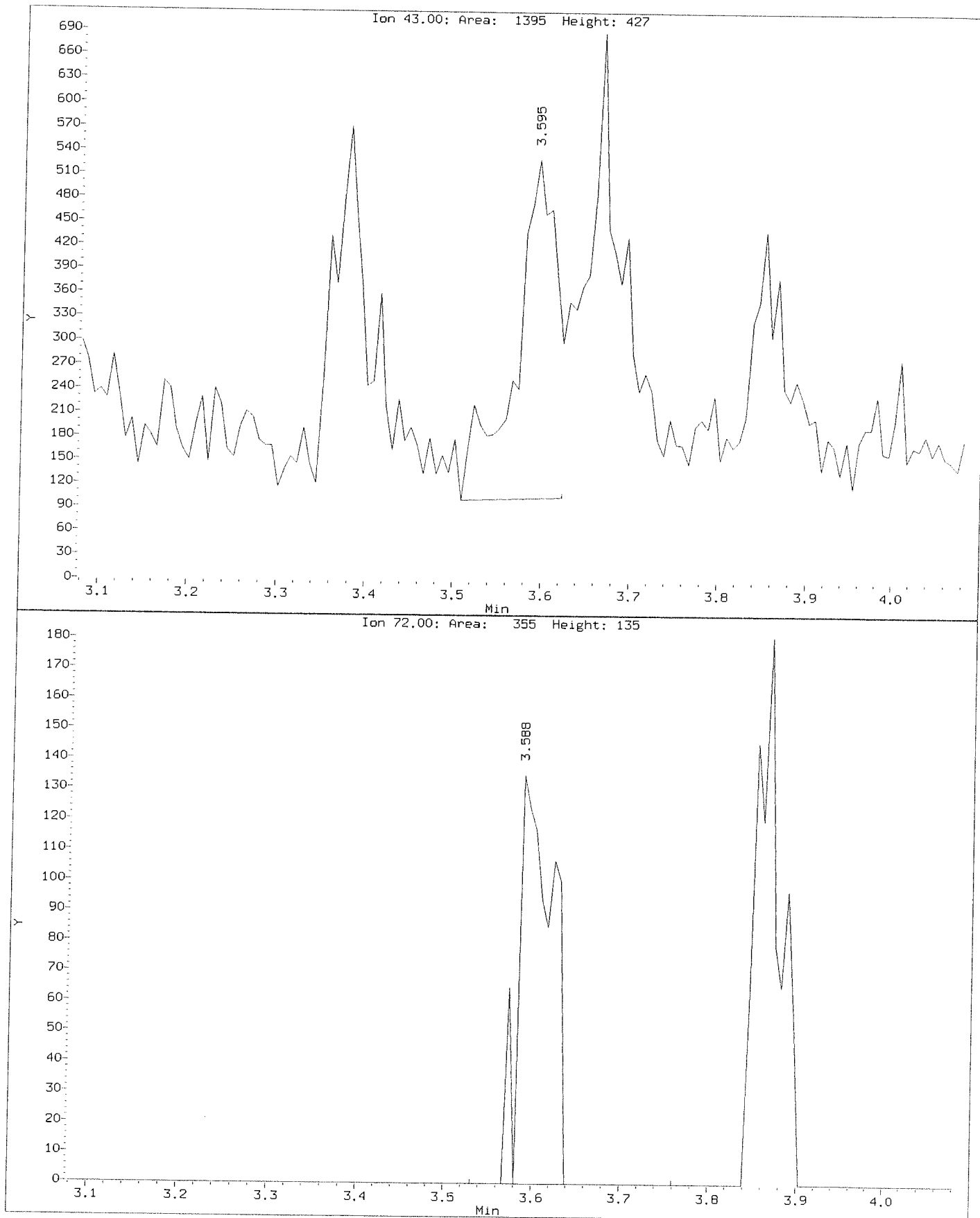
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Client Sample ID: VSTD000.5

Compound: 2-Butanone
CAS Number: 78-93-3



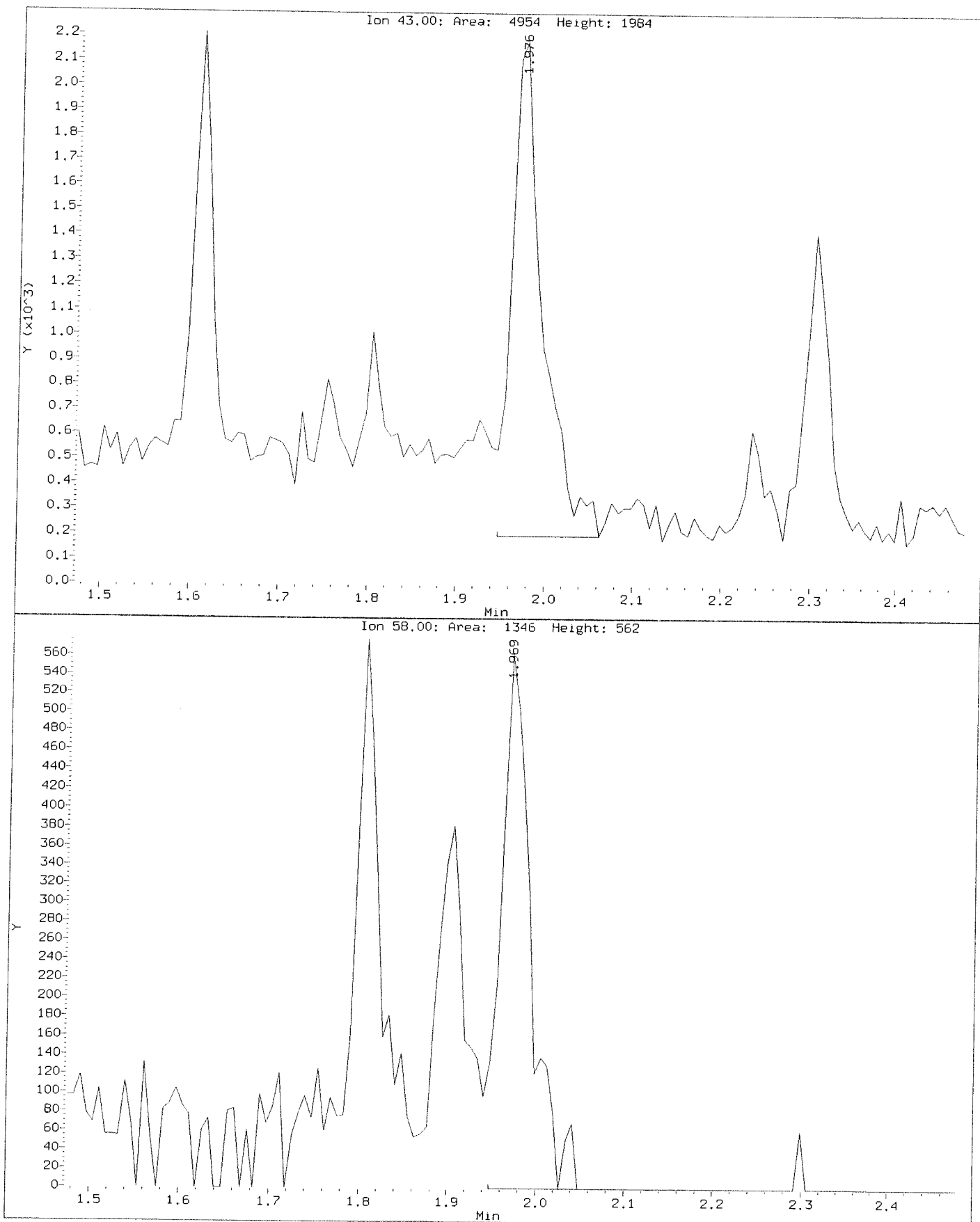
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Client Sample ID: VSTD000.5

Compound: 2-Butanone
CAS Number: 78-93-3



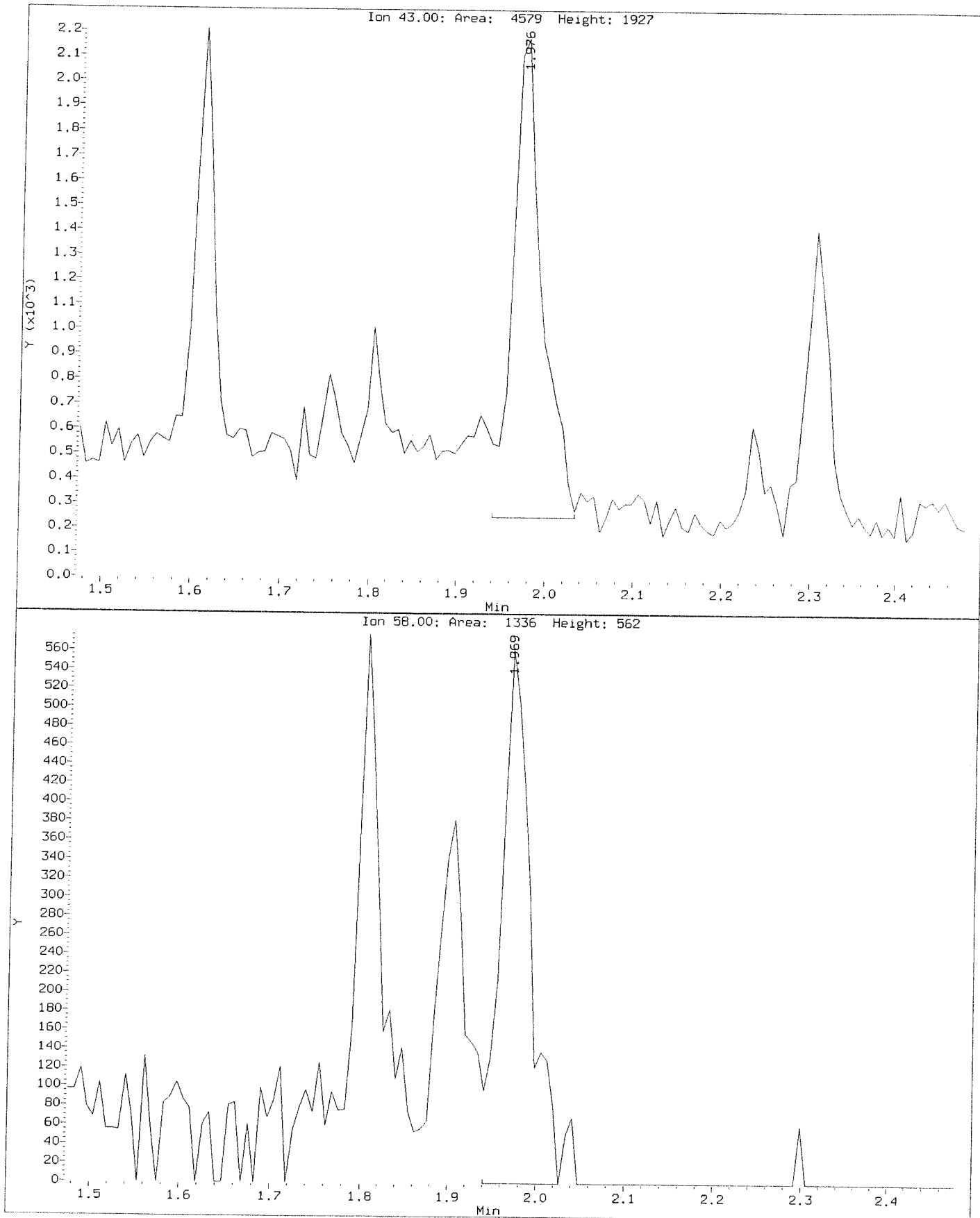
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Client Sample ID: VSTD000.5

Compound: Acetone
CAS Number: 67-64-1



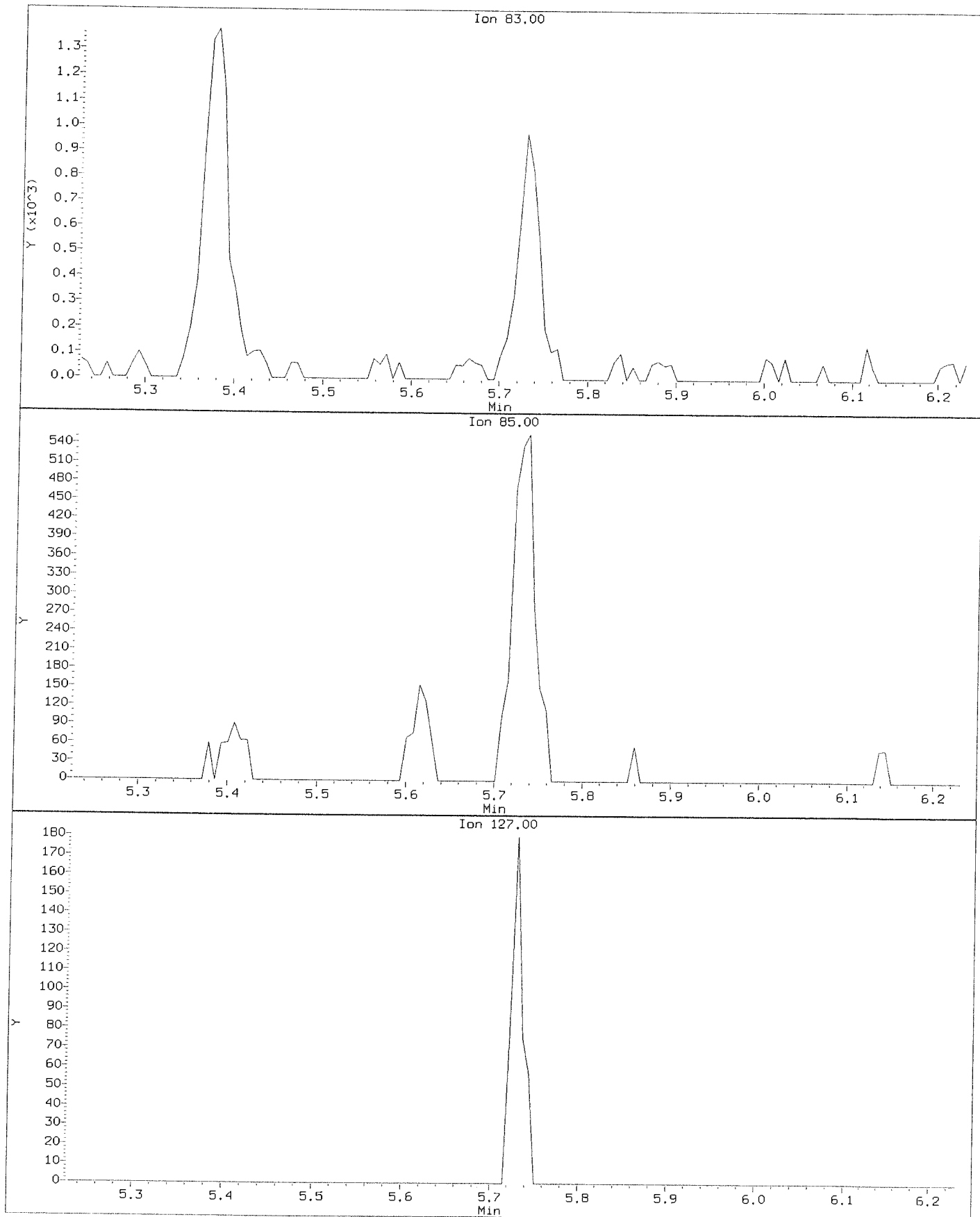
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Client Sample ID: VSTD000.5

Compound: Acetone
CAS Number: 67-64-1



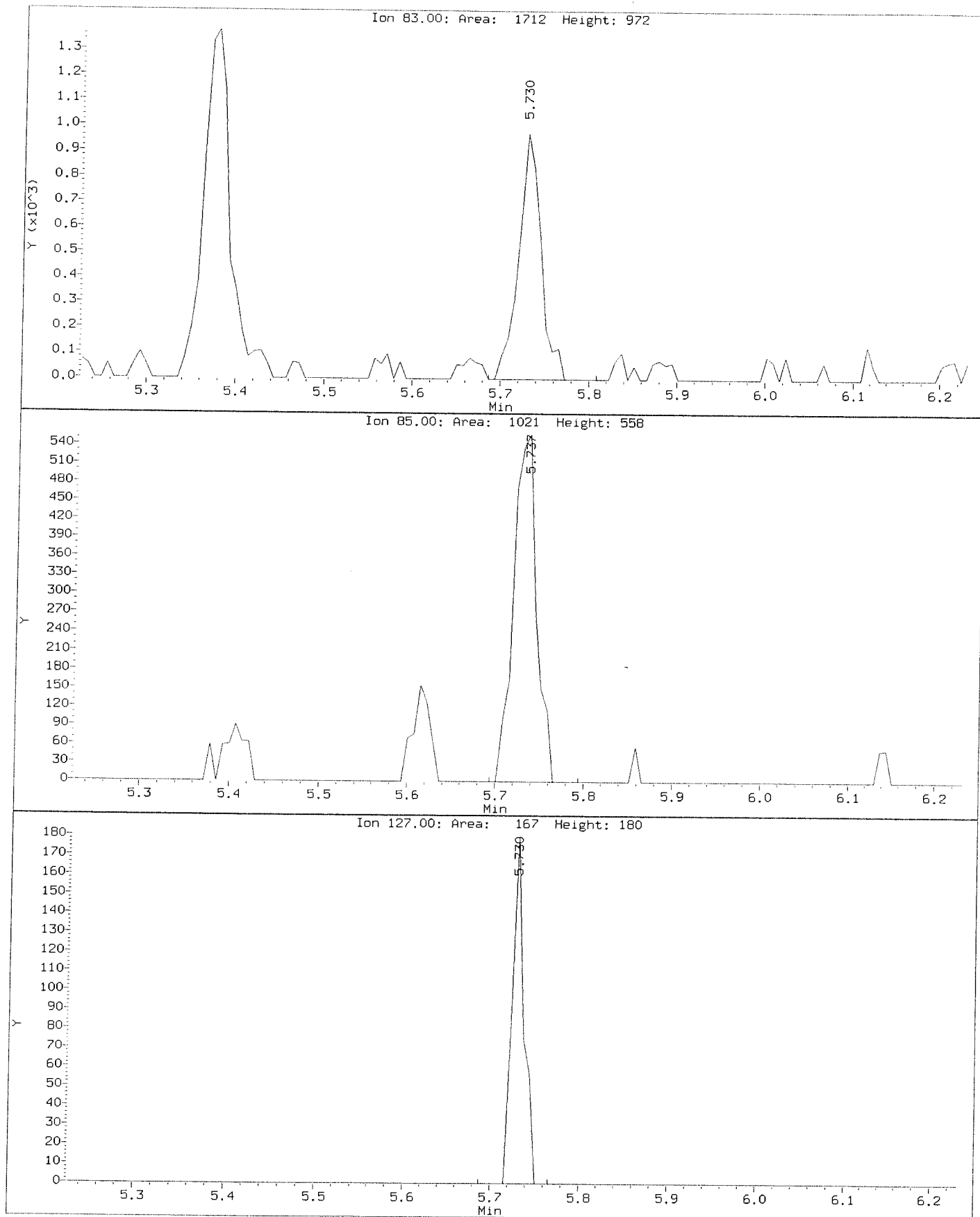
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Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



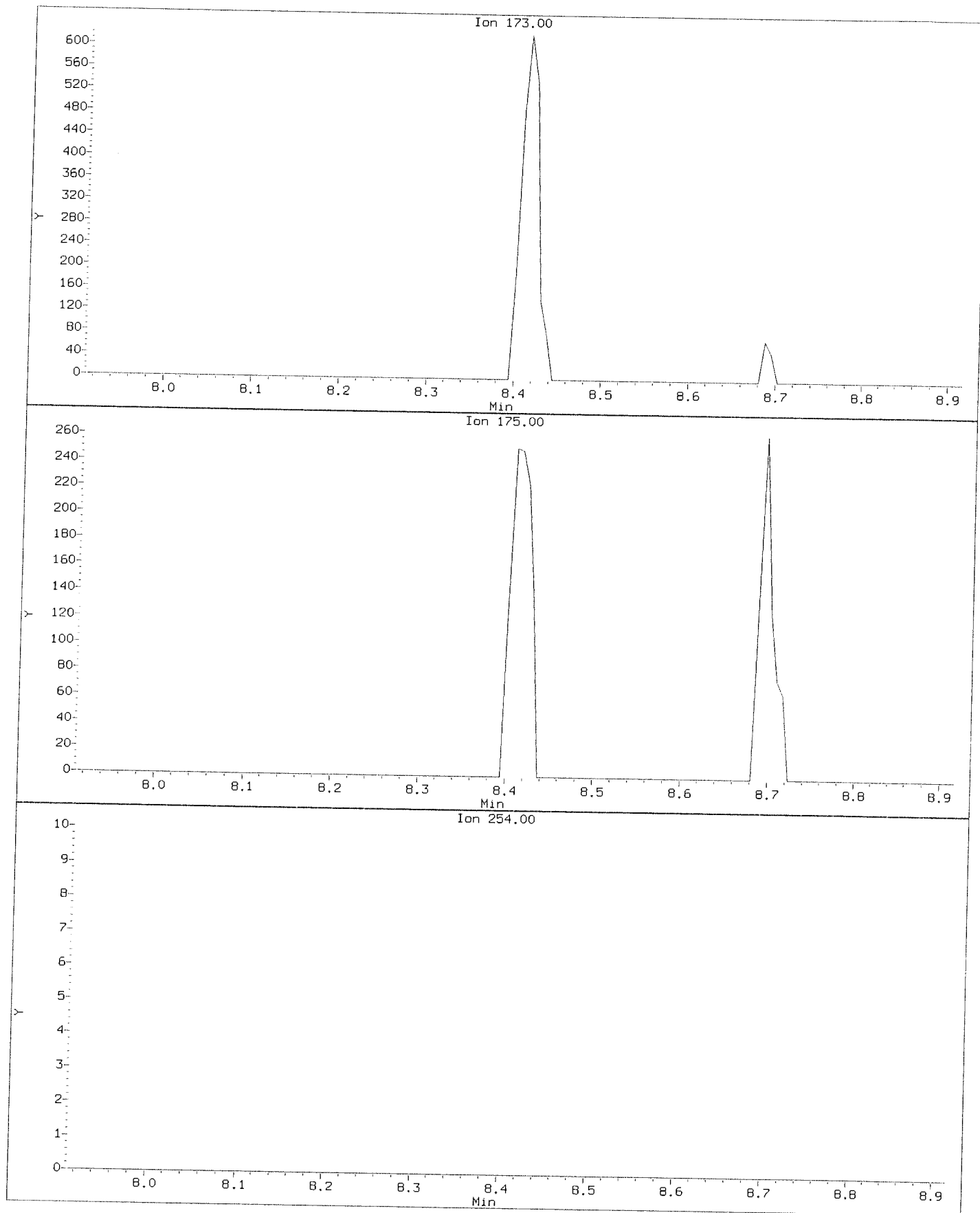
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Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



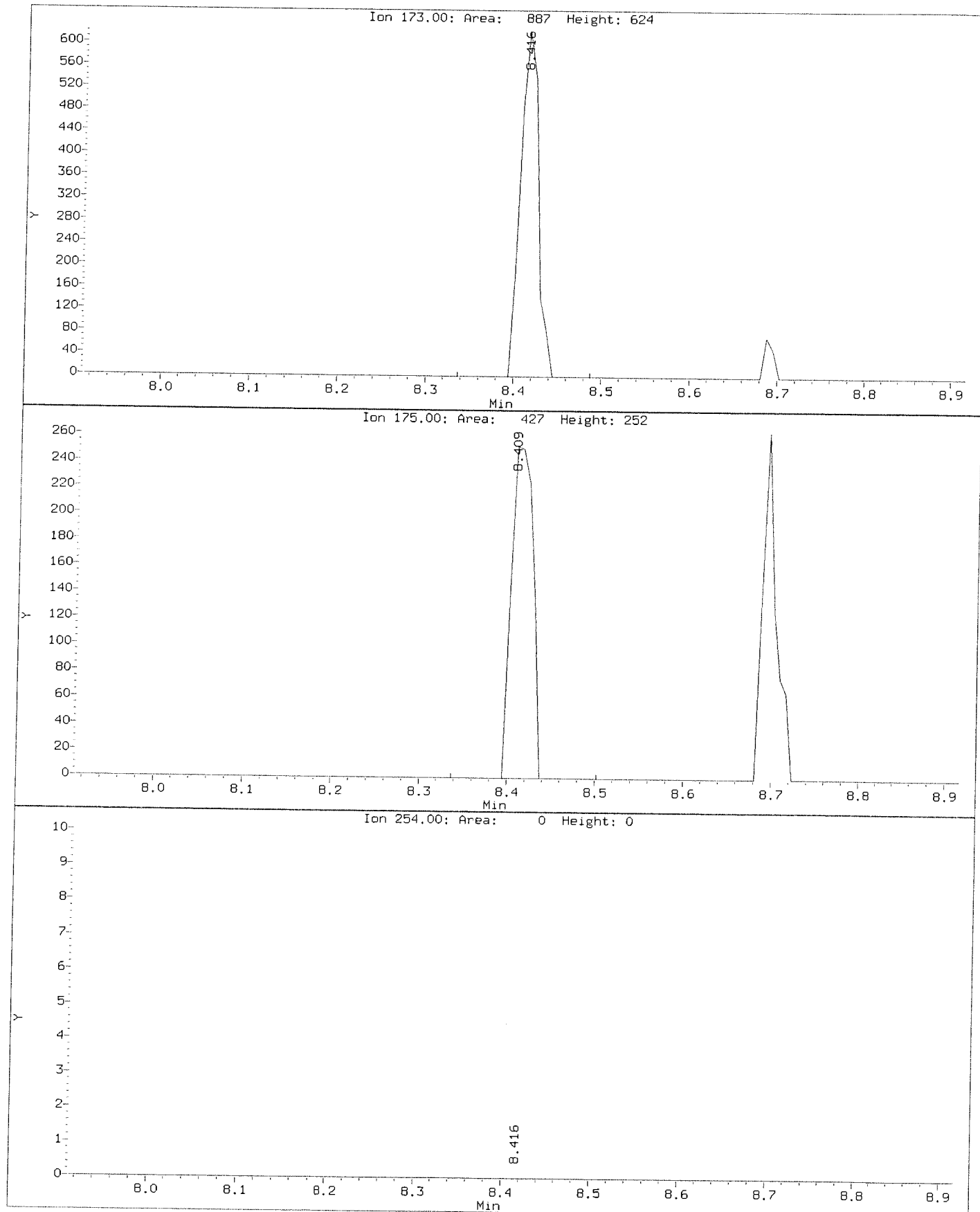
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: Bromoform
CAS Number: 75-25-2



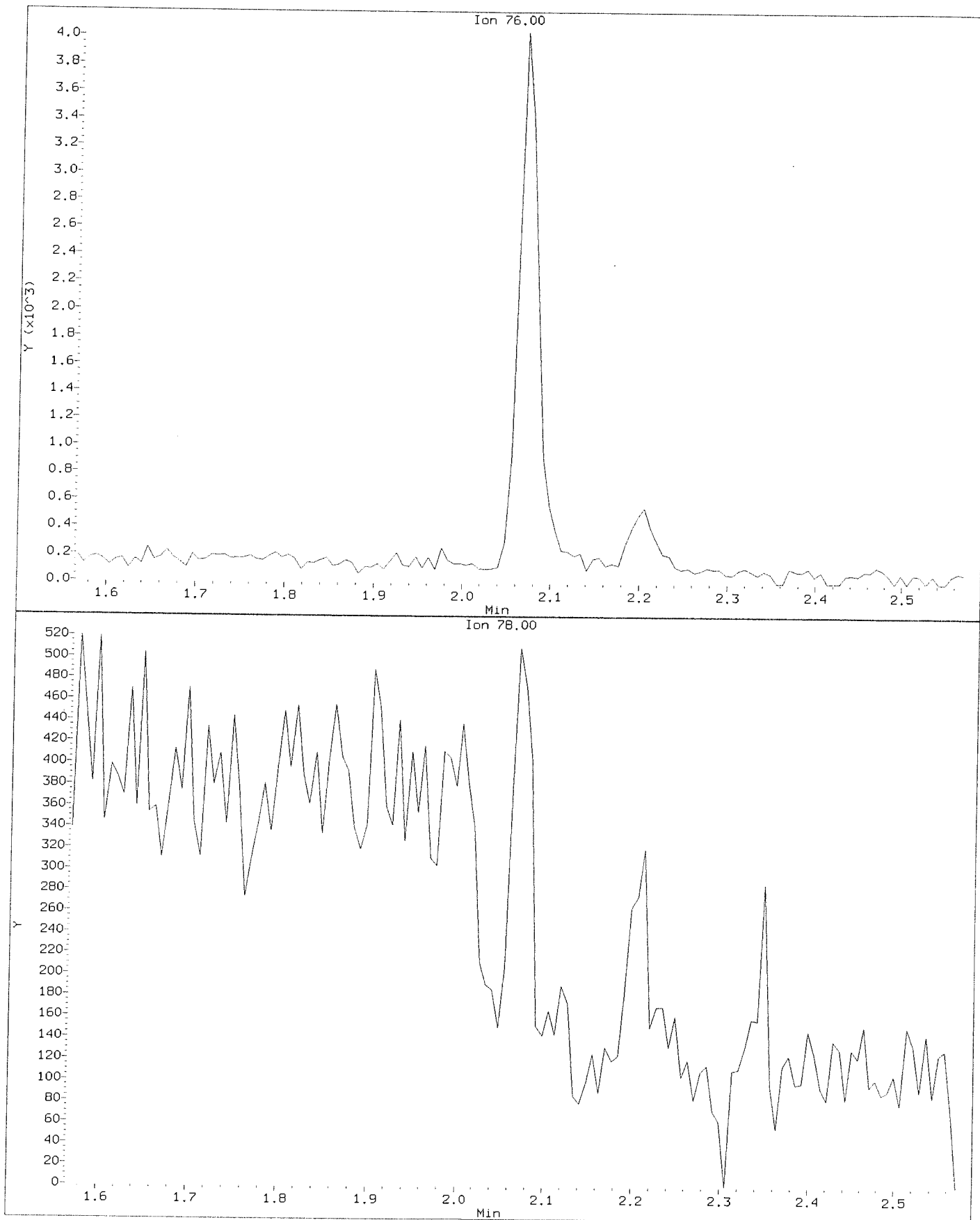
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Client Sample ID: VSTD000.5

Compound: Bromoform
CAS Number: 75-25-2



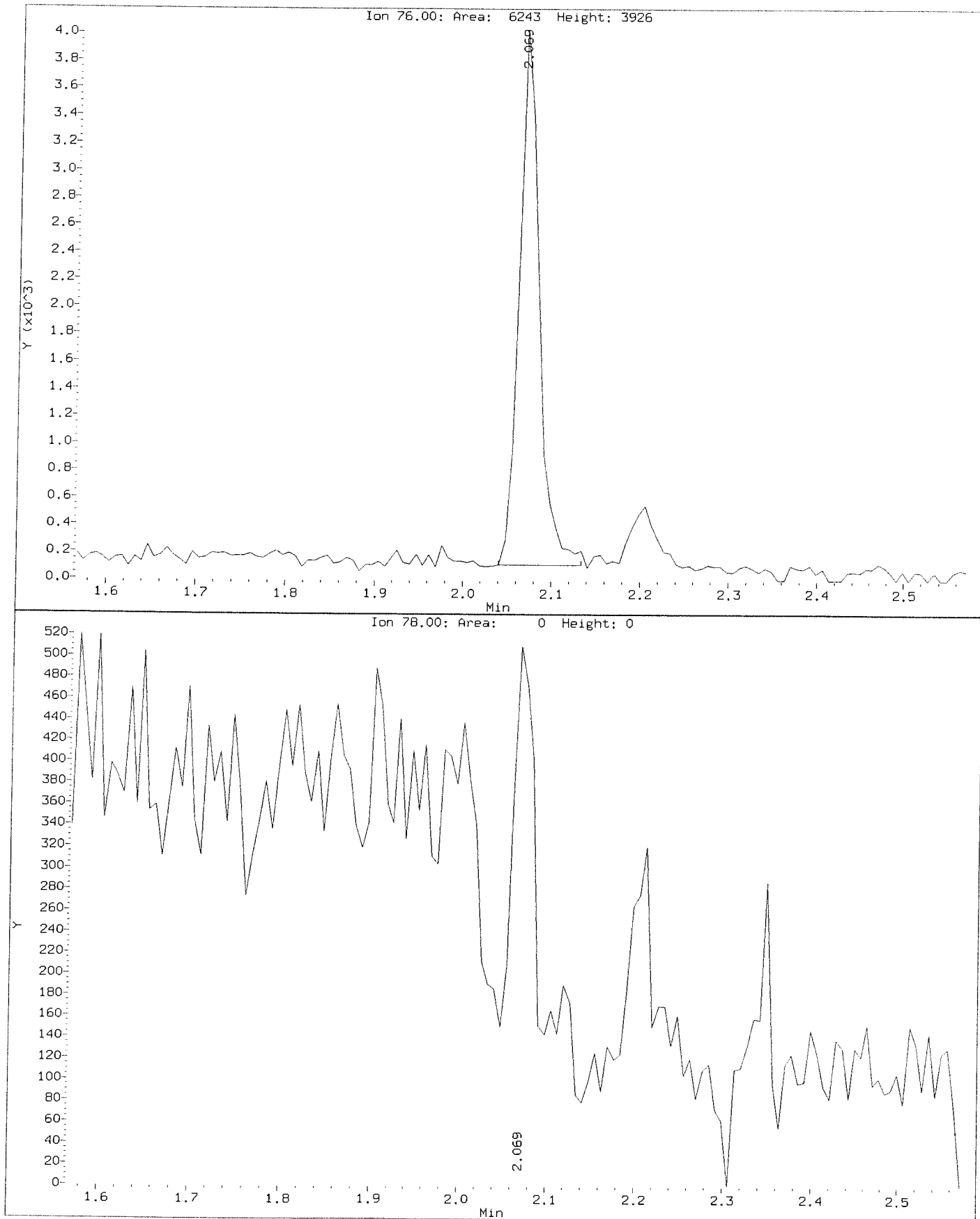
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Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Carbon Disulfide
CAS Number: 75-15-0



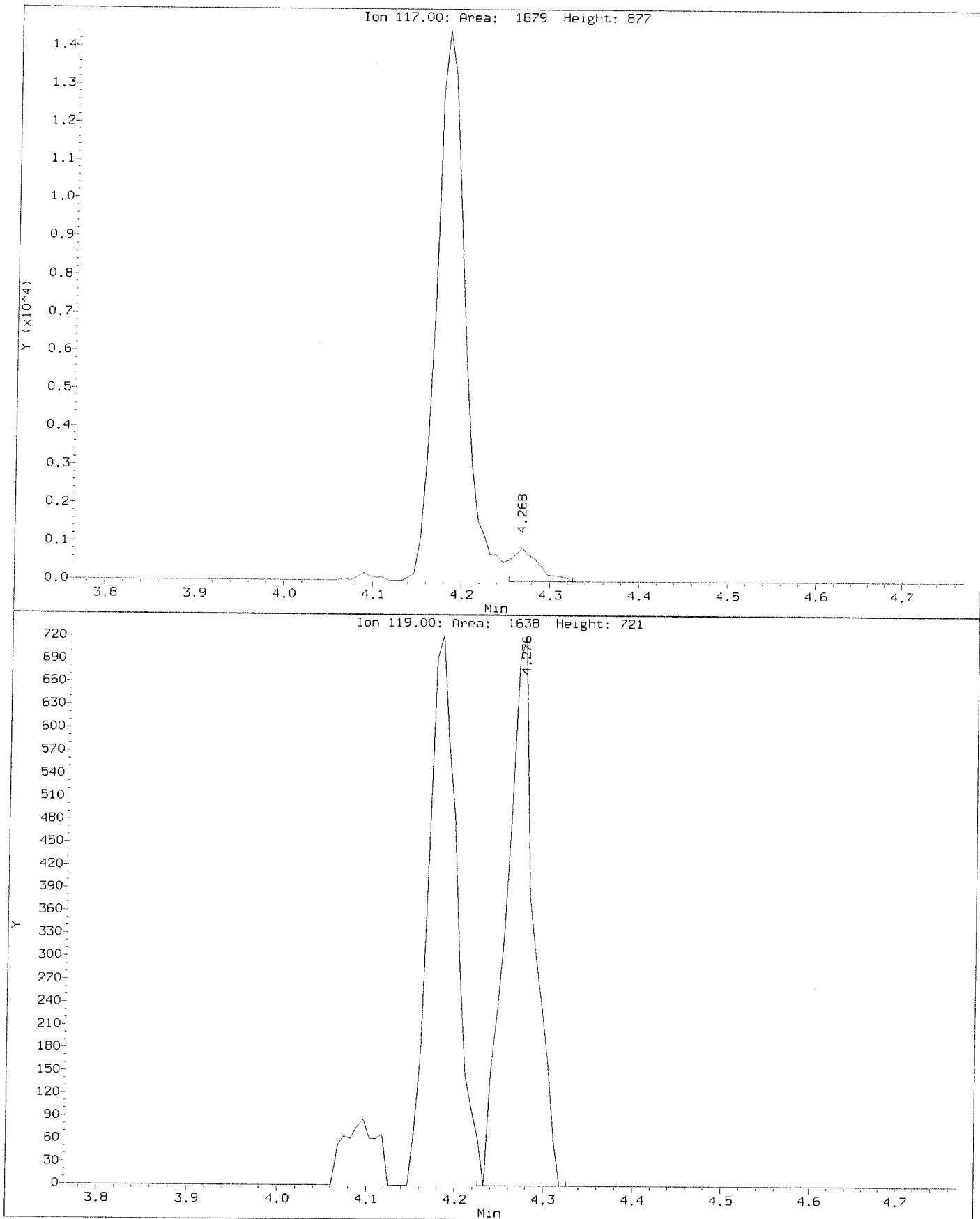
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Client Sample ID: VSTD000.5

Compound: Carbon Disulfide
CAS Number: 75-15-0



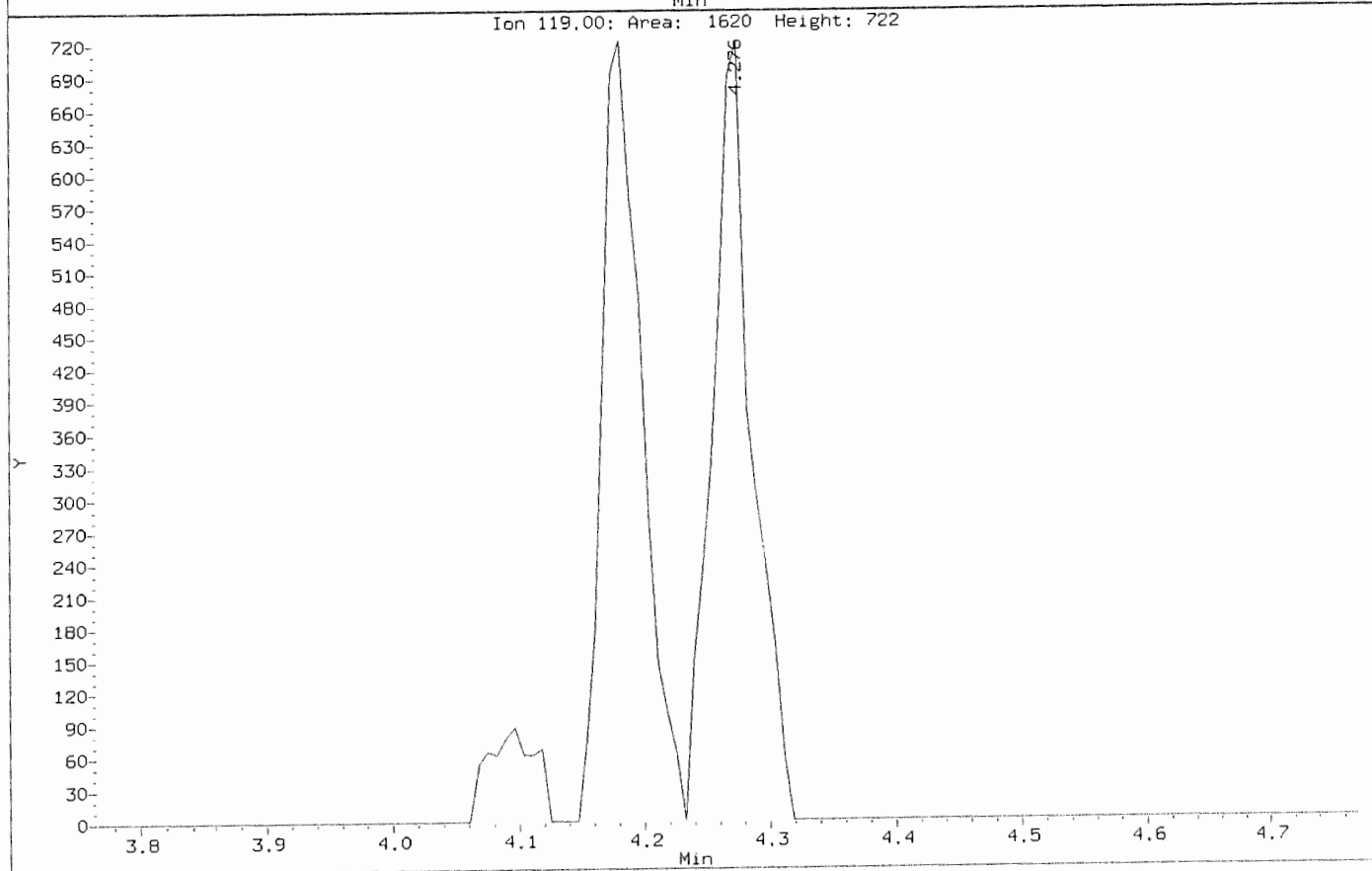
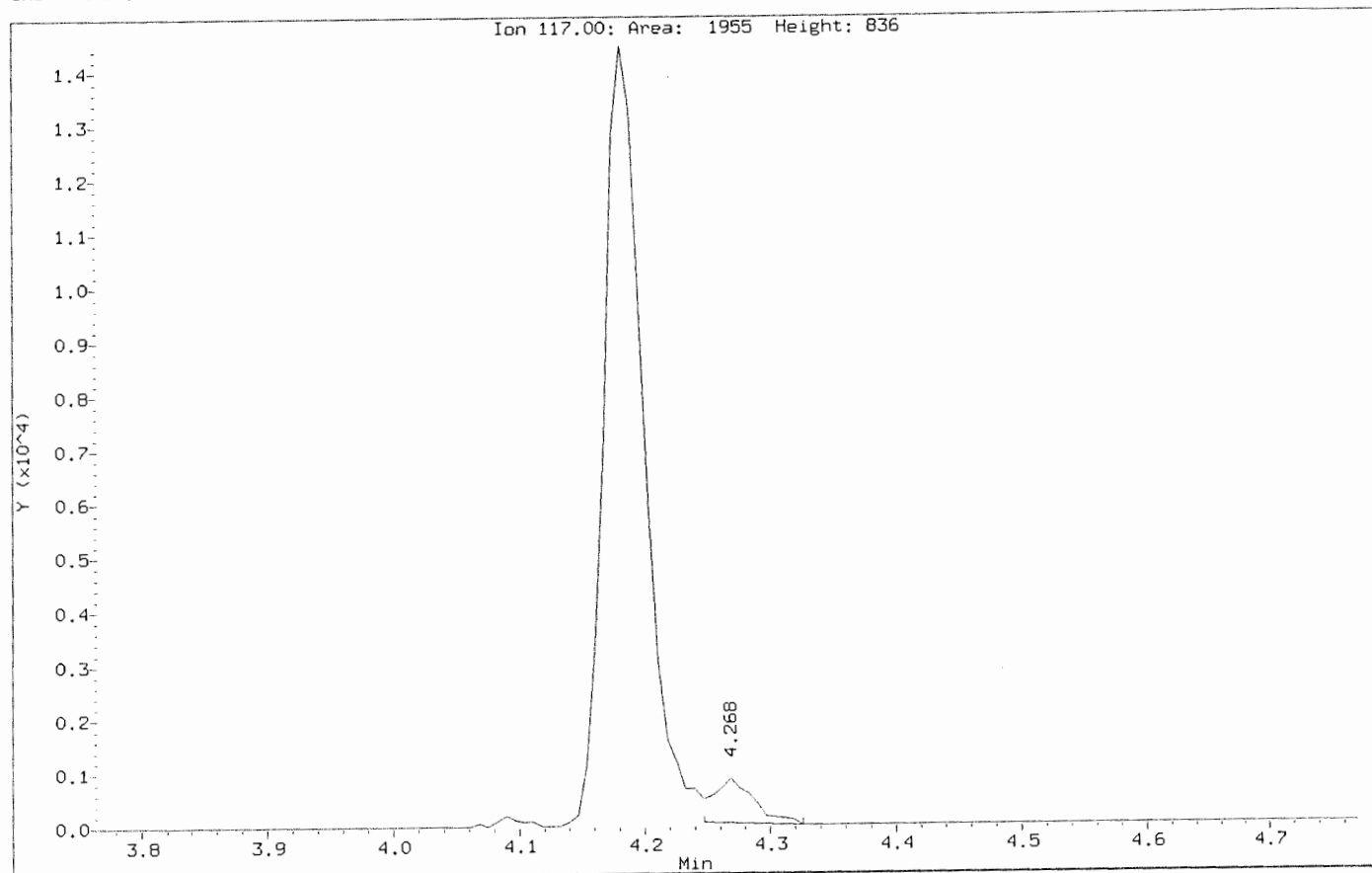
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Injection Date: 18-NOV-2019 14:35
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Client Sample ID: VSTD000.5

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



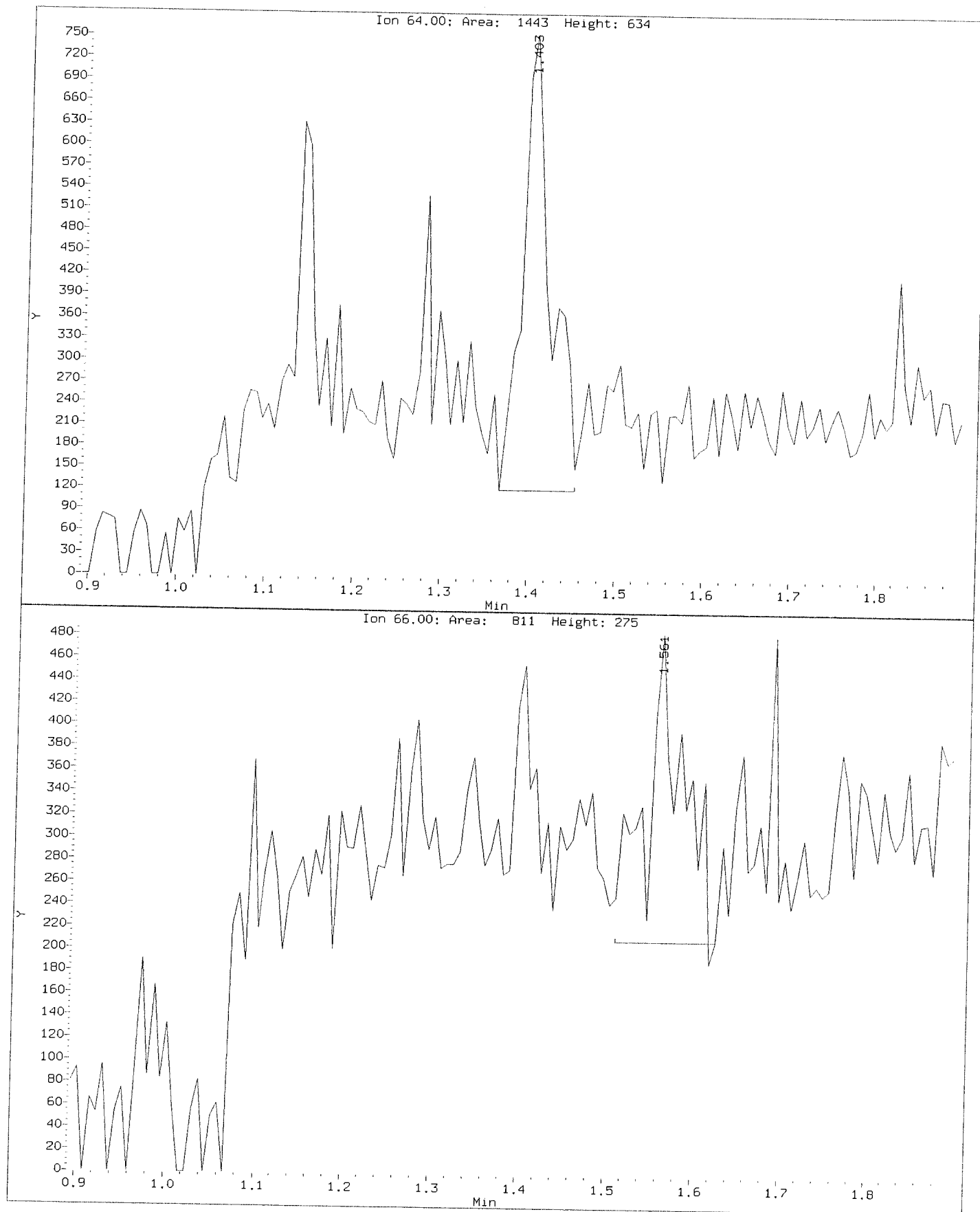
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Client Sample ID: VSTD000.5

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



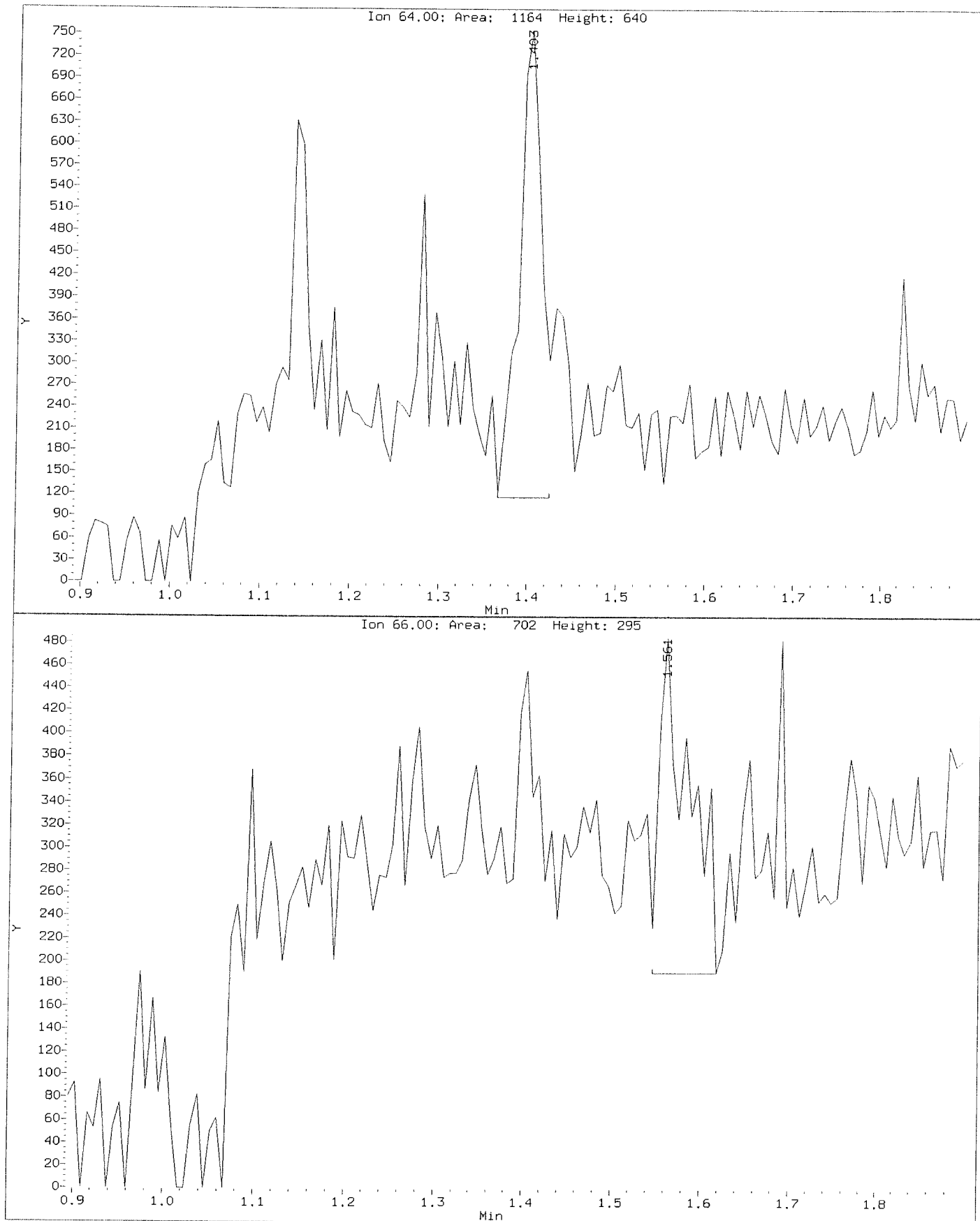
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Injection Date: 18-NOV-2019 14:35
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Client Sample ID: VSTD000.5

Compound: Chloroethane
CAS Number: 75-00-3



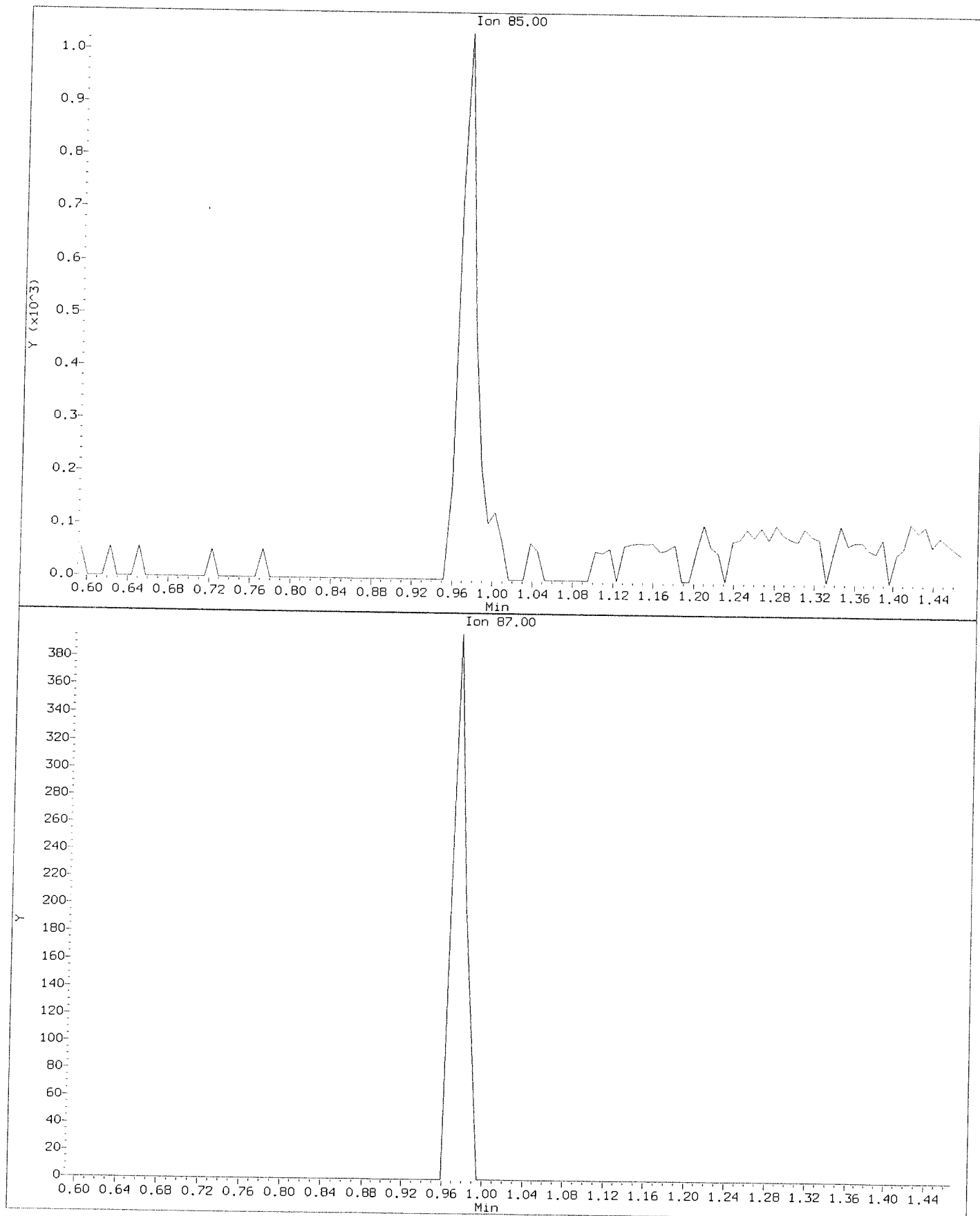
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Client Sample ID: VSTD000.5

Compound: Chloroethane
CAS Number: 75-00-3



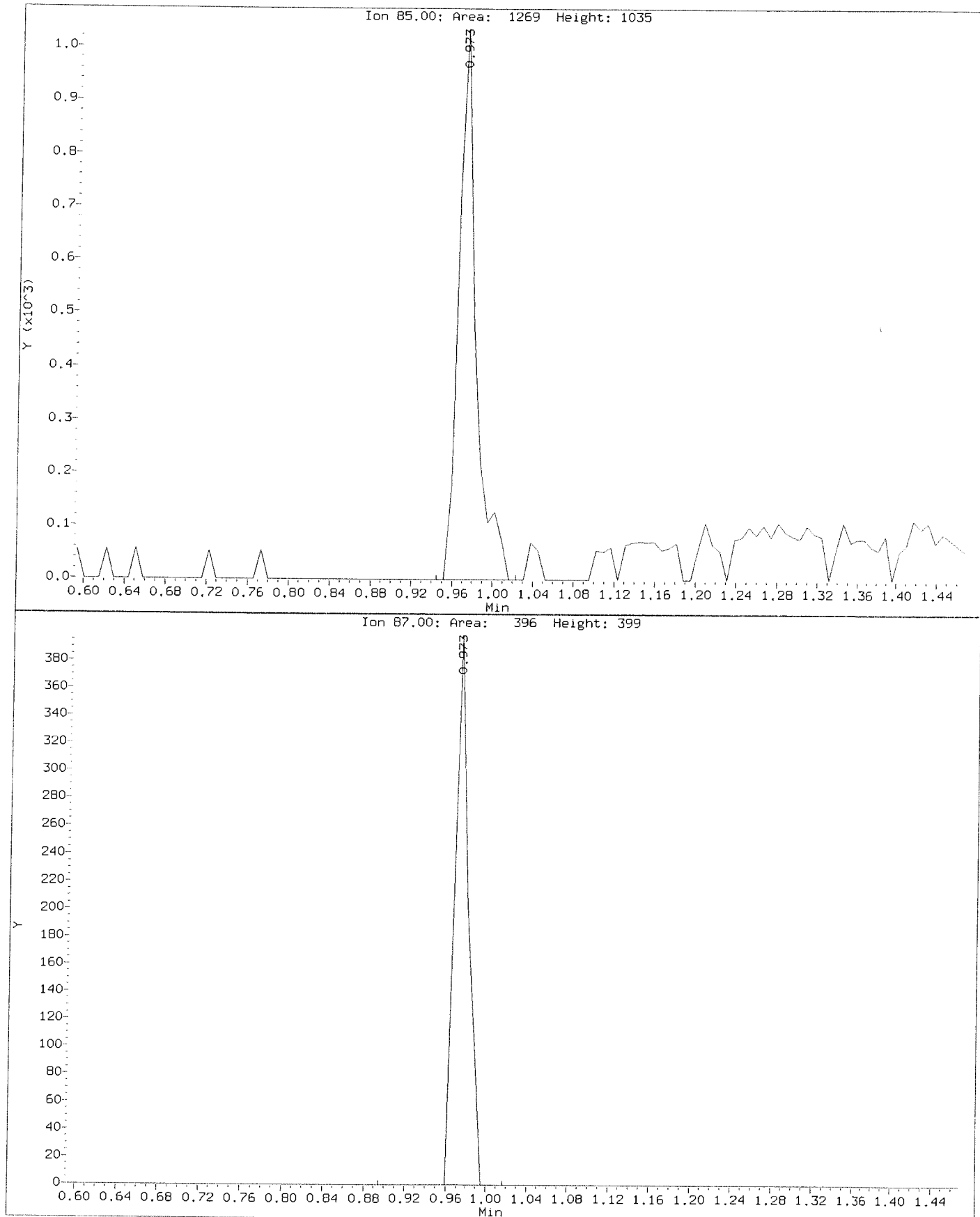
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Injection Date: 18-NOV-2019 14:35
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Client Sample ID: VSTD000.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



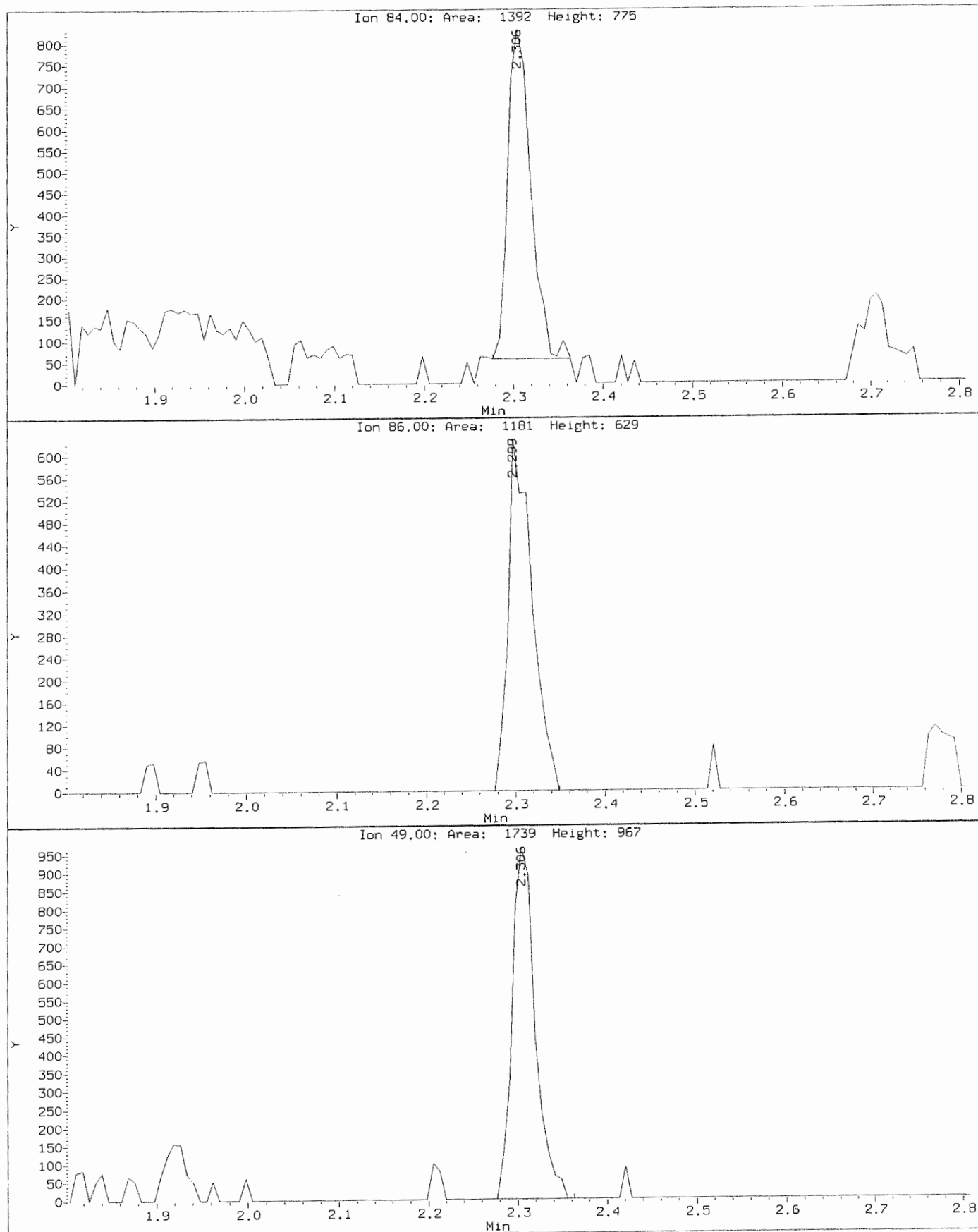
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Client Sample ID: VSTD000.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



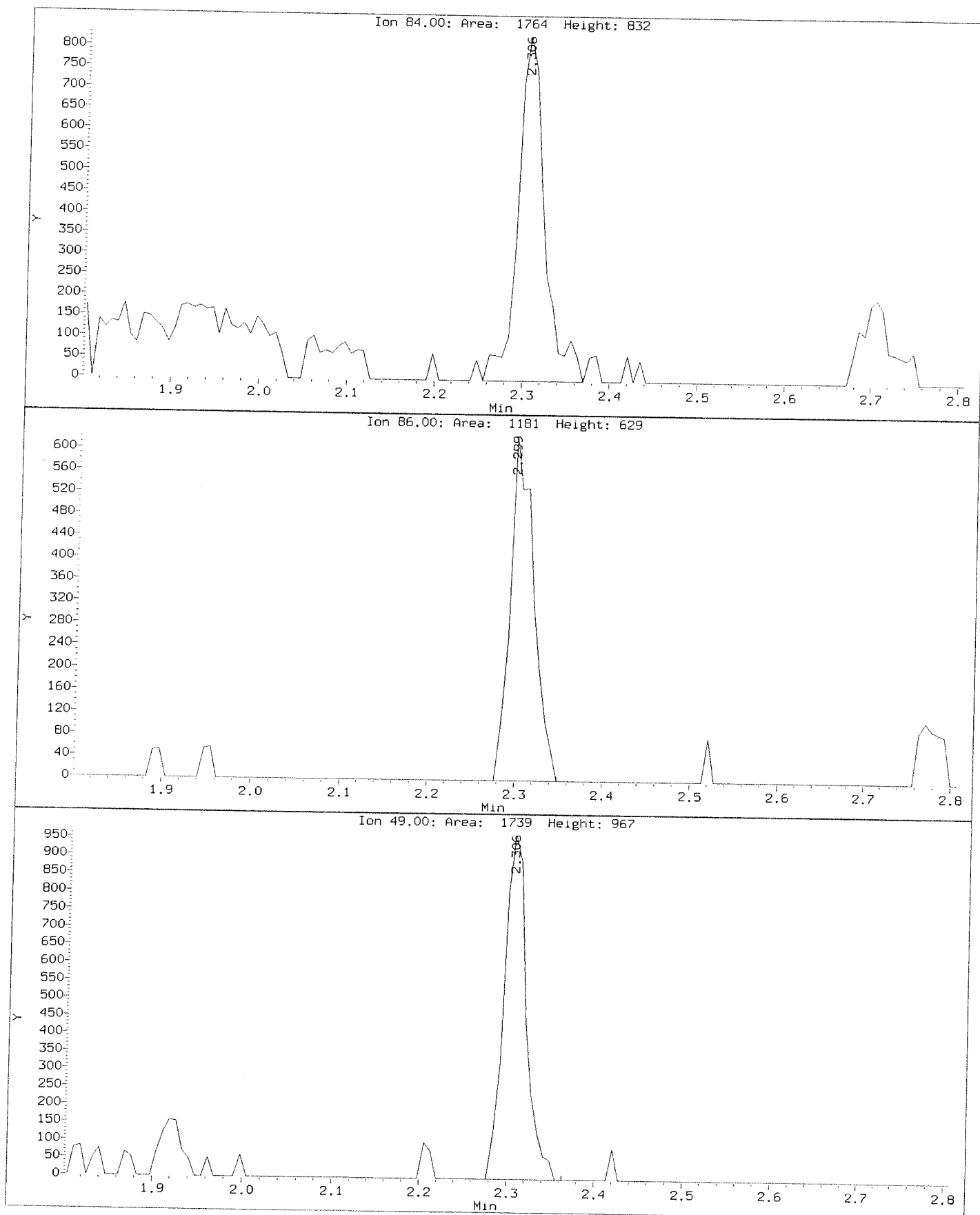
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Client Sample ID: VSTD000.5

Compound: Methylene Chloride
CAS Number: 75-09-2



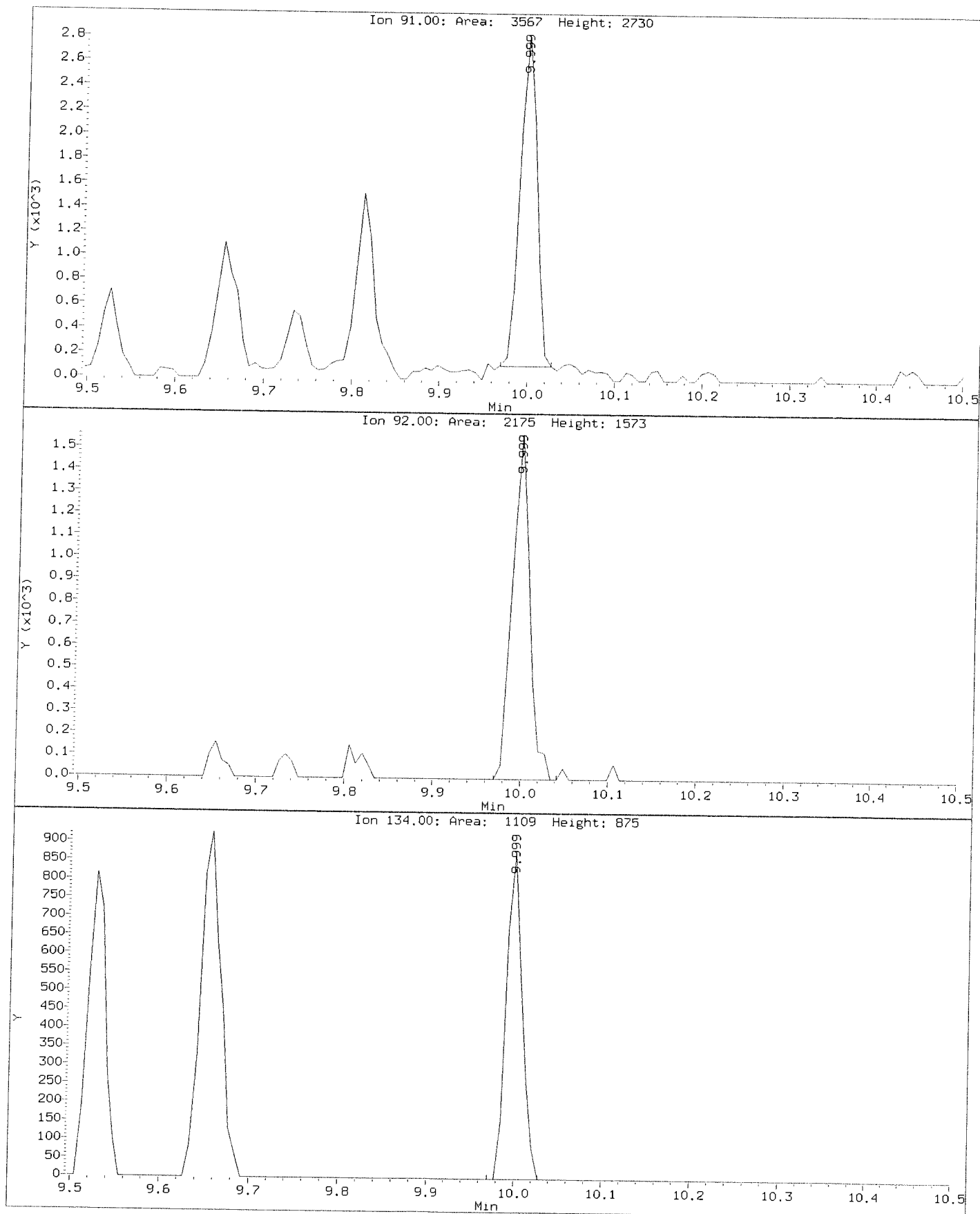
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Client Sample ID: VSTD000.5

Compound: Methylene Chloride
CAS Number: 75-09-2



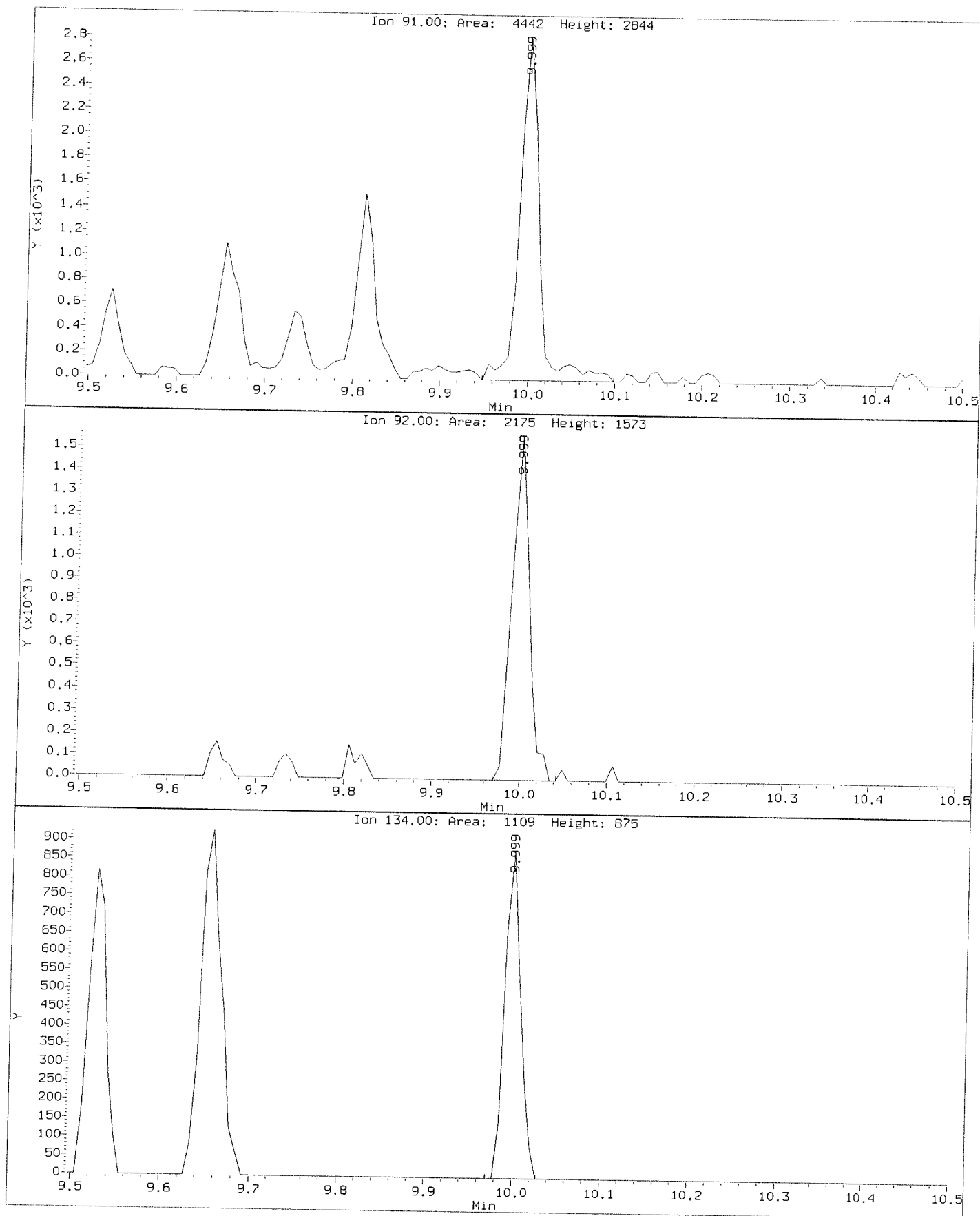
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: n-Butylbenzene
CAS Number: 104-51-8



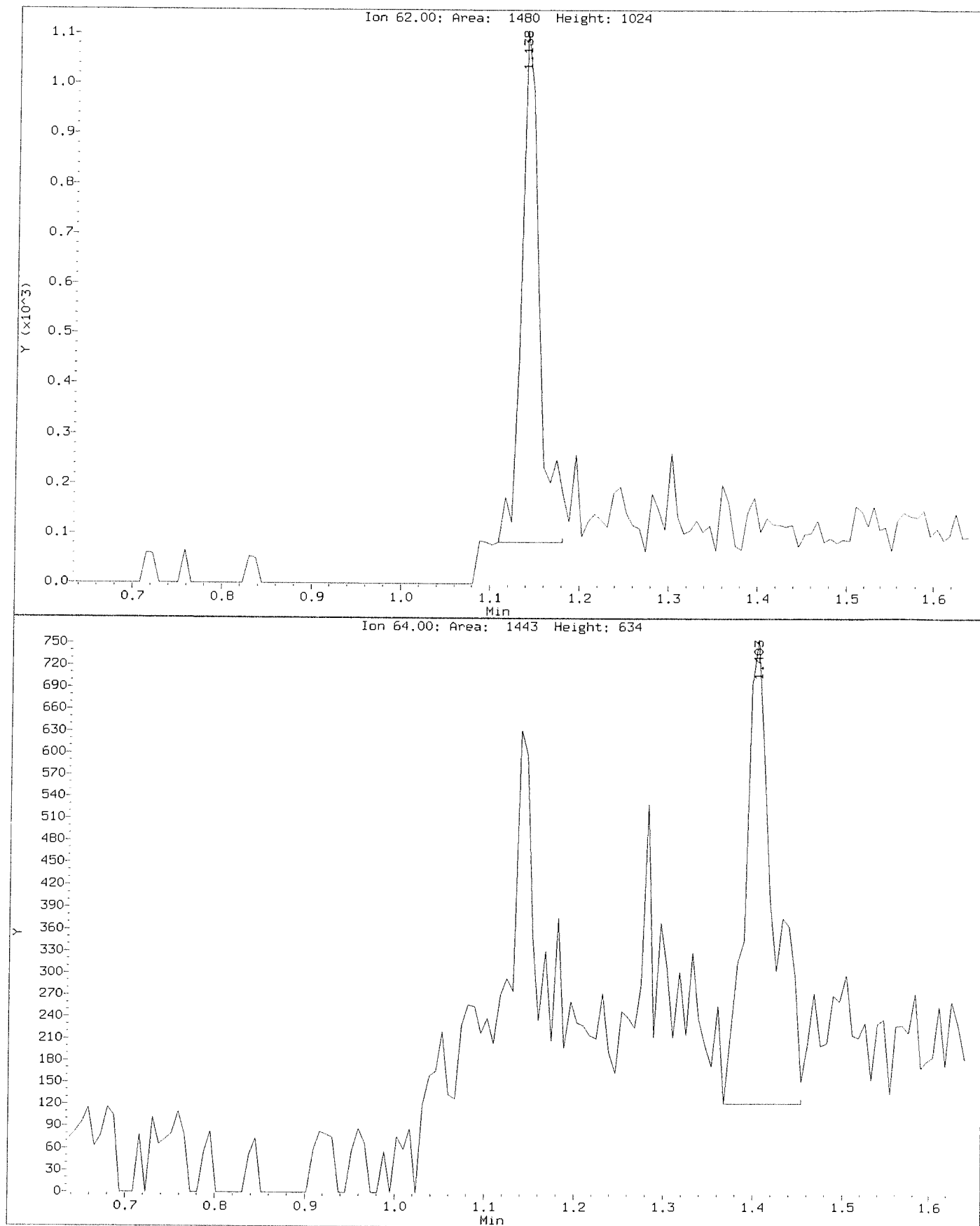
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: n-Butylbenzene
CAS Number: 104-51-8



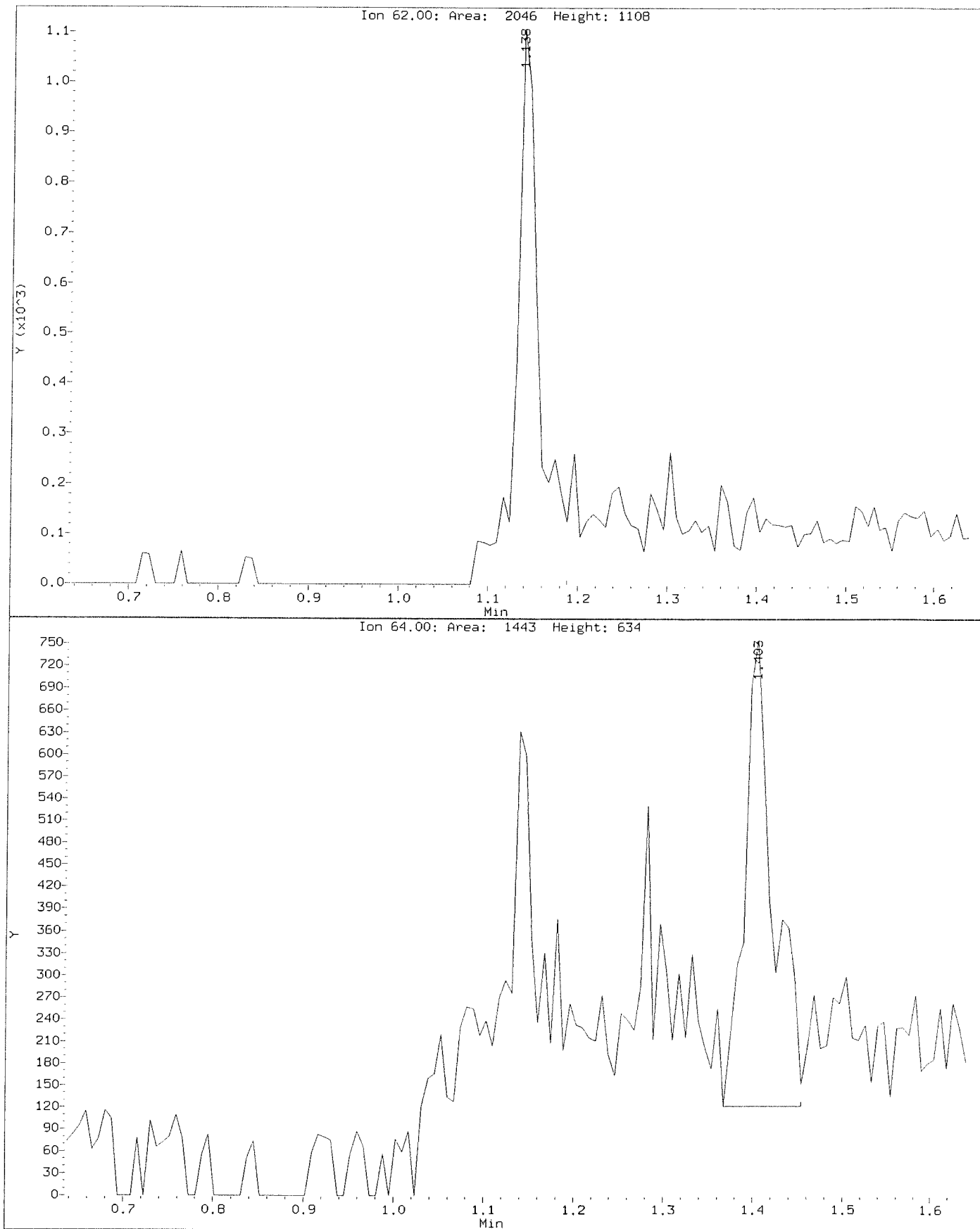
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.1\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D
 Lab Smp Id: VSTD001 Client Smp ID: VSTD001
 Inj Date : 18-NOV-2019 14:59
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD001;VSTD001;1;3;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
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 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 14:35 Cal File: X111803.D
 Als bottle: 5 Calibration Sample, Level: 3
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

QUANT SIG						AMOUNTS	
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	416007	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	570122	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	516622	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	279609	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	4458	1.00000	1.85 (a)
\$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	5731	1.00000	1.60 (a)
\$ 30 Dibromofluoromethane	113	4.104	4.104	(0.981)	3882	1.00000	1.38 (a)
\$ 48 Toluene-d8	98	6.389	6.389	(0.833)	13715	1.00000	1.00 (a)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	4166	1.00000	1.11 (a)
31 1,1,1-Trichloroethane	97	4.082	4.082	(0.976)	6451	1.00000	1.14 (a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	4719	1.00000	1.20 (aM)
138 Freon TF	101	1.919	1.919	(0.459)	4065	1.00000	1.12 (a)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	3216	1.00000	1.19 (a)
22 1,1-Dichloroethane	63	2.929	2.929	(0.700)	6907	1.00000	1.14 (a)
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	3522	1.00000	0.99 (a)
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	5427	1.00000	1.18 (a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	1182	1.00000	0.29 (a)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	4081	1.00000	1.22 (aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	2432	1.00000	1.03 (aM)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	14648	1.00000	1.10 (a)
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	464	1.00000	0.73 (aM)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	3982	1.00000	1.09 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	8297	1.00000	1.11 (a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	5359	1.00000	1.18 (a)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	3352	1.00000	0.98 (aM)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	13162	1.00000	1.03 (a)
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	8955	1.00000	1.11 (a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	6334	1.00000	1.15 (a)
84 1,4-Dichlorobenzene	146	9.684	9.684	(1.001)	9129	1.00000	1.12 (a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	6785	1.00000	1.23 (a)
24 2-Butanone	43	3.588	3.588	(0.858)	2602	2.00000	2.03 (a)
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	11127	1.00000	1.10 (a)
52 2-Hexanone	43	7.090	7.090	(0.924)	4893	2.00000	2.30 (a)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	13982	1.00000	1.14 (a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	14705	1.00000	1.07 (a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	6643	2.00000	2.19 (a)
10 Acetone	43	1.969	1.969	(0.471)	5956	2.00000	1.88 (a)
37 Benzene	78	4.519	4.519	(0.909)	15129	1.00000	1.16 (a)
74 Bromobenzene	156	8.810	8.810	(0.911)	5611	1.00000	1.15 (a)
29 Bromochloromethane	128	3.803	3.803	(0.909)	2687	1.00000	1.19 (a)
39 Bromodichloromethane	83	5.730	5.730	(1.153)	5583	1.00000	1.18 (aM)
66 Bromoform	173	8.416	8.416	(1.097)	3197	1.00000	2.01 (Ta)
6 Bromomethane	94	1.339	1.339	(0.320)	6334	1.00000	(aM)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	20920	2.00000	2.18 (a)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	5740	1.00000	1.13 (aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	11449	1.00000	1.13 (a)
7 Chloroethane	64	1.403	1.403	(0.336)	3001	1.00000	1.14 (aM)
28 Chloroform	83	3.910	3.910	(0.935)	8234	1.00000	1.22 (a)
3 Chloromethane	50	1.074	1.074	(0.257)	6118	1.00000	1.53 (aM)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	4494	1.00000	1.13 (a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	6302	1.00000	1.13 (a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	4470	1.00000	1.13 (a)
44 Dibromomethane	93	5.558	5.558	(1.118)	2789	1.00000	1.15 (a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	3829	1.00000	1.87 (aM)
61 Ethylbenzene	106	7.800	7.800	(1.017)	5813	1.00000	1.11 (a)
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	2468	1.00000	0.76 (a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	16809	1.00000	1.08 (a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	13495	2.00000	2.14 (a)
17 Methylene Chloride	84	2.306	2.306	(0.551)	4626	1.00000	1.22 (a)
87 n-Butylbenzene	91	9.999	9.999	(1.034)	11491	1.00000	1.00 (a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	18779	1.00000	1.08 (a)
92 Naphthalene	128	11.553	11.553	(1.195)	3182	1.00000	1.05 (a)
63 o-Xylene	106	8.244	8.244	(1.075)	6995	1.00000	1.12 (a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	15987	1.00000	1.06 (a)
64 Styrene	104	8.265	8.265	(1.078)	11719	1.00000	1.08 (a)
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	12122	1.00000	1.11 (a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	4263	1.00000	1.17 (a)
50 Toluene	91	6.453	6.453	(0.841)	16346	1.00000	1.11 (a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	4068	1.00000	1.18 (a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	5295	1.00000	1.04 (a)
38 Trichloroethene	130	5.214	5.214	(1.049)	4445	1.00000	1.11 (a)
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	6912	1.00000	1.07 (a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	4533	1.00000	1.06 (aM)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D Page 3
Report Date: 06-Dec-2019 19:56

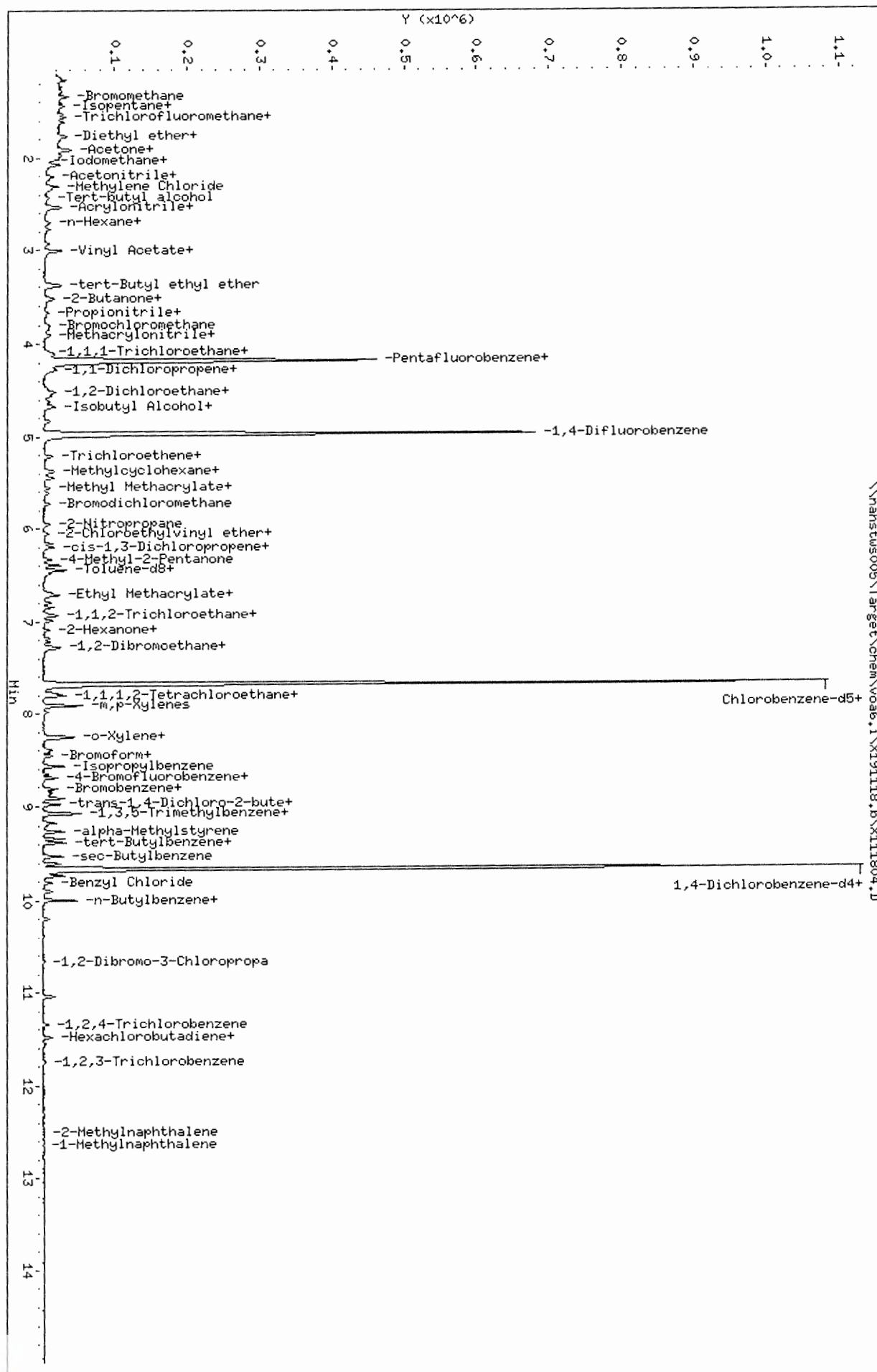
QC Flag Legend

- T - Target compound detected outside RT window.
- a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
- M - Compound response manually integrated.



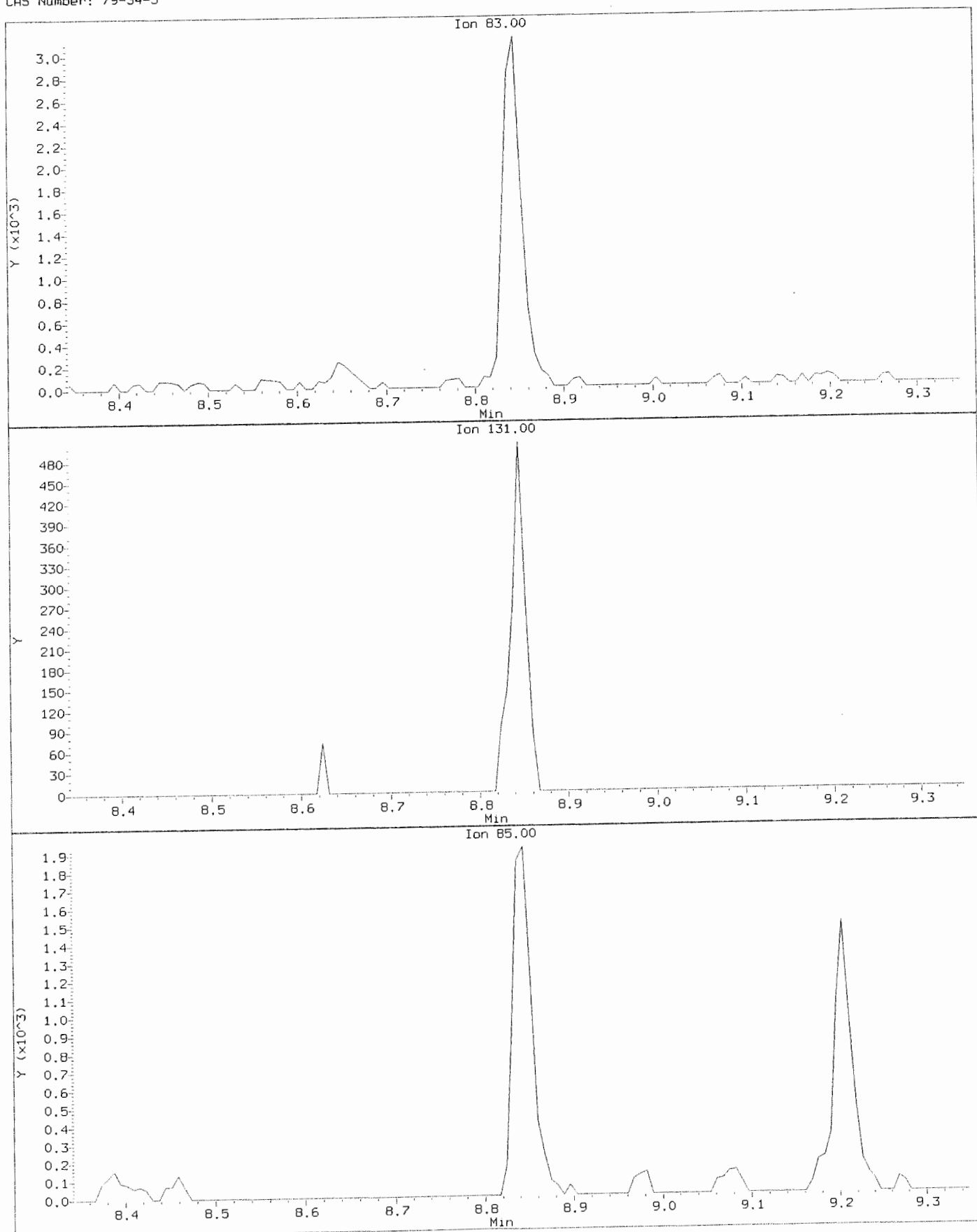
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 Date: 18-Nov-2019 14:59
 Client ID: VSTD001
 Sample Info: VSTD001;VSTD001;1;3;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



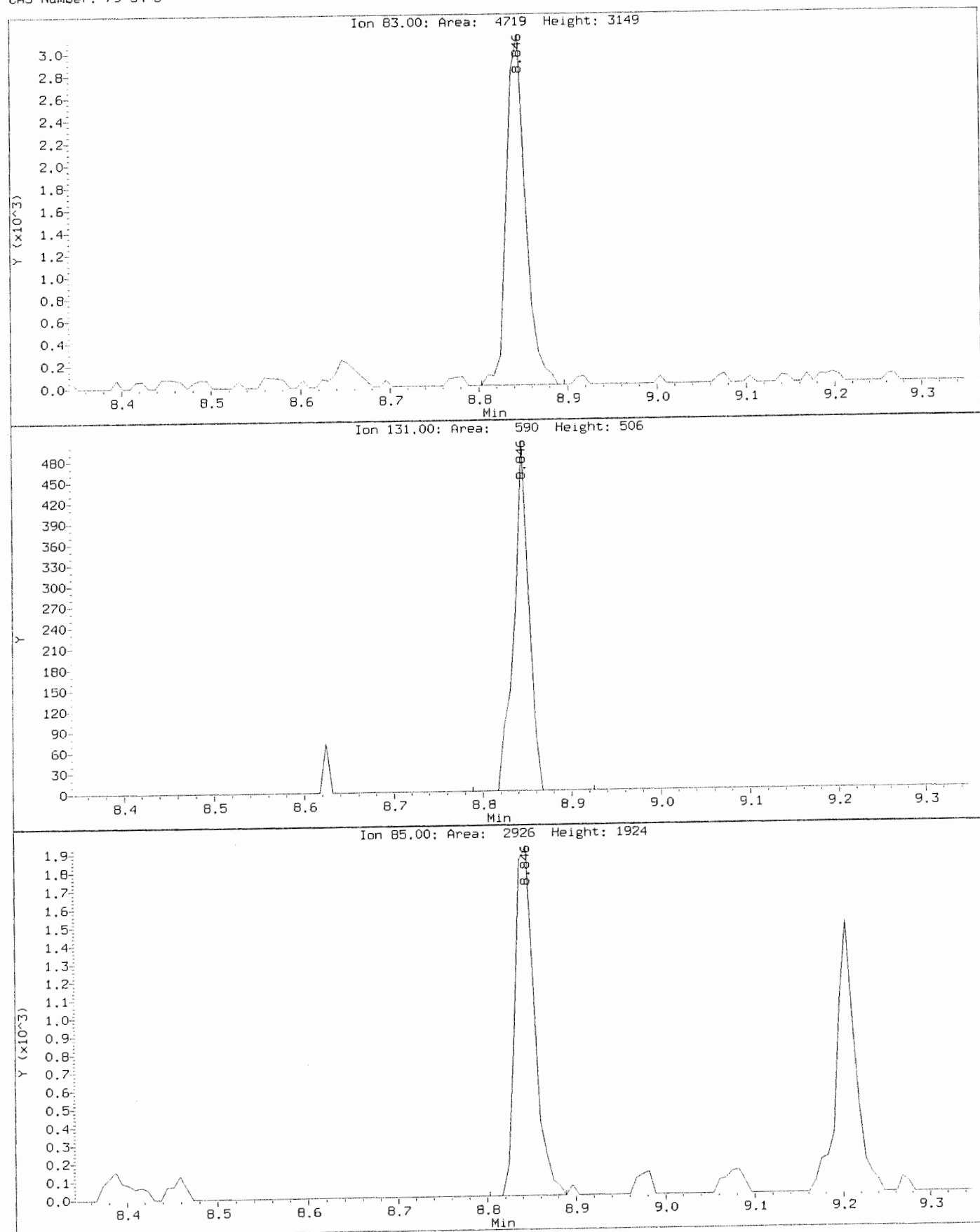
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Injection Date: 18-NOV-2019 14:59
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Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



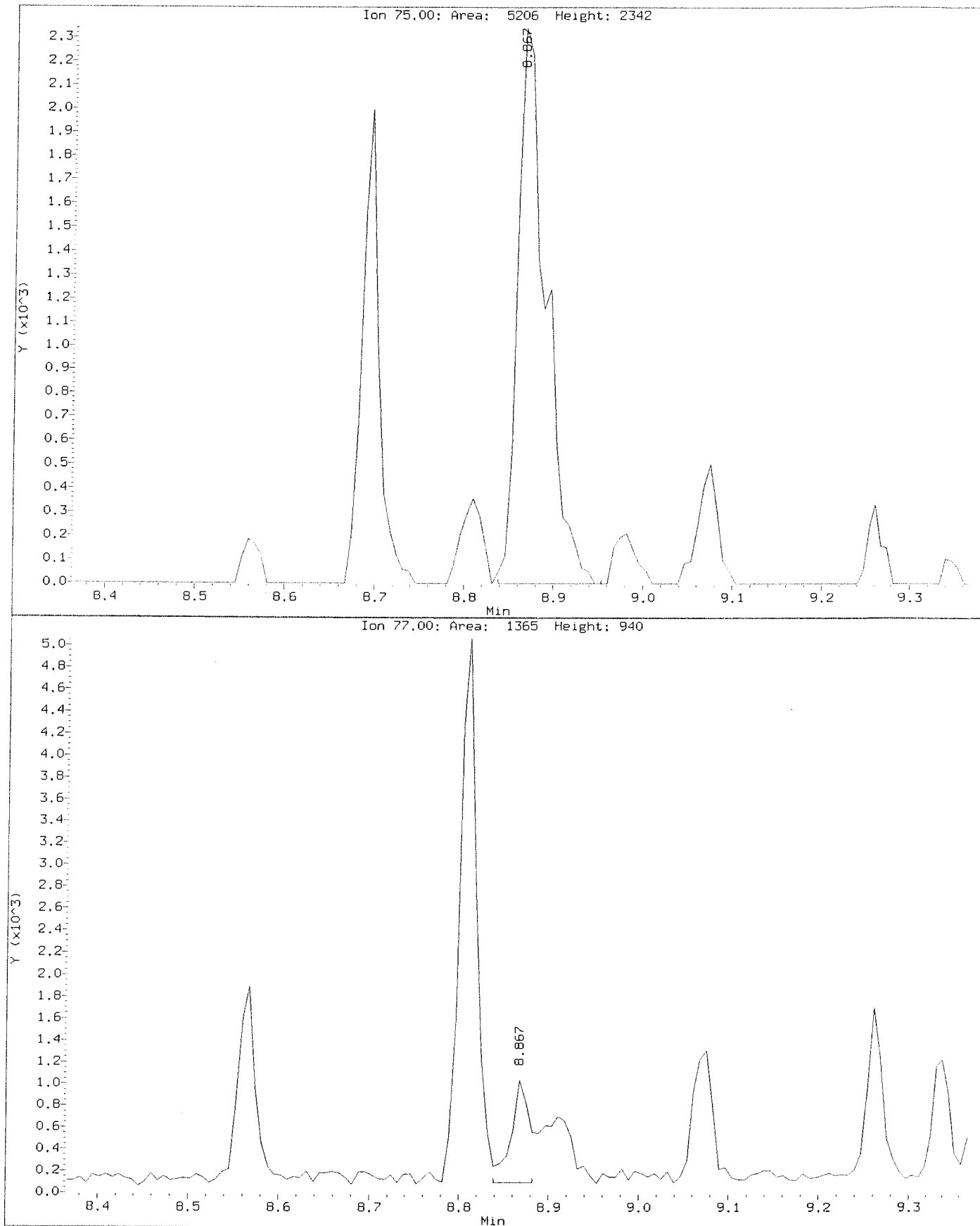
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Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



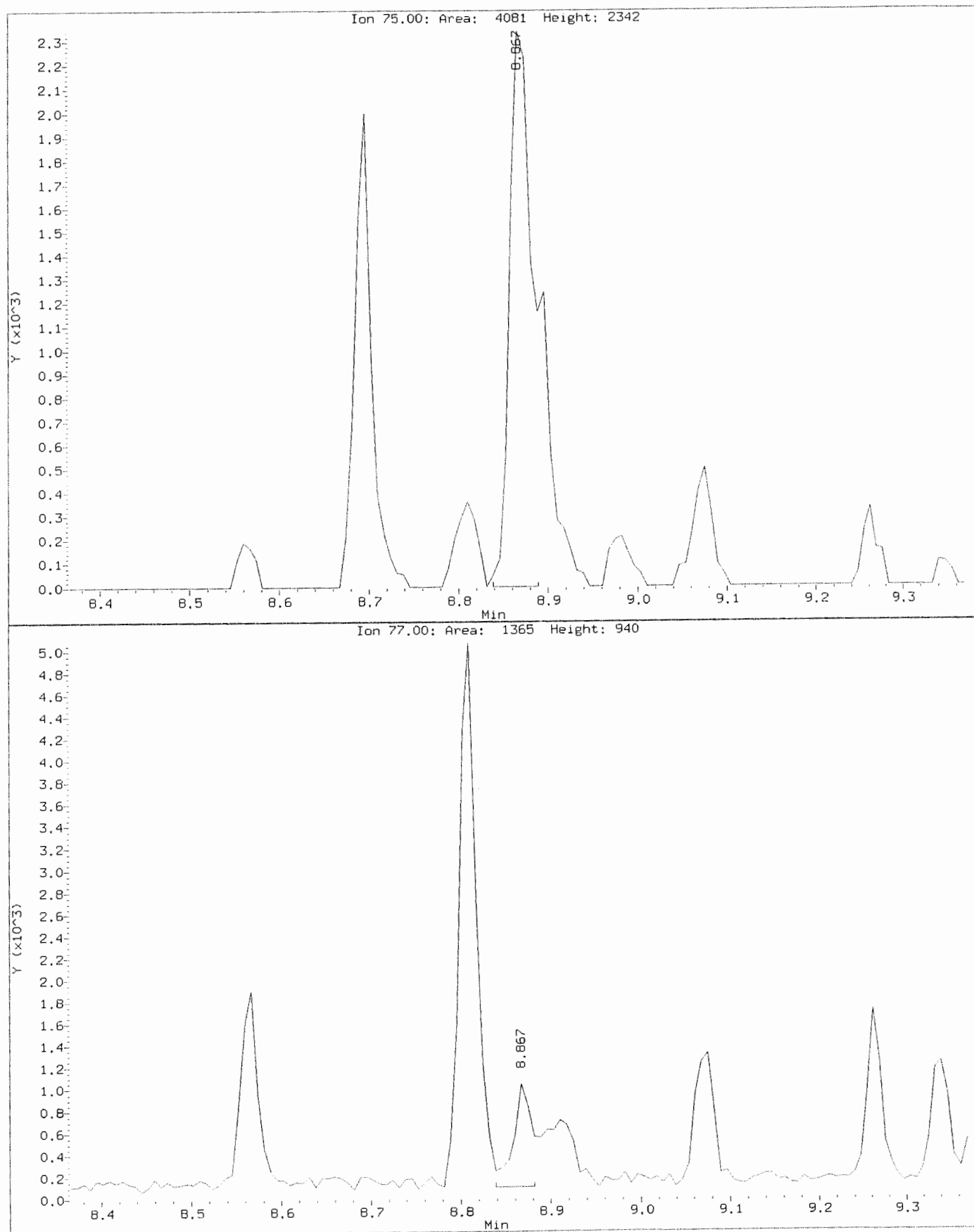
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Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



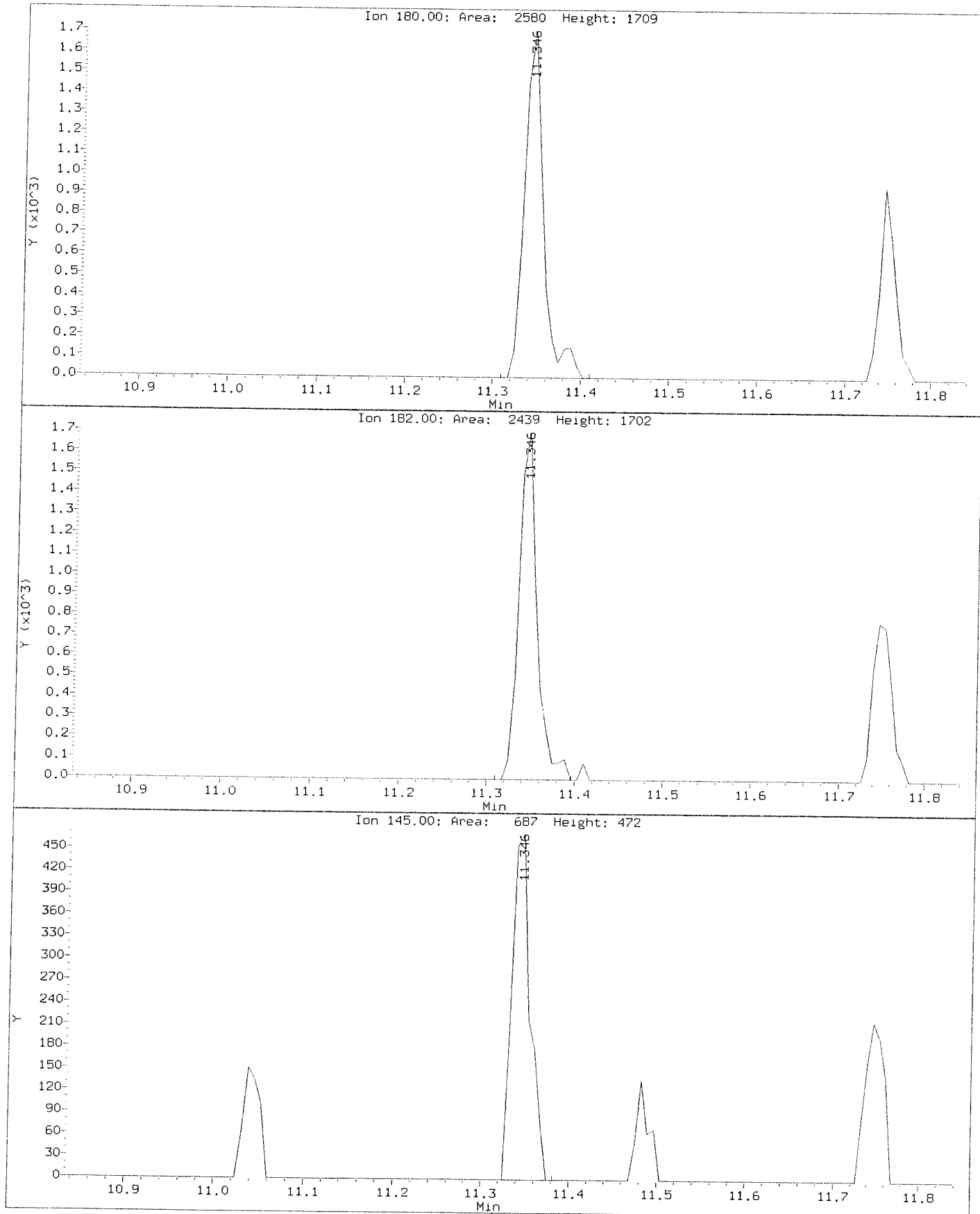
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Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



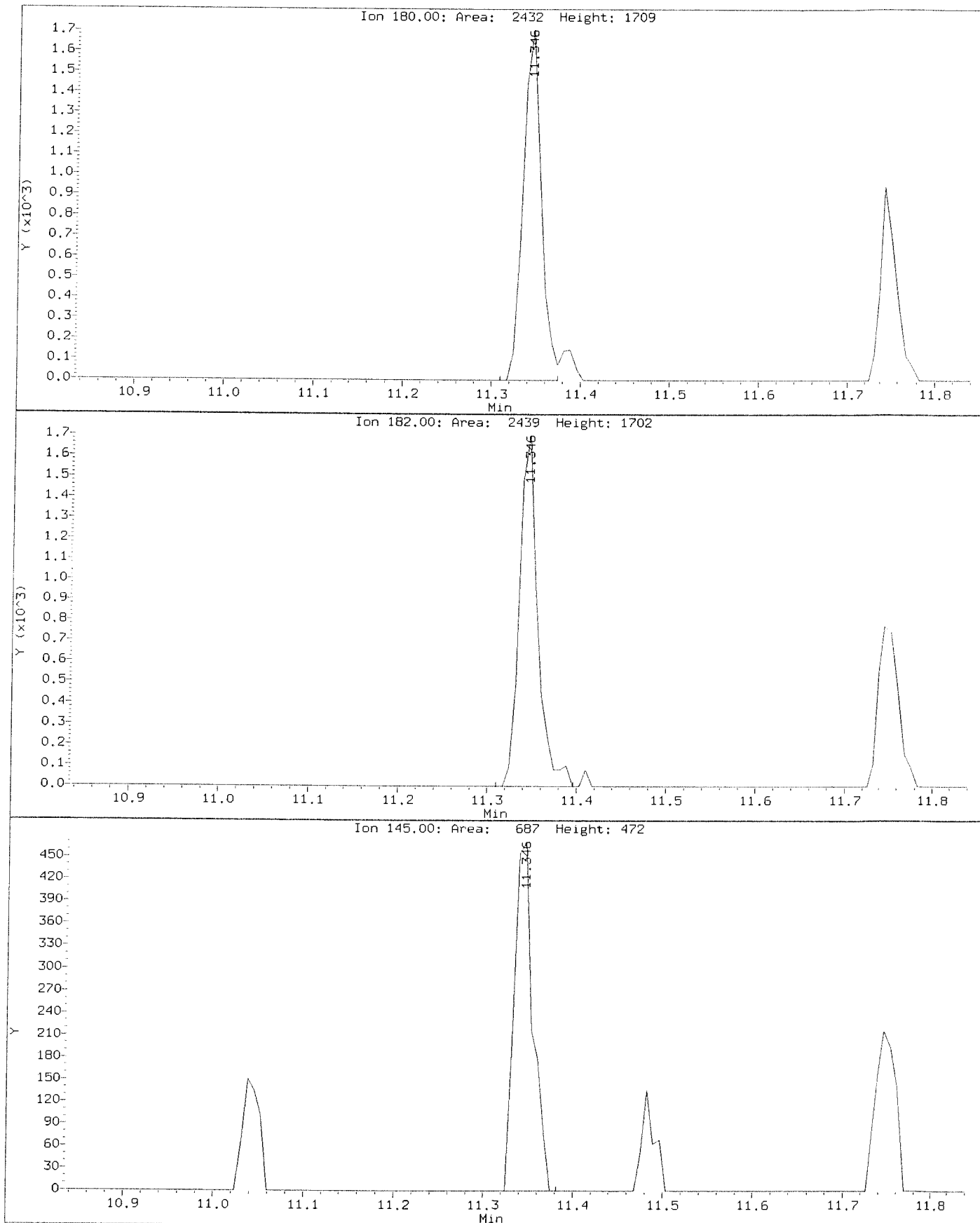
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Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



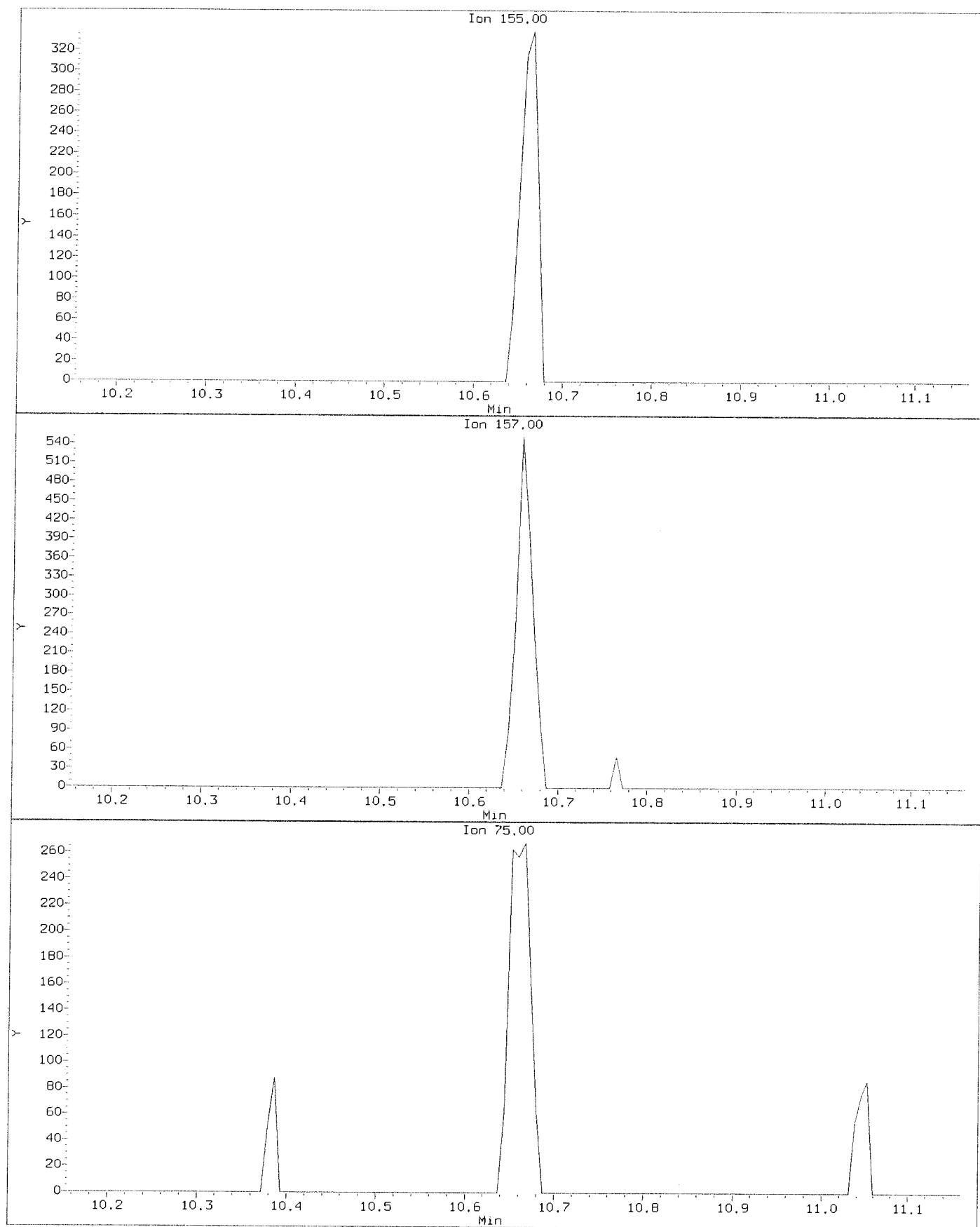
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Instrument: voa6.1
Client Sample ID: VSTD001

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



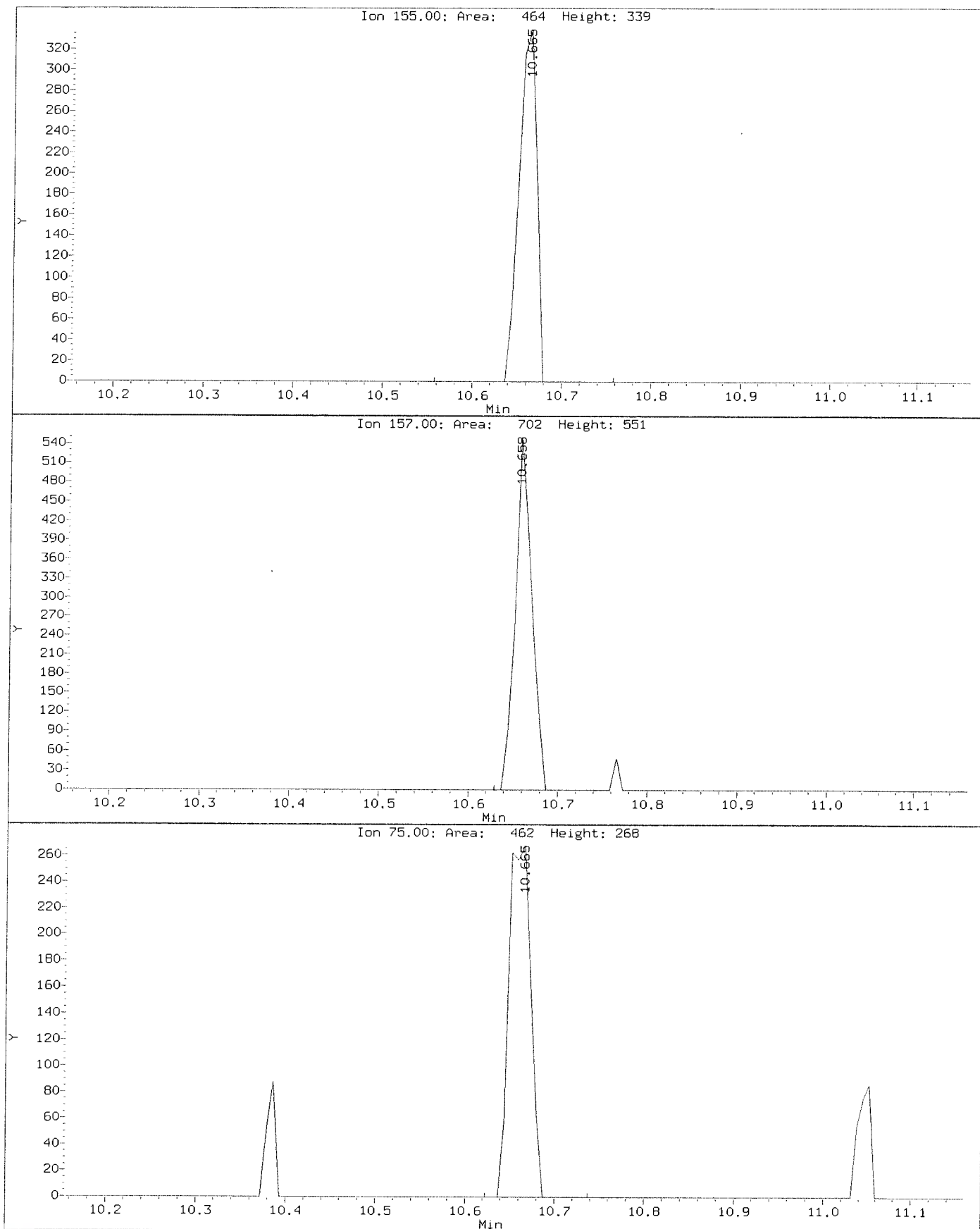
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Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



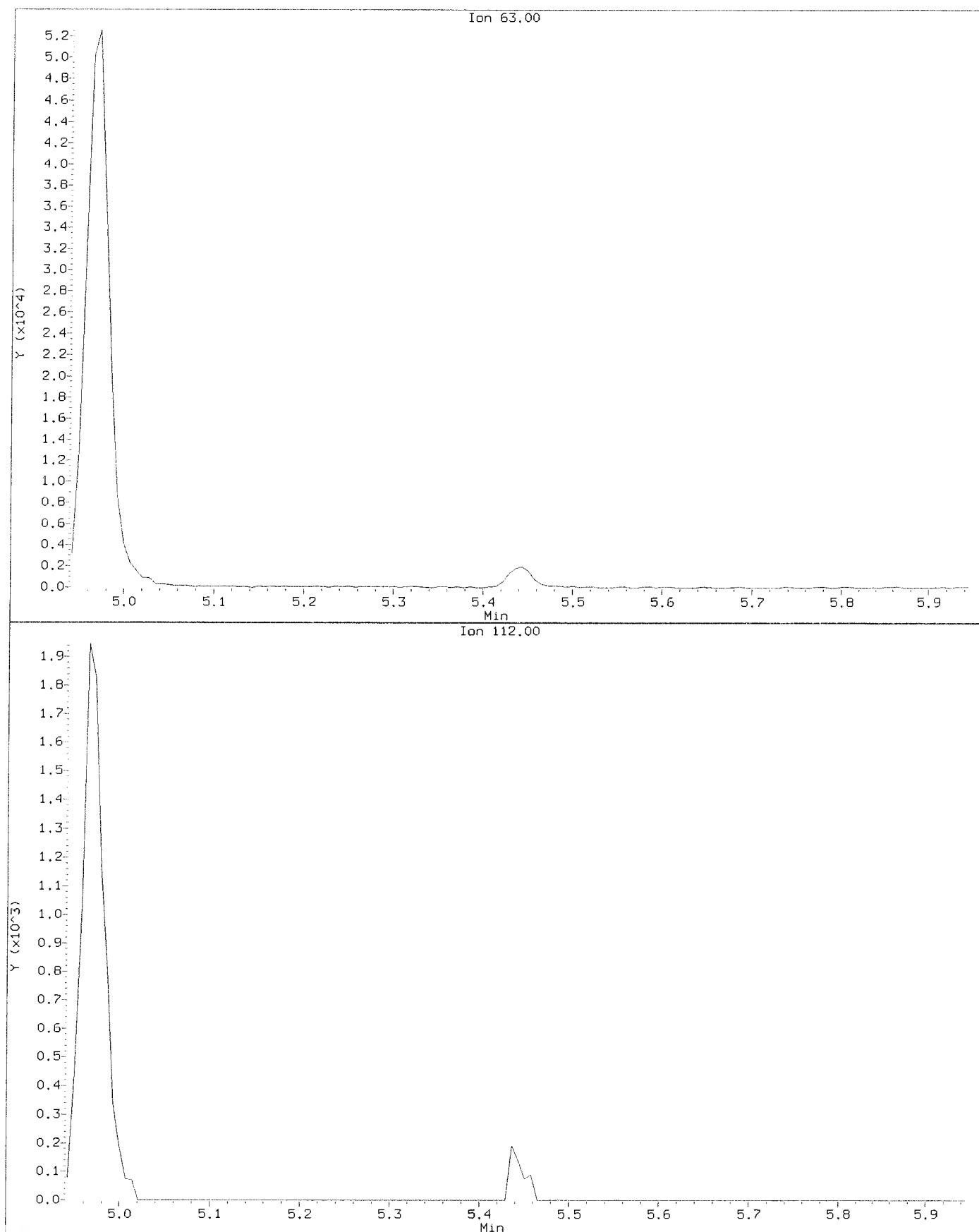
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Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



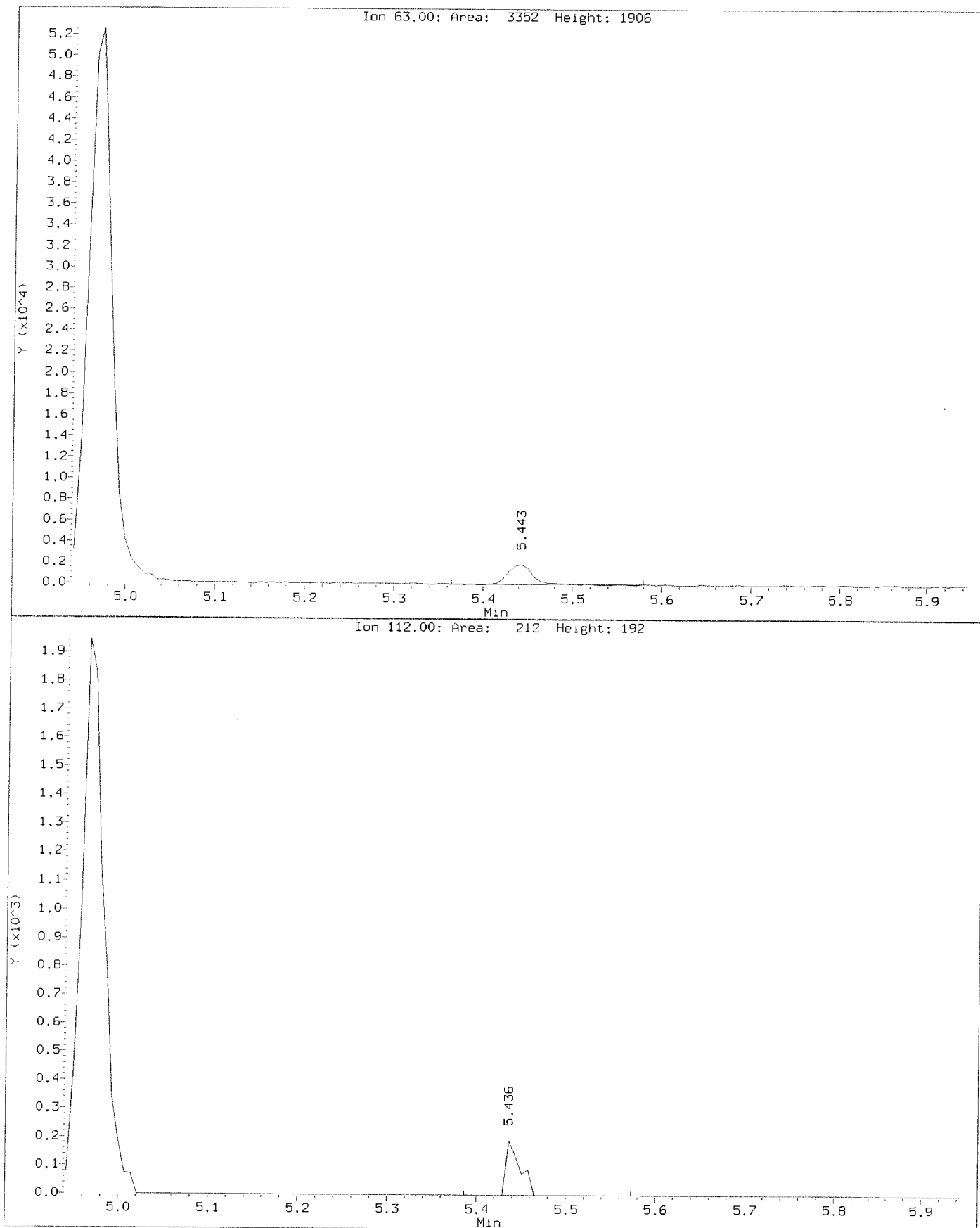
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Client Sample ID: VSTD001

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



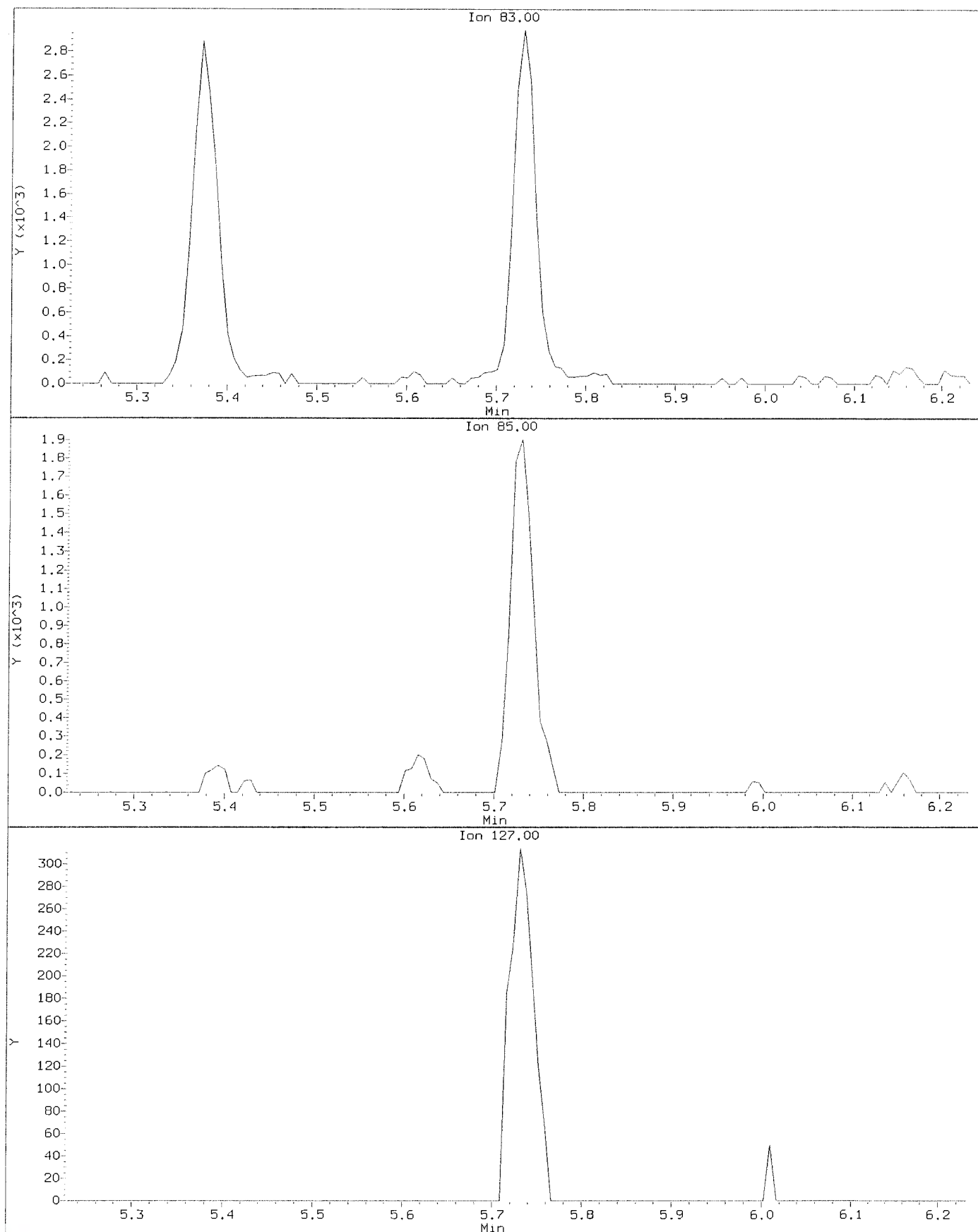
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Client Sample ID: VSTD001

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



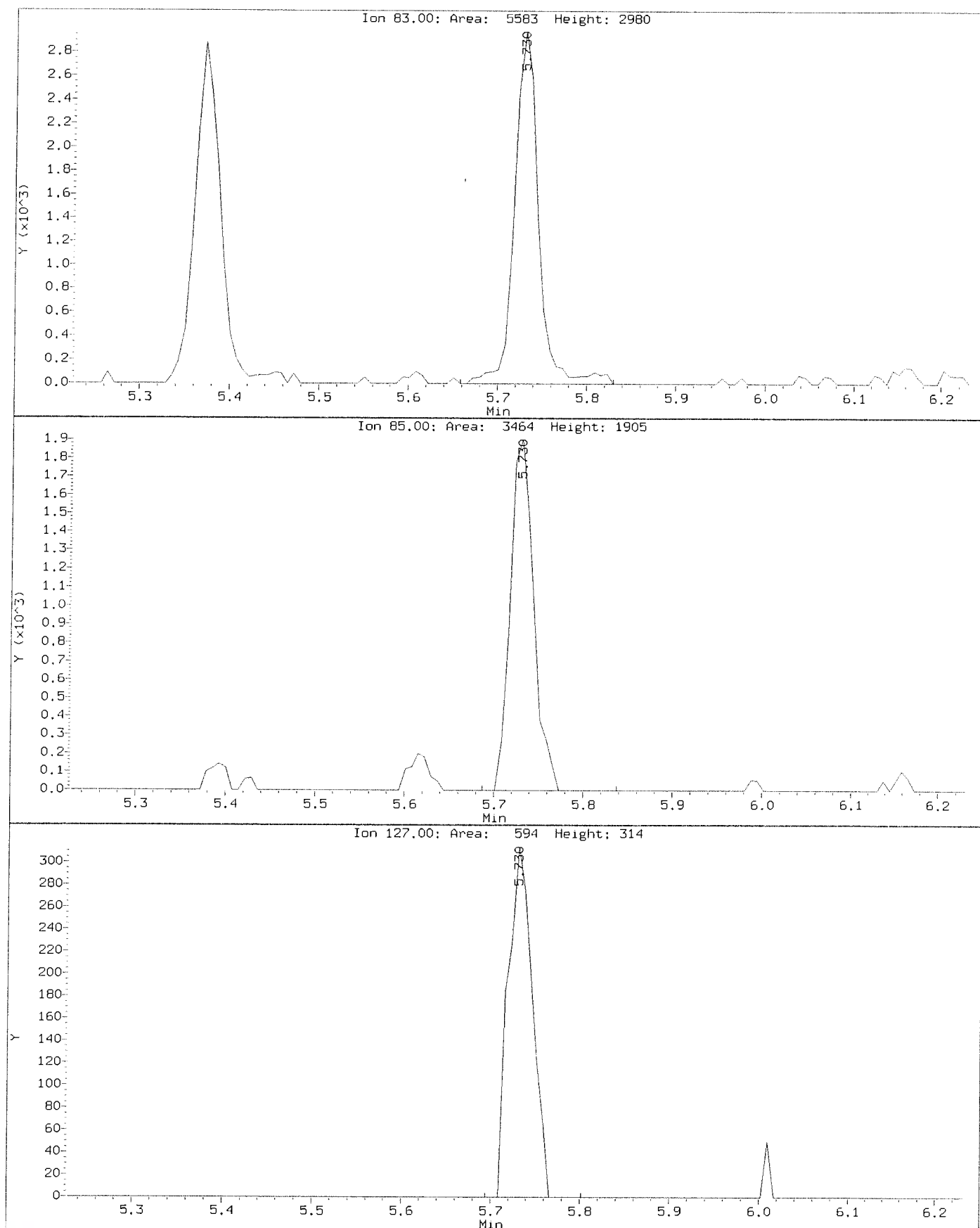
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Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



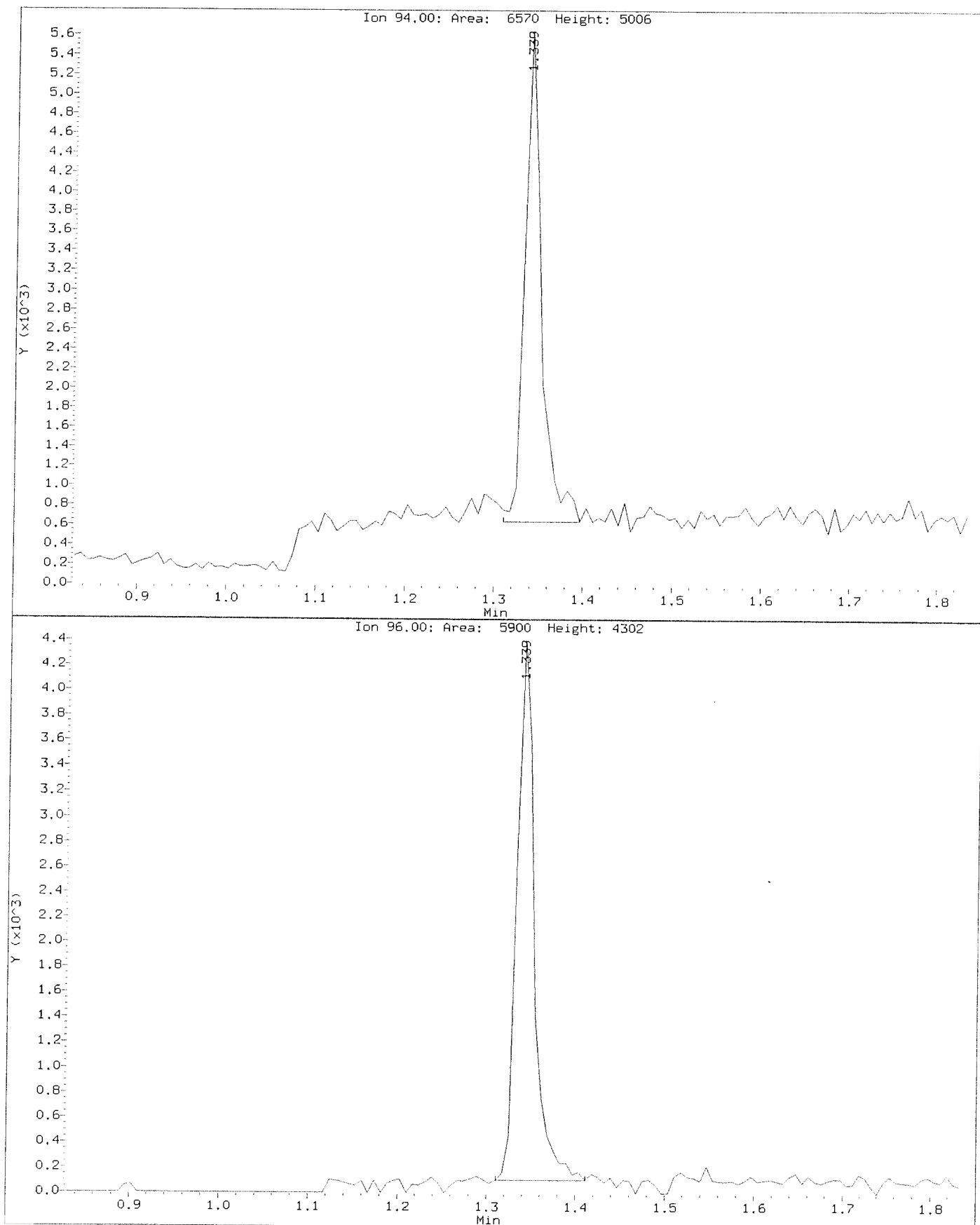
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Compound: Bromodichloromethane
CAS Number: 75-27-4



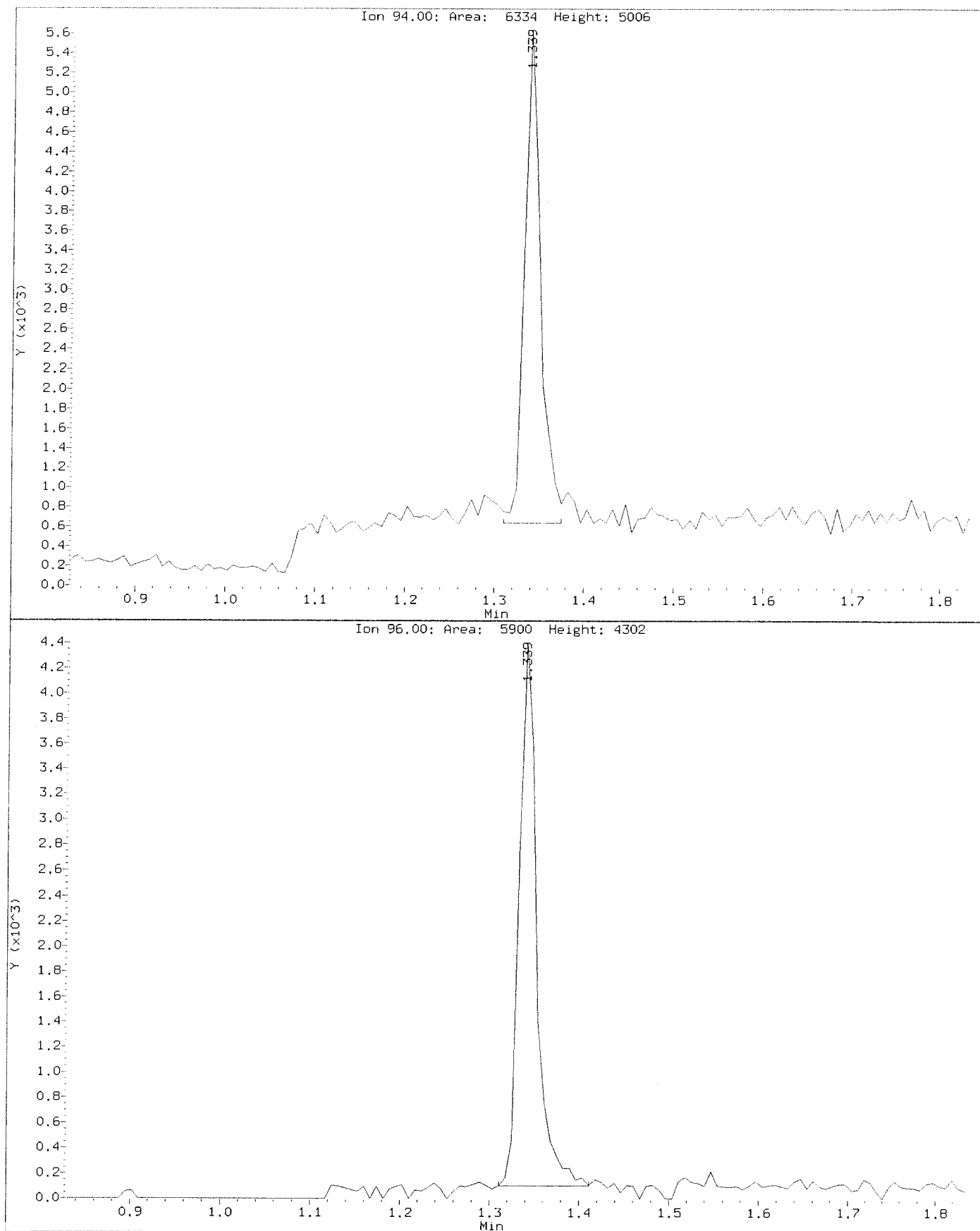
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Client Sample ID: VSTD001

Compound: Bromomethane
CAS Number: 74-83-9



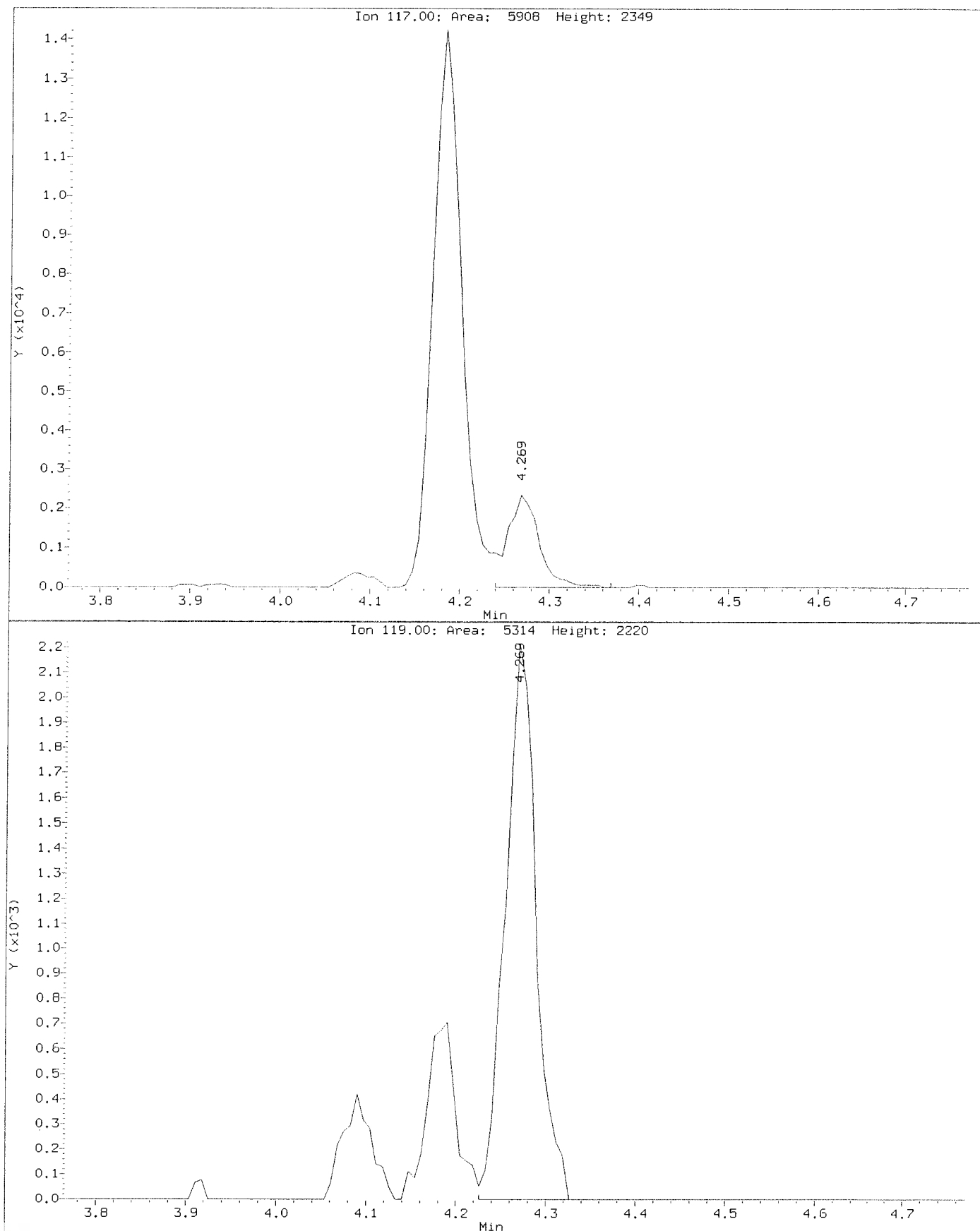
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Compound: Bromomethane
CAS Number: 74-83-9



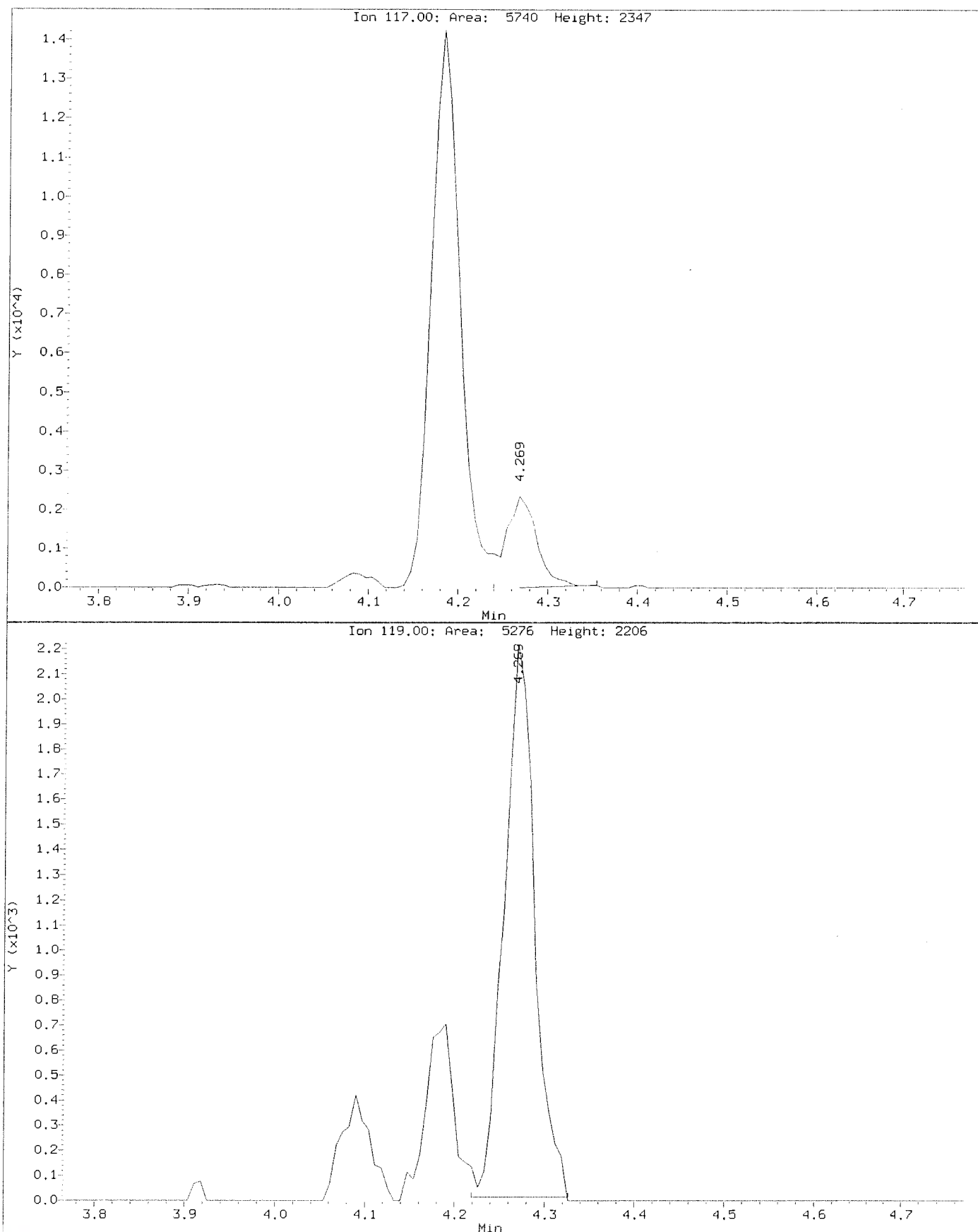
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Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



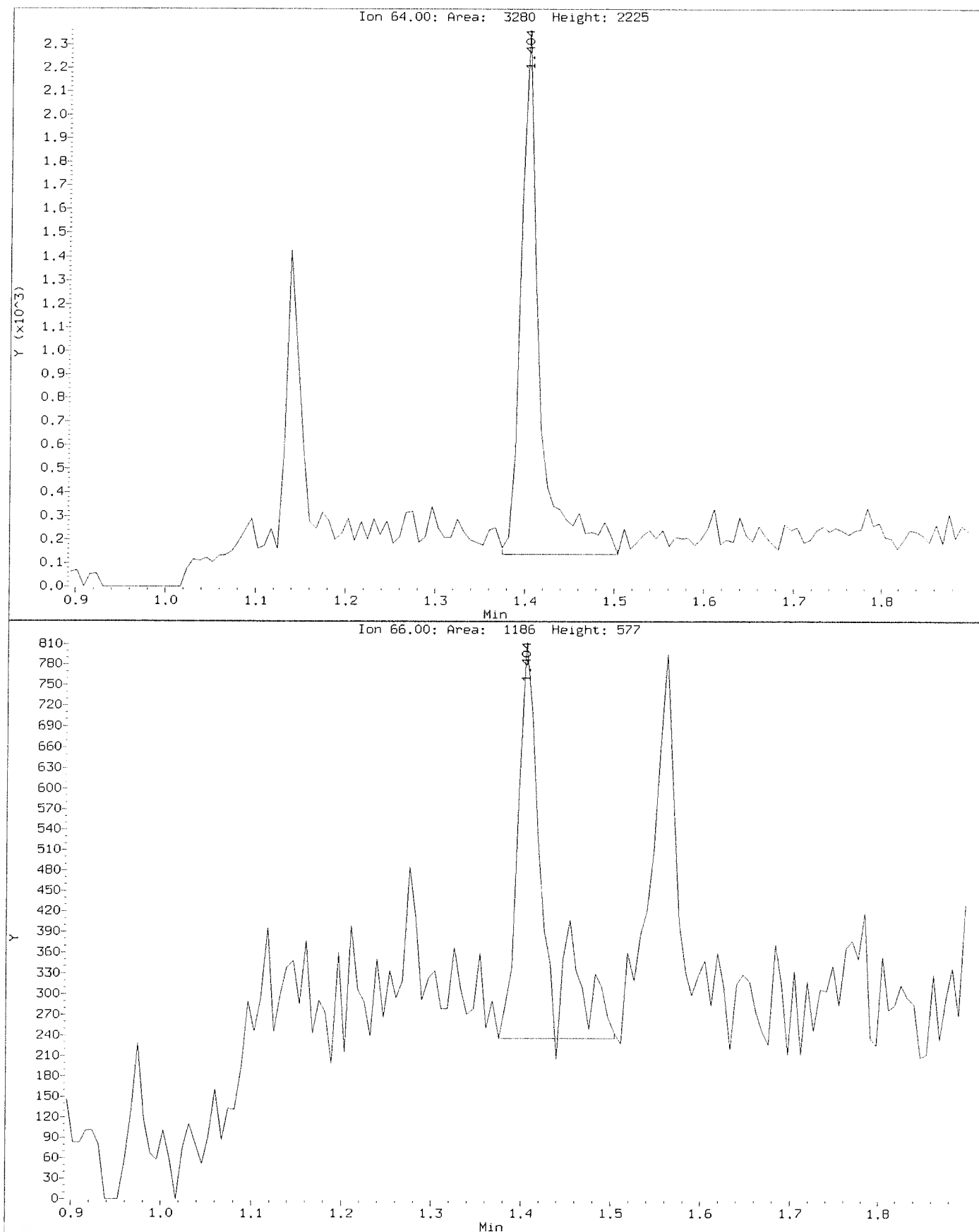
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Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



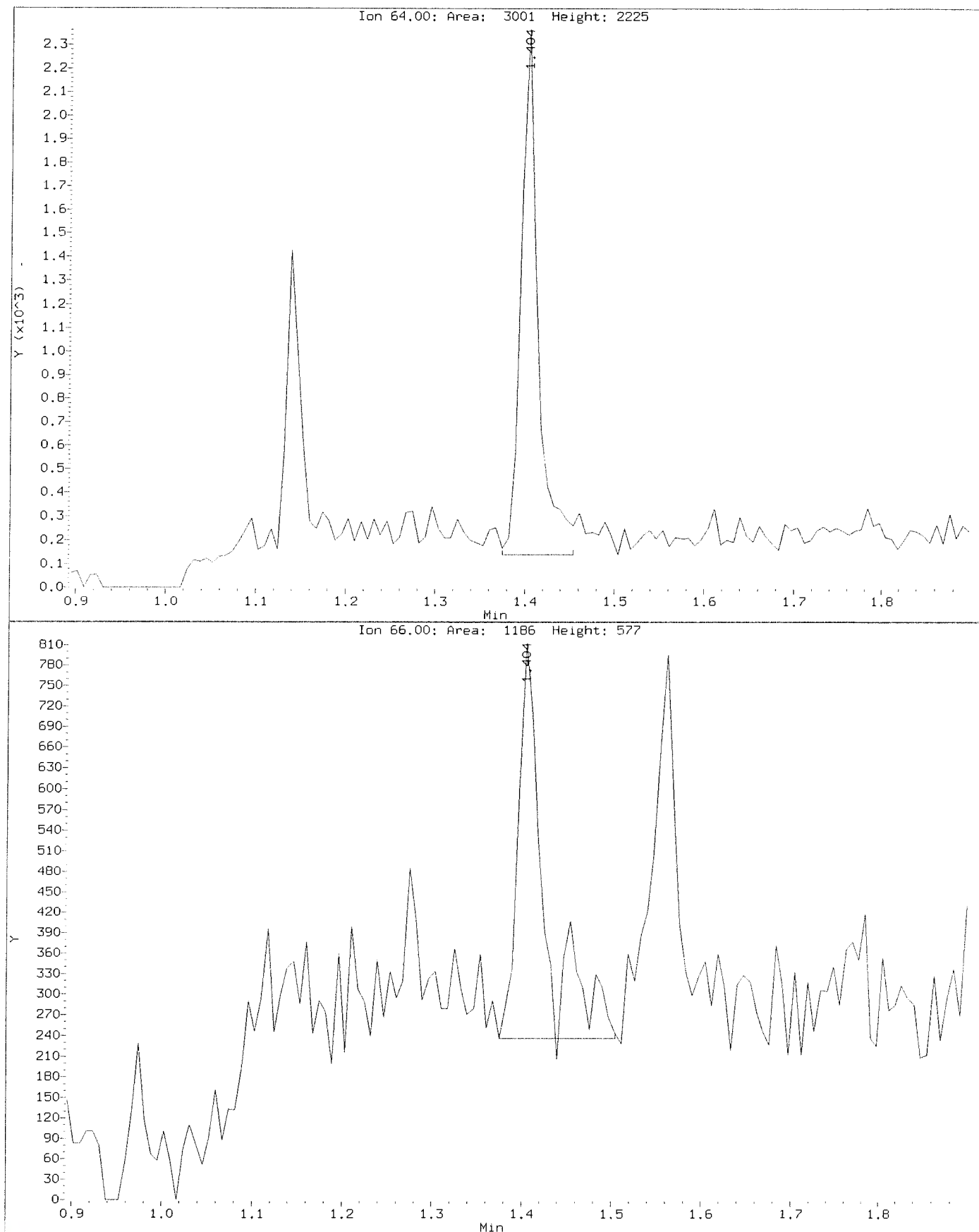
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Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3



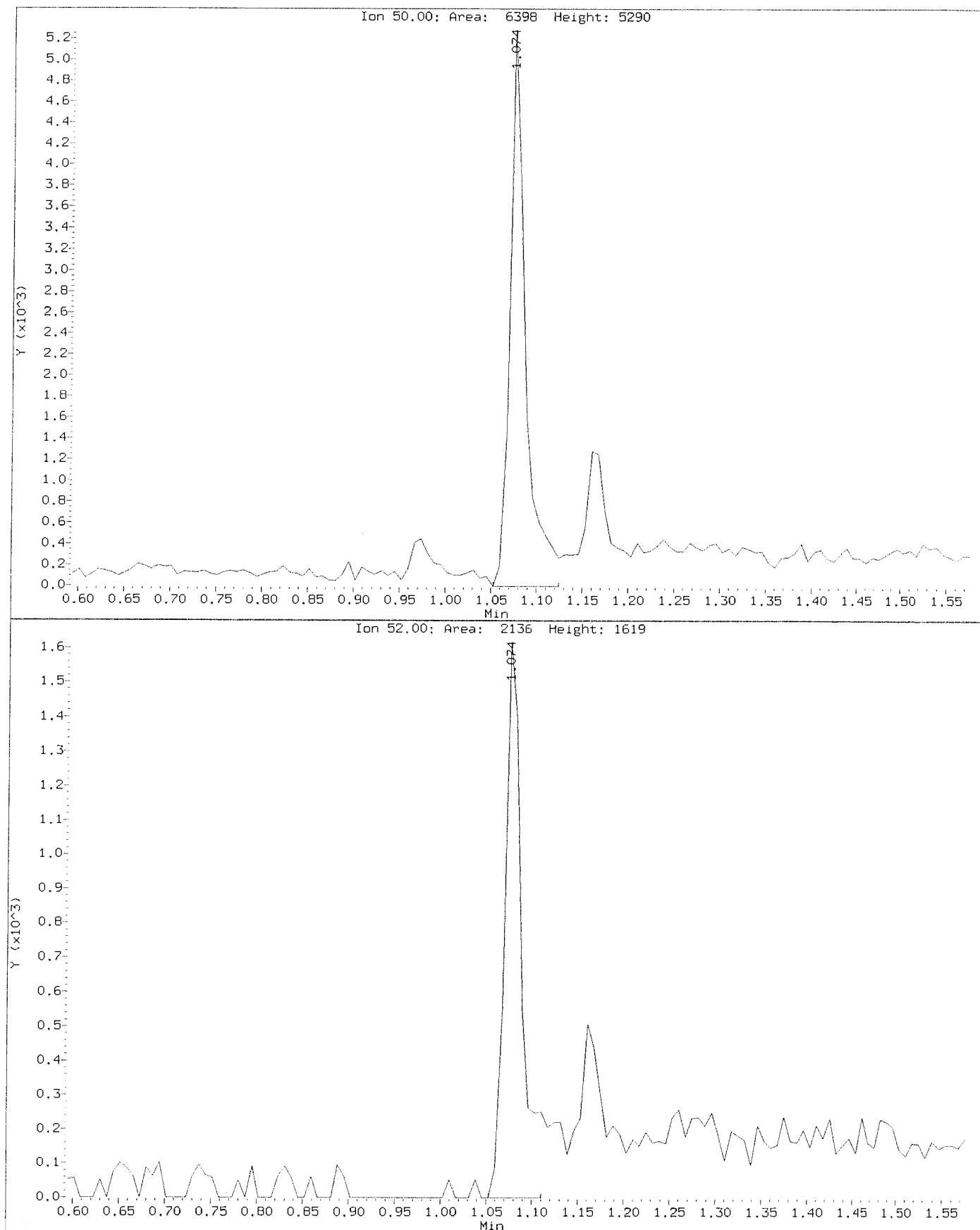
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Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3



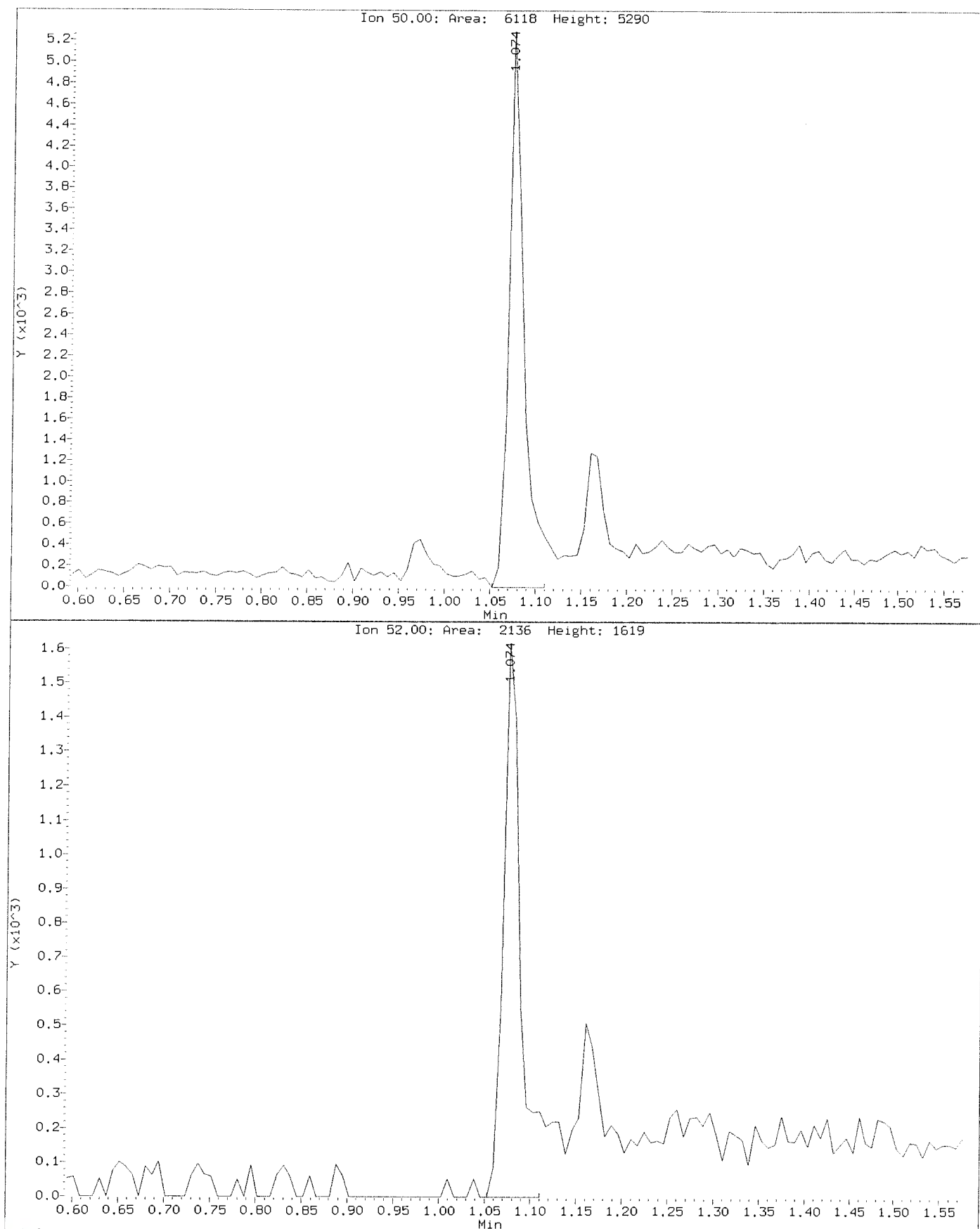
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Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloromethane
CAS Number: 74-87-3



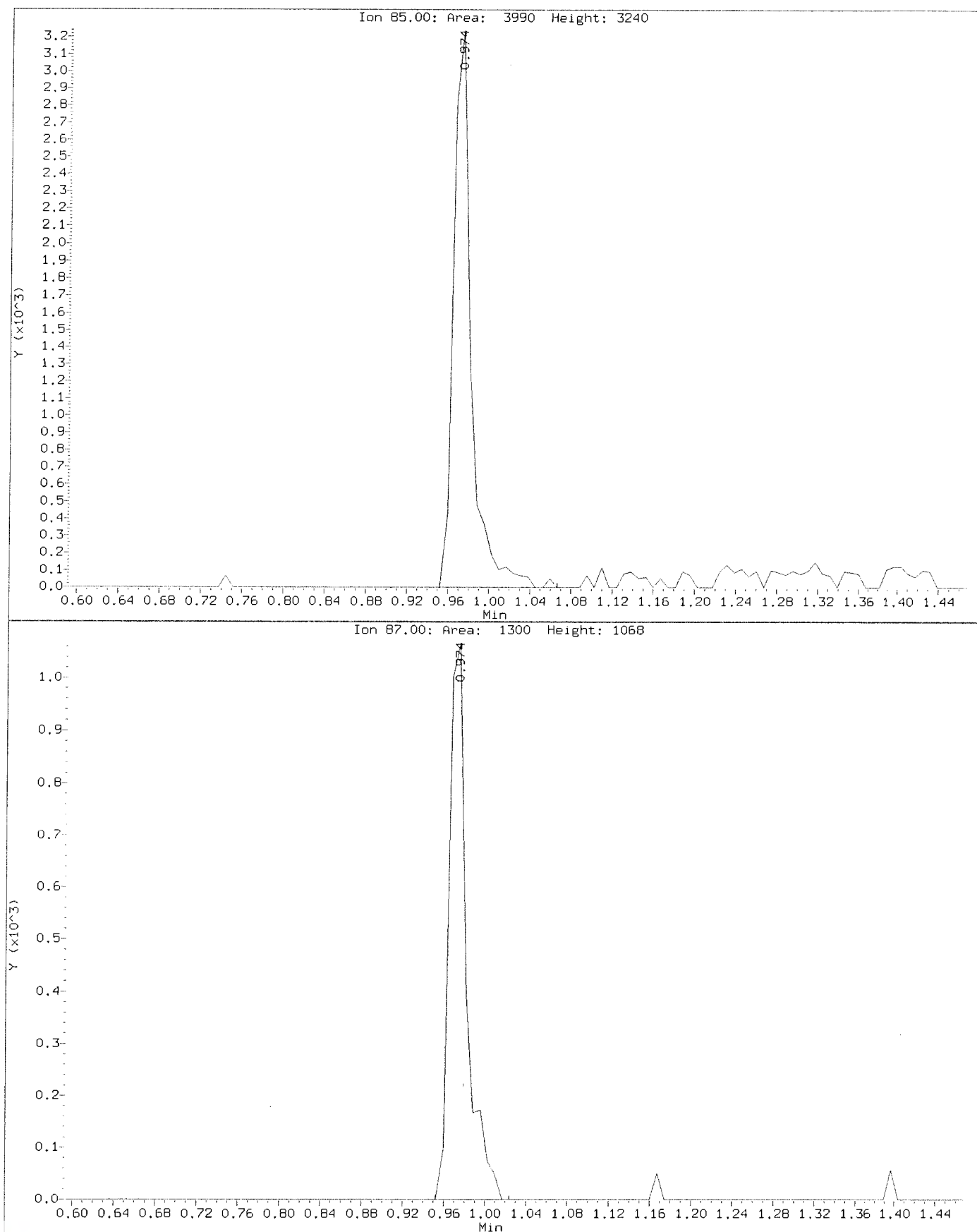
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Instrument: voa6.1
Client Sample ID: VSTD001

Compound: Chloromethane
CAS Number: 74-87-3



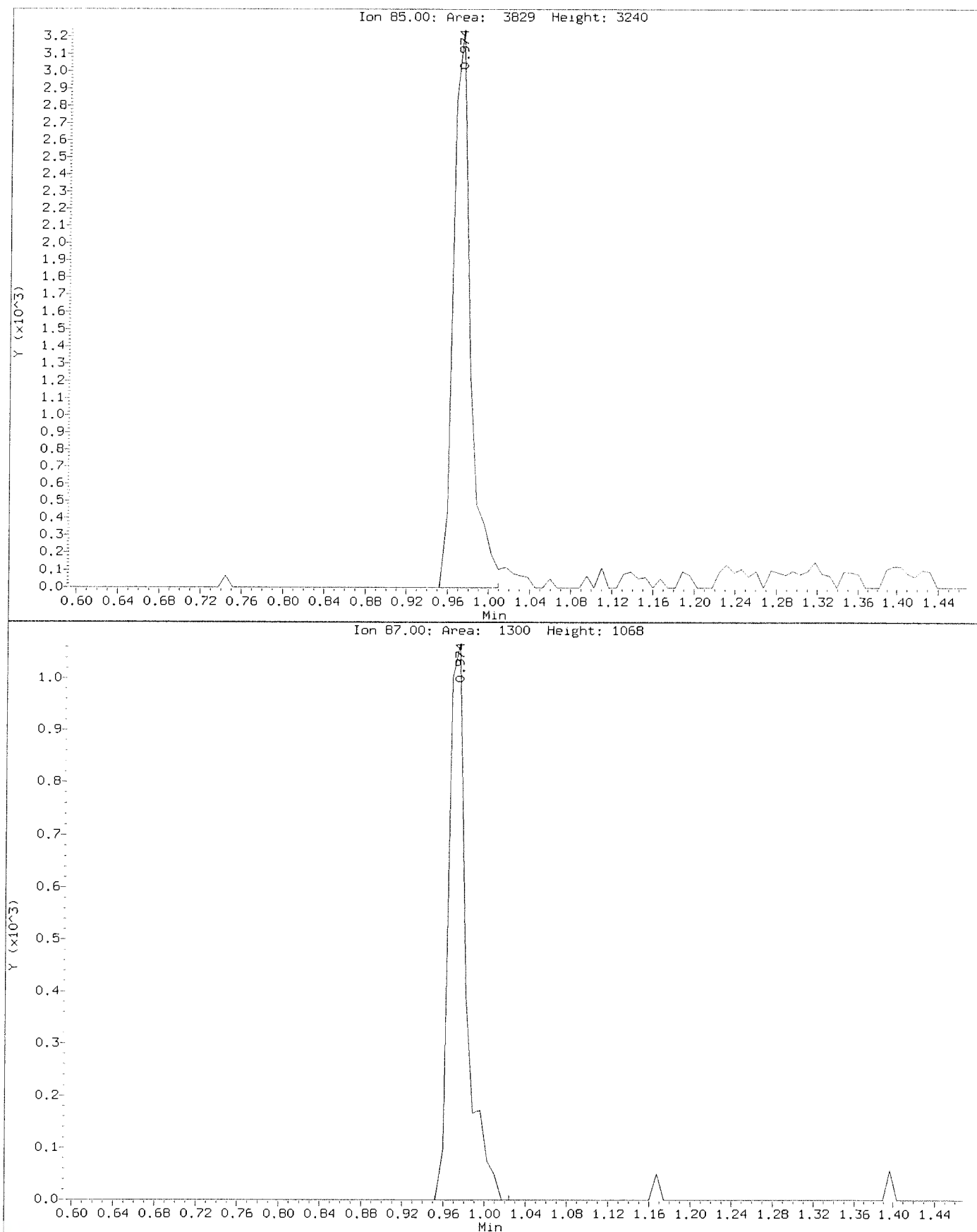
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Injection Date: 18-NOV-2019 14:59
Instrument: voa6.1
Client Sample ID: VSTD001

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



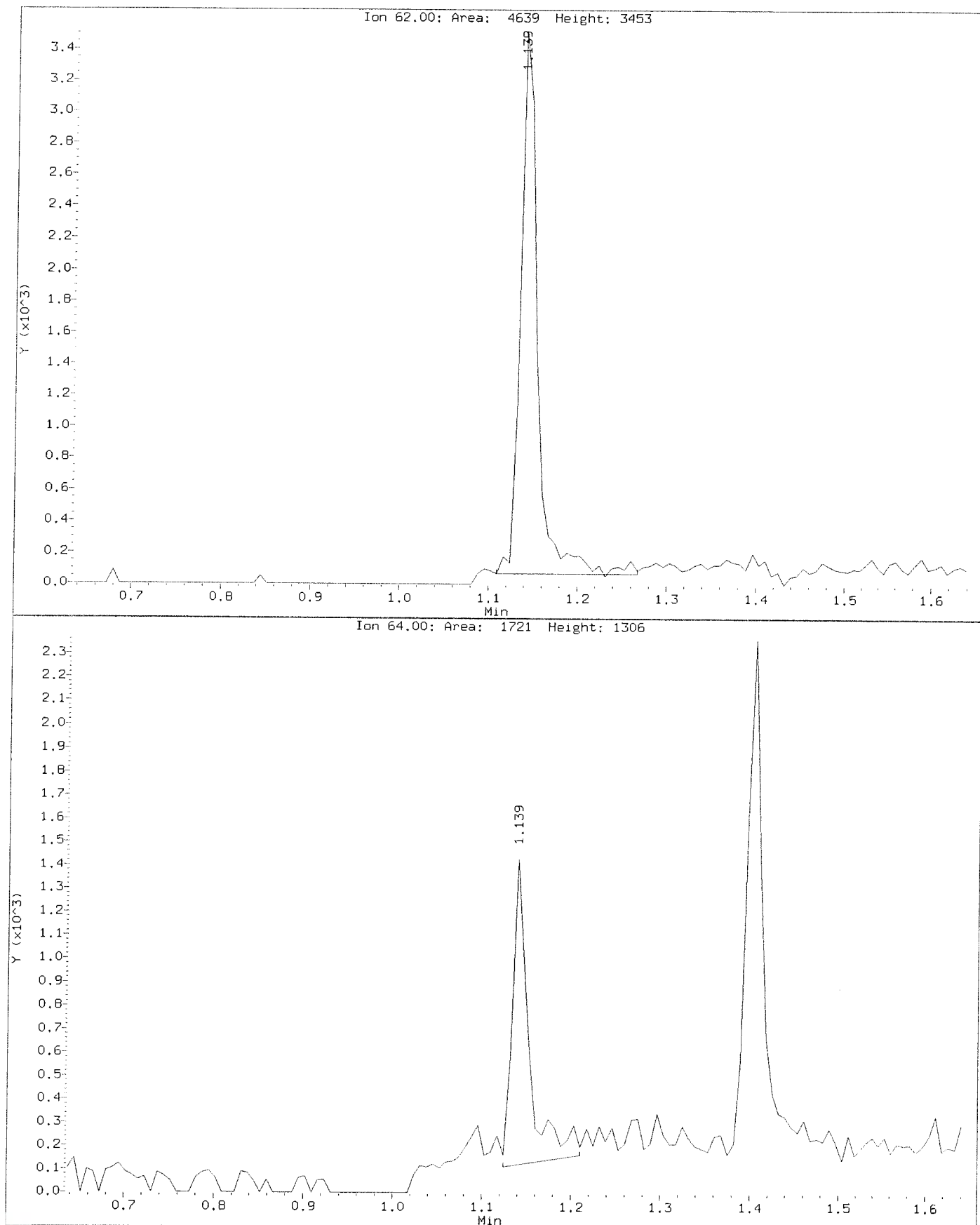
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Client Sample ID: VSTD001

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



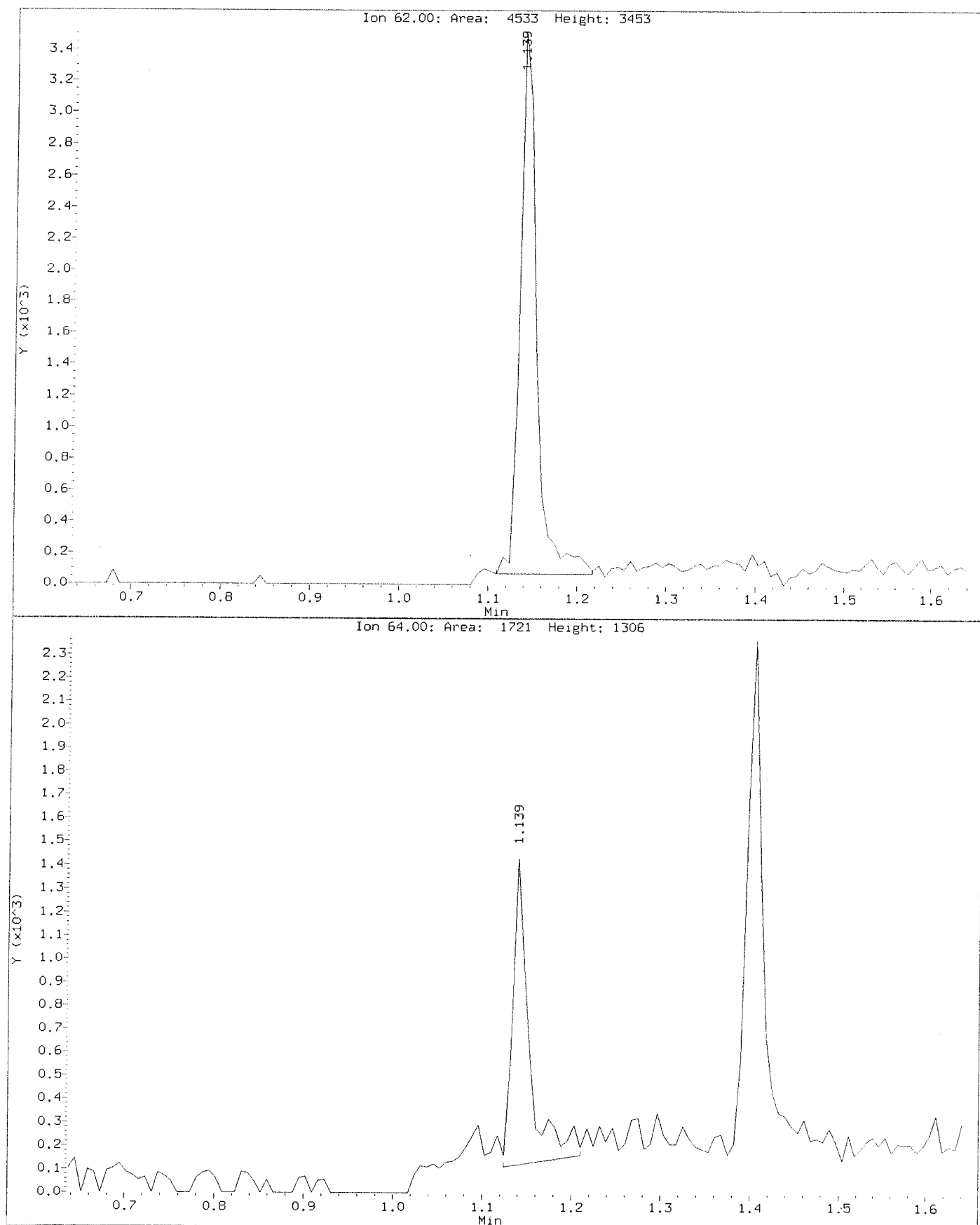
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Injection Date: 18-NOV-2019 14:59
Instrument: voa6.1
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D
 Lab Smp Id: VSTD002 Client Smp ID: VSTD002
 Inj Date : 18-NOV-2019 15:23
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD002;VSTD002;1;4;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 14:59 Cal File: X111804.D
 Als bottle: 6 Calibration Sample, Level: 4
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: $\text{Amt} * \text{DF} * (\text{Uf}/\text{Vo}) * 1 * \text{CpndVariable}$

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

						AMOUNTS	
QUANT SIG						CAL-AMT	ON-COL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	415277	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	574320	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	519547	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	278615	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	8034	2.00000	2.76 (a)
\$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	10468	2.00000	2.56 (a)
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	8127	2.00000	2.50 (a)
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	28201	2.00000	2.06 (a)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	7788	2.00000	2.06 (a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	12006	2.00000	2.14 (a)
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	8194	2.00000	2.09 (a)
138 Freon TF	101	1.911	1.911	(0.457)	7504	2.00000	2.07 (a)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	5924	2.00000	2.18 (a)
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	12973	2.00000	2.14 (a)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	7795	2.00000	2.21 (a)
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	10135	2.00000	2.18 (a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	2753	2.00000	1.85 (a)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	7810	2.00000	2.35 (aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	5184	2.00000	2.20 (a)
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	27218	2.00000	2.05 (a)
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	859	2.00000	1.65 (a)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	7900	2.00000	2.16 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT	ON-COL
	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	15931	2.00000	2.15 (a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	9378	2.00000	2.05 (a)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	7169	2.00000	2.08 (aM)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	26432	2.00000	2.08 (a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	17183	2.00000	2.15 (a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	11850	2.00000	2.14 (a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	17620	2.00000	2.17 (a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	11201	2.00000	2.04 (a)
24 2-Butanone	43	3.588	3.588	(0.858)	5067	4.00000	3.97 (a)
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	21210	2.00000	2.11 (a)
52 2-Hexanone	43	7.090	7.090	(0.924)	8468	4.00000	3.96 (a)
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	24759	2.00000	2.03 (a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	28289	2.00000	2.07 (a)
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	13007	4.00000	4.27 (a)
10 Acetone	43	1.976	1.976	(0.473)	7954	4.00000	3.82 (a)
37 Benzene	78	4.519	4.519	(0.909)	28031	2.00000	2.13 (a)
74 Bromobenzene	156	8.809	8.809	(0.911)	10482	2.00000	2.16 (a)
29 Bromochloromethane	128	3.795	3.795	(0.908)	5128	2.00000	2.27 (a)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	9742	2.00000	2.04 (a)
66 Bromoform	173	8.415	8.415	(1.097)	5989	2.00000	2.89 (a)
6 Bromomethane	94	1.338	1.338	(0.320)	12041	2.00000	0.69 (a)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	40384	4.00000	4.21 (a)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	11097	2.00000	2.18 (aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	21369	2.00000	2.10 (a)
7 Chloroethane	64	1.403	1.403	(0.336)	5731	2.00000	2.19 (a)
28 Chloroform	83	3.910	3.910	(0.935)	14792	2.00000	2.19 (a)
3 Chloromethane	50	1.073	1.073	(0.257)	10461	2.00000	2.49 (a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	8197	2.00000	2.08 (a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	11415	2.00000	2.03 (a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	8154	2.00000	2.06 (a)
44 Dibromomethane	93	5.557	5.557	(1.118)	5355	2.00000	2.20 (a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	7335	2.00000	2.78 (a)
61 Ethylbenzene	106	7.799	7.799	(1.017)	10700	2.00000	2.04 (a)
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	4522	2.00000	1.82 (a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	32629	2.00000	2.10 (a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	26786	4.00000	4.23 (a)
17 Methylene Chloride	84	2.305	2.305	(0.551)	8025	2.00000	2.13 (a)
87 n-Butylbenzene	91	9.998	9.998	(1.034)	22333	2.00000	1.96 (a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	35573	2.00000	2.06 (a)
92 Naphthalene	128	11.553	11.553	(1.195)	6733	2.00000	2.23 (a)
63 o-Xylene	106	8.244	8.244	(1.075)	13637	2.00000	2.18 (a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	31860	2.00000	2.12 (a)
64 Styrene	104	8.265	8.265	(1.078)	22366	2.00000	2.06 (a)
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	22956	2.00000	2.11 (a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	8185	2.00000	2.24 (a)
50 Toluene	91	6.453	6.453	(0.841)	31139	2.00000	2.11 (a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	7239	2.00000	2.11 (a)
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	10523	2.00000	2.06 (a)
38 Trichloroethene	130	5.214	5.214	(1.049)	8894	2.00000	2.21 (a)
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	13581	2.00000	2.10 (a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	9073	2.00000	2.14 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D Page 3
Report Date: 06-Dec-2019 19:56

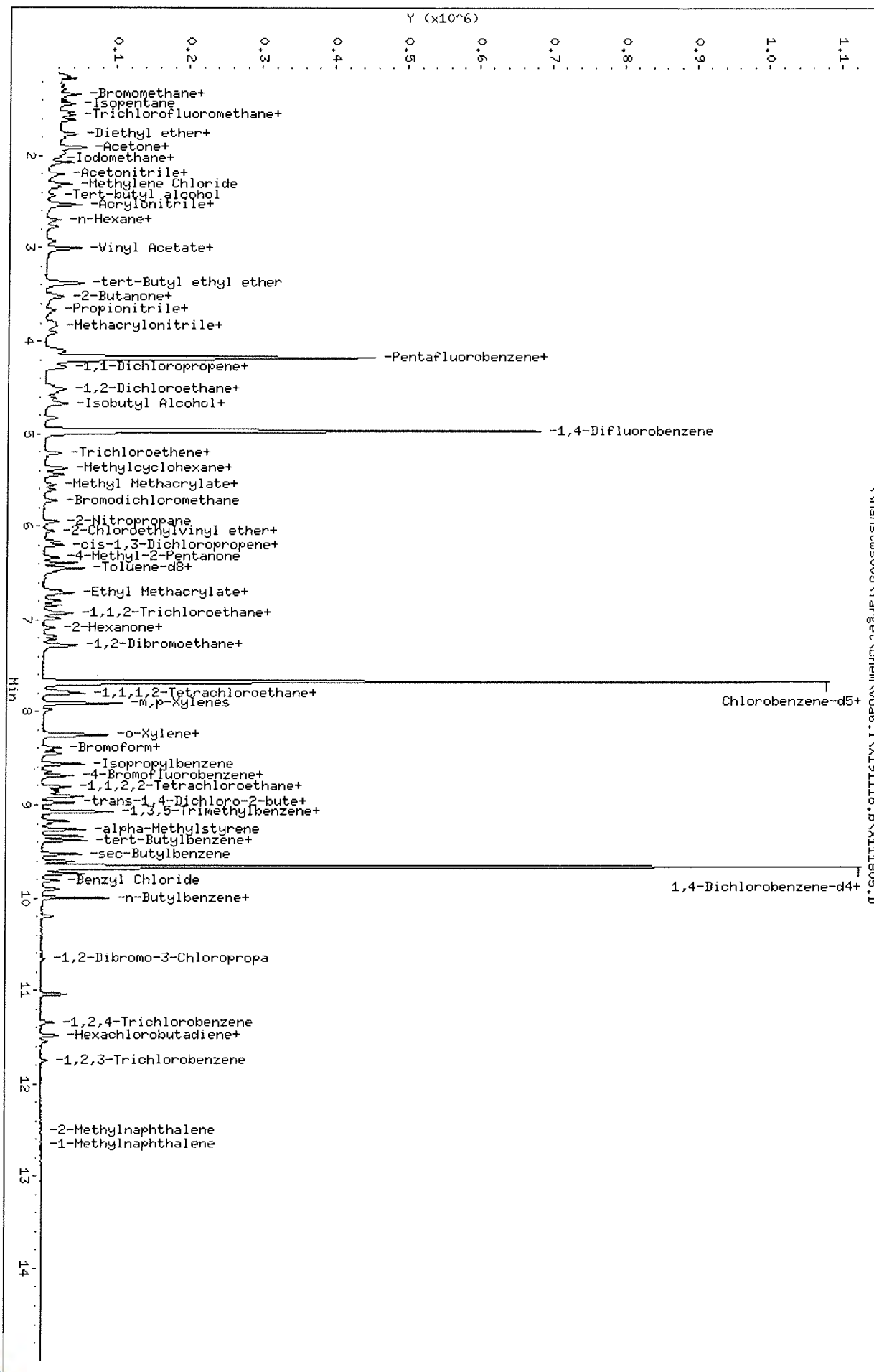
QC Flag Legend

- a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
- M - Compound response manually integrated.



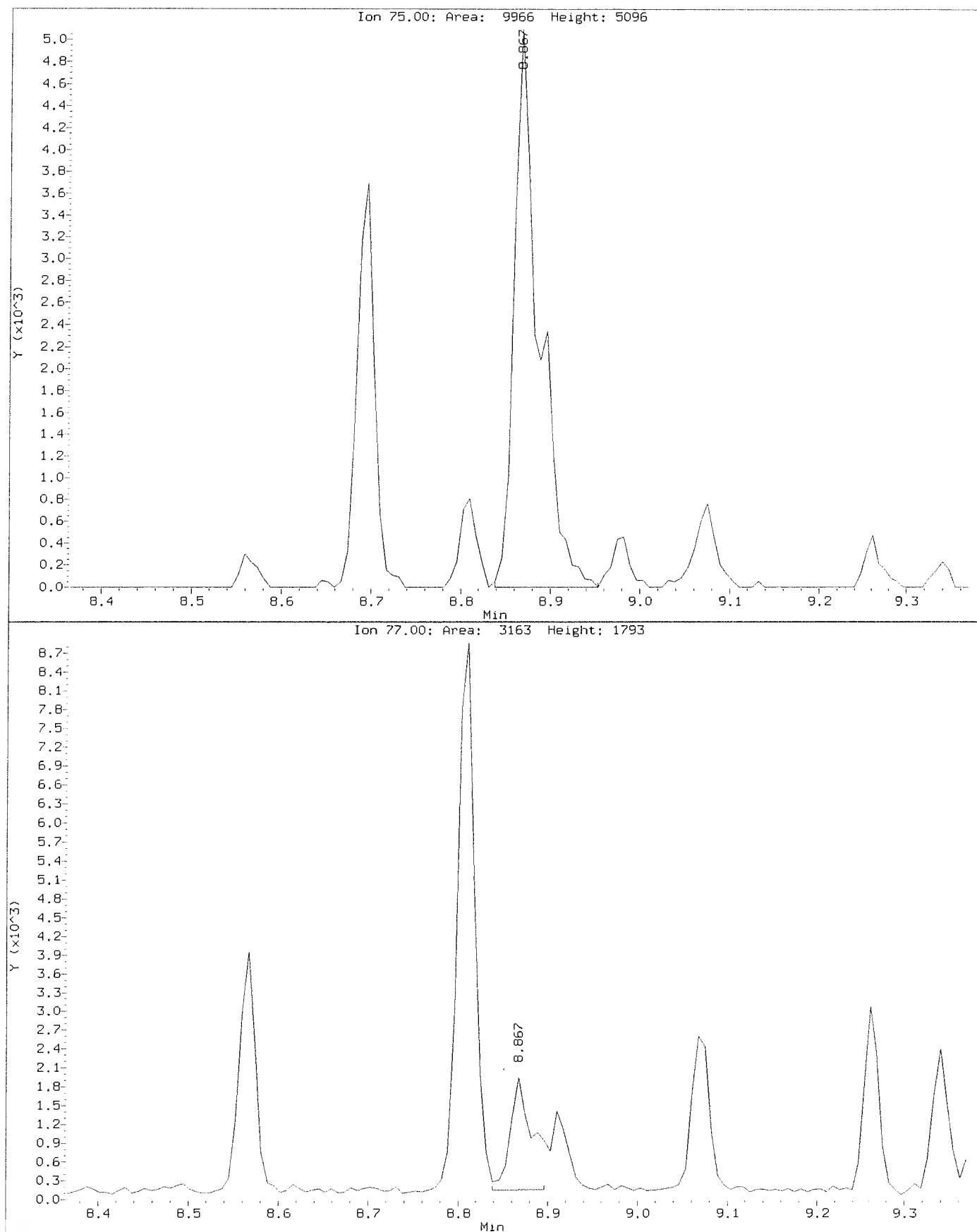
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 Date : 18-NOV-2019 15:23
 Client ID: WSTD002
 Sample Info: WSTD002;WSTD002;1;4;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



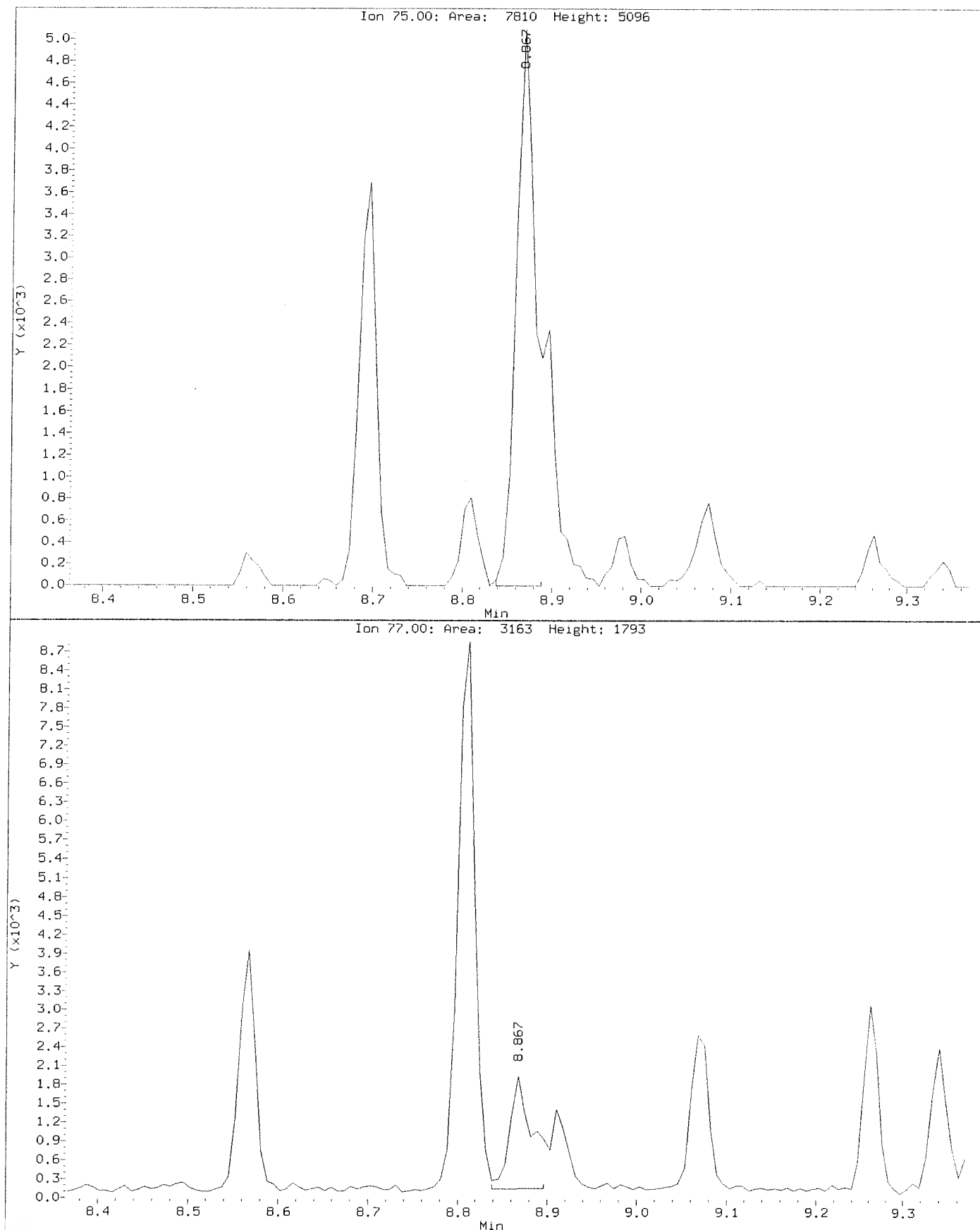
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Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



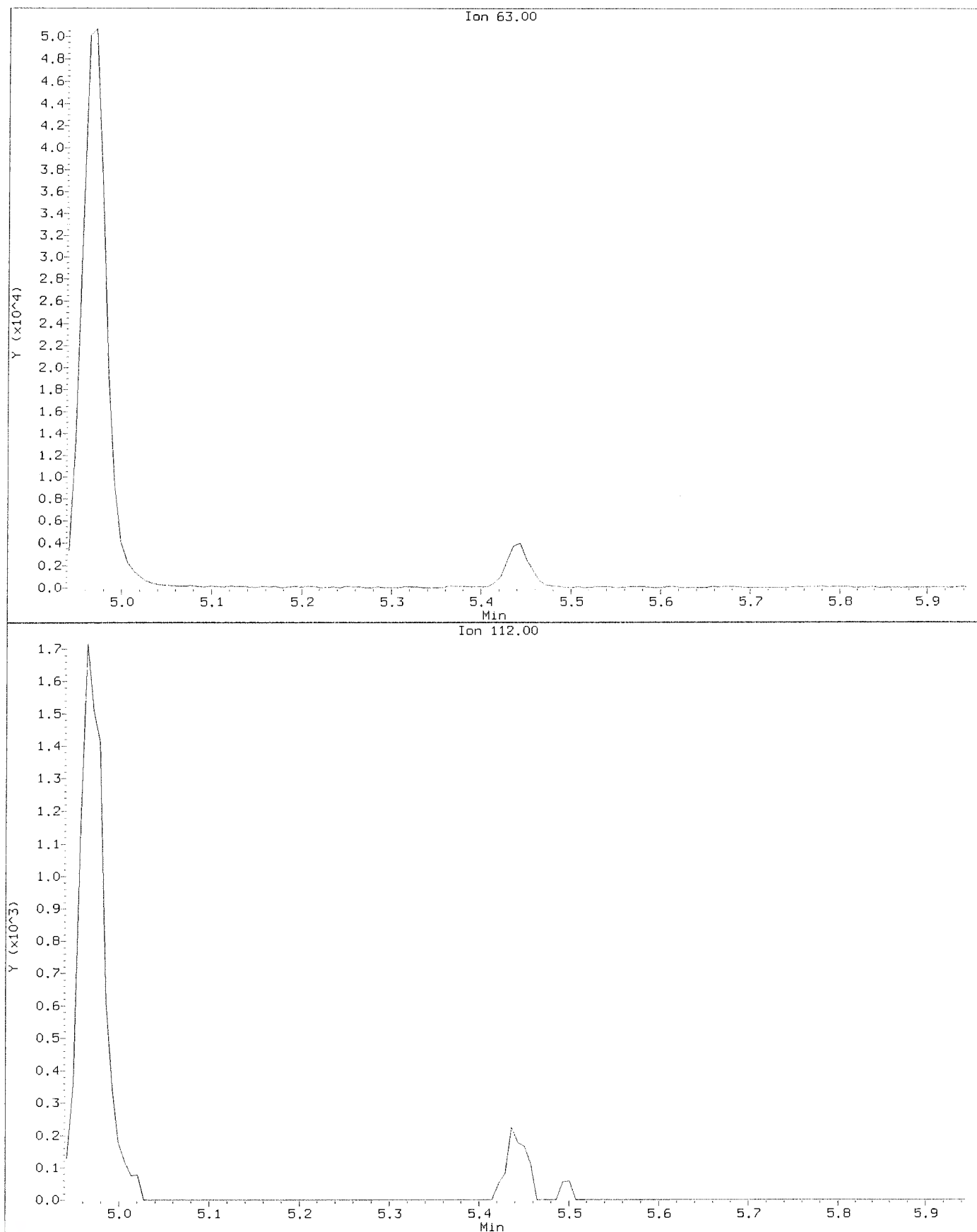
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Injection Date: 18-NOV-2019 15:23
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



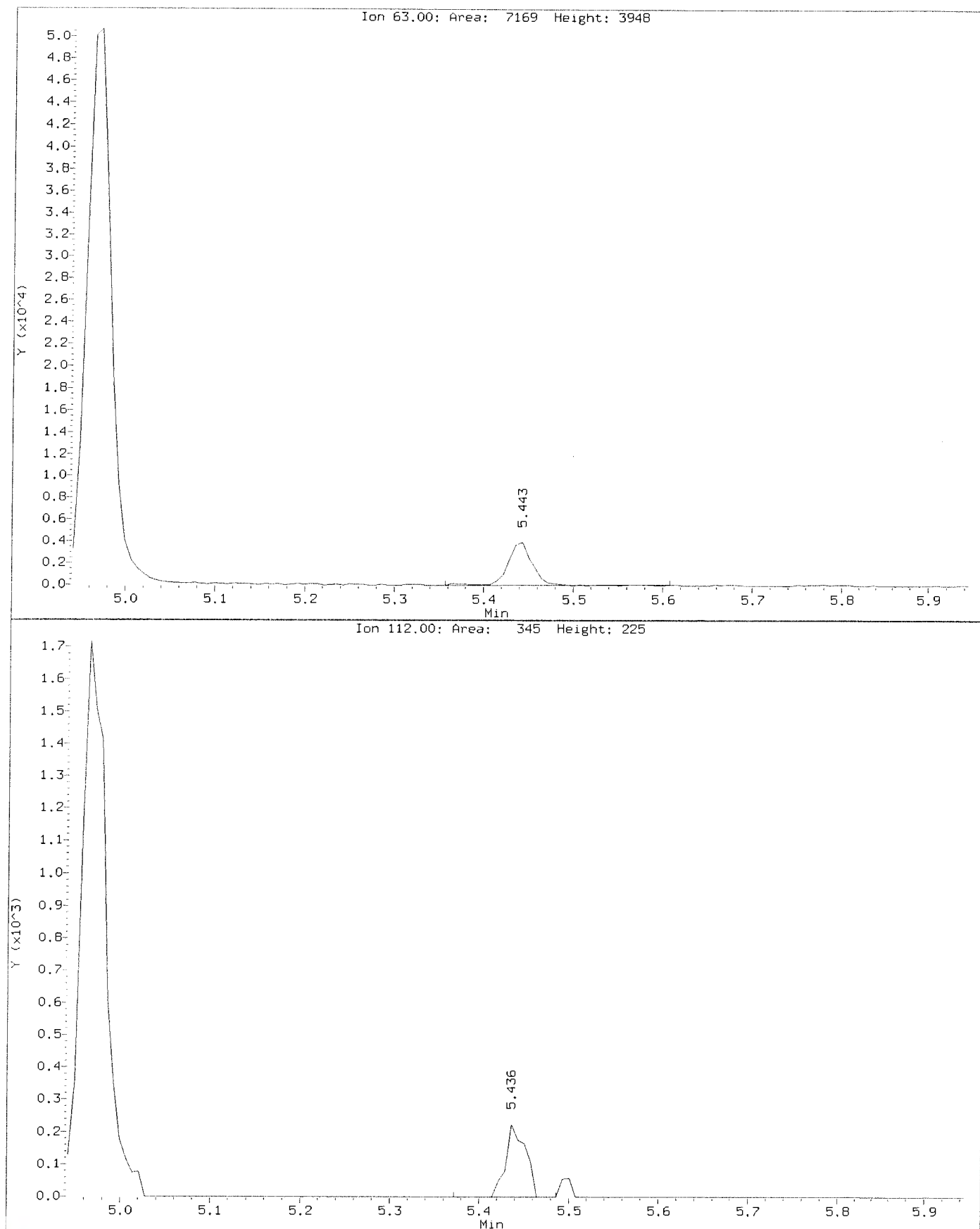
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Instrument: voa6.1
Client Sample ID: VSTD002

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



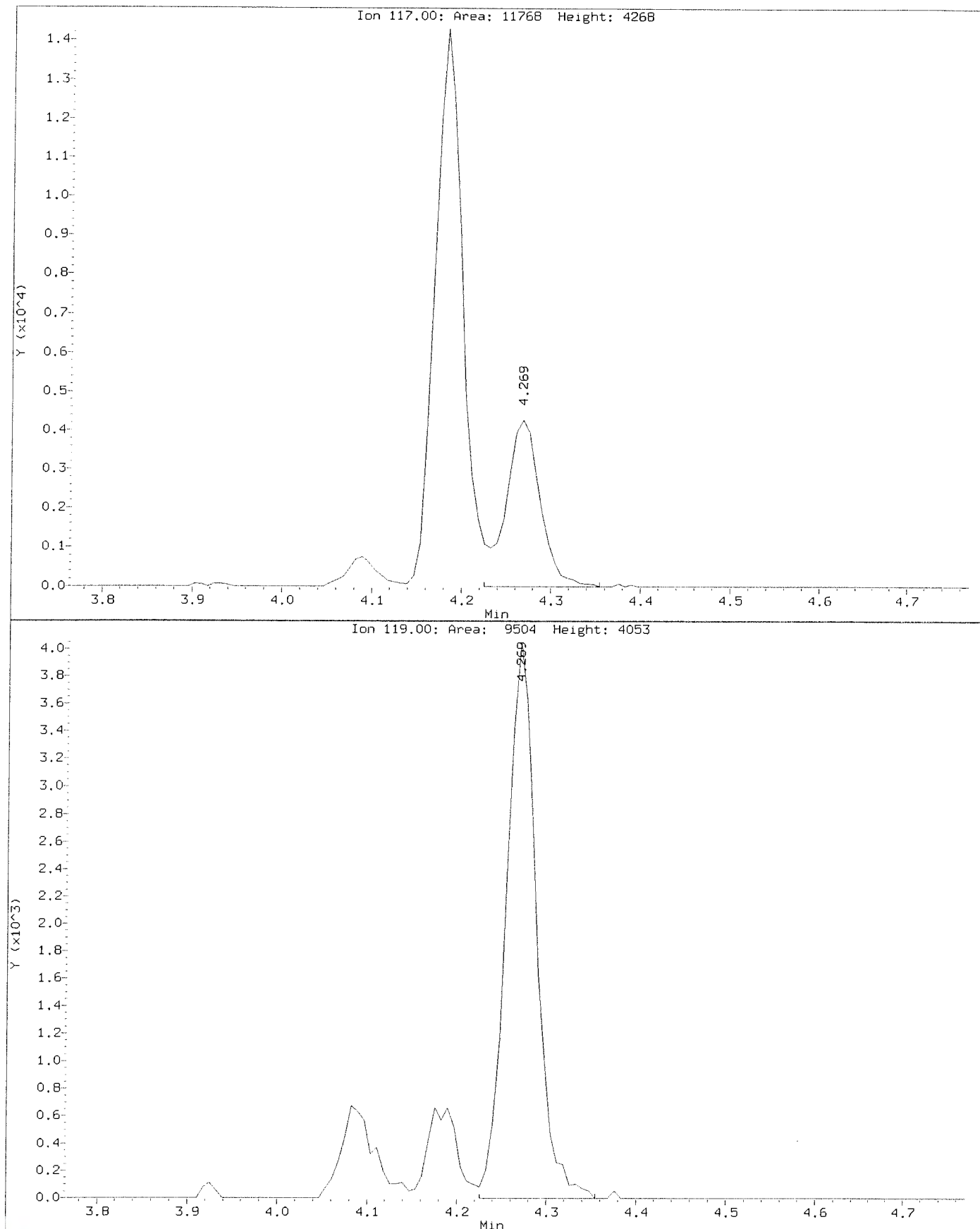
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Instrument: voa6.1
Client Sample ID: VSTD002

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



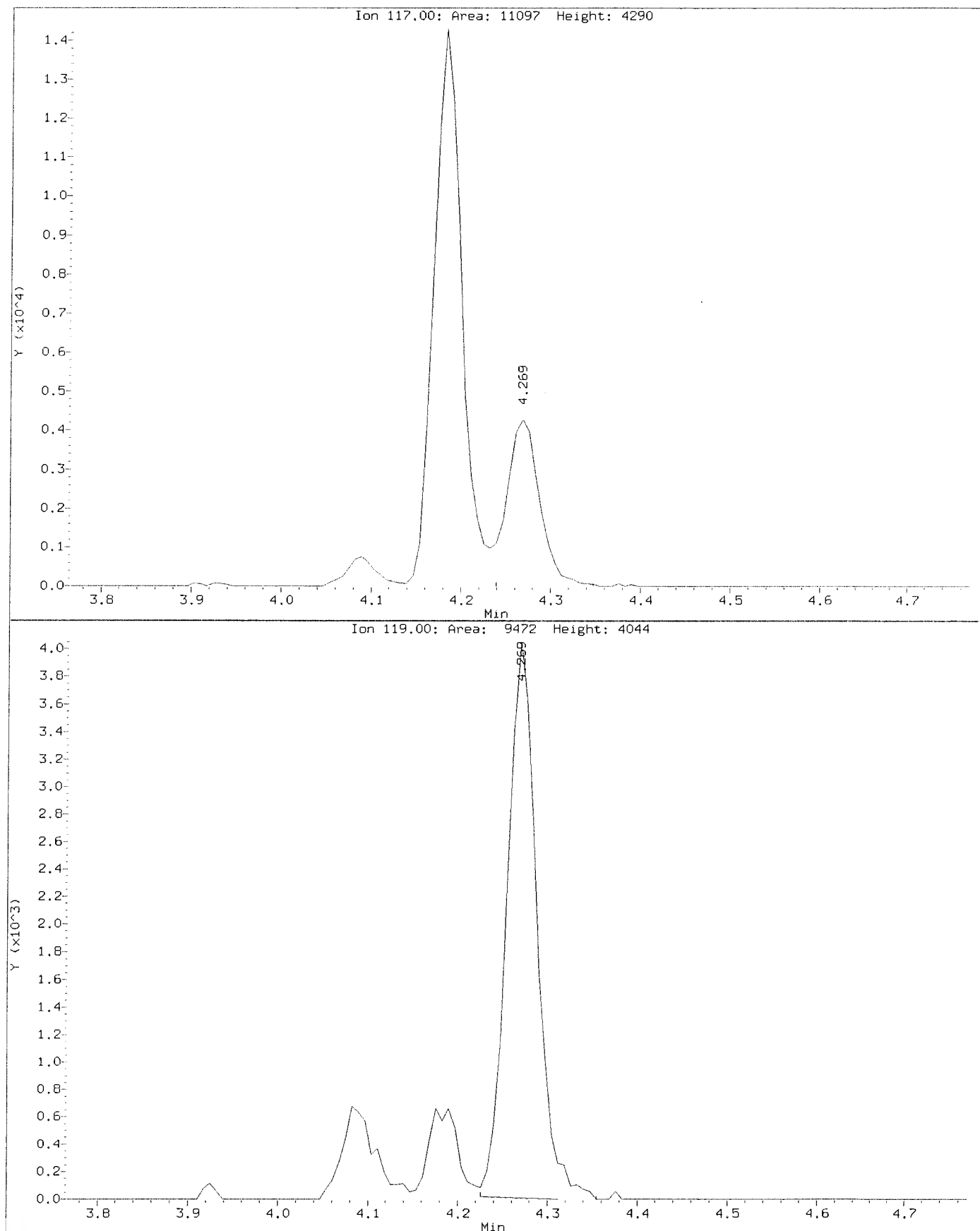
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Injection Date: 18-NOV-2019 15:23
Instrument: voa6.1
Client Sample ID: VSTD002

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D
Injection Date: 18-NOV-2019 15:23
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D Page 1
 Report Date: 06-Dec-2019 19:56

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Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D
 Lab Smp Id: VSTD005 Client Smp ID: VSTD005
 Inj Date : 18-NOV-2019 15:47
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD005;VSTD005;1;5;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 15:23 Cal File: X111805.D
 Als bottle: 7 Calibration Sample, Level: 5
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

						AMOUNTS		
		QUANT SIG					CAL-AMT	ON-COL
Compounds		MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)
=====		=====	=====	=====	=====	=====	=====	=====
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	410845	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	563063	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	510927	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	277846	50.0000	
\$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	20921	5.00000	6.06
\$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	25804	5.00000	5.80
\$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	20237	5.00000	5.74
\$	48 Toluene-d8	98	6.388	6.388	(0.833)	69936	5.00000	5.19
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	20728	5.00000	5.59
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	29459	5.00000	5.31
	68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	22230	5.00000	5.68
	138 Freon TF	101	1.919	1.919	(0.459)	18786	5.00000	5.25
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	15003	5.00000	5.61
	22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	32313	5.00000	5.40
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	19077	5.00000	5.47
	32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	24310	5.00000	5.35
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	6553	5.00000	5.62
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	18403	5.00000	5.55 (M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	14399	5.00000	6.15
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	71210	5.00000	5.40
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	2641	5.00000	5.82
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	20565	5.00000	5.73



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS					AMOUNTS	
		RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	41602	5.00000	5.64
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	24346	5.00000	5.44
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	19076	5.00000	5.67
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	68944	5.00000	5.45
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	45064	5.00000	5.65
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	29776	5.00000	5.49
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	44703	5.00000	5.52
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	28965	5.00000	5.33
24 2-Butanone	43	3.581	3.581	(0.856)	13522	10.0000	10.72
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	56464	5.00000	5.64
52 2-Hexanone	43	7.090	7.090	(0.924)	23980	10.0000	11.42
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	66074	5.00000	5.45
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	71485	5.00000	5.25
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	33803	10.0000	11.29
10 Acetone	43	1.969	1.969	(0.471)	15992	10.0000	11.75
37 Benzene	78	4.512	4.512	(0.908)	72584	5.00000	5.63
74 Bromobenzene	156	8.810	8.810	(0.911)	27619	5.00000	5.71
29 Bromochloromethane	128	3.795	3.795	(0.908)	11669	5.00000	5.24
39 Bromodichloromethane	83	5.729	5.729	(1.153)	26638	5.00000	5.71
66 Bromoform	173	8.416	8.416	(1.097)	16084	5.00000	6.17
6 Bromomethane	94	1.338	1.338	(0.320)	28671	5.00000	4.99 (a)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	103008	10.0000	10.87
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	26931	5.00000	5.41 (M)
59 Chlorobenzene	112	7.699	7.699	(1.004)	55668	5.00000	5.58
7 Chloroethane	64	1.403	1.403	(0.336)	13261	5.00000	5.12
28 Chloroform	83	3.910	3.910	(0.935)	34944	5.00000	5.25
3 Chloromethane	50	1.073	1.073	(0.257)	24949	5.00000	5.75
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	22227	5.00000	5.70
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	31191	5.00000	5.68
55 Dibromochloromethane	129	7.176	7.176	(0.936)	21920	5.00000	5.64
44 Dibromomethane	93	5.558	5.558	(1.118)	13775	5.00000	5.78
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	18346	5.00000	5.69
61 Ethylbenzene	106	7.800	7.800	(1.017)	29424	5.00000	5.70
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	11525	5.00000	5.47
67 Isopropylbenzene	105	8.566	8.566	(1.117)	81869	5.00000	5.36
62 m,p-Xylenes	106	7.907	7.907	(1.031)	69325	10.0000	11.14
17 Methylene Chloride	84	2.306	2.306	(0.551)	20180	5.00000	5.43
87 n-Butylbenzene	91	9.999	9.999	(1.034)	57498	5.00000	5.08
73 n-Propylbenzene	91	8.917	8.917	(0.922)	92937	5.00000	5.41
92 Naphthalene	128	11.546	11.546	(1.194)	17063	5.00000	5.68
63 o-Xylene	106	8.244	8.244	(1.075)	33646	5.00000	5.48
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	78149	5.00000	5.23
64 Styrene	104	8.258	8.258	(1.077)	58650	5.00000	5.49
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	59074	5.00000	5.45
56 Tetrachloroethene	164	6.933	6.933	(0.904)	20334	5.00000	5.66
50 Toluene	91	6.446	6.446	(0.840)	80201	5.00000	5.53
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	18086	5.00000	5.35
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	28395	5.00000	5.67
38 Trichloroethene	130	5.207	5.207	(1.048)	22280	5.00000	5.65
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	33411	5.00000	5.24
5 Vinyl Chloride	62	1.138	1.138	(0.272)	20691	5.00000	4.94 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D Page 3
Report Date: 06-Dec-2019 19:56

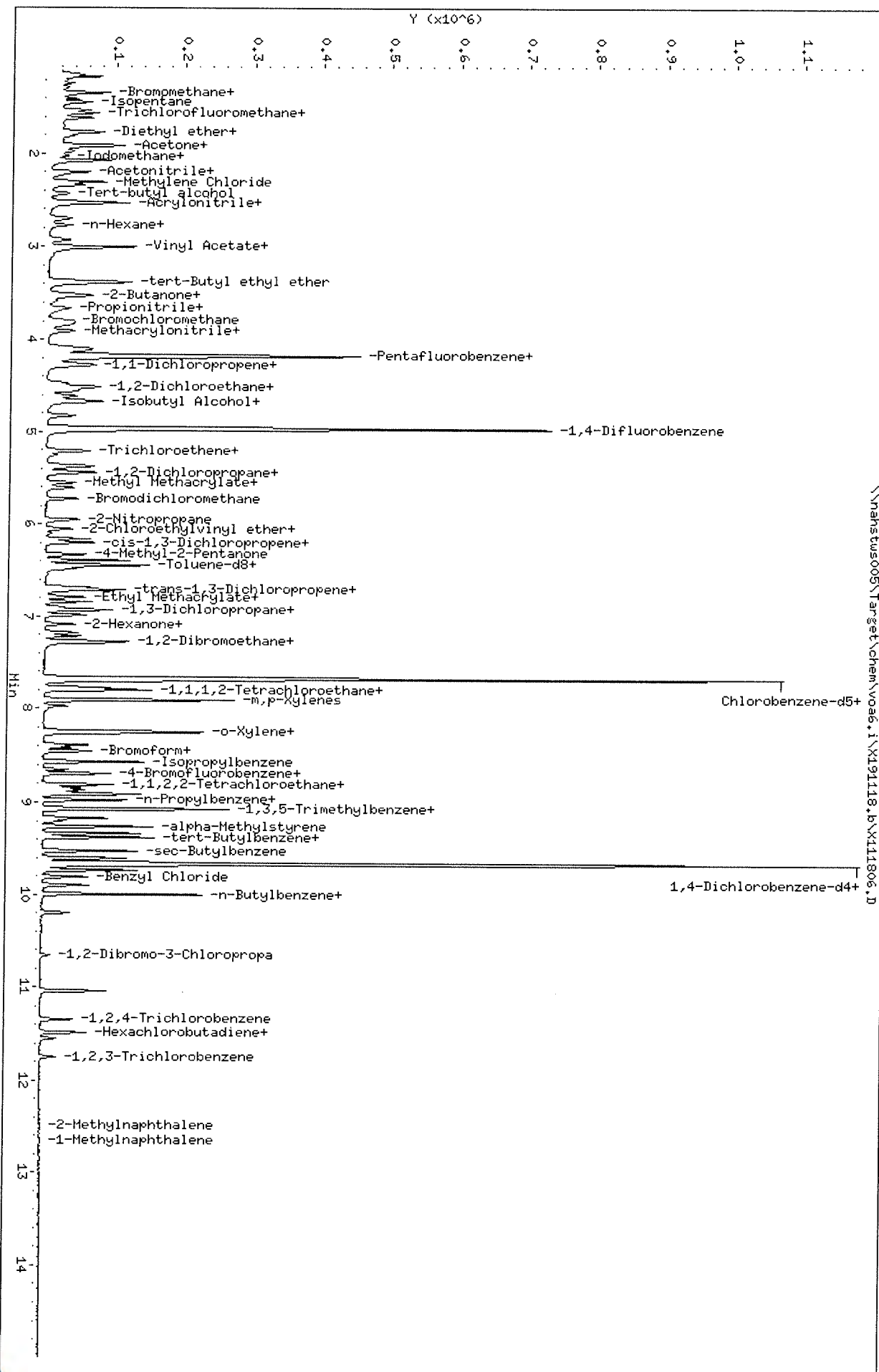
QC Flag Legend

- a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
- M - Compound response manually integrated.



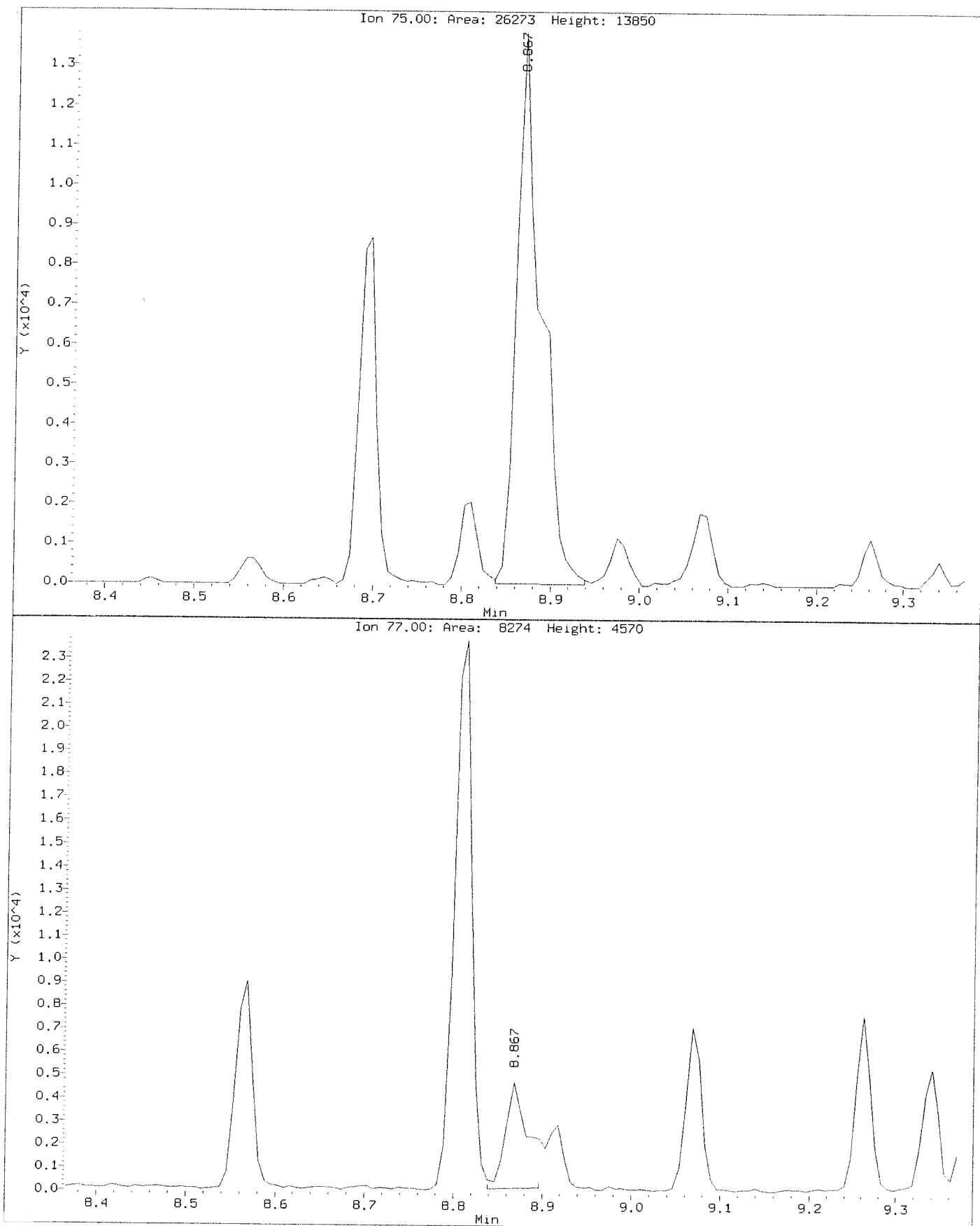
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 Sample Info: VSTD005;VSTD005;1;5;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



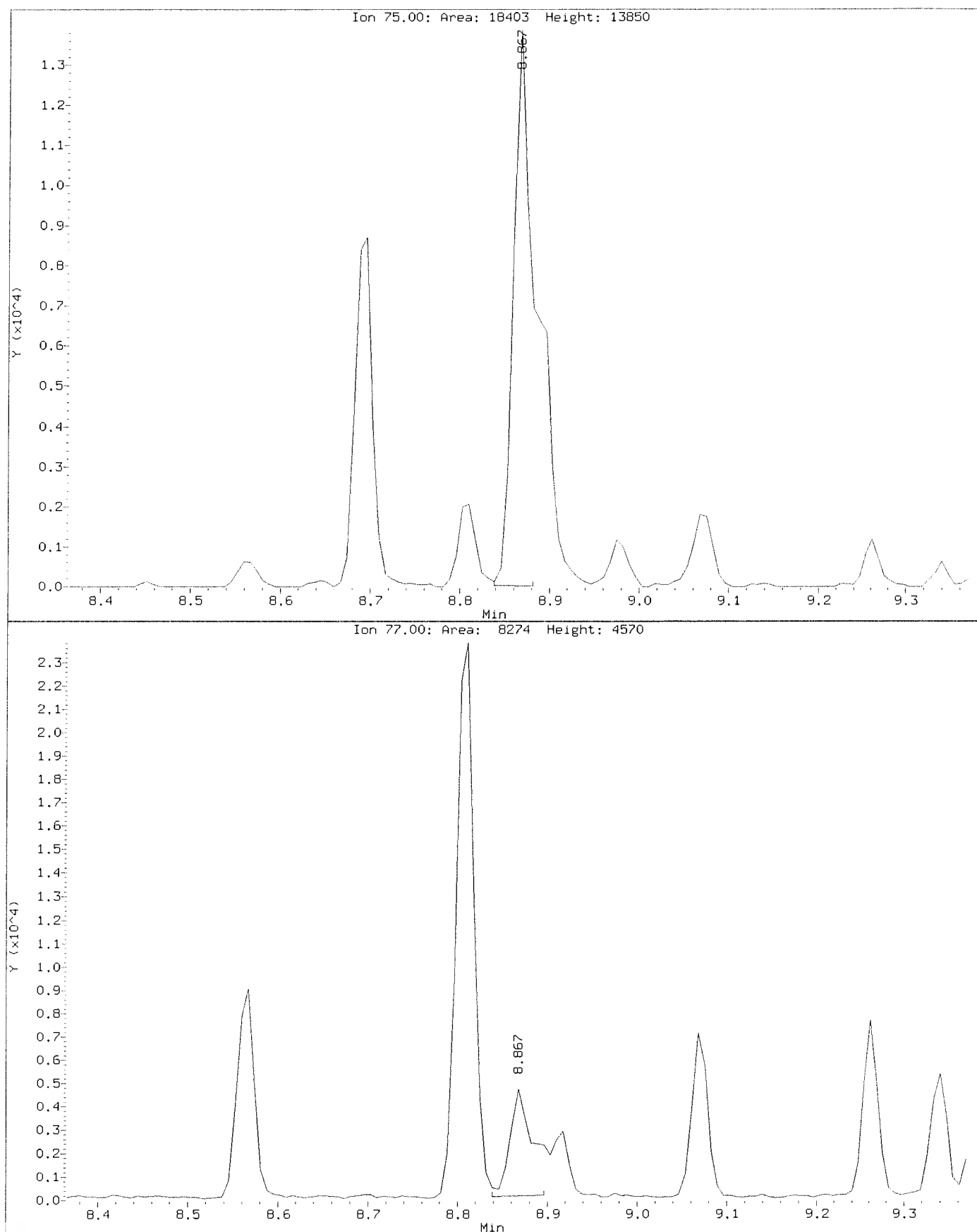
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Injection Date: 18-NOV-2019 15:47
Instrument: voa6.1
Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



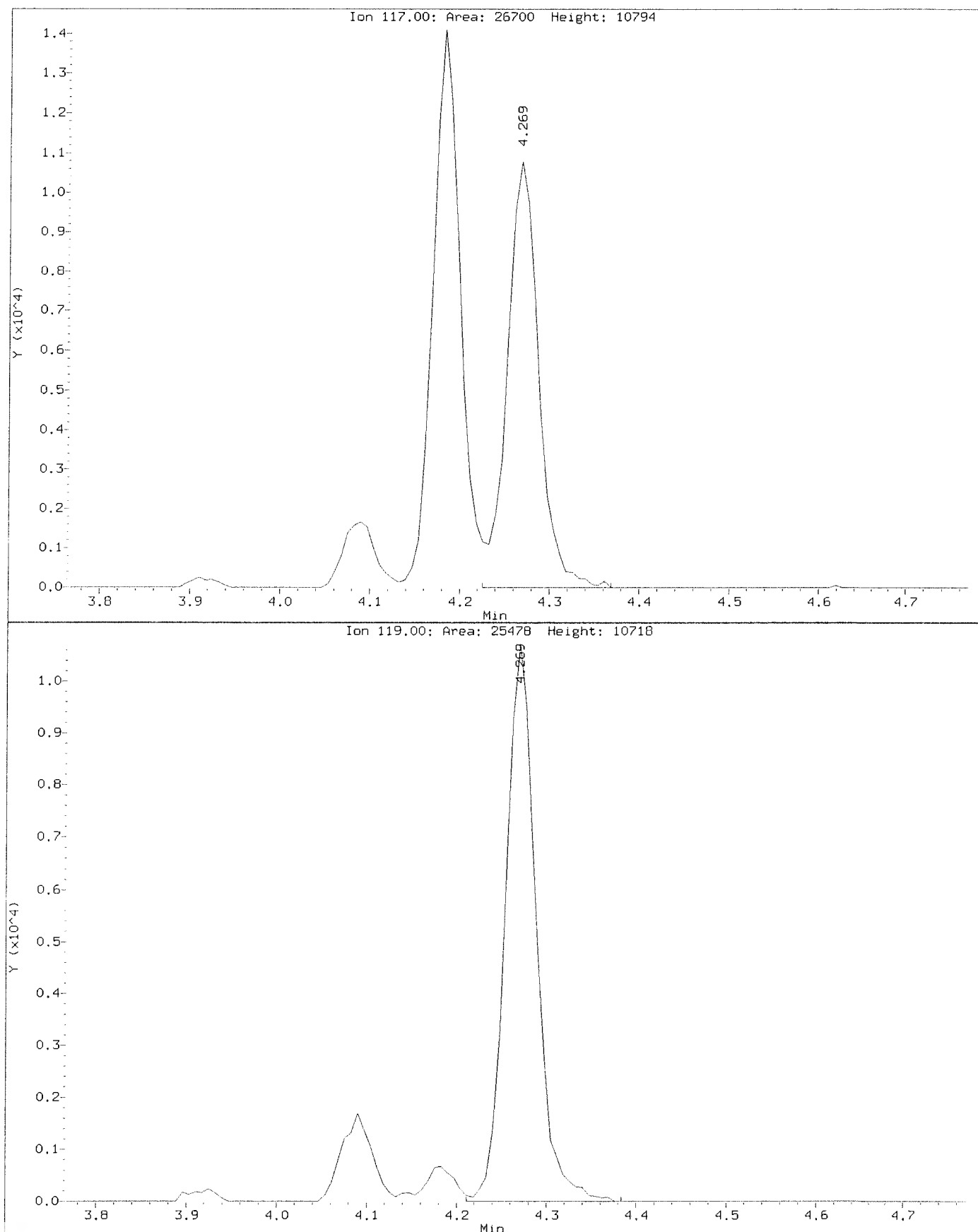
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Instrument: voa6.i
Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



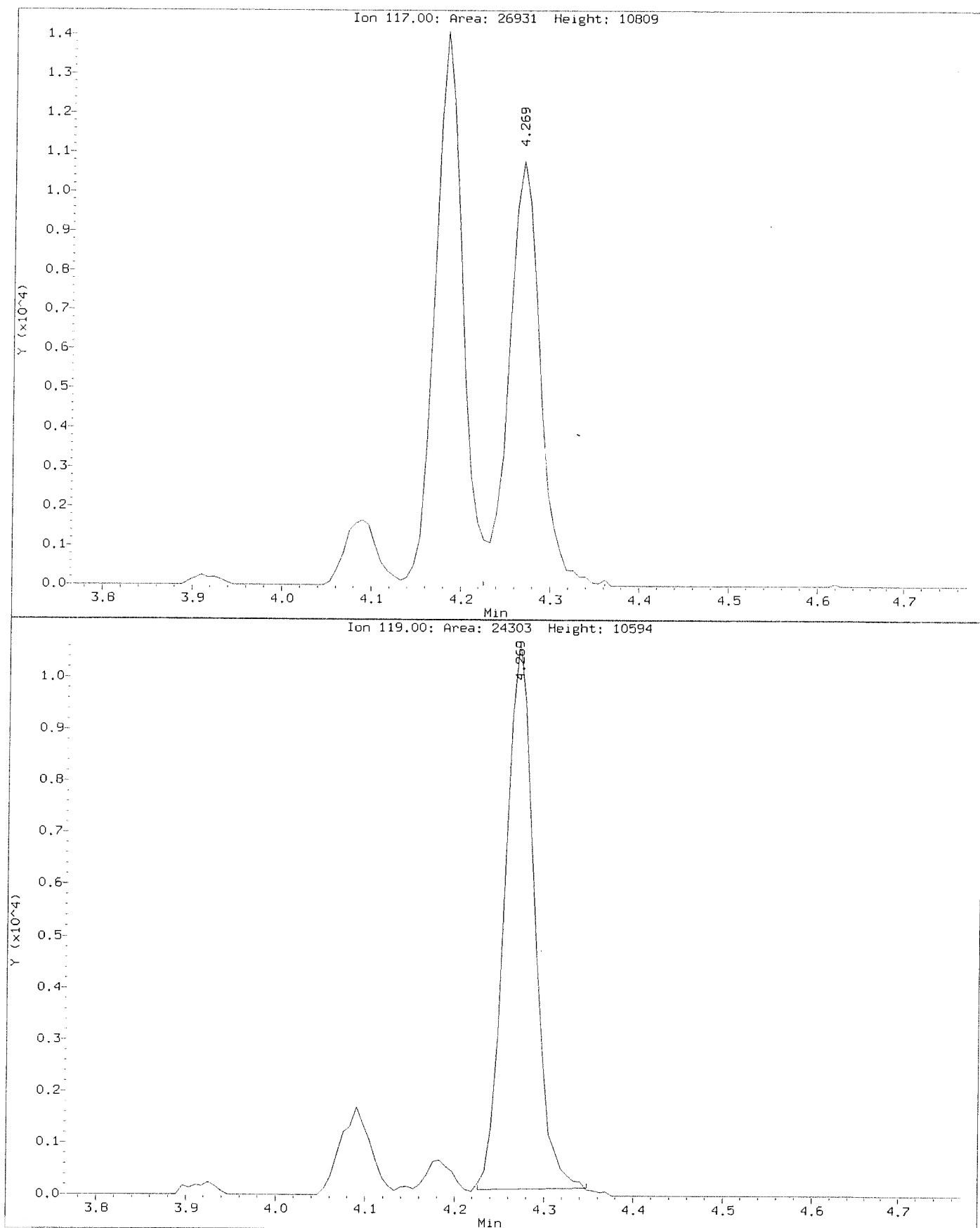
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Instrument: voa6.i
Client Sample ID: VSTD005

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.1\X191118.b\X111806.D
Injection Date: 18-NOV-2019 15:47
Instrument: voa6.1
Client Sample ID: VSTD005

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D
 Lab Smp Id: VSTD020 Client Smp ID: VSTD020
 Inj Date : 18-NOV-2019 16:11
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD020;VSTD020;1;6;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 15:47 Cal File: X111806.D
 Als bottle: 8 Calibration Sample, Level: 6
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG						AMOUNTS	
		MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
*****	****	****	****	****	****	*****	*****	*****
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	411693	50.0000		
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	563792	50.0000		
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	515046	50.0000		
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	278890	50.0000		
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	75813	20.0000	20.02	
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	94194	20.0000	19.91	
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	75094	20.0000	20.28	
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	260273	20.0000	19.17	
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	73347	20.0000	19.62	
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	105363	20.0000	18.97	
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	75821	20.0000	19.33	
138 Freon TF	101	1.919	1.919	(0.459)	62543	20.0000	17.44	
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	52184	20.0000	19.38	
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	113669	20.0000	18.97	
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	64160	20.0000	18.38	
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	84000	20.0000	18.47	
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	21856	20.0000	20.64	
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	64689	20.0000	19.46 (M)	
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	46623	20.0000	19.84	
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.971)	254992	20.0000	19.26	
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.103)	8805	20.0000	20.13	
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	71738	20.0000	19.85	



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG						AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE		CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====		=====	=====
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.035)	144121		20.0000	19.47
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	88277		20.0000	19.72
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	64004		20.0000	19.00
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	247054		20.0000	19.45
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.994)	157428		20.0000	19.68
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	105400		20.0000	19.28
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	158049		20.0000	19.44
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	100376		20.0000	18.46
24 2-Butanone	43	3.580	3.580	(0.856)	48098		40.0000	38.07
76 2-Chlorotoluene	91	8.974	8.974	(0.929)	193547		20.0000	19.28
52 2-Hexanone	43	7.083	7.083	(0.923)	78795		40.0000	37.24
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	231980		20.0000	19.07
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	257377		20.0000	18.86
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	115695		40.0000	38.33
10 Acetone	43	1.976	1.976	(0.473)	43200		40.0000	38.23
37 Benzene	78	4.512	4.512	(0.908)	250181		20.0000	19.39
74 Bromobenzene	156	8.809	8.809	(0.912)	97394		20.0000	20.09
29 Bromochloromethane	128	3.795	3.795	(0.908)	41933		20.0000	18.80
39 Bromodichloromethane	83	5.729	5.729	(1.153)	89170		20.0000	19.11
66 Bromoform	173	8.415	8.415	(1.097)	56416		20.0000	19.02
6 Bromomethane	94	1.338	1.338	(0.320)	93456		20.0000	21.54
19 Carbon Disulfide	76	2.069	2.069	(0.495)	362755		40.0000	38.21
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	90839		20.0000	18.23 (M)
59 Chlorobenzene	112	7.699	7.699	(1.004)	192384		20.0000	19.13
7 Chloroethane	64	1.403	1.403	(0.336)	46616		20.0000	17.98
28 Chloroform	83	3.910	3.910	(0.935)	121141		20.0000	18.16
3 Chloromethane	50	1.073	1.073	(0.257)	85402		20.0000	19.21
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	74754		20.0000	19.14
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	107408		20.0000	19.53
55 Dibromochloromethane	129	7.176	7.176	(0.936)	76215		20.0000	19.48
44 Dibromomethane	93	5.557	5.557	(1.118)	46676		20.0000	19.58
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	63810		20.0000	17.59
61 Ethylbenzene	106	7.799	7.799	(1.017)	101554		20.0000	19.54
91 Hexachlorobutadiene	225	11.481	11.481	(1.188)	37789		20.0000	19.03
67 Isopropylbenzene	105	8.566	8.566	(1.117)	293670		20.0000	19.08
62 m,p-Xylenes	106	7.907	7.907	(1.031)	243460		40.0000	38.83
17 Methylene Chloride	84	2.305	2.305	(0.551)	66846		20.0000	17.95
87 n-Butylbenzene	91	9.998	9.998	(1.035)	210608		20.0000	18.54
73 n-Propylbenzene	91	8.917	8.917	(0.923)	331965		20.0000	19.25
92 Naphthalene	128	11.546	11.546	(1.195)	57138		20.0000	18.96
63 o-Xylene	106	8.244	8.244	(1.075)	119876		20.0000	19.37
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	278964		20.0000	18.62
64 Styrene	104	8.258	8.258	(1.077)	206802		20.0000	19.22
78 tert-Butylbenzene	119	9.339	9.339	(0.967)	208031		20.0000	19.13
56 Tetrachloroethene	164	6.933	6.933	(0.904)	68625		20.0000	18.96
50 Toluene	91	6.446	6.446	(0.840)	280019		20.0000	19.17
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	63600		20.0000	18.77
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	100272		20.0000	20.00
38 Trichloroethene	130	5.206	5.206	(1.048)	77608		20.0000	19.68
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	116474		20.0000	18.23
5 Vinyl Chloride	62	1.138	1.138	(0.272)	74818		20.0000	17.83



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D Page 3
Report Date: 06-Dec-2019 19:56

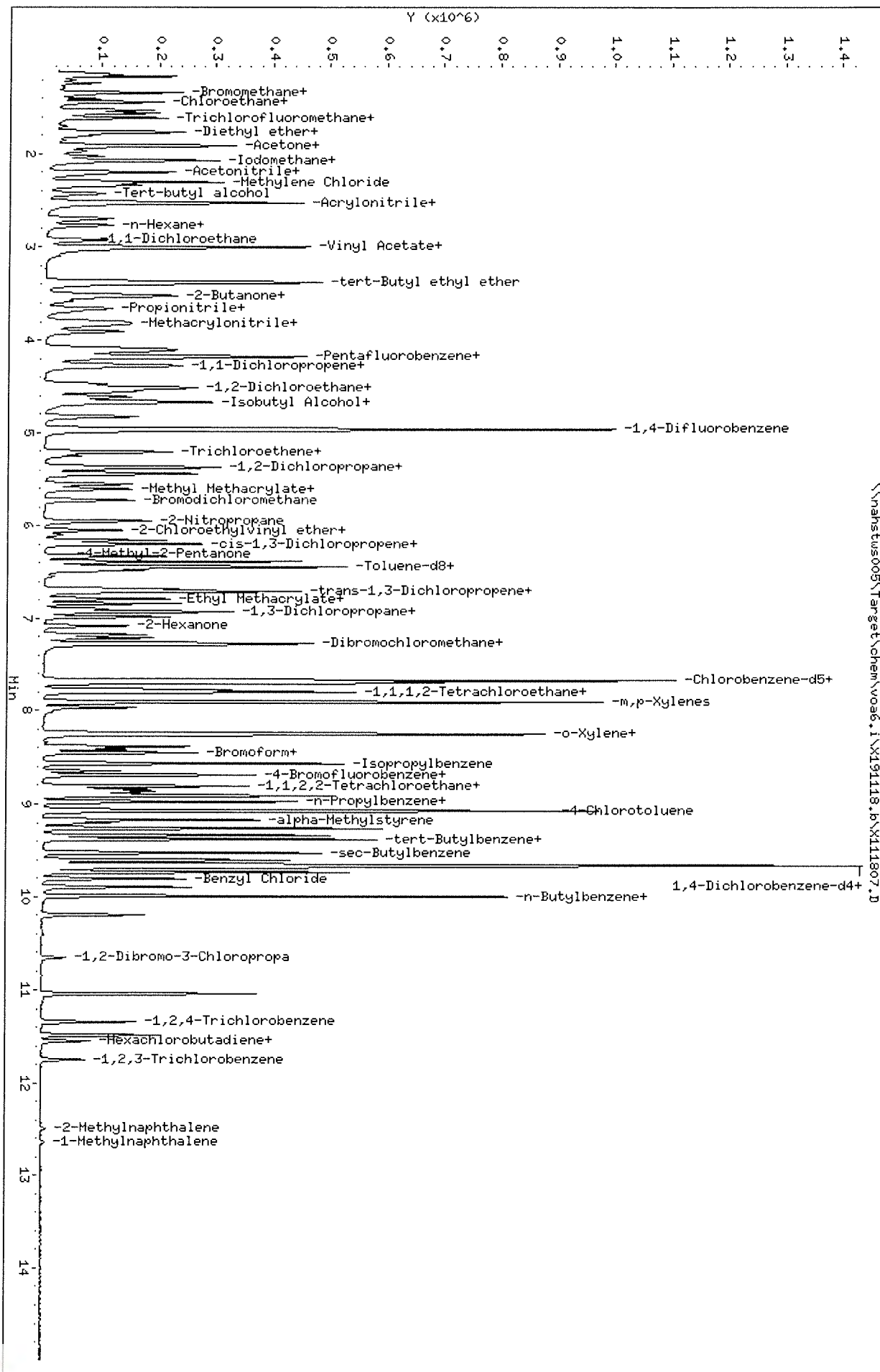
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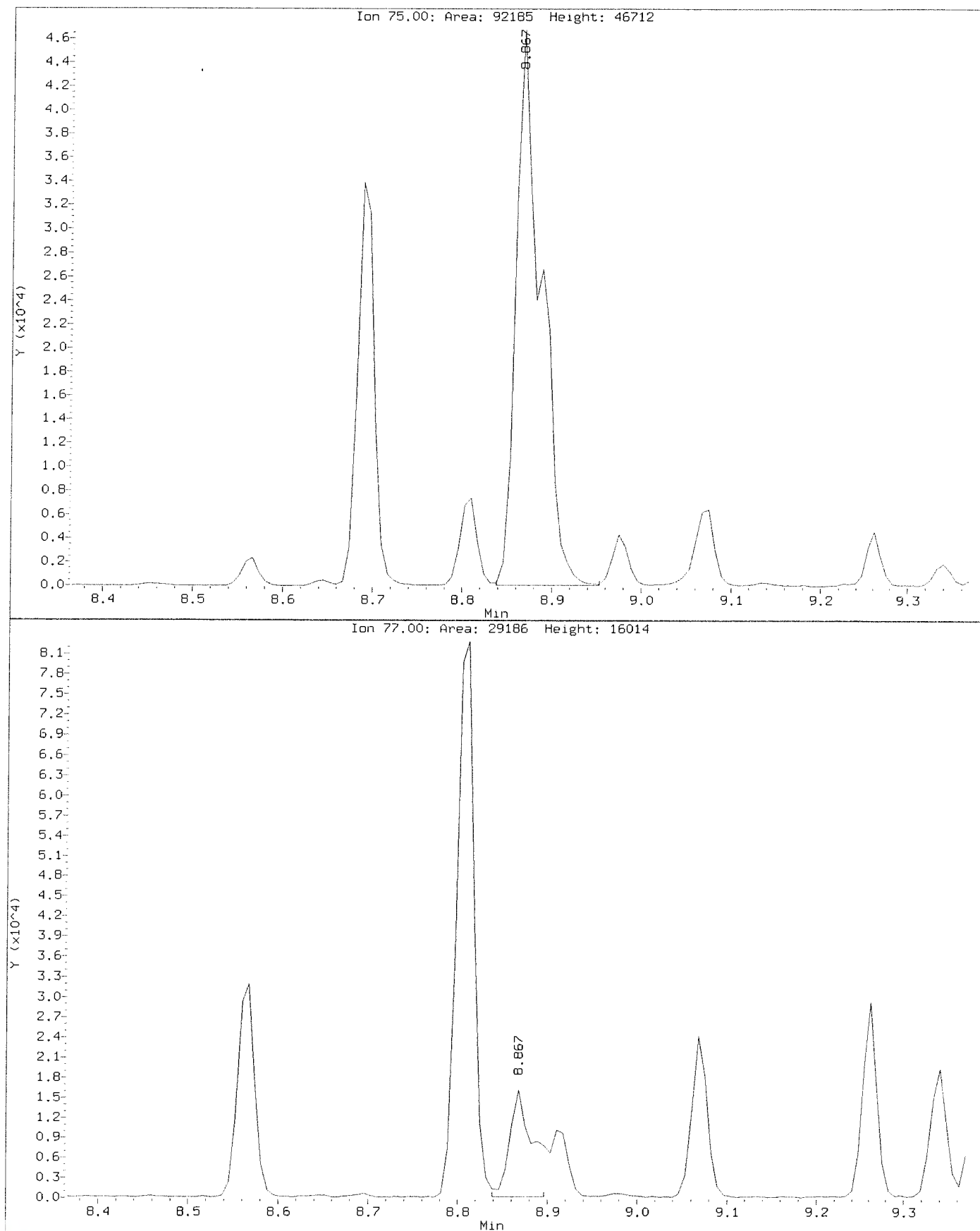
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 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



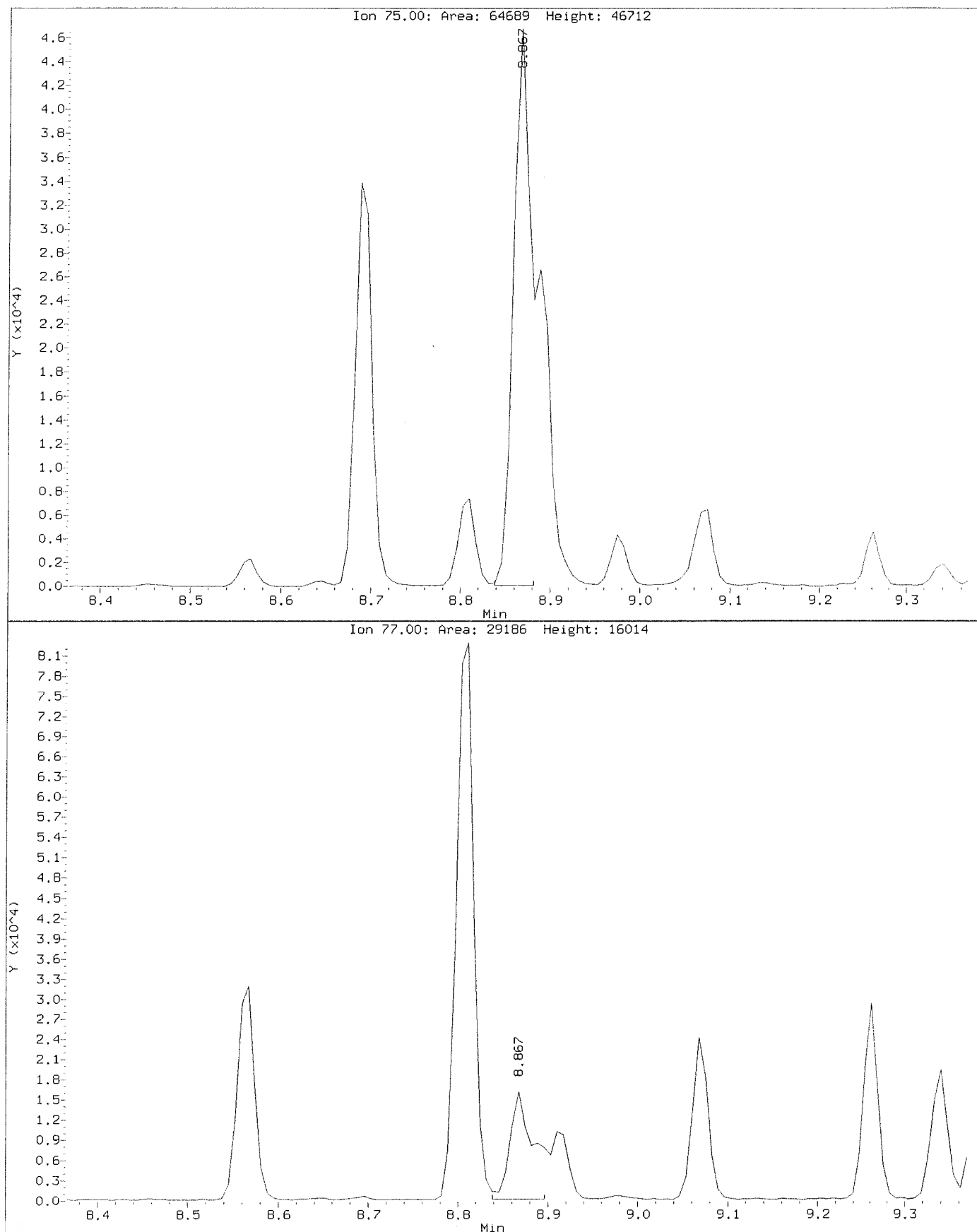
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Instrument: voa6.i
Client Sample ID: VSTD020

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



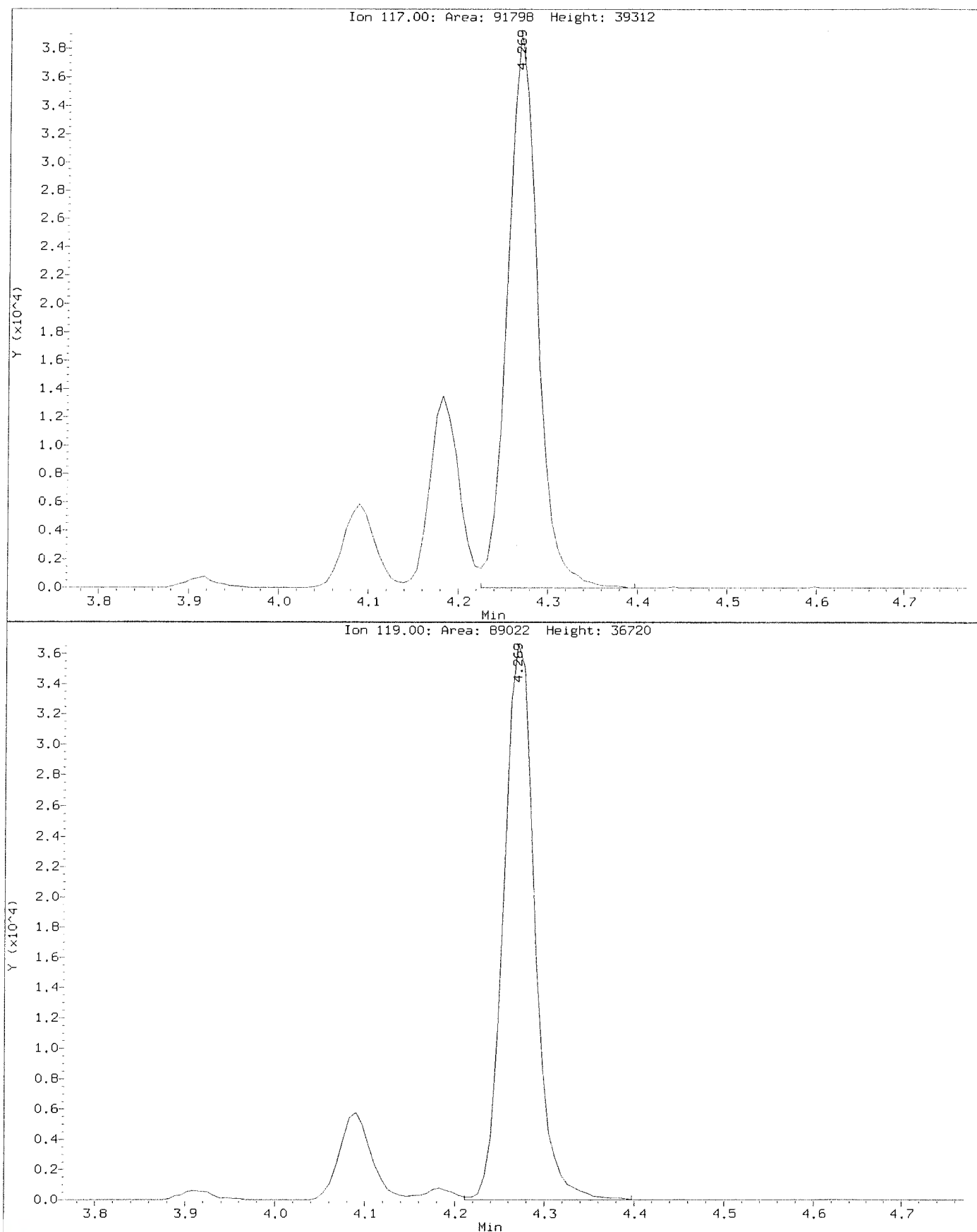
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Instrument: voa6.i
Client Sample ID: VSTD020

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



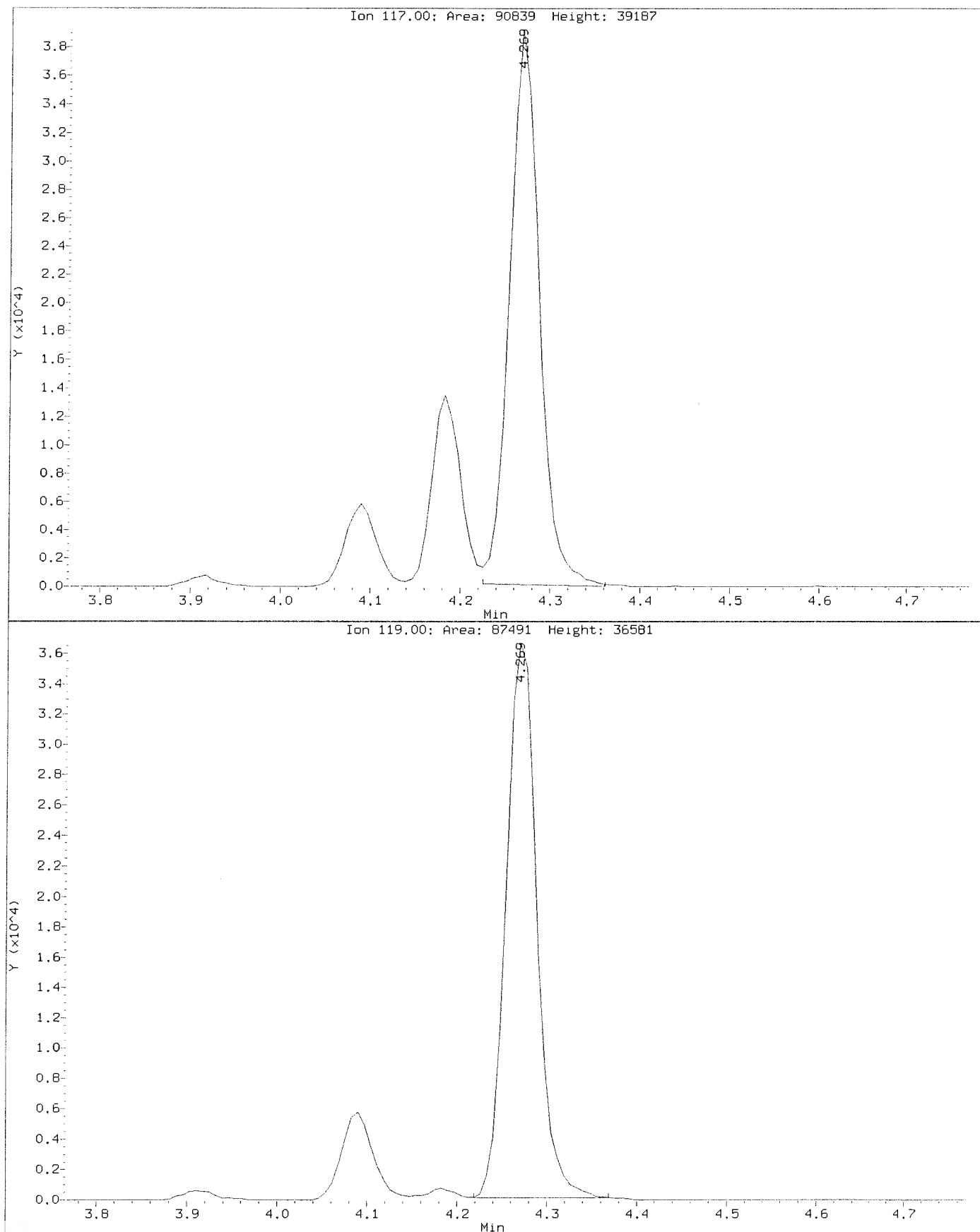
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Injection Date: 18-NOV-2019 16:11
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D
Injection Date: 18-NOV-2019 16:11
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D
 Lab Smp Id: VSTD050 Client Smp ID: VSTD050
 Inj Date : 18-NOV-2019 16:35
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD050;VSTD050;1;7;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:11 Cal File: X111807.D
 Als bottle: 9 Calibration Sample, Level: 7
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG					AMOUNTS	
			RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168		4.182	4.182	(1.000)	399282	50.0000	
* 36 1,4-Difluorobenzene	114		4.970	4.970	(1.000)	548073	50.0000	
* 47 Chlorobenzene-d5	117		7.671	7.671	(1.000)	502523	50.0000	
* 70 1,4-Dichlorobenzene-d4	152		9.669	9.669	(1.000)	273444	50.0000	
\$ 35 1,2-Dichloroethane-d4	65		4.476	4.476	(1.070)	178006	50.0000	47.42
\$ 69 4-Bromofluorobenzene	95		8.688	8.688	(1.133)	222328	50.0000	47.57
\$ 30 Dibromofluoromethane	113		4.103	4.103	(0.981)	173990	50.0000	47.93
\$ 48 Toluene-d8	98		6.388	6.388	(0.833)	608955	50.0000	45.99
60 1,1,1,2-Tetrachloroethane	131		7.778	7.778	(1.014)	184913	50.0000	50.72
31 1,1,1-Trichloroethane	97		4.089	4.089	(0.978)	268813	50.0000	49.90
68 1,1,2,2-Tetrachloroethane	83		8.845	8.845	(0.915)	183844	50.0000	47.81
138 Freon TF	101		1.911	1.911	(0.457)	183115	50.0000	52.67
53 1,1,2-Trichloroethane	83		6.840	6.840	(0.892)	128481	50.0000	48.90
22 1,1-Dichloroethane	63		2.921	2.921	(0.699)	283343	50.0000	48.77
11 1,1-Dichloroethene	96		1.911	1.911	(0.457)	171500	50.0000	50.68
32 1,1-Dichloropropene	75		4.282	4.282	(0.862)	220463	50.0000	49.86
93 1,2,3-Trichlorobenzene	180		11.746	11.746	(1.215)	52554	50.0000	51.69
71 1,2,3-Trichloropropane	75		8.867	8.867	(0.917)	157820	50.0000	48.44 (M)
90 1,2,4-Trichlorobenzene	180		11.338	11.338	(1.173)	115181	50.0000	50.00
79 1,2,4-Trimethylbenzene	105		9.383	9.383	(0.970)	661580	50.0000	50.99
89 1,2-Dibromo-3-Chloropropane	155		10.658	10.658	(1.102)	21800	50.0000	51.36
57 1,2-Dibromoethane	107		7.262	7.262	(0.947)	174730	50.0000	49.57



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT	SIG						AMOUNTS	
			MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146		9.999	9.999	(1.034)		363670	50.0000	50.11
33 1,2-Dichloroethane	62		4.562	4.562	(0.918)		219760	50.0000	50.51
42 1,2-Dichloropropane	63		5.443	5.443	(1.095)		161607	50.0000	49.36
75 1,3,5-Trimethylbenzene	105		9.067	9.067	(0.938)		647527	50.0000	52.01
83 1,3-Dichlorobenzene	146		9.605	9.605	(0.993)		398343	50.0000	50.79
54 1,3-Dichloropropane	76		6.983	6.983	(0.910)		259218	50.0000	48.60
84 1,4-Dichlorobenzene	146		9.683	9.683	(1.001)		400593	50.0000	50.27
26 2,2-Dichloropropane	77		3.516	3.516	(0.841)		257082	50.0000	48.75
24 2-Butanone	43		3.573	3.573	(0.854)		116745	100.000	95.28
76 2-Chlorotoluene	91		8.974	8.974	(0.928)		506692	50.0000	51.50
52 2-Hexanone	43		7.090	7.090	(0.924)		193251	100.000	93.61
77 4-Chlorotoluene	91		9.075	9.075	(0.939)		603806	50.0000	50.63
82 p-Isopropyltoluene	119		9.655	9.655	(0.999)		703086	50.0000	52.54
45 4-Methyl-2-Pentanone	43		6.324	6.324	(0.824)		284508	100.000	96.62
10 Acetone	43		1.976	1.976	(0.473)		103091	100.000	99.72
37 Benzene	78		4.512	4.512	(0.908)		637799	50.0000	50.87
74 Bromobenzene	156		8.809	8.809	(0.911)		240153	50.0000	50.53
29 Bromochloromethane	128		3.795	3.795	(0.908)		105150	50.0000	48.61
39 Bromodichloromethane	83		5.729	5.729	(1.153)		226127	50.0000	49.85
66 Bromoform	173		8.416	8.416	(1.097)		143798	50.0000	48.09
6 Bromomethane	94		1.338	1.338	(0.320)		215480	50.0000	54.47
19 Carbon Disulfide	76		2.069	2.069	(0.495)		951783	100.000	103.39
34 Carbon Tetrachloride	117		4.268	4.268	(0.859)		247524	50.0000	51.11 (M)
59 Chlorobenzene	112		7.699	7.699	(1.004)		485055	50.0000	49.44
7 Chloroethane	64		1.403	1.403	(0.336)		124291	50.0000	49.44
28 Chloroform	83		3.910	3.910	(0.935)		300015	50.0000	46.39
3 Chloromethane	50		1.073	1.073	(0.257)		215753	50.0000	49.75
27 cis-1,2-Dichloroethene	96		3.530	3.530	(0.844)		187629	50.0000	49.55
46 cis-1,3-Dichloropropene	75		6.159	6.159	(1.239)		273432	50.0000	51.15
55 Dibromochloromethane	129		7.176	7.176	(0.936)		191497	50.0000	50.17
44 Dibromomethane	93		5.557	5.557	(1.118)		115707	50.0000	49.94
2 Dichlorodifluoromethane	85		0.973	0.973	(0.233)		186161	50.0000	51.14
61 Ethylbenzene	106		7.799	7.799	(1.017)		257283	50.0000	50.75
91 Hexachlorobutadiene	225		11.488	11.488	(1.188)		99881	50.0000	52.17
67 Isopropylbenzene	105		8.566	8.566	(1.117)		765390	50.0000	50.97
62 m,p-Xylenes	106		7.907	7.907	(1.031)		625932	100.000	102.32
17 Methylene Chloride	84		2.305	2.305	(0.551)		168044	50.0000	46.54
87 n-Butylbenzene	91		9.999	9.999	(1.034)		591076	50.0000	53.08
73 n-Propylbenzene	91		8.917	8.917	(0.922)		884464	50.0000	52.32
92 Naphthalene	128		11.546	11.546	(1.194)		142473	50.0000	48.22
63 o-Xylene	106		8.244	8.244	(1.075)		301622	50.0000	49.96
81 sec-Butylbenzene	105		9.526	9.526	(0.985)		772064	50.0000	52.58
64 Styrene	104		8.258	8.258	(1.077)		530825	50.0000	50.56
78 tert-Butylbenzene	119		9.340	9.340	(0.966)		550071	50.0000	51.60
56 Tetrachloroethene	164		6.933	6.933	(0.904)		176674	50.0000	50.03
50 Toluene	91		6.446	6.446	(0.840)		709296	50.0000	49.77
20 trans-1,2-Dichloroethene	96		2.527	2.527	(0.604)		163591	50.0000	49.79
51 trans-1,3-Dichloropropene	75		6.682	6.682	(1.344)		247921	50.0000	50.89
38 Trichloroethene	130		5.206	5.206	(1.048)		196625	50.0000	51.29
8 Trichlorofluoromethane	101		1.560	1.560	(0.373)		328789	50.0000	53.08
5 Vinyl Chloride	62		1.138	1.138	(0.272)		201503	50.0000	49.51



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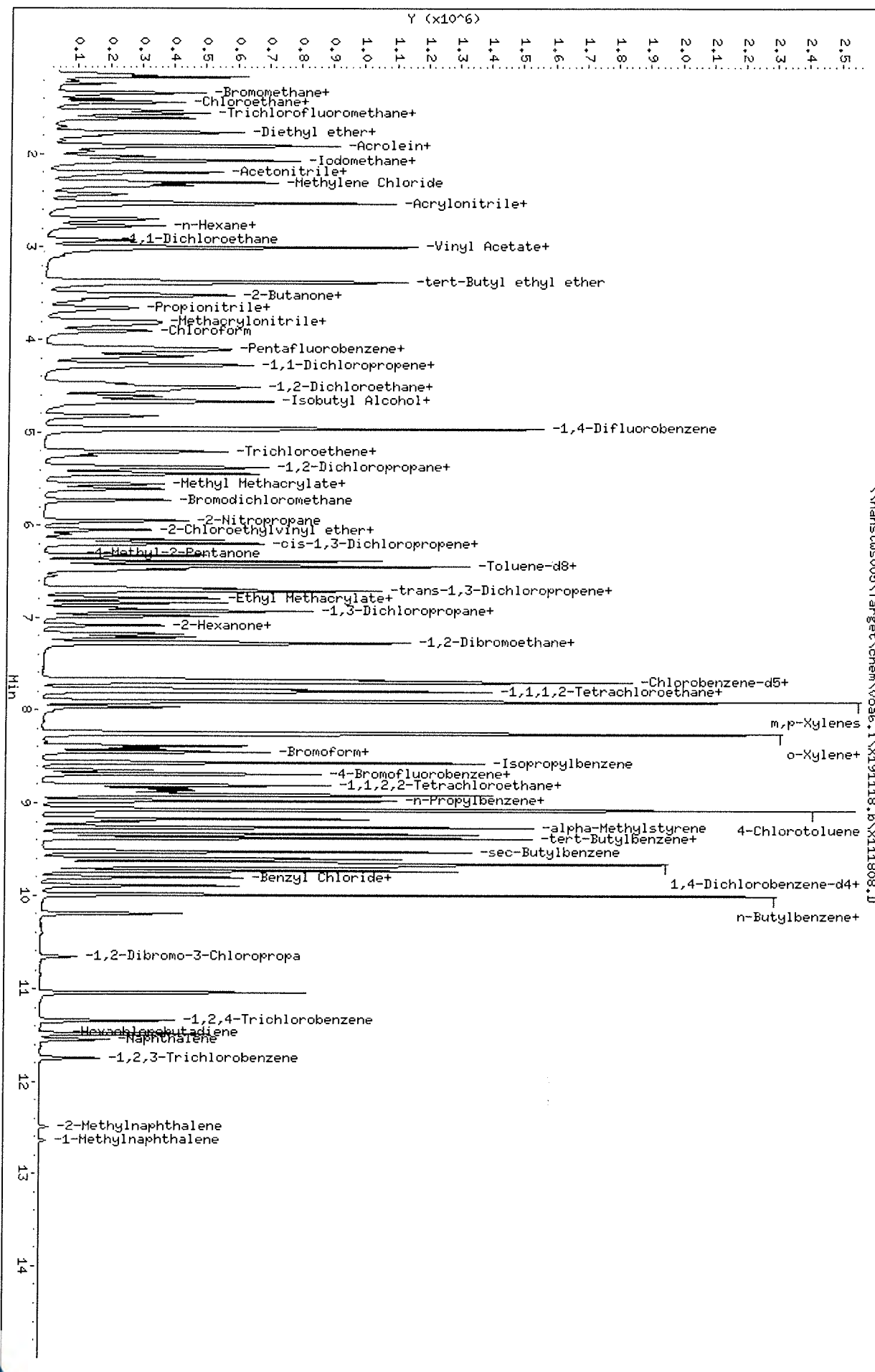
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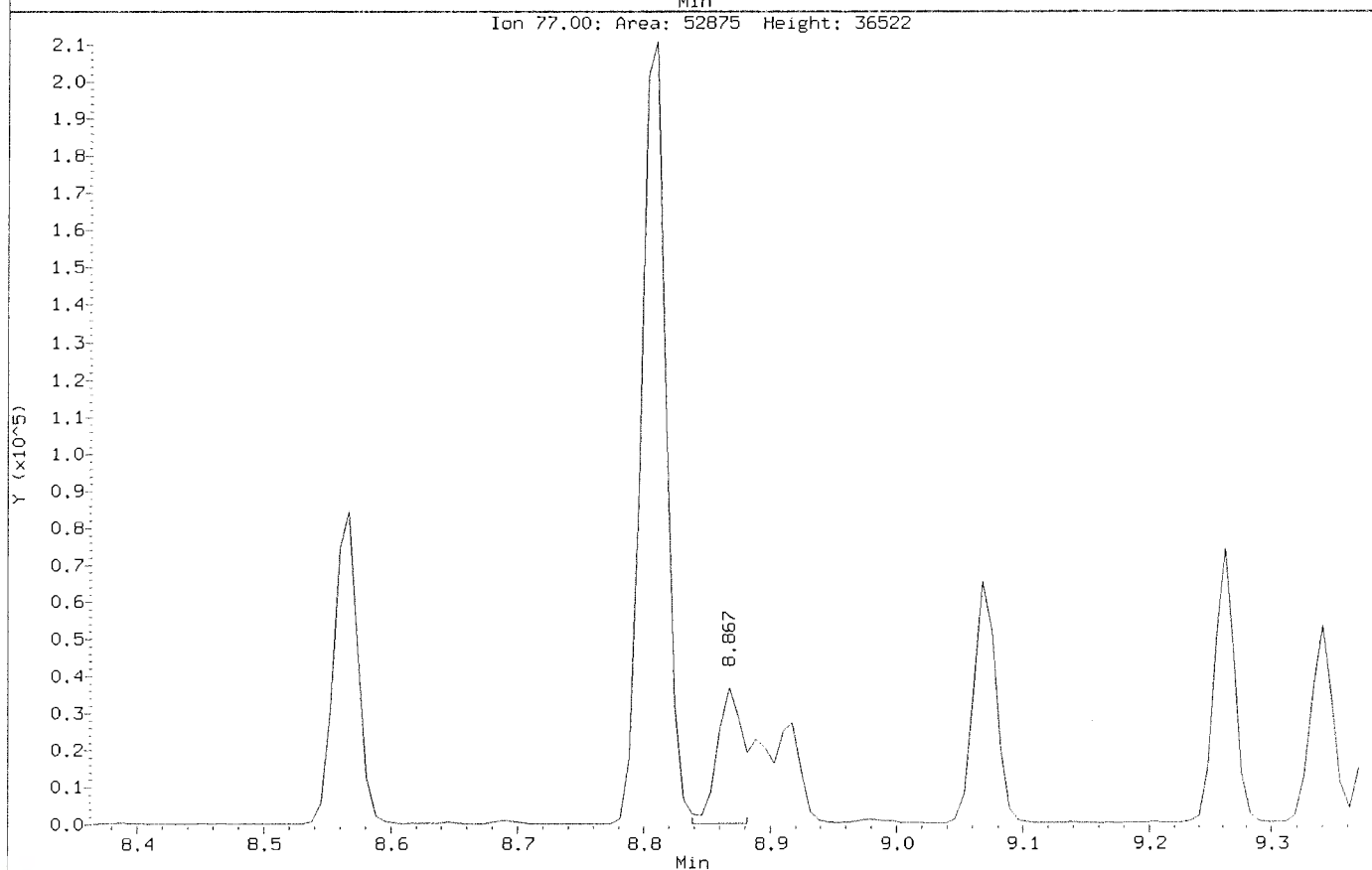
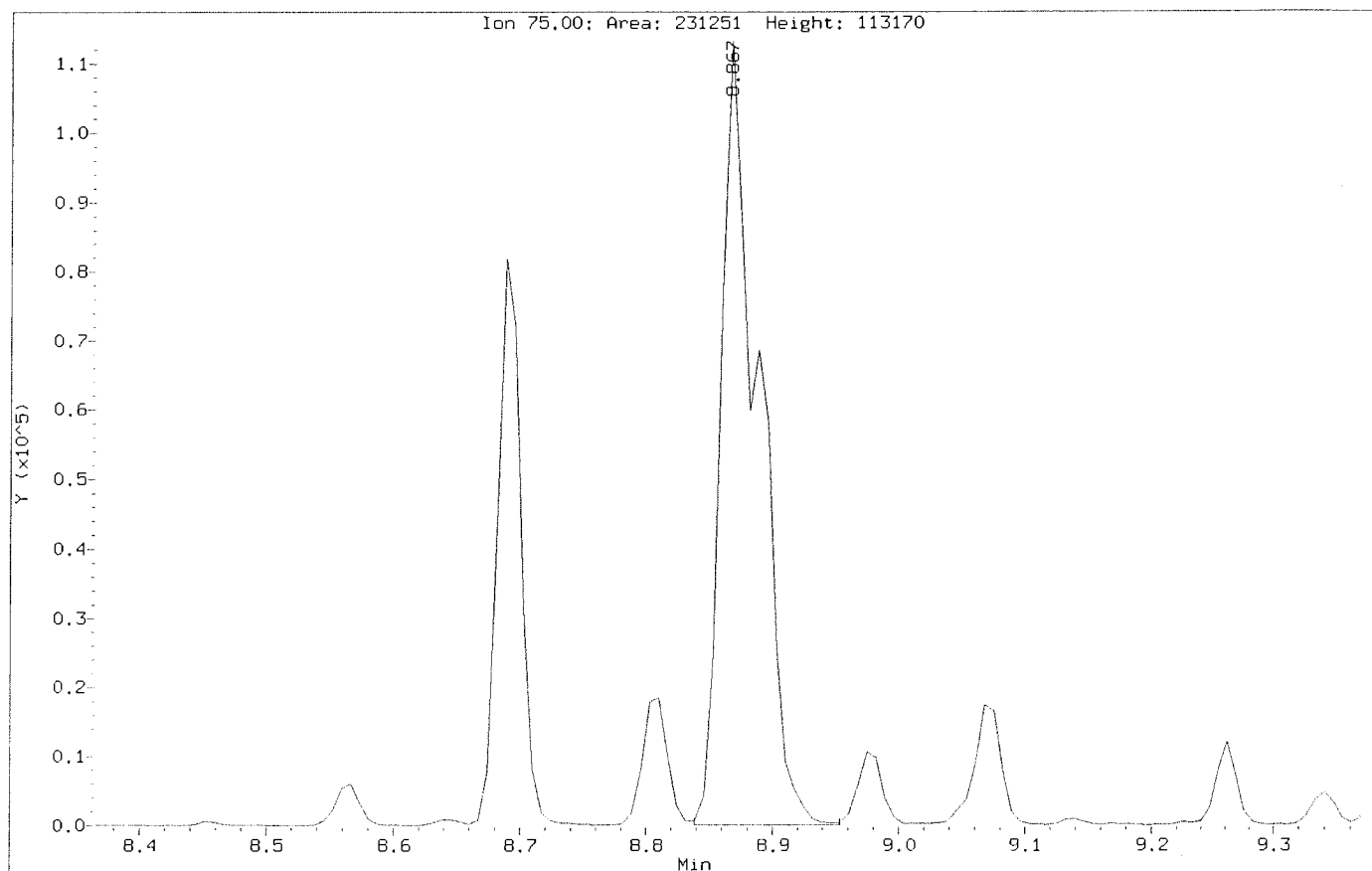
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Instrument: voa6.i
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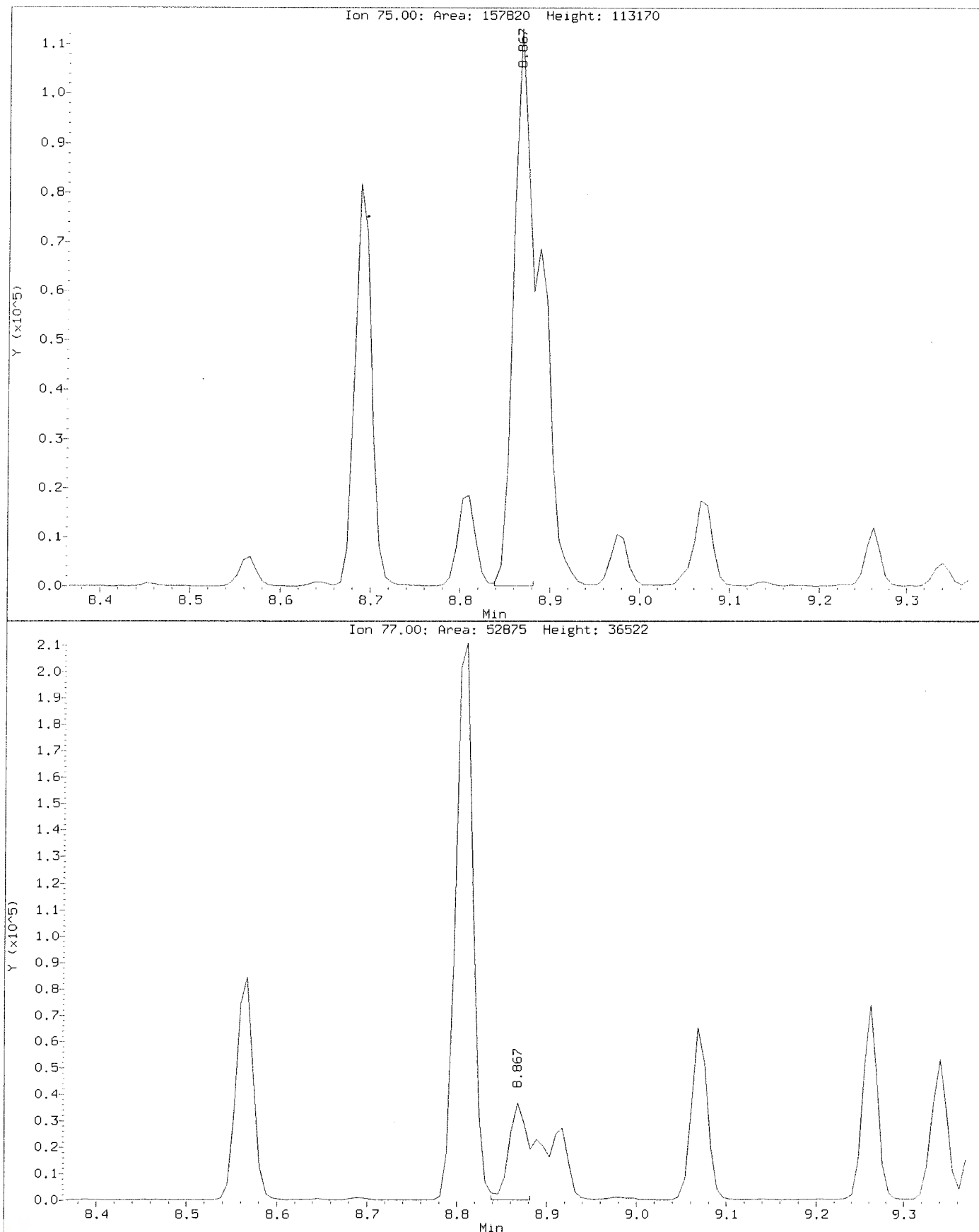
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Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



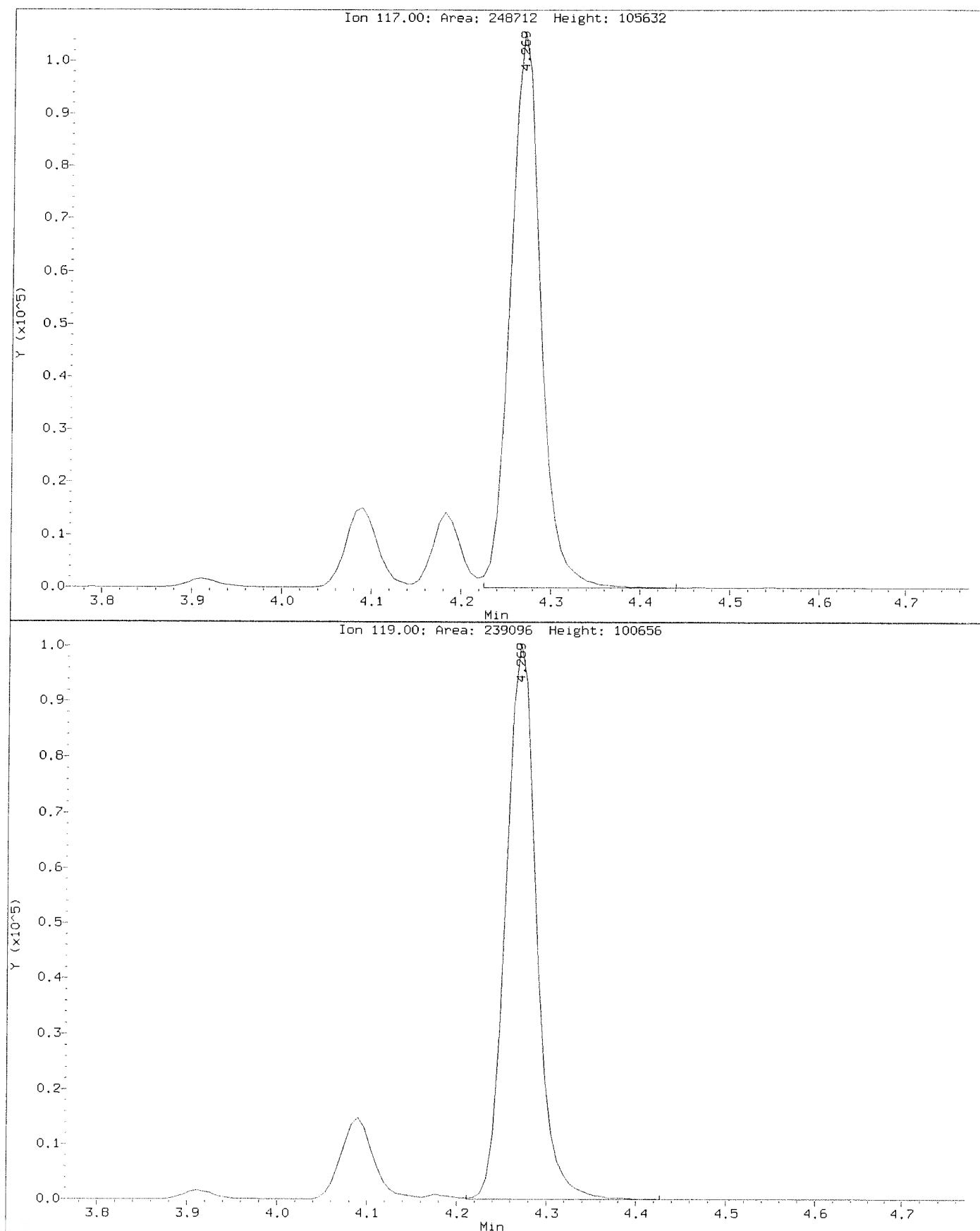
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Client Sample ID: VSTD050

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



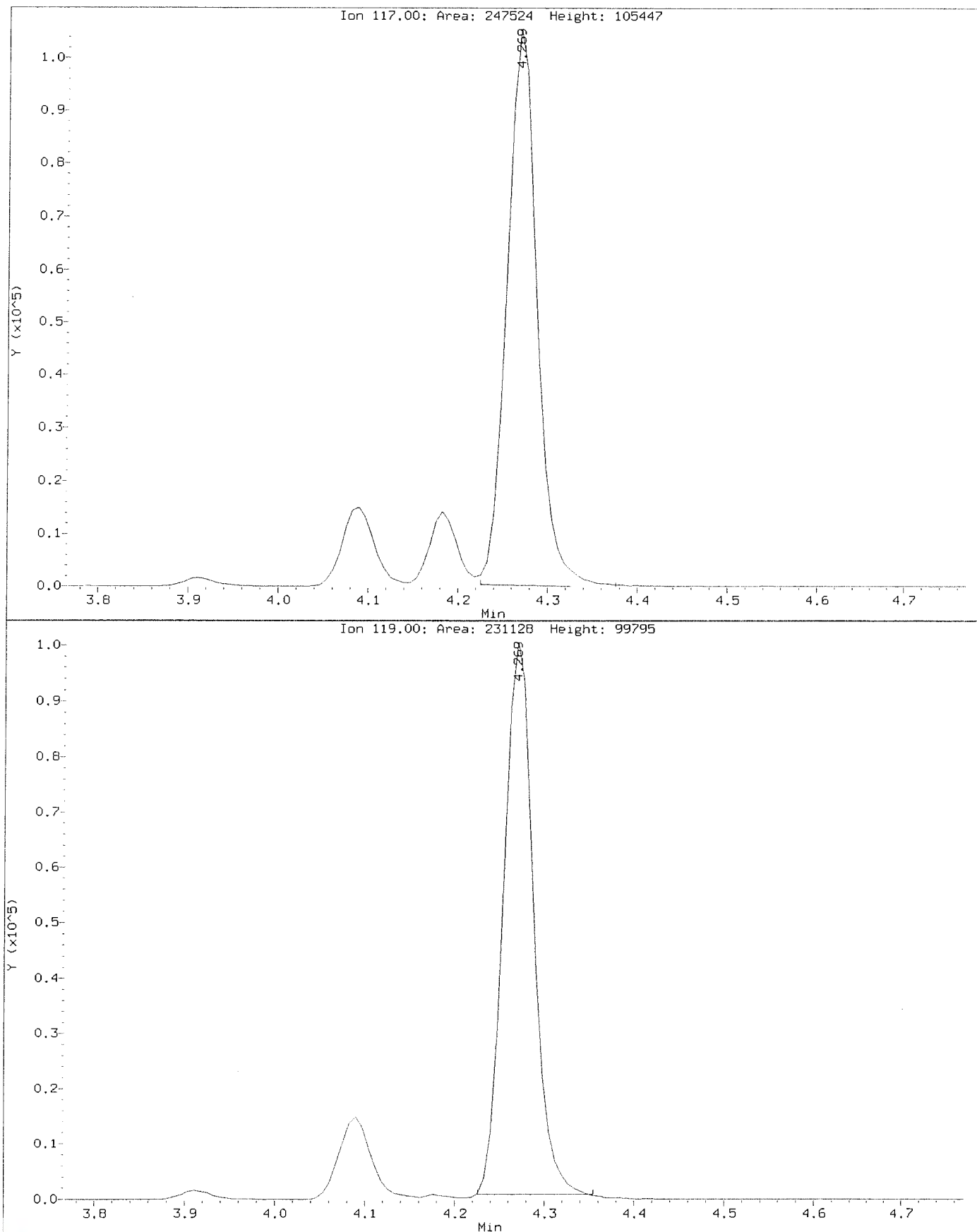
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Injection Date: 18-NOV-2019 16:35
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D
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Instrument: voa6.i
Client Sample ID: VSTD050

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D
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 Misc Info : HS18090001;WATER;0;1;
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 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 10 Calibration Sample, Level: 8
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

						AMOUNTS	
QUANT SIG						CAL-AMT	ON-COL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	392699	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	554744	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	502006	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	278931	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	364646	100.000	97.98
\$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	465570	100.000	99.26
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	354918	100.000	99.03
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1251601	100.000	94.62
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	370675	100.000	101.77
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	531073	100.000	100.24
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	374065	100.000	95.36
138 Freon TF	101	1.911	1.911	(0.457)	363001	100.000	106.17
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	259169	100.000	98.76
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	562516	100.000	98.44
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	336639	100.000	101.15
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	435155	100.000	97.24
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	102660	100.000	99.24
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	314678	100.000	94.68 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	224252	100.000	95.44
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	1360930	100.000	102.82
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	42468	100.000	98.40
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	348356	100.000	98.94



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	740257	100.000	99.99
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	440676	100.000	100.06
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	322033	100.000	97.17
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1326043	100.000	104.41
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	793024	100.000	99.13
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	523367	100.000	98.23
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	805891	100.000	99.14
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	505741	100.000	97.52
24 2-Butanone	43	3.580	3.580	(0.856)	231090	200.000	191.78
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	1019206	100.000	101.56
52 2-Hexanone	43	7.090	7.090	(0.924)	404339	200.000	196.07
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	1244013	100.000	102.27
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	1420650	100.000	104.09
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	584699	200.000	198.78
10 Acetone	43	1.976	1.976	(0.473)	202207	200.000	202.71 (A)
37 Benzene	78	4.519	4.519	(0.909)	1259183	100.000	99.22
74 Bromobenzene	156	8.809	8.809	(0.911)	477901	100.000	98.58
29 Bromochloromethane	128	3.795	3.795	(0.908)	204995	100.000	96.36
39 Bromodichloromethane	83	5.729	5.729	(1.153)	453036	100.000	98.68
66 Bromoform	173	8.415	8.415	(1.097)	293256	100.000	97.14
6 Bromomethane	94	1.331	1.331	(0.318)	396733	100.000	104.04
19 Carbon Disulfide	76	2.069	2.069	(0.495)	1866170	200.000	206.12 (A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	490954	100.000	100.15 (H)
59 Chlorobenzene	112	7.699	7.699	(1.004)	969904	100.000	98.96
7 Chloroethane	64	1.396	1.396	(0.334)	244234	100.000	98.78
28 Chloroform	83	3.910	3.910	(0.935)	592217	100.000	93.11
3 Chloromethane	50	1.073	1.073	(0.257)	420936	100.000	98.51
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	373378	100.000	100.25
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	548280	100.000	101.34
55 Dibromochloromethane	129	7.176	7.176	(0.936)	387071	100.000	101.53
44 Dibromomethane	93	5.557	5.557	(1.118)	228649	100.000	97.50
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	359790	100.000	99.65
61 Ethylbenzene	106	7.799	7.799	(1.017)	511284	100.000	100.96
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	192455	100.000	99.01
67 Isopropylbenzene	105	8.566	8.566	(1.117)	1550450	100.000	103.37
62 m,p-Xylenes	106	7.907	7.907	(1.031)	1262031	200.000	206.53 (A)
17 Methylene Chloride	84	2.305	2.305	(0.551)	333987	100.000	94.05
87 n-Butylbenzene	91	9.999	9.999	(1.034)	1214189	100.000	106.90
73 n-Propylbenzene	91	8.917	8.917	(0.922)	1771664	100.000	102.75
92 Naphthalene	128	11.546	11.546	(1.194)	281768	100.000	93.49
63 o-Xylene	106	8.244	8.244	(1.075)	610719	100.000	101.26
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	1561099	100.000	104.22
64 Styrene	104	8.258	8.258	(1.077)	1077784	100.000	102.77
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	1121644	100.000	103.15
56 Tetrachloroethene	164	6.933	6.933	(0.904)	341567	100.000	96.83
50 Toluene	91	6.446	6.446	(0.840)	1413996	100.000	99.32
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	324394	100.000	100.39
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	504686	100.000	102.35
38 Trichloroethene	130	5.206	5.206	(1.048)	388311	100.000	100.09
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	647137	100.000	106.23
5 Vinyl Chloride	62	1.138	1.138	(0.272)	400884	100.000	100.16



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D Page 3
Report Date: 06-Dec-2019 19:56

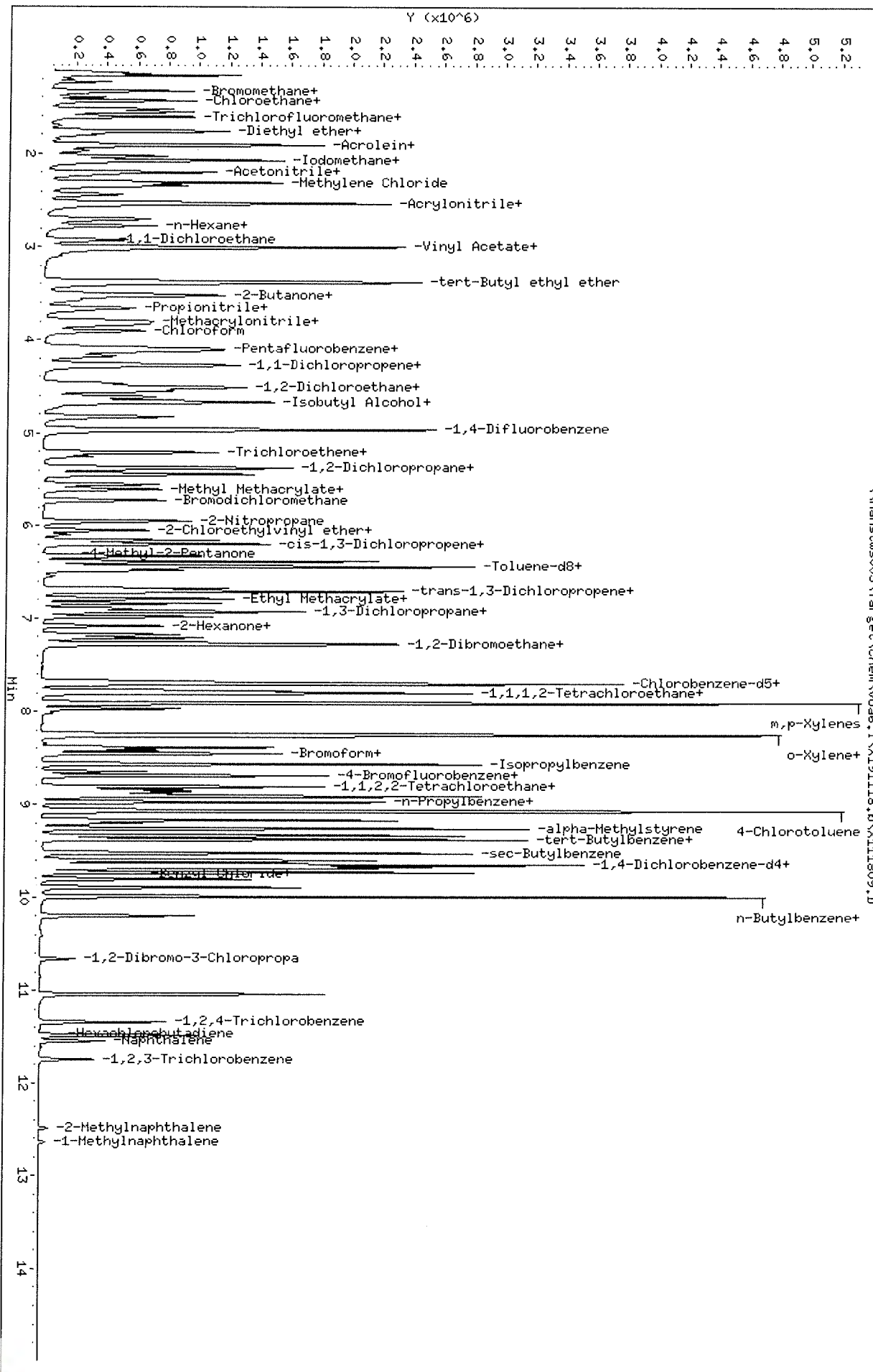
QC Flag Legend

- A - Target compound detected but, quantitated amount exceeded maximum amount.
- M - Compound response manually integrated.
- H - Operator selected an alternate compound hit.



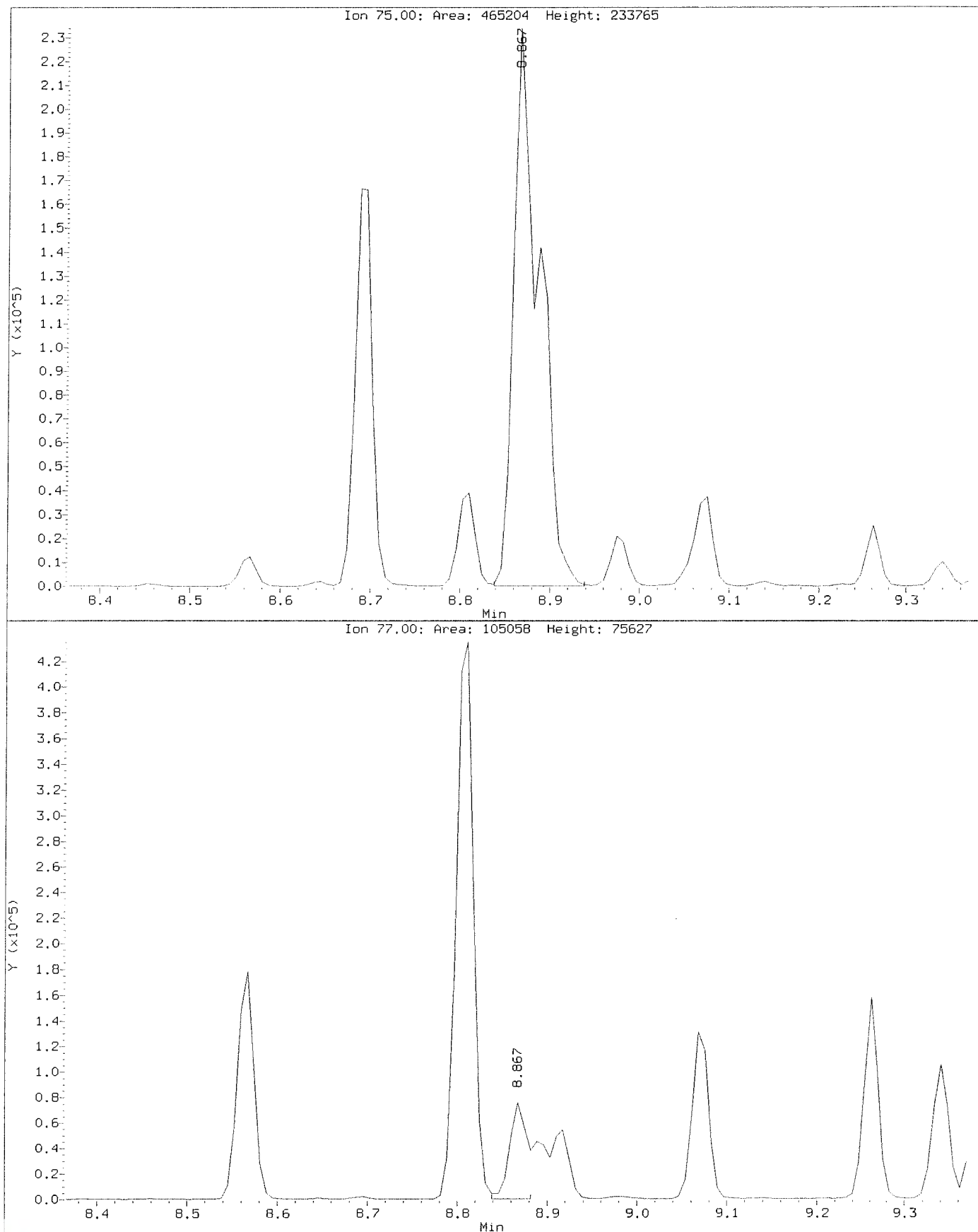
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 Sample Info: VSTD100;VSTD100;1.8;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



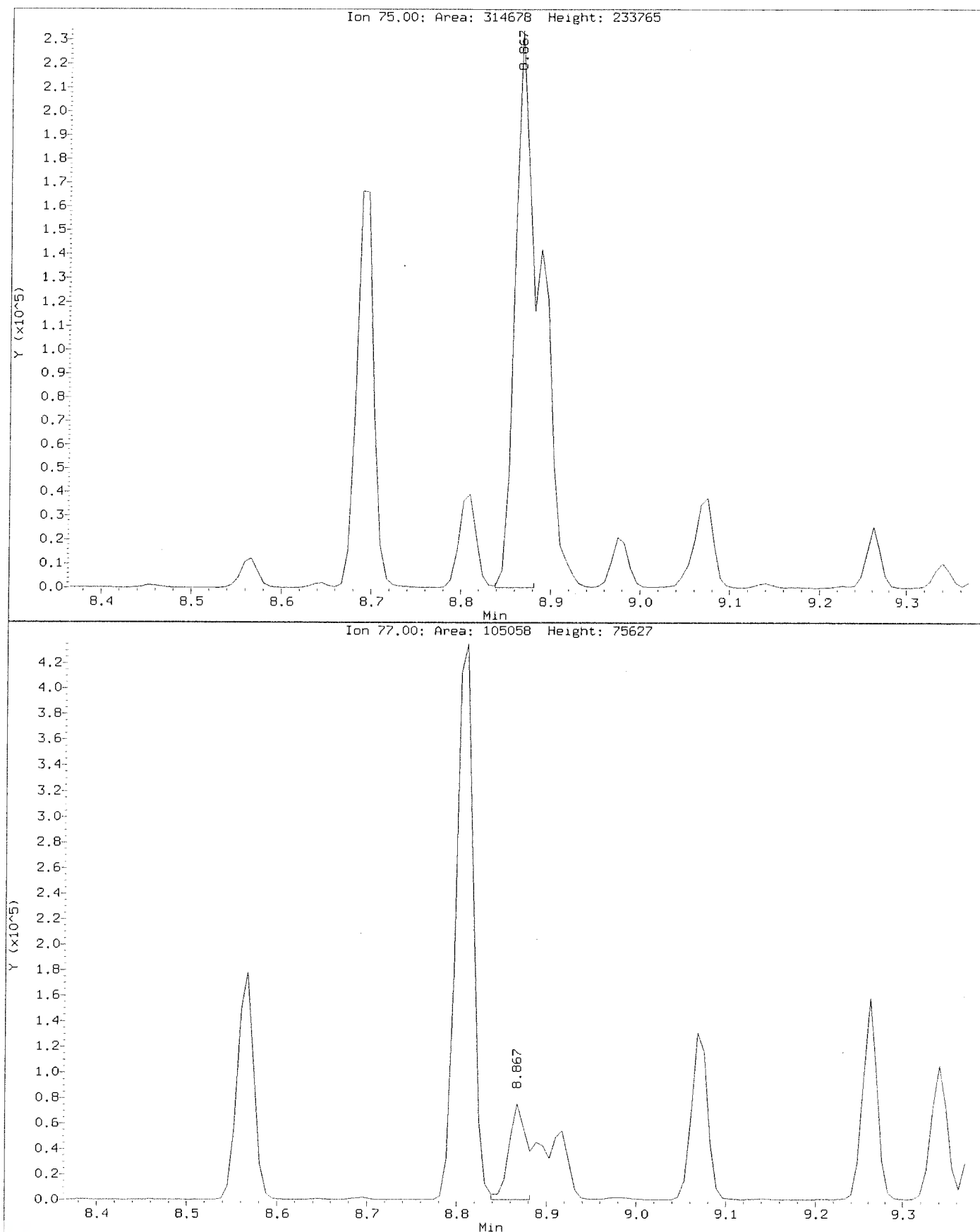
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Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



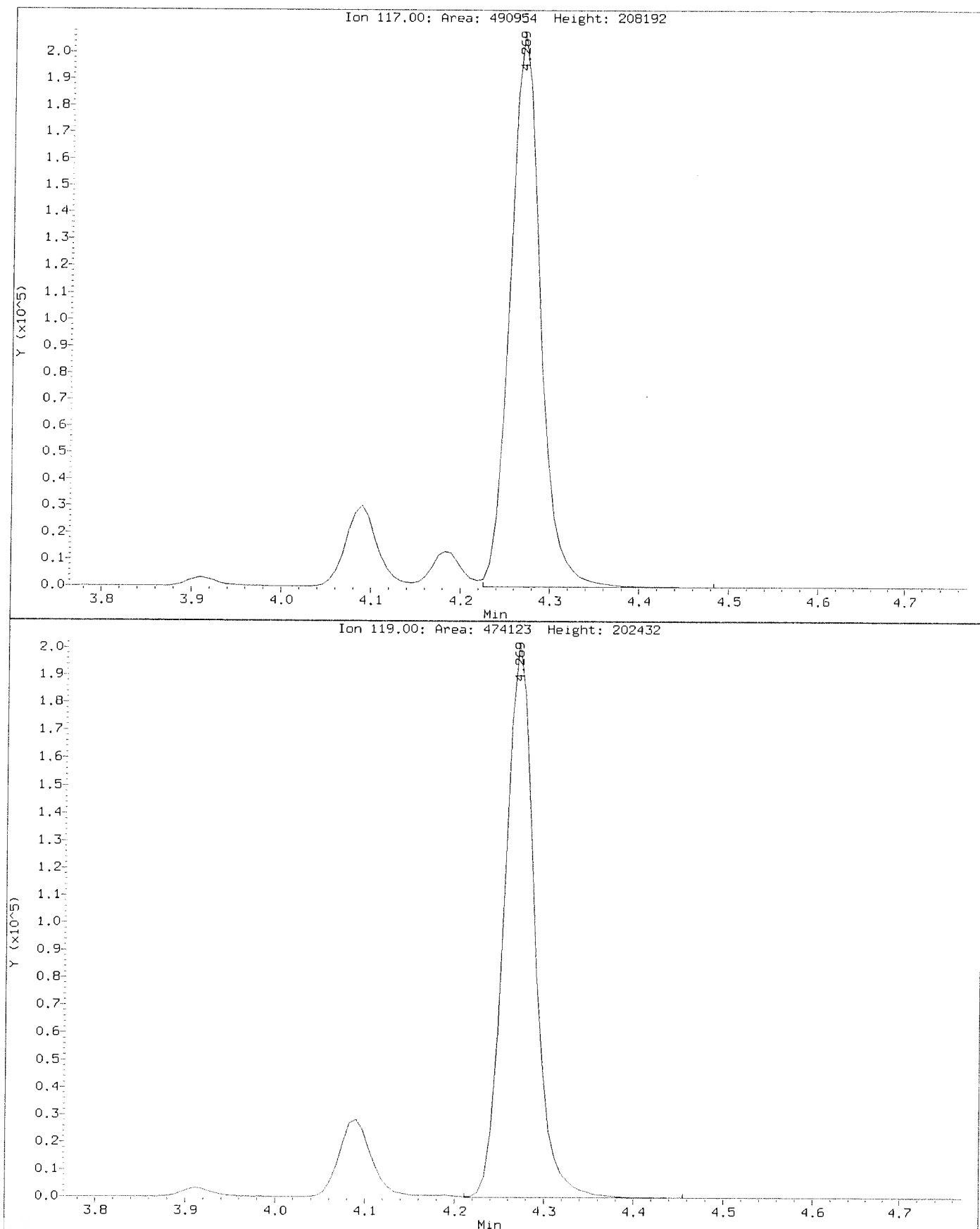
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Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



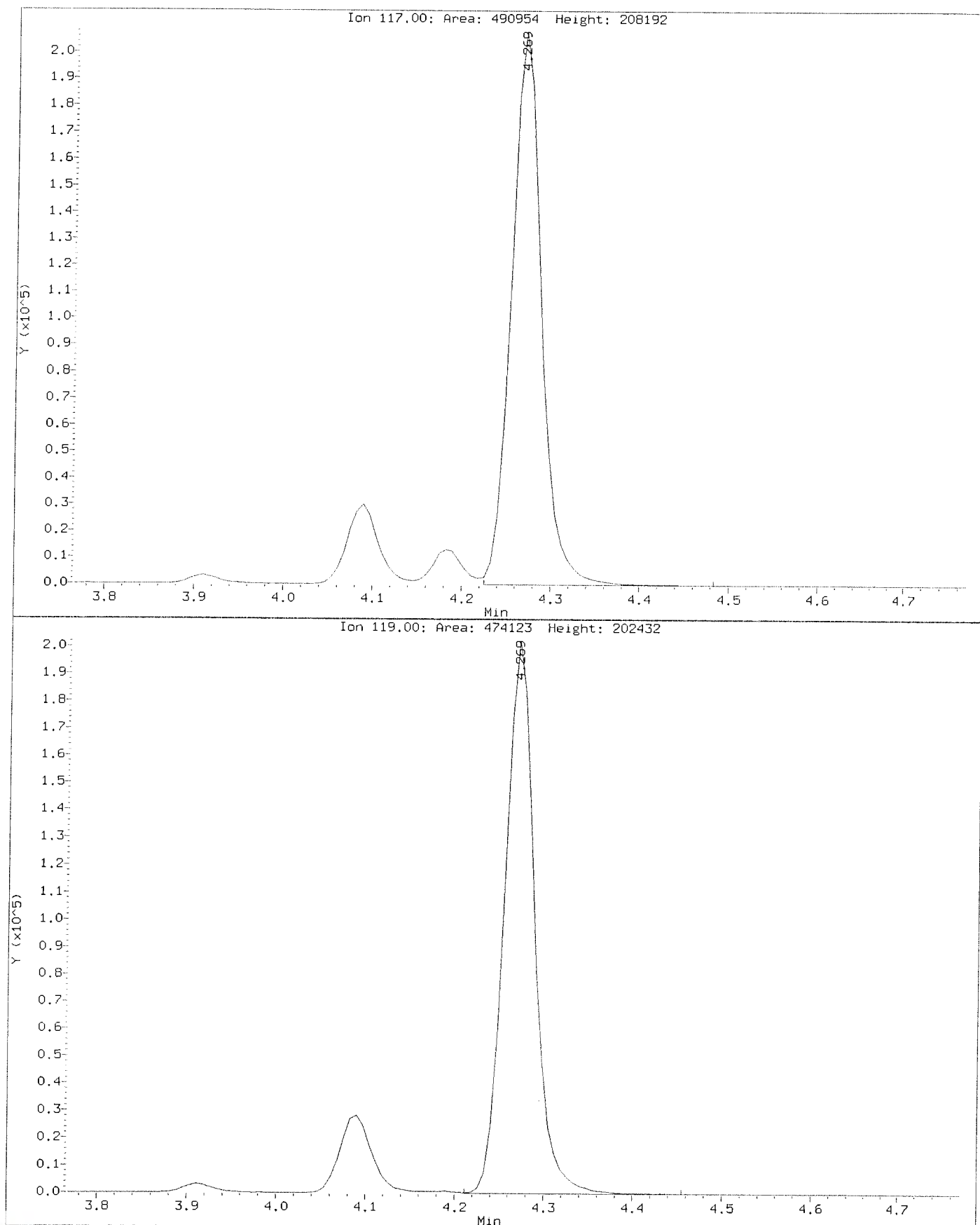
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Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.1\X191118.b\X111809.D
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.1
Client Sample ID: VSTD100

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D
 Lab Smp Id: VSTD150 Client Smp ID: VSTD150
 Inj Date : 18-NOV-2019 17:22
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD150;VSTD150;1;9;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:59 Cal File: X111809.D
 Als bottle: 11 Calibration Sample, Level: 9
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182 (1.000)		378157	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970 (1.000)		542191	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671 (1.000)		494760	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669 (1.000)		282310	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476 (1.070)		532181	150.000	148.11
\$ 69 4-Bromofluorobenzene	95	8.695	8.695 (1.134)		688600	150.000	148.76
\$ 30 Dibromofluoromethane	113	4.104	4.104 (0.981)		514854	150.000	148.99
\$ 48 Toluene-d8	98	6.389	6.389 (0.833)		1815269	150.000	139.25
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778 (1.014)		548257	150.000	152.74
31 1,1,1-Trichloroethane	97	4.089	4.089 (0.978)		768782	150.000	150.69
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845 (0.915)		560927	150.000	141.29
138 Freon TF	101	1.912	1.912 (0.457)		513260	150.000	155.89
53 1,1,2-Trichloroethane	83	6.840	6.840 (0.892)		380298	150.000	147.04
22 1,1-Dichloroethane	63	2.922	2.922 (0.699)		825788	150.000	150.08
11 1,1-Dichloroethene	96	1.912	1.912 (0.457)		483391	150.000	150.83
32 1,1-Dichloropropene	75	4.283	4.283 (0.862)		635821	150.000	145.37
93 1,2,3-Trichlorobenzene	180	11.746	11.746 (1.215)		156391	150.000	148.93
71 1,2,3-Trichloropropane	75	8.867	8.867 (0.917)		465353	150.000	138.34 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338 (1.173)		338737	150.000	142.44
79 1,2,4-Trimethylbenzene	105	9.383	9.383 (0.970)		2030171	150.000	151.55
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658 (1.102)		65470	150.000	150.06
57 1,2-Dibromoethane	107	7.262	7.262 (0.947)		518766	150.000	149.49



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	1121580	150.000	149.69
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	645436	150.000	149.95
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	471959	150.000	145.71
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1980658	150.000	154.09
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1183710	150.000	146.20
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	763789	150.000	145.46
84 1,4-Dichlorobenzene	146	9.684	9.684	(1.001)	1195790	150.000	145.34
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	732900	150.000	146.75
24 2-Butanone	43	3.573	3.573	(0.854)	346972	300.000	299.02(A)
76 2-Chlorotoluene	91	8.982	8.982	(0.929)	1513395	150.000	149.00
52 2-Hexanone	43	7.090	7.090	(0.924)	606144	300.000	298.23(A)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	1867848	150.000	151.71
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	2100293	150.000	152.04
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	884349	300.000	305.06(A)
10 Acetone	43	1.976	1.976	(0.473)	284604	300.000	298.06(A)
37 Benzene	78	4.512	4.512	(0.908)	1843665	150.000	148.64
74 Bromobenzene	156	8.810	8.810	(0.911)	709083	150.000	144.52
29 Bromochloromethane	128	3.795	3.795	(0.908)	294445	150.000	143.73
39 Bromodichloromethane	83	5.730	5.730	(1.153)	669356	150.000	149.18
66 Bromoform	173	8.416	8.416	(1.097)	447981	150.000	150.02
6 Bromomethane	94	1.331	1.331	(0.318)	529714	150.000	145.16
19 Carbon Disulfide	76	2.069	2.069	(0.495)	2705391	300.000	310.30(A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	707541	150.000	147.68(H)
59 Chlorobenzene	112	7.699	7.699	(1.004)	1445648	150.000	149.66
7 Chloroethane	64	1.396	1.396	(0.334)	351927	150.000	147.81
28 Chloroform	83	3.910	3.910	(0.935)	863467	150.000	140.99
3 Chloromethane	50	1.074	1.074	(0.257)	613254	150.000	148.94
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	542390	150.000	151.24
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	808388	150.000	152.88
55 Dibromochloromethane	129	7.176	7.176	(0.936)	573494	150.000	152.63
44 Dibromomethane	93	5.558	5.558	(1.118)	338759	150.000	147.80
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	504807	150.000	144.79
61 Ethylbenzene	106	7.800	7.800	(1.017)	751250	150.000	150.52
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	279881	150.000	142.49
67 Isopropylbenzene	105	8.566	8.566	(1.117)	2283588	150.000	154.47
62 m,p-Xylenes	106	7.907	7.907	(1.031)	1861660	300.000	309.12(A)
17 Methylene Chloride	84	2.306	2.306	(0.551)	485622	150.000	142.02
87 n-Butylbenzene	91	9.999	9.999	(1.034)	1823176	150.000	158.59
73 n-Propylbenzene	91	8.917	8.917	(0.922)	2616190	150.000	149.92
92 Naphthalene	128	11.546	11.546	(1.194)	435593	150.000	142.81
63 o-Xylene	106	8.244	8.244	(1.075)	906786	150.000	152.56
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	2308597	150.000	152.28
64 Styrene	104	8.258	8.258	(1.077)	1622659	150.000	156.99
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	1665732	150.000	151.35
56 Tetrachloroethene	164	6.933	6.933	(0.904)	493485	150.000	141.95
50 Toluene	91	6.446	6.446	(0.840)	2107838	150.000	150.23
20 trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	472385	150.000	151.82
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	741568	150.000	153.87
38 Trichloroethene	130	5.207	5.207	(1.048)	566006	150.000	149.27
8 Trichlorofluoromethane	101	1.553	1.553	(0.372)	922117	150.000	157.19
5 Vinyl Chloride	62	1.138	1.138	(0.272)	578026	150.000	149.97



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D Page 3
Report Date: 06-Dec-2019 19:56

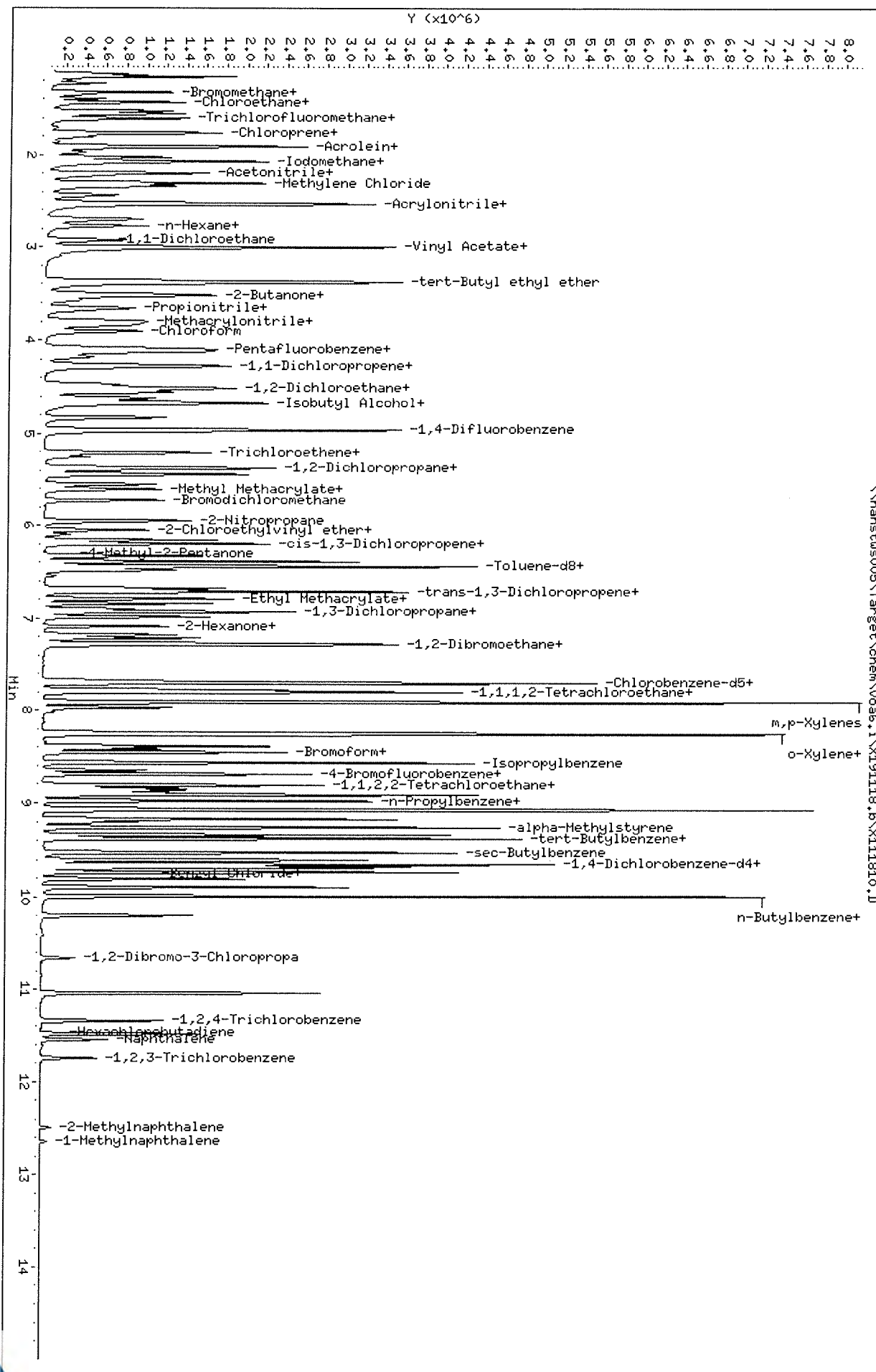
QC Flag Legend

- A - Target compound detected but, quantitated amount exceeded maximum amount.
- M - Compound response manually integrated.
- H - Operator selected an alternate compound hit.



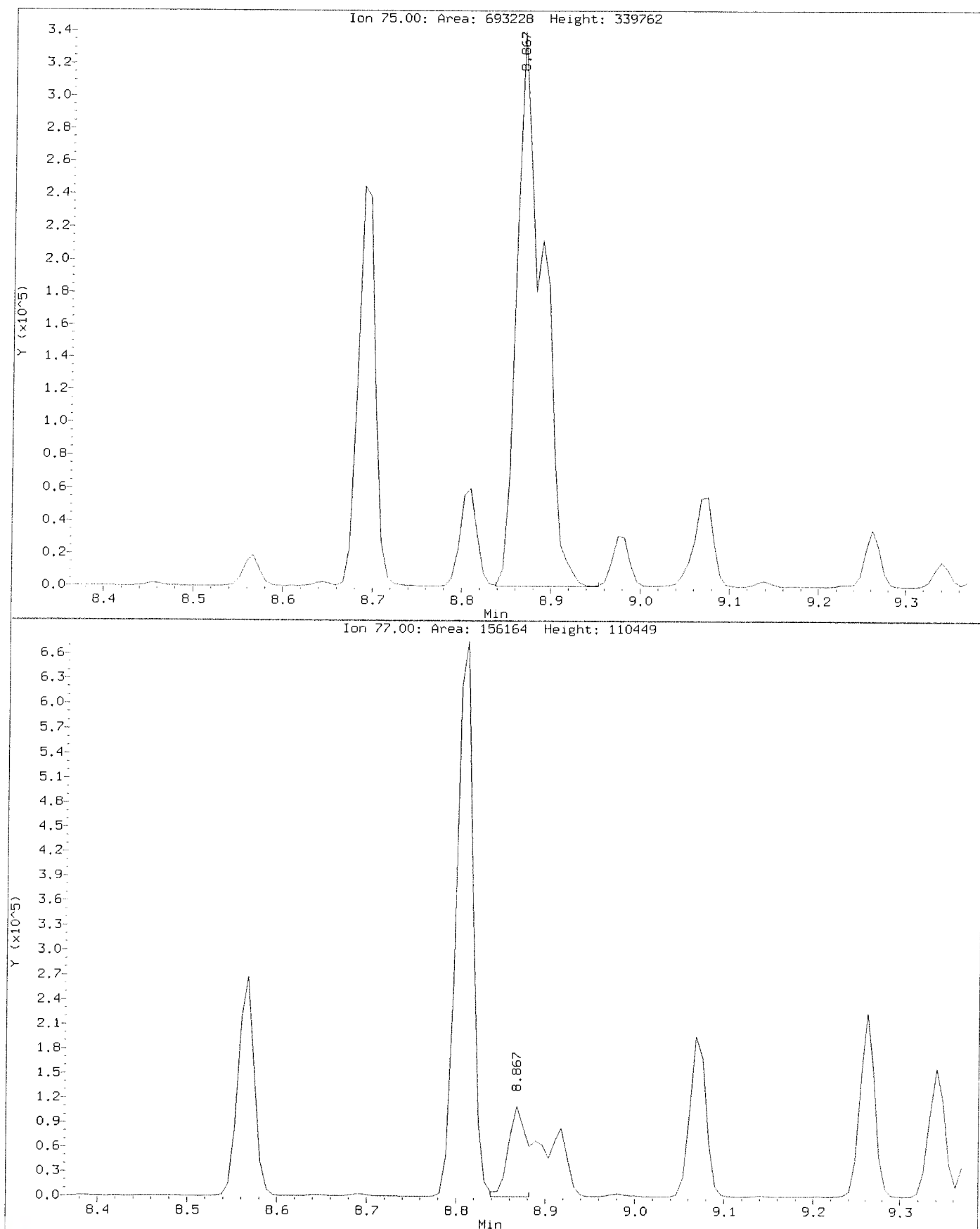
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 Sample Info: VSTD150;VSTD150;1;9;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



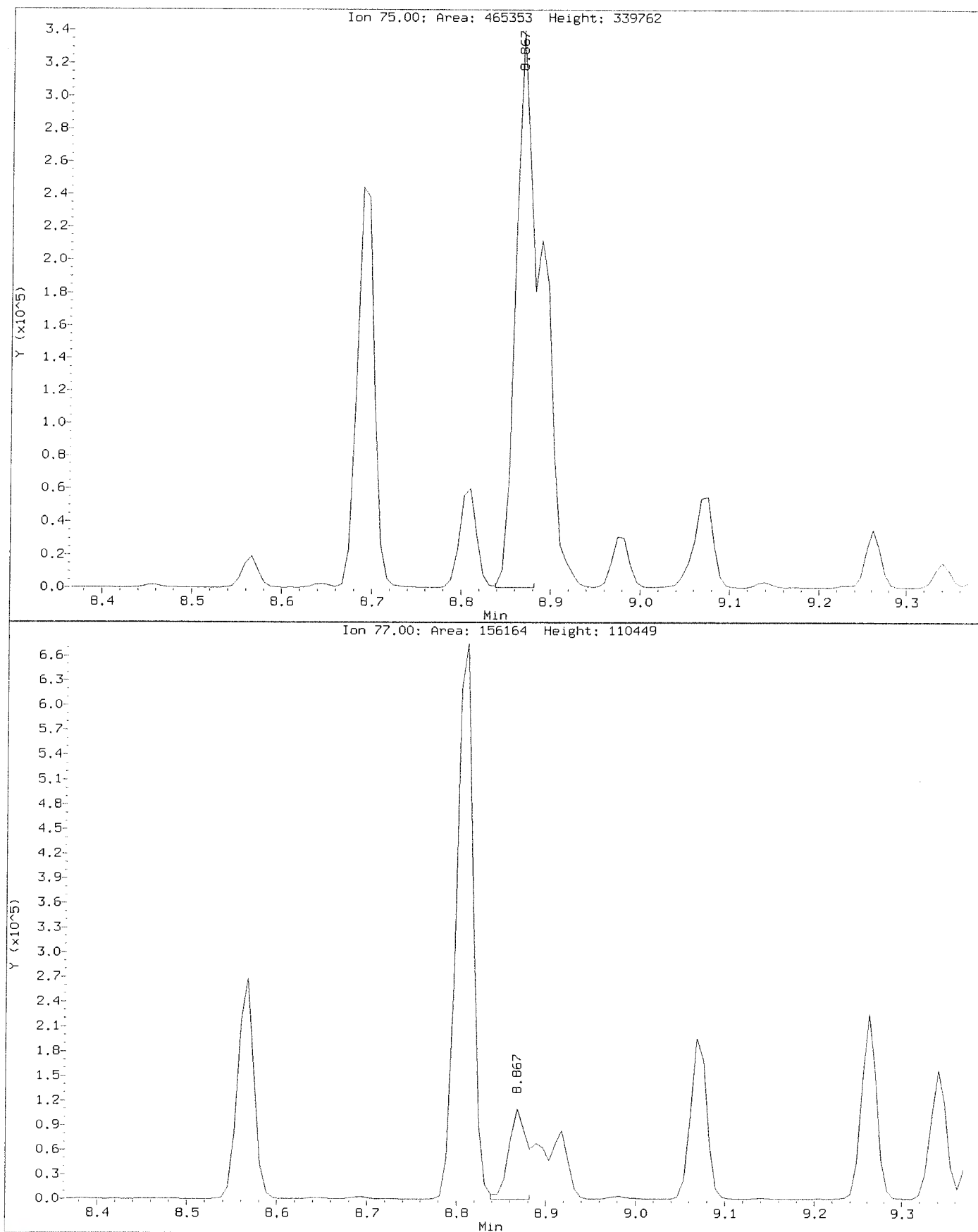
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Instrument: voa6.1
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



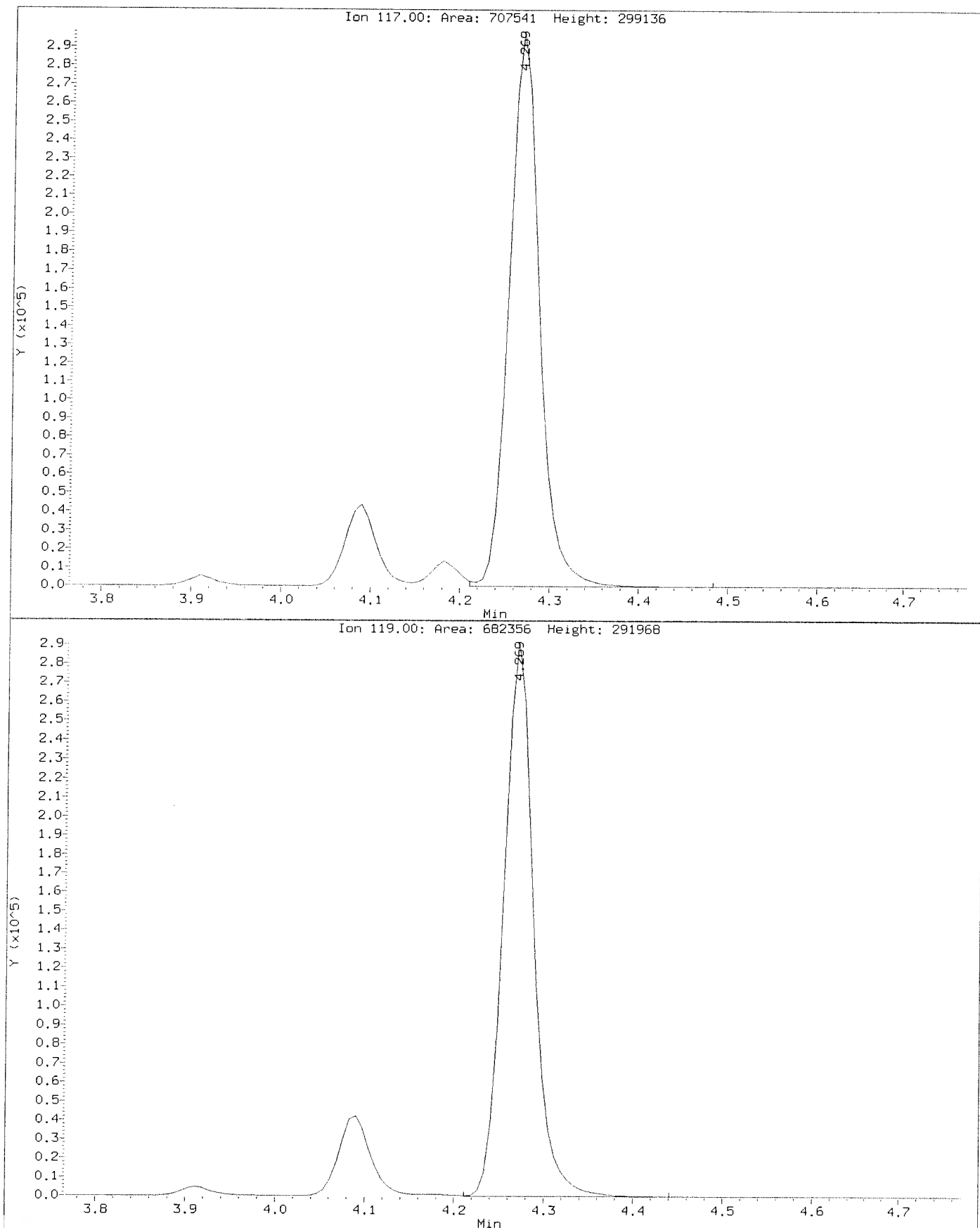
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Injection Date: 18-NOV-2019 17:22
Instrument: voa6.1
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



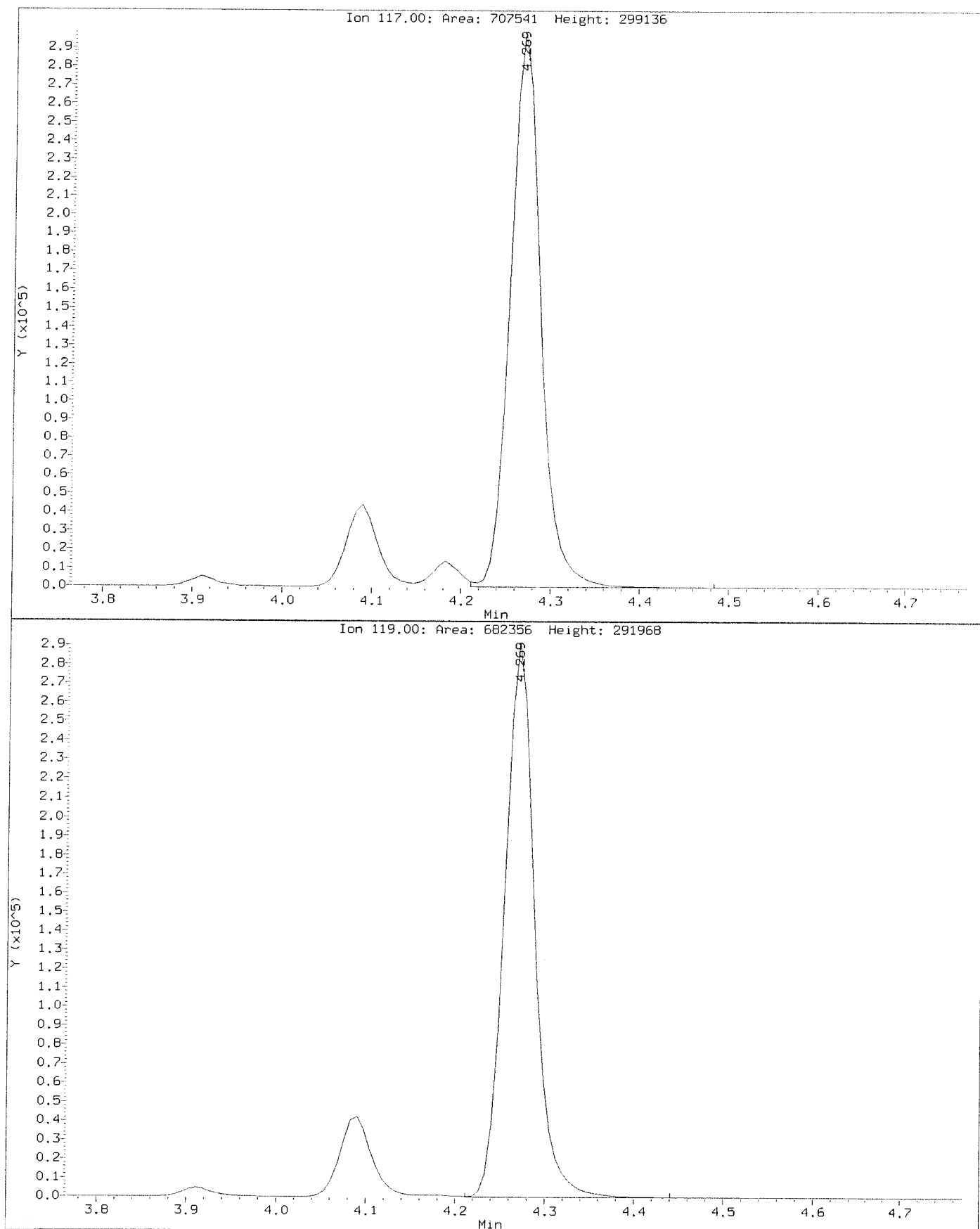
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Injection Date: 18-NOV-2019 17:22
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D
Injection Date: 18-NOV-2019 17:22
Instrument: voa6.1
Client Sample ID: VSTD150

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D
 Lab Smp Id: VSTD200 Client Smp ID: VSTD200
 Inj Date : 18-NOV-2019 17:46
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD200;VSTD200;1;10;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 17:22 Cal File: X111810.D
 Als bottle: 12 Calibration Sample, Level: 10
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG						AMOUNTS	
		MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	369517	50.0000		
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	542684	50.0000		
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	493817	50.0000		
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	280605	50.0000		
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	713282	200.000	202.89 (A)	
\$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	933083	200.000	201.81 (A)	
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	681300	200.000	201.64 (A)	
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	2431773	200.000	186.90	
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	731912	200.000	204.29 (A)	
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	1030058	200.000	206.62 (A)	
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	742176	200.000	188.09	
138 Freon TF	101	1.911	1.911	(0.457)	696977	200.000	216.65 (A)	
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	511936	200.000	198.31	
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	1089650	200.000	202.66 (A)	
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	641291	200.000	204.78 (A)	
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	849992	200.000	194.17	
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	210414	200.000	200.64 (A)	
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	609450	200.000	182.28 (M)	
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	455609	200.000	192.75	
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	2745695	200.000	206.21 (A)	
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	86827	200.000	200.34 (A)	
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	693307	200.000	200.18 (A)	



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D Page 2
Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS					AMOUNTS	
		RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	1508205	200.000	202.51 (A)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	865099	200.000	200.81 (A)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	629023	200.000	194.03
75 1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	2668415	200.000	208.86 (A)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1590132	200.000	197.60
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	1018788	200.000	194.39
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	1621999	200.000	198.35
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	972273	200.000	199.24
24 2-Butanone	43	3.580	3.580	(0.856)	437867	400.000	386.18 (A)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	2019887	200.000	200.07 (A)
52 2-Hexanone	43	7.090	7.090	(0.924)	806375	400.000	397.51 (A)
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	2525879	200.000	206.41 (A)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	2843849	200.000	207.12 (A)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	1178590	400.000	407.33 (A)
10 Acetone	43	1.976	1.976	(0.473)	372223	400.000	400.25 (A)
37 Benzene	78	4.512	4.512	(0.908)	2449808	200.000	197.34
74 Bromobenzene	156	8.809	8.809	(0.911)	958177	200.000	196.47
29 Bromochloromethane	128	3.795	3.795	(0.908)	376537	200.000	188.10
39 Bromodichloromethane	83	5.729	5.729	(1.153)	893499	200.000	198.95
66 Bromoform	173	8.415	8.415	(1.097)	602595	200.000	201.83 (A)
6 Bromomethane	94	1.331	1.331	(0.318)	631015	200.000	177.48 (M)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	3628864	400.000	425.96 (A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	954439	200.000	199.03 (H)
59 Chlorobenzene	112	7.699	7.699	(1.004)	1940751	200.000	201.30 (A)
7 Chloroethane	64	1.396	1.396	(0.334)	459143	200.000	197.35
28 Chloroform	83	3.910	3.910	(0.935)	1152726	200.000	192.62
3 Chloromethane	50	1.073	1.073	(0.257)	811388	200.000	201.60 (A)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	721487	200.000	205.88 (A)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1069987	200.000	202.17 (A)
55 Dibromochloromethane	129	7.183	7.183	(0.937)	764698	200.000	203.91 (A)
44 Dibromomethane	93	5.557	5.557	(1.118)	451528	200.000	196.82
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	695305	200.000	203.74 (A)
61 Ethylbenzene	106	7.807	7.807	(1.018)	1011964	200.000	203.15 (A)
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	373475	200.000	191.48
67 Isopropylbenzene	105	8.566	8.566	(1.117)	3082382	200.000	208.91 (A)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	2525960	400.000	420.22 (A)
17 Methylene Chloride	84	2.305	2.305	(0.551)	644942	200.000	193.02
87 n-Butylbenzene	91	9.998	9.998	(1.034)	2465783	200.000	215.80 (A)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	3540988	200.000	204.15 (A)
92 Naphthalene	128	11.546	11.546	(1.194)	574298	200.000	189.43
63 o-Xylene	106	8.244	8.244	(1.075)	1231007	200.000	207.50 (A)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	3131997	200.000	207.86 (A)
64 Styrene	104	8.265	8.265	(1.078)	2199171	200.000	213.18 (A)
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	2240944	200.000	204.85 (A)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	660581	200.000	190.38
50 Toluene	91	6.453	6.453	(0.841)	2834294	200.000	202.39 (A)
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	630988	200.000	207.54 (A)
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	1000892	200.000	207.50 (A)
38 Trichloroethene	130	5.206	5.206	(1.048)	754871	200.000	198.90
8 Trichlorofluoromethane	101	1.553	1.553	(0.371)	1241567	200.000	216.59 (A)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	773023	200.000	205.26 (A)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D Page 3
Report Date: 06-Dec-2019 19:56

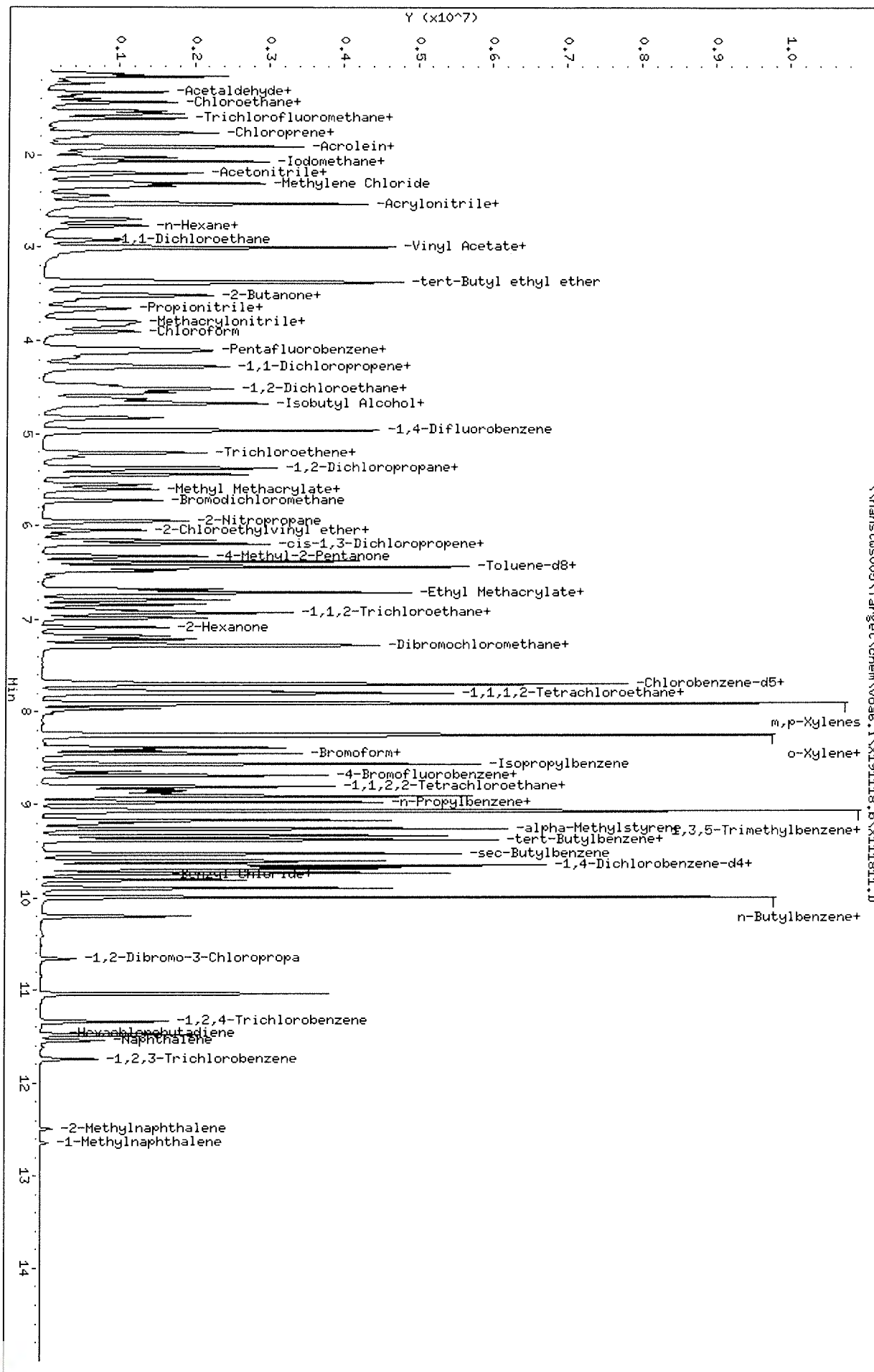
QC Flag Legend

- A - Target compound detected but, quantitated amount exceeded maximum amount.
- M - Compound response manually integrated.
- H - Operator selected an alternate compound hit.



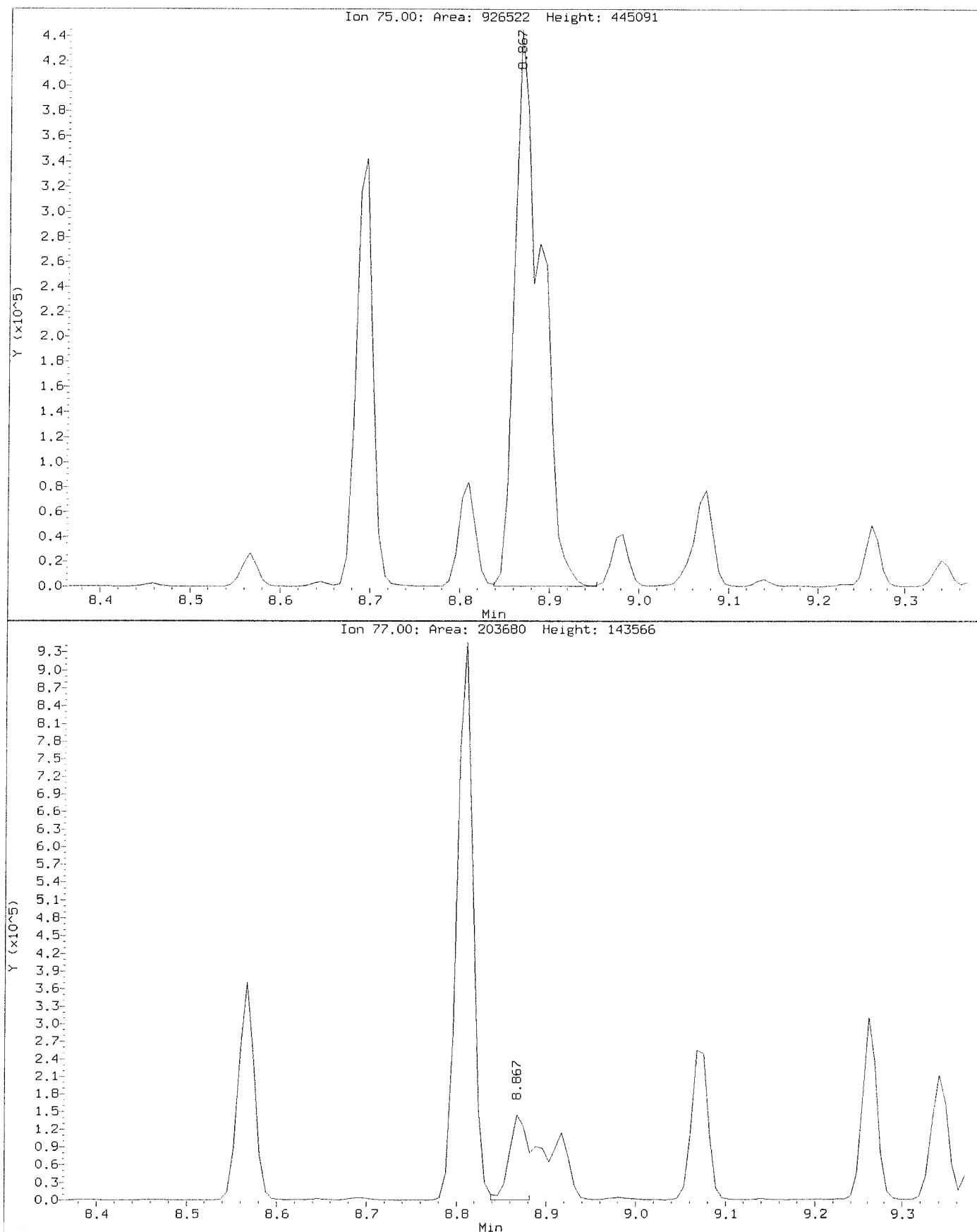
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 Date: 18-NOV-2019 17:46
 Client ID: VST1200
 Sample Info: VST1200;VST1200;1;10;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



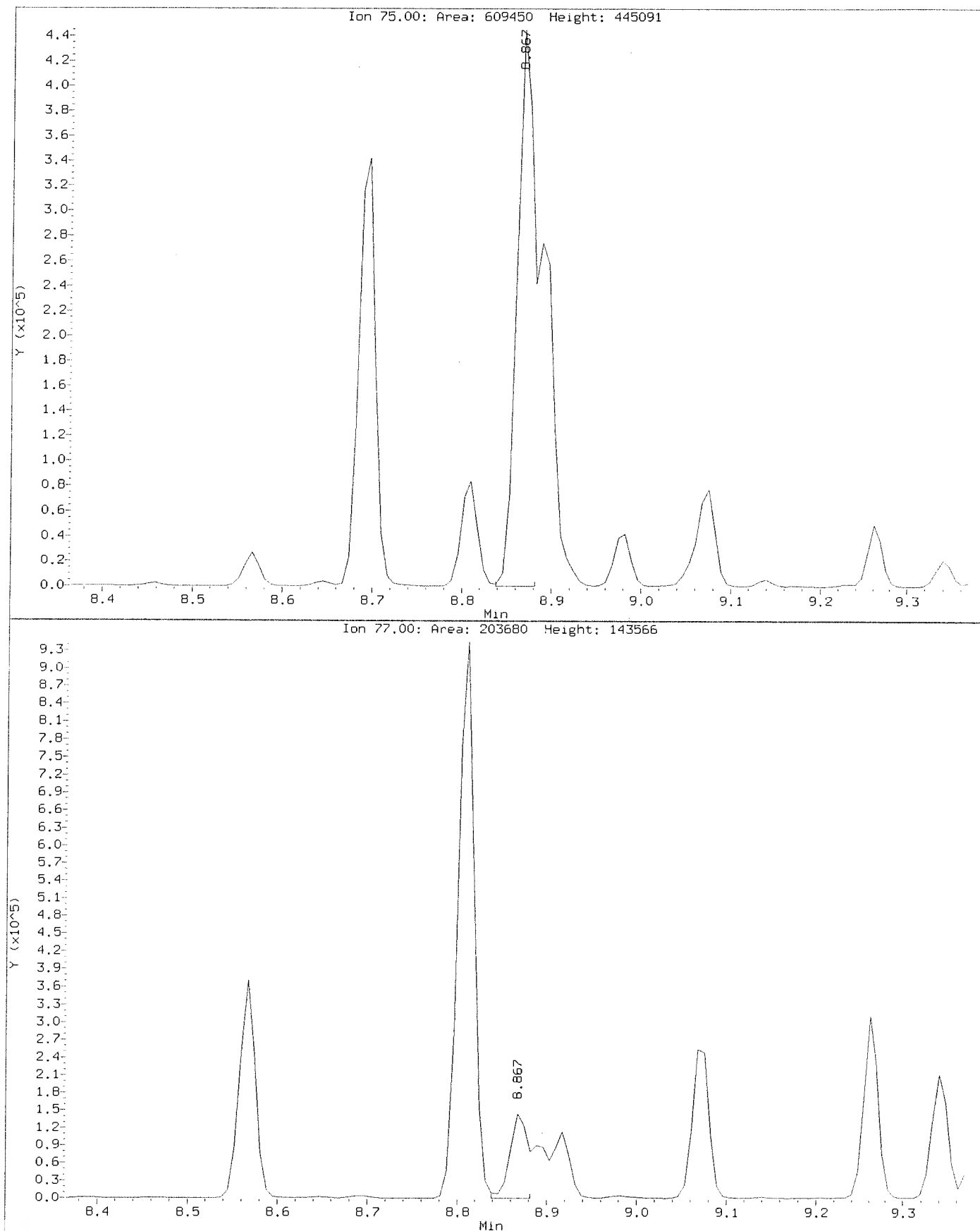
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Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



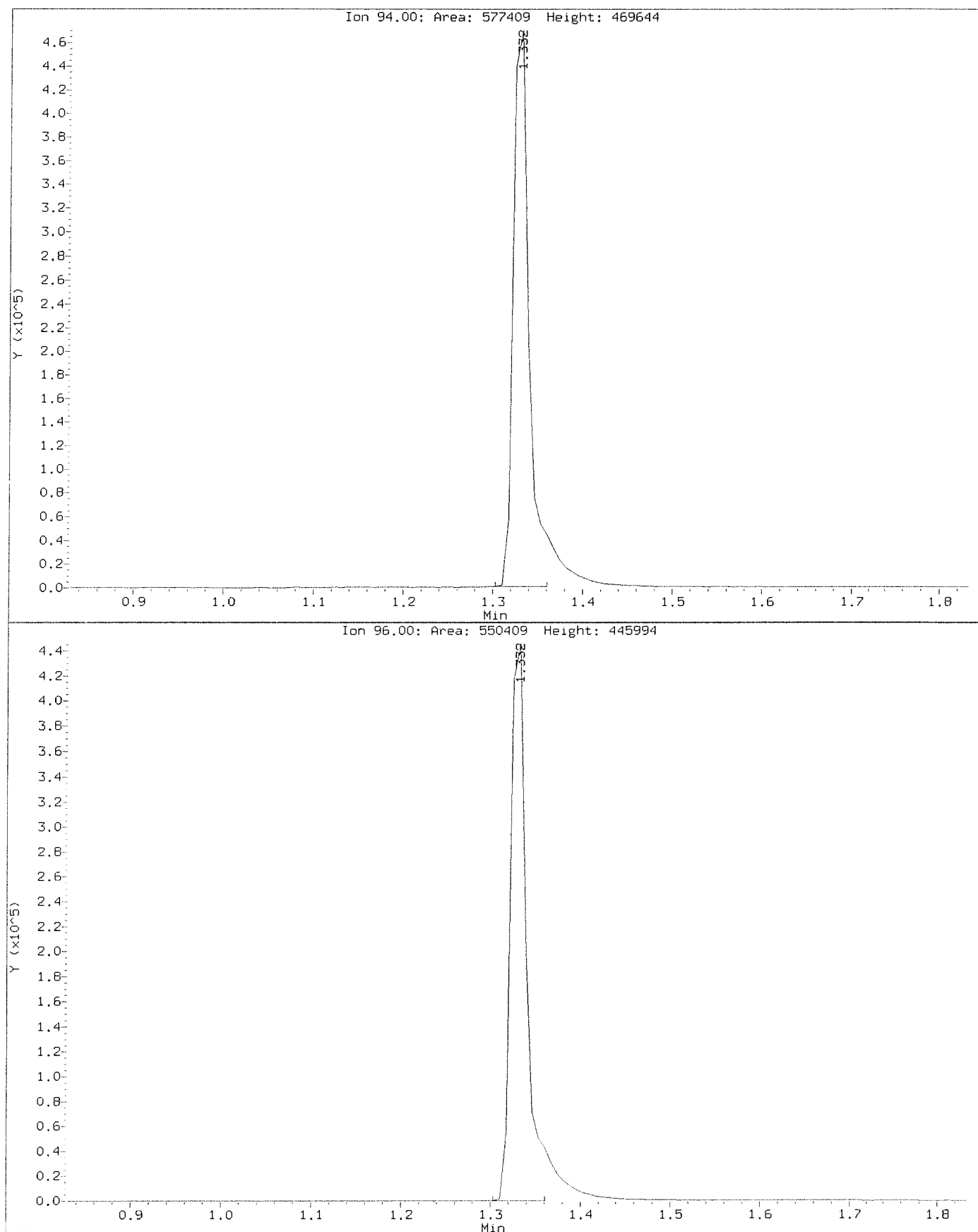
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Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



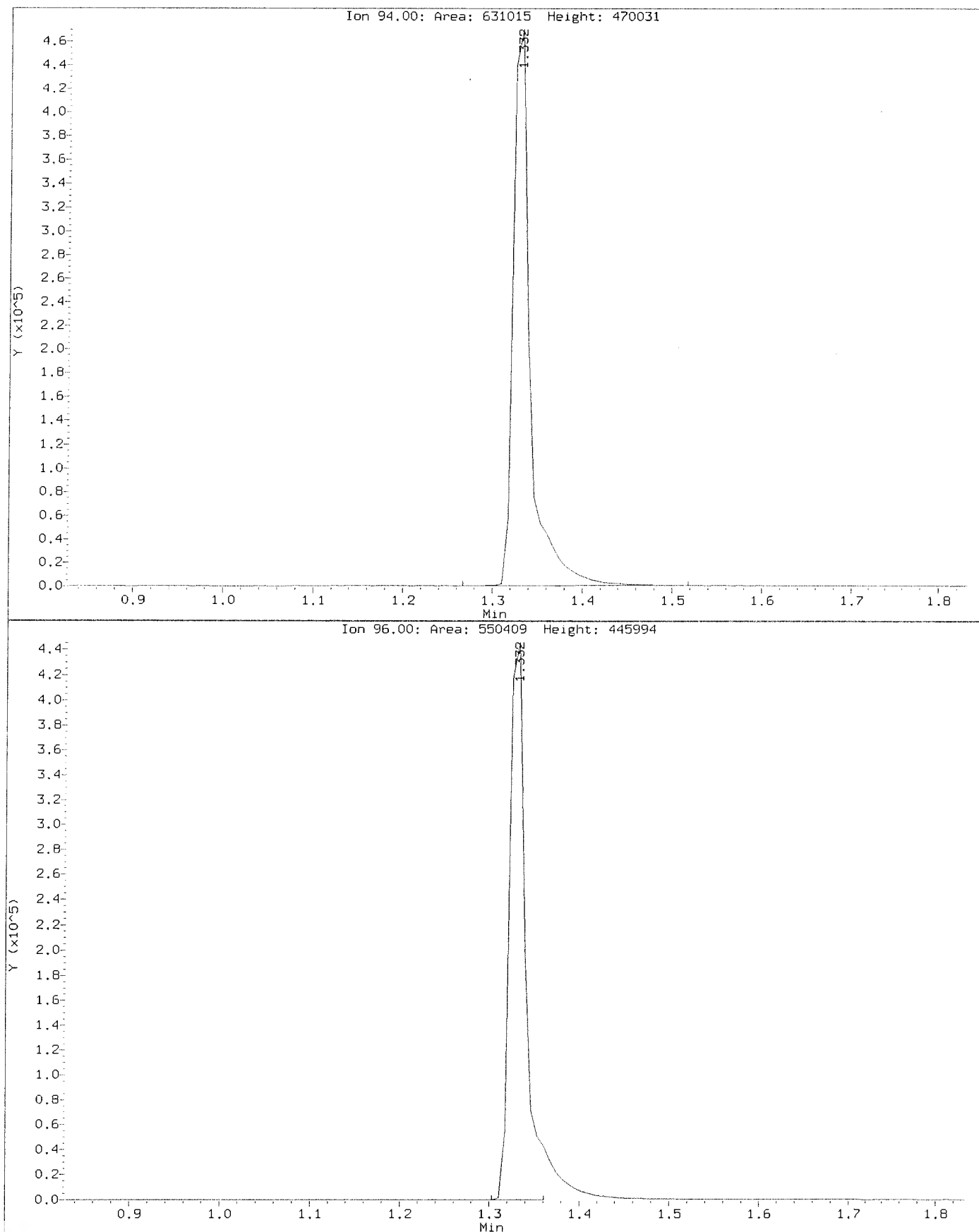
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Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Bromomethane
CAS Number: 74-83-9



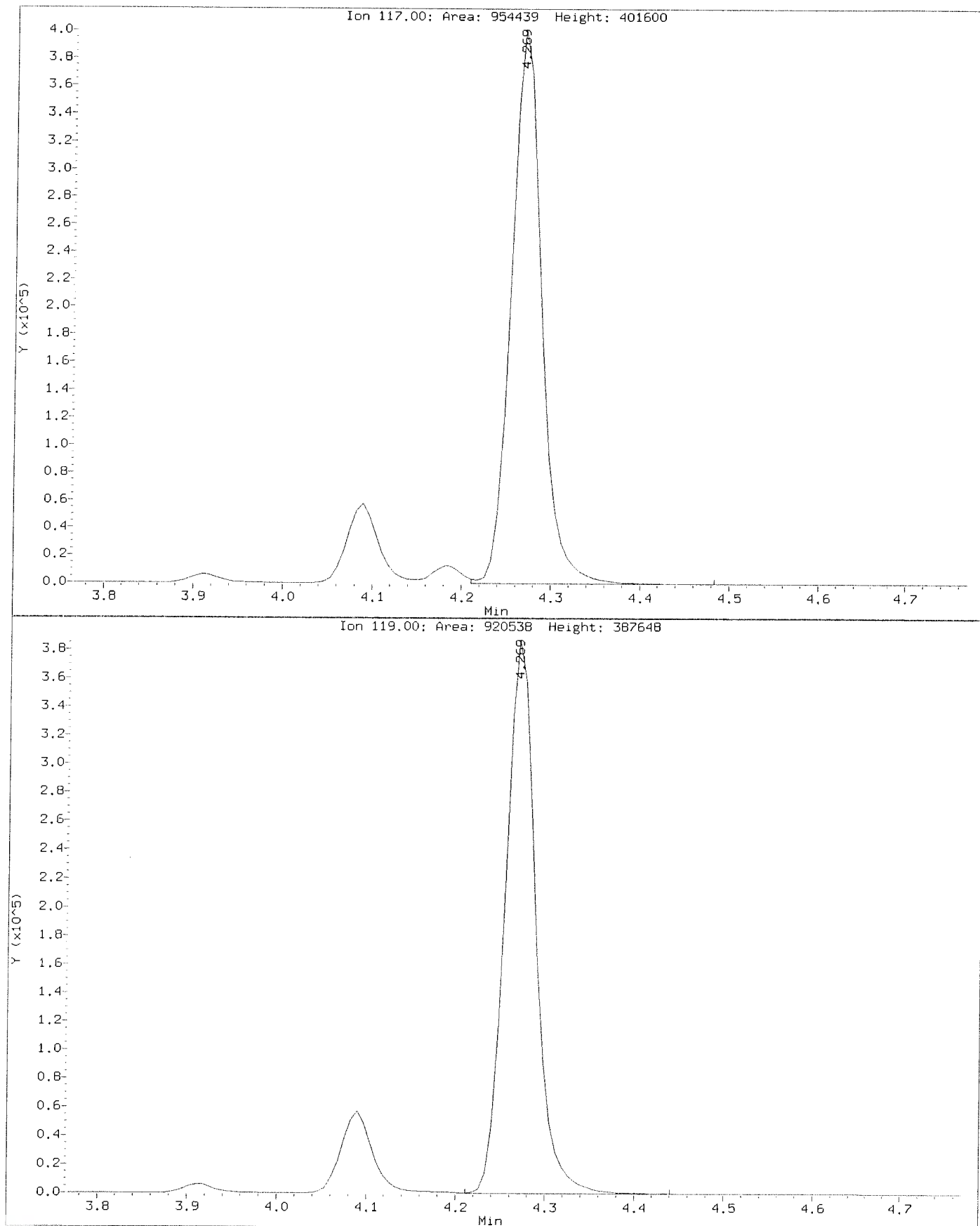
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Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Bromomethane
CAS Number: 74-83-9



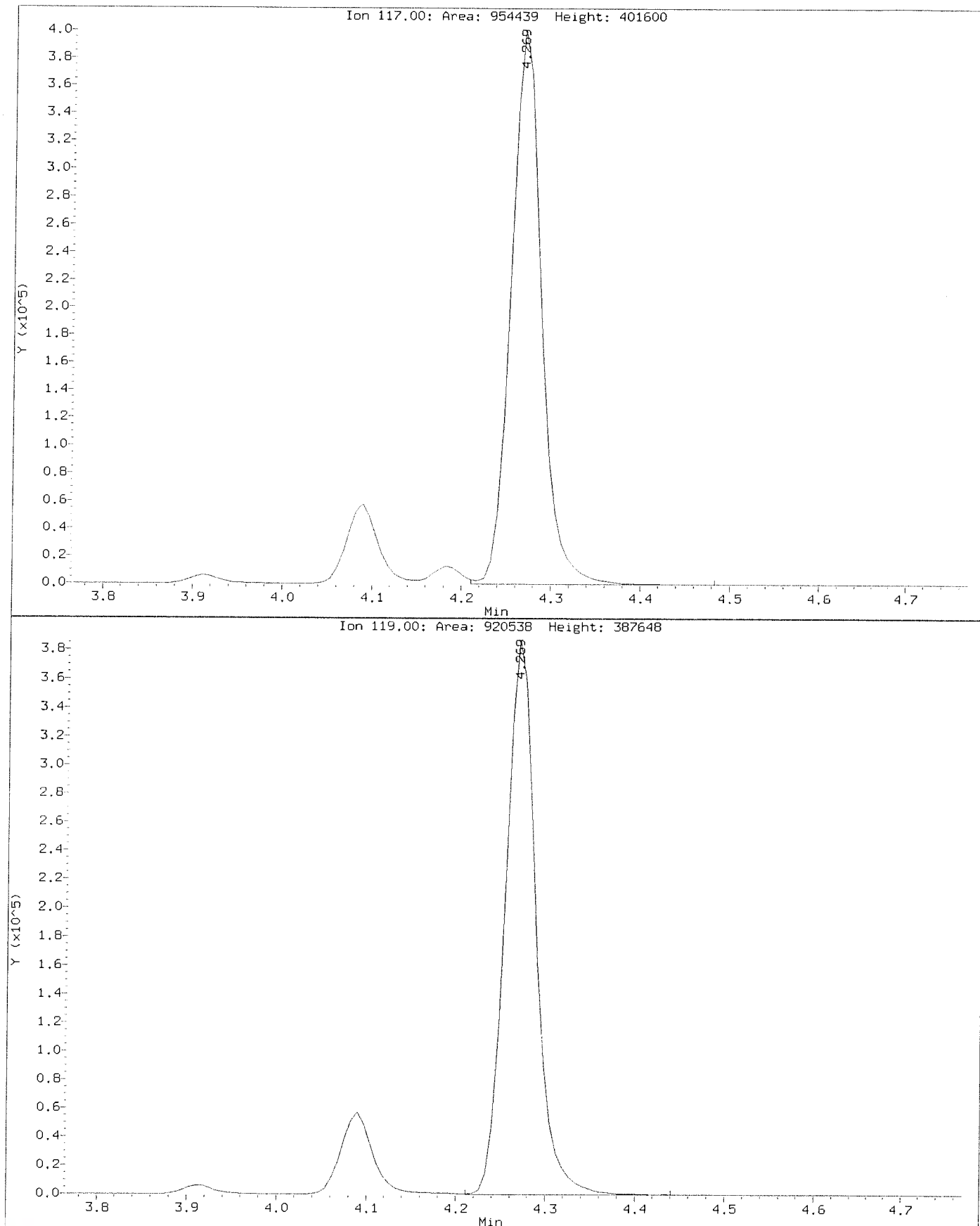
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Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D
 Lab Smp Id: ICV Client Smp ID: ICV
 Inj Date : 18-NOV-2019 18:58
 Operator : PC Inst ID: voa6.i
 Smp Info : CCV;CCV;2;;ICV
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 17:46 Cal File: X111811.D
 Als bottle: 15 QC Sample: METHSPIKE
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS					CONCENTRATIONS	
		RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)
*****	*****	*****	*****	*****	*****	*****	*****
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	365284	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	526230	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	487659	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	262170	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	177715	51.6875	51.68
\$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	217553	47.9674	47.96
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	172534	51.9307	51.93
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	603087	46.9372	46.93
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	181751	51.3728	51.37
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	259914	52.7430	52.74
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	183157	49.6822	49.68
138 Freon TF	101	1.919	1.911	(0.459)	177448	55.7980	55.79
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	125473	49.2205	49.22
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	273555	51.4692	51.46
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	164159	53.0287	53.02
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	211745	49.8829	49.88
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	56746	58.2884	58.28
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	154338	49.4088	49.40 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	122229	55.3465	55.34
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	627033	50.4058	50.40
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	20914	51.3981	51.39
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	171012	50.0005	50.00



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT	SIG						CONCENTRATIONS	
			MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146		9.998	9.998	(1.034)		343886	49.4226	49.42
33 1,2-Dichloroethane	62		4.555	4.562	(0.916)		214666	51.3880	51.38
42 1,2-Dichloropropane	63		5.436	5.443	(1.094)		155619	49.5052	49.50
75 1,3,5-Trimethylbenzene	105		9.067	9.074	(0.938)		621241	52.0454	52.04
83 1,3-Dichlorobenzene	146		9.604	9.612	(0.993)		380305	50.5823	50.58
54 1,3-Dichloropropane	76		6.983	6.983	(0.910)		254579	49.1895	49.18
84 1,4-Dichlorobenzene	146		9.683	9.683	(1.001)		379206	49.6335	49.63
26 2,2-Dichloropropane	77		3.516	3.516	(0.841)		252567	52.3575	52.35
24 2-Butanone	43		3.573	3.580	(0.854)		117980	105.260	105.25
76 2-Chlorotoluene	91		8.974	8.981	(0.928)		475545	50.4166	50.41
52 2-Hexanone	43		7.090	7.090	(0.924)		192493	96.0902	96.09
77 4-Chlorotoluene	91		9.074	9.074	(0.939)		578291	50.5814	50.58
82 p-Isopropyltoluene	119		9.655	9.655	(0.999)		664137	51.7722	51.77
45 4-Methyl-2-Pentanone	43		6.324	6.331	(0.824)		279109	97.6823	97.68
10 Acetone	43		1.969	1.976	(0.471)		104925	111.376	111.37
37 Benzene	78		4.512	4.512	(0.908)		612198	50.8565	50.85
74 Bromobenzene	156		8.809	8.809	(0.911)		233126	51.1647	51.16
29 Bromochloromethane	128		3.795	3.795	(0.908)		101596	51.3407	51.34
39 Bromodichloromethane	83		5.729	5.729	(1.153)		222106	51.0024	51.00
66 Bromoform	173		8.415	8.415	(1.097)		142491	49.0895	49.08
6 Bromomethane	94		1.338	1.331	(0.320)		208417	57.7314	57.73
19 Carbon Disulfide	76		2.069	2.069	(0.495)		924383	109.763	109.76
34 Carbon Tetrachloride	117		4.268	4.268	(0.859)		237498	51.0754	51.07
59 Chlorobenzene	112		7.699	7.699	(1.004)		468418	49.2009	49.20
7 Chloroethane	64		1.403	1.396	(0.336)		118785	51.6484	51.64
28 Chloroform	83		3.910	3.910	(0.935)		292027	49.3641	49.36
3 Chloromethane	50		1.073	1.073	(0.257)		200113	50.4397	50.43
27 cis-1,2-Dichloroethene	96		3.530	3.530	(0.844)		184183	53.1686	53.16
46 cis-1,3-Dichloropropene	75		6.159	6.159	(1.239)		267228	52.0716	52.07
55 Dibromochloromethane	129		7.176	7.183	(0.936)		184910	49.9303	49.93
44 Dibromomethane	93		5.557	5.557	(1.118)		112351	50.5059	50.50
2 Dichlorodifluoromethane	85		0.973	0.966	(0.233)		176572	52.9949	52.99
61 Ethylbenzene	106		7.799	7.807	(1.017)		247055	50.2234	50.22
91 Hexachlorobutadiene	225		11.481	11.488	(1.187)		113053	61.6918	61.69 (R)
67 Isopropylbenzene	105		8.566	8.566	(1.117)		730633	50.1455	50.14
62 m,p-Xylenes	106		7.907	7.907	(1.031)		603641	101.692	101.69
17 Methylene Chloride	84		2.305	2.305	(0.551)		164000	49.6528	49.65
87 n-Butylbenzene	91		9.998	9.998	(1.034)		555875	52.0702	52.07
73 n-Propylbenzene	91		8.917	8.917	(0.922)		841108	51.9034	51.90
92 Naphthalene	128		11.546	11.546	(1.194)		144573	51.0408	51.04
63 o-Xylene	106		8.243	8.244	(1.075)		291303	49.7239	49.72
81 sec-Butylbenzene	105		9.526	9.526	(0.985)		728868	51.7743	51.77
64 Styrene	104		8.258	8.265	(1.077)		512981	50.3548	50.35
78 tert-Butylbenzene	119		9.339	9.339	(0.966)		525095	51.3776	51.37
56 Tetrachloroethene	164		6.933	6.933	(0.904)		169030	49.3314	49.33
50 Toluene	91		6.446	6.453	(0.840)		685240	49.5512	49.55
20 trans-1,2-Dichloroethene	96		2.527	2.527	(0.604)		157233	52.3156	52.31
51 trans-1,3-Dichloropropene	75		6.682	6.682	(1.344)		242451	51.8354	51.83
38 Trichloroethene	130		5.206	5.206	(1.048)		190582	51.7868	51.78
8 Trichlorofluoromethane	101		1.560	1.553	(0.373)		314898	55.5726	55.57
5 Vinyl Chloride	62		1.138	1.138	(0.272)		193522	51.9818	51.98



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D Page 3
Report Date: 06-Dec-2019 19:56

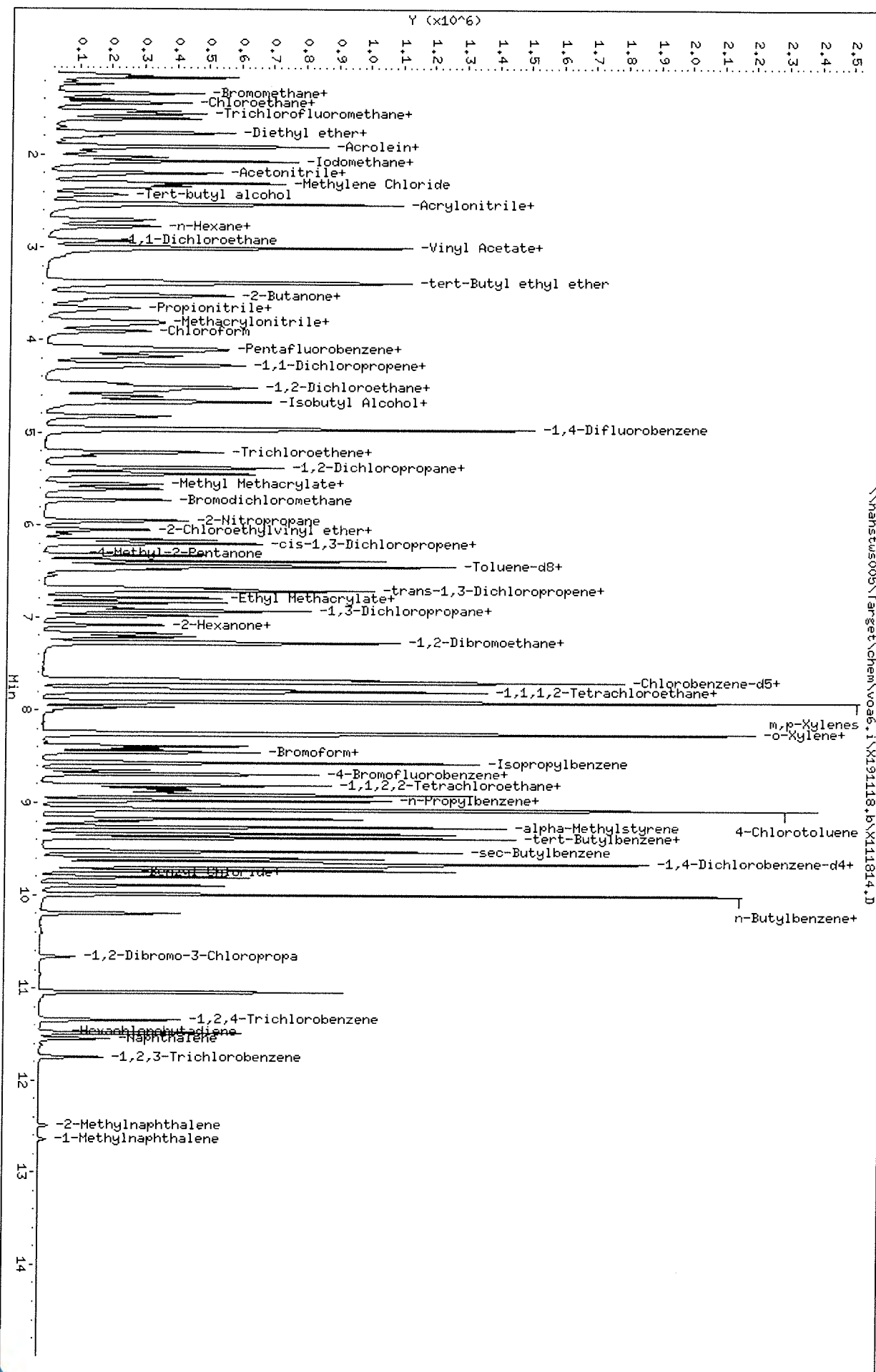
QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.



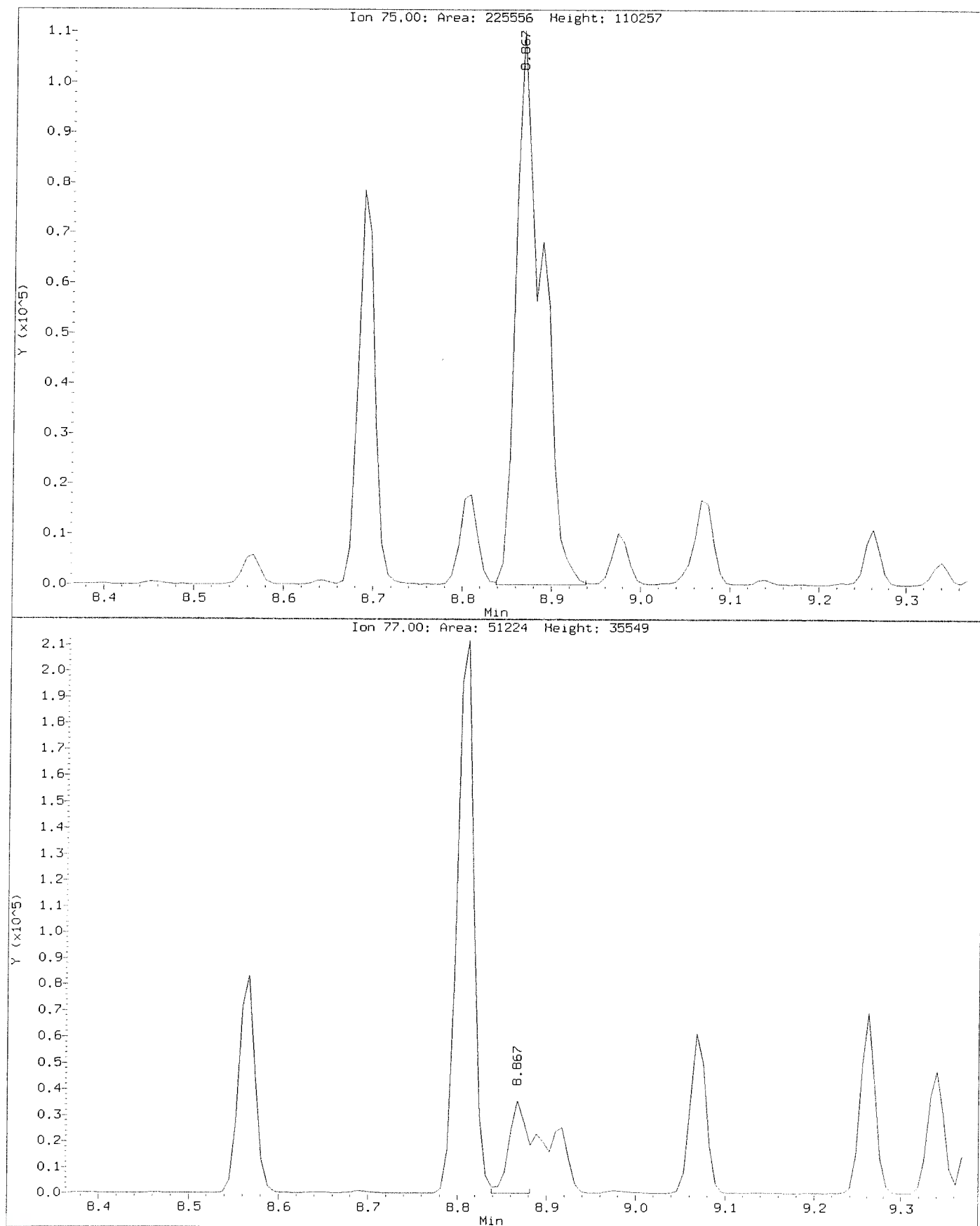
Data File: \\nahstus005\Target\chem\voa6.i\X191118.b\X111814.D
 Date : 18-NOV-2019 18:58
 Client ID: ICV
 Sample Info: CCV;CCV2;:ICV
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



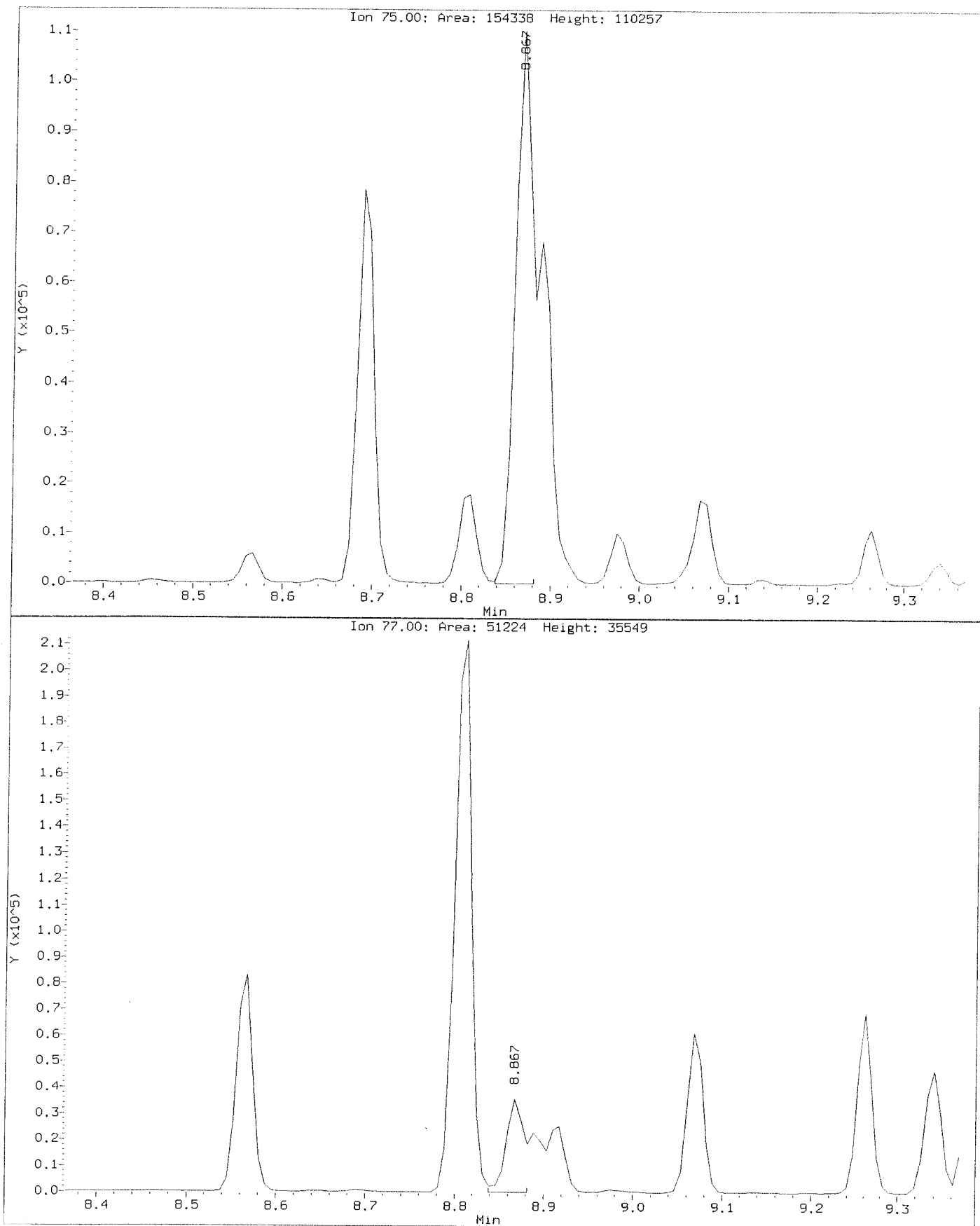
Data File: \\nahstws005\Target\chem\voa6.1\X191118.b\BEFORE\X111814.D
Injection Date: 18-NOV-2019 18:58
Instrument: voa6.1
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.1\X191118.b\X111814.D
Injection Date: 18-NOV-2019 18:58
Instrument: voa6.1
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



MSVOA06 -Logbook

Batch: 38384
 Date: 11-24-2019
 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	11-24-2019 12:12 pm	1.00	50 mL	50 mL	X112401.D	Liquid	Y	na
	<i>Auto find/ purged</i>									
2	CCV	CCV	11-24-2019 12:36 pm	1.00	50 mL	50 mL	X112402a.D	Liquid	Y	na
	<i>10 uL cal std/50 mL DI/not used</i>									
3	CCV	CCV	11-24-2019 01:00 pm	1.00	50 mL	50 mL	X112403.D	Liquid	Y	na
	<i>10 uL cal std/50 mL DI</i>									
4	CCB	SAMP	11-24-2019 01:24 pm	1.00	50 mL	50 mL	X112404.D	Liquid	Y	na
5	VLCSW-191124	LCS	11-24-2019 01:48 pm	1.00	50 mL	50 mL	X112405.D	Liquid	Y	na
	<i>4.0 uL cal std/50 mL DI</i>									
6	BLK	SAMP	11-24-2019 02:12 pm	1.00	50 mL	50 mL	X112406.D	Liquid	Y	na
7	VLKW-191124	MBLK	11-24-2019 02:36 pm	1.00	50 mL	50 mL	X112407.D	Liquid	Y	na
8	HS19111153-09	SAMP	11-24-2019 03:00 pm	1.00	50 mL	50 mL	X112408.D	Liquid	Y	>2
9	HS19111239-07	SAMP	11-24-2019 03:24 pm	1.00	50 mL	50 mL	X112409.D	Liquid	Y	>2
10	HS19111239-05	SAMP	11-24-2019 03:48 pm	1.00	50 mL	50 mL	X112410.D	Liquid	Y	>2
11	HS19111239-05MS	MS	11-24-2019 04:13 pm	1.00	50 mL	50 mL	X112411.D	Liquid	Y	>2
	<i>3.5 uL cal std/40 mL samp</i>									
12	HS19111239-05MSD	MSD	11-24-2019 04:37 pm	1.00	50 mL	50 mL	X112412.D	Liquid	Y	>2
	<i>3.5 uL cal std/40 mL samp</i>									
13	HS19111040-15	SAMP	11-24-2019 05:01 pm	1.00	50 mL	50 mL	X112413.D	Liquid	Y	>2
14	HS19111153-01	SAMP	11-24-2019 05:25 pm	1.00	50 mL	50 mL	X112414.D	Liquid	Y	>2
15	HS19111153-02	SAMP	11-24-2019 05:49 pm	1.00	50 mL	50 mL	X112415.D	Liquid	Y	>2
16	HS19111153-03	SAMP	11-24-2019 06:13 pm	1.00	50 mL	50 mL	X112416.D	Liquid	Y	>2
17	HS19111153-04	SAMP	11-24-2019 06:37 pm	1.00	50 mL	50 mL	X112417.D	Liquid	Y	>2
18	HS19111153-05	SAMP	11-24-2019 07:01 pm	1.00	50 mL	50 mL	X112418.D	Liquid	Y	>2
19	HS19111153-06	SAMP	11-24-2019 07:25 pm	1.00	50 mL	50 mL	X112419.D	Liquid	Y	>2
20	HS19111153-07	SAMP	11-24-2019 07:49 pm	1.00	50 mL	50 mL	X112420.D	Liquid	Y	>2
21	HS19111153-08	SAMP	11-24-2019 08:13 pm	1.00	50 mL	50 mL	X112421.D	Liquid	Y	>2
22	HS19111239-01	SAMP	11-24-2019 08:37 pm	1.00	50 mL	50 mL	X112422.D	Liquid	Y	>2
23	HS19111239-02	SAMP	11-24-2019 09:01 pm	1.00	50 mL	50 mL	X112423.D	Liquid	Y	>2
24	HS19111239-03	SAMP	11-24-2019 09:25 pm	1.00	50 mL	50 mL	X112424.D	Liquid	Y	>2
25	HS19111239-04	SAMP	11-24-2019 09:49 pm	1.00	50 mL	50 mL	X112425.D	Liquid	Y	>2
26	HS19111239-06	SAMP	11-24-2019 10:13 pm	1.00	50 mL	50 mL	X112426.D	Liquid	Y	>2
27	CCV-END	CCV	11-24-2019 10:37 pm	1.00	50 mL	50 mL	X112427.D	Liquid	Y	na
	<i>10 uL cal std/50 mL DI</i>									
28	HS19111042-15	SAMP	11-24-2019 11:01 pm	1.00	50 mL	50 mL	X112428.D	Liquid	Y	>2
29	HS19111193-01	SAMP	11-24-2019 11:25 pm	1.00	50 mL	50 mL	X112429.D	Liquid	Y	>2
30	HS19111193-04	SAMP	11-24-2019 11:50 pm	1.00	50 mL	50 mL	X112430.D	Liquid	Y	>2
31	BFB	TUNE	11-25-2019 12:13 am	1.00	50 mL	50 mL	Y112401.D	Liquid	Y	na
	<i>Auto find/ purged</i>									
32	CCV	CCV	11-25-2019 12:37 am	1.00	50 mL	50 mL	Y112402a.D	Liquid	Y	na
	<i>10 uL cal std/50 mL DI/not used</i>									
33	CCV	CCV	11-25-2019 01:01 am	1.00	50 mL	50 mL	Y112403.D	Liquid	Y	na
	<i>10 uL cal std/50 mL DI</i>									
34	CCB	SAMP	11-25-2019 01:25 am	1.00	50 mL	50 mL	Y112404.D	Liquid	Y	na
35	VLCSW-191124	LCS	11-25-2019 01:49 am	1.00	50 mL	50 mL	Y112405.D	Liquid	Y	na
	<i>4.0 uL cal std/50 mL DI</i>									



MSVOA06 -Logbook

#	<u>Samp ID</u>	<u>Type</u>	<u>Analyzed</u>	<u>DF</u>	<u>Init Wt/Vol</u>	<u>Final Vol</u>	<u>File ID</u>	<u>Matrix</u>	<u>Status</u>	<u>pH</u>
36	BLK	SAMP	11-25-2019 02:13 am	1.00	50 mL	50 mL	Y112406.D	Liquid	Y	na
37	VLKWK-191124	MBLK	11-25-2019 02:37 am	1.00	50 mL	50 mL	Y112407.D	Liquid	Y	na
38	HS19111226-01	SAMP	11-25-2019 03:01 am	1.00	50 mL	50 mL	Y112408.D	Liquid	Y	>2
39	HS19111226-01MS	MS	11-25-2019 03:25 am	1.00	50 mL	50 mL	Y112409.D	Liquid	Y	>2
	3.5 uL cal std/40 mL samp									
40	HS19111226-01MSD	MSD	11-25-2019 03:50 am	1.00	50 mL	50 mL	Y112410.D	Liquid	Y	>2
	3.5 uL cal std/40 mL samp									
41	HS19110933-03	SAMP	11-25-2019 04:16 am	5.00	10 mL	50 mL	Y112411.D	Liquid	Y	>2
42	HS19110933-12	SAMP	11-25-2019 04:43 am	5.00	10 mL	50 mL	Y112412.D	Liquid	Y	>2
43	HS19111140-02	SAMP	11-25-2019 05:07 am	1.00	50 mL	50 mL	Y112413.D	Liquid	Y	>2
44	HS19111194-14	SAMP	11-25-2019 05:31 am	1.00	50 mL	50 mL	Y112414.D	Liquid	Y	>2
45	HS19111194-20	SAMP	11-25-2019 05:55 am	1.00	50 mL	50 mL	Y112415.D	Liquid	Y	>2
46	HS19111194-21	SAMP	11-25-2019 06:19 am	1.00	50 mL	50 mL	Y112416.D	Liquid	Y	>2
47	HS19111194-22	SAMP	11-25-2019 06:43 am	1.00	50 mL	50 mL	Y112417.D	Liquid	Y	>2
48	HS19111194-23	SAMP	11-25-2019 07:07 am	1.00	50 mL	50 mL	Y112418.D	Liquid	Y	>2
49	HS19111229-07	SAMP	11-25-2019 07:31 am	1.00	50 mL	50 mL	Y112419.D	Liquid	Y	>2
50	HS19111229-08	SAMP	11-25-2019 07:55 am	1.00	50 mL	50 mL	Y112420.D	Liquid	Y	>2
51	HS19111228-05	SAMP	11-25-2019 08:19 am	1.00	50 mL	50 mL	Y112421.D	Liquid	Y	>2
52	HS19111228-06	SAMP	11-25-2019 08:43 am	1.00	50 mL	50 mL	Y112422.D	Liquid	Y	>2
53	HS19111233-11	SAMP	11-25-2019 09:07 am	1.00	50 mL	50 mL	Y112423.D	Liquid	Y	>2
54	HS19111237-25	SAMP	11-25-2019 09:31 am	1.00	50 mL	50 mL	Y112424.D	Liquid	Y	>2
55	HS19111238-17	SAMP	11-25-2019 09:55 am	1.00	50 mL	50 mL	Y112425.D	Liquid	Y	>2
56	MBLK-147908	MBLK	11-25-2019 10:20 am	20.00	2.5 mL	50 mL	Y112426.D	Liquid	Y	na
57	HS19111086-01	SAMP	11-25-2019 10:44 am	20.00	2.5 mL	50 mL	Y112427.D	Liquid	Y	na
58	HS19111092-01	SAMP	11-25-2019 11:08 am	20.00	2.5 mL	50 mL	Y112428.D	Liquid	Y	na
59	HS19111124-01	SAMP	11-25-2019 11:32 am	20.00	2.5 mL	50 mL	Y112429.D	Liquid	Y	na
60	HS19111145-01	SAMP	11-25-2019 11:56 am	20.00	2.5 mL	50 mL	Y112430.D	Liquid	Y	na

Chemical	Value
SURR SPK ID	31106-04-03
IS ID	31106-04-04
LCS/MS ID	30603-92-01
CAL STD ID	31106-04-01/02
BFB ID	31106-04-03
pH Paper	634-64-11



FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111239

	CLIENT SAMPLE NO.	SMC1 #	SMC2 #	SMC3 (TOL) #	OTHER (DCE) #	TOT OUT
	=====	=====	=====	=====	=====	=====
01	VLCSW-19124	94	100	93	101	0
02	VBLKW-191124	91	96	98	92	0
03	HS19111239-07	94	96	97	92	0
04	HS19111239-05	92	97	99	93	0
05	HS19111239-05	95	97	95	93	0
06	HS19111239-05	96	97	95	93	0
07	HS19111239-01	93	97	97	94	0
08	HS19111239-02	93	96	97	93	0
09	HS19111239-03	94	97	97	94	0
10	HS19111239-04	94	95	96	91	0
11	HS19111239-06	94	97	99	95	0
12						
13						
14						
15						
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23						
24						
25						
26						
27						
28						

QC LIMITS

SMC1 = 4-Bromofluorobenzene (70-130)

SMC2 = Dibromofluoromethane (70-130)

SMC3 (TOL) = Toluene-d8 (0-130)

OTHER(DCE) = 1,2-Dichloroethane-d4 (0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out



FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-191124

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111239

Lab File ID: X112407

Lab Sample ID: VBLKW-191124

Date Analyzed: 11/24/19

Time Analyzed: 1436

GC Column: DB624 ID: 0.18 (mm)

Heated Purge: (Y/N) N

Instrument ID: VOA6

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
	=====	=====	=====	=====
01	VLCSW-19124	VLCSW-191124	X112405	1348
02	HS19111239-0	HS19111239-07	X112409	1524
03	HS19111239-0	HS19111239-05	X112410	1548
04	HS19111239-0	HS19111239-05M	X112411	1613
05	HS19111239-0	HS19111239-05M	X112412	1637
06	HS19111239-0	HS19111239-01	X112422	2037
07	HS19111239-0	HS19111239-02	X112423	2101
08	HS19111239-0	HS19111239-03	X112424	2125
09	HS19111239-0	HS19111239-04	X112425	2149
10	HS19111239-0	HS19111239-06	X112426	2213
11				
12				
13				
14				
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26				
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28				
29				
30				

COMMENTS:



FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111239

Lab File ID: X112401

BFB Injection Date: 11/24/19

Instrument ID: VOA6

BFB Injection Time: 1212

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	52.5
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.7 (0.9)1
174	Greater than 50.0% of mass 95	78.4
175	5.0 - 9.0% of mass 174	6.2 (7.9)1
176	95.0 - 101.0% of mass 174	75.4 (96.2)1
177	5.0 - 9.0% of mass 176	5.7 (7.5)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	CCV	CCV	X112403	11/24/19	1300
02	VLCSW-19124	VLCSW-191124	X112405	11/24/19	1348
03	VBLKW-191124	VBLKW-191124	X112407	11/24/19	1436
04	HS19111239-0	HS19111239-07	X112409	11/24/19	1524
05	HS19111239-0	HS19111239-05	X112410	11/24/19	1548
06	HS19111239-0	HS19111239-05M	X112411	11/24/19	1613
07	HS19111239-0	HS19111239-05M	X112412	11/24/19	1637
08	HS19111239-0	HS19111239-01	X112422	11/24/19	2037
09	HS19111239-0	HS19111239-02	X112423	11/24/19	2101
10	HS19111239-0	HS19111239-03	X112424	11/24/19	2125
11	HS19111239-0	HS19111239-04	X112425	11/24/19	2149
12	HS19111239-0	HS19111239-06	X112426	11/24/19	2213
13	CCV-END	CCV-END	X112427	11/24/19	2237
14					
15					
16					
17					
18					
19					
20					
21					
22					

page 1 of 1

FORM V VOA



FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111239

Instrument ID: VOA6

Calibration Date: 11/24/19 Time: 1300

Lab File ID: X112403

Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624

ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
=====	=====	=====	=====	=====	=====	=====	=====
cis-1,3-Dichloropropene	0.4880000	0.5368675	0.5368675	0.2	-10.01	20.00	AVRG
trans-1,3-Dichloropropene	0.4440000	0.4928203	0.4928203	0.1	-11.00	20.00	AVRG
1,3-Dichlorobenzene	1.4340000	1.5498848	1.5498848	0.6	-8.08	20.00	AVRG
2,2-Dichloropropane	0.6600000	0.7359097	0.7359097	0.1	-11.50	20.00	AVRG
1,1-Dichloropropene	0.4030000	0.4275042	0.4275042	0.1	-6.08	20.00	AVRG
Dibromomethane	0.2110000	0.2311425	0.2311425	0.1	-9.55	20.00	AVRG
1,2-Dibromoethane	0.3510000	0.3802645	0.3802645	0.1	-8.34	20.00	AVRG
trans-1,2-Dichloroethene	0.4110000	0.4705113	0.4705113	0.1	-14.48	20.00	AVRG
1,1,1,2-Tetrachloroethane	0.3630000	0.3931101	0.3931101	0.1	-8.29	20.00	AVRG
1,1,1-Trichloroethane	0.6740000	0.7622326	0.7622326	0.1	-13.09	20.00	AVRG
1,1,2,2-Tetrachloroethane	0.7030000	0.7508510	0.7508510	0.3	-6.81	20.00	AVRG
Toluene	1.4180000	1.5200719	1.5200719	0.4	-7.20	20.00	AVRG
1,1,2-Trichloroethane	0.2610000	0.2799293	0.2799293	0.1	-7.25	20.00	AVRG
1,1-Dichloroethane	0.7270000	0.8097068	0.8097068	0.2	-11.38	20.00	AVRG
1,1-Dichloroethene	0.4240000	0.4610694	0.4610694	0.1	-8.74	20.00	AVRG
Trichlorofluoromethane	0.7760000	0.8757357	0.8757357	0.1	-12.85	20.00	AVRG
1,2,3-Trichlorobenzene	59.869410	50.000000	0.2222731	0.1	-19.74	20.00	2RDR
Tetrachloroethene	0.3510000	0.3606409	0.3606409	0.2	-2.75	20.00	AVRG
1,2,4-Trichlorobenzene	0.4210000	0.4528376	0.4528376	0.2	-7.56	20.00	AVRG
1,2,4-Trimethylbenzene	2.3720000	2.6388075	2.6388075	0.1	-11.25	20.00	AVRG
tert-Butylbenzene	1.9490000	2.1474166	2.1474166	0.1	-10.18	20.00	AVRG
Trichloroethene	0.3500000	0.3847539	0.3847539	0.2	-9.93	20.00	AVRG
1,2-Dichlorobenzene	1.3270000	1.4427857	1.4427857	0.4	-8.72	20.00	AVRG
1,2-Dichloroethane	0.3970000	0.4237764	0.4237764	0.1	-6.74	20.00	AVRG
1,2-Dichloropropane	0.2990000	0.3163490	0.3163490	0.1	-5.80	20.00	AVRG
1,3,5-Trimethylbenzene	2.2760000	2.5219796	2.5219796	0.1	-10.81	20.00	AVRG
1,3-Dichloropropane	0.5310000	0.5564504	0.5564504	0.1	-4.79	20.00	AVRG
1,4-Dichlorobenzene	1.4570000	1.5941882	1.5941882	0.4	-9.42	20.00	AVRG
2-Butanone	0.1530000	0.1750049	0.1750049	0.1	-14.38	20.00	AVRG
2-Chlorotoluene	1.7990000	1.9918861	1.9918861	0.1	-10.72	20.00	AVRG
2-Hexanone	0.2050000	0.2180471	0.2180471	0.1	-6.36	20.00	AVRG
4-Chlorotoluene	2.1800000	2.3894810	2.3894810	0.1	-9.61	20.00	AVRG
Styrene	1.0440000	1.1795658	1.1795658	0.3	-12.98	20.00	AVRG
4-Methyl-2-Pentanone	0.2930000	0.3074384	0.3074384	0.1	-4.93	20.00	AVRG
Acetone	125.85768	100.00000	0.1616705	0.1	-25.86	20.00	LINR <-
Benzene	1.1440000	1.2581264	1.2581264	0.5	-9.98	20.00	AVRG
Bromobenzene	0.8690000	0.9114216	0.9114216	0.1	-4.88	20.00	AVRG
Bromochloromethane	0.2710000	0.2983961	0.2983961	0.1	-10.11	20.00	AVRG
Bromodichloromethane	0.4140000	0.4531664	0.4531664	0.2	-9.46	20.00	AVRG
Bromoform	54.348504	50.000000	0.3241467	0.1	-8.70	20.00	LINR
Bromomethane	56.851028	50.000000	0.5622019	0.1	-13.70	20.00	LINR
Carbon Disulfide	1.1530000	1.3274079	1.3274079	0.1	-15.13	20.00	AVRG

page 1 of 2

FORM VII VOA



FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911123

Instrument ID: VOA6

Calibration Date: 11/24/19

Time: 1300

Lab File ID: X112403

Init. Calib. Date(s): 11/18/19

11/18/19

Init. Calib. Times: 1347

1746

GC Column: DB624

ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
=====	=====	=====	=====	=====	=====	=====	=====
Carbon Tetrachloride	0.4420000	0.4671428	0.4671428	0.1	-5.69	20.00	AVRG
Chlorobenzene	0.9760000	1.0379305	1.0379305	0.5	-6.34	20.00	AVRG
Chloroethane	0.3150000	0.3259909	0.3259909	0.1	-3.49	20.00	AVRG
Chloroform	0.8100000	0.8785306	0.8785306	0.2	-8.46	20.00	AVRG
Chloromethane	40.392158	50.000000	0.4382946	0.1	19.22	20.00	LINR
cis-1,2-Dichloroethene	0.4740000	0.5473069	0.5473069	0.1	-15.46	20.00	AVRG
Dibromochloromethane	0.3800000	0.4126384	0.4126384	0.1	-8.59	20.00	AVRG
Dichlorodifluoromethane	42.746658	50.000000	0.3883239	0.1	14.51	20.00	LINR
Ethylbenzene	0.5040000	0.5465037	0.5465037	0.1	-8.43	20.00	AVRG
Hexachlorobutadiene	0.4020000	0.3683374	0.3683374	0.1	8.37	20.00	AVRG
Isopropylbenzene	1.4940000	1.6641173	1.6641173	0.1	-11.39	20.00	AVRG
m,p-Xylenes	0.6080000	0.6690744	0.6690744	0.1	-10.04	20.00	AVRG
Methylene Chloride	0.4520000	0.4842822	0.4842822	0.1	-7.14	20.00	AVRG
n-Butylbenzene	2.0360000	2.3328364	2.3328364	0.5	-14.58	20.00	AVRG
n-Propylbenzene	3.0900000	3.4157713	3.4157713	0.1	-10.54	20.00	AVRG
Naphthalene	0.5400000	0.5863405	0.5863405	0.2	-8.58	20.00	AVRG
o-Xylene	0.6000000	0.6481880	0.6481880	0.3	-8.03	20.00	AVRG
sec-Butylbenzene	2.6850000	2.9950522	2.9950522	0.1	-11.55	20.00	AVRG
Vinyl Chloride	0.5100000	0.4975844	0.4975844	0.1	2.43	20.00	AVRG
1,2,3-Trichloropropane	0.5960000	0.6191795	0.6191795	0.1	-3.89	20.00	AVRG
p-Isopropyltoluene	2.4460000	2.6809955	2.6809955	0.1	-9.61	20.00	AVRG
1,2-Dibromo-3-Chloropropane	55.230831	50.000000	8.57e-002	0.05	-10.46	20.00	LINR
Freon TF	0.4350000	0.4941619	0.4941619	0.1	-13.60	20.00	AVRG
=====	=====	=====	=====	=====	=====	=====	=====
4-Bromofluorobenzene	51.614238	50.000000	0.4803318	0.1	-3.23	20.00	LINR
Dibromofluoromethane	53.906503	50.000000	0.4904270	0.1	-7.81	20.00	LINR
Toluene-d8	1.3170000	1.2341904	1.2341904	0.1	6.29	20.00	AVRG
1,2-Dichloroethane-d4	53.432466	50.000000	0.5031742	0.1	-6.86	20.00	LINR



FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111239

Instrument ID: VOA6

Calibration Date: 11/24/19 Time: 2237

Lab File ID: X112427

Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624

ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
=====	=====	=====	=====	=====	=====	=====	=====
cis-1,3-Dichloropropene	0.4880000	0.4747030	0.4747030	0.2	2.72	50.00	AVRG
trans-1,3-Dichloropropene	0.4440000	0.4314600	0.4314600	0.1	2.82	50.00	AVRG
1,3-Dichlorobenzene	1.4340000	1.4186410	1.4186410	0.6	1.07	50.00	AVRG
2,2-Dichloropropane	0.6600000	0.5907701	0.5907701	0.1	10.49	50.00	AVRG
1,1-Dichloropropene	0.4030000	0.3824624	0.3824624	0.1	5.10	50.00	AVRG
Dibromomethane	0.2110000	0.2115844	0.2115844	0.1	-0.28	50.00	AVRG
1,2-Dibromoethane	0.3510000	0.3503197	0.3503197	0.1	0.19	50.00	AVRG
trans-1,2-Dichloroethene	0.4110000	0.4304146	0.4304146	0.1	-4.72	50.00	AVRG
1,1,1,2-Tetrachloroethane	0.3630000	0.3612077	0.3612077	0.1	0.49	50.00	AVRG
1,1,1-Trichloroethane	0.6740000	0.6966269	0.6966269	0.1	-3.36	50.00	AVRG
1,1,2,2-Tetrachloroethane	0.7030000	0.6885276	0.6885276	0.3	2.06	50.00	AVRG
Toluene	1.4180000	1.3847759	1.3847759	0.4	2.34	50.00	AVRG
1,1,2-Trichloroethane	0.2610000	0.2617036	0.2617036	0.1	-0.27	50.00	AVRG
1,1-Dichloroethane	0.7270000	0.7466630	0.7466630	0.2	-2.70	50.00	AVRG
1,1-Dichloroethene	0.4240000	0.4110590	0.4110590	0.1	3.05	50.00	AVRG
Trichlorofluoromethane	0.7760000	0.7612427	0.7612427	0.1	1.90	50.00	AVRG
1,2,3-Trichlorobenzene	42.666437	50.000000	0.1589983	0.1	14.67	50.00	2RDR
Tetrachloroethene	0.3510000	0.3299206	0.3299206	0.2	6.00	50.00	AVRG
1,2,4-Trichlorobenzene	0.4210000	0.3558336	0.3558336	0.2	15.48	50.00	AVRG
1,2,4-Trimethylbenzene	2.3720000	2.3771169	2.3771169	0.1	-0.22	50.00	AVRG
tert-Butylbenzene	1.9490000	1.9391360	1.9391360	0.1	0.51	50.00	AVRG
Trichloroethene	0.3500000	0.3483569	0.3483569	0.2	0.47	50.00	AVRG
1,2-Dichlorobenzene	1.3270000	1.3289706	1.3289706	0.4	-0.15	50.00	AVRG
1,2-Dichloroethane	0.3970000	0.3976601	0.3976601	0.1	-0.17	50.00	AVRG
1,2-Dichloropropane	0.2990000	0.2867487	0.2867487	0.1	4.10	50.00	AVRG
1,3,5-Trimethylbenzene	2.2760000	2.2615498	2.2615498	0.1	0.63	50.00	AVRG
1,3-Dichloropropane	0.5310000	0.5137352	0.5137352	0.1	3.25	50.00	AVRG
1,4-Dichlorobenzene	1.4570000	1.4425688	1.4425688	0.4	0.99	50.00	AVRG
2-Butanone	0.1530000	0.1509645	0.1509645	0.1	1.33	50.00	AVRG
2-Chlorotoluene	1.7990000	1.7964626	1.7964626	0.1	0.14	50.00	AVRG
2-Hexanone	0.2050000	0.1967670	0.1967670	0.1	4.02	50.00	AVRG
4-Chlorotoluene	2.1800000	2.1356226	2.1356226	0.1	2.04	50.00	AVRG
Styrene	1.0440000	1.0386862	1.0386862	0.3	0.51	50.00	AVRG
4-Methyl-2-Pentanone	0.2930000	0.2903661	0.2903661	0.1	0.90	50.00	AVRG
Acetone	90.980196	100.000000	0.1182013	0.1	9.02	50.00	LINR
Benzene	1.1440000	1.1502871	1.1502871	0.5	-0.55	50.00	AVRG
Bromobenzene	0.8690000	0.8651221	0.8651221	0.1	0.45	50.00	AVRG
Bromochloromethane	0.2710000	0.2794833	0.2794833	0.1	-3.13	50.00	AVRG
Bromodichloromethane	0.4140000	0.4116628	0.4116628	0.2	0.56	50.00	AVRG
Bromoform	48.626831	50.000000	0.2893826	0.1	2.75	50.00	LINR
Bromomethane	52.683904	50.000000	0.5226341	0.1	-5.37	50.00	LINR
Carbon Disulfide	1.1530000	1.1979251	1.1979251	0.1	-3.90	50.00	AVRG

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FORM VII VOA



FORM VII
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911123

Instrument ID: VOA6

Calibration Date: 11/24/19 Time: 2237

Lab File ID: X112427

Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624

ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
=====	=====	=====	=====	=====	=====	=====	=====
Carbon Tetrachloride	0.4420000	0.4195907	0.4195907	0.1	5.07	50.00	AVRG
Chlorobenzene	0.9760000	0.9474375	0.9474375	0.5	2.93	50.00	AVRG
Chloroethane	0.3150000	0.2896801	0.2896801	0.1	8.04	50.00	AVRG
Chloroform	0.8100000	0.8076153	0.8076153	0.2	0.29	50.00	AVRG
Chloromethane	37.363944	50.000000	0.4052824	0.1	25.27	50.00	LINR
cis-1,2-Dichloroethene	0.4740000	0.5006132	0.5006132	0.1	-5.61	50.00	AVRG
Dibromochloromethane	0.3800000	0.3796339	0.3796339	0.1	0.10	50.00	AVRG
Dichlorodifluoromethane	38.957044	50.000000	0.3531729	0.1	22.08	50.00	LINR
Ethylbenzene	0.5040000	0.4919353	0.4919353	0.1	2.39	50.00	AVRG
Hexachlorobutadiene	0.4020000	0.2979883	0.2979883	0.1	25.87	50.00	AVRG
Isopropylbenzene	1.4940000	1.4587607	1.4587607	0.1	2.36	50.00	AVRG
m,p-Xylenes	0.6080000	0.5939111	0.5939111	0.1	2.32	50.00	AVRG
Methylene Chloride	0.4520000	0.4584510	0.4584510	0.1	-1.43	50.00	AVRG
n-Butylbenzene	2.0360000	2.0336559	2.0336559	0.5	0.12	50.00	AVRG
n-Propylbenzene	3.0900000	3.0647036	3.0647036	0.1	0.82	50.00	AVRG
Naphthalene	0.5400000	0.4567759	0.4567759	0.2	15.41	50.00	AVRG
o-Xylene	0.6000000	0.5852126	0.5852126	0.3	2.46	50.00	AVRG
sec-Butylbenzene	2.6850000	2.6671752	2.6671752	0.1	0.66	50.00	AVRG
Vinyl Chloride	0.5100000	0.4438793	0.4438793	0.1	12.96	50.00	AVRG
1,2,3-Trichloropropane	0.5960000	0.5738977	0.5738977	0.1	3.71	50.00	AVRG
p-Isopropyltoluene	2.4460000	2.3948475	2.3948475	0.1	2.09	50.00	AVRG
1,2-Dibromo-3-Chloropropane	50.403168	50.000000	7.82e-002	0.05	-0.81	50.00	LINR
Freon TF	0.4350000	0.4217177	0.4217177	0.1	3.05	50.00	AVRG
=====	=====	=====	=====	=====	=====	=====	=====
4-Bromofluorobenzene	47.970747	50.000000	0.4461481	0.1	4.06	50.00	LINR
Dibromofluoromethane	52.345892	50.000000	0.4761314	0.1	-4.69	50.00	LINR
Toluene-d8	1.3170000	1.2115552	1.2115552	0.1	8.01	50.00	AVRG
1,2-Dichloroethane-d4	52.170618	50.000000	0.4911253	0.1	-4.34	50.00	LINR



VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111239

Lab File ID (Standard): X112403

Date Analyzed: 11/24/19

Instrument ID: VOA6

Time Analyzed: 1300

GC Column: DB624

ID: 0.18 (mm)

Heated Purge: (Y/N) N

	IS1 (DCB)	RT #	IS2 (CBZ)	RT #	IS3 (DFB)	RT #
	AREA #		AREA #		AREA #	
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	281739	9.67	492928	7.67	527389	4.97
UPPER LIMIT	563478	10.17	985856	8.17	1054778	5.47
LOWER LIMIT	140870	9.17	246464	7.17	263695	4.47
=====	=====	=====	=====	=====	=====	=====
CLIENT						
SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 VLCSW-19124	266132	9.67	504151	7.67	550313	4.97
02 VBLKW-191124	275898	9.66	581309	7.67	666006	4.97
03 HS19111239-07	306724	9.67	593776	7.67	667661	4.97
04 HS19111239-05	285003	9.67	570706	7.67	653443	4.97
05 HS19111239-05	312391	9.66	592999	7.67	653867	4.97
06 HS19111239-05	313244	9.66	584590	7.67	652154	4.97
07 HS19111239-01	301449	9.67	589708	7.67	668436	4.97
08 HS19111239-02	310086	9.67	594030	7.67	669563	4.97
09 HS19111239-03	299978	9.66	575306	7.67	657006	4.97
10 HS19111239-04	312234	9.67	598822	7.67	676996	4.97
11 HS19111239-06	286381	9.67	573709	7.67	657307	4.97
12						
13						
14						
15						
16						
17						
18						
19						
20						

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (CBZ) = Chlorobenzene-d5

IS3 (DFB) = 1,4-Difluorobenzene

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

page 1 of 2

FORM VIII VOA



FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111239

Lab File ID (Standard): X112403

Date Analyzed: 11/24/19

Instrument ID: VOA6

Time Analyzed: 1300

GC Column: DB624

ID: 0.18 (mm)

Heated Purge: (Y/N) N

	IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	358510	4.18				
UPPER LIMIT	717020	4.68				
LOWER LIMIT	179255	3.68				
=====	=====	=====	=====	=====	=====	=====
CLIENT SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 VLCSW-19124	388055	4.18				
02 VBLKW-191124	484385	4.18				
03 HS19111239-07	488010	4.18				
04 HS19111239-05	479706	4.18				
05 HS19111239-05	477258	4.18				
06 HS19111239-05	472494	4.18				
07 HS19111239-01	485092	4.18				
08 HS19111239-02	487374	4.18				
09 HS19111239-03	479193	4.18				
10 HS19111239-04	493478	4.18				
11 HS19111239-06	479903	4.18				
12						
13						
14						
15						
16						
17						
18						
19						
20						

IS4 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112401.D

Page 1

Date : 24-NOV-2019 12:12

Client ID: BFB

Instrument: voa6.i

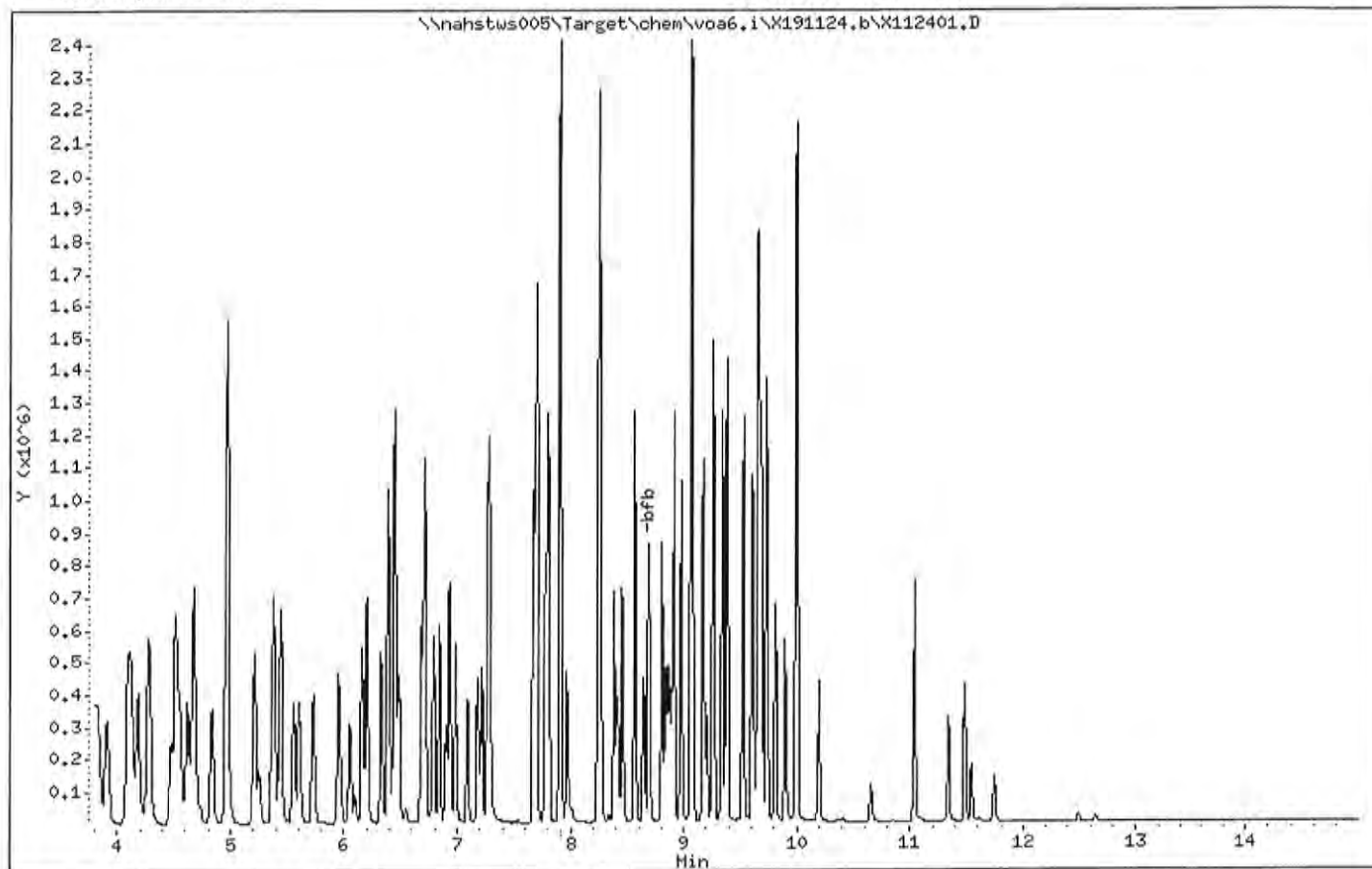
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112401.D

Page 2

Date : 24-NOV-2019 12:12

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

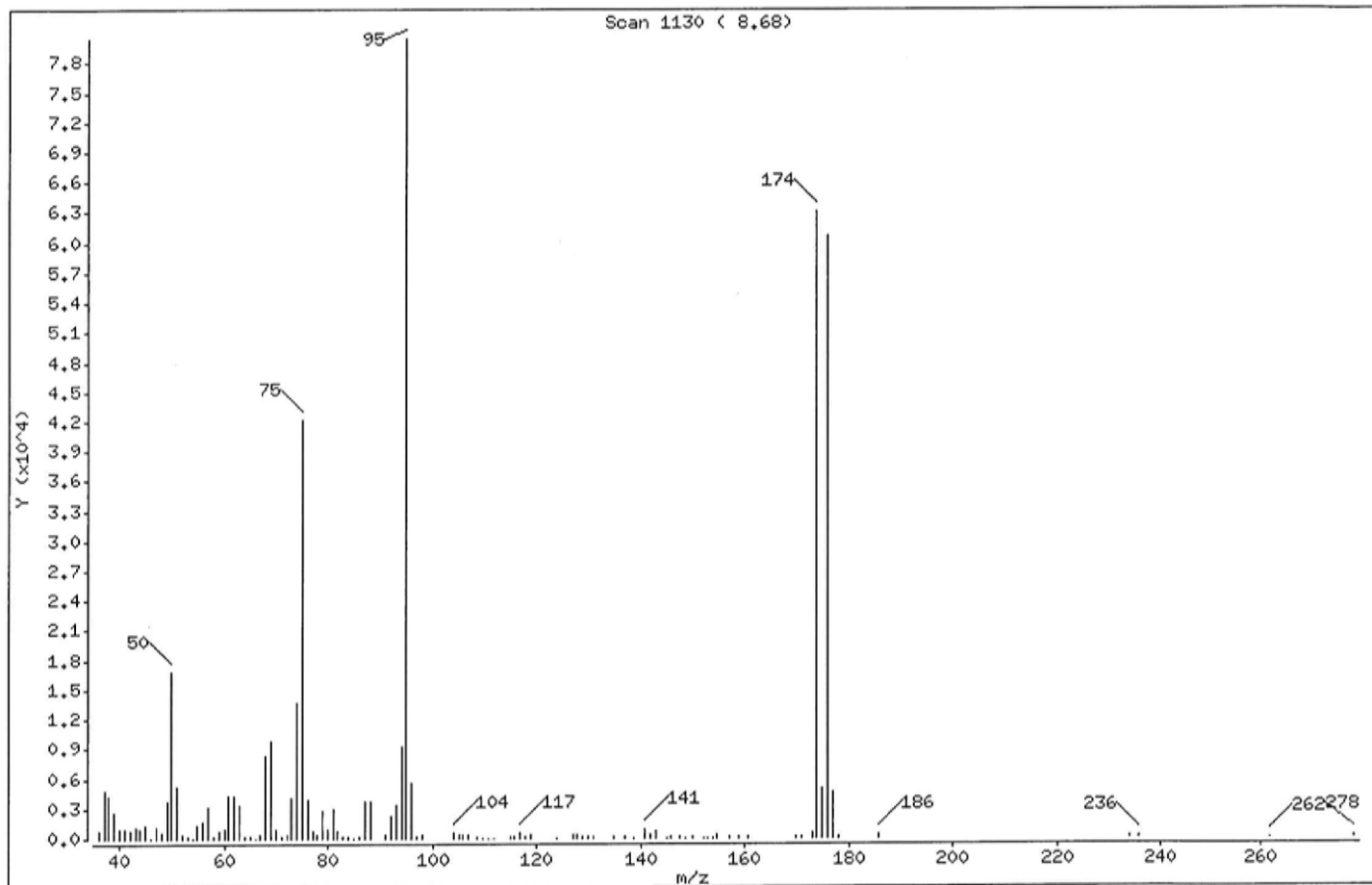
Volume Injected (uL): 2.0

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	20.97
75	30.00 - 60.00% of mass 95	52.51
96	5.00 - 9.00% of mass 95	6.88
173	Less than 2.00% of mass 174	0.67 (0.86)
174	Greater than 50.00% of mass 95	78.38
175	5.00 - 9.00% of mass 174	6.20 (7.91)
176	95.00 - 101.00% of mass 174	75.42 (96.23)
177	5.00 - 9.00% of mass 176	5.67 (7.52)

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112401.D

Page 3

Date : 24-NOV-2019 12:12

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: X112401.D

Spectrum: Scan 1130 (8,68)

Location of Maximum: 95,00

Number of points: 111

m/z	Y	m/z	Y	m/z	Y	m/z	Y

36,00	727	64,00	274	94,00	9304	142,00	305
37,00	4823	65,00	114	95,00	80464	142,90	730
38,00	4282	66,10	68	96,00	5535	145,00	54
39,00	2641	67,00	293	96,90	213	145,80	152
40,00	855	68,00	8379	98,00	391	147,70	180

41,10	1012	69,00	9736	103,90	472	148,80	88
42,00	810	69,90	887	105,00	285	149,90	102
43,00	1161	71,10	105	105,90	384	152,30	71
44,00	968	72,00	439	106,90	448	152,90	74
45,00	1211	73,00	4066	108,80	267	153,80	63

46,00	83	74,00	13658	109,80	70	154,80	328
47,00	1039	75,00	42248	110,90	86	157,00	172
48,00	500	76,00	3862	111,80	60	158,80	120
49,00	3688	77,00	733	115,00	160	160,80	98
50,00	16872	77,90	413	115,80	224	170,00	107

51,00	5102	78,90	2744	116,90	619	170,90	180
52,00	284	79,90	858	117,90	248	172,90	541
53,00	134	80,90	3029	118,80	360	173,90	63064
54,00	59	81,90	708	123,90	59	174,90	4987
55,00	1350	82,90	200	126,90	429	175,90	60688

56,00	1754	84,00	161	127,80	407	176,90	4562
57,00	3126	84,90	69	128,80	154	177,90	137
58,00	250	85,90	105	129,90	237	185,90	417
59,10	788	86,90	3767	130,80	123	233,90	100
60,00	843	88,00	3694	134,80	162	235,70	104

61,00	4184	90,80	438	136,80	110	261,90	58
62,00	4180	92,00	2304	138,80	84	277,90	117
63,00	3319	93,00	3386	140,90	840		

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112403.D Page 1
 Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112403.D
 Lab Smp Id: CCV Client Smp ID: CCV
 Inj Date : 24-NOV-2019 13:00
 Operator : PC Inst ID: voa6.i
 Smp Info : CCV;CCV;2;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 3 Continuing Calibration Sample
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.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

						AMOUNTS	
QUANT SIG						CAL-AMT	ON-COL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	358510	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	527389	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	492928	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	281739	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	180393	50.0000	53.43
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	236769	50.0000	51.61
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	175823	50.0000	53.90
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	608367	50.0000	46.84
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	193775	50.0000	54.18
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	273268	50.0000	56.50
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	211544	50.0000	53.39
138 Freon TF	101	1.919	1.919	(0.459)	177162	50.0000	56.76
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	137985	50.0000	53.55
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	290288	50.0000	55.64
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	165298	50.0000	54.40
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	225461	50.0000	52.99
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	62623	50.0000	59.86
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	174447	50.0000	51.96 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	127582	50.0000	53.75
79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	743455	50.0000	55.61
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.102)	24140	50.0000	55.23
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	187443	50.0000	54.21
88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	406489	50.0000	54.36



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112403.D Page 2
Report Date: 17-Dec-2019 15:49

Compounds	QUANT SIG	AMOUNTS					
		MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	223495	50.0000	53.38
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	166839	50.0000	52.95
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	710540	50.0000	55.39
83 1,3-Dichlorobenzene	146	9.605	9.612	(0.993)	436663	50.0000	54.04
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	274290	50.0000	52.43
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	449145	50.0000	54.70
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	263831	50.0000	55.72
24 2-Butanone	43	3.580	3.573	(0.856)	125482	100.000	114.06
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	561192	50.0000	55.36
52 2-Hexanone	43	7.090	7.090	(0.924)	214963	100.000	106.15
77 4-Chlorotoluene	91	9.074	9.075	(0.939)	673210	50.0000	54.79
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	755341	50.0000	54.79
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	303090	100.000	104.94
10 Acetone	43	1.976	1.976	(0.473)	115921	100.000	125.85
37 Benzene	78	4.512	4.512	(0.908)	663522	50.0000	54.99
74 Bromobenzene	156	8.809	8.809	(0.911)	256783	50.0000	52.44
29 Bromochloromethane	128	3.795	3.795	(0.908)	106978	50.0000	55.08
39 Bromodichloromethane	83	5.729	5.729	(1.153)	238995	50.0000	54.76
66 Bromoform	173	8.415	8.416	(1.097)	159781	50.0000	54.34
6 Bromomethane	94	1.338	1.338	(0.320)	201555	50.0000	56.85
19 Carbon Disulfide	76	2.069	2.069	(0.495)	951778	100.000	115.15
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	246366	50.0000	52.86
59 Chlorobenzene	112	7.699	7.699	(1.004)	511625	50.0000	53.16
7 Chloroethane	64	1.403	1.403	(0.336)	116871	50.0000	51.77
28 Chloroform	83	3.910	3.910	(0.935)	314962	50.0000	54.24
3 Chloromethane	50	1.073	1.073	(0.257)	157133	50.0000	40.39 (M)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	196215	50.0000	57.71
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	283138	50.0000	55.05
55 Dibromochloromethane	129	7.176	7.176	(0.936)	203401	50.0000	54.33
44 Dibromomethane	93	5.557	5.557	(1.118)	121902	50.0000	54.67
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	139218	50.0000	42.74
61 Ethylbenzene	106	7.799	7.799	(1.017)	269387	50.0000	54.17
91 Hexachlorobutadiene	225	11.481	11.488	(1.187)	103775	50.0000	45.83
67 Isopropylbenzene	105	8.566	8.566	(1.117)	820290	50.0000	55.69
62 m,p-Xylenes	106	7.907	7.907	(1.031)	659611	100.000	109.93
17 Methylene Chloride	84	2.305	2.305	(0.551)	173620	50.0000	53.55
87 n-Butylbenzene	91	9.998	9.999	(1.034)	657251	50.0000	57.29
73 n-Propylbenzene	91	8.917	8.917	(0.922)	962356	50.0000	55.26
92 Naphthalene	128	11.546	11.546	(1.194)	165195	50.0000	54.27
63 o-Xylene	106	8.244	8.244	(1.075)	319510	50.0000	53.95
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	843823	50.0000	55.77
64 Styrene	104	8.258	8.258	(1.077)	581441	50.0000	56.46
78 tert-Butylbenzene	119	9.339	9.340	(0.966)	605011	50.0000	55.08
56 Tetrachloroethene	164	6.933	6.933	(0.904)	177770	50.0000	51.32
50 Toluene	91	6.446	6.446	(0.840)	749286	50.0000	53.60
20 trans-1,2-Dichloroethene	96	2.527	2.528	(0.604)	168683	50.0000	57.18
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	259908	50.0000	55.44
38 Trichloroethene	130	5.206	5.206	(1.048)	202915	50.0000	55.01
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	313960	50.0000	56.45
5 Vinyl Chloride	62	1.138	1.138	(0.272)	178389	50.0000	48.82



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112403.D Page 3
Report Date: 17-Dec-2019 15:49

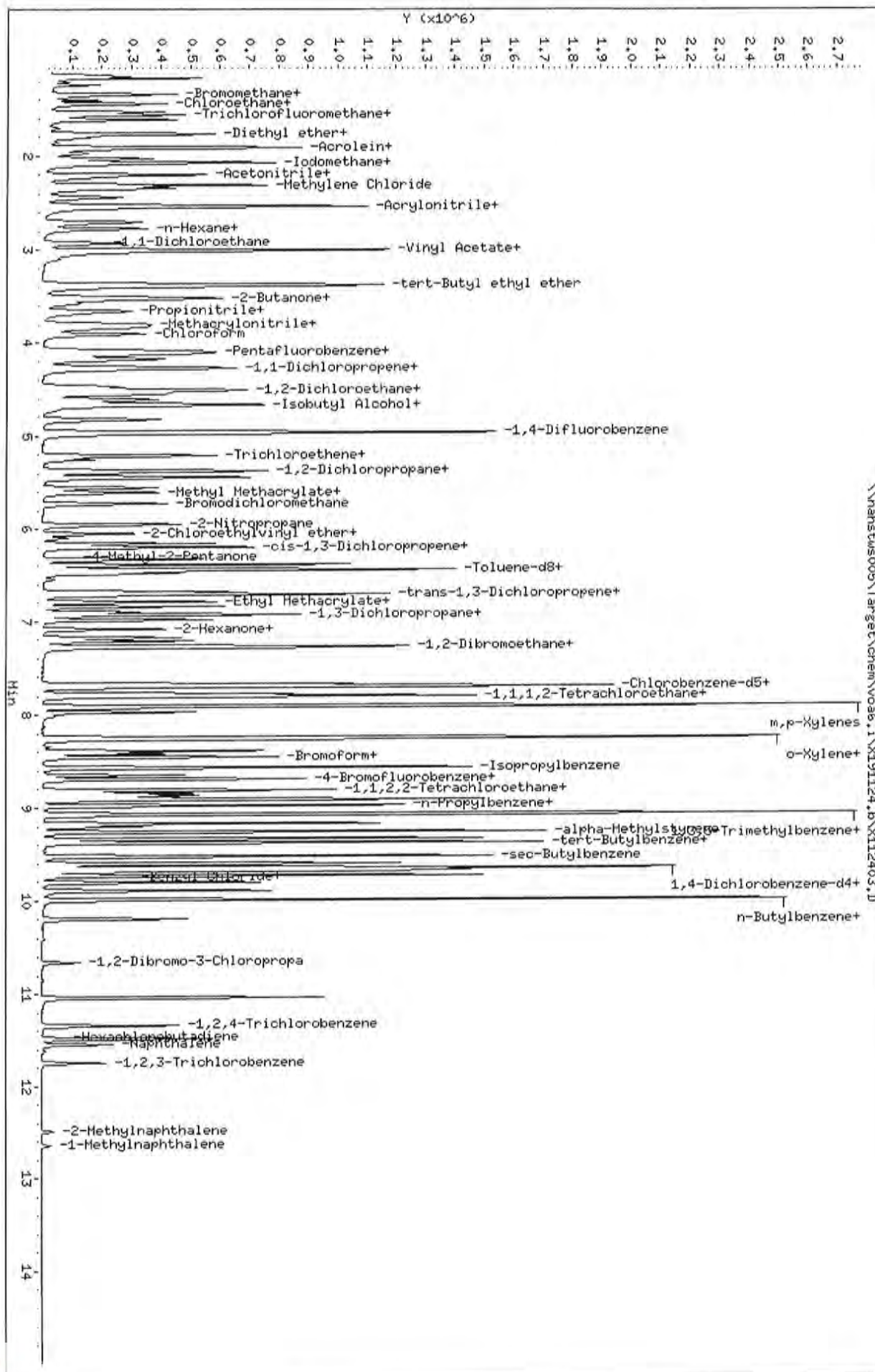
QC Flag Legend

M - Compound response manually integrated.



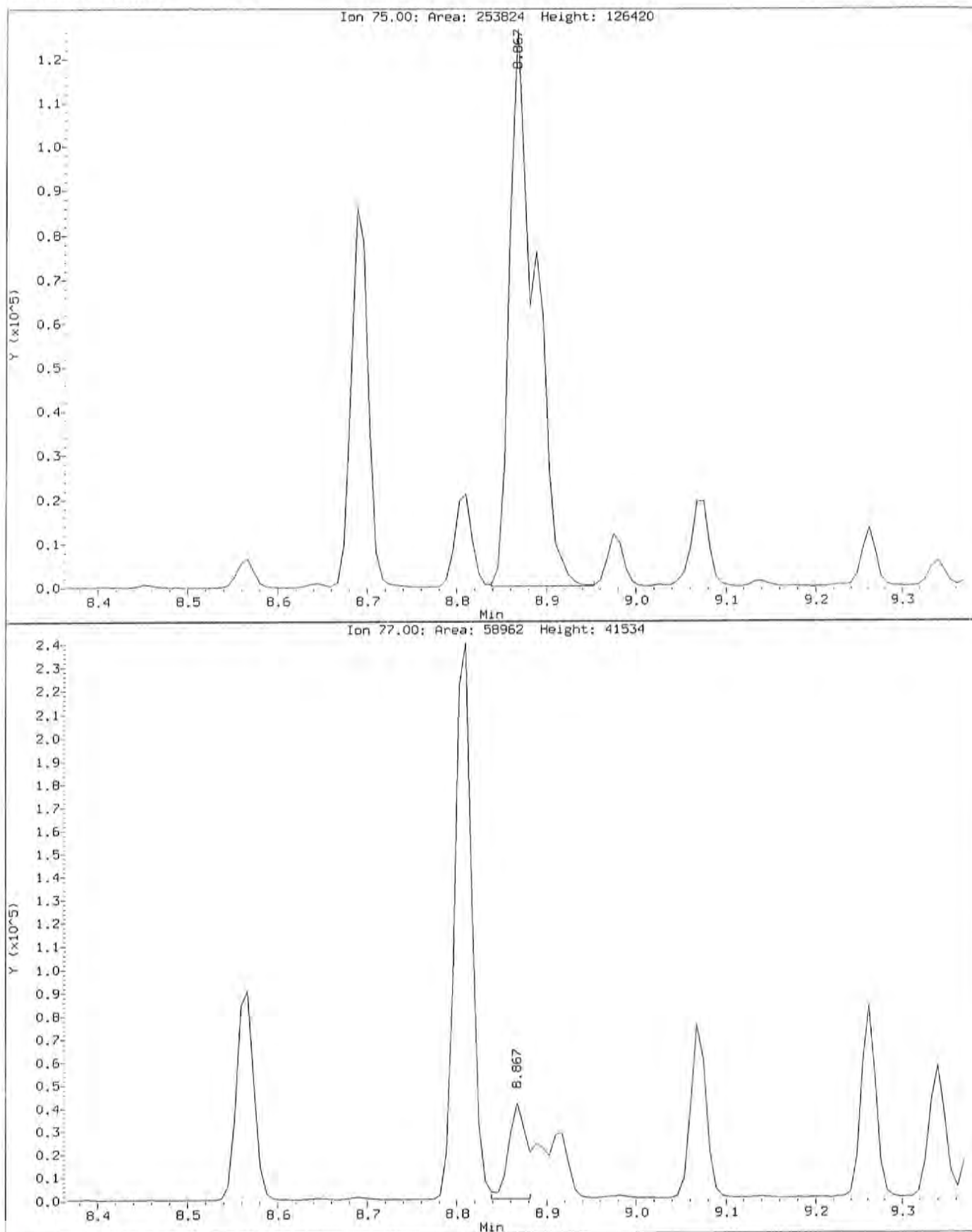
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 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



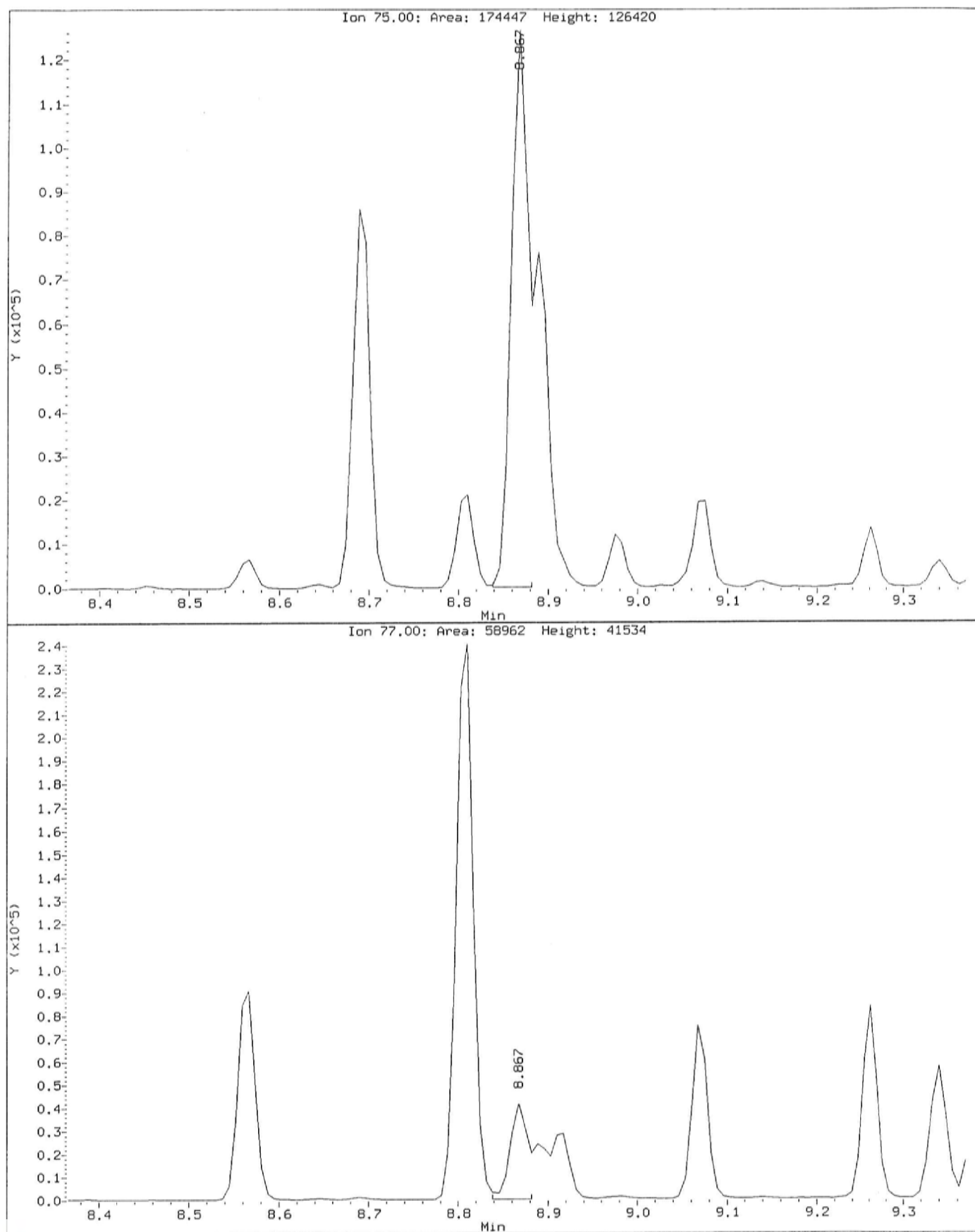
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Instrument: voa6.1
Client Sample ID: CCV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



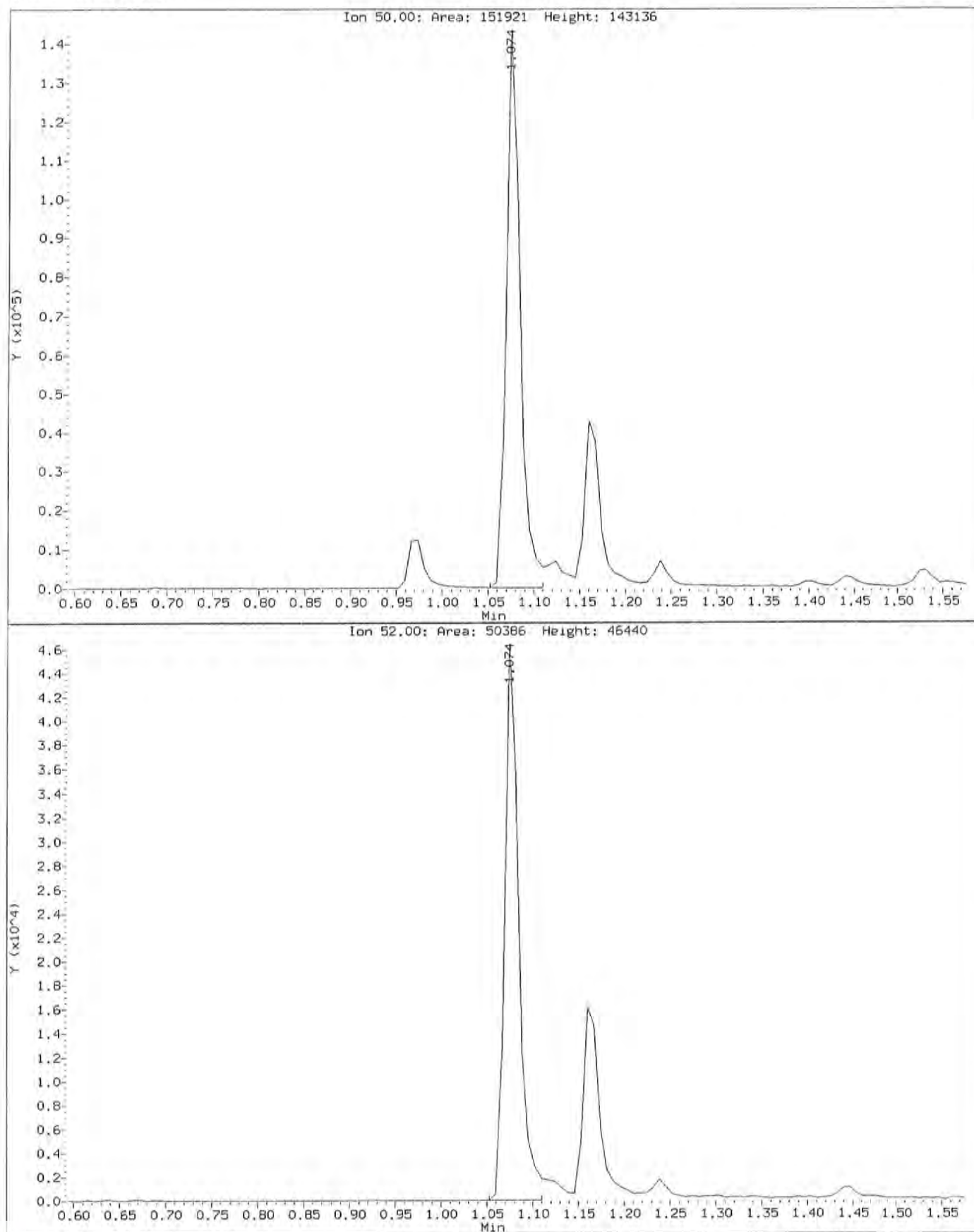
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Instrument: voa6.i
Client Sample ID: CCV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



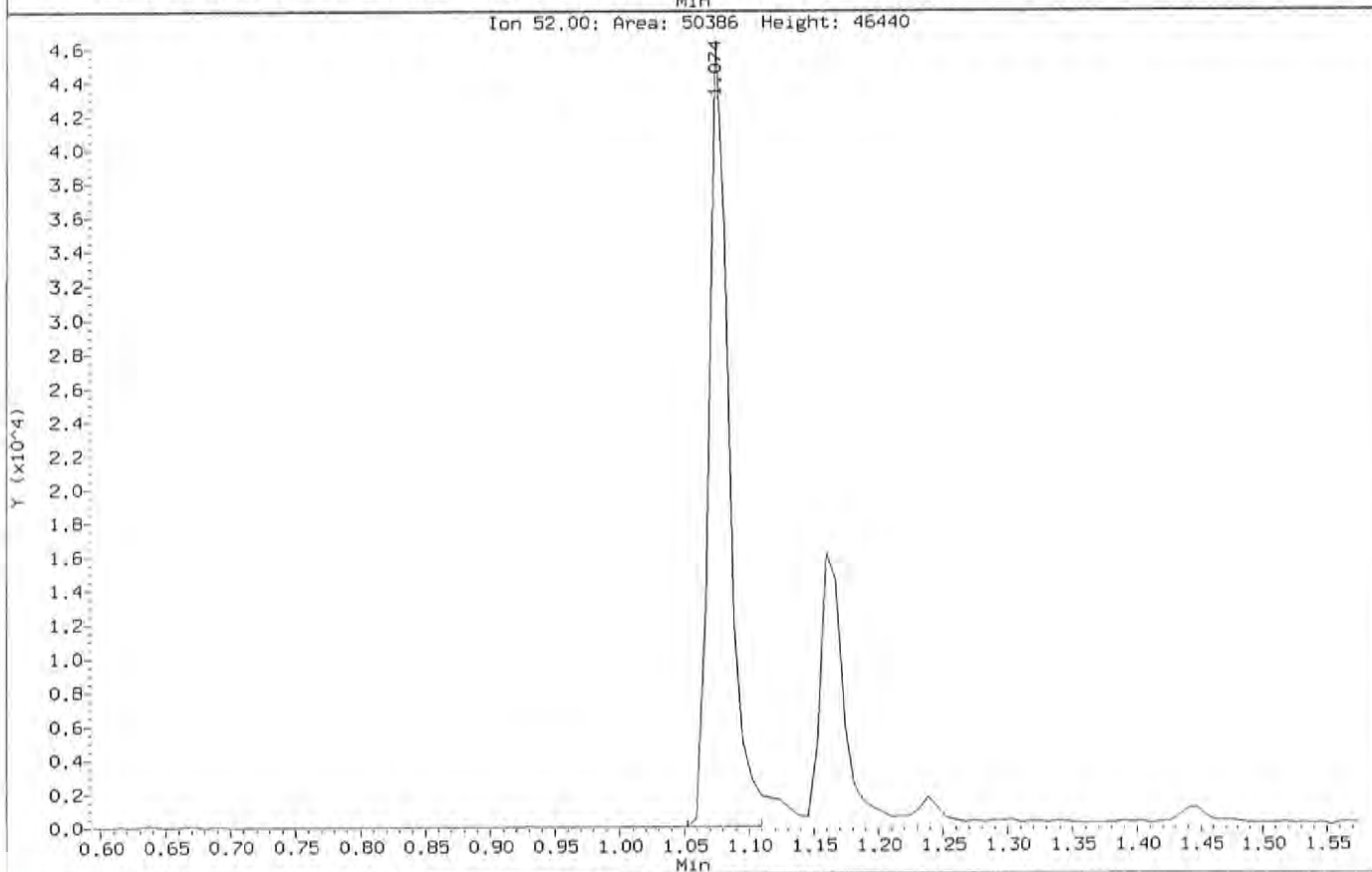
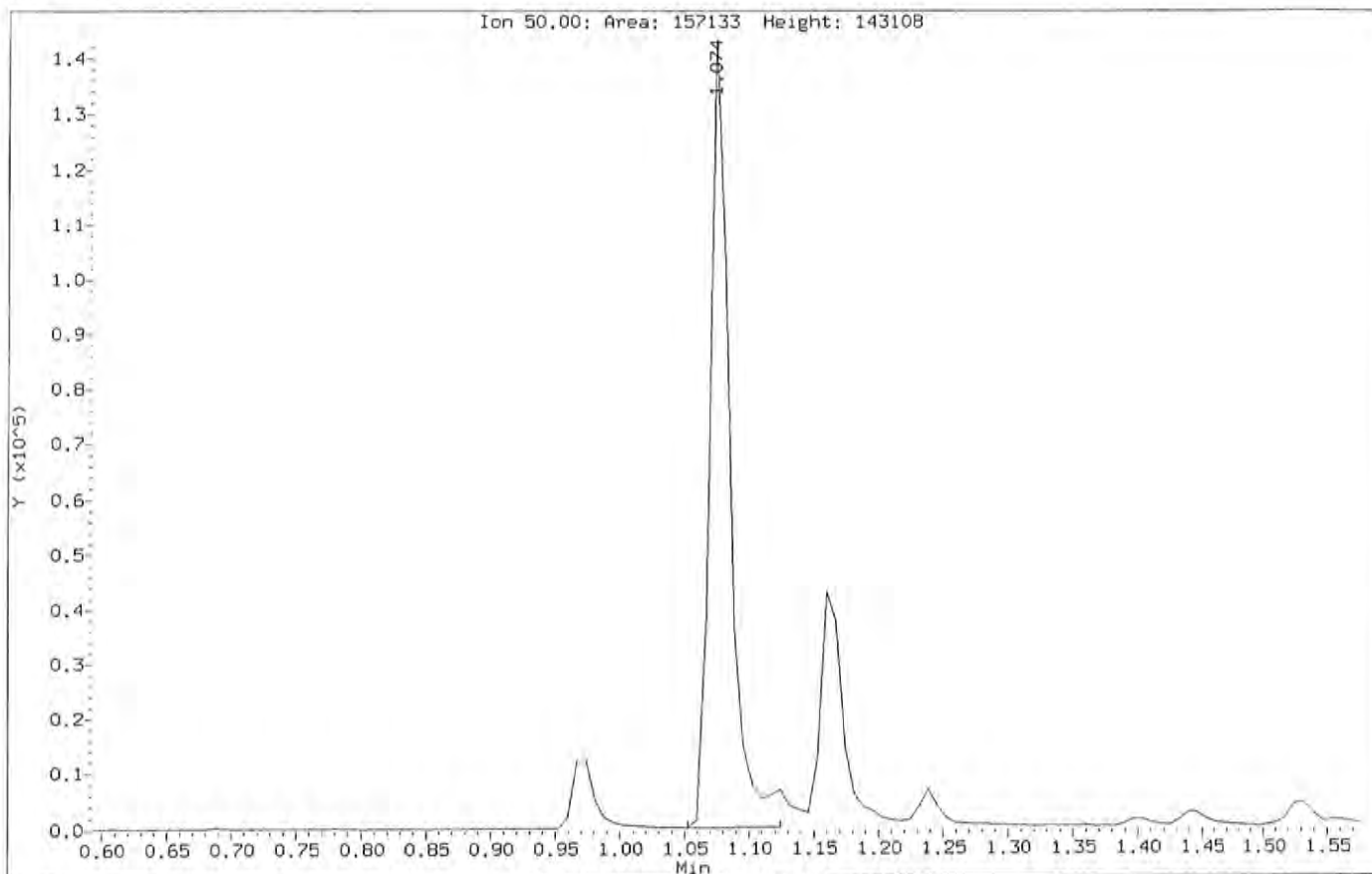
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Injection Date: 24-NOV-2019 13:00
Instrument: voa6.i
Client Sample ID: CCV

Compound: Chloromethane
CAS Number: 74-87-3



Data File: \\nahstws005\Target\chem\voa6.1\X191124.b\X112403.D
Injection Date: 24-NOV-2019 13:00
Instrument: voa6.1
Client Sample ID: CCV

Compound: Chloromethane
CAS Number: 74-87-3



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112405.D Page 1
 Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112405.D
 Lab Smp Id: VLCSW-191124 Client Smp ID: VLCSW-191124
 Inj Date : 24-NOV-2019 13:48
 Operator : PC Inst ID: voa6.i
 Smp Info : VLCSW-191124;VLCSW-19124;3;;LCS
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 5 QC Sample: LCS
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.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	FINAL
							(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene		168	4.182	4.182	(1.000)	388055	50.0000	
* 36 1,4-Difluorobenzene		114	4.970	4.970	(1.000)	550313	50.0000	
* 47 Chlorobenzene-d5		117	7.670	7.671	(1.000)	504151	50.0000	
* 70 1,4-Dichlorobenzene-d4		152	9.669	9.669	(1.000)	266132	50.0000	
\$ 35 1,2-Dichloroethane-d4		65	4.476	4.476	(1.070)	183657	50.3013	50.30
\$ 69 4-Bromofluorobenzene		95	8.688	8.688	(1.133)	220276	46.9877	46.98
\$ 30 Dibromofluoromethane		113	4.103	4.103	(0.981)	177170	50.2092	50.20
\$ 48 Toluene-d8		98	6.388	6.388	(0.833)	617598	46.4941	46.49
60 1,1,1,2-Tetrachloroethane		131	7.778	7.778	(1.014)	75422	20.6210	20.62
31 1,1,1-Trichloroethane		97	4.089	4.089	(0.978)	108042	20.6379	20.63
68 1,1,2,2-Tetrachloroethane		83	8.838	8.838	(0.914)	76156	20.3501	20.35
138 Freon TF		101	1.919	1.919	(0.459)	67205	19.8924	19.89
53 1,1,2-Trichloroethane		83	6.840	6.840	(0.892)	53715	20.3820	20.38
22 1,1-Dichloroethane		63	2.921	2.921	(0.699)	116042	20.5520	20.55
11 1,1-Dichloroethene		96	1.911	1.911	(0.457)	63884	19.4257	19.42
32 1,1-Dichloropropene		75	4.282	4.282	(0.862)	89644	20.1942	20.19
93 1,2,3-Trichlorobenzene		180	11.746	11.746	(1.215)	22116	21.9417	21.94
71 1,2,3-Trichloropropane		75	8.867	8.867	(0.917)	63337	19.9745	19.97 (M)
90 1,2,4-Trichlorobenzene		180	11.338	11.338	(1.173)	47850	21.3444	21.34
79 1,2,4-Trimethylbenzene		105	9.382	9.383	(0.970)	257494	20.3912	20.39
89 1,2-Dibromo-3-Chloropropane		155	10.657	10.658	(1.102)	8410	20.1551	20.15
57 1,2-Dibromoethane		107	7.262	7.262	(0.947)	70877	20.0451	20.04
88 1,2-Dichlorobenzene		146	9.998	9.999	(1.034)	144657	20.4803	20.48



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112405.D Page 2
Report Date: 17-Dec-2019 15:49

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
						(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	88620	20.2860	20.28
42 1,2-Dichloropropane	63	5.443	5.436	(1.095)	66609	20.2622	20.26
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	250392	20.6647	20.66
83 1,3-Dichlorobenzene	146	9.605	9.612	(0.993)	157151	20.5906	20.59
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	105292	19.6789	19.67
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	158993	20.5005	20.50
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	104881	20.4662	20.46
24 2-Butanone	43	3.580	3.573	(0.856)	47024	39.4922	39.49
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	204142	21.3207	21.32
52 2-Hexanone	43	7.083	7.090	(0.923)	82392	39.7837	39.78
77 4-Chlorotoluene	91	9.074	9.075	(0.939)	238168	20.5217	20.52
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	266591	20.4725	20.47
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	114520	38.7685	38.76
10 Acetone	43	1.976	1.976	(0.473)	45525	43.2057	43.20
37 Benzene	78	4.512	4.512	(0.908)	260754	20.7134	20.71
74 Bromobenzene	156	8.809	8.809	(0.911)	96965	20.9643	20.96
29 Bromochloromethane	128	3.802	3.795	(0.909)	42939	20.4256	20.42
39 Bromodichloromethane	83	5.729	5.729	(1.153)	93422	20.5138	20.51
66 Bromoform	173	8.415	8.416	(1.097)	58399	20.0636	20.06
6 Bromomethane	94	1.338	1.338	(0.320)	88012	21.5281	21.52
19 Carbon Disulfide	76	2.069	2.069	(0.495)	375038	41.9195	41.91
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	97153	19.9790	19.97
59 Chlorobenzene	112	7.699	7.699	(1.004)	195902	19.9037	19.90
7 Chloroethane	64	1.403	1.403	(0.336)	44399	18.1721	18.17
28 Chloroform	83	3.910	3.910	(0.935)	126568	20.1396	20.13
3 Chloromethane	50	1.073	1.073	(0.257)	63669	15.2377	15.23
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	78451	21.3178	21.31
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	110281	20.5487	20.54
55 Dibromochloromethane	129	7.176	7.176	(0.936)	77681	20.2896	20.28
44 Dibromomethane	93	5.557	5.557	(1.118)	48147	20.6967	20.69
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	53453	15.7319	15.73
61 Ethylbenzene	106	7.799	7.799	(1.017)	102753	20.2052	20.20
91 Hexachlorobutadiene	225	11.481	11.488	(1.187)	44230	20.6802	20.68
67 Isopropylbenzene	105	8.566	8.566	(1.117)	301546	20.0190	20.01
62 m,p-Xylenes	106	7.907	7.907	(1.031)	247364	40.3090	40.30
17 Methylene Chloride	84	2.305	2.305	(0.551)	69553	19.8223	19.82
87 n-Butylbenzene	91	9.998	9.999	(1.034)	227429	20.9867	20.98
73 n-Propylbenzene	91	8.917	8.917	(0.922)	347351	21.1154	21.11
92 Naphthalene	128	11.546	11.546	(1.194)	53313	18.5417	18.54
63 o-Xylene	106	8.244	8.244	(1.075)	121724	20.0980	20.09
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	299048	20.9263	20.92
64 Styrene	104	8.258	8.258	(1.077)	211547	20.0864	20.08
78 tert-Butylbenzene	119	9.339	9.340	(0.966)	216302	20.8488	20.84
56 Tetrachloroethene	164	6.933	6.933	(0.904)	70420	19.8798	19.87
50 Toluene	91	6.446	6.446	(0.840)	289815	20.2716	20.27
20 trans-1,2-Dichloroethene	96	2.527	2.528	(0.604)	66159	20.7211	20.72
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	98261	20.0886	20.08
38 Trichloroethene	130	5.206	5.206	(1.048)	79569	20.6751	20.67
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	117968	19.5971	19.59
5 Vinyl Chloride	62	1.138	1.138	(0.272)	67139	16.9759	16.97



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112405.D Page 3
Report Date: 17-Dec-2019 15:49

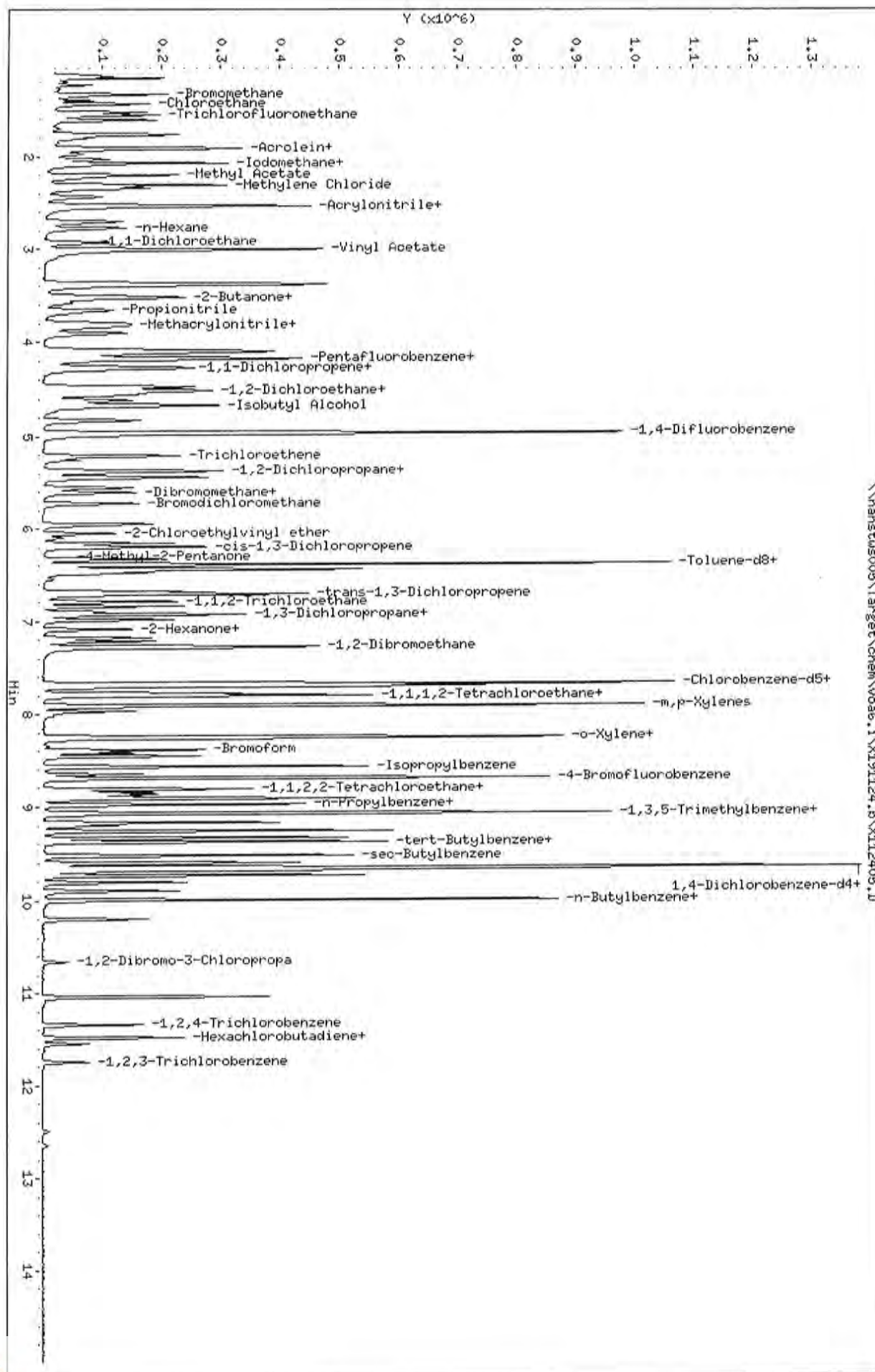
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M - Compound response manually integrated.



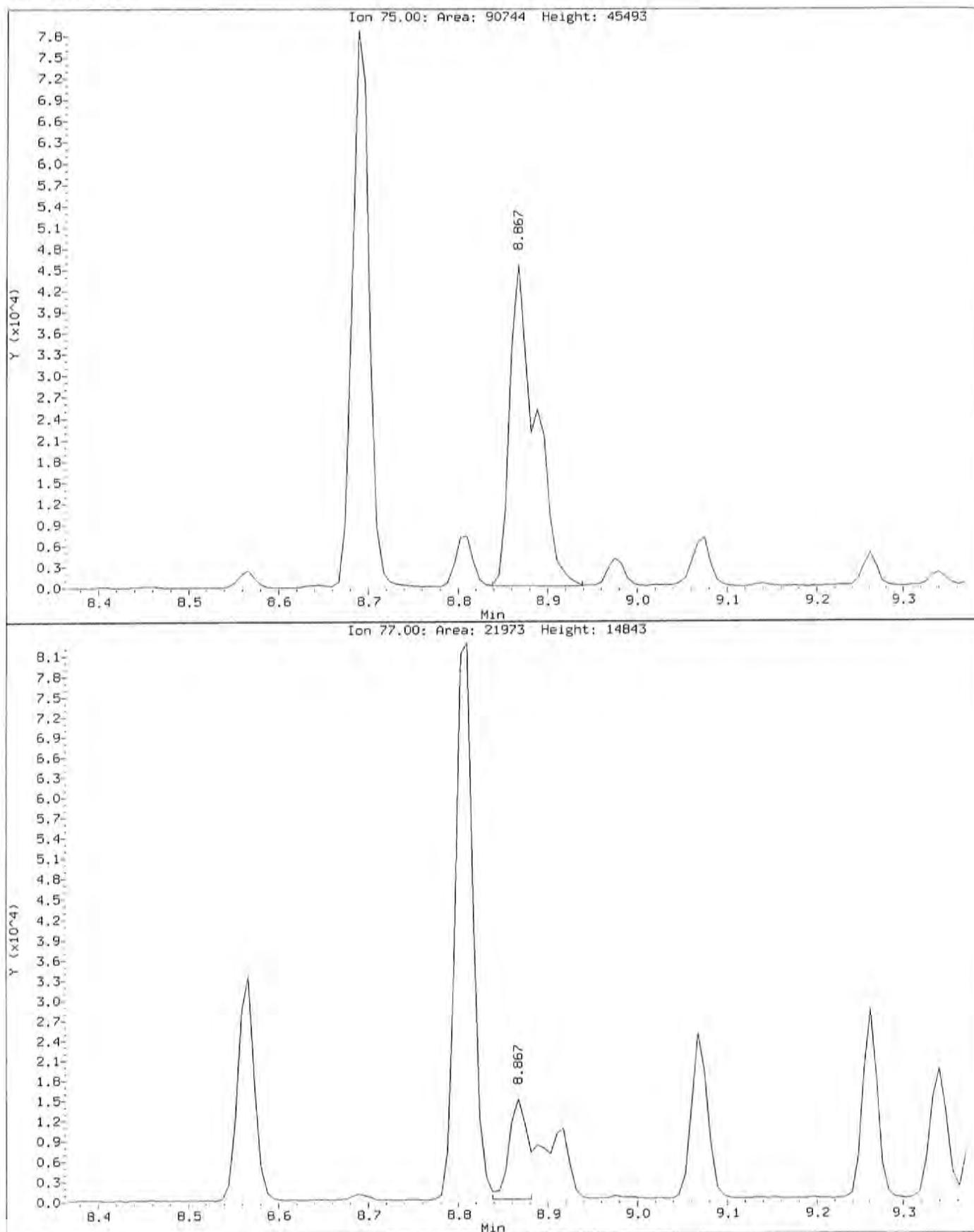
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 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



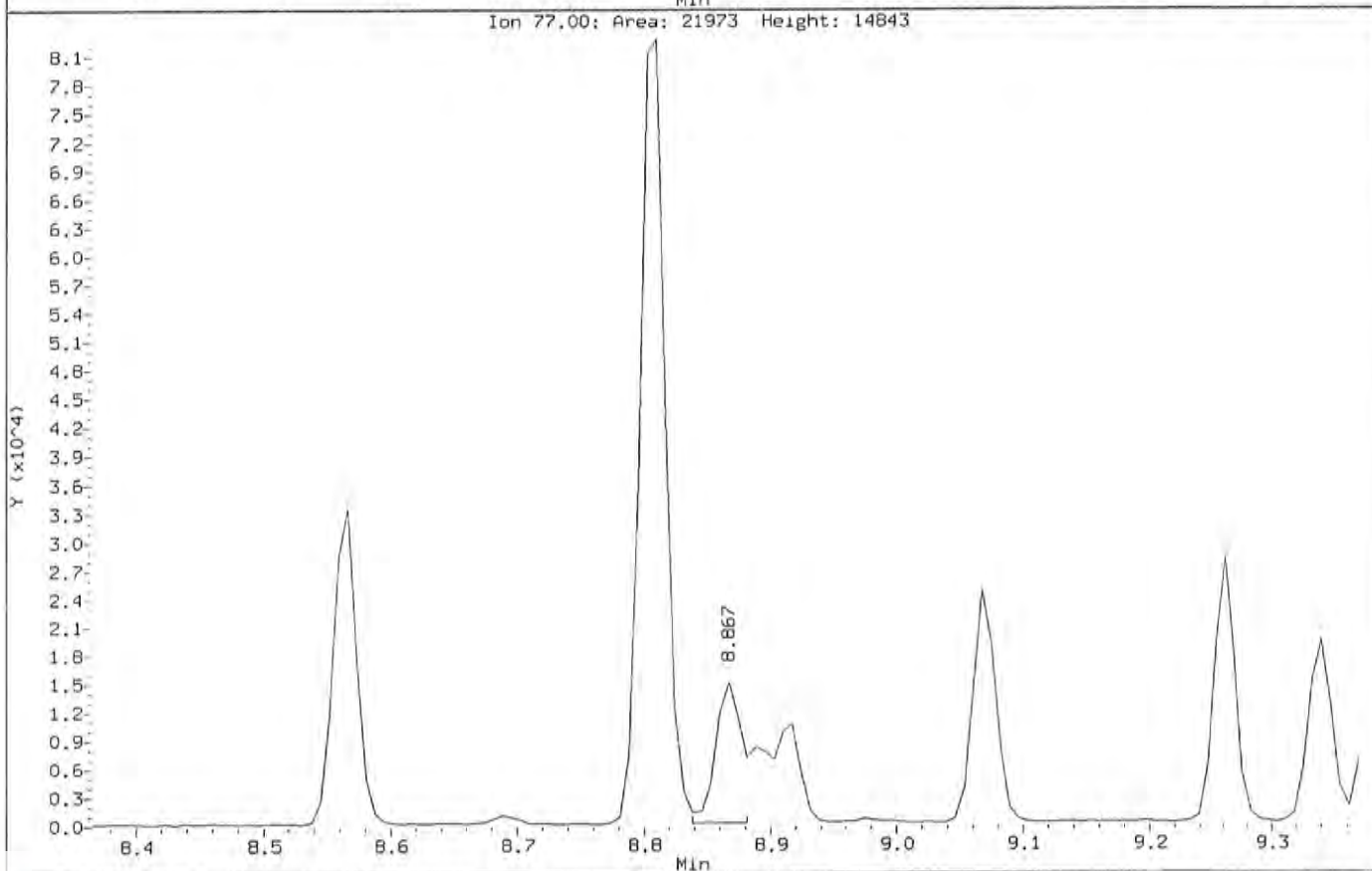
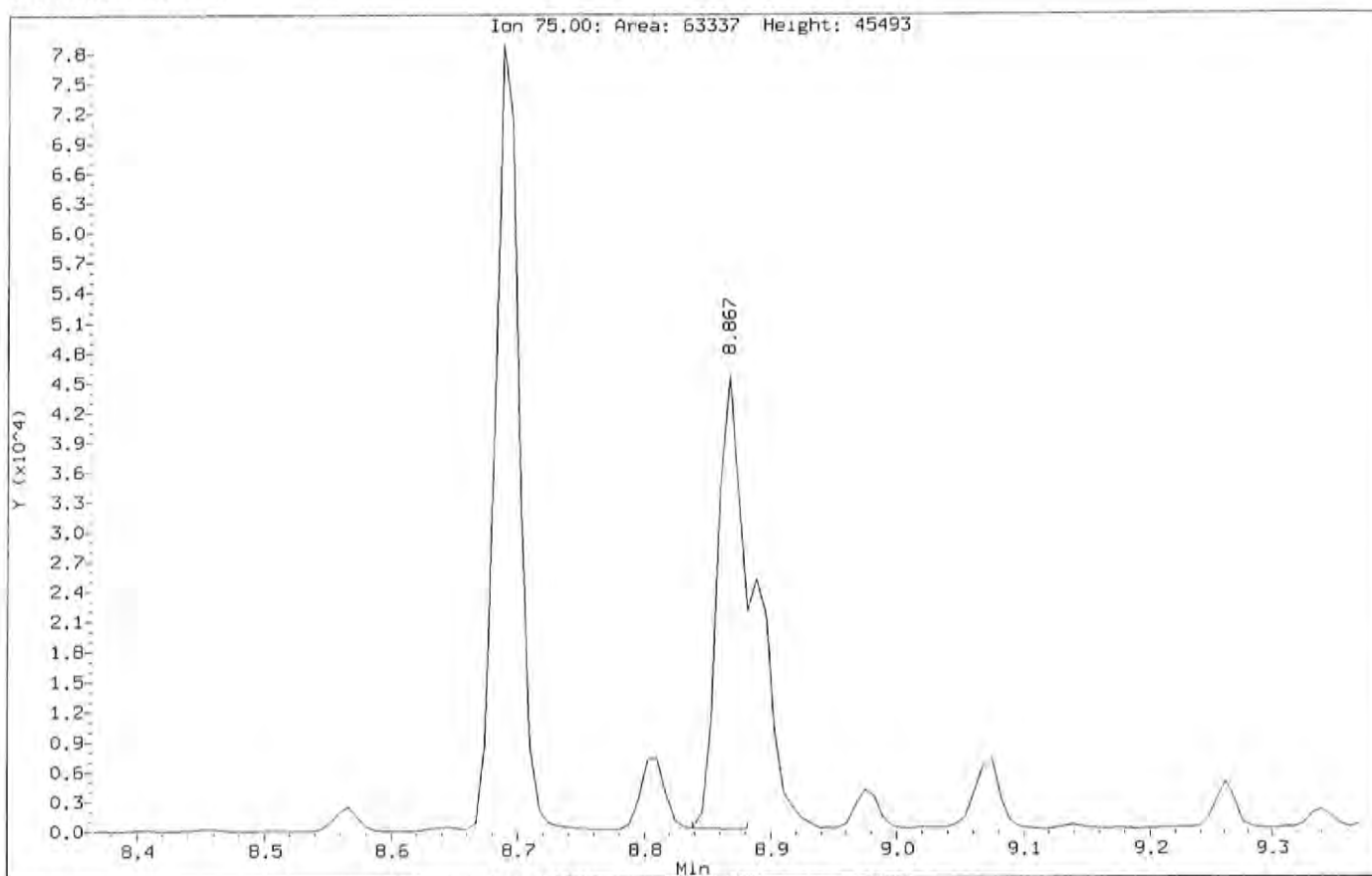
Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\BEFORE\X112405.D
Injection Date: 24-NOV-2019 13:48
Instrument: voa6.1
Client Sample ID: VLCSW-19124

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112405.D
Injection Date: 24-NOV-2019 13:48
Instrument: voa6.i
Client Sample ID: VLCSW-19124

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112407.D Page 1
 Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112407.D
 Lab Smp Id: VBLKW-191124 Client Smp ID: VBLKW-191124
 Inj Date : 24-NOV-2019 14:36
 Operator : PC Inst ID: voa6.i
 Smp Info : VBLKW-191124;VBLKW-191124;3;;BLANK
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 7 QC Sample: BLANK
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

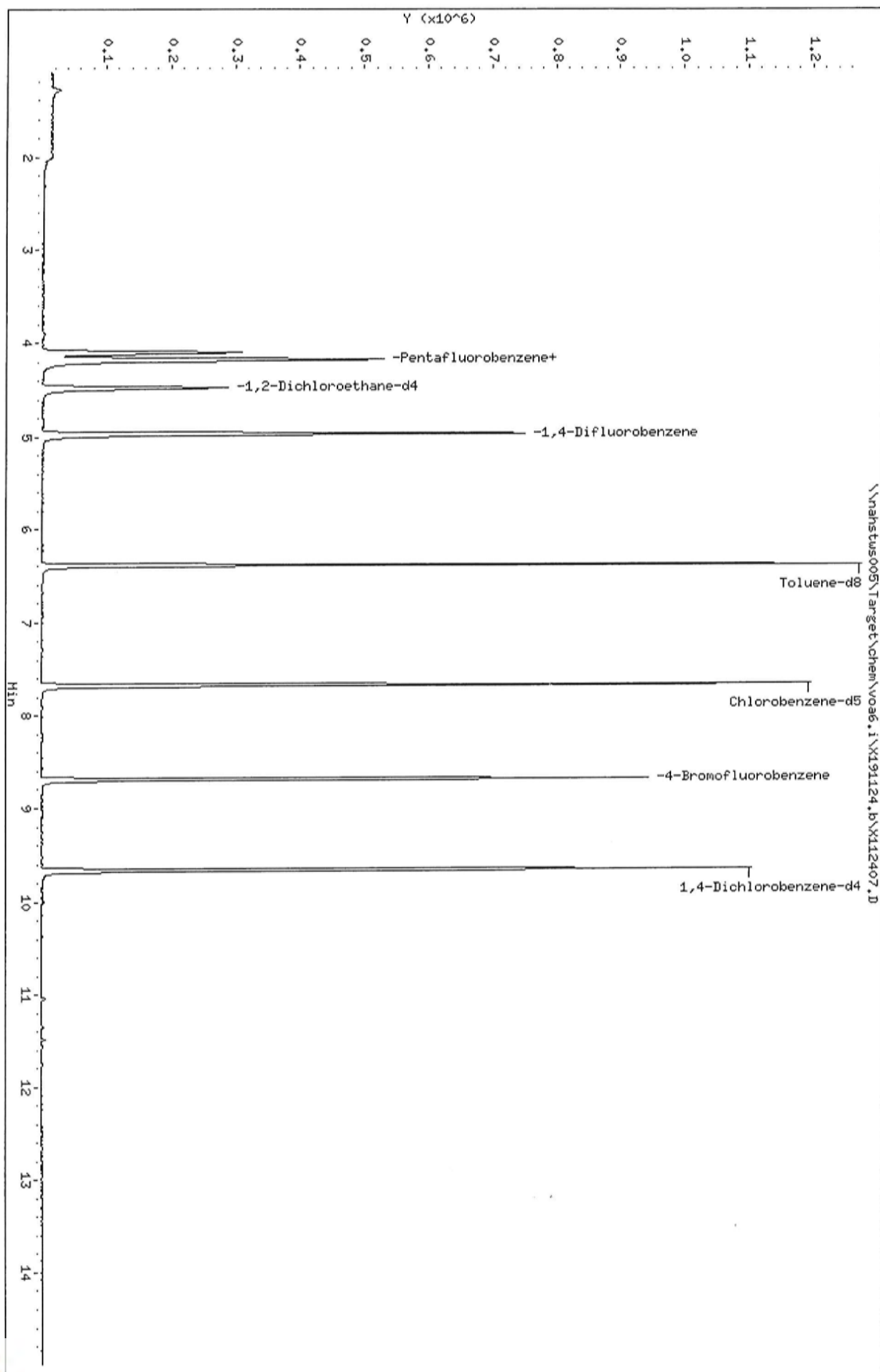
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	484385	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	666006	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	581309	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	275898	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	208585	45.8339	45.83
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	246158	45.5520	45.55
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	210671	47.8475	47.84
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	747496	48.8039	48.80



Data File: \\nahstus005\Target\chem\voa6.i\X191124.b\X112407.D
Date: 24-NOV-2019 14:36
Client ID: VBLKM-191124
Sample Info: VBLKM-191124;VBLKM-191124;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112409.D Page 1
 Report Date: 17-Dec-2019 15:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112409.D
 Lab Smp Id: HS19111239-07 Client Smp ID: HS19111239-07
 Inj Date : 24-NOV-2019 15:24
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111239-07;HS19111239-07;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 9
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

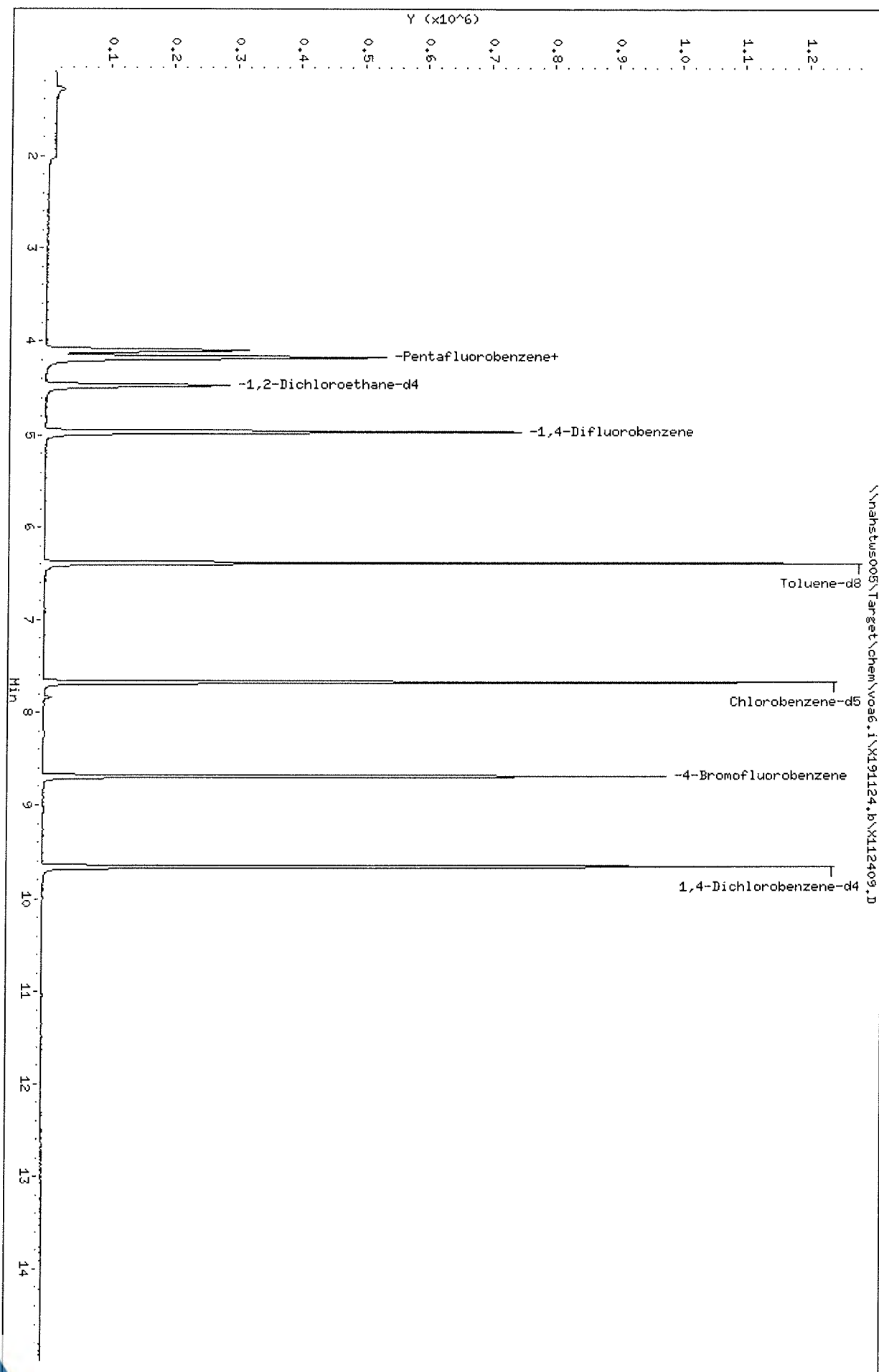
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG	CONCENTRATIONS					
		ON-COLUMN	FINAL				
	MASS	(ug/l)	(ug/l)	RT	EXP RT	REL RT	RESPONSE
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182 (1.000)	488010	50.0000		
* 36 1,4-Difluorobenzene	114	4.970	4.970 (1.000)	667661	50.0000		
* 47 Chlorobenzene-d5	117	7.671	7.671 (1.000)	593776	50.0000		
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669 (1.000)	306724	50.0000		
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476 (1.070)	211827	46.1947	46.19	
\$ 69 4-Bromofluorobenzene	95	8.688	8.688 (1.133)	258347	46.7923	46.79	
\$ 30 Dibromofluoromethane	113	4.103	4.103 (0.981)	213767	48.1874	48.18	
\$ 48 Toluene-d8	98	6.389	6.388 (0.833)	760065	48.5826	48.58	



Data File: \\nahstus005\Target\chem\voa6.i\X191124.b\X112409.D
Date : 24-NOV-2019 15:24
Client ID: HS19111239-07
Sample Info: HS19111239-07;HS19111239-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112410.D Page 1
 Report Date: 17-Dec-2019 15:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112410.D
 Lab Smp Id: HS19111239-05 Client Smp ID: HS19111239-05
 Inj Date : 24-NOV-2019 15:48
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111239-05;HS19111239-05;;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 10
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN (ug/l)	FINAL (ug/l)
*****	*****	*****	*****	*****	*****	*****	*****
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	479706	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	653443	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	570706	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	285003	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	210396	46.6692	46.66
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	245221	46.2155	46.21
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	211921	48.5950	48.59
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	744995	49.5443	49.54
56 Tetrachloroethene	164	6.933	6.933	(0.904)	16879	4.20930	4.20 (a)

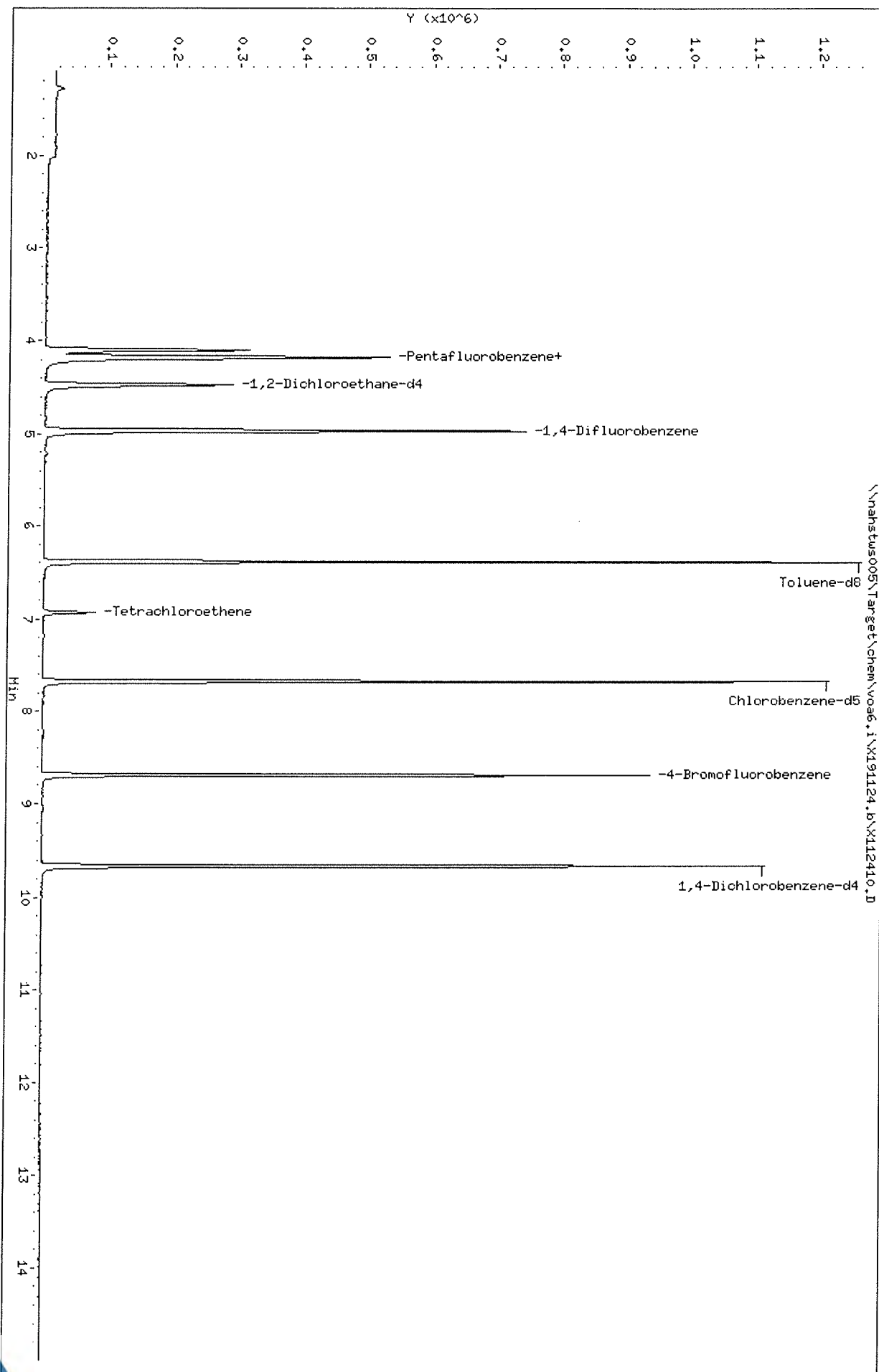
QC Flag Legend

a - Target compound detected but, quantitated amount
 Below Limit Of Quantitation(BLOQ).



Data File: \\nahstus005\Target\chem\voa6.i\X191124.b\X112410.D
Date : 24-NOV-2019 15:48
Client ID: H519111239-05
Sample Info: H519111239-05;H519111239-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X112410.D

Page 3

Date : 24-NOV-2019 15:48

Client ID: HS19111239-05

Instrument: voa6.i

Sample Info: HS19111239-05;HS19111239-05;;;

Purge Volume: 5.0

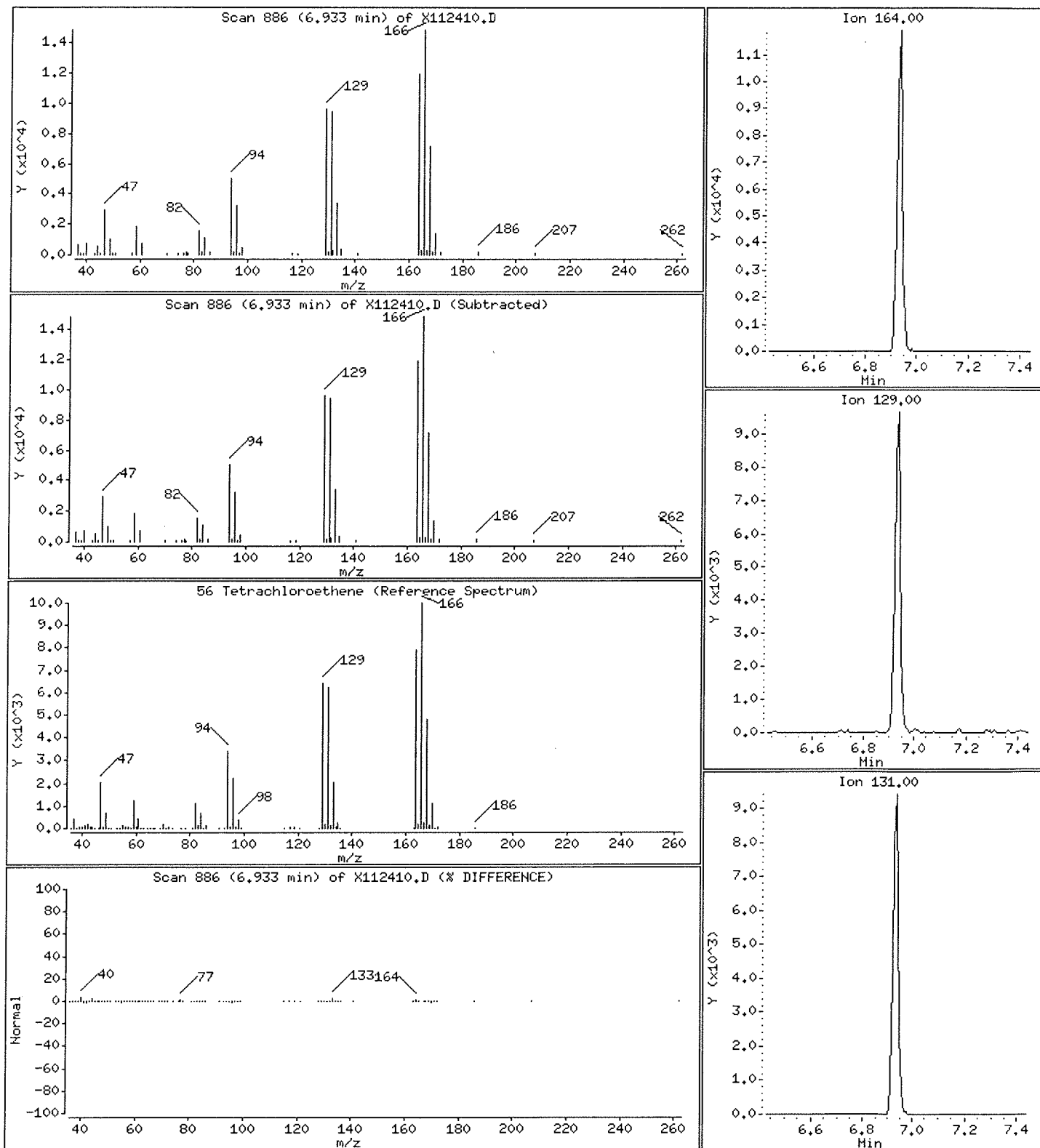
Operator: PC

Column phase: DB624

Column diameter: 0.18

56 Tetrachloroethene

Concentration: 4.20 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112411.D Page 1
 Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112411.D
 Lab Smp Id: HS19111239-05MS Client Smp ID: HS19111239-05MS
 Inj Date : 24-NOV-2019 16:13
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111239-05MS;HS19111239-05MS;3;;MS
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 11 QC Sample: MS
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.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	4.182	4.182	(1.000)	477258	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	653867	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	592999	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	312391	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	209623	46.7351	46.73
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	261165	47.3596	47.35
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	211339	48.7093	48.70
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	745667	47.7248	47.72
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	78468	18.2394	18.23
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	121582	18.8835	18.88
68 1,1,2,2-Tetrachloroethane	83	8.845	8.838	(0.915)	79097	18.0062	18.00
138 Freon TF	101	1.912	1.919	(0.457)	78919	18.9936	18.99
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	56552	18.2434	18.24
22 1,1-Dichloroethane	63	2.922	2.921	(0.699)	127407	18.3473	18.34
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	73287	18.1197	18.11
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	100844	19.1194	19.11
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	17373	14.4113	14.41
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	64183	17.2439	17.24 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	40144	15.2553	15.25
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	282667	19.0699	19.06
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	8108	16.4932	16.49
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	73944	17.7792	17.77
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	154553	18.6412	18.64



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112411.D Page 2
 Report Date: 17-Dec-2019 15:49

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN (ug/l)	FINAL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	94771	18.2583	18.25
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	70628	18.0822	18.08
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	279278	19.6356	19.63
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	172281	19.2304	19.23
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	111206	17.6701	17.67
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	171321	18.8189	18.81
26 2,2-Dichloropropane	77	3.509	3.516	(0.839)	114522	18.1706	18.17
24 2-Butanone	43	3.581	3.573	(0.856)	44128	30.1333	30.13
76 2-Chlorotoluene	91	8.974	8.974	(0.929)	221959	19.7487	19.74
52 2-Hexanone	43	7.090	7.090	(0.924)	77587	31.8504	31.85
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	258653	18.9866	18.98
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	297755	19.4797	19.47
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	112354	32.3365	32.33
10 Acetone	43	1.976	1.976	(0.473)	34905	25.4821	25.48
37 Benzene	78	4.512	4.512	(0.908)	286765	19.1720	19.17
74 Bromobenzene	156	8.810	8.809	(0.912)	103662	19.0934	19.09
29 Bromochloromethane	128	3.795	3.795	(0.908)	45574	17.6271	17.62
39 Bromodichloromethane	83	5.729	5.729	(1.153)	98855	18.2690	18.26
66 Bromoform	173	8.416	8.416	(1.097)	60507	17.7922	17.79
6 Bromomethane	94	1.338	1.338	(0.320)	100077	19.7260	19.72
19 Carbon Disulfide	76	2.069	2.069	(0.495)	431683	39.2325	39.23
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	111172	19.2413	19.24
59 Chlorobenzene	112	7.699	7.699	(1.004)	212140	18.3242	18.32
7 Chloroethane	64	1.403	1.403	(0.336)	51130	17.0157	17.01
28 Chloroform	83	3.910	3.910	(0.935)	134484	17.3995	17.39
3 Chloromethane	50	1.073	1.073	(0.257)	76212	14.8355	14.83
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	84750	18.7250	18.72
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	117301	18.3953	18.39
55 Dibromochloromethane	129	7.176	7.176	(0.936)	81954	18.1985	18.19
44 Dibromomethane	93	5.558	5.557	(1.118)	50135	18.1381	18.13
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	77408	18.3676	18.36
61 Ethylbenzene	106	7.800	7.799	(1.017)	112709	18.8423	18.84
91 Hexachlorobutadiene	225	11.489	11.488	(1.189)	39301	15.6545	15.65
67 Isopropylbenzene	105	8.566	8.566	(1.117)	339340	19.1527	19.15
62 m,p-Xylenes	106	7.907	7.907	(1.031)	271586	37.6253	37.62
17 Methylene Chloride	84	2.305	2.305	(0.551)	74200	17.1942	17.19
87 n-Butylbenzene	91	9.999	9.999	(1.035)	253912	19.9609	19.96
73 n-Propylbenzene	91	8.917	8.917	(0.923)	388610	20.1253	20.12
92 Naphthalene	128	11.546	11.546	(1.195)	46422	13.7543	13.75
63 o-Xylene	106	8.244	8.244	(1.075)	130735	18.3516	18.35
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	335752	20.0156	20.01
64 Styrene	104	8.258	8.258	(1.077)	229668	18.5397	18.53
78 tert-Butylbenzene	119	9.340	9.340	(0.967)	242255	19.8927	19.89
56 Tetrachloroethene	164	6.933	6.933	(0.904)	95174	22.8423	22.84
50 Toluene	91	6.446	6.446	(0.840)	317877	18.9031	18.90
20 trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	74024	18.8511	18.85
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	102349	17.6105	17.61
38 Trichloroethene	130	5.207	5.206	(1.048)	89959	19.6729	19.67
8 Trichlorofluoromethane	101	1.561	1.560	(0.373)	141771	19.1494	19.14
5 Vinyl Chloride	62	1.138	1.138	(0.272)	83033	17.0706	17.07



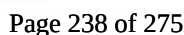
Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112411.D Page 3
Report Date: 17-Dec-2019 15:49

QC Flag Legend

M - Compound response manually integrated.

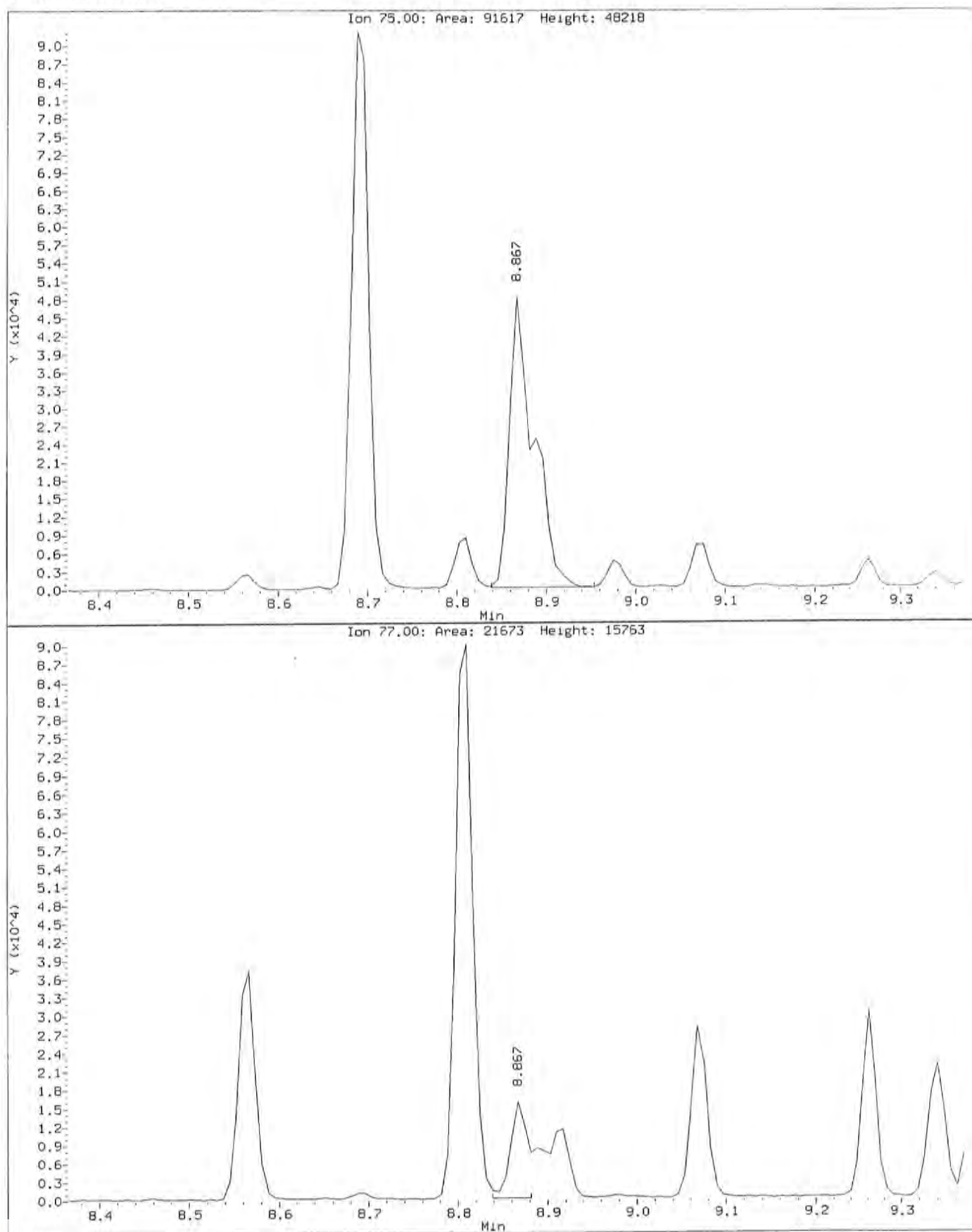


Instrument: voa6.i
Operator: PC
Column diameter: 0.18



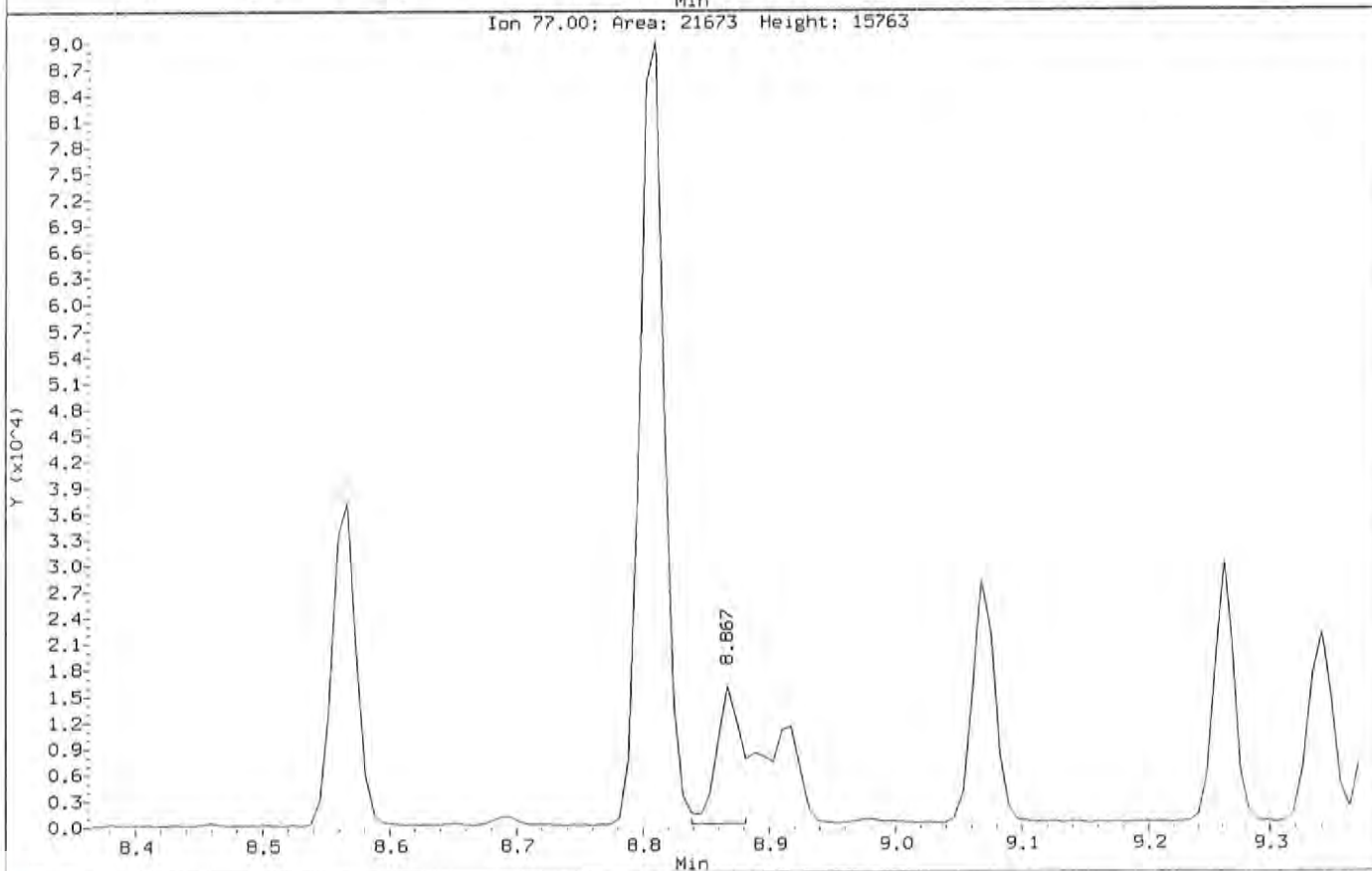
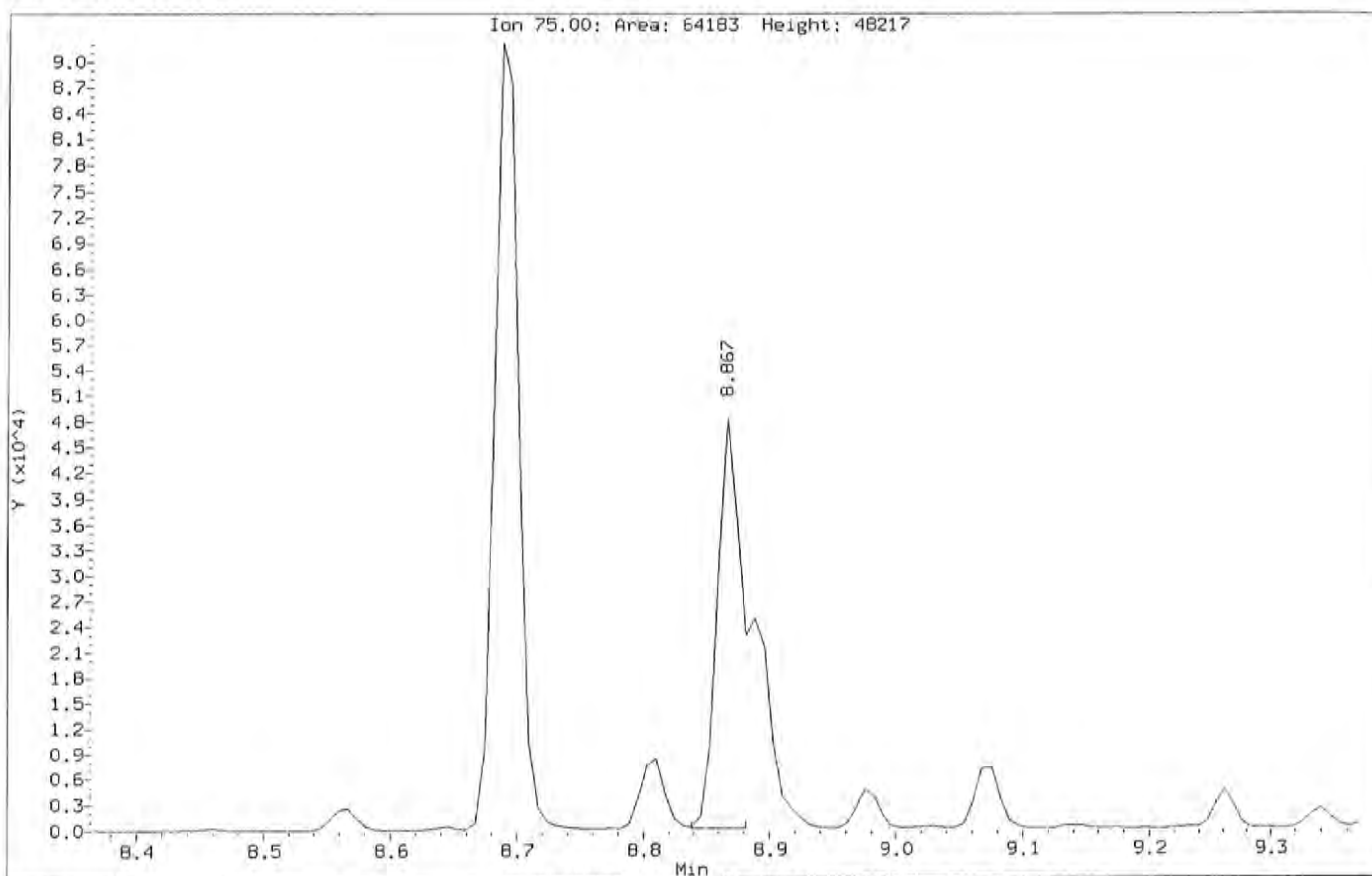
Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\BEFORE\X112411.D
Injection Date: 24-NOV-2019 16:13
Instrument: voa6.i
Client Sample ID: HS19111239-05MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.1\X191124.b\X112411.D
Injection Date: 24-NOV-2019 16:13
Instrument: voa6.i
Client Sample ID: HS19111239-05M5

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112412.D Page 1
 Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112412.D
 Lab Smp Id: HS19111239-05MSD Client Smp ID: HS19111239-05MSD
 Inj Date : 24-NOV-2019 16:37
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111239-05MSD;HS19111239-05MSD;3;;MSD
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 11 QC Sample: MSD
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.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						CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	472494	50.0000		
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	652154	50.0000		
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	584590	50.0000		
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	313244	50.0000		
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	206148	46.4287	46.42	
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	261285	48.0567	48.05	
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	208060	48.4391	48.43	
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	733983	47.6527	47.65	
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	76846	18.1193	18.11	
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	115462	18.1138	18.11	
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	77463	17.5862	17.58	
138 Freon TF	101	1.911	1.919	(0.457)	71843	17.4649	17.46	
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	55130	18.0405	18.04	
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	120770	17.5669	17.56	
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	69527	17.3634	17.36	
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	93629	17.7981	17.79	
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	21781	18.2264	18.22	
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	63475	17.0073	17.00 (M)	
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	46412	17.5892	17.58	
79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.971)	272441	18.3300	18.33	
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.103)	8188	16.6130	16.61	
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	73515	17.9303	17.93	
88 1,2-Dichlorobenzene	146	9.998	9.999	(1.035)	149754	18.0131	18.01	



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112412.D Page 2
 Report Date: 17-Dec-2019 15:49

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN (ug/l)	FINAL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	91522	17.6786	17.67
42 1,2-Dichloropropane	63	5.443	5.436	(1.095)	68371	17.5504	17.55
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	267622	18.7648	18.76
83 1,3-Dichlorobenzene	146	9.604	9.612	(0.994)	166009	18.4799	18.47
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	108734	17.5259	17.52
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	168293	18.4360	18.43
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	108858	17.4461	17.44
24 2-Butanone	43	3.580	3.573	(0.856)	44003	30.3509	30.35
76 2-Chlorotoluene	91	8.974	8.974	(0.929)	212615	18.8659	18.86
52 2-Hexanone	43	7.090	7.090	(0.924)	78263	32.5901	32.59
77 4-Chlorotoluene	91	9.074	9.075	(0.939)	248653	18.2028	18.20
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	288597	18.8292	18.82
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	113597	33.1645	33.16
10 Acetone	43	1.976	1.976	(0.473)	35194	26.0233	26.02
37 Benzene	78	4.512	4.512	(0.908)	273116	18.3074	18.30
74 Bromobenzene	156	8.809	8.809	(0.912)	100415	18.4450	18.44
29 Bromochloromethane	128	3.795	3.795	(0.908)	44263	17.2926	17.29
39 Bromodichloromethane	83	5.729	5.729	(1.153)	97334	18.0352	18.03
66 Bromoform	173	8.415	8.416	(1.097)	59985	17.8868	17.88
6 Bromomethane	94	1.338	1.338	(0.320)	93106	18.3949	18.39
19 Carbon Disulfide	76	2.069	2.069	(0.495)	402402	36.9401	36.94
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	104884	18.2006	18.20
59 Chlorobenzene	112	7.699	7.699	(1.004)	203181	17.8028	17.80
7 Chloroethane	64	1.403	1.403	(0.336)	49308	16.5748	16.57
28 Chloroform	83	3.910	3.910	(0.935)	128904	16.8457	16.84
3 Chloromethane	50	1.073	1.073	(0.257)	71770	14.1208	14.12
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	81236	18.1296	18.12
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	114576	18.0151	18.01
55 Dibromochloromethane	129	7.176	7.176	(0.936)	79747	17.9632	17.96
44 Dibromomethane	93	5.557	5.557	(1.118)	49076	17.8016	17.80
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	71993	17.3084	17.30
61 Ethylbenzene	106	7.799	7.799	(1.017)	108768	18.4450	18.44
91 Hexachlorobutadiene	225	11.481	11.488	(1.188)	42952	17.0622	17.06
67 Isopropylbenzene	105	8.566	8.566	(1.117)	321812	18.4247	18.42
62 m,p-Xylenes	106	7.907	7.907	(1.031)	260394	36.5937	36.59
17 Methylene Chloride	84	2.305	2.305	(0.551)	71635	16.7672	16.76
87 n-Butylbenzene	91	9.998	9.999	(1.035)	246391	19.3169	19.31
73 n-Propylbenzene	91	8.917	8.917	(0.923)	373119	19.2704	19.27
92 Naphthalene	128	11.546	11.546	(1.195)	54573	16.1253	16.12
63 o-Xylene	106	8.243	8.244	(1.075)	126953	18.0771	18.07
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	323762	19.2483	19.24
64 Styrene	104	8.258	8.258	(1.077)	218409	17.8844	17.88
78 tert-Butylbenzene	119	9.339	9.340	(0.967)	233410	19.1142	19.11
56 Tetrachloroethene	164	6.933	6.933	(0.904)	91203	22.2041	22.20
50 Toluene	91	6.446	6.446	(0.840)	303731	18.3217	18.32
20 trans-1,2-Dichloroethene	96	2.527	2.528	(0.604)	69681	17.9240	17.92
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	100251	17.2948	17.29
38 Trichloroethene	130	5.206	5.206	(1.048)	85604	18.7697	18.76
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	131338	17.9191	17.91
5 Vinyl Chloride	62	1.138	1.138	(0.272)	78167	16.2323	16.23



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112412.D Page 3
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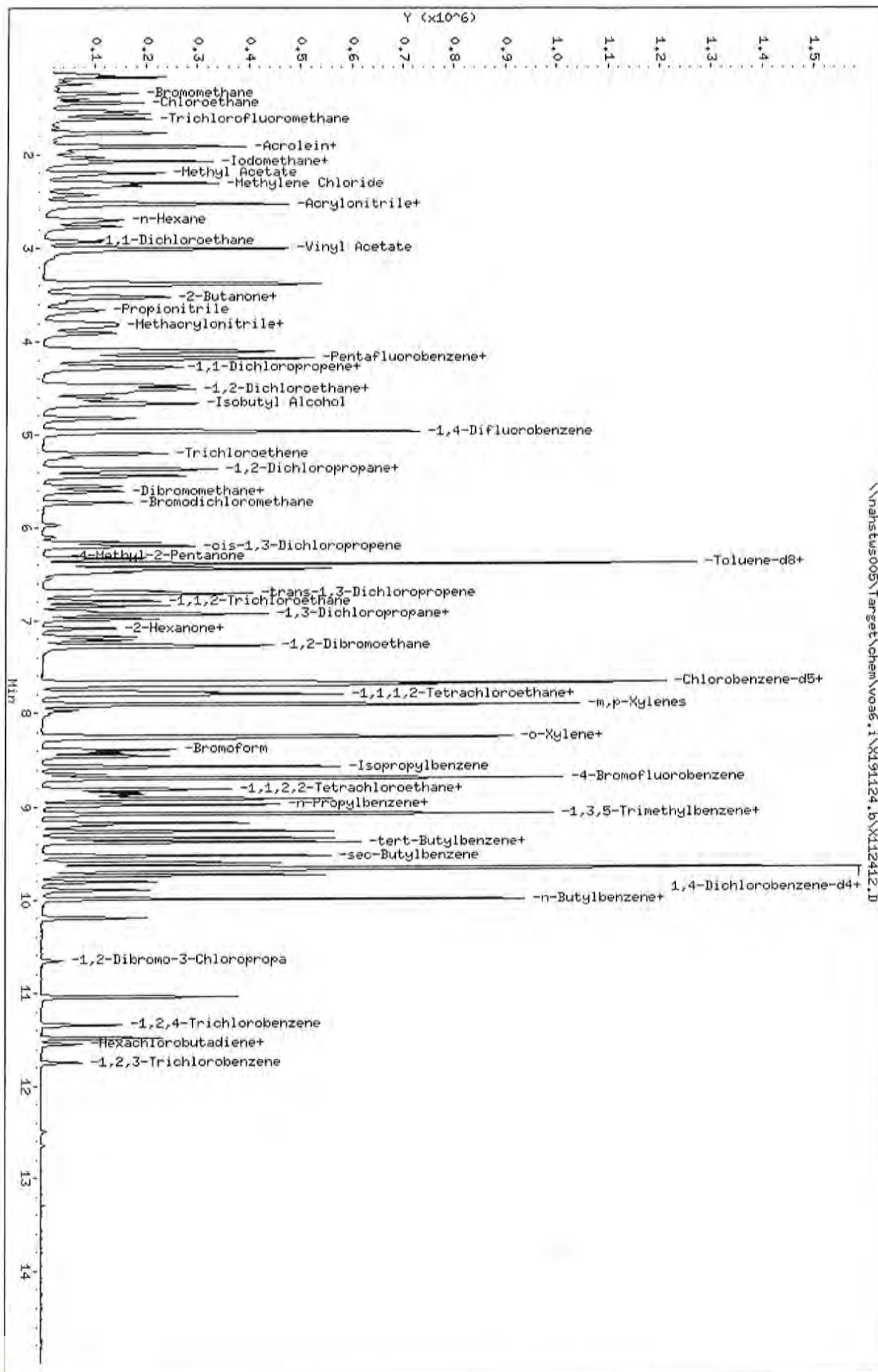
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M - Compound response manually integrated.



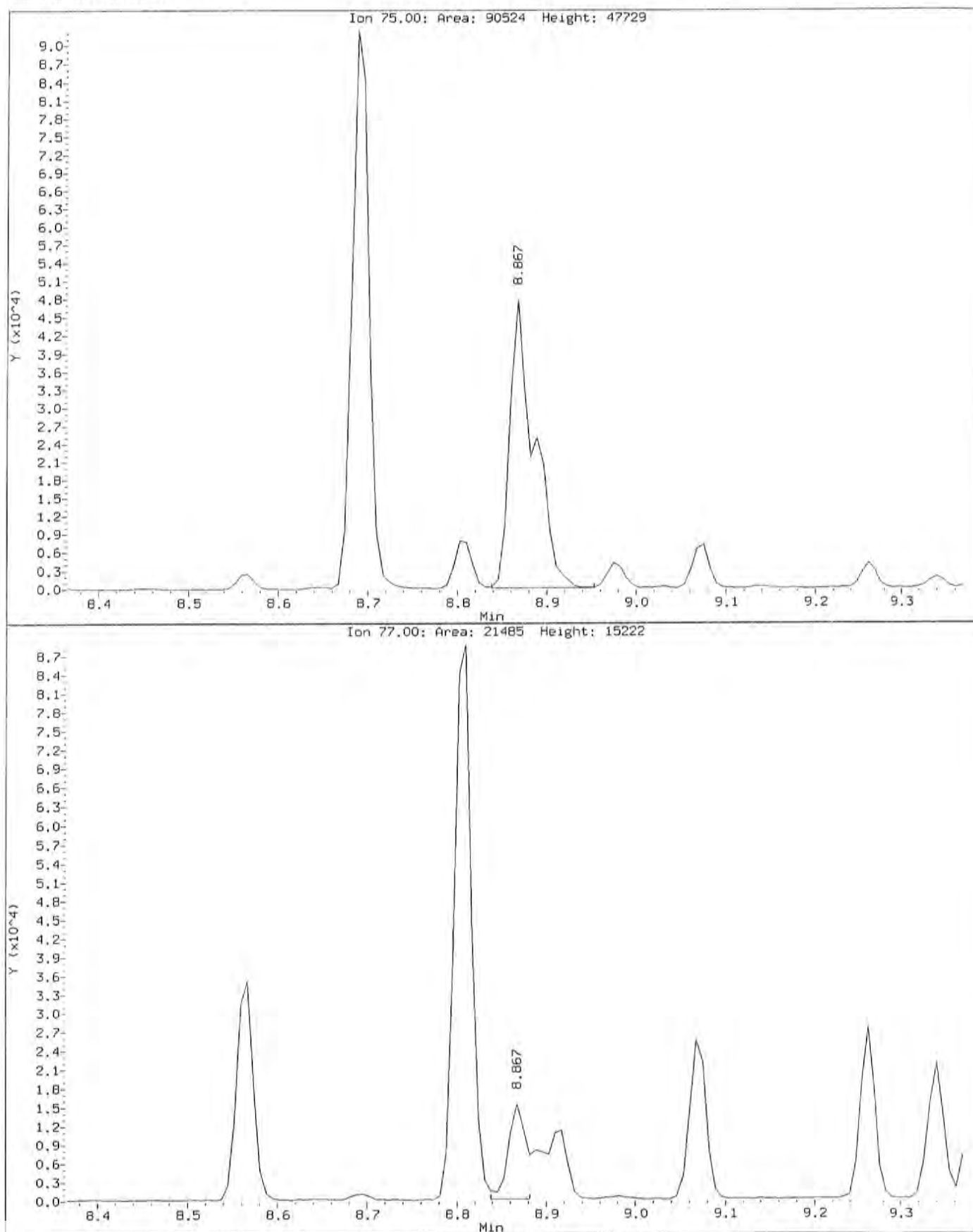
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 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



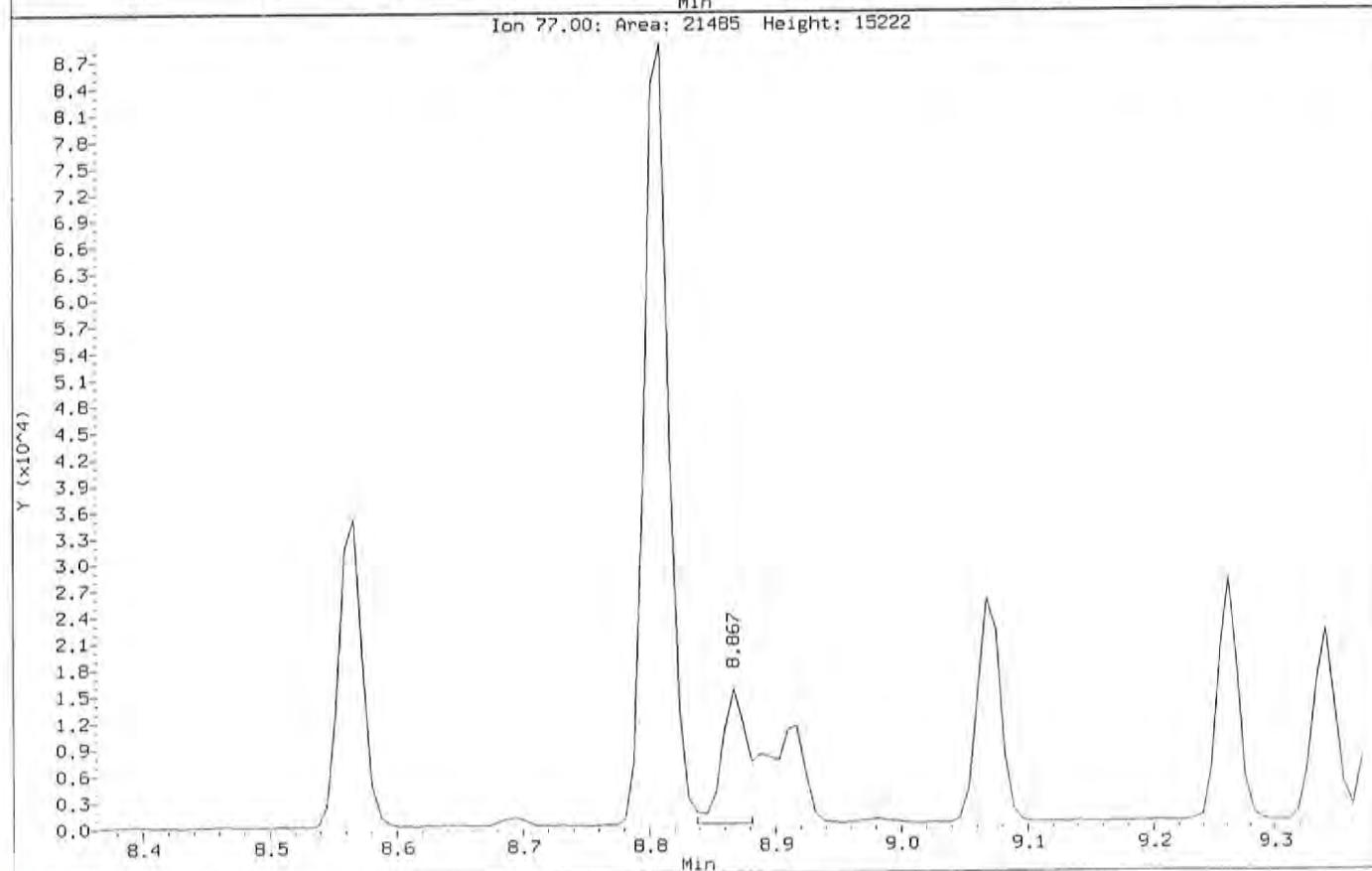
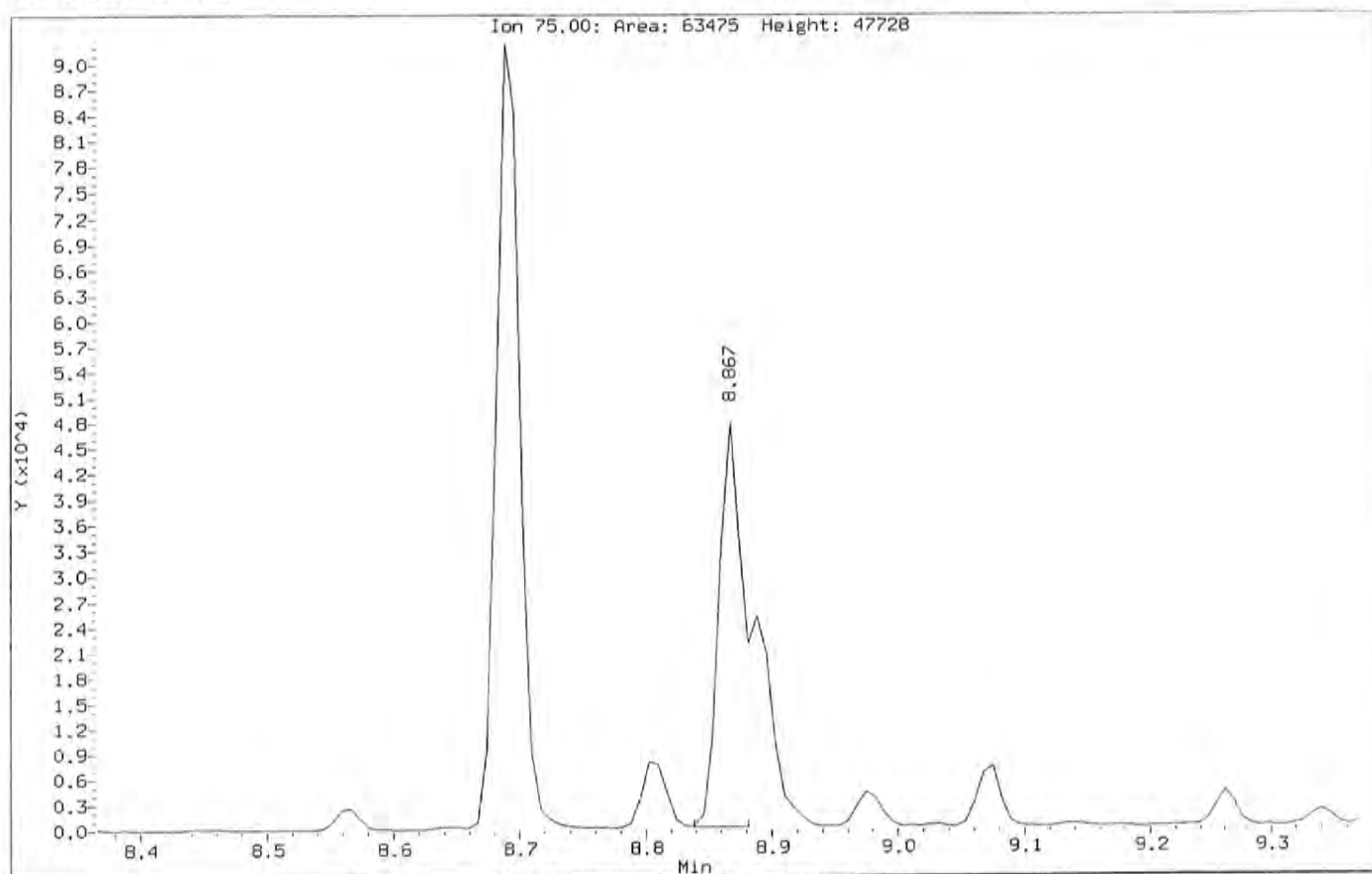
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Injection Date: 24-NOV-2019 16:37
Instrument: voa6.i
Client Sample ID: HS1911239-05MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112412.D
Injection Date: 24-NOV-2019 16:37
Instrument: voa6.i
Client Sample ID: H519111239-05MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112427.D Page 1
 Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112427.D
 Lab Smp Id: CCV-END Client Smp ID: CCV-END
 Inj Date : 24-NOV-2019 22:37
 Operator : PC Inst ID: voa6.i
 Smp Info : CCV-END;CCV-END;2;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 26 Continuing Calibration Sample
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.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

						AMOUNTS		
		QUANT SIG					CAL-AMT	ON-COL
Compounds		MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)
=====		=====	=====	=====	=====	=====	=====	=====
* 1	Pentafluorobenzene	168	4.182	4.182	(1.000)	376688	50.0000	
* 36	1,4-Difluorobenzene	114	4.970	4.970	(1.000)	553108	50.0000	
* 47	Chlorobenzene-d5	117	7.671	7.671	(1.000)	503306	50.0000	
* 70	1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	275286	50.0000	
\$ 35	1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	185001	50.0000	52.17
\$ 69	4-Bromofluorobenzene	95	8.688	8.688	(1.133)	224549	50.0000	47.97
\$ 30	Dibromofluoromethane	113	4.103	4.103	(0.981)	179353	50.0000	52.34
\$ 48	Toluene-d8	98	6.388	6.388	(0.833)	609783	50.0000	45.98
60	1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	181798	50.0000	49.78
31	1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	262411	50.0000	51.63
68	1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	189542	50.0000	48.96
138	Freon TF	101	1.919	1.919	(0.459)	158856	50.0000	48.43
53	1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	131717	50.0000	50.06
22	1,1-Dichloroethane	63	2.921	2.921	(0.699)	281259	50.0000	51.31
11	1,1-Dichloroethene	96	1.911	1.911	(0.457)	154841	50.0000	48.50
32	1,1-Dichloropropene	75	4.282	4.282	(0.862)	211543	50.0000	47.41
93	1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	43770	50.0000	42.66
71	1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	157986	50.0000	48.16 (M)
90	1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	97956	50.0000	42.24
79	1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	654387	50.0000	50.09
89	1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	21538	50.0000	50.40
57	1,2-Dibromoethane	107	7.262	7.262	(0.947)	176318	50.0000	49.94
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	365847	50.0000	50.07



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112427.D Page 2
 Report Date: 17-Dec-2019 15:49

Compounds	QUANT SIG	AMOUNTS						
		MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT	ON-COL
							(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====	
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	219949	50.0000	50.09	
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	158603	50.0000	48.00	
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	622573	50.0000	49.67	
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	390532	50.0000	49.46	
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	258566	50.0000	48.40	
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	397119	50.0000	49.50	
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	222536	50.0000	44.73	
24 2-Butanone	43	3.573	3.573	(0.854)	113733	100.000	98.39	
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	494541	50.0000	49.93	
52 2-Hexanone	43	7.090	7.090	(0.924)	198068	100.000	95.79	
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	587907	50.0000	48.97	
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	659268	50.0000	48.94	
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	292286	100.000	99.11	
10 Acetone	43	1.976	1.976	(0.473)	89050	100.000	90.98	
37 Benzene	78	4.512	4.512	(0.908)	636233	50.0000	50.28	
74 Bromobenzene	156	8.809	8.809	(0.911)	238156	50.0000	49.77	
29 Bromochloromethane	128	3.795	3.795	(0.908)	105278	50.0000	51.59	
39 Bromodichloromethane	83	5.729	5.729	(1.153)	227694	50.0000	49.74	
66 Bromoform	173	8.416	8.416	(1.097)	145648	50.0000	48.62	
6 Bromomethane	94	1.338	1.338	(0.320)	196870	50.0000	52.68	
19 Carbon Disulfide	76	2.069	2.069	(0.495)	902488	100.000	103.91	
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	232079	50.0000	47.48	
59 Chlorobenzene	112	7.699	7.699	(1.004)	476851	50.0000	48.52	
7 Chloroethane	64	1.403	1.403	(0.336)	109119	50.0000	46.00	
28 Chloroform	83	3.910	3.910	(0.935)	304219	50.0000	49.86	
3 Chloromethane	50	1.073	1.073	(0.257)	152665	50.0000	37.36	
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	188575	50.0000	52.78	
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	262562	50.0000	48.67	
55 Dibromochloromethane	129	7.176	7.176	(0.936)	191072	50.0000	49.99	
44 Dibromomethane	93	5.557	5.557	(1.118)	117029	50.0000	50.05	
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	133036	50.0000	38.95	
61 Ethylbenzene	106	7.799	7.799	(1.017)	247594	50.0000	48.76	
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	82032	50.0000	37.07	
67 Isopropylbenzene	105	8.566	8.566	(1.117)	734203	50.0000	48.82	
62 m,p-Xylenes	106	7.907	7.907	(1.031)	597838	100.000	97.58	
17 Methylene Chloride	84	2.305	2.305	(0.551)	172693	50.0000	50.70	
87 n-Butylbenzene	91	9.999	9.999	(1.034)	559837	50.0000	49.94	
73 n-Propylbenzene	91	8.917	8.917	(0.922)	843670	50.0000	49.58	
92 Naphthalene	128	11.546	11.546	(1.194)	125744	50.0000	42.27	
63 o-Xylene	106	8.244	8.244	(1.075)	294541	50.0000	48.71	
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	734236	50.0000	49.67	
64 Styrene	104	8.258	8.258	(1.077)	522777	50.0000	49.72	
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	533817	50.0000	49.74	
56 Tetrachloroethene	164	6.933	6.933	(0.904)	166051	50.0000	46.95	
50 Toluene	91	6.446	6.446	(0.840)	696966	50.0000	48.83	
20 trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	162132	50.0000	52.31	
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	238644	50.0000	48.54	
38 Trichloroethene	130	5.206	5.206	(1.048)	192679	50.0000	49.81	
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	286751	50.0000	49.07	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	167204	50.0000	43.55	



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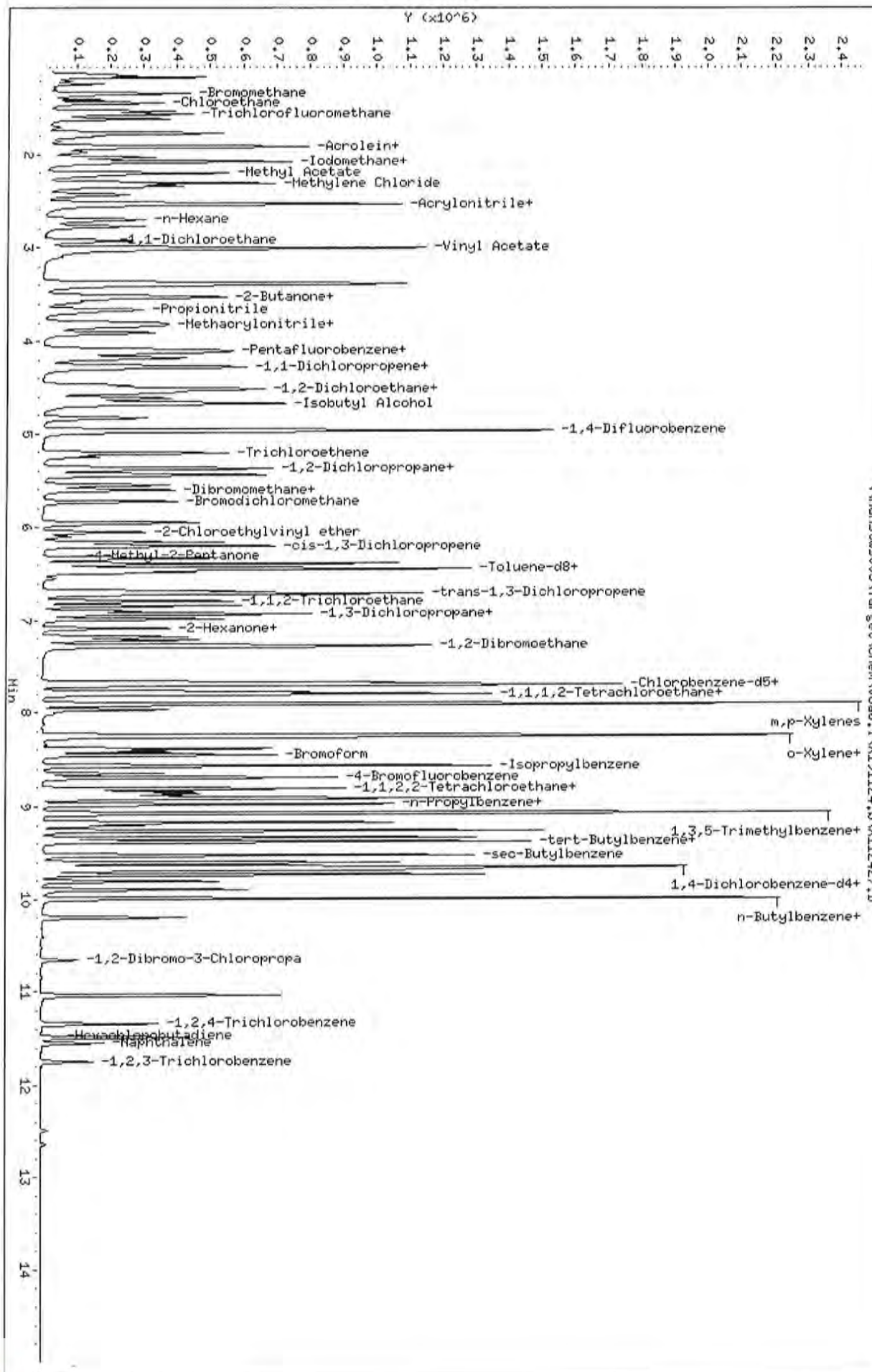
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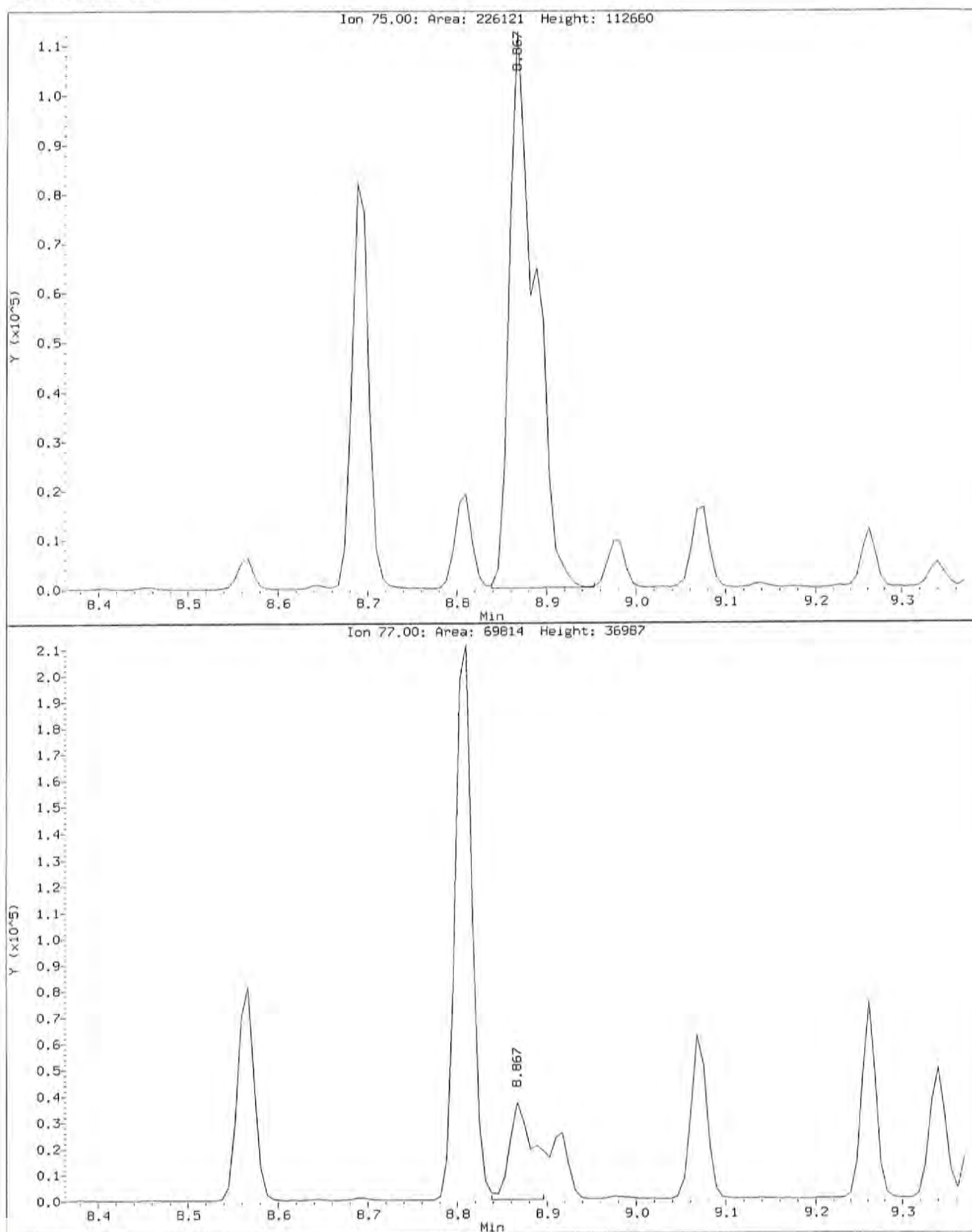
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 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



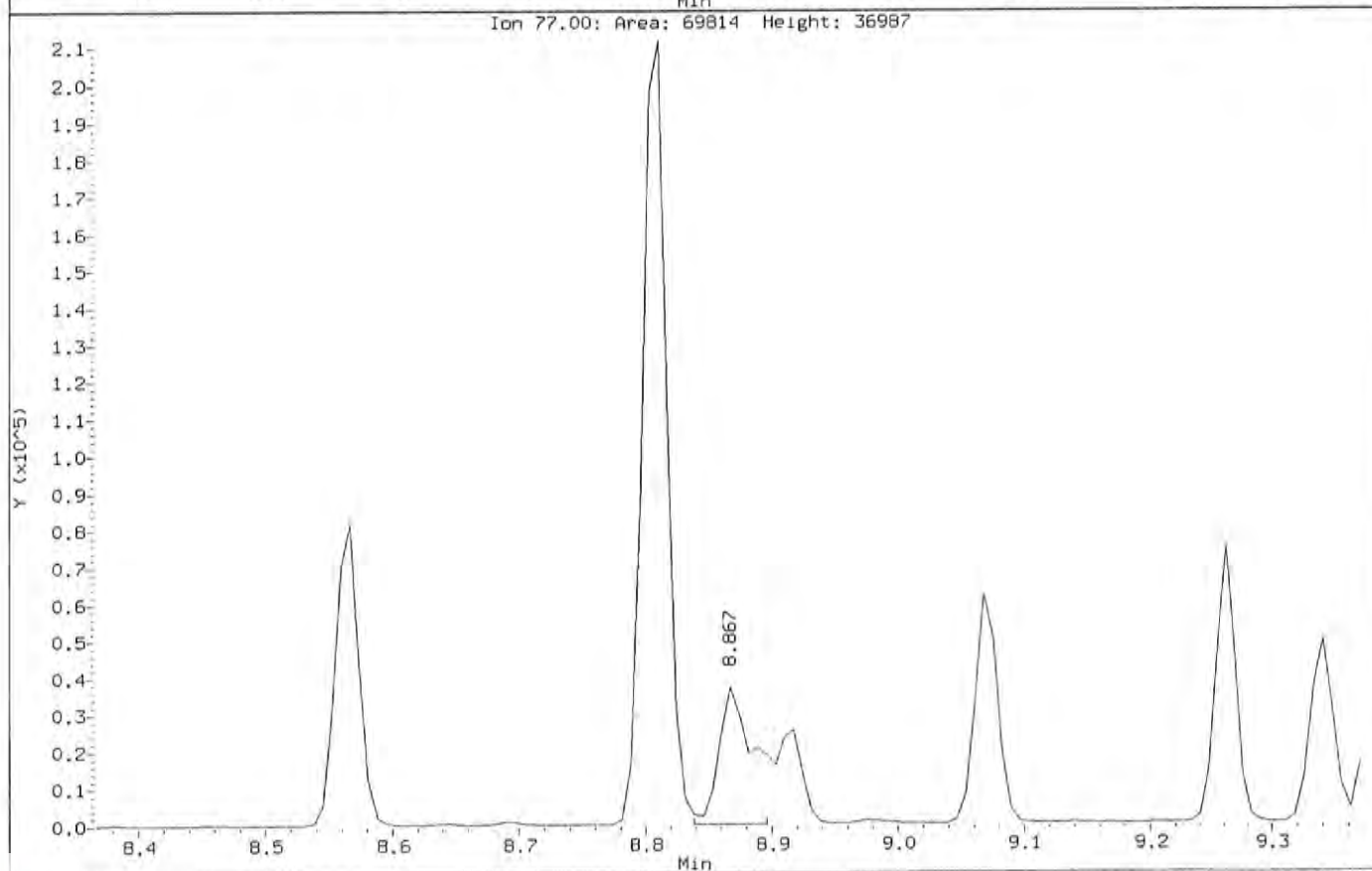
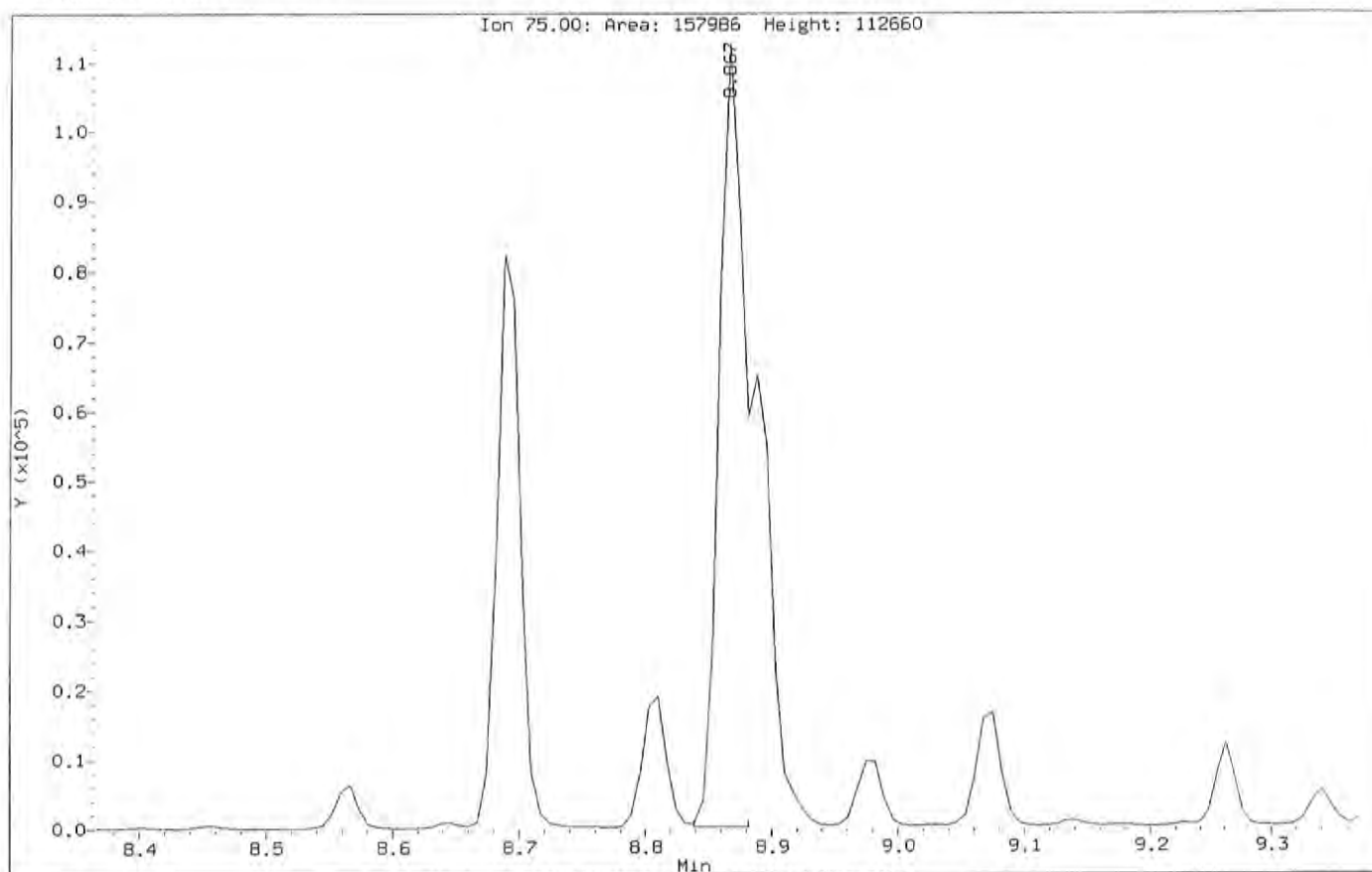
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Client Sample ID: CCV-END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.1\X191124.b\X112427.D
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Instrument: voa6.1
Client Sample ID: CCV-END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112422.D Page 1
 Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112422.D
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 Operator : PC Inst ID: voa6.i
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 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
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 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 21
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

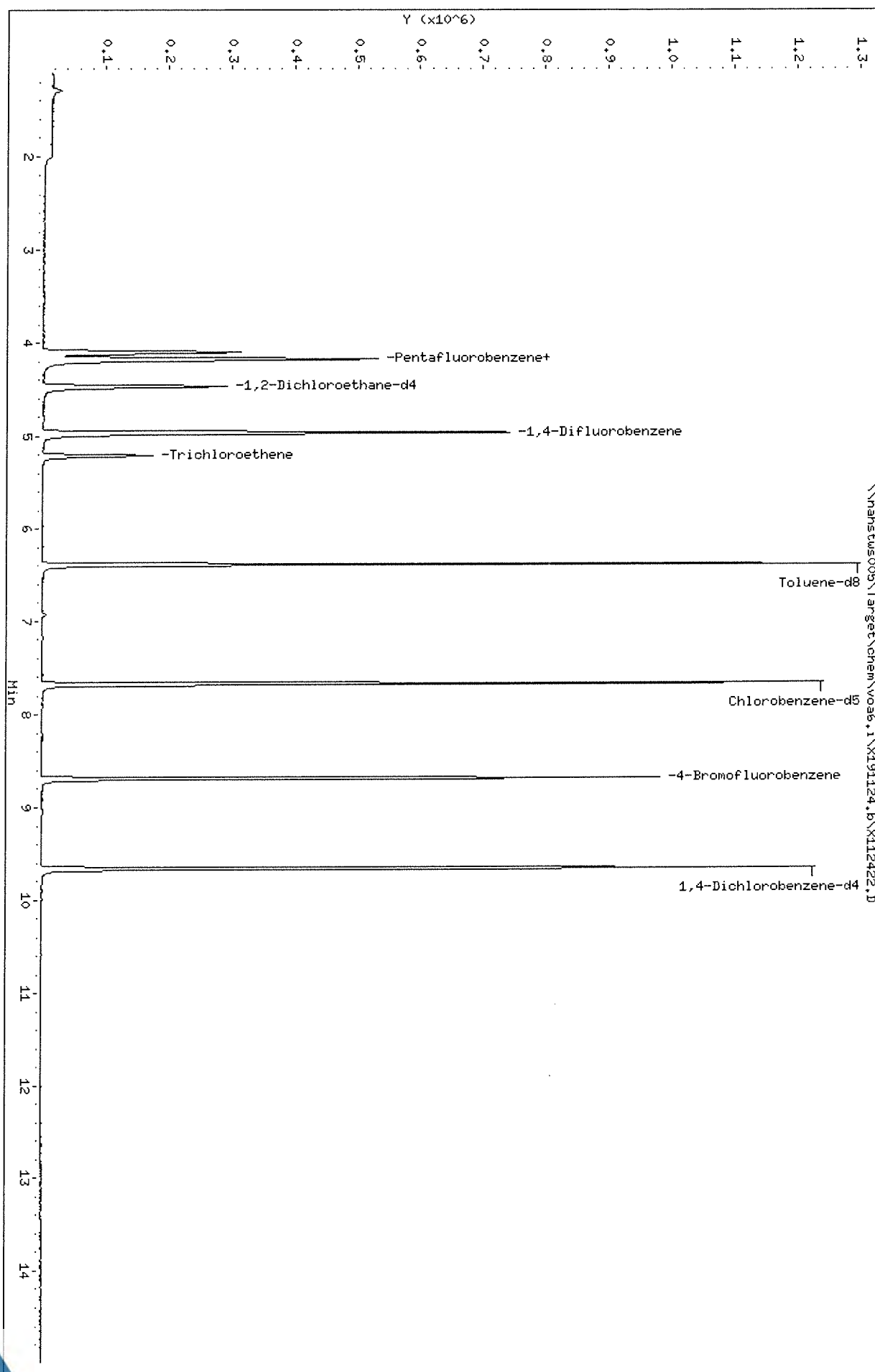
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG							CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)	
=====	=====	=====	=====	=====	=====	=====	=====	=====	
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	485092	50.0000			
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	668436	50.0000			
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	589708	50.0000			
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	301449	50.0000			
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	213703	46.8731	46.87		
\$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	255556	46.6077	46.60		
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	214062	48.5414	48.54		
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	752166	48.4094	48.40		
38 Trichloroethene	130	5.207	5.206	(1.048)	60391	12.9189	12.91		



Data File: \\nahstus005\Target\chem\voa6.i\X191124.b\X112422.D
 Date : 24-NDV-2019 20:37
 Client ID: H51911239-01
 Sample Info: H51911239-01;H51911239-01;;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112422.D

Page 3

Date : 24-NOV-2019 20:37

Client ID: HS19111239-01

Instrument: voa6.i

Sample Info: HS19111239-01;HS19111239-01;;

Purge Volume: 5.0

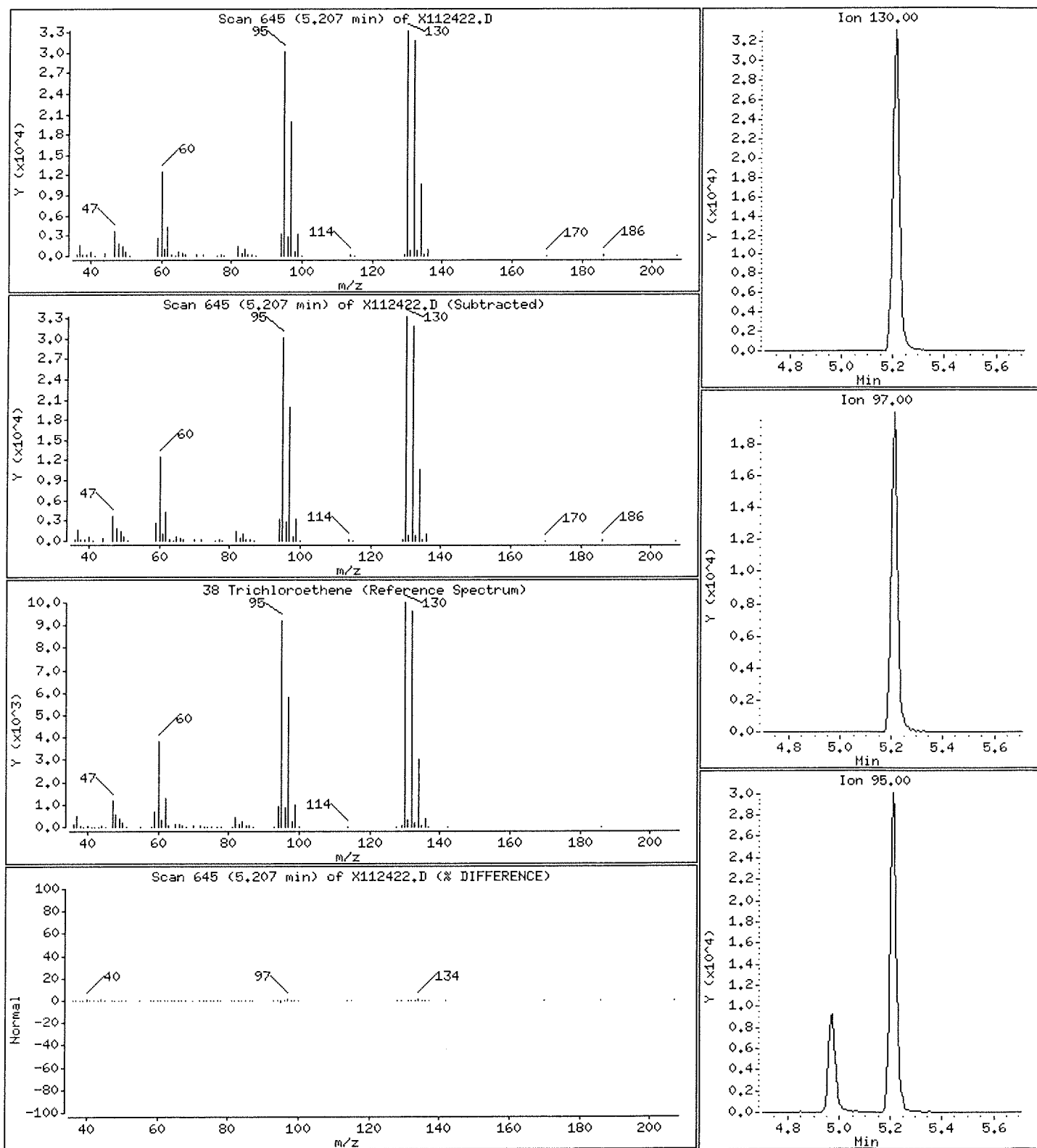
Operator: PC

Column phase: DB624

Column diameter: 0.18

38 Trichloroethene

Concentration: 12.91 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112423.D Page 1
 Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112423.D
 Lab Smp Id: HS19111239-02 Client Smp ID: HS19111239-02
 Inj Date : 24-NOV-2019 21:01
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111239-02;HS19111239-02;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 22
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

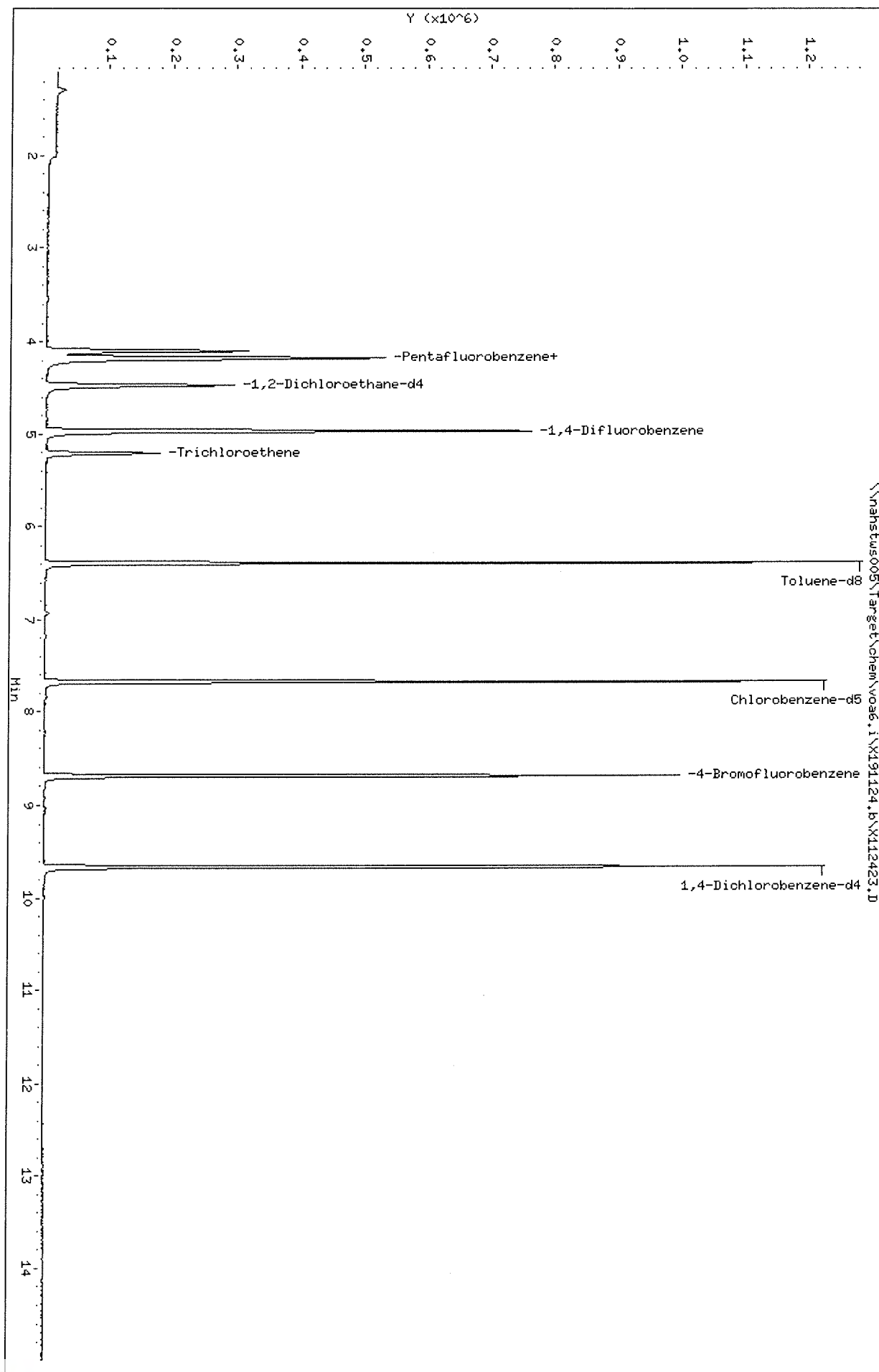
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG	CONCENTRATIONS					
		RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	487374	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	669563	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	594030	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	310086	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	213330	46.5769	46.57
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	258126	46.7328	46.73
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	212650	47.9996	47.99
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	758750	48.4778	48.47
38 Trichloroethene	130	5.206	5.206	(1.048)	61172	13.0639	13.06



Data File: \\nahstus005\Target\chem\voa6.i\X191124.b\X112423.D
Date : 24-NOV-2019 21:01
Client ID: H51911239-02
Sample Info: H51911239-02;H51911239-02;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X112423.D

Page 3

Date : 24-NOV-2019 21:01

Client ID: HS19111239-02

Instrument: voa6.i

Sample Info: HS19111239-02;HS19111239-02;;;

Purge Volume: 5.0

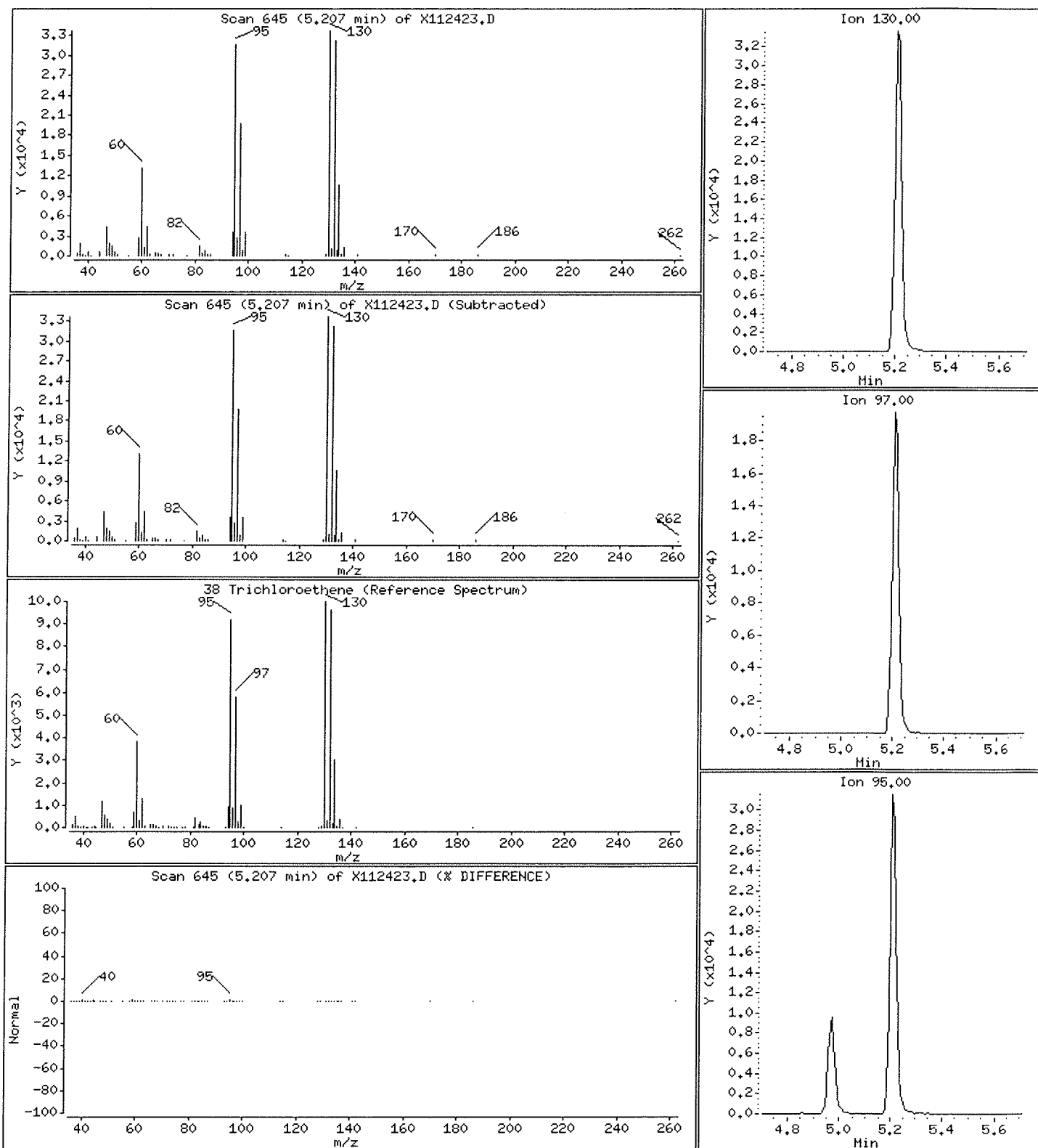
Operator: PC

Column phase: DB624

Column diameter: 0.18

38 Trichloroethene

Concentration: 13.06 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112424.D Page 1
 Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112424.D
 Lab Smp Id: HS19111239-03 Client Smp ID: HS19111239-03
 Inj Date : 24-NOV-2019 21:25
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111239-03;HS19111239-03;;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 23
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG							CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)	
=====	=====	=====	=====	=====	=====	=====	=====	=====	
* 1 Pentafluorobenzene		168	4.182	4.182 (1.000)		479193	50.0000		
* 36 1,4-Difluorobenzene		114	4.970	4.970 (1.000)		657006	50.0000		
* 47 Chlorobenzene-d5		117	7.670	7.671 (1.000)		575306	50.0000		
* 70 1,4-Dichlorobenzene-d4		152	9.662	9.669 (1.000)		299978	50.0000		
\$ 35 1,2-Dichloroethane-d4		65	4.476	4.476 (1.070)		211563	46.9734	46.97	
\$ 69 4-Bromofluorobenzene		95	8.688	8.688 (1.133)		251136	46.9452	46.94	
\$ 30 Dibromofluoromethane		113	4.103	4.103 (0.981)		212260	48.7239	48.72	
\$ 48 Toluene-d8		98	6.388	6.388 (0.833)		737385	48.6461	48.64	
138 Freon TF		101	1.911	1.919 (0.457)		12455	2.98546	2.98(a)	
11 1,1-Dichloroethene		96	1.919	1.911 (0.459)		4944	1.21743	1.21(a)	
56 Tetrachloroethene		164	6.933	6.933 (0.904)		43509	10.7636	10.76	
38 Trichloroethene		130	5.214	5.206 (1.049)		35753	7.78137	7.78	

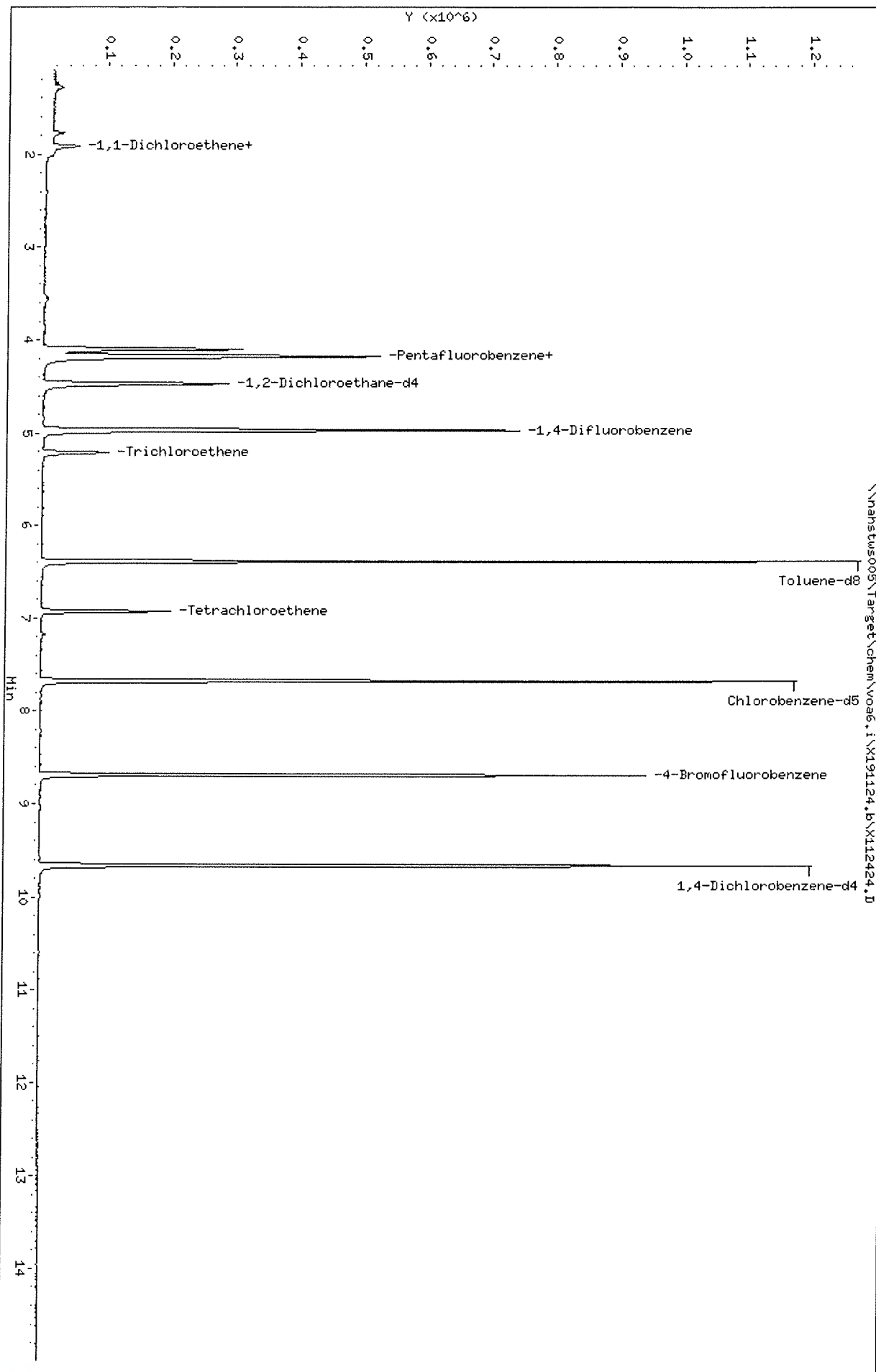
QC Flag Legend

a - Target compound detected but, quantitated amount
 Below Limit Of Quantitation(BLOQ).



Data File: \\nahstus005\\Target\\chem\\voa6.i\\X191124.b\\X112424.D
Date: 24-NOV-2019 21:25
Client ID: HSI9111239-03
Sample Info: HSI9111239-03;HSI9111239-03;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112424.D

Page 3

Date : 24-NOV-2019 21:25

Client ID: HS19111239-03

Instrument: voa6.i

Sample Info: HS19111239-03;HS19111239-03;;

Purge Volume: 5.0

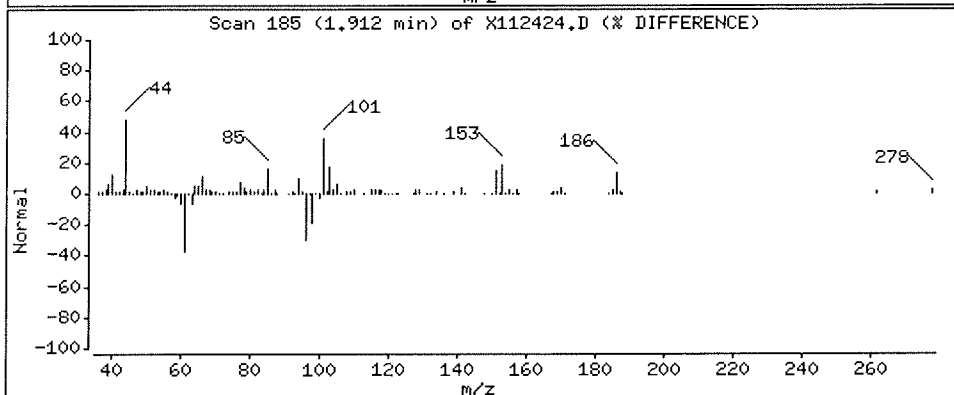
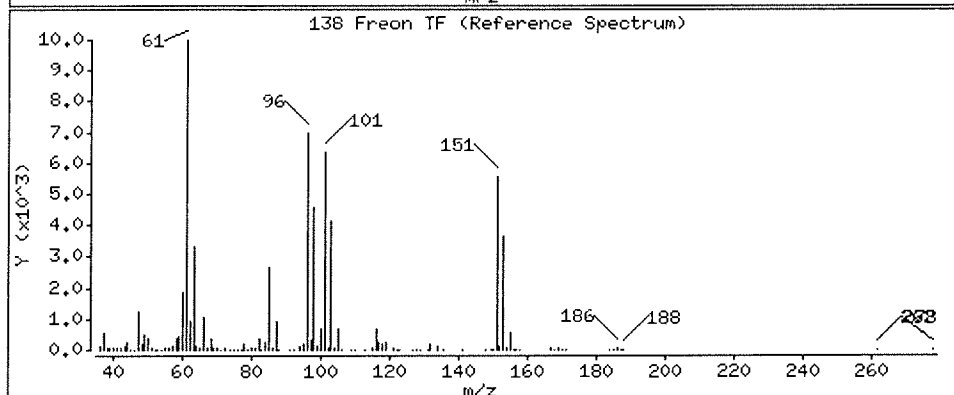
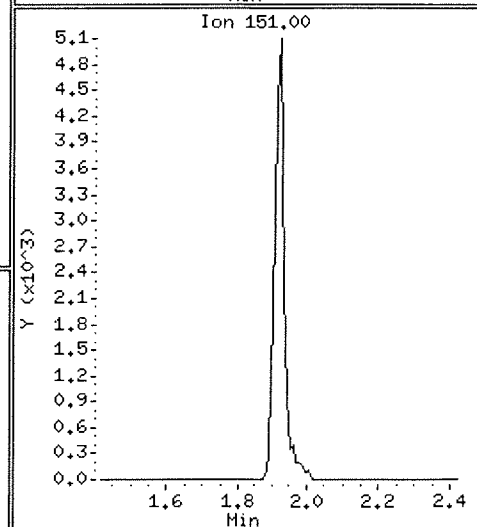
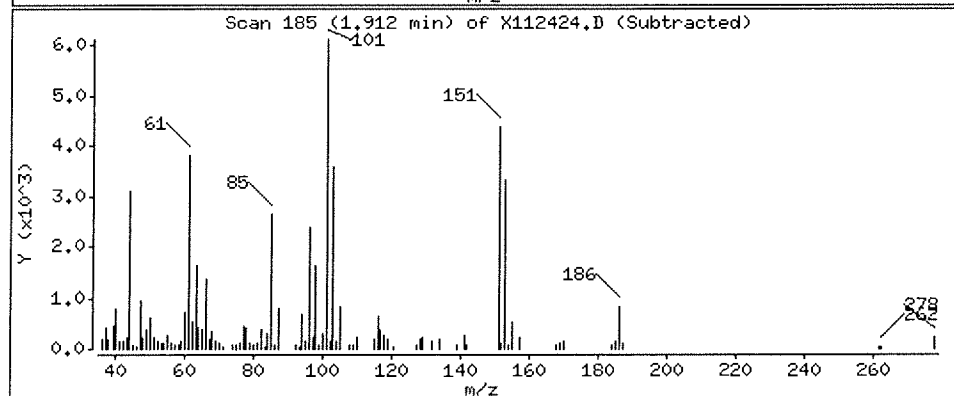
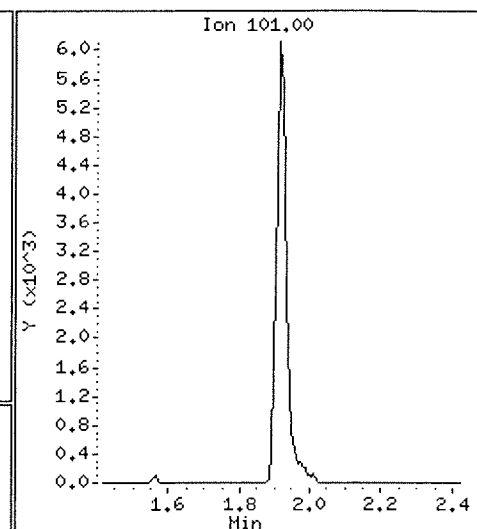
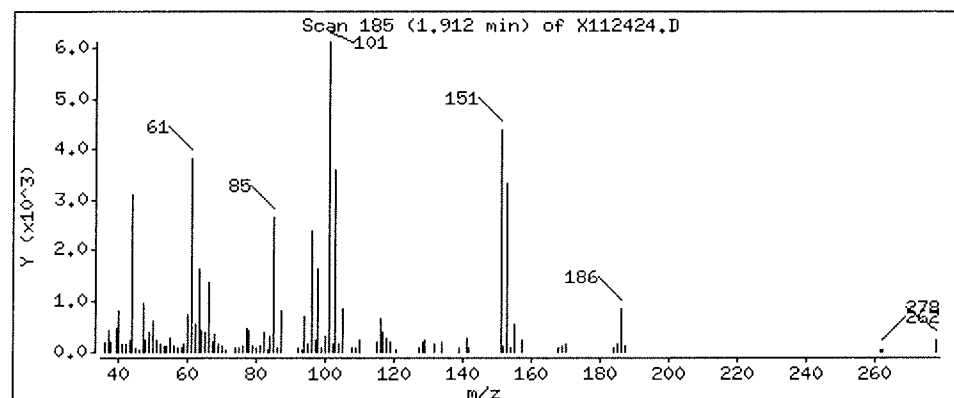
Operator: PC

Column phase: DB624

Column diameter: 0.18

138 Freon TF

Concentration: 2.98 ug/l



Data File: \\nahstus005\Target\chem\voa6.i\X1911239.b\X112424.D

Page 4

Date : 24-NOV-2019 21:25

Client ID: HS19111239-03

Instrument: voa6.i

Sample Info: HS19111239-03;HS19111239-03;;

Purge Volume: 5.0

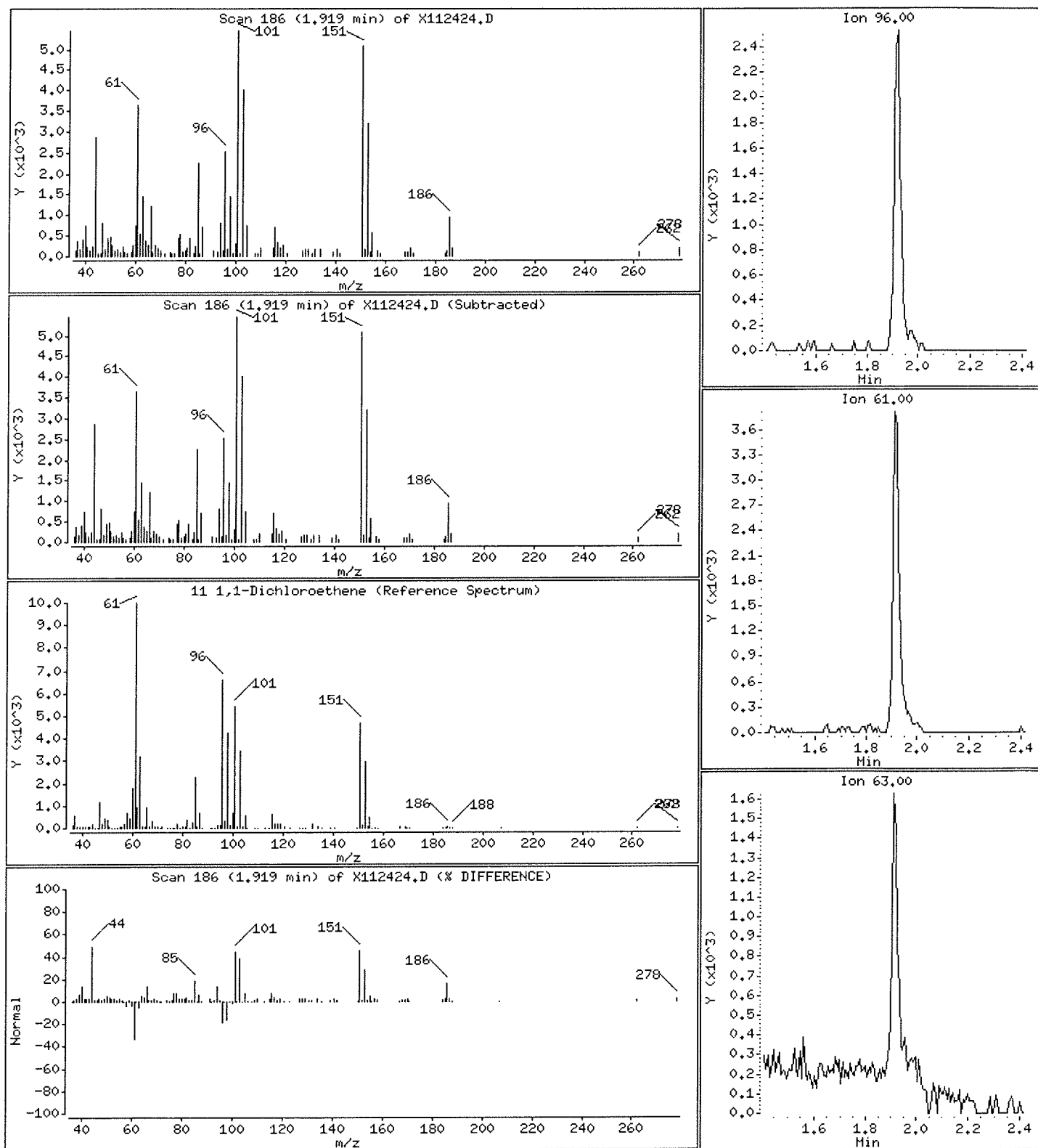
Operator: PC

Column phase: DB624

Column diameter: 0.18

11 1,1-Dichloroethene

Concentration: 1.21 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112424.D

Page 5

Date : 24-NOV-2019 21:25

Client ID: HS19111239-03

Instrument: voa6.i

Sample Info: HS19111239-03;HS19111239-03;;

Purge Volume: 5.0

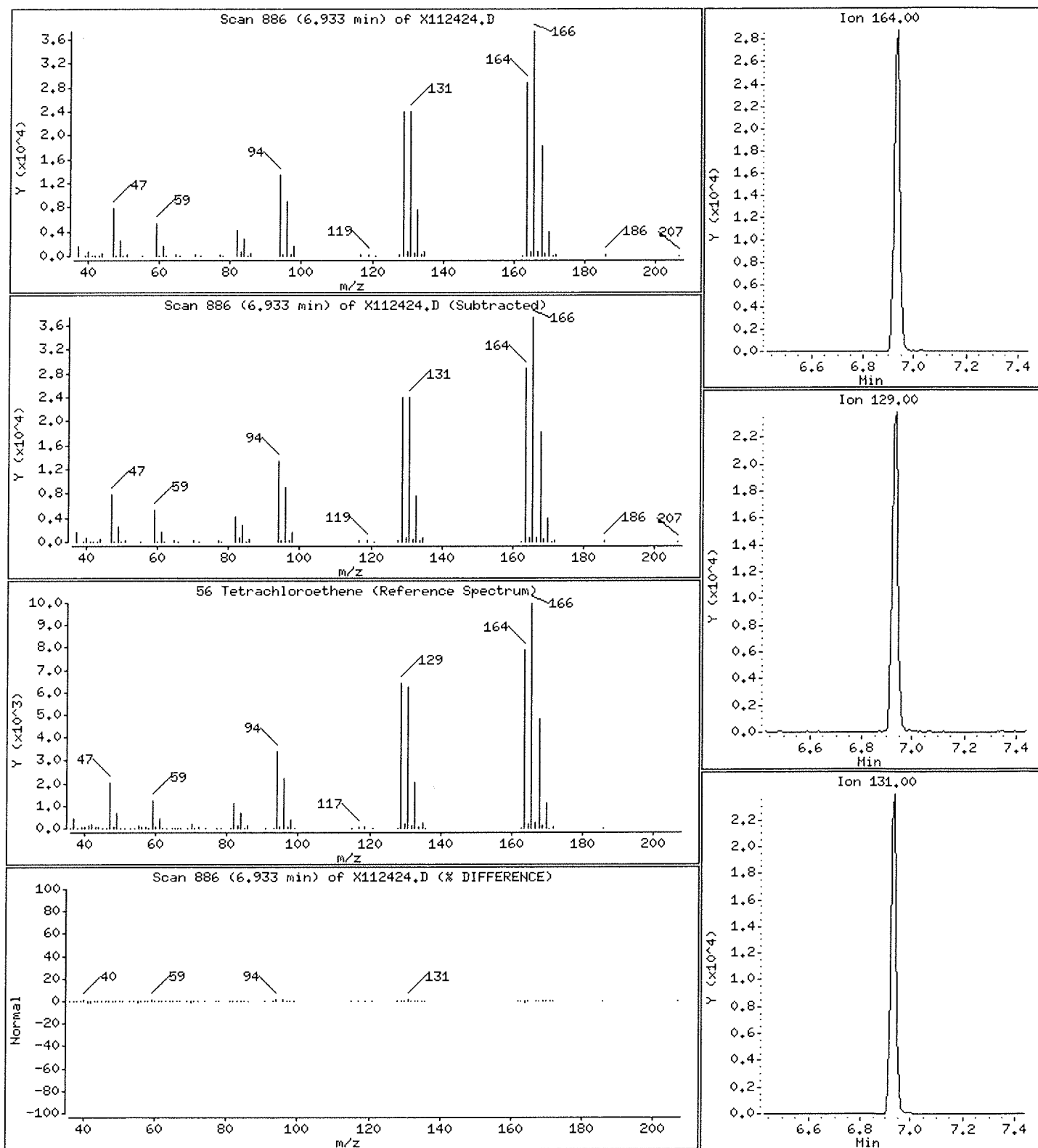
Operator: PC

Column phase: DB624

Column diameter: 0.18

56 Tetrachloroethene

Concentration: 10.76 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112424.D

Page 6

Date : 24-NOV-2019 21:25

Client ID: HS19111239-03

Instrument: voa6.i

Sample Info: HS19111239-03;HS19111239-03;;

Purge Volume: 5.0

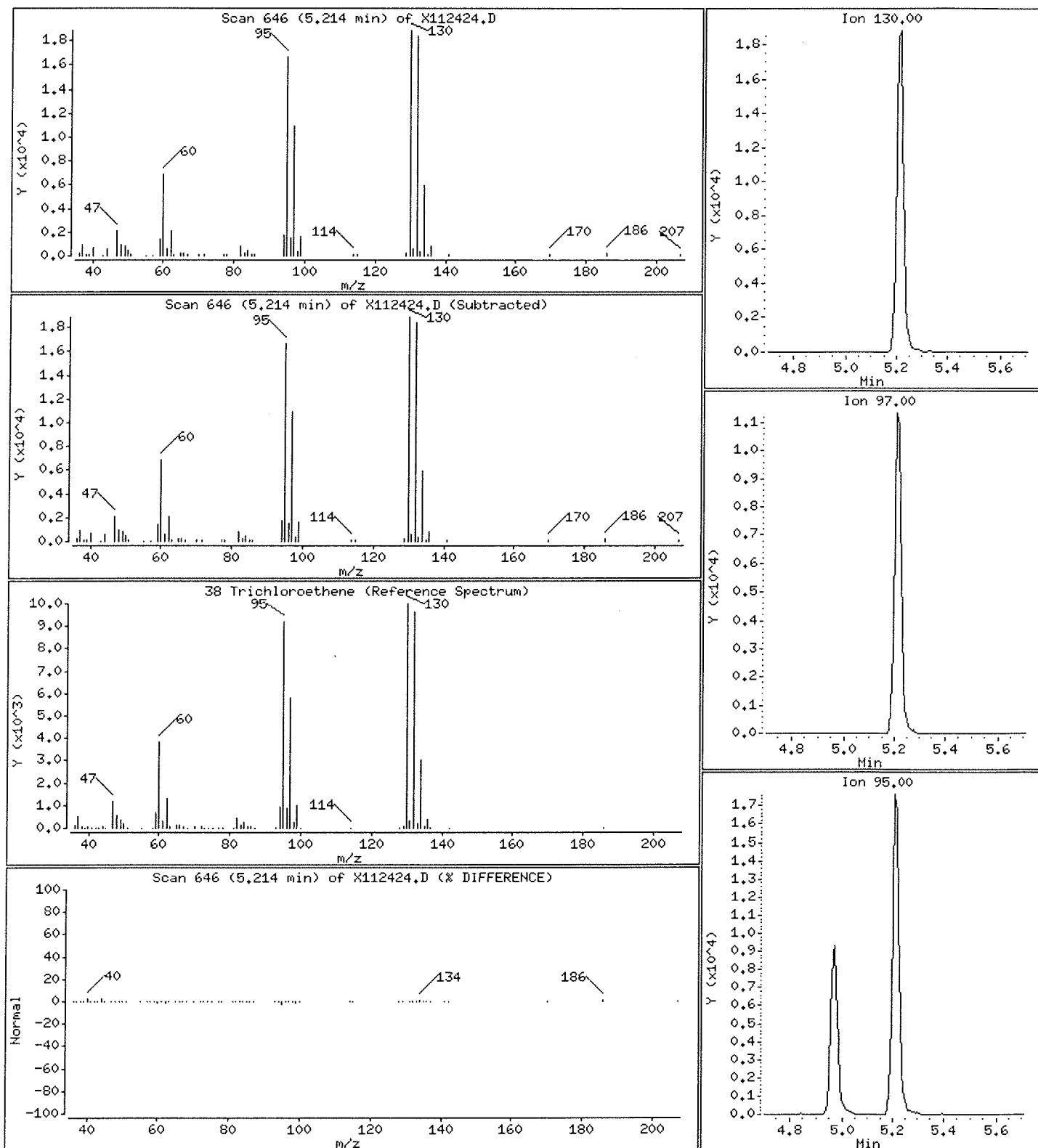
Operator: PC

Column phase: DB624

Column diameter: 0.18

38 Trichloroethene

Concentration: 7.78 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112425.D Page 1
 Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112425.D
 Lab Smp Id: HS19111239-04 Client Smp ID: HS19111239-04
 Inj Date : 24-NOV-2019 21:49
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111239-04;HS19111239-04;;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
 Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 24
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG							CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL	
							(ug/l)	(ug/l)	
=====									
* 1 Pentafluorobenzene		168	4.182	4.182 (1.000)		493478	50.0000		
* 36 1,4-Difluorobenzene		114	4.970	4.970 (1.000)		676996	50.0000		
* 47 Chlorobenzene-d5		117	7.670	7.671 (1.000)		598822	50.0000		
* 70 1,4-Dichlorobenzene-d4		152	9.669	9.669 (1.000)		312234	50.0000		
\$ 35 1,2-Dichloroethane-d4		65	4.476	4.476 (1.070)		211633	45.6498	45.64	
\$ 69 4-Bromofluorobenzene		95	8.695	8.688 (1.134)		263128	47.2525	47.25	
\$ 30 Dibromofluoromethane		113	4.103	4.103 (0.981)		213516	47.6020	47.60	
\$ 48 Toluene-d8		98	6.388	6.388 (0.833)		760468	48.1988	48.19	
138 Freon TF		101	1.911	1.919 (0.457)		12570	2.92581	2.92(a)	
11 1,1-Dichloroethene		96	1.911	1.911 (0.457)		4652	1.11237	1.11(a)	
56 Tetrachloroethene		164	6.933	6.933 (0.904)		44616	10.6040	10.60	
38 Trichloroethene		130	5.206	5.206 (1.048)		36210	7.64813	7.64	

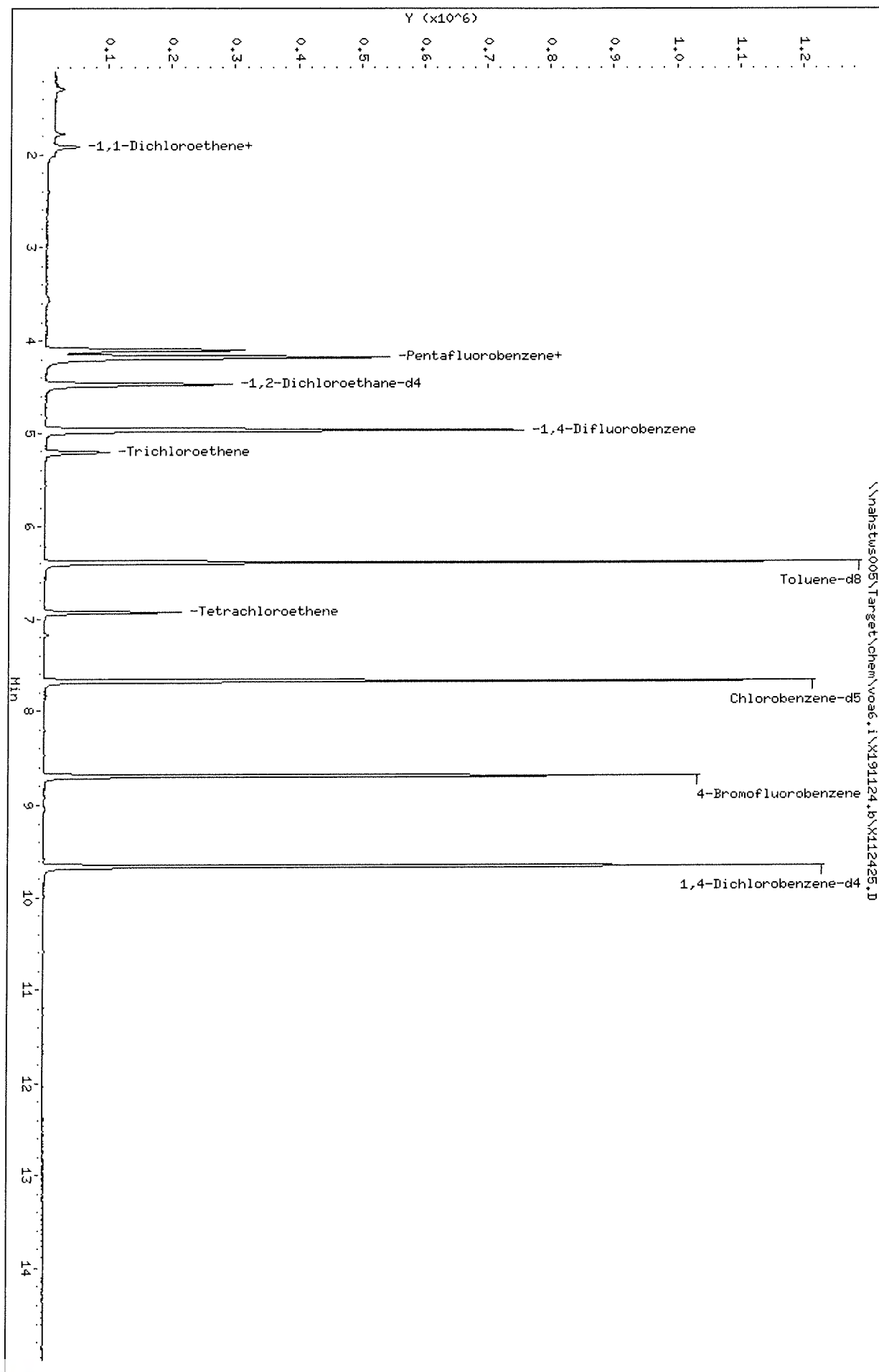
QC Flag Legend

a - Target compound detected but, quantitated amount
 Below Limit Of Quantitation(BLOQ).



Data File: \\nahstus005\Target\chem\voa6.i\X191124.b\X112425.D
Date: 24-NOV-2019 21:49
Client ID: HSI9111239-04
Sample Info: HSI9111239-04;HSI9111239-04;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112425.D

Page 3

Date : 24-NOV-2019 21:49

Client ID: HS19111239-04

Instrument: voa6.i

Sample Info: HS19111239-04;HS19111239-04;;

Purge Volume: 5.0

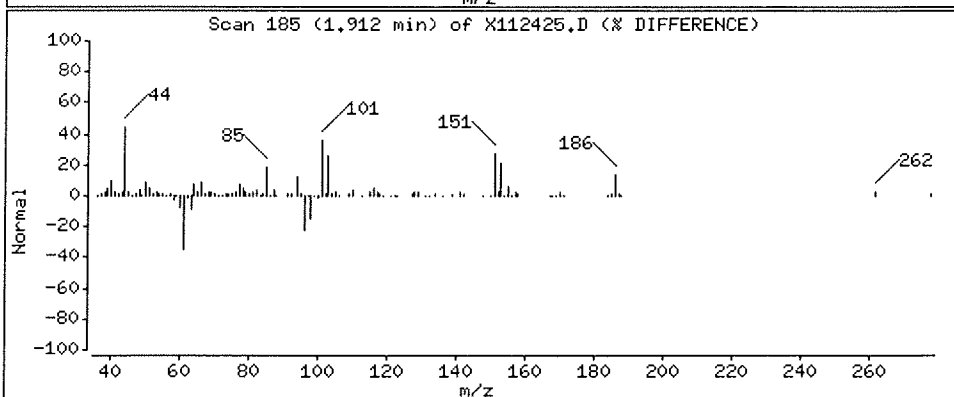
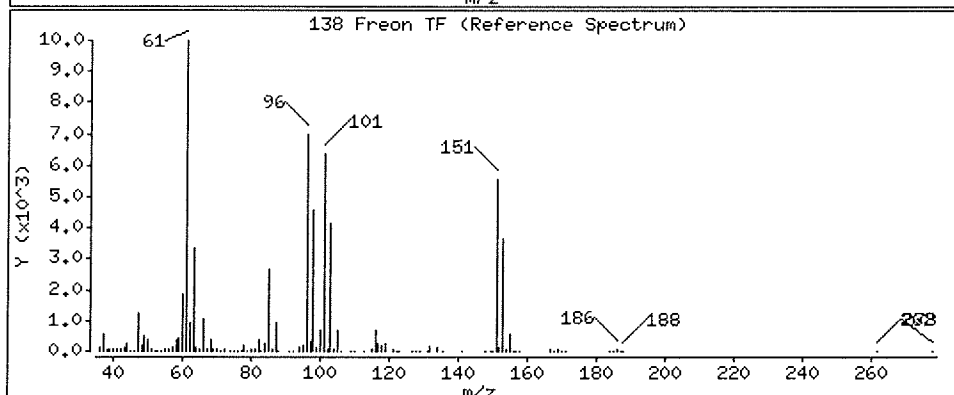
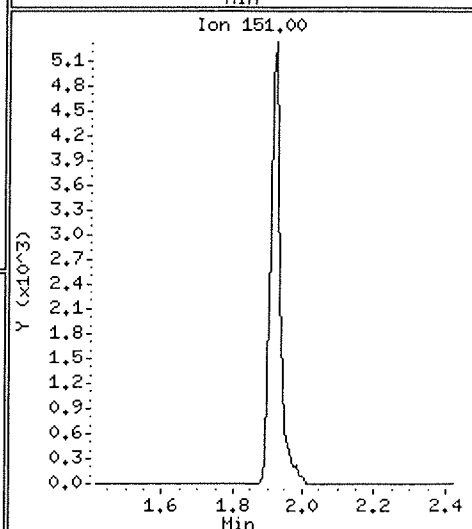
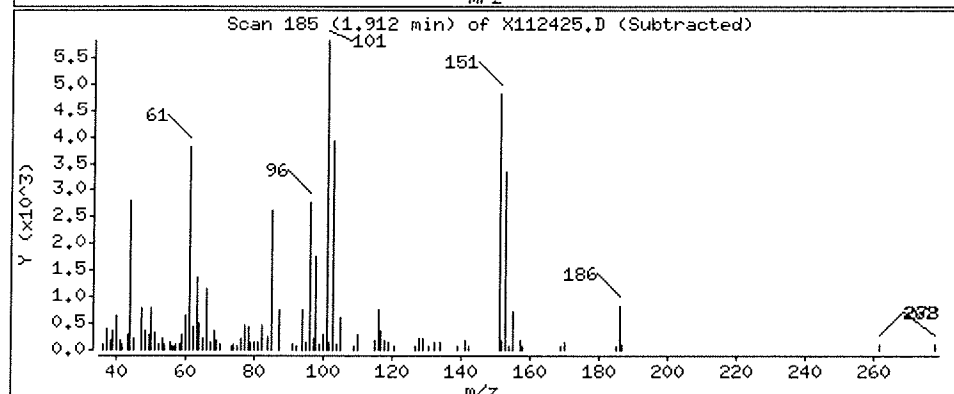
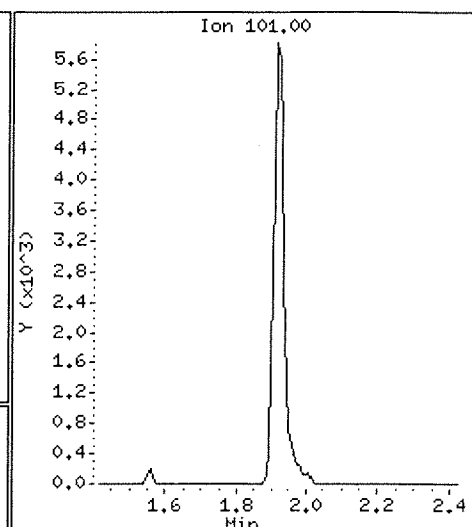
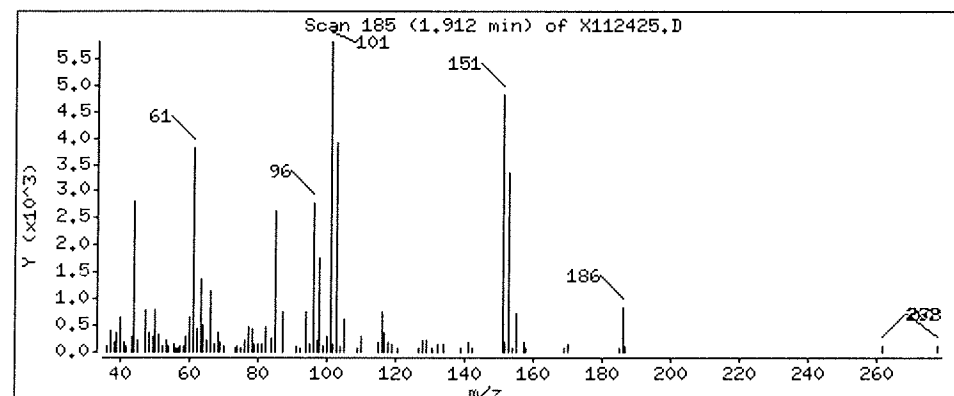
Operator: PC

Column phase: DB624

Column diameter: 0.18

138 Freon TF

Concentration: 2.92 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X112425.D

Page 4

Date : 24-NOV-2019 21:49

Client ID: HS19111239-04

Instrument: voa6.i

Sample Info: HS19111239-04;HS19111239-04;;;

Purge Volume: 5.0

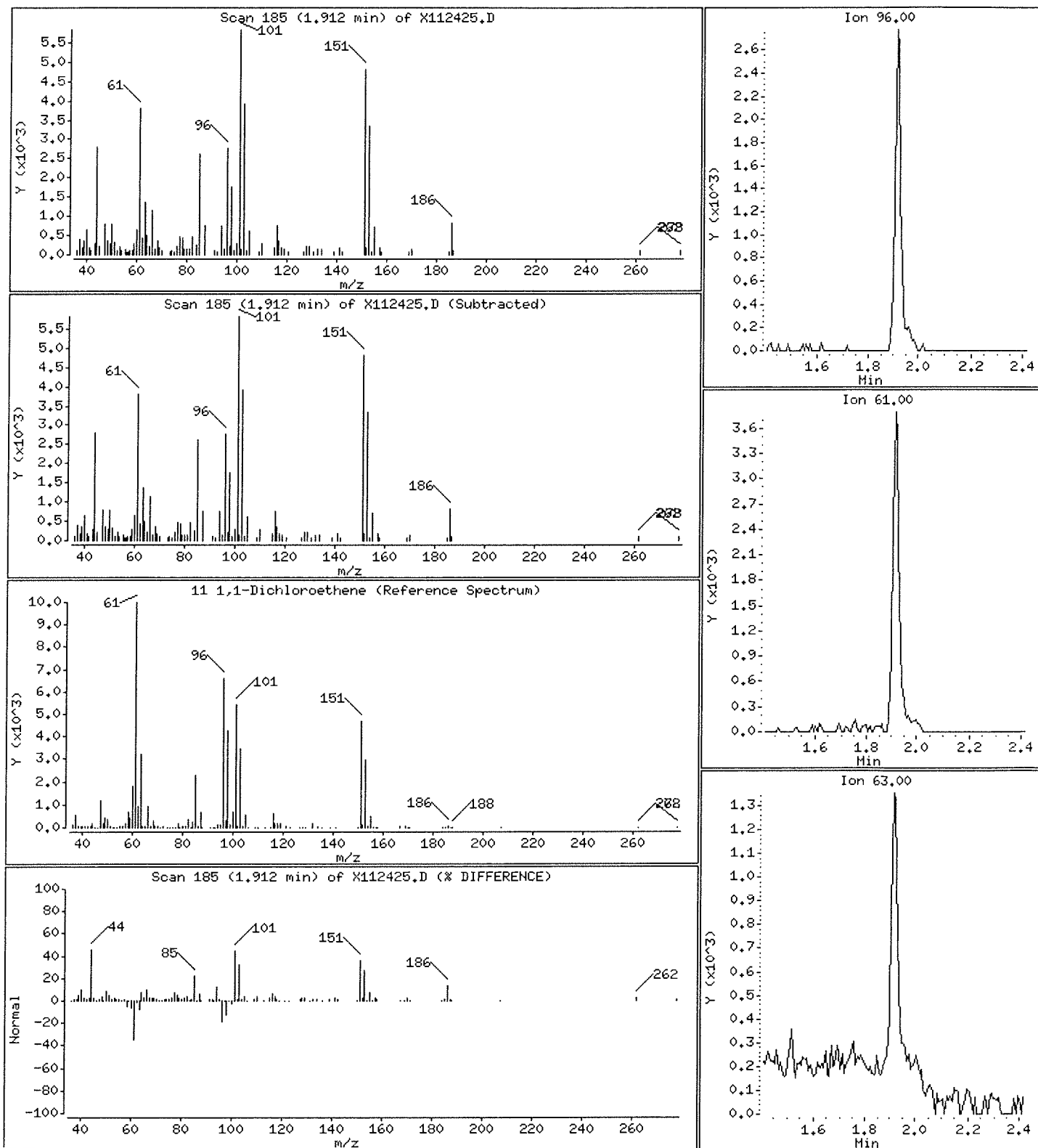
Operator: PC

Column phase: DB624

Column diameter: 0.18

11 1,1-Dichloroethene

Concentration: 1.11 ug/l



Data File: \\nahstus005\Target\chem\voa6.i\X191124.b\X112425.D

Page 5

Date : 24-NOV-2019 21:49

Client ID: HS19111239-04

Instrument: voa6.i

Sample Info: HS19111239-04;HS19111239-04;;;

Purge Volume: 5.0

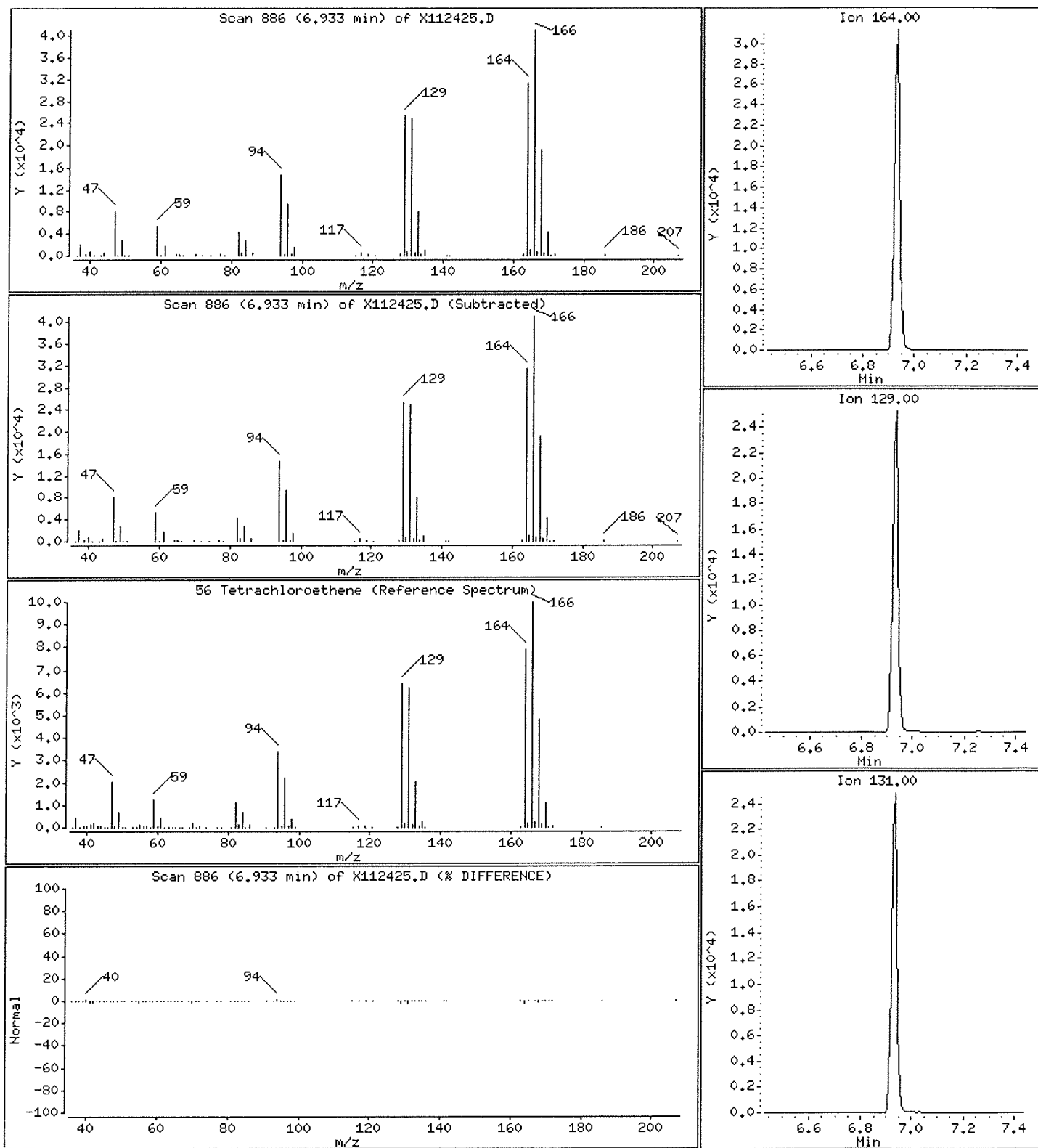
Operator: PC

Column phase: DB624

Column diameter: 0.18

56 Tetrachloroethene

Concentration: 10.60 ug/l



Data File: \\nahstus005\Target\chem\voa6.i\X191124.b\X112425.D

Page 6

Date : 24-NOV-2019 21:49

Client ID: HS19111239-04

Instrument: voa6.i

Sample Info: HS19111239-04;HS19111239-04;;;

Purge Volume: 5.0

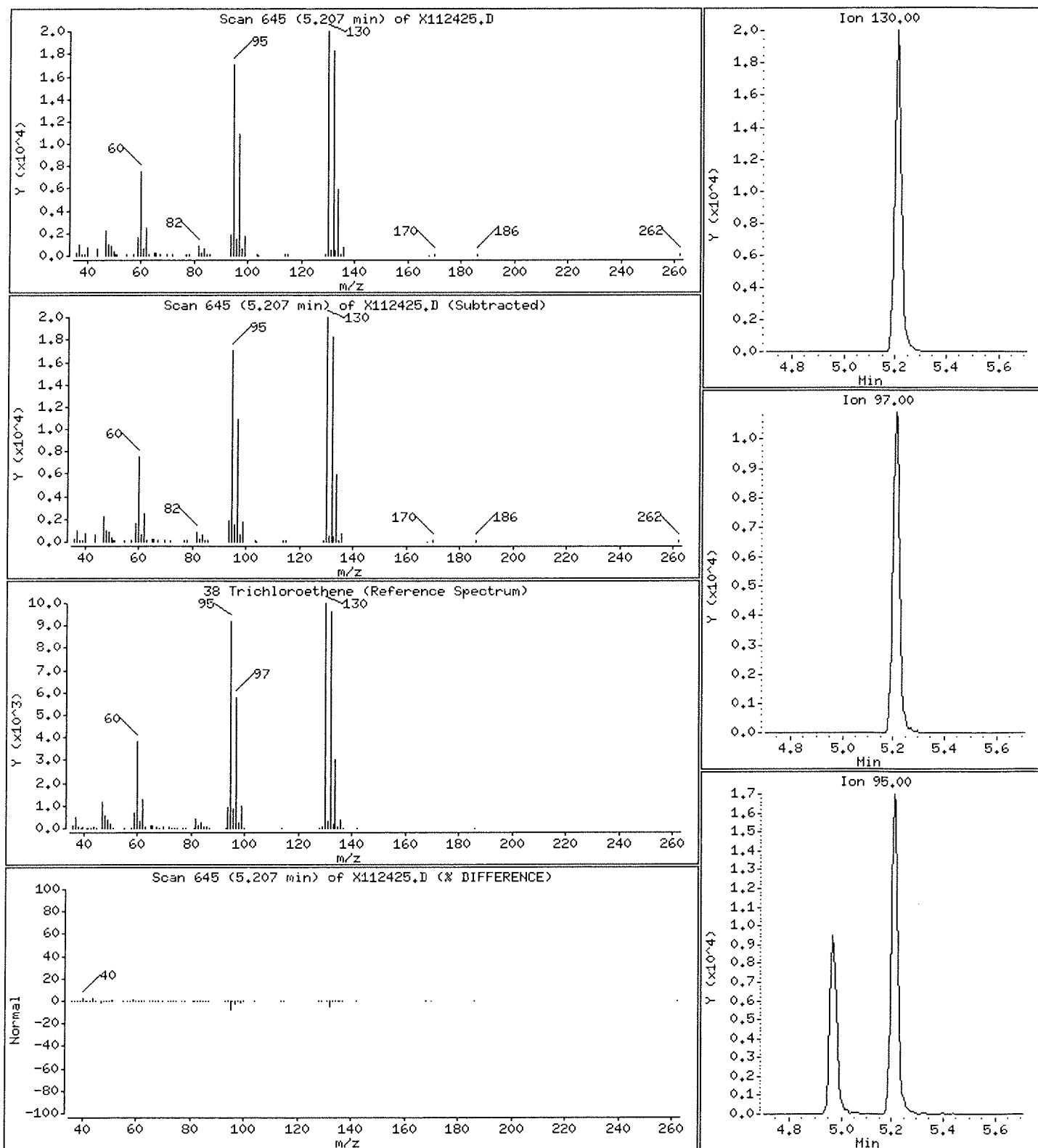
Operator: PC

Column phase: DB624

Column diameter: 0.18

38 Trichloroethene

Concentration: 7.64 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112426.D Page 1
Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112426.D
Lab Smp Id: HS19111239-06 Client Smp ID: HS19111239-06
Inj Date : 24-NOV-2019 22:13
Operator : PC Inst ID: voa6.i
Smp Info : HS19111239-06;HS19111239-06;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 25
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG							CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)	
=====	=====	=====	=====	=====	=====	=====	=====	=====	
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	479903	50.0000			
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	657307	50.0000			
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	573709	50.0000			
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	286381	50.0000			
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	214496	47.5450	47.54		
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	250628	46.9803	46.98		
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	211487	48.4765	48.47		
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	750444	49.6455	49.64		
138 Freon TF	101	1.911	1.919	(0.457)	9331	2.23333	2.23 (a)		
56 Tetrachloroethene	164	6.933	6.933	(0.904)	59458	14.7501	14.75		
38 Trichloroethene	130	5.206	5.206	(1.048)	14345	3.12065	3.12 (a)		

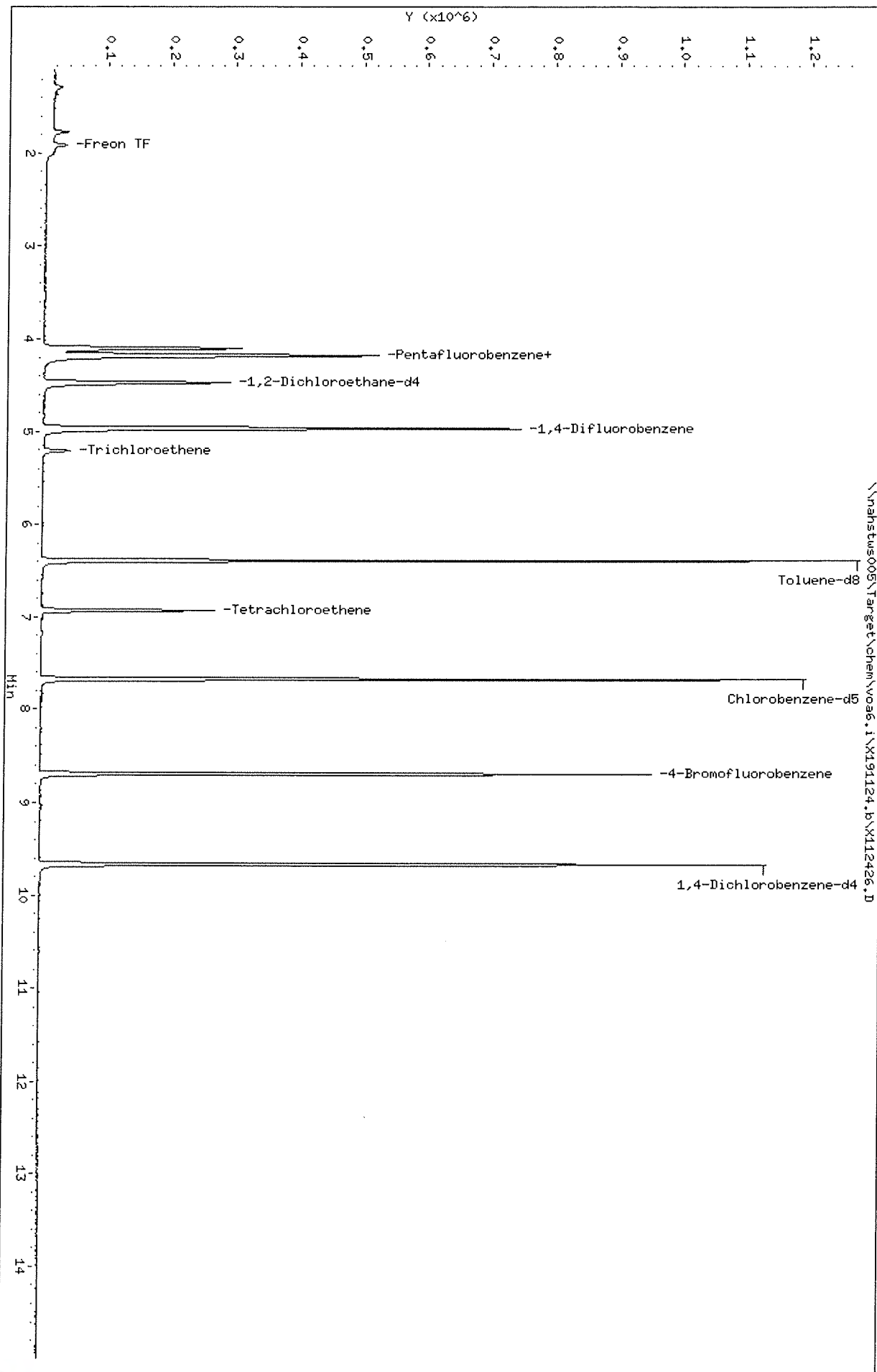
QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



Data File: \\nahstus005\\Target\\chem\\voa6.1\\X191124.b\\X112426.D
Date: 24-NOV-2019 22:13
Client ID: HSI9111239-06
Sample Info: HSI9111239-06; HSI9111239-06;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X112426.D

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Date : 24-NOV-2019 22:13

Client ID: HS19111239-06

Instrument: voa6.i

Sample Info: HS19111239-06;HS19111239-06;;;

Purge Volume: 5.0

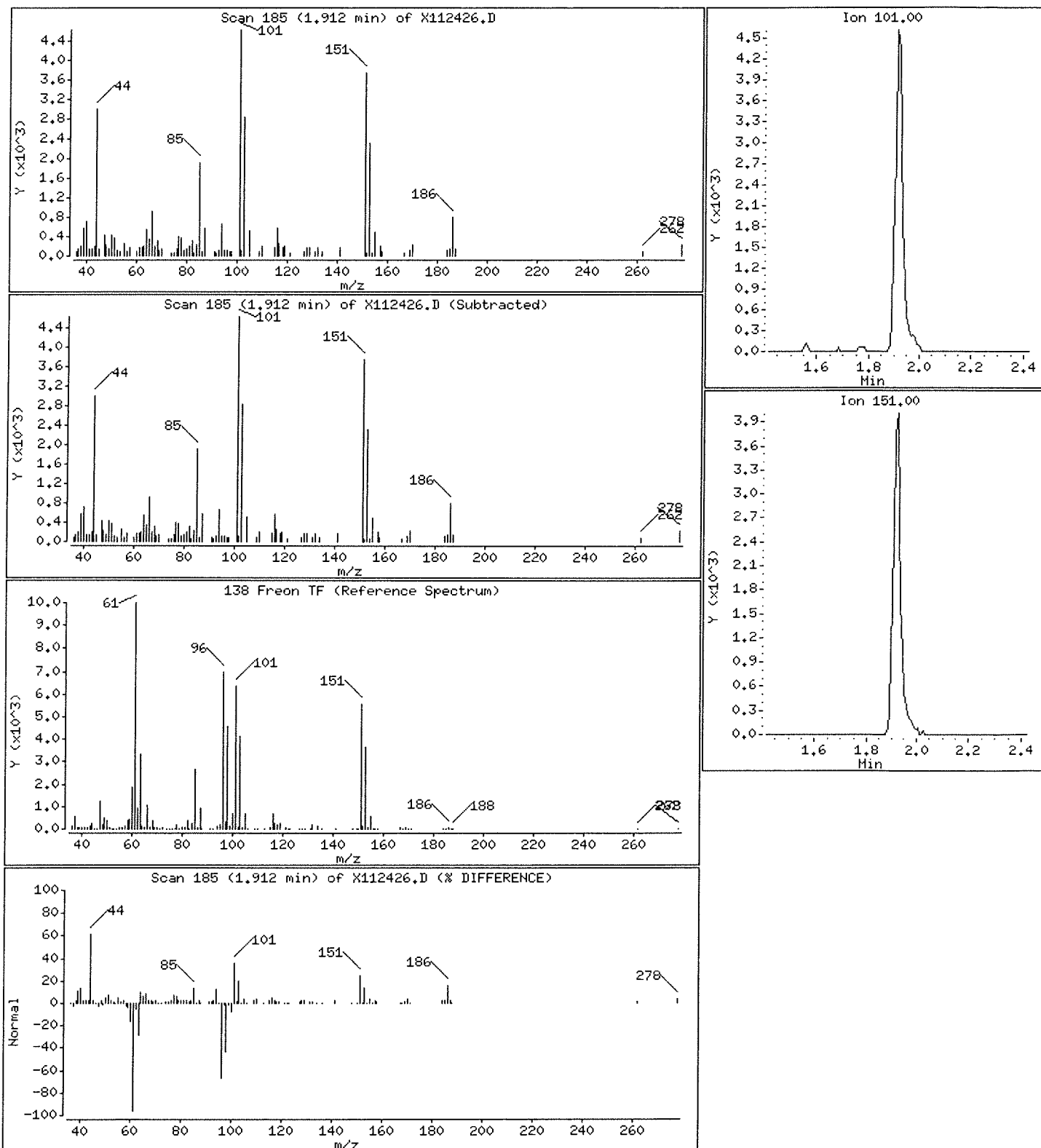
Operator: PC

Column phase: DB624

Column diameter: 0.18

138 Freon TF

Concentration: 2.23 ug/l



Data File: \\nahstus005\Target\chem\voa6.i\X191124.b\X112426.D

Page 4

Date : 24-NOV-2019 22:13

Client ID: HS19111239-06

Instrument: voa6.i

Sample Info: HS19111239-06;HS19111239-06;;;

Purge Volume: 5.0

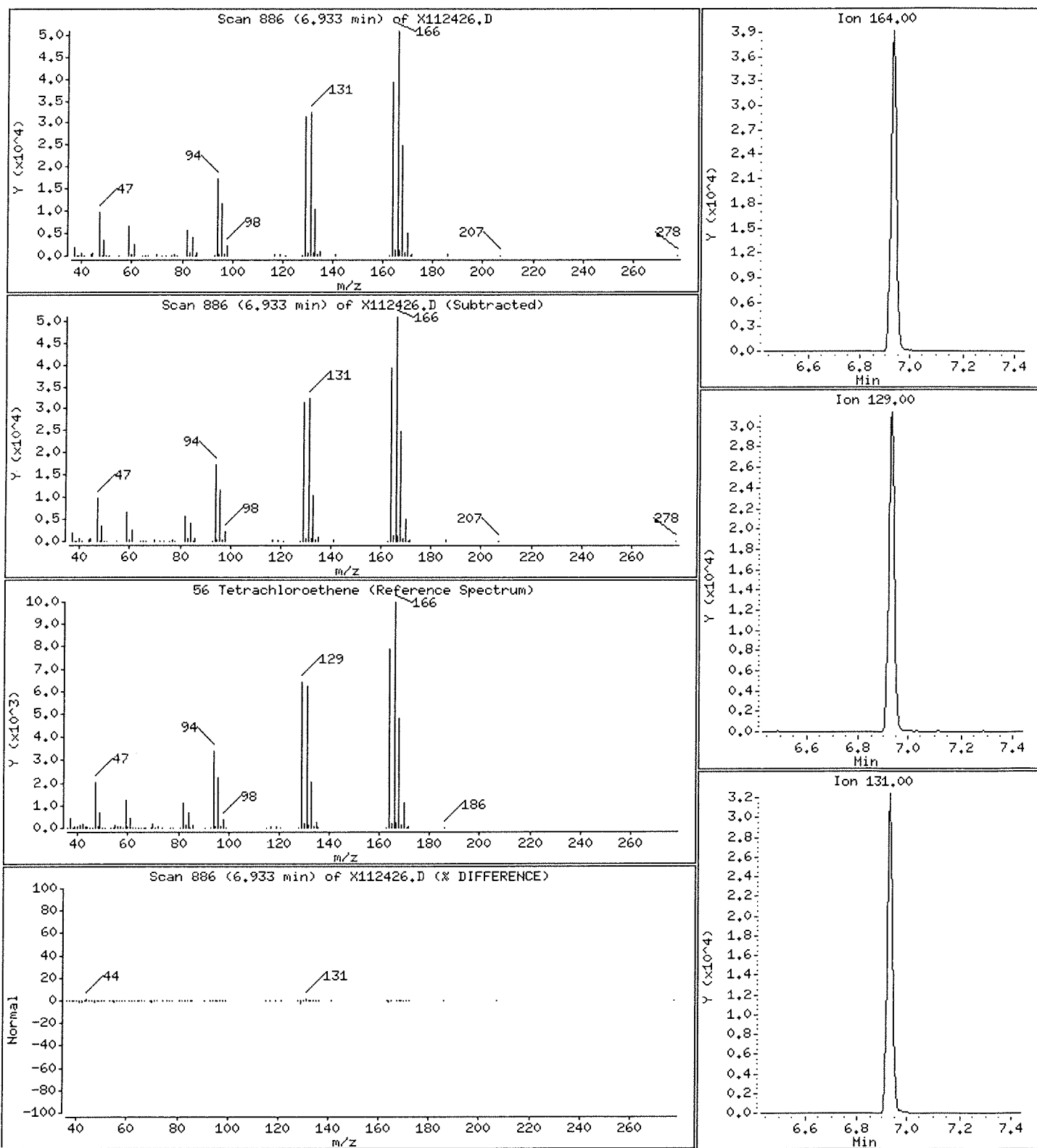
Operator: PC

Column phase: DB624

Column diameter: 0.18

56 Tetrachloroethene

Concentration: 14.75 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112426.D

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Date : 24-NOV-2019 22:13

Client ID: HS19111239-06

Instrument: voa6.i

Sample Info: HS19111239-06;HS19111239-06;;;

Purge Volume: 5.0

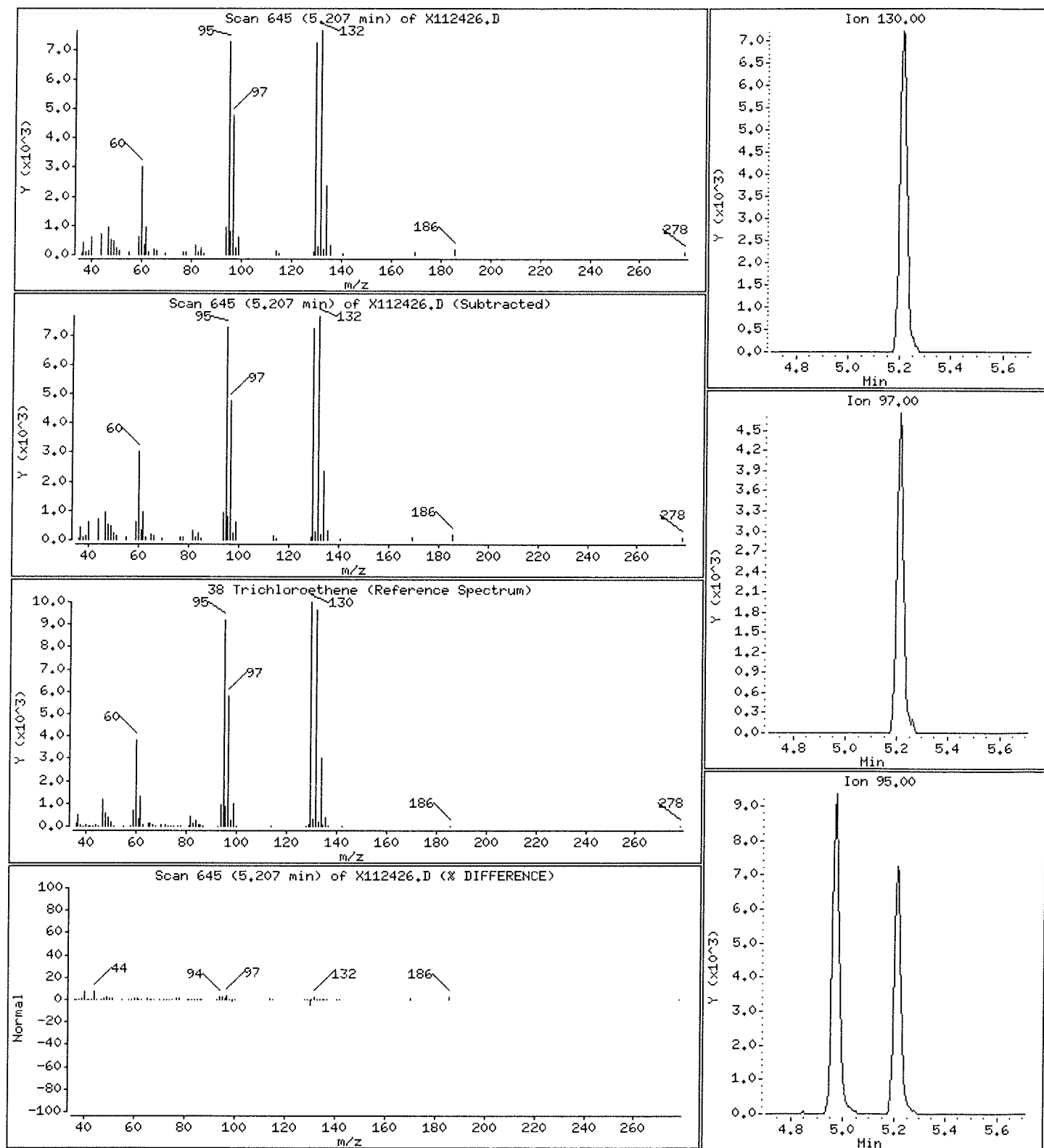
Operator: PC

Column phase: DB624

Column diameter: 0.18

38 Trichloroethene

Concentration: 3.12 ug/l





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WorkOrder: HS19111343

Longhorn Army Ammunition Plant LHAAP 37

Aptim Environmental & Infrastructure, Inc.

Susan Huang
2500 City West Blvd., Suite 1700
Houston TX 77042

16-Dec-2019





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HS19111343 Longhorn Army Ammunition Plant LHAAP 37 Final

ALS WO# HS19111343





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December 13, 2019

Susan Huang
Aptim Environmental & Infrastructure, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS19111343**

Laboratory Results for: **Longhorn Army Ammunition Plant LHAAP 37**

Dear Susan,

ALS Environmental received 8 sample(s) on Nov 26, 2019 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read 'RJ Modashia', enclosed in a circular stamp.

Generated By: JUMOKE.LAWAL

RJ Modashia
Project Manager



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
Work Order: HS19111343

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19111343-01	35BWW07-191125	Groundwater		25-Nov-2019 08:35	26-Nov-2019 08:40	☐
HS19111343-02	35BWW13-191125	Groundwater		25-Nov-2019 09:20	26-Nov-2019 08:40	☐
HS19111343-03	35BWW14-191125	Groundwater		25-Nov-2019 10:05	26-Nov-2019 08:40	☐
HS19111343-04	35BWW23-191125	Groundwater		25-Nov-2019 10:55	26-Nov-2019 08:40	☐
HS19111343-05	35BWW24-191125	Groundwater		25-Nov-2019 11:45	26-Nov-2019 08:40	☐
HS19111343-06	35BWW12-191125	Groundwater		25-Nov-2019 12:35	26-Nov-2019 08:40	☐
HS19111343-07	35BWW05-191125	Groundwater		25-Nov-2019 13:35	26-Nov-2019 08:40	☐
HS19111343-08	Trip Blank	Groundwater		25-Nov-2019 00:00	26-Nov-2019 08:40	☐



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
Work Order: HS19111343

CASE NARRATIVE**Work Order Comments**

- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for TOC was subcontracted to ALS Kelso, WA. Final report attached.

GCMS Volatiles by Method SW8260**Batch ID: R351642****Sample ID: CCV**

- 1,2,3-Trichlorobenzene exceeded %D limits for CCV. Samples are ND for this compound.

Sample ID: VLCSW-191202

- 1,2,3-Trichlorobenzene is also high for LCS. Samples are ND for this compound

WetChemistry by Method SW9056**Batch ID: R351465**

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP 37
 Sample ID: 35BWW07-191125
 Collection Date: 25-Nov-2019 08:35

ANALYTICAL REPORT

WorkOrder:HS19111343
 Lab ID:HS19111343-01
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:18
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 14:18
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Dec-2019 14:18
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:18
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Dec-2019 14:18
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 14:18
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Dec-2019 14:18
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP 37
 Sample ID: 35BWW07-191125
 Collection Date: 25-Nov-2019 08:35

ANALYTICAL REPORT

WorkOrder: HS19111343
 Lab ID: HS19111343-01
 Matrix: Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method: SW8260						Analyst: PC
8260C								
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 14:18
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 14:18
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:18
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Surr: 1,2-Dichloroethane-d4	101			0	81-118	%REC	1	02-Dec-2019 14:18
Surr: 4-Bromofluorobenzene	96.2			0	85-114	%REC	1	02-Dec-2019 14:18
Surr: Dibromofluoromethane	98.8			0	80-119	%REC	1	02-Dec-2019 14:18
Surr: Toluene-d8	95.7			0	89-112	%REC	1	02-Dec-2019 14:18

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP 37
 Sample ID: 35BWW13-191125
 Collection Date: 25-Nov-2019 09:20

ANALYTICAL REPORT

WorkOrder:HS19111343
 Lab ID:HS19111343-02
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:42
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 14:42
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Dec-2019 14:42
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:42
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Dec-2019 14:42
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 14:42
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Dec-2019 14:42
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP 37
 Sample ID: 35BWW13-191125
 Collection Date: 25-Nov-2019 09:20

ANALYTICAL REPORT

WorkOrder: HS19111343
 Lab ID: HS19111343-02
 Matrix: Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method: SW8260						Analyst: PC
8260C								
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 14:42
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 14:42
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:42
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Surr: 1,2-Dichloroethane-d4	102			0	81-118	%REC	1	02-Dec-2019 14:42
Surr: 4-Bromofluorobenzene	95.3			0	85-114	%REC	1	02-Dec-2019 14:42
Surr: Dibromofluoromethane	101			0	80-119	%REC	1	02-Dec-2019 14:42
Surr: Toluene-d8	97.1			0	89-112	%REC	1	02-Dec-2019 14:42

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP 37
 Sample ID: 35BWW14-191125
 Collection Date: 25-Nov-2019 10:05

ANALYTICAL REPORT

WorkOrder:HS19111343
 Lab ID:HS19111343-03
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,1,2-Trichlor-1,2,2-trifluoroethane	25		0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,1-Dichloroethane	0.83	J	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,1-Dichloroethene	4.6		0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:06
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 15:06
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Dec-2019 15:06
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:06
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Dec-2019 15:06
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 15:06
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Dec-2019 15:06
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP 37
 Sample ID: 35BWW14-191125
 Collection Date: 25-Nov-2019 10:05

ANALYTICAL REPORT

WorkOrder:HS19111343
 Lab ID:HS19111343-03
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
cis-1,2-Dichloroethene	1.5		0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 15:06
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 15:06
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:06
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Tetrachloroethene	38		0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Trichloroethene	16		0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>102</i>			0	<i>81-118</i>	%REC	1	02-Dec-2019 15:06
<i>Surr: 4-Bromofluorobenzene</i>	<i>97.0</i>			0	<i>85-114</i>	%REC	1	02-Dec-2019 15:06
<i>Surr: Dibromofluoromethane</i>	<i>100</i>			0	<i>80-119</i>	%REC	1	02-Dec-2019 15:06
<i>Surr: Toluene-d8</i>	<i>96.9</i>			0	<i>89-112</i>	%REC	1	02-Dec-2019 15:06
ANIONS BY SW9056A		Method:SW9056						Analyst: KMU
Chloride	16.9		0.200	0.500	0.500	mg/L	1	26-Nov-2019 20:18
Nitrogen, Nitrate (As N)	0.394		0.0300	0.100	0.100	mg/L	1	26-Nov-2019 20:18
Sulfate	72.7		0.200	0.500	0.500	mg/L	1	26-Nov-2019 20:18
SUBCONTRACT ANALYSIS - RSK		Method:NA						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	13-Dec-2019 15:18

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
Sample ID: 35BWW14-191125
Collection Date: 25-Nov-2019 10:05

ANALYTICAL REPORT

WorkOrder:HS19111343
Lab ID:HS19111343-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		Method:NA						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	06-Dec-2019 10:03

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP 37
 Sample ID: 35BWW23-191125
 Collection Date: 25-Nov-2019 10:55

ANALYTICAL REPORT

WorkOrder:HS19111343
 Lab ID:HS19111343-04
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:30
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 15:30
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Dec-2019 15:30
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:30
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Dec-2019 15:30
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 15:30
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Dec-2019 15:30
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP 37
 Sample ID: 35BWW23-191125
 Collection Date: 25-Nov-2019 10:55

ANALYTICAL REPORT

WorkOrder:HS19111343
 Lab ID:HS19111343-04
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C			Method:SW8260					Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 15:30
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 15:30
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:30
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Surr: 1,2-Dichloroethane-d4	100			0	81-118	%REC	1	02-Dec-2019 15:30
Surr: 4-Bromofluorobenzene	96.3			0	85-114	%REC	1	02-Dec-2019 15:30
Surr: Dibromofluoromethane	99.0			0	80-119	%REC	1	02-Dec-2019 15:30
Surr: Toluene-d8	96.3			0	89-112	%REC	1	02-Dec-2019 15:30
ANIONS BY SW9056A			Method:SW9056					Analyst: KMU
Chloride	28.1		0.200	0.500	0.500	mg/L	1	26-Nov-2019 20:35
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	26-Nov-2019 20:35
Sulfate	85.9		0.200	0.500	0.500	mg/L	1	26-Nov-2019 20:35
SUBCONTRACT ANALYSIS - RSK			Method:NA					Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	13-Dec-2019 15:18
SUBCONTRACT ANALYSIS - TOC ANALYSIS			Method:NA					Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	06-Dec-2019 10:03

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP 37
 Sample ID: 35BWW24-191125
 Collection Date: 25-Nov-2019 11:45

ANALYTICAL REPORT

WorkOrder:HS19111343
 Lab ID:HS19111343-05
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,1,2-Trichlor-1,2,2-trifluoroethane	7.2		0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:54
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 15:54
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Dec-2019 15:54
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:54
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Dec-2019 15:54
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 15:54
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Dec-2019 15:54
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP 37
 Sample ID: 35BWW24-191125
 Collection Date: 25-Nov-2019 11:45

ANALYTICAL REPORT

WorkOrder:HS19111343
 Lab ID:HS19111343-05
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 15:54
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 15:54
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:54
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Trichloroethene	1.8		0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>103</i>			0	<i>81-118</i>	<i>%REC</i>	<i>1</i>	<i>02-Dec-2019 15:54</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>95.3</i>			0	<i>85-114</i>	<i>%REC</i>	<i>1</i>	<i>02-Dec-2019 15:54</i>
<i>Surr: Dibromofluoromethane</i>	<i>99.6</i>			0	<i>80-119</i>	<i>%REC</i>	<i>1</i>	<i>02-Dec-2019 15:54</i>
<i>Surr: Toluene-d8</i>	<i>98.5</i>			0	<i>89-112</i>	<i>%REC</i>	<i>1</i>	<i>02-Dec-2019 15:54</i>

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP 37
 Sample ID: 35BWW12-191125
 Collection Date: 25-Nov-2019 12:35

ANALYTICAL REPORT

WorkOrder:HS19111343
 Lab ID:HS19111343-06
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:54
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 13:54
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Dec-2019 13:54
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:54
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Dec-2019 13:54
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 13:54
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Dec-2019 13:54
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP 37
 Sample ID: 35BWW12-191125
 Collection Date: 25-Nov-2019 12:35

ANALYTICAL REPORT

WorkOrder:HS19111343
 Lab ID:HS19111343-06
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C			Method:SW8260					Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 13:54
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 13:54
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:54
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Tetrachloroethene	5.8		0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Trichloroethene	0.55	J	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>100</i>			0	<i>81-118</i>	%REC	1	02-Dec-2019 13:54
<i>Surr: 4-Bromofluorobenzene</i>	<i>96.1</i>			0	<i>85-114</i>	%REC	1	02-Dec-2019 13:54
<i>Surr: Dibromofluoromethane</i>	<i>99.4</i>			0	<i>80-119</i>	%REC	1	02-Dec-2019 13:54
<i>Surr: Toluene-d8</i>	<i>94.8</i>			0	<i>89-112</i>	%REC	1	02-Dec-2019 13:54
ANIONS BY SW9056A			Method:SW9056					Analyst: KMU
Chloride	7.05		0.200	0.500	0.500	mg/L	1	26-Nov-2019 20:51
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	26-Nov-2019 20:51
Sulfate	37.1		0.200	0.500	0.500	mg/L	1	26-Nov-2019 20:51
SUBCONTRACT ANALYSIS - RSK			Method:NA					Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	13-Dec-2019 15:18
SUBCONTRACT ANALYSIS - TOC ANALYSIS			Method:NA					Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	06-Dec-2019 10:03

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP 37
 Sample ID: 35BWW05-191125
 Collection Date: 25-Nov-2019 13:35

ANALYTICAL REPORT

WorkOrder:HS19111343
 Lab ID:HS19111343-07
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 16:18
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 16:18
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Dec-2019 16:18
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 16:18
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Dec-2019 16:18
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 16:18
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Dec-2019 16:18
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP 37
 Sample ID: 35BWW05-191125
 Collection Date: 25-Nov-2019 13:35

ANALYTICAL REPORT

WorkOrder:HS19111343
 Lab ID:HS19111343-07
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 16:18
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 16:18
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 16:18
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Tetrachloroethene	1.4		0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Trichloroethene	6.0		0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>100</i>			0	<i>81-118</i>	<i>%REC</i>	<i>1</i>	<i>02-Dec-2019 16:18</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>96.6</i>			0	<i>85-114</i>	<i>%REC</i>	<i>1</i>	<i>02-Dec-2019 16:18</i>
<i>Surr: Dibromofluoromethane</i>	<i>99.9</i>			0	<i>80-119</i>	<i>%REC</i>	<i>1</i>	<i>02-Dec-2019 16:18</i>
<i>Surr: Toluene-d8</i>	<i>95.7</i>			0	<i>89-112</i>	<i>%REC</i>	<i>1</i>	<i>02-Dec-2019 16:18</i>

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP 37
 Sample ID: Trip Blank
 Collection Date: 25-Nov-2019 00:00

ANALYTICAL REPORT

WorkOrder:HS19111343
 Lab ID:HS19111343-08
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:30
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 13:30
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Dec-2019 13:30
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:30
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Dec-2019 13:30
Acetone	5.1		0.40	1.0	2.0	UG/L	1	02-Dec-2019 13:30
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Dec-2019 13:30
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant LHAAP 37
 Sample ID: Trip Blank
 Collection Date: 25-Nov-2019 00:00

ANALYTICAL REPORT

WorkOrder:HS19111343
 Lab ID:HS19111343-08
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 13:30
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 13:30
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:30
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Surr: 1,2-Dichloroethane-d4	102			0	81-118	%REC	1	02-Dec-2019 13:30
Surr: 4-Bromofluorobenzene	96.0			0	85-114	%REC	1	02-Dec-2019 13:30
Surr: Dibromofluoromethane	101			0	80-119	%REC	1	02-Dec-2019 13:30
Surr: Toluene-d8	96.1			0	89-112	%REC	1	02-Dec-2019 13:30

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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R351465 (0)		Test Name : ANIONS BY SW9056A			Matrix: Groundwater	
HS19111343-03	35BWW14-191125	25 Nov 2019 10:05			26 Nov 2019 20:18	1
HS19111343-04	35BWW23-191125	25 Nov 2019 10:55			26 Nov 2019 20:35	1
HS19111343-06	35BWW12-191125	25 Nov 2019 12:35			26 Nov 2019 20:51	1
Batch ID: R351642 (0)		Test Name : VOLATILES ORGANICS BY METHOD 8260C			Matrix: Groundwater	
HS19111343-01	35BWW07-191125	25 Nov 2019 08:35			02 Dec 2019 14:18	1
HS19111343-02	35BWW13-191125	25 Nov 2019 09:20			02 Dec 2019 14:42	1
HS19111343-03	35BWW14-191125	25 Nov 2019 10:05			02 Dec 2019 15:06	1
HS19111343-04	35BWW23-191125	25 Nov 2019 10:55			02 Dec 2019 15:30	1
HS19111343-05	35BWW24-191125	25 Nov 2019 11:45			02 Dec 2019 15:54	1
HS19111343-06	35BWW12-191125	25 Nov 2019 12:35			02 Dec 2019 13:54	1
HS19111343-07	35BWW05-191125	25 Nov 2019 13:35			02 Dec 2019 16:18	1
HS19111343-08	Trip Blank	25 Nov 2019 00:00			02 Dec 2019 13:30	1
Batch ID: R351908 (0)		Test Name : SUBCONTRACT ANALYSIS - TOC ANALYSIS			Matrix: Groundwater	
HS19111343-03	35BWW14-191125	25 Nov 2019 10:05			06 Dec 2019 10:03	1
HS19111343-04	35BWW23-191125	25 Nov 2019 10:55			06 Dec 2019 10:03	1
HS19111343-06	35BWW12-191125	25 Nov 2019 12:35			06 Dec 2019 10:03	1
Batch ID: R352477 (0)		Test Name : SUBCONTRACT ANALYSIS - RSK			Matrix: Groundwater	
HS19111343-03	35BWW14-191125	25 Nov 2019 10:05			13 Dec 2019 15:18	1
HS19111343-04	35BWW23-191125	25 Nov 2019 10:55			13 Dec 2019 15:18	1
HS19111343-06	35BWW12-191125	25 Nov 2019 12:35			13 Dec 2019 15:18	1



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MBLK	Sample ID: VBLKW-191202	Units: UG/L		Analysis Date: 02-Dec-2019 13:06					
Client ID:	Run ID: VOA6_351642	SeqNo: 5368692		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
1,1,1,2-Tetrachloroethane	0.50	1.0							U
1,1,1-Trichloroethane	0.50	1.0							U
1,1,2,2-Tetrachloroethane	0.50	1.0							U
1,1,2-Trichlor-1,2,2-trifluoroethane	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



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MBLK	Sample ID: VBLKW-191202	Units: UG/L		Analysis Date: 02-Dec-2019 13:06					
Client ID:	Run ID: VOA6_351642	SeqNo: 5368692		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromomethane	0.50	1.0							U
Carbon disulfide	1.0	2.0							U
Carbon tetrachloride	0.50	1.0							U
Chlorobenzene	0.50	1.0							U
Chloroethane	0.50	1.0							U
Chloroform	0.50	1.0							U
Chloromethane	0.50	1.0							U
cis-1,2-Dichloroethene	0.50	1.0							U
cis-1,3-Dichloropropene	0.50	1.0							U
Dibromochloromethane	0.50	1.0							U
Dibromomethane	0.50	1.0							U
Dichlorodifluoromethane	0.50	1.0							U
Ethylbenzene	0.50	1.0							U
Hexachlorobutadiene	0.50	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	50.44	1.0	50	0	101	81 - 118			
Surr: 4-Bromofluorobenzene	47.35	1.0	50	0	94.7	85 - 114			
Surr: Dibromofluoromethane	49.77	1.0	50	0	99.5	80 - 119			



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MBLK	Sample ID: VBLKW-191202	Units: UG/L		Analysis Date: 02-Dec-2019 13:06					
Client ID:	Run ID: VOA6_351642		SeqNo: 5368692		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
<i>Surr: Toluene-d8</i>	48.75	1.0	50	0	97.5	89 - 112			



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C						
LCS		Sample ID: VLCSW-191202		Units: UG/L		Analysis Date: 02-Dec-2019 12:18				
Client ID:		Run ID: VOA6_351642		SeqNo: 5368691		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	21.13	1.0	20	0	106	78 - 124				
1,1,1-Trichloroethane	21.53	1.0	20	0	108	74 - 131				
1,1,2,2-Tetrachloroethane	21.29	1.0	20	0	106	71 - 121				
1,1,2-Trichloro-1,2,2-trifluoroethane	18.46	1.0	20	0	92.3	70 - 136				
1,1,2-Trichloroethane	21.81	1.0	20	0	109	80 - 119				
1,1-Dichloroethane	21.41	1.0	20	0	107	77 - 125				
1,1-Dichloroethene	19.59	1.0	20	0	98.0	71 - 131				
1,1-Dichloropropene	20.36	1.0	20	0	102	78 - 125				
1,2,3-Trichlorobenzene	26.03	1.0	20	0	130	69 - 129				S
1,2,3-Trichloropropane	21.95	1.0	20	0	110	73 - 122				
1,2,4-Trichlorobenzene	23.73	1.0	20	0	119	69 - 130				
1,2,4-Trimethylbenzene	20.88	1.0	20	0	104	76 - 124				
1,2-Dibromo-3-chloropropane	22.5	1.0	20	0	113	62 - 128				
1,2-Dibromoethane	21.85	1.0	20	0	109	77 - 121				
1,2-Dichlorobenzene	21.23	1.0	20	0	106	80 - 119				
1,2-Dichloroethane	22.42	1.0	20	0	112	73 - 128				
1,2-Dichloropropane	20.75	1.0	20	0	104	78 - 122				
1,3,5-Trimethylbenzene	20.96	1.0	20	0	105	75 - 124				
1,3-Dichlorobenzene	21.01	1.0	20	0	105	80 - 119				
1,3-Dichloropropane	21.07	1.0	20	0	105	80 - 119				
1,4-Dichlorobenzene	21.06	1.0	20	0	105	79 - 118				
2,2-Dichloropropane	21.26	1.0	20	0	106	60 - 139				
2-Butanone	46.16	2.0	40	0	115	56 - 143				
2-Chlorotoluene	21.76	1.0	20	0	109	79 - 122				
2-Hexanone	43.24	2.0	40	0	108	57 - 139				
4-Chlorotoluene	21.23	1.0	20	0	106	78 - 122				
4-Isopropyltoluene	20.21	1.0	20	0	101	77 - 127				
4-Methyl-2-pentanone	42.89	2.0	40	0	107	67 - 130				
Acetone	41.99	2.0	40	0	105	39 - 160				
Benzene	21.68	1.0	20	0	108	79 - 120				
Bromobenzene	21.29	1.0	20	0	106	80 - 120				
Bromochloromethane	21.78	1.0	20	0	109	78 - 123				
Bromodichloromethane	21.69	1.0	20	0	108	79 - 125				
Bromoform	21.22	1.0	20	0	106	66 - 130				



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
LCS		Sample ID: VLCSW-191202		Units: UG/L		Analysis Date: 02-Dec-2019 12:18			
Client ID:		Run ID: VOA6_351642		SeqNo: 5368691		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromomethane	21.45	1.0	20	0	107	53 - 141			
Carbon disulfide	43.13	2.0	40	0	108	64 - 133			
Carbon tetrachloride	19.58	1.0	20	0	97.9	72 - 136			
Chlorobenzene	20.74	1.0	20	0	104	82 - 118			
Chloroethane	23.69	1.0	20	0	118	60 - 138			
Chloroform	21.31	1.0	20	0	107	79 - 124			
Chloromethane	15.03	1.0	20	0	75.2	50 - 139			
cis-1,2-Dichloroethene	22.65	1.0	20	0	113	78 - 123			
cis-1,3-Dichloropropene	21.43	1.0	20	0	107	75 - 124			
Dibromochloromethane	21.54	1.0	20	0	108	74 - 126			
Dibromomethane	22.07	1.0	20	0	110	79 - 123			
Dichlorodifluoromethane	21.97	1.0	20	0	110	32 - 152			
Ethylbenzene	20.76	1.0	20	0	104	79 - 121			
Hexachlorobutadiene	20.52	1.0	20	0	103	66 - 134			
Isopropylbenzene	20.55	1.0	20	0	103	72 - 131			
m,p-Xylene	41.58	2.0	40	0	104	80 - 121			
Methylene chloride	21.16	2.0	20	0	106	74 - 124			
Naphthalene	23	1.0	20	0	115	61 - 128			
n-Butylbenzene	20.94	1.0	20	0	105	75 - 128			
n-Propylbenzene	20.78	1.0	20	0	104	76 - 126			
o-Xylene	20.75	1.0	20	0	104	78 - 122			
sec-Butylbenzene	20.14	1.0	20	0	101	77 - 126			
Styrene	21.33	1.0	20	0	107	78 - 123			
tert-Butylbenzene	20.54	1.0	20	0	103	78 - 124			
Tetrachloroethene	19.73	1.0	20	0	98.7	74 - 129			
Toluene	20.96	1.0	20	0	105	80 - 121			
trans-1,2-Dichloroethene	21.6	1.0	20	0	108	75 - 124			
trans-1,3-Dichloropropene	21.44	1.0	20	0	107	73 - 127			
Trichloroethene	21.26	1.0	20	0	106	79 - 123			
Trichlorofluoromethane	20.04	1.0	20	0	100	65 - 141			
Vinyl chloride	18.65	1.0	20	0	93.3	58 - 137			
Surr: 1,2-Dichloroethane-d4	53.55	1.0	50	0	107	81 - 118			
Surr: 4-Bromofluorobenzene	49.52	1.0	50	0	99.0	85 - 114			
Surr: Dibromofluoromethane	51.23	1.0	50	0	102	80 - 119			



ALS Houston, US

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Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
LCS	Sample ID: VLCSW-191202	Units: UG/L		Analysis Date: 02-Dec-2019 12:18					
Client ID:	Run ID: VOA6_351642		SeqNo: 5368691		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
<i>Surr: Toluene-d8</i>	46.38	1.0	50	0	92.8	89 - 112			



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Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MS		Sample ID: HS19111343-06MS		Units: UG/L		Analysis Date: 02-Dec-2019 17:06			
Client ID: 35BWW12-191125		Run ID: VOA6_351642		SeqNo: 5368701		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	19.28	1.0	20	0	96.4	78 - 124			
1,1,1-Trichloroethane	20.71	1.0	20	0	104	74 - 131			
1,1,2,2-Tetrachloroethane	19.2	1.0	20	0	96.0	71 - 121			
1,1,2-Trichloro-1,2,2-trifluoroethane	18.91	1.0	20	0	94.6	70 - 136			
1,1,2-Trichloroethane	19.33	1.0	20	0	96.7	80 - 119			
1,1-Dichloroethane	20.01	1.0	20	0	100	77 - 125			
1,1-Dichloroethene	18.49	1.0	20	0	92.5	71 - 131			
1,1-Dichloropropene	19.91	1.0	20	0	99.5	78 - 125			
1,2,3-Trichlorobenzene	19.49	1.0	20	0	97.5	69 - 129			
1,2,3-Trichloropropane	19.29	1.0	20	0	96.5	73 - 122			
1,2,4-Trichlorobenzene	18.95	1.0	20	0	94.7	69 - 130			
1,2,4-Trimethylbenzene	20.13	1.0	20	0	101	76 - 124			
1,2-Dibromo-3-chloropropane	19.68	1.0	20	0	98.4	62 - 128			
1,2-Dibromoethane	19.75	1.0	20	0	98.8	77 - 121			
1,2-Dichlorobenzene	19.76	1.0	20	0	98.8	80 - 119			
1,2-Dichloroethane	20.41	1.0	20	0	102	73 - 128			
1,2-Dichloropropane	19.3	1.0	20	0	96.5	78 - 122			
1,3,5-Trimethylbenzene	20.52	1.0	20	0	103	75 - 124			
1,3-Dichlorobenzene	19.85	1.0	20	0	99.2	80 - 119			
1,3-Dichloropropane	19.02	1.0	20	0	95.1	80 - 119			
1,4-Dichlorobenzene	19.61	1.0	20	0	98.1	79 - 118			
2,2-Dichloropropane	18.97	1.0	20	0	94.8	60 - 139			
2-Butanone	38.05	2.0	40	0	95.1	56 - 143			
2-Chlorotoluene	21	1.0	20	0	105	79 - 122			
2-Hexanone	37.95	2.0	40	0	94.9	57 - 139			
4-Chlorotoluene	20.25	1.0	20	0	101	78 - 122			
4-Isopropyltoluene	20.32	1.0	20	0	102	77 - 127			
4-Methyl-2-pentanone	38.25	2.0	40	0	95.6	67 - 130			
Acetone	30.42	2.0	40	0	76.0	39 - 160			
Benzene	20.51	1.0	20	0	103	79 - 120			
Bromobenzene	19.76	1.0	20	0	98.8	80 - 120			
Bromochloromethane	19.15	1.0	20	0	95.8	78 - 123			
Bromodichloromethane	19.82	1.0	20	0	99.1	79 - 125			
Bromoform	18.84	1.0	20	0	94.2	66 - 130			



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Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MS		Sample ID: HS19111343-06MS		Units: UG/L		Analysis Date: 02-Dec-2019 17:06			
Client ID: 35BWW12-191125		Run ID: VOA6_351642		SeqNo: 5368701		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromomethane	17.01	1.0	20	0	85.0	53 - 141			
Carbon disulfide	41.67	2.0	40	0	104	64 - 133			
Carbon tetrachloride	19.93	1.0	20	0	99.7	72 - 136			
Chlorobenzene	19.13	1.0	20	0	95.6	82 - 118			
Chloroethane	17.3	1.0	20	0	86.5	60 - 138			
Chloroform	19.21	1.0	20	0	96.1	79 - 124			
Chloromethane	12.81	1.0	20	0	64.1	50 - 139			
cis-1,2-Dichloroethene	20.25	1.0	20	0	101	78 - 123			
cis-1,3-Dichloropropene	19.14	1.0	20	0	95.7	75 - 124			
Dibromochloromethane	19.32	1.0	20	0	96.6	74 - 126			
Dibromomethane	19.64	1.0	20	0	98.2	79 - 123			
Dichlorodifluoromethane	16.32	1.0	20	0	81.6	32 - 152			
Ethylbenzene	20.2	1.0	20	0	101	79 - 121			
Hexachlorobutadiene	16.84	1.0	20	0	84.2	66 - 134			
Isopropylbenzene	19.96	1.0	20	0	99.8	72 - 131			
m,p-Xylene	39.44	2.0	40	0	98.6	80 - 121			
Methylene chloride	18.79	2.0	20	0	94.0	74 - 124			
Naphthalene	20.56	1.0	20	0	103	61 - 128			
n-Butylbenzene	20.69	1.0	20	0	103	75 - 128			
n-Propylbenzene	20.87	1.0	20	0	104	76 - 126			
o-Xylene	19.38	1.0	20	0	96.9	78 - 122			
sec-Butylbenzene	20.75	1.0	20	0	104	77 - 126			
Styrene	19.48	1.0	20	0	97.4	78 - 123			
tert-Butylbenzene	20.62	1.0	20	0	103	78 - 124			
Tetrachloroethene	24.8	1.0	20	5.776	95.1	74 - 129			
Toluene	19.78	1.0	20	0	98.9	80 - 121			
trans-1,2-Dichloroethene	20.34	1.0	20	0	102	75 - 124			
trans-1,3-Dichloropropene	18.8	1.0	20	0	94.0	73 - 127			
Trichloroethene	20.37	1.0	20	0.5528	99.1	79 - 123			
Trichlorofluoromethane	19.5	1.0	20	0	97.5	65 - 141			
Vinyl chloride	16.91	1.0	20	0	84.6	58 - 137			
Surr: 1,2-Dichloroethane-d4	50.23	1.0	50	0	100	81 - 118			
Surr: 4-Bromofluorobenzene	49.94	1.0	50	0	99.9	85 - 114			
Surr: Dibromofluoromethane	49.51	1.0	50	0	99.0	80 - 119			



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MS		Sample ID: HS19111343-06MS		Units: UG/L		Analysis Date: 02-Dec-2019 17:06			
Client ID: 35BWW12-191125		Run ID: VOA6_351642		SeqNo: 5368701		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Surr: Toluene-d8	47.5	1.0	50	0	95.0	89 - 112			



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MSD		Sample ID: HS19111343-06MSD		Units: UG/L		Analysis Date: 02-Dec-2019 17:30			
Client ID: 35BWW12-191125		Run ID: VOA6_351642		SeqNo: 5368702		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	19.54	1.0	20	0	97.7	78 - 124	19.28	1.33	20
1,1,1-Trichloroethane	20.19	1.0	20	0	101	74 - 131	20.71	2.51	20
1,1,2,2-Tetrachloroethane	19.66	1.0	20	0	98.3	71 - 121	19.2	2.37	20
1,1,2-Trichlor-1,2,2-trifluoroethane	18.81	1.0	20	0	94.1	70 - 136	18.91	0.542	20
1,1,2-Trichloroethane	19.87	1.0	20	0	99.3	80 - 119	19.33	2.72	20
1,1-Dichloroethane	19.46	1.0	20	0	97.3	77 - 125	20.01	2.79	20
1,1-Dichloroethene	18.09	1.0	20	0	90.5	71 - 131	18.49	2.19	20
1,1-Dichloropropene	19.45	1.0	20	0	97.3	78 - 125	19.91	2.32	20
1,2,3-Trichlorobenzene	22.48	1.0	20	0	112	69 - 129	19.49	14.2	20
1,2,3-Trichloropropane	19.78	1.0	20	0	98.9	73 - 122	19.29	2.51	20
1,2,4-Trichlorobenzene	20.51	1.0	20	0	103	69 - 130	18.95	7.89	20
1,2,4-Trimethylbenzene	20.38	1.0	20	0	102	76 - 124	20.13	1.21	20
1,2-Dibromo-3-chloropropane	18.85	1.0	20	0	94.2	62 - 128	19.68	4.33	20
1,2-Dibromoethane	19.72	1.0	20	0	98.6	77 - 121	19.75	0.172	20
1,2-Dichlorobenzene	20.12	1.0	20	0	101	80 - 119	19.76	1.82	20
1,2-Dichloroethane	20.01	1.0	20	0	100	73 - 128	20.41	1.98	20
1,2-Dichloropropane	18.86	1.0	20	0	94.3	78 - 122	19.3	2.31	20
1,3,5-Trimethylbenzene	20.56	1.0	20	0	103	75 - 124	20.52	0.175	20
1,3-Dichlorobenzene	19.97	1.0	20	0	99.9	80 - 119	19.85	0.635	20
1,3-Dichloropropane	19.33	1.0	20	0	96.6	80 - 119	19.02	1.62	20
1,4-Dichlorobenzene	20.04	1.0	20	0	100	79 - 118	19.61	2.14	20
2,2-Dichloropropane	18.39	1.0	20	0	91.9	60 - 139	18.97	3.11	20
2-Butanone	37.85	2.0	40	0	94.6	56 - 143	38.05	0.534	20
2-Chlorotoluene	20.85	1.0	20	0	104	79 - 122	21	0.681	20
2-Hexanone	38.74	2.0	40	0	96.8	57 - 139	37.95	2.06	20
4-Chlorotoluene	20.39	1.0	20	0	102	78 - 122	20.25	0.718	20
4-Isopropyltoluene	20.67	1.0	20	0	103	77 - 127	20.32	1.71	20
4-Methyl-2-pentanone	38.82	2.0	40	0	97.1	67 - 130	38.25	1.49	20
Acetone	30.46	2.0	40	0	76.2	39 - 160	30.42	0.152	20
Benzene	19.74	1.0	20	0	98.7	79 - 120	20.51	3.78	20
Bromobenzene	19.85	1.0	20	0	99.2	80 - 120	19.76	0.412	20
Bromochloromethane	19.31	1.0	20	0	96.5	78 - 123	19.15	0.815	20
Bromodichloromethane	19.5	1.0	20	0	97.5	79 - 125	19.82	1.61	20
Bromoform	19.21	1.0	20	0	96.1	66 - 130	18.84	1.95	20



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MSD		Sample ID: HS19111343-06MSD		Units: UG/L		Analysis Date: 02-Dec-2019 17:30			
Client ID: 35BWW12-191125		Run ID: VOA6_351642		SeqNo: 5368702		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromomethane	17.31	1.0	20	0	86.6	53 - 141	17.01	1.75	20
Carbon disulfide	40.3	2.0	40	0	101	64 - 133	41.67	3.35	20
Carbon tetrachloride	19.24	1.0	20	0	96.2	72 - 136	19.93	3.54	20
Chlorobenzene	19.16	1.0	20	0	95.8	82 - 118	19.13	0.144	20
Chloroethane	17.07	1.0	20	0	85.4	60 - 138	17.3	1.32	20
Chloroform	18.8	1.0	20	0	94.0	79 - 124	19.21	2.2	20
Chloromethane	12.1	1.0	20	0	60.5	50 - 139	12.81	5.76	20
cis-1,2-Dichloroethene	19.91	1.0	20	0	99.6	78 - 123	20.25	1.68	20
cis-1,3-Dichloropropene	18.8	1.0	20	0	94.0	75 - 124	19.14	1.82	20
Dibromochloromethane	19.68	1.0	20	0	98.4	74 - 126	19.32	1.83	20
Dibromomethane	19.65	1.0	20	0	98.2	79 - 123	19.64	0.0345	20
Dichlorodifluoromethane	15.81	1.0	20	0	79.1	32 - 152	16.32	3.17	20
Ethylbenzene	19.39	1.0	20	0	96.9	79 - 121	20.2	4.08	20
Hexachlorobutadiene	17.51	1.0	20	0	87.6	66 - 134	16.84	3.89	20
Isopropylbenzene	20.02	1.0	20	0	100	72 - 131	19.96	0.349	20
m,p-Xylene	39.15	2.0	40	0	97.9	80 - 121	39.44	0.733	20
Methylene chloride	18.43	2.0	20	0	92.1	74 - 124	18.79	1.96	20
Naphthalene	20.29	1.0	20	0	101	61 - 128	20.56	1.31	20
n-Butylbenzene	21.02	1.0	20	0	105	75 - 128	20.69	1.58	20
n-Propylbenzene	20.68	1.0	20	0	103	76 - 126	20.87	0.919	20
o-Xylene	19.17	1.0	20	0	95.9	78 - 122	19.38	1.06	20
sec-Butylbenzene	20.89	1.0	20	0	104	77 - 126	20.75	0.678	20
Styrene	19.54	1.0	20	0	97.7	78 - 123	19.48	0.336	20
tert-Butylbenzene	20.91	1.0	20	0	105	78 - 124	20.62	1.43	20
Tetrachloroethene	24.62	1.0	20	5.776	94.2	74 - 129	24.8	0.736	20
Toluene	19.6	1.0	20	0	98.0	80 - 121	19.78	0.934	20
trans-1,2-Dichloroethene	19.31	1.0	20	0	96.5	75 - 124	20.34	5.2	20
trans-1,3-Dichloropropene	18.96	1.0	20	0	94.8	73 - 127	18.8	0.865	20
Trichloroethene	20.09	1.0	20	0.5528	97.7	79 - 123	20.37	1.34	20
Trichlorofluoromethane	19.26	1.0	20	0	96.3	65 - 141	19.5	1.21	20
Vinyl chloride	16.29	1.0	20	0	81.5	58 - 137	16.91	3.74	20
Surr: 1,2-Dichloroethane-d4	50.82	1.0	50	0	102	81 - 118	50.23	1.17	20
Surr: 4-Bromofluorobenzene	49.68	1.0	50	0	99.4	85 - 114	49.94	0.526	20
Surr: Dibromofluoromethane	49.82	1.0	50	0	99.6	80 - 119	49.51	0.619	20



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0)		Instrument: VOA6		Method: VOLATILES ORGANICS BY METHOD 8260C					
MSD	Sample ID: HS19111343-06MSD	Units: UG/L		Analysis Date: 02-Dec-2019 17:30					
Client ID: 35BWW12-191125	Run ID: VOA6_351642		SeqNo: 5368702		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
<i>Surr: Toluene-d8</i>	<i>48.34</i>	<i>1.0</i>	<i>50</i>	<i>0</i>	<i>96.7</i>	<i>89 - 112</i>	<i>47.5</i>	<i>1.76</i>	<i>20</i>

The following samples were analyzed in this batch:

HS19111343-01	HS19111343-02	HS19111343-03	HS19111343-04
HS19111343-05	HS19111343-06	HS19111343-07	HS19111343-08



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351465 (0)		Instrument: ICS-Integrion		Method: ANIONS BY SW9056A					
MBLK	Sample ID: WBLKW1-112619	Units: mg/L		Analysis Date: 26-Nov-2019 18:46					
Client ID:	Run ID: ICS-Integrion_351465		SeqNo: 5365056		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	0.500	0.500							U
Nitrogen, Nitrate (As N)	0.100	0.100							U
Sulfate	0.500	0.500							U

LCS	Sample ID: WLCSW1-112619	Units: mg/L		Analysis Date: 26-Nov-2019 19:02					
Client ID:	Run ID: ICS-Integrion_351465		SeqNo: 5365057		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	19.65	0.500	20	0	98.2	80 - 120			
Nitrogen, Nitrate (As N)	4.016	0.100	4	0	100	80 - 120			
Sulfate	19.3	0.500	20	0	96.5	80 - 120			

LCSD	Sample ID: WLCSDW1-112619	Units: mg/L		Analysis Date: 26-Nov-2019 19:19					
Client ID:	Run ID: ICS-Integrion_351465		SeqNo: 5365058		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	19.6	0.500	20	0	98.0	80 - 120	19.65	0.275	20
Nitrogen, Nitrate (As N)	4.004	0.100	4	0	100	80 - 120	4.016	0.302	20
Sulfate	19.24	0.500	20	0	96.2	80 - 120	19.3	0.31	20

MS	Sample ID: HS19111343-06MS	Units: mg/L		Analysis Date: 26-Nov-2019 21:08					
Client ID: 35BWW12-191125	Run ID: ICS-Integrion_351465		SeqNo: 5365062		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	16.62	0.500	10	7.049	95.7	80 - 120			
Nitrogen, Nitrate (As N)	2.024	0.100	2	0	101	80 - 120			
Sulfate	45.49	0.500	10	37.09	84.0	80 - 120			



ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351465 (0)		Instrument: ICS-Integrion		Method: ANIONS BY SW9056A					
MS		Sample ID: HS19111189-03MS		Units: mg/L		Analysis Date: 26-Nov-2019 22:48			
Client ID:		Run ID: ICS-Integrion_351465		SeqNo: 5365068		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	17.81	0.500	10	8.326	94.8	80 - 120			
Nitrogen, Nitrate (As N)	1.935	0.100	2	0.0229	95.6	80 - 120			
Sulfate	9.474	0.500	10	0.1582	93.2	80 - 120			

MSD		Sample ID: HS19111343-06MSD		Units: mg/L		Analysis Date: 26-Nov-2019 21:25			
Client ID: 35BWW12-191125		Run ID: ICS-Integrion_351465		SeqNo: 5365063		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	16.67	0.500	10	7.049	96.2	80 - 120	16.62	0.294	20
Nitrogen, Nitrate (As N)	2.036	0.100	2	0	102	80 - 120	2.024	0.591	20
Sulfate	45.88	0.500	10	37.09	87.8	80 - 120	45.49	0.842	20

MSD		Sample ID: HS19111189-03MSD		Units: mg/L		Analysis Date: 26-Nov-2019 23:04			
Client ID:		Run ID: ICS-Integrion_351465		SeqNo: 5365069		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Chloride	18.13	0.500	10	8.326	98.0	80 - 120	17.81	1.78	20
Nitrogen, Nitrate (As N)	1.988	0.100	2	0.0229	98.3	80 - 120	1.935	2.71	20
Sulfate	9.812	0.500	10	0.1582	96.5	80 - 120	9.474	3.51	20

The following samples were analyzed in this batch:

HS19111343-03	HS19111343-04	HS19111343-06
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ALS Houston, US

Date: 13-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

**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 Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program



CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	TX104704231-19-23	30-Apr-2020



ALS Houston, US

Date: 13-Dec-19

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS19111343

Date/Time Received: **26-Nov-2019 08:40**
Received by: **NDR**

Checklist completed by: Jared R. Mekan 26-Nov-2019
eSignature Date

Reviewed by: RJ Modashia 26-Nov-2019
eSignature Date

Matrices: **Water**Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	COC IDs:N/A
Samplers name present on COC?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	1.3°C / 1.3°C UC/C IR11		
Cooler(s)/Kit(s):	24403		
Date/Time sample(s) sent to storage:	11/26/2019 14:31		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☒
pH adjusted?	Yes ☐	No ☐	N/A ☒
pH adjusted by:			

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



APTIM		Page 1 of													
COC ID:		37NOV2019-1911 -ALS				TURNAROUND TIME:				RUSH:					
PROJECT/CLIENT INFO								LABORATORY				OTHER INFO			
Facility Name		Longhorn AAP				Lab Name		ALS Laboratories		Email Invoice To		Fcolnvoices@aptim.com			
Project Number		501032				Lab Contact		RJ Modashia		Email Report To		Susan.Huang@aptim.com			
Address		LHAAP-37 1203-B East Grand Avenue PMB 202				Email		RJ.Modashia@alsglobal.com		Mail Reports To		Susan Huang			
City		Marshall		State		TX		City		Houston		State		TX	
Postal Code		75670		Country		USA		Postal Code		77099		Country		USA	
Phone Number		713.243.7264				Phone Number		281.575.2279 or 281.530.5656				Shipping Company			
Project Manager		Praveen Srivastav													
SAMPLE DETAILS								ANALYSIS REQUESTED							
Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.	Sample Container and Preservatives	3-40 ml VOA/HCL	3-40 ml VOA/HCL	3-40 ml VOA/Cool to 6 deg C	2-40ml Amber/12504	1-250ml/Cool to 6 deg C	ANALYSIS
35BWW07-191125	LHAAP37				WG	11/25/19	0835	3		X					Vocs by 8160B
35BWW13-191125	LHAAP37				WG	11/25/19	0920	3		X					MER by RSK175
35BWW14-191125	LHAAP37				WG	11/25/19	1005	12		X	X	X	X	X	CO2 by RSK175
35BWW23-191125	LHAAP37				WG	11/25/19	1055	12		X	X	X	X	X	TOC by SM510C
35BWW24-191125	LHAAP37				WG	11/25/19	1145	3		X					Anions (chloride/sulfate/nitrate) by 9056
35BWW12-191125	LHAAP37				WG	11/25/19	1235	12		X	X	X	X	X	
35BWW12-191125-MS	LHAAP37				WG	11/25/19	1235	12		X	X	X	X	X	
35BWW12-191125-MSD	LHAAP37				WG	11/25/19	1235	12		X	X	X	X	X	
35BWW05-191125	LHAAP37				WG	11/25/19	1335	3		X					
TRIP BLANK	LHAAP37				W	11/25/19		2		X					

HS19111343
 Aptim Environmental & Infrastructure, Inc.
 Longhorn Army Ammunition Plant LHAAP 37


ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	Santosh Bhatia / BHATIA	11/25/19 1415	NA / ALS	11/26/19 08:40

24403 g/c - 1.3

M. A. K. 11/26/19



 ALS 10450 Stancliff Rd., Suite 210 Houston, Texas 77099 Tel. +1 281 530 5656 Fax. +1 281 530 5887	CUSTODY SEAL		Seal Broken By:
	Date: 11/25/19	Time: 11:45	 Date: 11/26/19
	Name: Scott Beesinger		
	Company: EHA		

24403

Must Deliver Next Business Day
Time and Temperature Sensitive!



24403

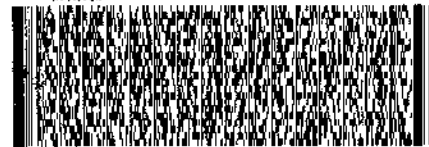
ORIGIN ID: SGRA (909) 930-6193
 SCOTT BEESINGER
 APTIM ENVIRONMENTAL & INFRASTRUCTURE
 1203-B EAST GRAND AVE
 P18 202
 MARSHALL, TX 75670
 UNITED STATES US

SHIP DATE: 01NOV19
 ACTWT: 1.00 LB MAN
 CAO: 300130/CAFE3211
 DIMS: 19x16x13 IN

TO **CLIENT SERVICES**
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099

(281) 530-5656
 REF: LHAAP 37 - RJ

RMA: BL 111111



FedEx
 Express



FedEx
 1251 0291 2504

TUE - 26 NOV 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
 TX-US
 IAH



FTY 162705 25NOV19 GGCA 56AC1/FJ38/0542





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

December 06, 2019

Analytical Report for Service Request No: K1911169

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

RE: HS19111343

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory November 27, 2019
For your reference, these analyses have been assigned our service request number **K1911169**.

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy
Project Manager





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Acronyms

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 General Chemistry



Acronyms

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



Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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



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

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjllabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdwlabservice.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/analyte is offered by that state.





Case Narrative

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





Client: ALS Environmental - US
Project: HS19111343
Sample Matrix: Ground Water

Service Request: K1911169
Date Received: 11/27/2019

CASE NARRATIVE

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

Sample Receipt:

Three ground water samples were received for analysis at ALS Environmental on 11/27/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by

Kelley Lovejoy

Date

12/06/2019





Chain of Custody

ALS Environmental—Kelso Laboratory

1317 South 13th Avenue, Kelso, WA 98626

Phone (360)577-7222 Fax (360)636-1068

www.alsglobal.com





K1911169

10450 Stancliff Rd, Ste 210

Houston, TX 77099

T: +1 281 530 5656

F: +1 281 530 5887

www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: Texas

COC ID: 12737

SUBCONTRACT TO:

ALS Environmental Kelso

1317 S. 13th Avenue

Kelso, WA 98626

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS19111343
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	HS19111343-03	35BWW14-191125	Groundwater	25 Nov 2019 10:05
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			06 Dec 2019
2.	HS19111343-04	35BWW23-191125	Groundwater	25 Nov 2019 10:55
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			06 Dec 2019
3.	HS19111343-06	35BWW12-191125	Groundwater	25 Nov 2019 12:35
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			06 Dec 2019

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

HS19111343-06 MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By: NaDate/Time: 11/26/19 18:00Received By: A. HeiderseenDate/Time: 11/27/19 0920

Cooler ID(s): _____

Temperature(s): _____

RIGHT SOLUTIONS | RIGHT PARTNER

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PC KL

Cooler Receipt and Preservation Form

Client ALS Houston Service Request K19 11/16/9
 Received: 11/27/19 Opened: 11/27/19 By: NP Unloaded: 11/27/19 By: NP

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	Tracking Number	NA	Filed
-0.6	-0.4	0.3	0.5	0.2	401		1251 0292 3074		
						12737			
						12738			

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

Votes, Discrepancies, & Resolutions: RUSH



General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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www.alsglobal.com



Analytical Report

Client: ALS Environmental - US
Project: HS19111343
Sample Matrix: Ground Water
Analysis Method: SM 5310 C
Prep Method: None

Service Request: K1911169
Date Collected: 11/25/19
Date Received: 11/27/19
Units: mg/L
Basis: NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
35BWW14-191125	K1911169-001	0.54	0.50	0.20	0.07	1	11/30/19 16:37	
35BWW23-191125	K1911169-002	0.47 J	0.50	0.20	0.07	1	11/30/19 17:05	
35BWW12-191125	K1911169-003	0.41 J	0.50	0.20	0.07	1	11/30/19 17:33	
Method Blank	K1911169-MB	ND U	0.50	0.20	0.07	1	11/30/19 14:57	



ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS19111343
Sample Matrix: Ground Water
Analysis Method: SM 5310 C
Prep Method: None

Service Request: K1911169
Date Collected: 11/25/19
Date Received: 11/27/19

Units: mg/L
Basis: NA

Replicate Sample Summary
Carbon, Total Organic

Sample Name:	Lab Code:	LOQ	LOD	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1911109-001DUP	0.50	0.20	0.07	8.47	8.42	8.45	<1	10	12/01/19
Batch QC	K1911109-002DUP	0.50	0.20	0.07	8.97	9.01	8.99	<1	10	12/01/19
Batch QC	K1911133-001DUP	0.50	0.20	0.07	2.30	2.34	2.32	2	10	11/30/19
Batch QC	K1911133-002DUP	0.50	0.20	0.07	2.28	2.27	2.28	<1	10	11/30/19
Batch QC	K1911133-003DUP	0.50	0.20	0.07	2.10	2.13	2.11	2	10	11/30/19
Batch QC	K1911133-004DUP	0.50	0.20	0.07	1.10	1.00	1.05	10	10	11/30/19
Batch QC	K1911133-005DUP	0.50	0.20	0.07	1.68	1.70	1.69	1	10	11/30/19
Batch QC	K1911133-006DUP	0.50	0.20	0.07	0.14 J	0.15 J	0.147	5	10	11/30/19
Batch QC	K1911133-007DUP	0.50	0.20	0.07	0.08 J	ND U	NC	NC	10	11/30/19
Batch QC	K1911135-001DUP	0.50	0.20	0.07	10.4	10.4	10.4	<1	10	11/30/19
Batch QC	K1911135-002DUP	0.50	0.20	0.07	0.49 J	0.42 J	0.452	15 #	10	11/30/19
35BWW14-191125	K1911169-001DUP	0.50	0.20	0.07	0.54	0.44 J	0.486	20 #	10	11/30/19
35BWW23-191125	K1911169-002DUP	0.50	0.20	0.07	0.47 J	0.46 J	0.463	3	10	11/30/19
35BWW12-191125	K1911169-003DUP	0.50	0.20	0.07	0.41 J	0.41 J	0.410	1	10	11/30/19
Batch QC	K1911171-001DUP	0.50	0.20	0.07	14.4	14.4	14.4	<1	10	11/30/19

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

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

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



QA/QC Report

Client: ALS Environmental - US
Project: HS19111343
Sample Matrix: Ground Water

Service Request: K1911169
Date Collected: 11/25/19
Date Received: 11/27/19
Date Analyzed: 11/30/19
Date Extracted: NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name: 35BWW12-191125
Lab Code: K1911169-003
Analysis Method: SM 5310 C
Prep Method: None

Units: mg/L
Basis: NA

Matrix Spike
K1911169-003MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	0.41 J	25.7	25.0	101	83-117

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

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

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

QA/QC Report

Client: ALS Environmental - US
Project: HS19111343
Sample Matrix: Ground Water

Service Request: K1911169
Date Analyzed: 11/30/19
Date Extracted: NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method: SM 5310 C
Prep Method: None

Units: mg/L
Basis: NA
Analysis Lot: 661627

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1911169-LCS	24.8	25.0	99	83-117



Client: ALS Environmental - US
Project: HS19111343

Service Request: K1911169

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic

Analysis Method: SM 5310 C

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	661627	KQ1917723-01	11/30/19 14:28	25.0	24.5	98	90-110
CCV2	661627	KQ1917723-02	11/30/19 18:30	25.0	23.9	95	90-110
CCV3	661627	KQ1917723-03	11/30/19 23:41	25.0	23.9	96	90-110
CCV4	661627	KQ1917723-04	12/01/19 02:48	25.0	23.5	94	90-110



Client: ALS Environmental - US
Project: HS19111343

Service Request: K1911169

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic

Analysis Method: SM 5310 C

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	LOQ	LOD	MDL	Result	Q
CCB1	661627	KQ1917723-05	11/30/19 14:42	0.50	0.20	0.07	ND	U
CCB2	661627	KQ1917723-06	11/30/19 18:45	0.50	0.20	0.07	ND	U
CCB3	661627	KQ1917723-07	11/30/19 23:55	0.50	0.20	0.07	ND	U
CCB4	661627	KQ1917723-08	12/01/19 03:03	0.50	0.20	0.07	ND	U





Raw Data

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General Chemistry

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Work Request # ^{Original} () K1911109, 1133, 1135, 1155, 1169, 1171, 1129
 Tier: II II II I IV II III
 Date Analyzed: 11/30/19 TOC: 661627
 Analyst: BCP Run # DOC: 661628
 Analysis: TOC/DOC

DATA QUALITY REPORT INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1. Is the method name and number correct and appropriate? ☒ Yes/no/NA
2. Holding times met for all analyses and for all samples? ☒ Yes/no/NA
3. Are calculations correct? ☒ Yes/no/NA
4. Is the reporting basis correct? (Dry Weight) ☒ Yes/no/NA
5. All quality control criteria met? ☒ Yes/no
6. Is the calibration curve correlation coefficient ≥ 0.995 ? ☒ Yes/no/NA
7. MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency? ☒ Yes/no/NA
8. Are ICVs, CCVs, and CCBs all within acceptance limits? ☒ Yes/no/NA
9. Are results for methods blanks all ND? ☒ Yes/no/NA
10. Are all QC samples within acceptance criteria?
(LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.) ☒ Yes/no/NA
11. Are all exceptions explained? ☒ Yes/no/NA
12. Have all applicable service requests been reviewed? ☒ Yes/no/NA
13. Are all samples labeled correctly? ☒ Yes/no/NA
14. Have all instructions on the service request been followed?
(e.g. Special MRLs, QC on a specific sample, Form V) ☒ Yes/no/NA
15. Are detection limits and units reported correctly? ☒ Yes/no/NA
16. Is the unused space on the benchsheet crossed out? ☒ Yes/no/NA
17. Was analysis turned in by the due date? (n-2) (If not record SR#) ☒ Yes/no/NA

COMMENTS:

10. K11169 - 1/1d APD = 20%
 K11135 - 2/2d RPD = 15% } Sample conc. < 5 times MRL

Final Approved by: Frueger

Date: 12/05/19

DQREPORT

Analytical Results Summary

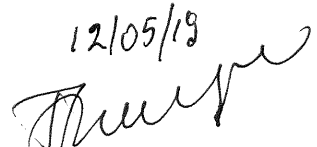
Instrument Name: K-TOC-03

Analyst: BDITZLER

Analysis Lot: 661627 Method/Testcode: SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1911109-001	Carbon, Total Organic	N/A		Water	8.47 mg/L	10 mL	8.47 mg/L	1	0.07	0.50			12/1/19 00:40:00	N	II
K1911109-002	Carbon, Total Organic	N/A		Water	8.97 mg/L	10 mL	8.97 mg/L	1	0.07	0.50			12/1/19 01:08:00	N	II
K1911133-001	Carbon, Total Organic	N/A		Water	2.30 mg/L	10 mL	2.30 mg/L	1	0.07	0.50			11/30/19 19:00:00	N	II
K1911133-002	Carbon, Total Organic	N/A		Water	2.28 mg/L	10 mL	2.28 mg/L	1	0.07	0.50			11/30/19 19:28:00	N	II
K1911133-003	Carbon, Total Organic	N/A		Water	2.10 mg/L	10 mL	2.10 mg/L	1	0.07	0.50			11/30/19 19:56:00	N	II
K1911133-004	Carbon, Total Organic	N/A		Water	1.10 mg/L	10 mL	1.10 mg/L	1	0.07	0.50			11/30/19 20:24:00	N	II
K1911133-005	Carbon, Total Organic	N/A		Water	1.68 mg/L	10 mL	1.68 mg/L	1	0.07	0.50			11/30/19 20:52:00	N	II
K1911133-006	Carbon, Total Organic	N/A		Water	0.14 mg/L	10 mL	0.14 mg/L	J 1	0.07	0.50			11/30/19 21:20:00	N	II
K1911133-007	Carbon, Total Organic	N/A		Water	0.08 mg/L	10 mL	0.08 mg/L	J 1	0.07	0.50			11/30/19 21:48:00	N	II
K1911135-001	Carbon, Total Organic	N/A		Water	10.35 mg/L	10 mL	10.4 mg/L	1	0.07	0.50			11/30/19 22:17:00	N	II
K1911135-002	Carbon, Total Organic	N/A		Water	0.49 mg/L	10 mL	0.49 mg/L	J 1	0.07	0.50			11/30/19 22:45:00	N	II
K1911155-003	Carbon, Total Organic	N/A		Drinking Water	0.95 mg/L	10 mL	0.95 mg/L	1	0.07	0.50			11/30/19 15:41:00	N	I
K1911155-005	Carbon, Total Organic	N/A		Drinking Water	0.59 mg/L	10 mL	0.59 mg/L	1	0.07	0.50			11/30/19 16:09:00	N	I
K1911169-001	Carbon, Total Organic	N/A		Ground Water	0.54 mg/L	10 mL	0.54 mg/L	1	0.07	0.50			11/30/19 16:37:00	N	IV
K1911169-002	Carbon, Total Organic	N/A		Ground Water	0.47 mg/L	10 mL	0.47 mg/L	J 1	0.07	0.50			11/30/19 17:05:00	N	IV
K1911169-003	Carbon, Total Organic	N/A		Ground Water	0.41 mg/L	10 mL	0.41 mg/L	J 1	0.07	0.50			11/30/19 17:33:00	Y	IV
K1911171-001	Carbon, Total Organic	N/A		Water	14.38 mg/L	10 mL	14.4 mg/L	1	0.07	0.50			11/30/19 23:13:00	N	II
KQ1917723-01	Carbon, Total Organic	CCV		Drinking Water	24.53 mg/L	10 mL	24.5 mg/L	1					11/30/19 14:28:00	N	I
KQ1917723-01	Carbon, Total Organic	CCV		Drinking Water	24.53 mg/L	10 mL	24.5 mg/L	1					11/30/19 14:28:00	N	I
KQ1917723-02	Carbon, Total Organic	CCV		Drinking Water	23.86 mg/L	10 mL	23.9 mg/L	1					11/30/19 18:30:00	N	I
KQ1917723-02	Carbon, Total Organic	CCV		Drinking Water	23.86 mg/L	10 mL	23.9 mg/L	1					11/30/19 18:30:00	N	I
KQ1917723-03	Carbon, Total Organic	CCV		Drinking Water	23.89 mg/L	10 mL	23.9 mg/L	1					11/30/19 23:41:00	N	I
KQ1917723-03	Carbon, Total Organic	CCV		Drinking Water	23.89 mg/L	10 mL	23.9 mg/L	1					11/30/19 23:41:00	N	I
KQ1917723-04	Carbon, Total Organic	CCV		Drinking Water	23.52 mg/L	10 mL	23.5 mg/L	1					12/1/19 02:48:00	N	I
KQ1917723-04	Carbon, Total Organic	CCV		Drinking Water	23.52 mg/L	10 mL	23.5 mg/L	1					12/1/19 02:48:00	N	I
KQ1917723-05	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L	U 1	0.07	0.50			11/30/19 14:42:00	N	I
KQ1917723-05	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L	U 1	0.07	0.50			11/30/19 14:42:00	N	I
KQ1917723-06	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L	U 1	0.07	0.50			11/30/19 18:45:00	N	I
KQ1917723-06	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L	U 1	0.07	0.50			11/30/19 18:45:00	N	I

indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

12/05/19


Analytical Results Summary

Instrument Name: K-TOC-03

Analyst: BDITZLER

Analysis Lot: 661627 Method/Testcode: 415.1/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1917723-07	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/30/19 23:55:00	N	I
KQ1917723-07	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/30/19 23:55:00	N	I
KQ1917723-08	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			12/1/19 03:03:00	N	I
KQ1917723-08	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			12/1/19 03:03:00	N	I
KQ1917723-09	Carbon, Total Organic	MB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/30/19 14:57:00	N	I
KQ1917723-09	Carbon, Total Organic	MB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/30/19 14:57:00	N	I
KQ1917723-10	Carbon, Total Organic	LCS		Drinking Water	24.77 mg/L	10 mL	24.8 mg/L	1	0.07	0.50	99		11/30/19 15:12:00	N	I
KQ1917723-10	Carbon, Total Organic	LCS		Drinking Water	24.77 mg/L	10 mL	24.8 mg/L	1	0.07	0.50	99		11/30/19 15:12:00	N	I
KQ1917723-11	Carbon, Total Organic	MS	K1911169-003	Ground Water	25.70 mg/L	10 mL	25.7 mg/L	1	0.07	0.50	101		11/30/19 18:01:00	N	IV
KQ1917723-12	Carbon, Total Organic	DUP	K1911169-001	Ground Water	0.44 mg/L	10 mL	0.44 mg/L J	1	0.07	0.50		20*	11/30/19 16:37:00	N	IV
KQ1917723-13	Carbon, Total Organic	DUP	K1911169-002	Ground Water	0.46 mg/L	10 mL	0.46 mg/L J	1	0.07	0.50		3	11/30/19 17:05:00	N	IV
KQ1917723-14	Carbon, Total Organic	DUP	K1911169-003	Ground Water	0.41 mg/L	10 mL	0.41 mg/L J	1	0.07	0.50		1	11/30/19 17:33:00	N	IV
KQ1917723-15	Carbon, Total Organic	DUP	K1911171-001	Water	14.39 mg/L	10 mL	14.4 mg/L	1	0.07	0.50		<1	11/30/19 23:13:00	N	II
KQ1917723-16	Carbon, Total Organic	DUP	K1911109-001	Water	8.42 mg/L	10 mL	8.42 mg/L	1	0.07	0.50		<1	12/1/19 00:40:00	N	II
KQ1917723-17	Carbon, Total Organic	DUP	K1911109-002	Water	9.01 mg/L	10 mL	9.01 mg/L	1	0.07	0.50		<1	12/1/19 01:08:00	N	II
KQ1917723-18	Carbon, Total Organic	DUP	K1911133-001	Water	2.34 mg/L	10 mL	2.34 mg/L	1	0.07	0.50		2	11/30/19 19:00:00	N	II
KQ1917723-19	Carbon, Total Organic	DUP	K1911133-002	Water	2.27 mg/L	10 mL	2.27 mg/L	1	0.07	0.50		<1	11/30/19 19:28:00	N	II
KQ1917723-20	Carbon, Total Organic	DUP	K1911133-003	Water	2.13 mg/L	10 mL	2.13 mg/L	1	0.07	0.50		2	11/30/19 19:56:00	N	II
KQ1917723-21	Carbon, Total Organic	DUP	K1911133-004	Water	1.00 mg/L	10 mL	1.00 mg/L	1	0.07	0.50		10	11/30/19 20:24:00	N	II
KQ1917723-22	Carbon, Total Organic	DUP	K1911133-005	Water	1.70 mg/L	10 mL	1.70 mg/L	1	0.07	0.50		1	11/30/19 20:52:00	N	II
KQ1917723-23	Carbon, Total Organic	DUP	K1911133-006	Water	0.15 mg/L	10 mL	0.15 mg/L J	1	0.07	0.50		5	11/30/19 21:20:00	N	II
KQ1917723-24	Carbon, Total Organic	DUP	K1911133-007	Water	0.07 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	11/30/19 21:48:00	N	II
KQ1917723-25	Carbon, Total Organic	DUP	K1911135-001	Water	10.42 mg/L	10 mL	10.4 mg/L	1	0.07	0.50		<1	11/30/19 22:17:00	N	II
KQ1917723-26	Carbon, Total Organic	DUP	K1911135-002	Water	0.42 mg/L	10 mL	0.42 mg/L J	1	0.07	0.50		15*	11/30/19 22:45:00	N	II
KQ1917723-27	Carbon, Total Organic	DUP	K1911155-003	Drinking Water	0.97 mg/L	10 mL	0.97 mg/L	1	0.07	0.50		2	11/30/19 15:41:00	N	I
KQ1917723-28	Carbon, Total Organic	DUP	K1911155-005	Drinking Water	0.55 mg/L	10 mL	0.55 mg/L	1	0.07	0.50		7	11/30/19 16:09:00	N	I
KQ1917723-29	Carbon, Total Organic	N/A		Water	0.41 mg/L	10 mL	0.41 mg/L J	1	0.07	0.50			12/1/19 17:33:00	N	II
KQ1917723-30	Carbon, Total Organic	MS	KQ1917723-29	Water	25.70 mg/L	10 mL	25.7 mg/L	1	0.07	0.50	101		12/1/19 18:01:00	N	II
KQ1917723-31	Carbon, Total Organic	DUP	KQ1917723-29	Water	0.41 mg/L	10 mL	0.41 mg/L J	1	0.07	0.50		1	12/1/19 17:33:00	N	II

indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

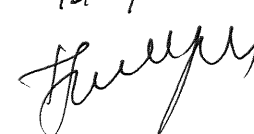
Analytical Results Summary

Instrument Name: K-TOC-03

Analyst: BDITZLER

Analysis Lot: 661628 Method/Testcode: SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1911129-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	9.41 mg/L	10 mL	9.41 mg/L	1	0.07	0.50			12/1/19 01:51:00	N	III
KQ1917724-01	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	23.89 mg/L	10 mL	23.9 mg/L	1					11/30/19 23:41:00	N	III
KQ1917724-02	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	23.52 mg/L	10 mL	23.5 mg/L	1					12/1/19 02:48:00	N	III
KQ1917724-03	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L	U 1	0.07	0.50			11/30/19 23:55:00	N	III
KQ1917724-04	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L	U 1	0.07	0.50			12/1/19 03:03:00	N	III
KQ1917724-05	Carbon, Dissolved Organic (DOC)	MB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L	U 1	0.07	0.50			12/1/19 00:10:00	N	III
KQ1917724-06	Carbon, Dissolved Organic (DOC)	LCS		Surface Water	24.36 mg/L	10 mL	24.4 mg/L	1	0.07	0.50	97		12/1/19 00:25:00	N	III
KQ1917724-07	Carbon, Dissolved Organic (DOC)	MS	K1911129-001	Surface Water	33.77 mg/L	10 mL	33.8 mg/L	1	0.07	0.50	97		12/1/19 02:19:00	N	III
KQ1917724-08	Carbon, Dissolved Organic (DOC)	DUP	K1911129-001	Surface Water	9.38 mg/L	10 mL	9.38 mg/L	1	0.07	0.50		<1	12/1/19 01:51:00	N	III

12/05/19


indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

TOC: 661627
DOC: 661628

Schedule: 11302019

Version: 2

Instrument: Fusion1

Last Saved by: Fusion1 (Fusion1)

Last Saved on: 2019/11/30 12:34 - Saturday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1911155-003.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K1911155-005.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	K1911169-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
6	Sample	K1911169-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K1911169-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K1911169-003.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
9	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K1911133-001.01 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K1911133-002.01 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1911133-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1911133-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1911133-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1911133-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1911133-007.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1911135-001.01 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1911135-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1911171-001.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K1911109-001.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1911109-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	FB 11/30/2019	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
24	Sample	K1911129-001.14 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1911129-001.14 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
26	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

12/05/19
Fusion1



Fusion Report - 11302019

Saturday, November 30, 2019 12:34 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/12/03 14:33 -
Tuesday

Report Summary Information

Company Location: Gen Chem Lab
Schedule Name: 11302019
Instrument Name: Fusion1
Report Version: 1 of 1
Report Creation by Operators (schedule version): Fusion1 (Fusion1) (v2)
Comment:

Engine 1.1.5.1
Version:
Firmware 1.2.0696
Version:
Connection: RS232 COM1

12/05/19
[Signature]

Report Results

Sample Type: Clean

From Schedule Version 2

Pos	Analysis Type	Sample ID	Start Time
♦ (clean)		Clean	2019/11/30 12:34

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	15.83	19.70	3.88	49.77	05:22
2	TC Clean	17.08	20.66	3.58	50.17	04:01
3	TC Clean	3.04	6.79	3.75	50.22	03:49
4	TC Clean	2.15	5.67	3.53	50.23	03:49

Sample Type: Clean

From Schedule Version 2

Pos	Analysis Type	Sample ID	Start Time
♦ (clean)		Clean	2019/11/30 12:56

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.11	4.57	3.46	49.66	05:11
2	TC Clean	5.78	9.44	3.67	50.19	04:03
3	TC Clean	1.99	5.49	3.50	50.15	03:47
4	TC Clean	1.77	5.41	3.63	50.13	03:43



Sample Type: Clean				From Schedule Version 2		
Pos	Analysis Type	Sample ID		Start Time		
♦ (clean)		Clean		2019/11/30 13:18		
Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.77	4.47	3.69	49.87	05:12
2	TC Clean	5.18	8.91	3.73	50.21	04:03
3	TC Clean	2.45	6.10	3.64	50.22	03:47
4	TC Clean	2.35	6.05	3.70	50.22	03:53

Sample Type: Blank (Creating v1325)				From Schedule Version 2		
Pos	Analysis Type	Sample ID		Start Time		
♦ (blank)		Reagent/Acid Blank		2019/11/30 13:39		
Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.12	4.64	3.52	49.77	05:20
2	TC Clean	5.76	9.40	3.64	50.21	04:04
3	TC Clean	2.72	6.41	3.69	50.10	03:45
4	TC Clean	2.99	6.75	3.76	50.24	03:48
5	Reagent Blank	4.87	8.70	3.83	50.17	05:04
6	Acid Blank	0.98	4.71	3.73	49.73	05:29

Sample Type: Sample

From Schedule Version 2

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
♦ D	TOC	RB	0.7886 ppm	0.0000 ppm	0.0000%	2019/11/30 14:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7886	7.8860	14.19	18.08	3.89	50.32	10:35

Dilution

1:10

Blank Contribution

(TC) 8.8410 (IC)
(v1325)

Method

CAS_salt_010711
(v4)

Calibration

CAS_salt_010711
(v30)



Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
♦ B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5312 ppm (PASS)	0.0000 ppm	0%	2019/11/30 14:28

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5312	245.3123	175.98	179.86	3.88	50.30	10:31

<u>Completion State</u>	<u>Success Action</u>	<u>Method</u>	<u>Calibration</u>	<u>STD Conc - Pos B</u>
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
♦ D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/11/30 14:42

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.74	11.63	3.88	50.32	10:32

<u>Completion State</u>	<u>Success Action</u>	<u>Method</u>	<u>Calibration</u>	<u>STD Conc - Pos D</u>
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 2

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
♦ 1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/30 14:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.00	10.63	3.63	50.33	10:33

<u>Dilution</u>	<u>Blank Contribution</u>	<u>Method</u>	<u>Calibration</u>
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 2

Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
♦ C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.7705 ppm (PASS)	0.0000 ppm	0%	2019/11/30 15:12

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
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	Type									
C	TOC	25.0 ppm	1	24.7705	247.7047	177.60	181.33	3.73	50.30	10:33
Completion State		Success Action		Method		Calibration		STD Conc - Pos C		
Success - Criteria met.		Do Nothing		CAS_salt_010711 (v4)		CAS_salt_010711 (v30)		25 ppmC		

Sample Type: Sample

From Schedule Version 2

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
2	TOC	ICS	0.0822 ppm	0.0000 ppm	0.0000%	2019/11/30 15:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0822	0.8220	9.40	12.91	3.51	50.33	10:31

Dilution

1:10

Blank Contribution(TC) 8.8410 (IC)
(v1325)**Method**CAS_salt_010711
(v4)**Calibration**CAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
3	TOC	K1911155-003.04	0.9614 ppm	0.0142 ppm	1.4700%	2019/11/30 15:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9514	9.5139	15.30	19.06	3.76	50.30	10:27
2	TOC	0.9714	9.7142	15.44	19.13	3.69	50.41	10:26

Dilution

1:10

Blank Contribution(TC) 8.8410 (IC)
(v1325)**Method**CAS_salt_010711
(v4)**Calibration**CAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
4	TOC	K1911155-005.04	0.5660 ppm	0.0273 ppm	4.8200%	2019/11/30 16:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5853	5.8530	12.81	16.60	3.78	50.33	10:26
2	TOC	0.5467	5.4670	12.55	16.21	3.66	50.39	10:26

Dilution

1:10

Blank Contribution(TC) 8.8410 (IC)
(v1325)**Method**CAS_salt_010711
(v4)**Calibration**CAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
5	TOC	K1911169-001.01	0.4857 ppm	0.0698 ppm	14.3700%	2019/11/30 16:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5351	5.3506	12.47	16.19	3.72	50.37	10:27
2	TOC	0.4364	4.3636	11.80	15.64	3.84	50.33	10:31

Dilution

1:10

Blank Contribution

(TC) 8.8410 (IC)

Method

CAS_salt_010711

Calibration

CAS_salt_010711



(v1325)

(v4)

(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
6	TOC	K1911169-002.01	0.4630 ppm	0.0090 ppm	1.9300%	2019/11/30 17:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4694	4.6936	12.03	15.85	3.83	50.37	10:26
2	TOC	0.4567	4.5669	11.94	15.65	3.71	50.32	10:27

Dilution

1:10

Blank Contribution(TC) 8.8410 (IC)
(v1325)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
7	TOC	K1911169-003.01	0.4100 ppm	0.0035 ppm	0.8600%	2019/11/30 17:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4075	4.0748	11.61	15.33	3.72	50.39	10:28
2	TOC	0.4125	4.1249	11.64	15.29	3.65	50.32	10:27

Dilution

1:10

Blank Contribution(TC) 8.8410 (IC)
(v1325)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
8	TOC	K1911169-003.01 ms	25.6972 ppm	0.0000 ppm	0.0000%	2019/11/30 18:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.6972	256.9718	183.27	187.02	3.75	50.42	10:32

Dilution

1:10

Blank Contribution(TC) 8.8410 (IC)
(v1325)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
9	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/30 18:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.52	10.31	3.79	50.33	10:35

Dilution

1:10

Blank Contribution(TC) 8.8410 (IC)
(v1325)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)**Sample Type:** Check Standard --> CCV 25 ppm

From Schedule Version 2

Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.8566 ppm	0.0000 ppm	0%	2019/11/30 18:30



	Type		(ppmC)	
♦ 12	TOC	K1911133-003.01	2.1139 ppm	0.0227 ppm 1.0700% 2019/11/30 19:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0978	20.9783	23.08	26.69	3.61	50.46	10:32
2	TOC	2.1299	21.2995	23.30	26.89	3.59	50.53	10:29

Dilution 1:10 Blank Contribution (TC) 8.8410 (IC) (v1325) Method CAS_salt_010711 (v4) Calibration CAS_salt_010711 (v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
♦ 13	TOC	K1911133-004.01	1.0496 ppm	0.0766 ppm	7.2900%	2019/11/30 20:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1037	11.0372	16.33	19.83	3.50	50.46	10:28
2	TOC	0.9954	9.9544	15.60	19.12	3.52	50.52	10:28

Dilution 1:10 Blank Contribution (TC) 8.8410 (IC) (v1325) Method CAS_salt_010711 (v4) Calibration CAS_salt_010711 (v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
♦ 14	TOC	K1911133-005.01	1.6929 ppm	0.0159 ppm	0.9400%	2019/11/30 20:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6817	16.8165	20.26	23.94	3.69	50.48	10:29
2	TOC	1.7042	17.0419	20.41	24.20	3.79	50.57	10:27

Dilution 1:10 Blank Contribution (TC) 8.8410 (IC) (v1325) Method CAS_salt_010711 (v4) Calibration CAS_salt_010711 (v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
♦ 15	TOC	K1911133-006.01	0.1466 ppm	0.0048 ppm	3.2700%	2019/11/30 21:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1432	1.4319	9.81	13.34	3.53	50.48	10:30
2	TOC	0.1500	1.4997	9.86	13.68	3.82	50.48	10:28

Dilution 1:10 Blank Contribution (TC) 8.8410 (IC) (v1325) Method CAS_salt_010711 (v4) Calibration CAS_salt_010711 (v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
♦ 16	TOC	K1911133-007.01	0.0728 ppm	0.0057 ppm	7.8700%	2019/11/30 21:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0769	0.7690	9.36	13.14	3.77	50.49	10:27
2	TOC	0.0688	0.6879	9.31	13.04	3.73	50.46	10:25



Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
17	TOC	K1911135-001.01 2x	10.3855 ppm	0.0483 ppm	0.4700%	2019/11/30 22:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.3513	103.5129	79.10	82.50	3.40	50.51	10:26
2	TOC	10.4196	104.1965	79.57	83.33	3.76	50.47	10:28

Dilution

1:10

Blank Contribution(TC) 8.8410 (IC)
(v1325)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
18	TOC	K1911135-002.01	0.4517 ppm	0.0488 ppm	10.7900%	2019/11/30 22:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4862	4.8615	12.14	15.78	3.64	50.49	10:29
2	TOC	0.4172	4.1720	11.67	15.47	3.80	50.46	10:29

Dilution

1:10

Blank Contribution(TC) 8.8410 (IC)
(v1325)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
19	TOC	K1911171-001.04	14.3854 ppm	0.0061 ppm	0.0400%	2019/11/30 23:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	14.3811	143.8109	106.46	110.10	3.65	50.50	10:28
2	TOC	14.3898	143.8978	106.52	110.29	3.78	50.47	10:26

Dilution

1:10

Blank Contribution(TC) 8.8410 (IC)
(v1325)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)**Sample Type:** Check Standard --> CCV 25 ppm

From Schedule Version 2

Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.8907 ppm (PASS)	0.0000 ppm	0%	2019/11/30 23:41

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.8907	238.9068	171.63	175.26	3.63	50.51	10:31

Completion State

Success - Criteria

Success Action

Do Nothing

Method

CAS_salt_010711

Calibration

CAS_salt_010711

STD Conc - Pos B

50 ppmC



met.

(v4)

(v30)

Sample Type: Check Standard --> CCB

From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/11/30 23:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.62	9.52	3.90	50.45	10:30

Completion State

Success - Criteria met.

Success Action

Do Nothing

Method

CAS_salt_010711 (v4)

Calibration

CAS_salt_010711 (v30)

STD Conc - Pos D

0 ppmC

Sample Type: Sample

From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2019/12/01 00:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.28	8.97	3.69	50.51	10:30

Dilution

1:10

Blank Contribution

(TC) 8.8410 (IC) (v1325)

Method

CAS_salt_010711 (v4)

Calibration

CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS

From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.3602 ppm (PASS)	0.0000 ppm	0%	2019/12/01 00:25

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.3602	243.6019	174.82	178.64	3.83	50.45	10:31

Completion State

Success - Criteria met.

Success Action

Do Nothing

Method

CAS_salt_010711 (v4)

Calibration

CAS_salt_010711 (v30)

STD Conc - Pos C

25 ppmC

Sample Type: Sample

From Schedule Version 2

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time



♦	21	TOC	K1911109-001.01 100x	8.4459 ppm	0.0398 ppm	0.4700%	2019/12/01 00:40
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Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	8.4740	84.7399	66.36	70.17	3.81	50.47	10:29
2	TOC	8.4177	84.1772	65.98	69.47	3.49	50.45	10:27

Dilution

1:10

Blank Contribution(TC) 8.8410 (IC)
(v1325)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
♦ 22	TOC	K1911109-002.01 100x	8.9941 ppm	0.0289 ppm	0.3200%	2019/12/01 01:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	8.9737	89.7370	69.75	73.68	3.93	50.45	10:27
2	TOC	9.0145	90.1451	70.03	73.73	3.69	50.41	10:30

Dilution

1:10

Blank Contribution(TC) 8.8410 (IC)
(v1325)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
♦ 23	TOC	FB 11/30/2019	0.0000 ppm	0.0000 ppm	0.0000%	2019/12/01 01:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.36	11.14	3.78	50.38	10:31

Dilution

1:10

Blank Contribution(TC) 8.8410 (IC)
(v1325)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
♦ 24	TOC	K1911129-001.14 doc	9.3973 ppm	0.0236 ppm	0.2500%	2019/12/01 01:51

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.4140	94.1404	72.74	76.41	3.67	50.40	10:31
2	TOC	9.3806	93.8060	72.52	76.31	3.79	50.34	10:26

Dilution

1:10

Blank Contribution(TC) 8.8410 (IC)
(v1325)MethodCAS_salt_010711
(v4)CalibrationCAS_salt_010711
(v30)

Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
♦ 25	TOC	K1911129-001.14 ms doc	33.7702 ppm	0.0000 ppm	0.0000%	2019/12/01 02:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	33.7702	337.7018	238.07	241.53	3.46	50.39	10:34

Dilution

1:10

Blank Contribution

(TC) 8.8410 (IC)

Method

CAS_salt_010711

Calibration

CAS_salt_010711



(v1325)			(v4)		(v30)			
Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time		
26	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/12/01 02:33		
Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.33	10.23	3.90	50.32	10:33
Dilution		Blank Contribution		Method	Calibration			
1:10		(TC) 8.8410 (IC) (v1325)		CAS_salt_010711 (v4)	CAS_salt_010711 (v30)			

Sample Type: Check Standard --> CCV 25 ppm										From Schedule Version 2
Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time	
B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.5243 ppm (PASS)	0.0000 ppm	0%	2019/12/01 02:48	
Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.5243	235.2429	169.14	172.79	3.65	50.42	10:33
<u>Completion State</u>		<u>Success Action</u>		<u>Method</u>	<u>Calibration</u>	<u>STD Conc - Pos B</u>				
Success - Criteria met.		Do Nothing		CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC				

Sample Type: Check Standard --> CCB										From Schedule Version 2
Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time	
D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/12/01 03:03	
Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.32	9.14	3.82	50.35	10:33
<u>Completion State</u>		<u>Success Action</u>		<u>Method</u>	<u>Calibration</u>	<u>STD Conc - Pos D</u>				
Success - Criteria met.		Do Nothing		CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC				

Meta Data Used in this Report



Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1324	1.3317	1.3300	0.0000	0.0000	0.0000	2019/11/26 12:29	Fusion1 (Fusion1)
v1325	1.6240	0.9840	0.0000	0.0000	0.0000	2019/11/30 14:13	Fusion1 (Fusion1)

Calibrations**Name: CAS_salt_010711 (TOC)**

Version: v30 Calibration curve formula: TOC: $y = 6.788x + 9.463$

Ver Creation: 2019/03/05 17:42 r^2 value: TOC: $r^2 = 0.99963$

Comment:

Operator: Fusion1 (Fusion1)

Basic Analysis Type TOC

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	7.8970	0.0000		2019/03/05 16:15
0.500 ppm	11.5280	0.5000		2019/03/05 16:29
1.0 ppm	14.9760	1.0000		2019/03/05 16:44
5.0 ppm	43.6500	5.0000		2019/03/05 16:58
10 ppm	79.6020	10.0000		2019/03/05 17:12
25 ppm	183.3580	25.0000		2019/03/05 17:26
50 ppm	346.3230	50.0000		2019/03/05 17:40

Methods**Name: CAS_salt_010711 (TOC)**

Version: v4 Operator: Fusion1 (Fusion1)

Ver Creation: 2019/02/21 17:57

Comment:

Parameter	Value	Advanced Parameter	Value
SampleVolume	10.0 mL	NeedleRinseVolume	5.0 ml
Dilution	1:10	VialPrimeVolume	2.0 ml
AcidVolume	0.5 ml	ICSamplePrimeVolume	2.0 ml
ReagentVolume	2.0 ml	ICSpurgeRinseVolume	12.0 ml
UVReactorPrerinse	Off	BaselineStabilizeTime	0.70 min
UVReactorPrerinseVolume	5.0	DetectorPressureFlow	150 ml/min
NumberOfUVReactorPrerinses	1	SyringeSpeedWaste	10
ICSpurgeTime	1.00 mins	SyringeSpeedAcid	7
DetectorSweepFlow	500 ml/min	SyringeSpeedReagent	7
PreSpurgeTime	2.00 mins	SyringeSpeedDIWater	7
SystemFlow	500 ml/min	NDIRPressurization	60 psig
		SyringeSpeedSampleDispense	5
		SyringeSpeedSampleAspirate	4



SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date
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Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2019/12/01 03:18

ALS Environmental

StarLIMS Run: 661627, 661628
Analysis: DOC/TOC
Method: SM 5310 C, 9060A, 415.1, 9060

CCV: 11-GEN-05-82C 50 ppm LCS: 11-GEN-05-79J 25.0 ppm

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-78M

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 11-GEN-05-82C 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 11-GEN-05-83D

21 % H3PO4: 11-GEN-05-83E

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: 16967789

Analyzed By: <i>PCD</i>	Date Analyzed: <i>11/30/19</i>
Reviewed By: <i>Frederick</i>	Date Reviewed: <i>12/05/19</i>



LABORATORY REPORT

December 13, 2019

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

RE: HS19111343

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on November 27, 2019. For your reference, these analyses have been assigned our service request number P1907270.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental


By Sue Anderson at 12:12 pm, Dec 13, 2019

For Hayden Akers
Project Manager

Client: ALS Laboratory Group
 Project: HS19111343

Service Request No: P1907270

CASE NARRATIVE

The samples were received intact under chain of custody on November 27, 2019 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

The recoveries for the matrix spike and its duplicate were outside of the DoD control limits due to matrix interference. However all quality control parameters were met with the laboratory control sample and duplicate; therefore, the data has not been significantly affected.

Methane, Ethene and Ethane Analysis

The samples were analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

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

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



ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1521096
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-006
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946
Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.		



ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Project ID: HS19111343

Service Request: P1907270

Date Received: 11/27/2019
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
35BWW14-191125	P1907270-001	Water	11/25/2019	10:05	X	X
35BWW23-191125	P1907270-002	Water	11/25/2019	10:55	X	X
35BWW12-191125	P1907270-003	Water	11/25/2019	12:35	X	X





P1907270

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

Subcontract Chain of Custody

SAMPLING STATE: Texas

COC ID: 12736

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Phone: +1 805 526 7161

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: RJ Modashia
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: RJ.Modashia@alsglobal.com
Alternate Contact: 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: HS19111343
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	HS19111343-03	35BWW14-191125	Groundwater	25 Nov 2019 10:05
	MEE + CO2, DOD IV, Equis EDD, EQuIS 5.0 - Longhorn			06 Dec 2019
2.	HS19111343-04	35BWW23-191125	Groundwater	25 Nov 2019 10:55
	MEE + CO2, DOD IV, Equis EDD, EQuIS 5.0 - Longhorn			06 Dec 2019
3.	HS19111343-06	35BWW12-191125	Groundwater	25 Nov 2019 12:35
	MEE + CO2, DOD IV, Equis EDD, EQuIS 5.0 - Longhorn			06 Dec 2019

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

HS19111343-06 MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By: NA
Received By: [Signature]
Cooler ID(s): _____

Date/Time: 11/26/19 18:00
Date/Time: 11/27/19 0930
Temperature(s): 2° WET
10

RIGHT SOLUTIONS | RIGHT PARTNER



ALS Environmental **Sample Acceptance Check Form**

Client: ALS Laboratory Group Work order: P1907270
 Project: HS19111343
 Sample(s) received on: 11/27/19 Date opened: 11/27/19 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

	<u>Yes</u>	<u>No</u>	<u>N/A</u>
1 Were sample containers properly marked with client sample ID?	☒	☐	☐
2 Did sample containers arrive in good condition?	☒	☐	☐
3 Were chain-of-custody papers used and filled out?	☒	☐	☐
4 Did sample container labels and/or tags agree with custody papers?	☒	☐	☐
5 Was sample volume received adequate for analysis?	☒	☐	☐
6 Are samples within specified holding times?	☒	☐	☐
7 Was proper temperature (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
Cooler Temperature: 2° C Blank Temperature: ° C Thermometer ID T-111 Wet Ice			
8 Were custody seals on outside of cooler/Box/Container?	☒	☐	☐
Location of seal(s)? <u>Cooler lid.</u> Sealing Lid?	☒	☐	☐
Were signature and date included?	☒	☐	☐
Were seals intact?	☒	☐	☐
9 Do containers have appropriate preservation , according to method/SOP or Client specified information?	☒	☐	☐
Is there a client indication that the submitted samples are pH preserved?	☒	☐	☐
Were VOA vials checked for presence/absence of air bubbles?	☒	☐	☐
Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it?	☐	☒	☐
10 Tubes: Are the tubes capped and intact?	☐	☐	☒
11 Badges: Are the badges properly capped and intact?	☐	☐	☒
Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1907270-001.01	40mL VOA NP		6		A	LD 12/04/2019
P1907270-001.02	40mL VOA NP				A	
P1907270-001.03	40mL VOA NP				A	
P1907270-001.04	40ml VOA HCL		2		A	LD 12/05/2019
P1907270-001.05	40ml VOA HCL				A	
P1907270-001.06	40ml VOA HCL				A	
P1907270-002.01	40mL VOA NP		6		A	LD 12/04/2019
P1907270-002.02	40mL VOA NP				A	
P1907270-002.03	40mL VOA NP				A	
P1907270-002.04	40ml VOA HCL		2		A	LD 12/05/2019
P1907270-002.05	40ml VOA HCL				A	
P1907270-002.06	40ml VOA HCL				A	
P1907270-003.01	40mL VOA NP		6		A	LD 12/04/2019
P1907270-003.02	40mL VOA NP				A	
P1907270-003.03	40mL VOA NP				A	

Explain any discrepancies: (include lab sample ID numbers): _____



ALS Environmental Sample Acceptance Check Form

Client: <u>ALS Laboratory Group</u>	Work order: <u>P1907270</u>
Project: <u>HS19111343</u>	
Sample(s) received on: 11/27/19	Date opened: 11/27/19 by: <u>ADAVID</u>

[illegible]

Explain any discrepancies: (include lab sample ID numbers):



ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: ALS Laboratory Group
Client Project ID: HS19111343

ALS Project ID: P1907270

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date(s) Collected: 11/25/19
Date Received: 11/27/19
Date Analyzed: 12/04/19

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L
35BWW14-191125	P1907270-001	0.10	31,000	1,000	860	370
35BWW23-191125	P1907270-002	0.10	69,000	1,000	860	370
35BWW12-191125	P1907270-003	0.10	73,000	1,000	860	370
Method Control Sample	P191204-MB	0.10	860	1,000	860	370

The Method Control Sample is laboratory water carried through the entire analytical process.

U = Compound was analyzed for, but not detected above the laboratory detection limit.

LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.



Data
Qualifier

U

hod.

ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY

Page 1 of 1

Client: ALS Laboratory Group**Client Sample ID:** 35BWW12-191125**Client Project ID:** HS19111343

ALS Project ID: P1907270

ALS Sample ID: P1907270-003MS

P1907270-003DMS

Test Code: RSK 175

Date Collected: 11/25/19

Instrument ID: HP5890A/GC10/TCD

Date Received: 11/27/19

Analyst: Li Donghao

Date Analyzed: 12/04/19

Matrix: Water

Volume(s) Analyzed: 0.10 ml(s)

Test Notes:

CAS #	Compound	Spike Amount	Sample	Result		% Recovery		DOD	RPD	RPD	Data
		MS / DMS	Amount	MS	DMS	MS	DMS	Acceptance			
		ug/L	ug/L	ug/L	ug/L			Limits		Limit	Qualifier
124-38-9	Carbon Dioxide	22,900	72,900	111,000	111,000	166	166	80-122	0	30	N

N = The matrix spike sample recovery is not within control limits. See case narrative.



ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: ALS Laboratory Group
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: HS19111343

ALS Project ID: P1907270
 ALS Sample ID: P191204-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/04/19
Volume(s) Analyzed: NA ml(s)

CAS #	Compound	Spike Amount	Result ₁		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS ug/L	LCS ug/L	DLCS ug/L	LCS	DLCS	Acceptance Limits			
124-38-9	Carbon Dioxide	22,900	20,200	20,000	88	87	80-122	1	12	Qualifier

₁ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.



ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: ALS Laboratory Group**Client Sample ID:** 35BWW14-191125**Client Project ID:** HS19111343

ALS Project ID: P1907270

ALS Sample ID: P1907270-001

Test Code: RSK 175**Instrument ID:** HP5890A/GC10/FID**Analyst:** Li Donghao**Matrix:** Water**Test Notes:****Date Collected:** 11/25/19**Date Received:** 11/27/19**Date Analyzed:** 12/05/19**Volume(s) Analyzed:** 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	U
74-85-1	Ethene	0.55	1.0	0.55	0.24	U
74-84-0	Ethane	0.47	0.60	0.47	0.16	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.

LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.



ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: ALS Laboratory Group**Client Sample ID:** 35BWW23-191125**Client Project ID:** HS19111343

ALS Project ID: P1907270

ALS Sample ID: P1907270-002

Test Code: RSK 175**Instrument ID:** HP5890A/GC10/FID**Analyst:** Li Donghao**Matrix:** Water**Test Notes:****Date Collected:** 11/25/19**Date Received:** 11/27/19**Date Analyzed:** 12/05/19**Volume(s) Analyzed:** 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	U
74-85-1	Ethene	0.55	1.0	0.55	0.24	U
74-84-0	Ethane	0.47	0.60	0.47	0.16	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.

LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.



ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: ALS Laboratory Group**Client Sample ID:** 35BWW12-191125**Client Project ID:** HS19111343

ALS Project ID: P1907270

ALS Sample ID: P1907270-003

Test Code: RSK 175**Instrument ID:** HP5890A/GC10/FID**Analyst:** Li Donghao**Matrix:** Water**Test Notes:****Date Collected:** 11/25/19**Date Received:** 11/27/19**Date Analyzed:** 12/05/19**Volume(s) Analyzed:** 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	U
74-85-1	Ethene	0.55	1.0	0.55	0.24	U
74-84-0	Ethane	0.47	0.60	0.47	0.16	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.

LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.



ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: ALS Laboratory Group
Client Sample ID: Method Control Sample
Client Project ID: HS19111343

ALS Project ID: P1907270
ALS Sample ID: P191205-MB

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/05/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	U
74-85-1	Ethene	0.55	1.0	0.55	0.24	U
74-84-0	Ethane	0.47	0.60	0.47	0.16	U

The Method Control Sample is laboratory water carried through the entire analytical process.

U = Compound was analyzed for, but not detected above the laboratory detection limit.

LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.



ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY

Page 1 of 1

Client: ALS Laboratory Group**Client Sample ID:** 35BWW12-191125**Client Project ID:** HS19111343

ALS Project ID: P1907270

ALS Sample ID: P1907270-003MS

P1907270-003DMS

Test Code: RSK 175

Date Collected: 11/25/19

Instrument ID: HP5890A/GC10/FID

Date Received: 11/27/19

Analyst: Li Donghao

Date Analyzed: 12/5/19

Matrix: Water

Volume(s) Analyzed: 0.10 ml(s)

Test Notes:

CAS #	Compound	Spike Amount	Sample	Result		% Recovery		DOD	RPD	RPD	Data
		MS / DMS	Amount	MS	DMS	MS	DMS	Acceptance			
		µg/L	µg/L	µg/L	µg/L			Limits		Limit	Qualifier
74-82-8	Methane	2.52	0.385	3.05	3.01	106	104	73-125	2	30	
74-85-1	Ethene	4.40	ND	4.58	4.53	104	103	72-133	1	30	
74-84-0	Ethane	4.72	ND	4.49	4.49	95	95	74-131	0	30	



ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: ALS Laboratory Group
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: HS19111343

ALS Project ID: P1907270
 ALS Sample ID: P191205-LCS
 P191205-DLCS

Test Code: RSK 175
 Instrument ID: HP5890A/GC10/FID
 Analyst: Li Donghao
 Matrix: Water
 Test Notes:

Date Collected: NA
 Date Received: NA
 Date Analyzed: 12/05/19
 Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount	Result ₁		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS µg/L	LCS µg/L	DLCS µg/L	LCS	DLCS	Acceptance Limits			
74-82-8	Methane	2.52	2.62	2.43	104	96	73-125	8	26	
74-85-1	Ethene	4.40	4.68	4.71	106	107	72-133	0.9	11	
74-84-0	Ethane	4.72	4.78	4.79	101	101	74-131	0	10	

₁ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:53:58
Operator : LD
Sample : P1907270-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 13:31:14 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.896	577259	0.121	ppm
2) Carbon monoxide	1.896	577259	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
- 4) Carbon dioxide	5.978	331311	1411.462	ppm
6) Methane (FID)	0.000	0	N.D.	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

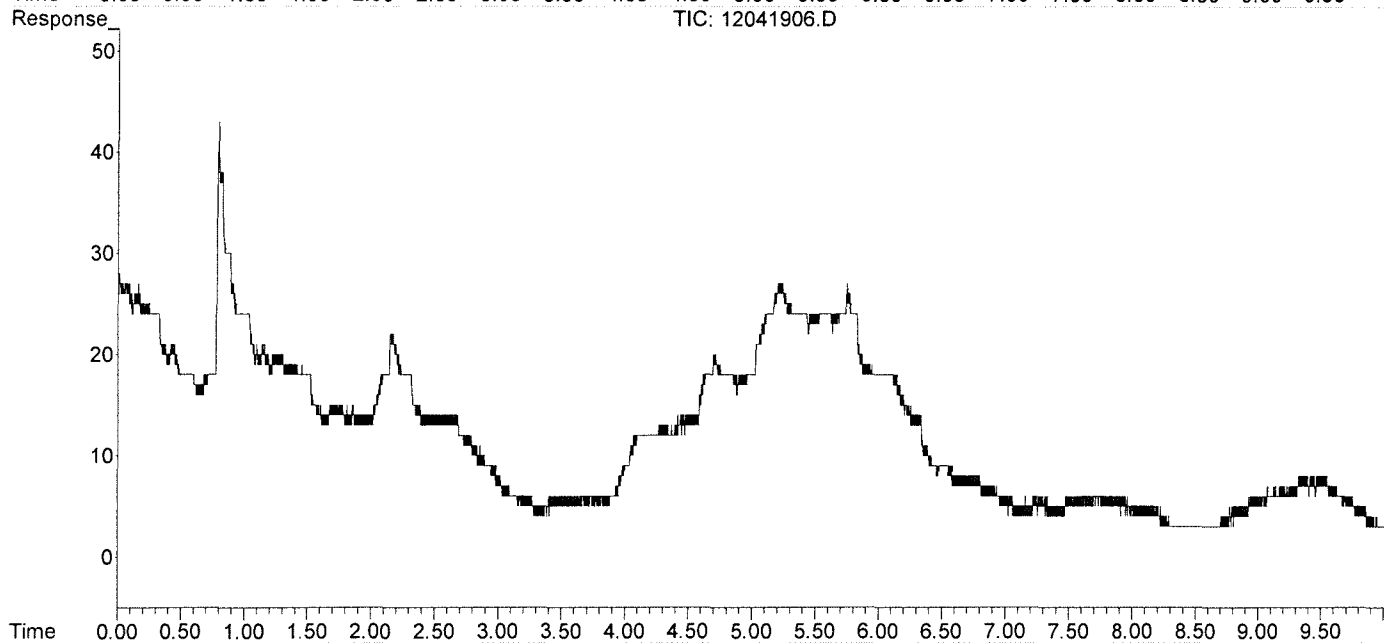
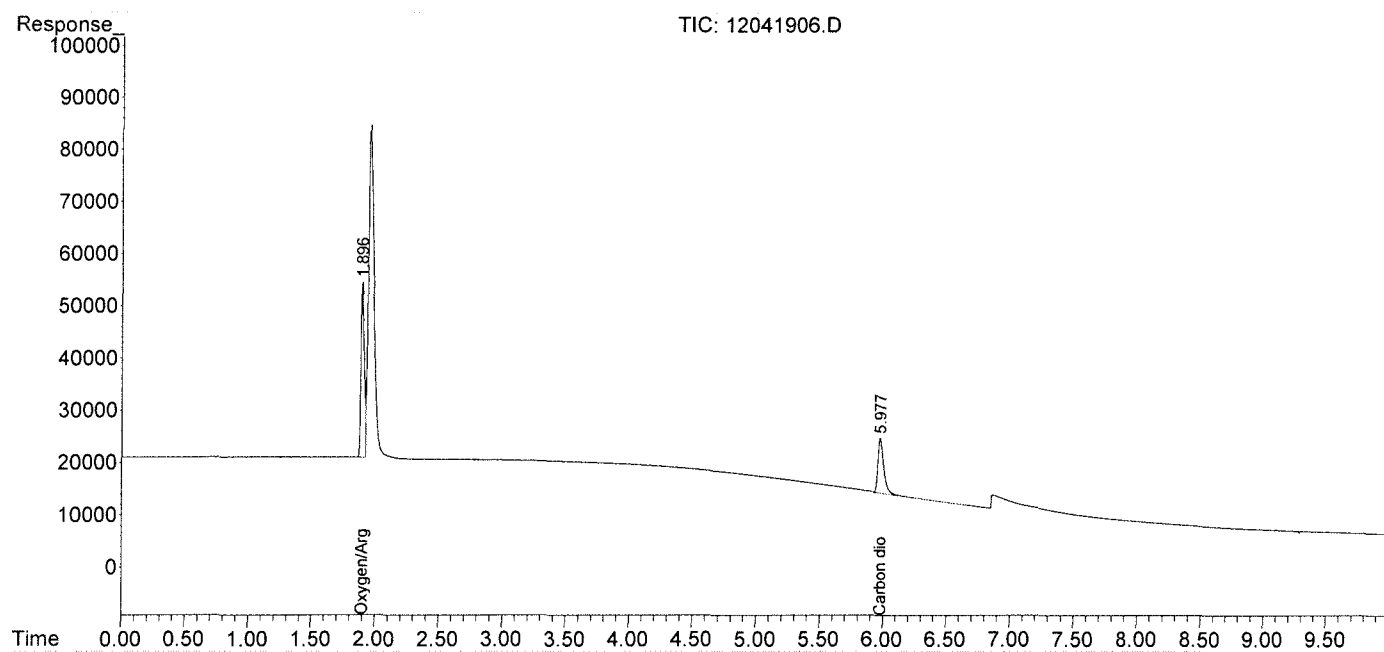
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:53:58
Operator : LD
Sample : P1907270-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 13:31:14 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 12:10:45
Operator : LD
Sample : P1907270-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 13:31:26 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.891	609002	0.128	ppm
2) Carbon monoxide	1.891	609002	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	5.965	742865	3164.775	ppm
6) Methane (FID)	0.000	0	N.D.	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

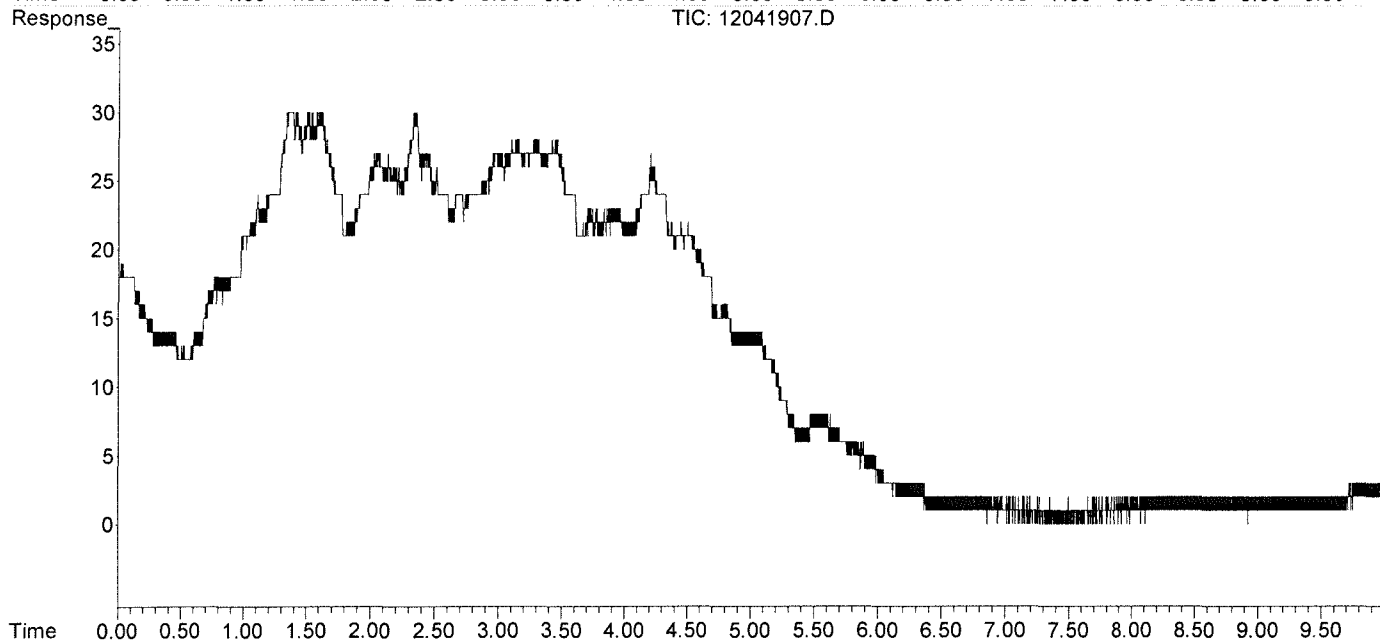
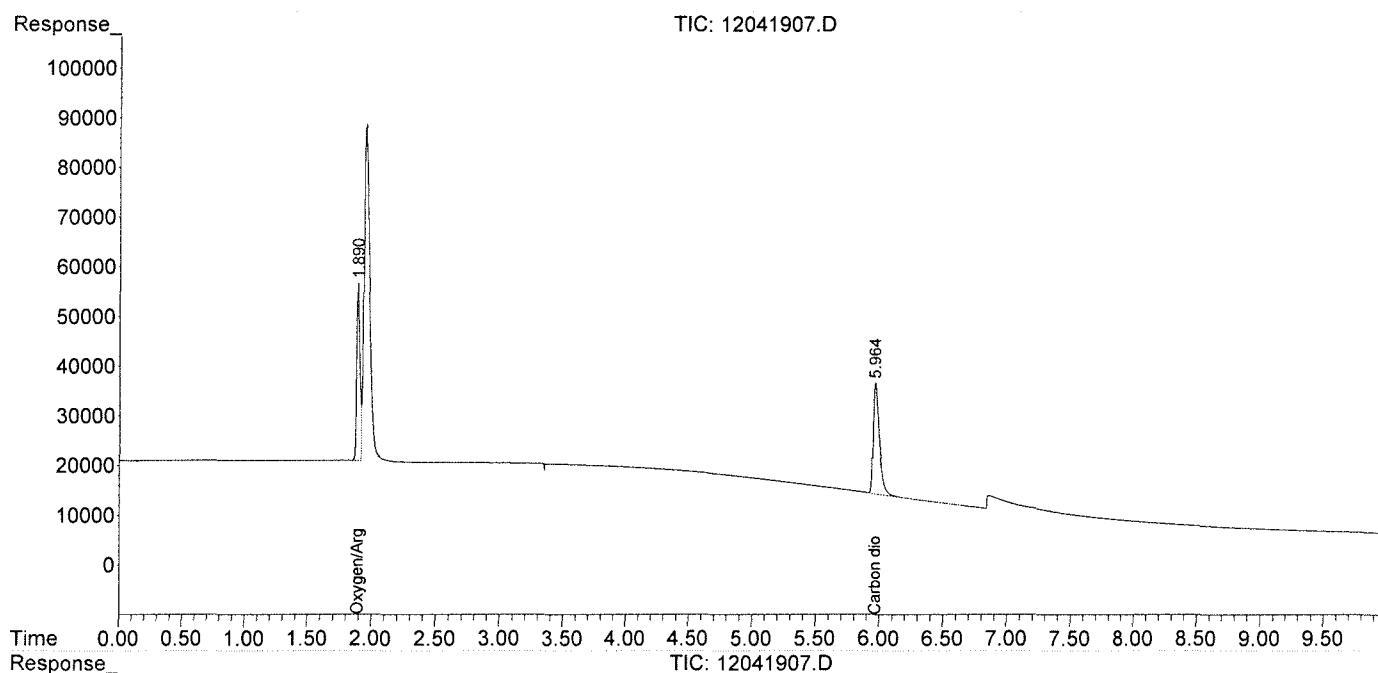
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 12:10:45
Operator : LD
Sample : P1907270-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 13:31:26 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 12:24:18
Operator : LD
Sample : P1907270-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 12:50:50 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.895	535237	0.112	ppm
2) Carbon monoxide	1.895	535237	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	5.963	783659	3338.567	ppm
6) Methane (FID)	0.000	0	N.D.	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

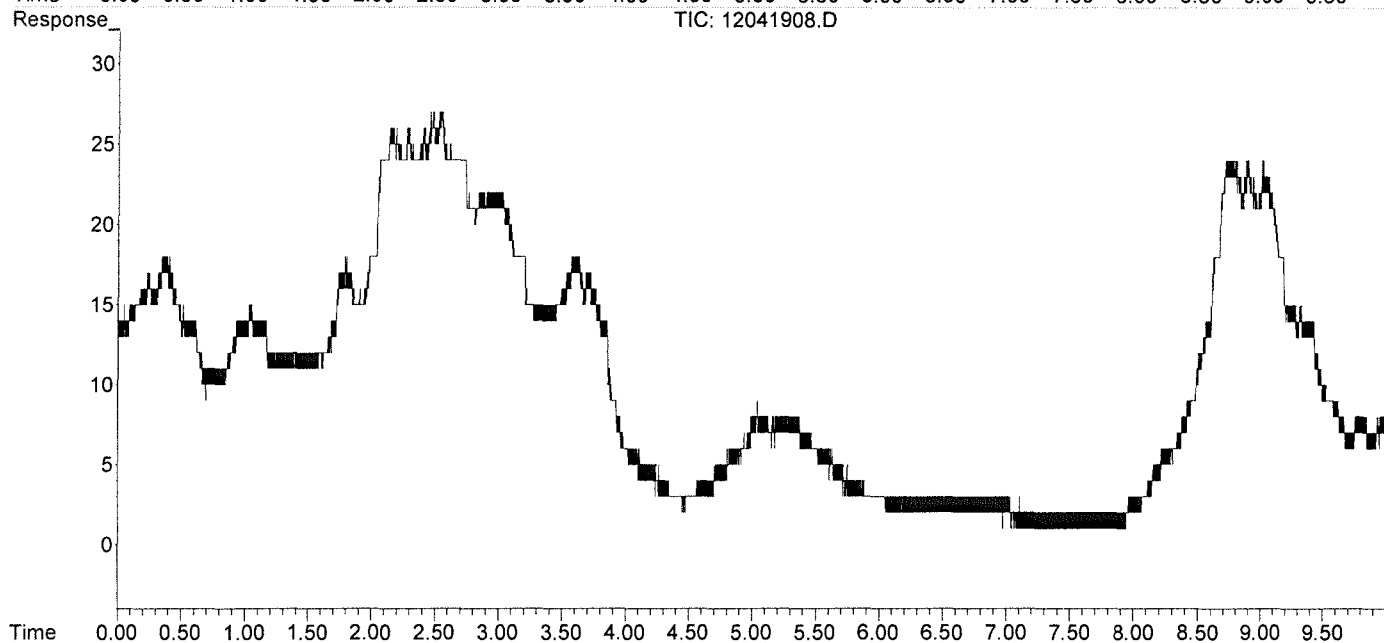
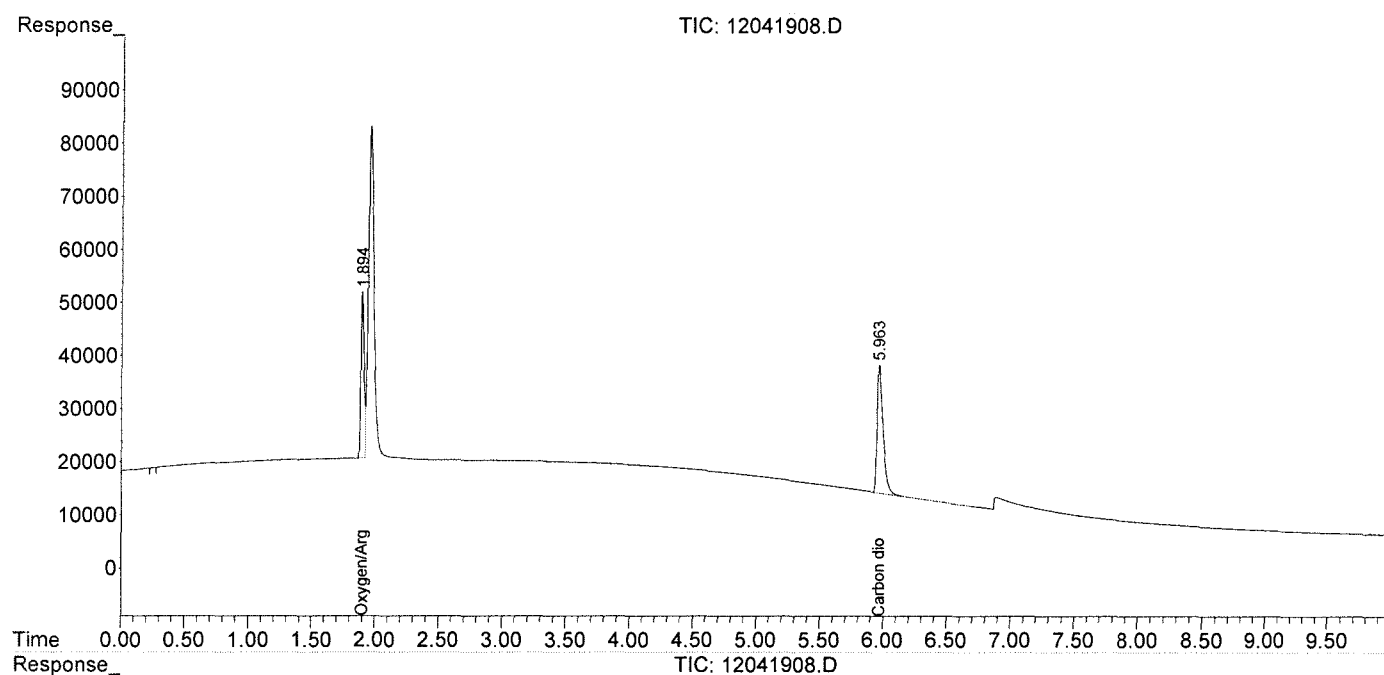
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 12:24:18
Operator : LD
Sample : P1907270-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 12:50:50 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:10:34
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:51:53 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.898	719973	0.151	ppm
2) Carbon monoxide	1.898	719973	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	0.000	0	N.D.	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

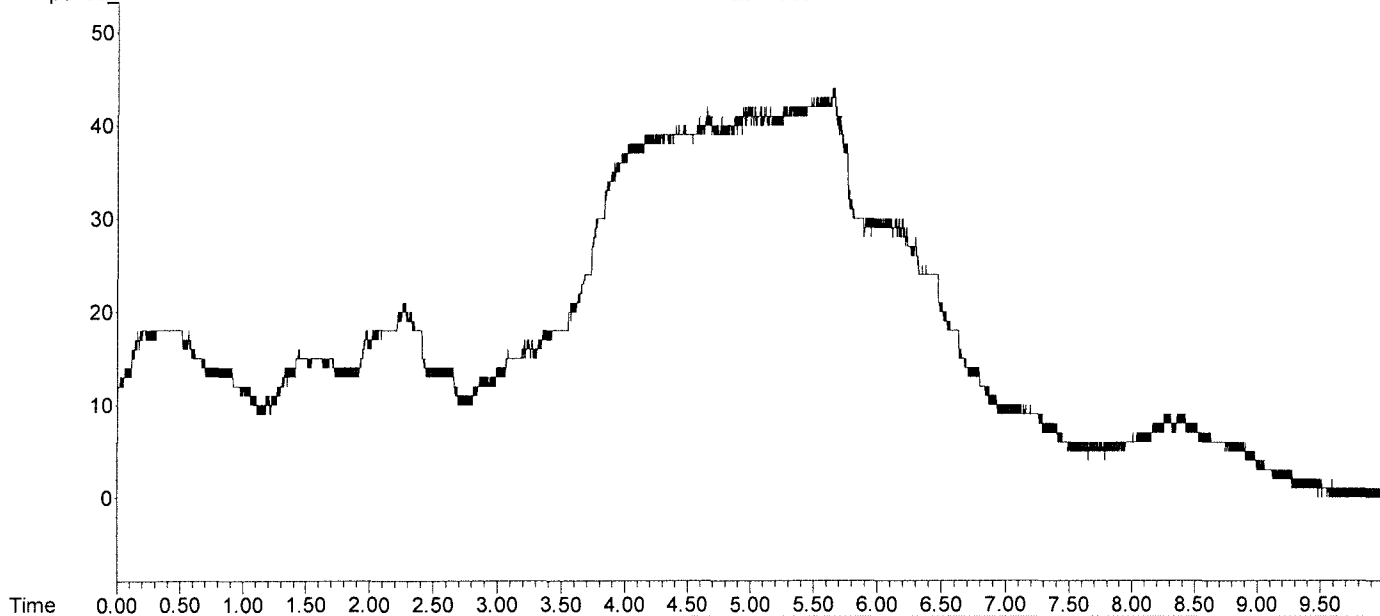
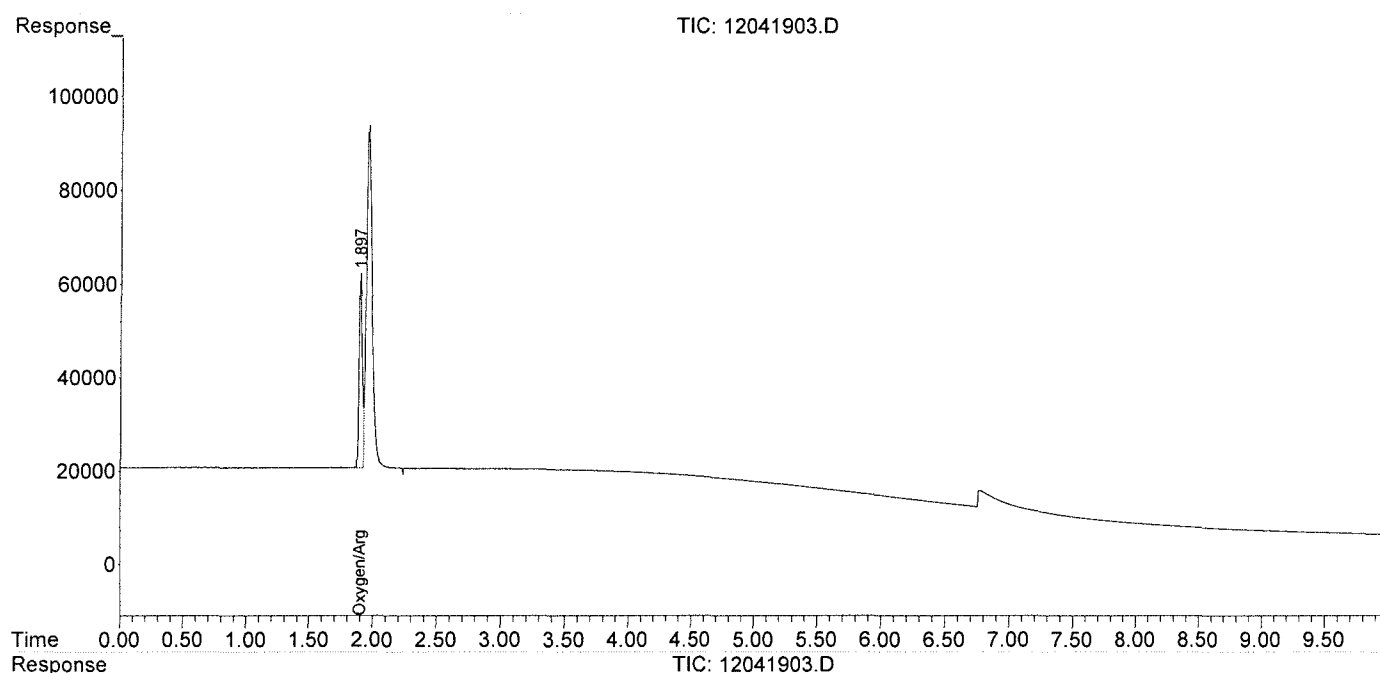
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:10:34
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:51:53 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 12:37:18
Operator : LD
Sample : P1907270-003 MS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 12:48:13 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.882	2468750	0.519 ppm
2) Carbon monoxide	1.882	2468750	N.D. ppm
3) Methane (TCD)	4.078f	515842	54544.048 ppm
4) Carbon dioxide	5.957	1193756	5085.675 ppm
6) Methane (FID)	0.000	0	N.D. ppm
7) Ethylene	0.000	0	N.D. ppm
8) Ethane	0.000	0	N.D. ppm
9) Propylene	0.000	0	N.D. ppm
10) Propane	0.000	0	N.D. ppm
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	0.000	0	N.D. ppm
13) n-Butane	0.000	0	N.D. ppm

(f)=RT Delta > 1/2 Window

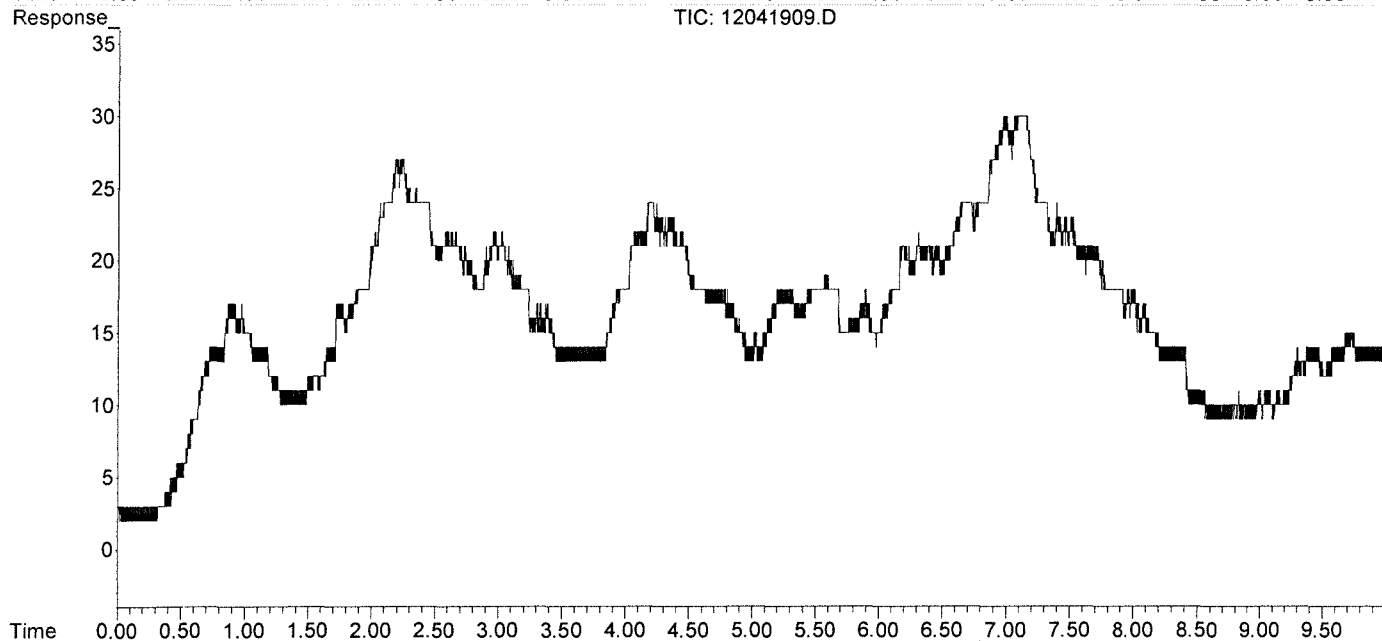
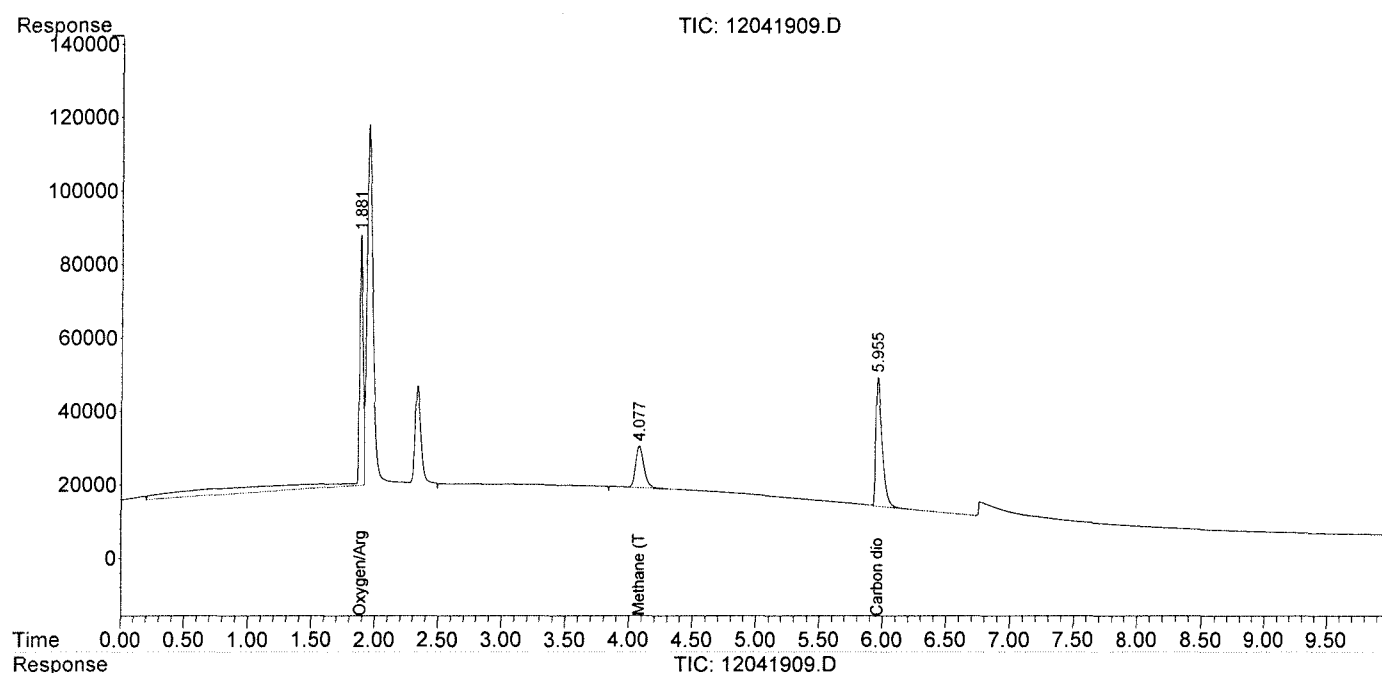
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 12:37:18
Operator : LD
Sample : P1907270-003 MS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 12:48:13 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 12:52:16
Operator : LD
Sample : P1907270-003 MSD ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 13:02:47 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.879	1212521	0.255 ppm
2) Carbon monoxide	1.879	1212521	N.D. ppm
3) Methane (TCD)	4.073f	533632	56425.130 ppm
4) Carbon dioxide	5.955	1194087	5087.082 ppm
6) Methane (FID)	0.000	0	N.D. ppm
7) Ethylene	0.000	0	N.D. ppm
8) Ethane	0.000	0	N.D. ppm
9) Propylene	0.000	0	N.D. ppm
10) Propane	0.000	0	N.D. ppm
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	0.000	0	N.D. ppm
13) n-Butane	0.000	0	N.D. ppm

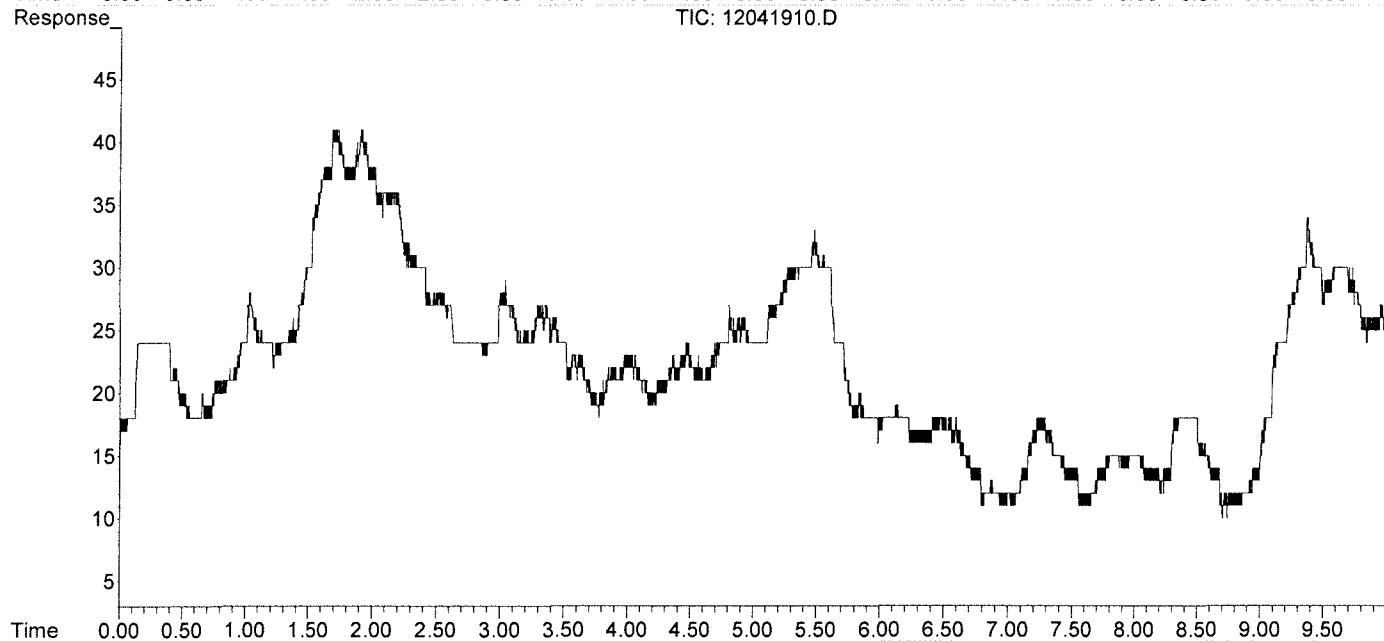
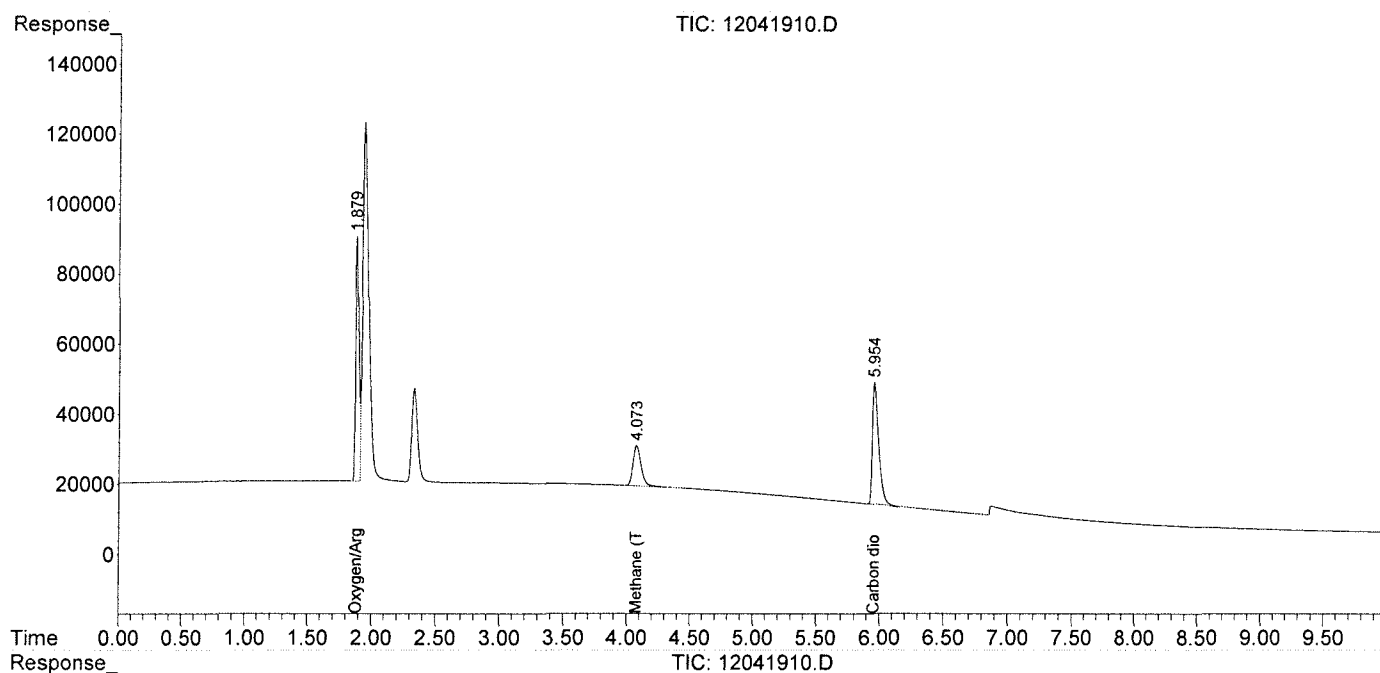
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 12:52:16
Operator : LD
Sample : P1907270-003 MSD ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 13:02:47 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
 Data File : 12041904.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 04-Dec-2019, 11:24:26
 Operator : LD
 Sample : LCS S32-08141901
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Dec 04 11:52:02 2019
 Quant Method : I:\GC10\METHODS\RS082817_CO2.M
 Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 QLast Update : Tue Aug 29 16:13:13 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.882	1396443	0.293 ppm
2) Carbon monoxide	1.882	1396443	N.D. ppm
3) Methane (TCD)	4.083f	549817	58136.484 ppm
4) Carbon dioxide	5.986	217604	927.044 ppm m
6) Methane (FID)	0.000	0	N.D. ppm
7) Ethylene	0.000	0	N.D. ppm
8) Ethane	0.000	0	N.D. ppm
9) Propylene	0.000	0	N.D. ppm
10) Propane	0.000	0	N.D. ppm
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	0.000	0	N.D. ppm
13) n-Butane	0.000	0	N.D. ppm

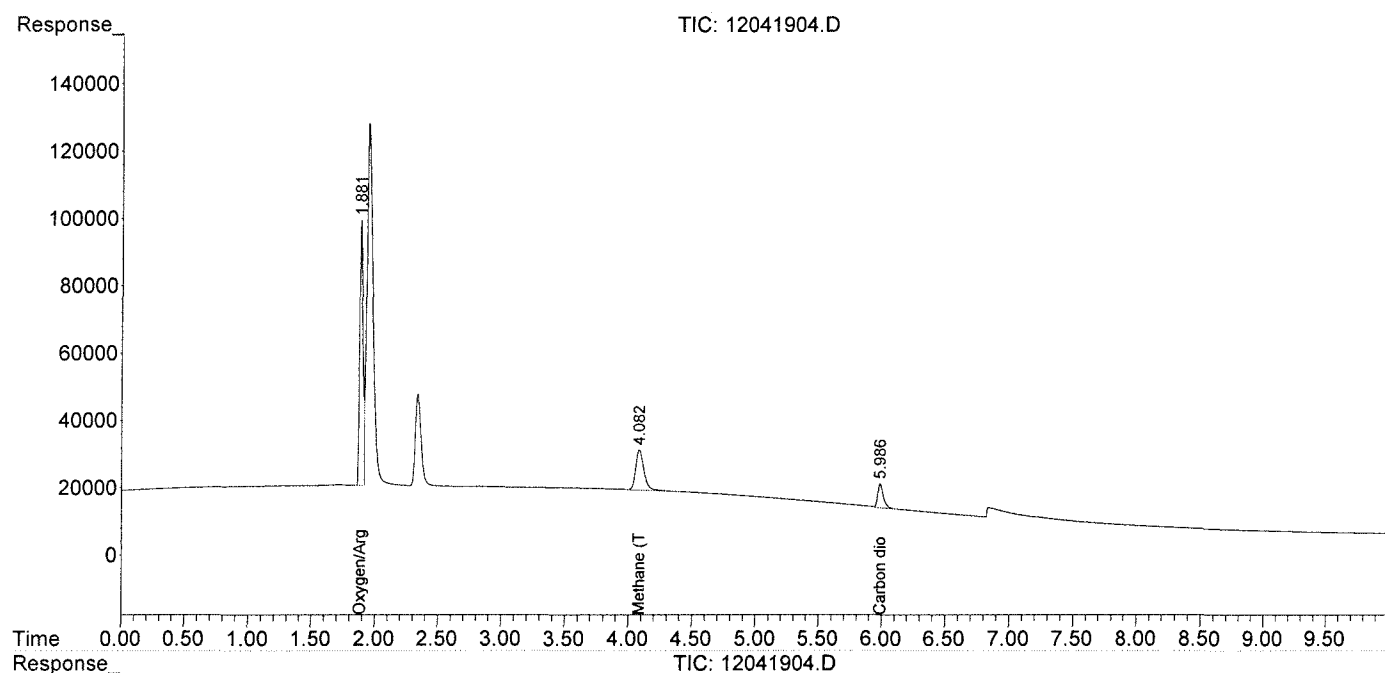
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:24:26
Operator : LD
Sample : LCS S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:52:02 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

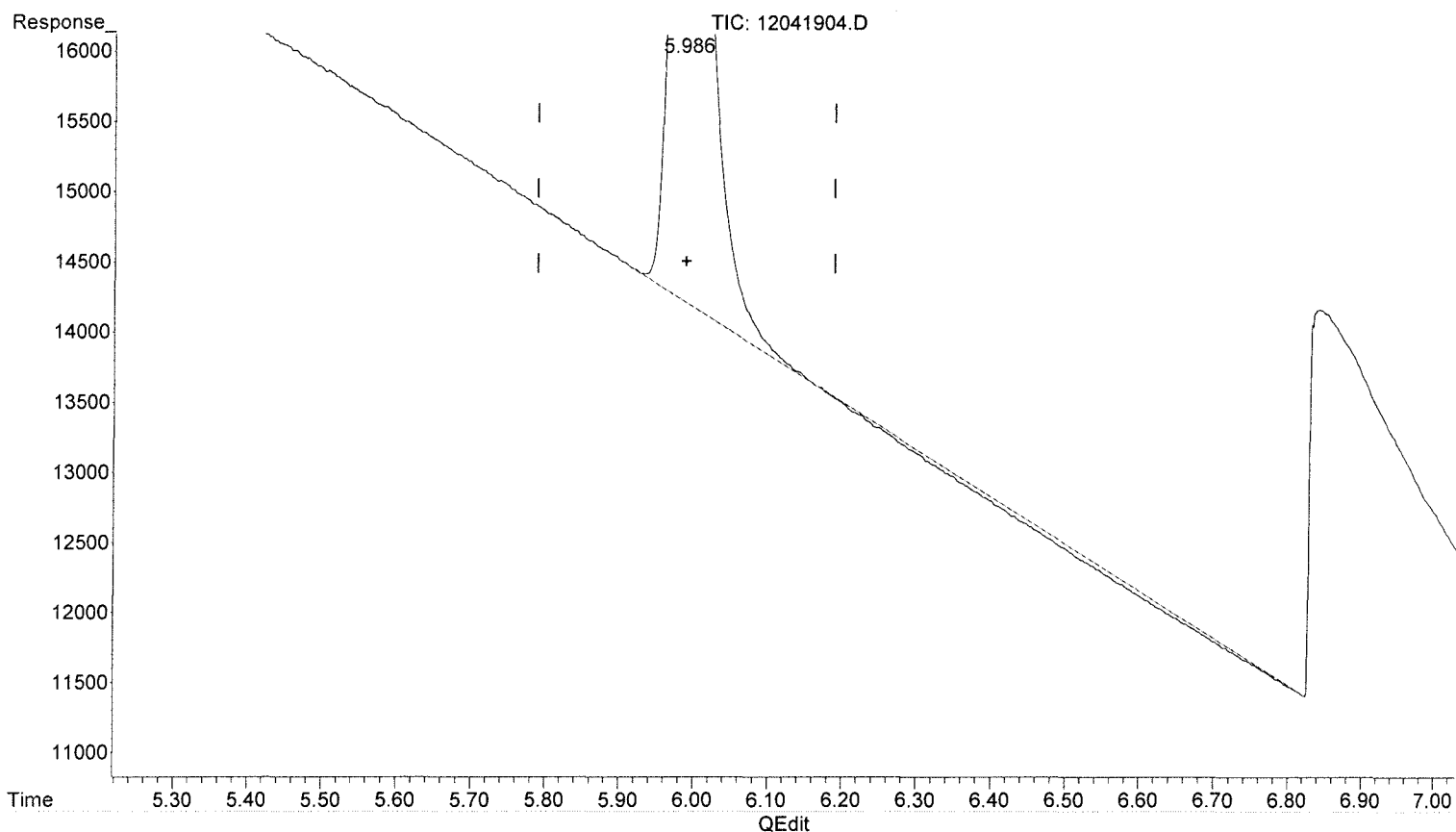
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:24:26
Operator : LD
Sample : LCS S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:52:02 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.986min 889.944 ppm

response 208896

(+) = Expected Retention Time

RS082817_CO2.M Wed Dec 04 13:30:37 2019

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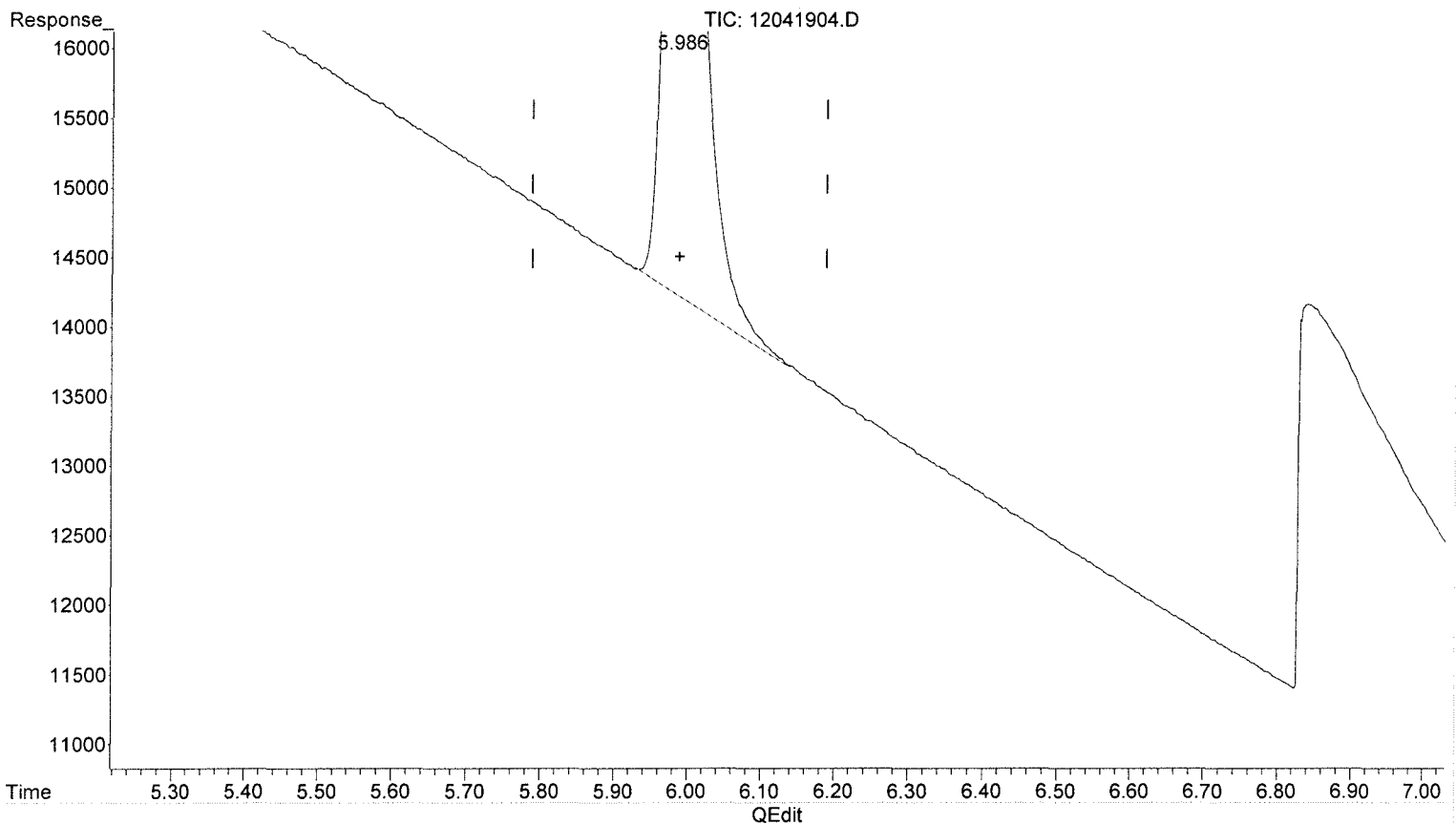
Page: 1



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:24:26
Operator : LD
Sample : LCS S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:52:02 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.986min 927.044 ppm m

response 217604

Wm
12/4/19

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:37:21
Operator : LD
Sample : LCSD S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:52:20 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.877	1583116	0.333 ppm
2) Carbon monoxide	1.877	1583116	N.D. ppm
3) Methane (TCD)	4.084f	530004	56041.505 ppm
4) Carbon dioxide	5.987	214802	915.106 ppm m
6) Methane (FID)	0.000	0	N.D. ppm
7) Ethylene	0.000	0	N.D. ppm
8) Ethane	0.000	0	N.D. ppm
9) Propylene	0.000	0	N.D. ppm
10) Propane	0.000	0	N.D. ppm
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	0.000	0	N.D. ppm
13) n-Butane	0.000	0	N.D. ppm

(f)=RT Delta > 1/2 Window

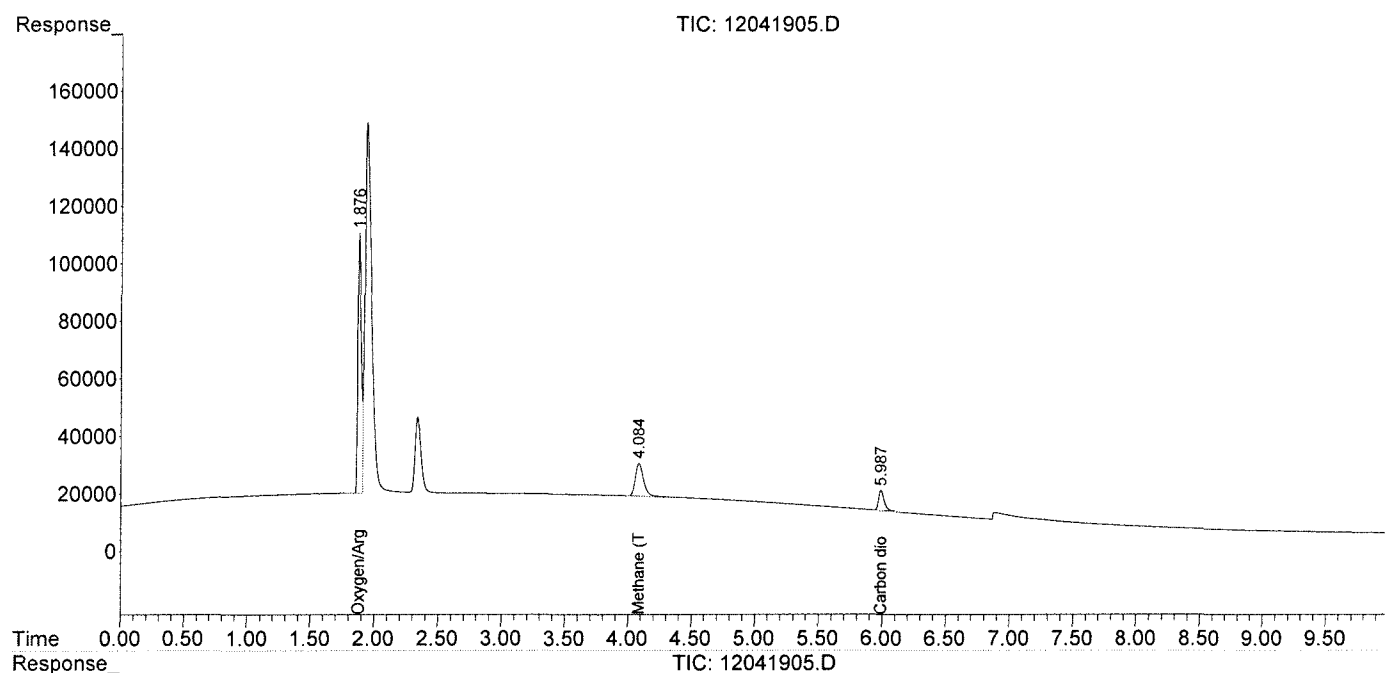
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:37:21
Operator : LD
Sample : LCSD S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:52:20 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

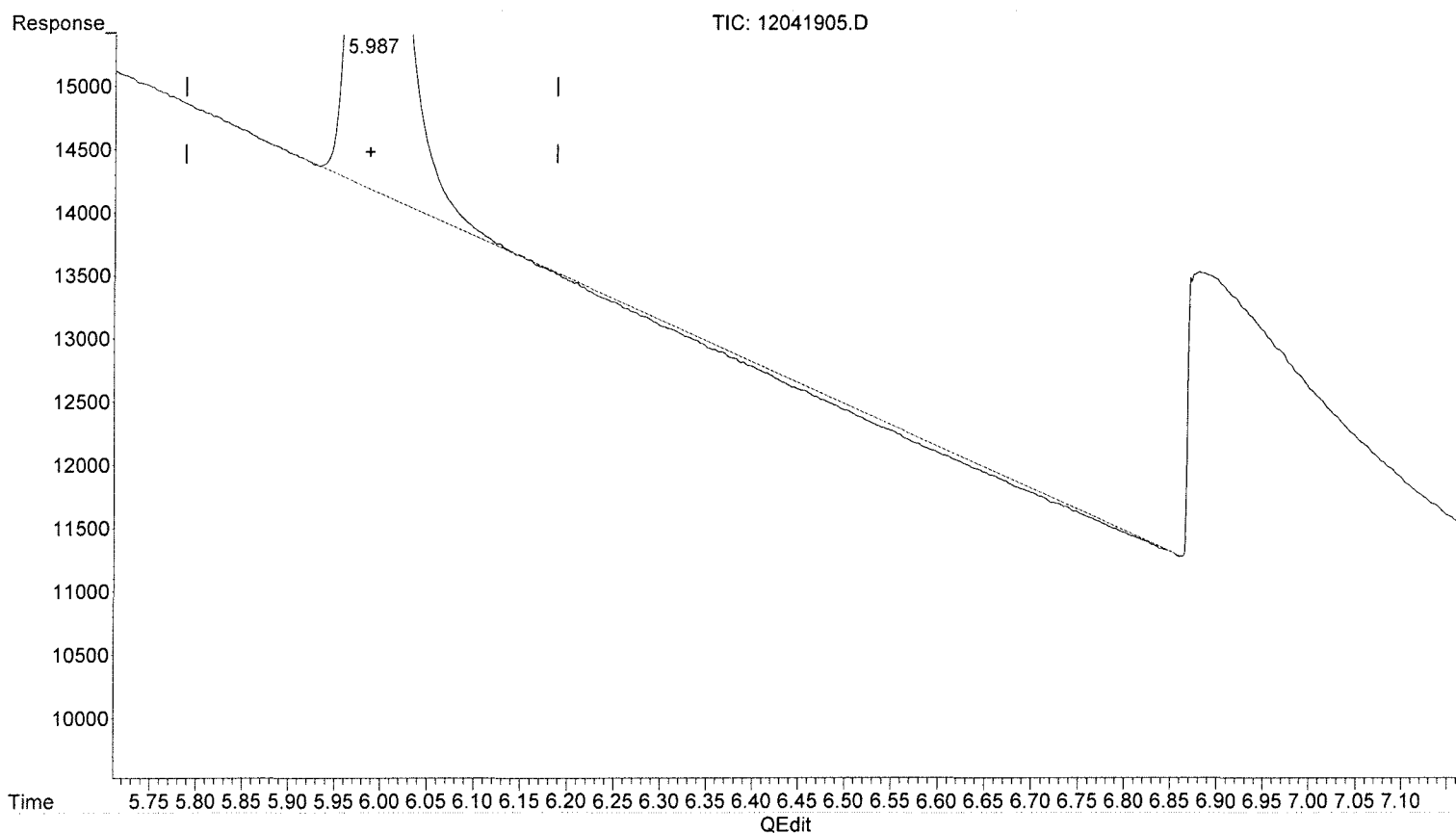
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:37:21
Operator : LD
Sample : LCSD S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:52:20 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.988min 855.525 ppm

response 200817

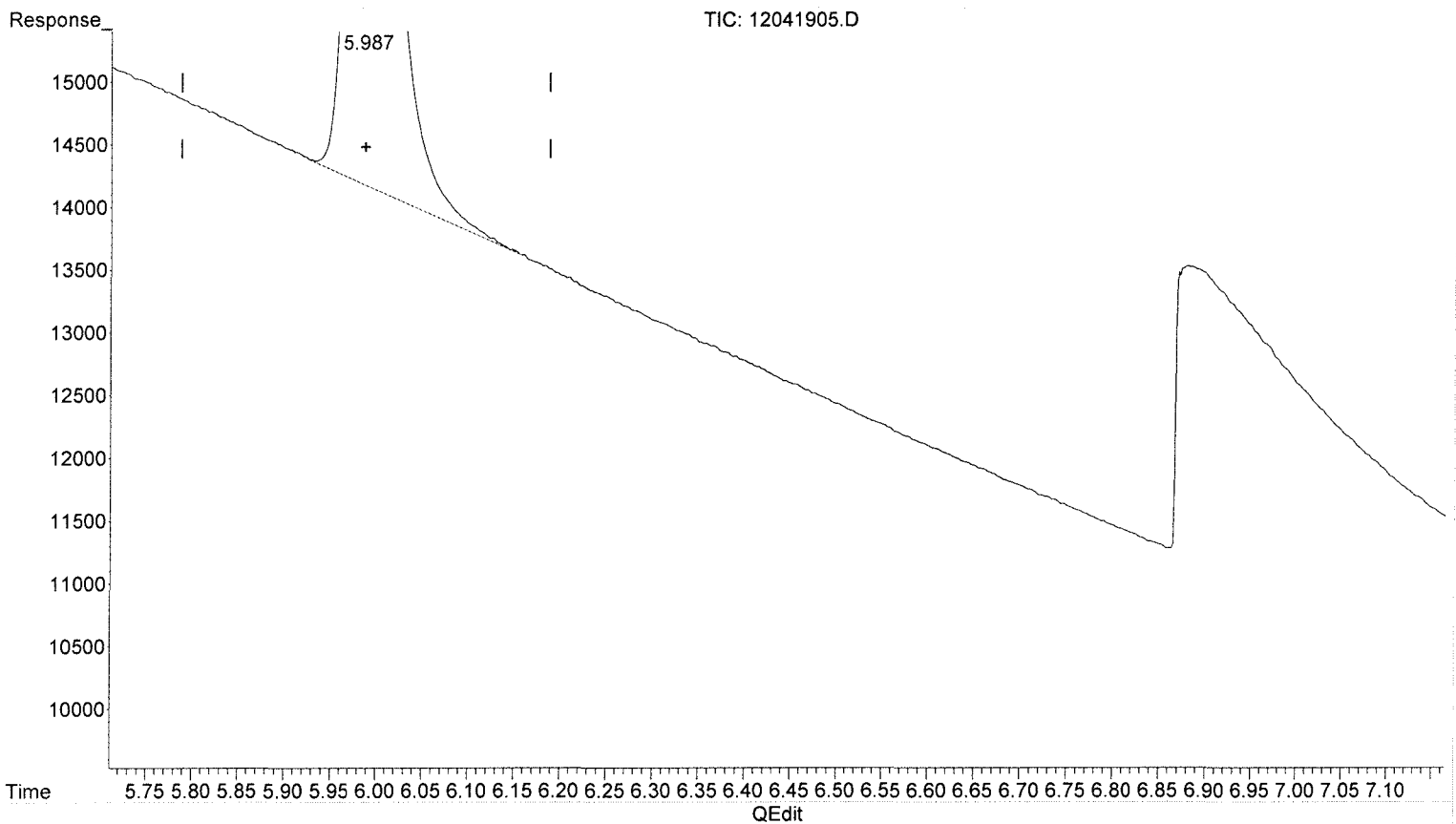


Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:37:21
Operator : LD
Sample : LCSD S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:52:20 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

LD
BLL
12/04

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.987min 915.106 ppm m

response 214802

WHL 12/4/19

Method Path : I:\GC10\METHODS\
 Method File : RS082817_CO2.M
 Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 Last Update : Tue Aug 29 16:13:13 2017
 Response Via : Initial Calibration

Calibration Files

1	=08291715.D	2	=08291716.D	3	=08291717.D
4	=08291719.D	5	=08291720.D	6	=08291721.D

	Compound	1	2	3	4	5	6	Avg	%RSD
1)	Oxygen/Argon	4.760						4.760 E6	0.00
2)	Carbon monoxide	2.775		1.066	0.043	0.033	0.027	0.657 E6	170.12
3)	Methane (TCD)							9.457	0.00
4)	Carbon dioxide	2.717	2.193	2.338	2.272	2.265	2.298	2.347 E2	7.99

Signal #2 Calibration Files

1	=08291715.D	2	=08291716.D	3	=08291717.D
4	=08291719.D	5	=08291720.D	6	=08291721.D

	Compound	1	2	3	4	5	6	Avg	%RSD
6)	Methane (FID)	1.253	1.160	1.005	0.927	0.848	0.848	0.945 E4	15.85
7)	Ethylene	1.677	1.605	1.900	1.749	1.597	1.579	1.684 E4	7.30
8)	Ethane	1.769	1.631	1.866	1.767	1.639	1.667	1.723 E4	5.40
9)	Propylene	2.402	2.309	2.767	2.551	2.331	2.333	2.449 E4	7.32
10)	Propane	2.906	2.737	2.817	2.639	2.410	2.420	2.655 E4	7.75
11)	Isobutylene							0.000	-1.00
12)	Isobutane							0.000	-1.00
13)	n-Butane							0.000	-1.00

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS082817_CO2.M Wed Aug 30 13:24:19 2017



dit Compounds -- Compound #4 -- Carbon dioxide

Search by: ☒ Ret Time☐ Name☐ Index

Find Compound

Compound Database
External Standard Compound

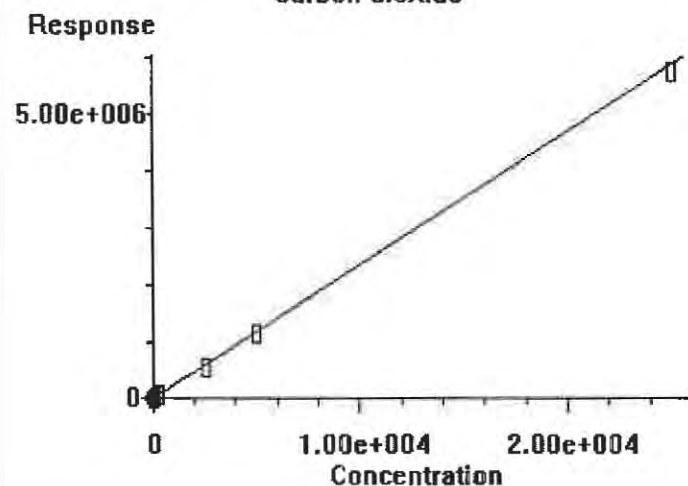
Identification Calibration User-Defined Advanced Reporting

☒ Oxygen/Argon
☒ Carbon monoxide
☒ Methane (TCD)
☒ Carbon dioxide
☒ Signal #2
☒ Methane (FID)
☒ Ethylene
☒ Ethane
☒ Propylene
☒ Propane
☒ Isobutylene
☒ Isobutane
☒ n-Butane

Lvl ID	Concentration	Response
1	25.000000	6793.665186
2	100.000000	21932.418000
3	250.000000	58460.642510
4	2500.000000	568043.388750
5	5000.000000	1132363.215937
6	25000.000000	5744294.891563
7	25000.000000	
8	25000.000000	
9	2000.000000	
10	30000.000000	

Lvl ID	Concentration	Response

Carbon dioxide



0.000e+000	Quadratic term
2.347e+002	Linear term
0.000e+000	Constant term
7.987%	RF Rel Std Dev

OK

Cancel

Help

Print Calibration Curve

Copy Calibration Curve

Method Path : I:\GC10\METHODS\
 Method File : RS082817_CO2.M
 Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 Last Update : Tue Aug 29 16:13:13 2017
 Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291715.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291716.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291717.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291719.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291720.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291721.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241711.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Aug 29 14:21 2017	Aug 29 14:20 2017	29-Aug-2017, 14:07
2	2	Aug 29 14:52 2017	Aug 29 14:51 2017	29-Aug-2017, 14:22
3	3	Aug 29 15:04 2017	Aug 29 15:04 2017	29-Aug-2017, 14:53
4	4	Aug 29 15:36 2017	Aug 29 15:36 2017	29-Aug-2017, 15:23
5	5	Aug 29 15:57 2017	Aug 29 15:57 2017	29-Aug-2017, 15:44
6	6	Aug 29 16:13 2017	Aug 29 16:13 2017	29-Aug-2017, 16:00
7	7	Aug 25 09:05 2017	Aug 24 16:00 2017	24-Aug-2017, 15:44
8	8	Aug 25 09:06 2017	Aug 24 16:13 2017	24-Aug-2017, 16:02
9	9	Aug 25 09:06 2017	Aug 24 16:31 2017	24-Aug-2017, 16:16
10	10	Aug 25 09:07 2017	Aug 24 16:42 2017	24-Aug-2017, 16:33

RS082817_CO2.M Wed Aug 30 13:24:30 2017



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm d
2) Carbon monoxide	1.776	277465	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	5.978	6794	27.870	ppm m
6) Methane (FID)	0.000	0	N.D.	ppm d
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

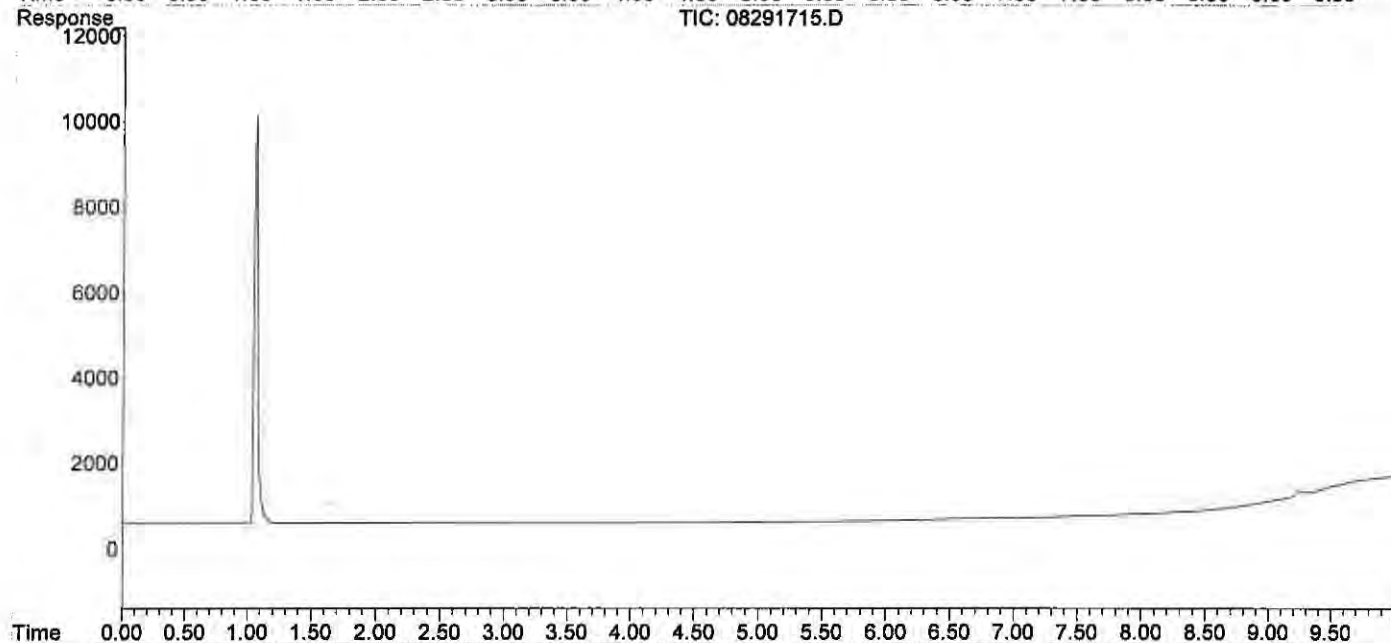
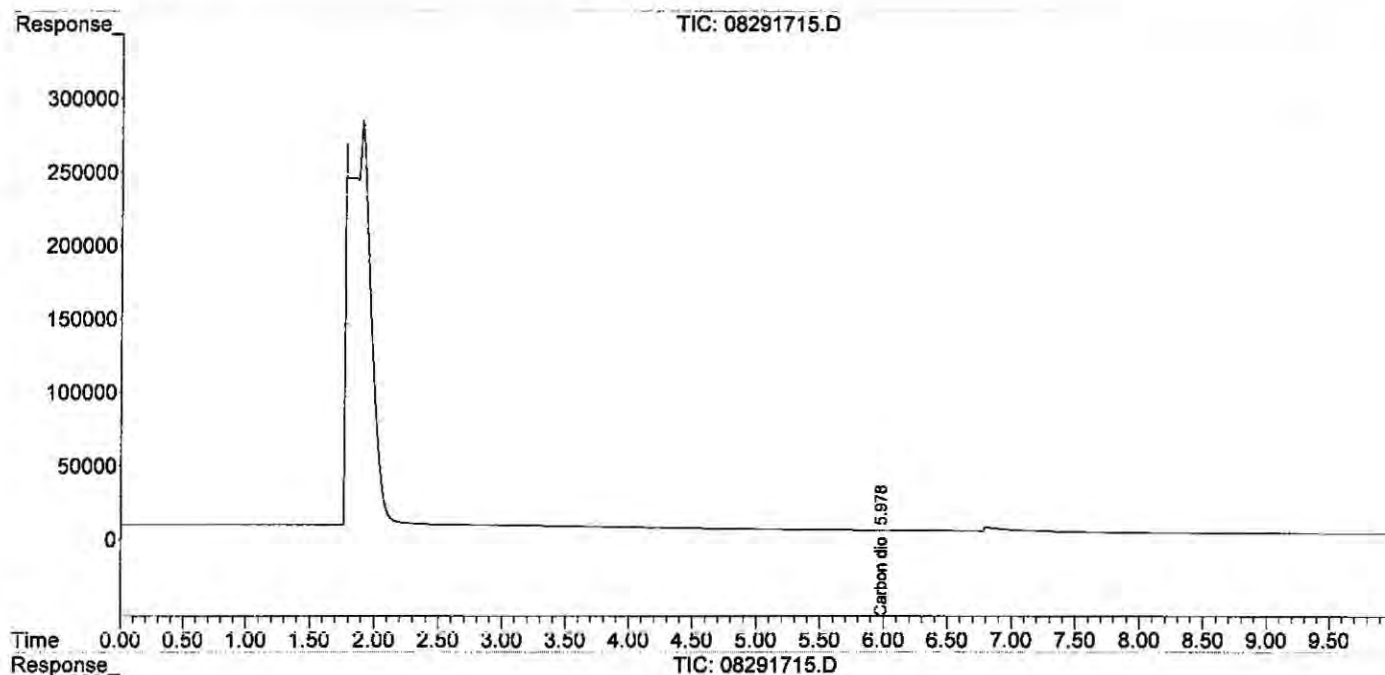
(m)=manual int.



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

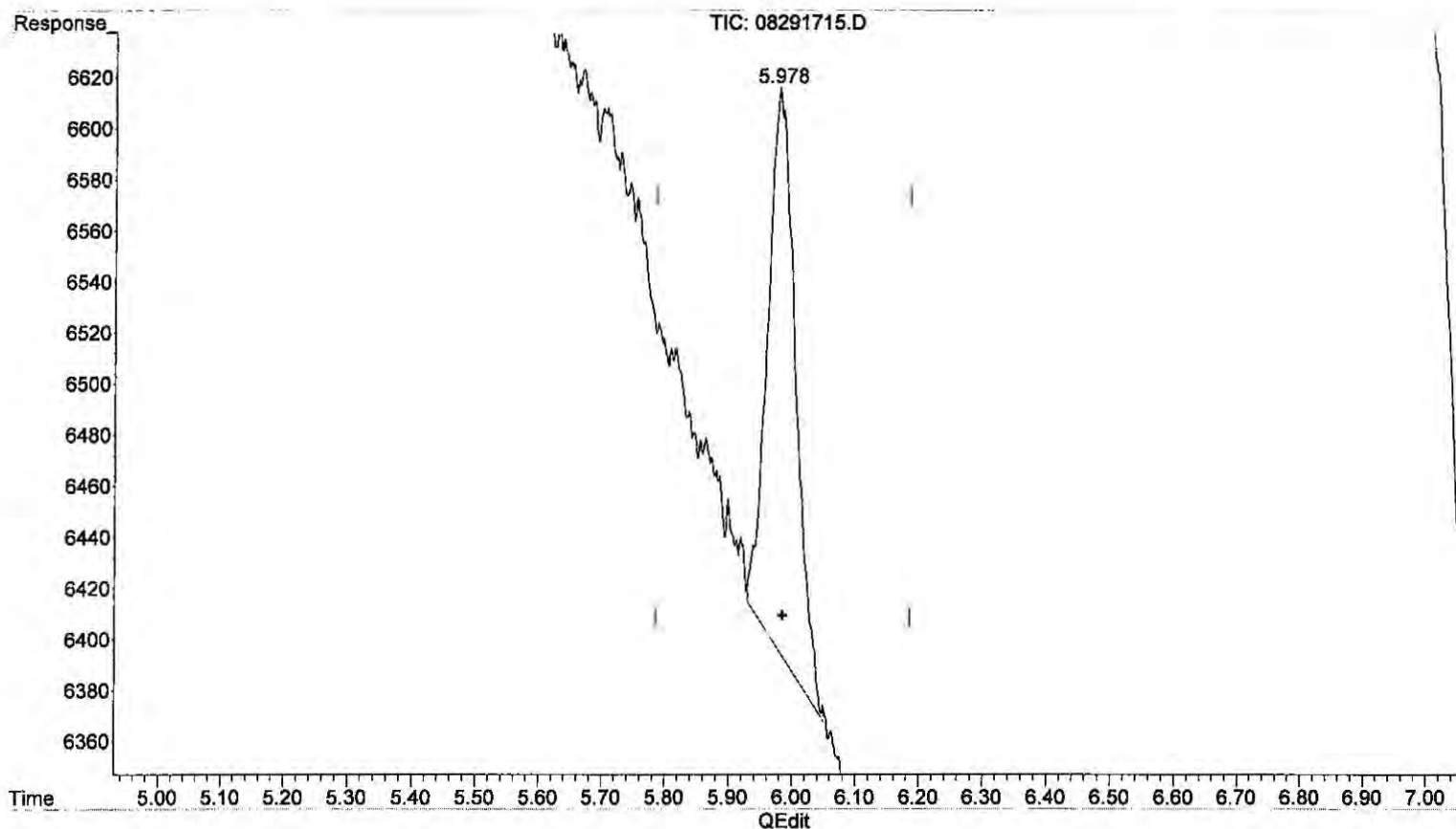
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.978min 27.870 ppm m

response 6794

MC
8/30/17
BL
MC
ppm

MC
8/14/17

(+) = Expected Retention Time

RS082817_CO2.M Wed Aug 30 13:17:47 2017

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Page: 1



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) Oxygen/Argon	1.790	-598962	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm d
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	5.978	21932	87.858	ppm
6) Methane (FID)	0.000	0	N.D.	ppm d
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

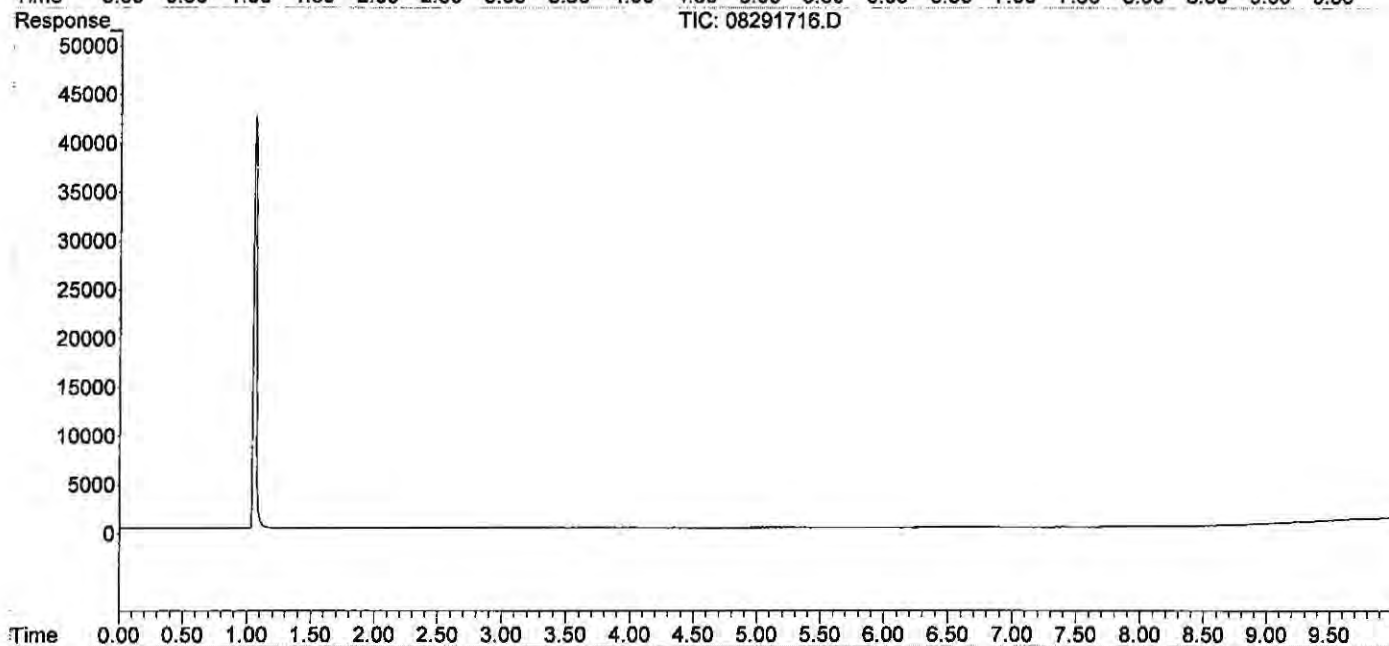
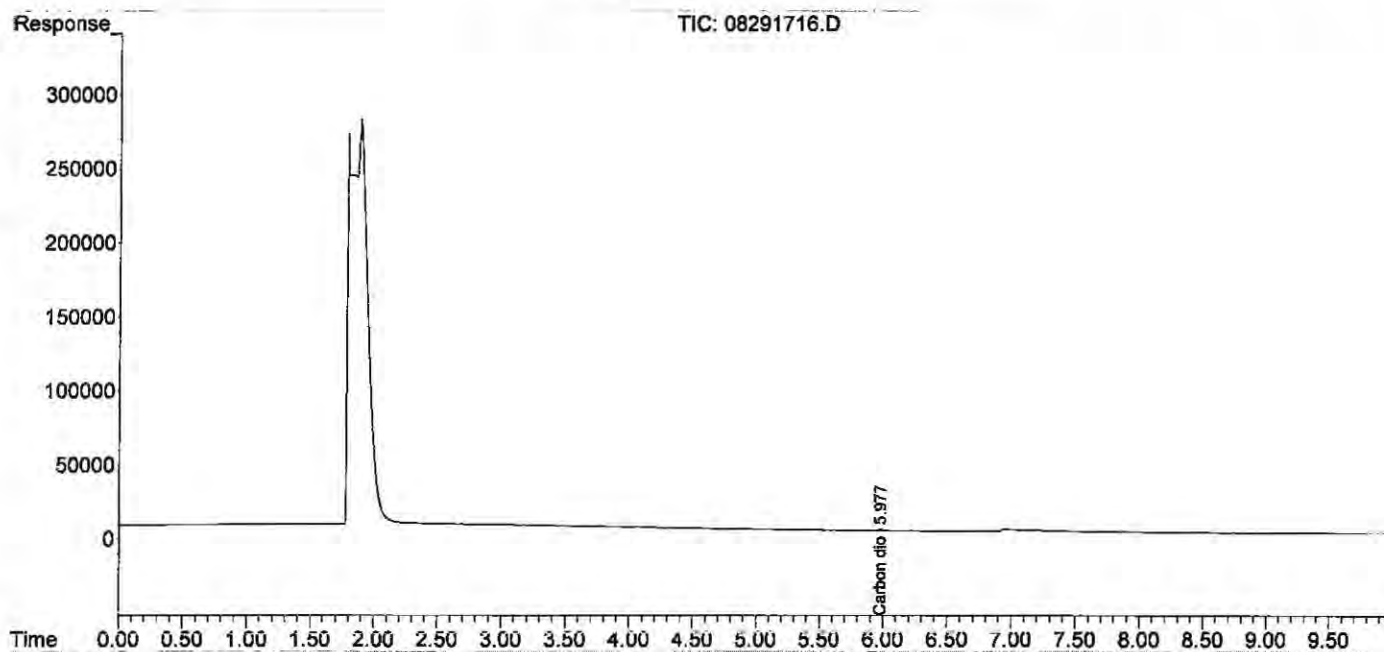
(m)=manual int.



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
 Data File : 08291717.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 29-Aug-2017, 14:53
 Operator : MC
 Sample : 250ppm s32-08291702 0.5ml
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Aug 29 15:03:42 2017
 Quant Method : I:\GC10\METHODS\RS082817_CO2.M
 Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 QLast Update : Tue Aug 29 14:52:06 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.920f	-30716454	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm d
3) Methane (TCD)	0.000	0	N.D.	ppm d
4) Carbon dioxide	5.970	58461	240.204	ppm m
6) Methane (FID)	0.000	0	N.D.	ppm d
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

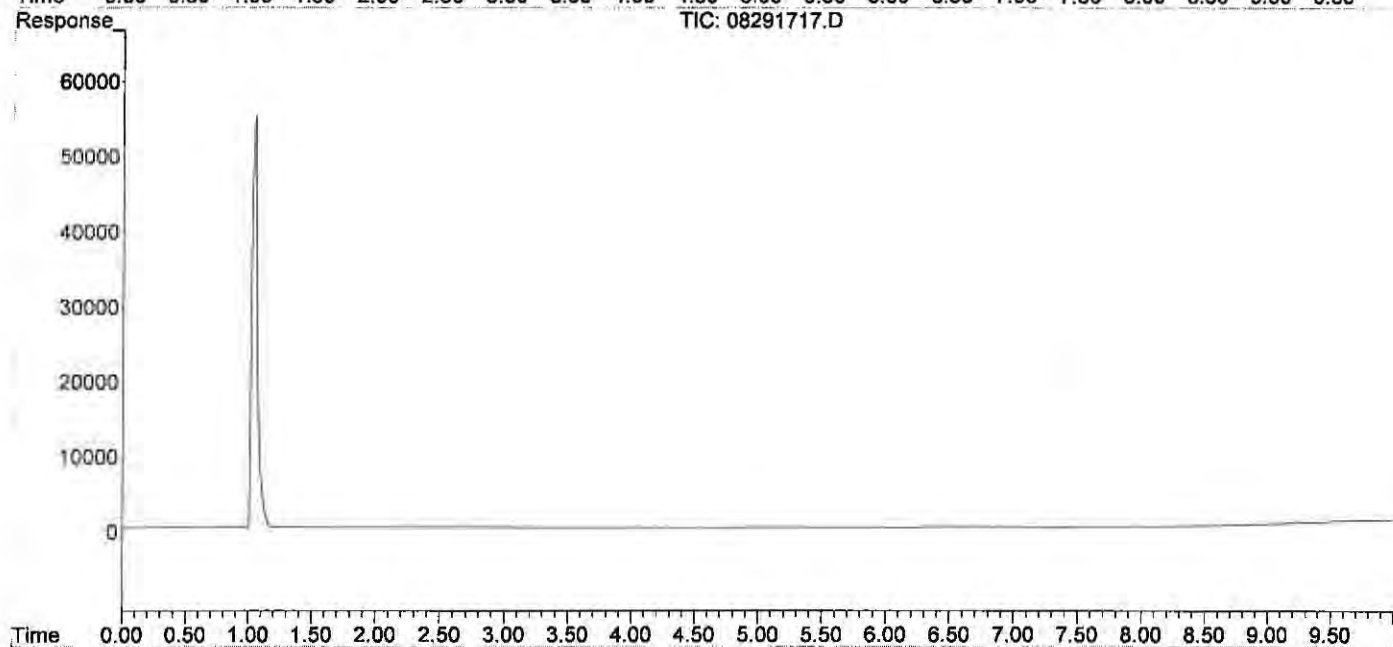
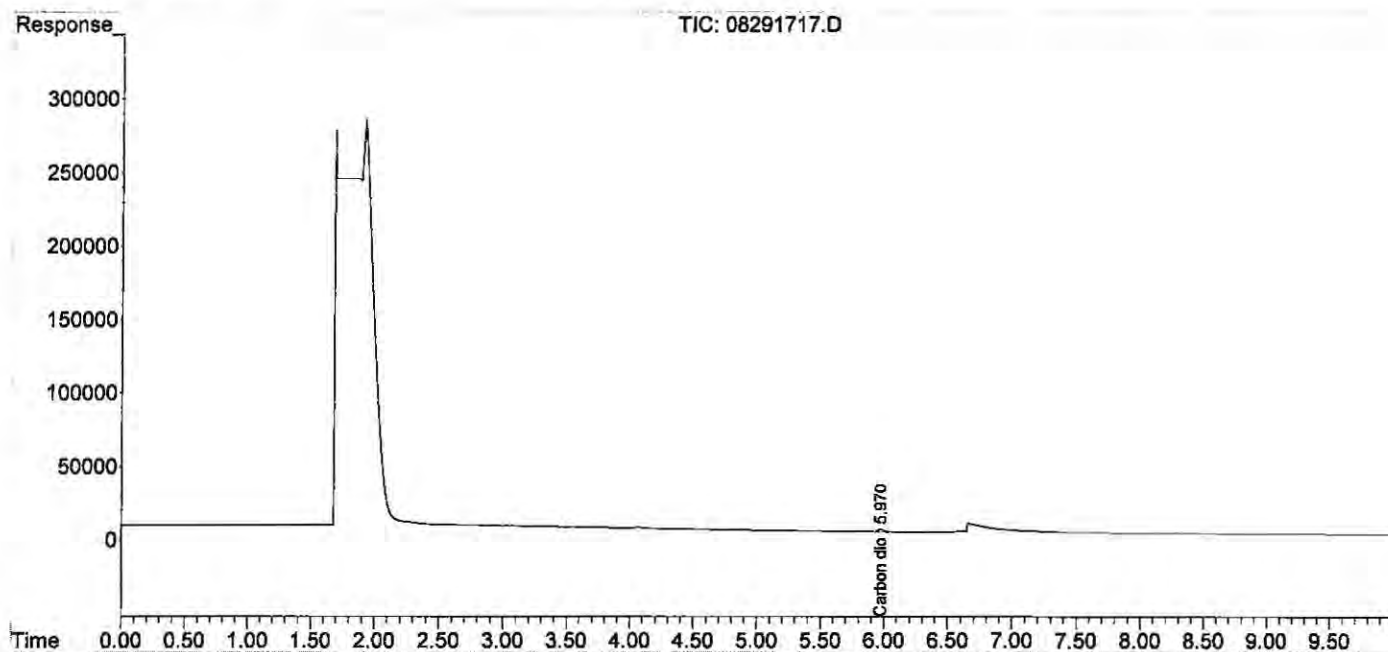
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

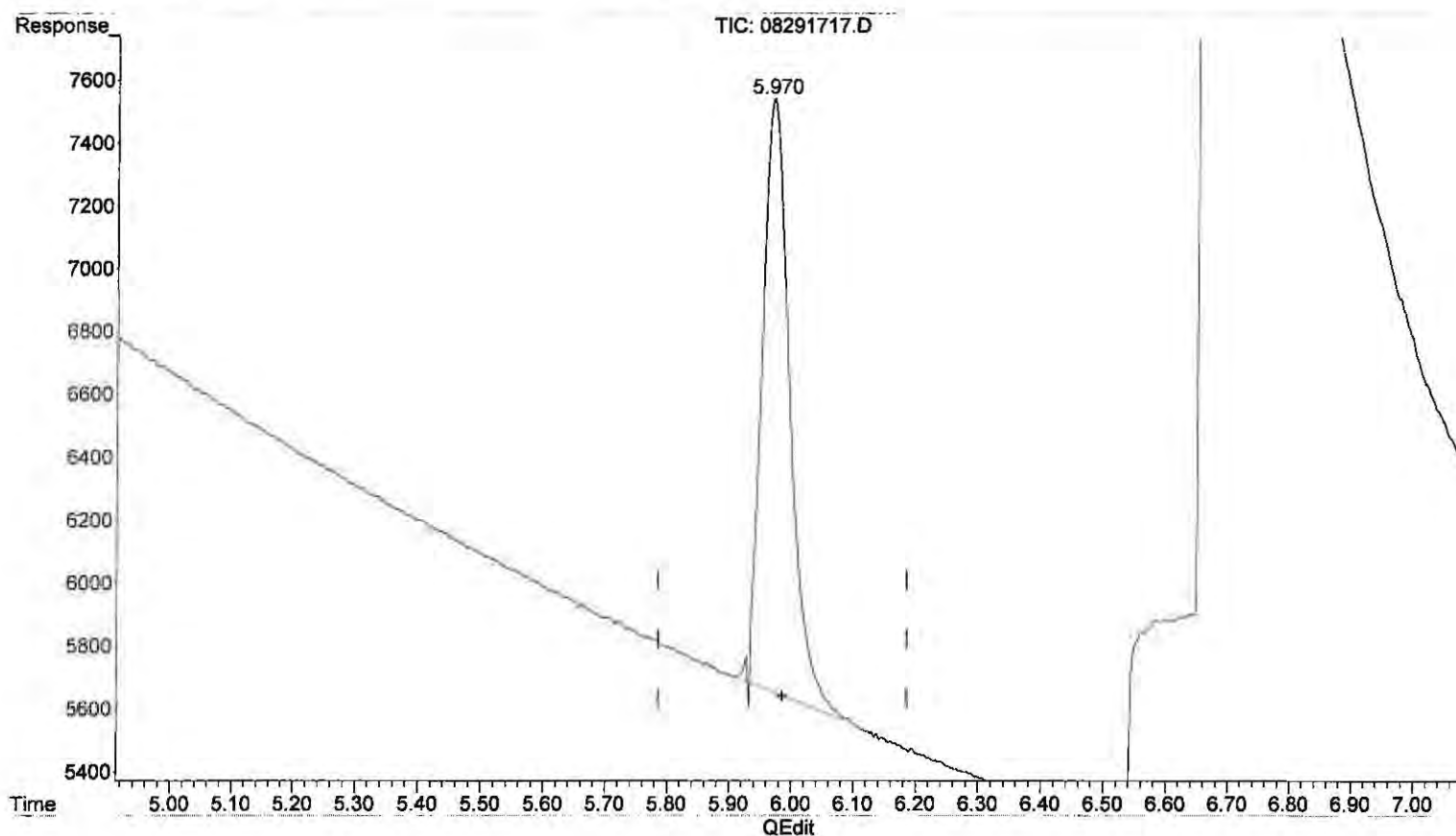
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.970min 240.204 ppm m

response 58461

MC
5/1/12
PL
N
PREVIEW

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm d
2) Carbon monoxide	1.891	425113	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm d
4) Carbon dioxide	5.962	568043	2369.673	ppm
6) Methane (FID)	0.000	0	N.D.	ppm d
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

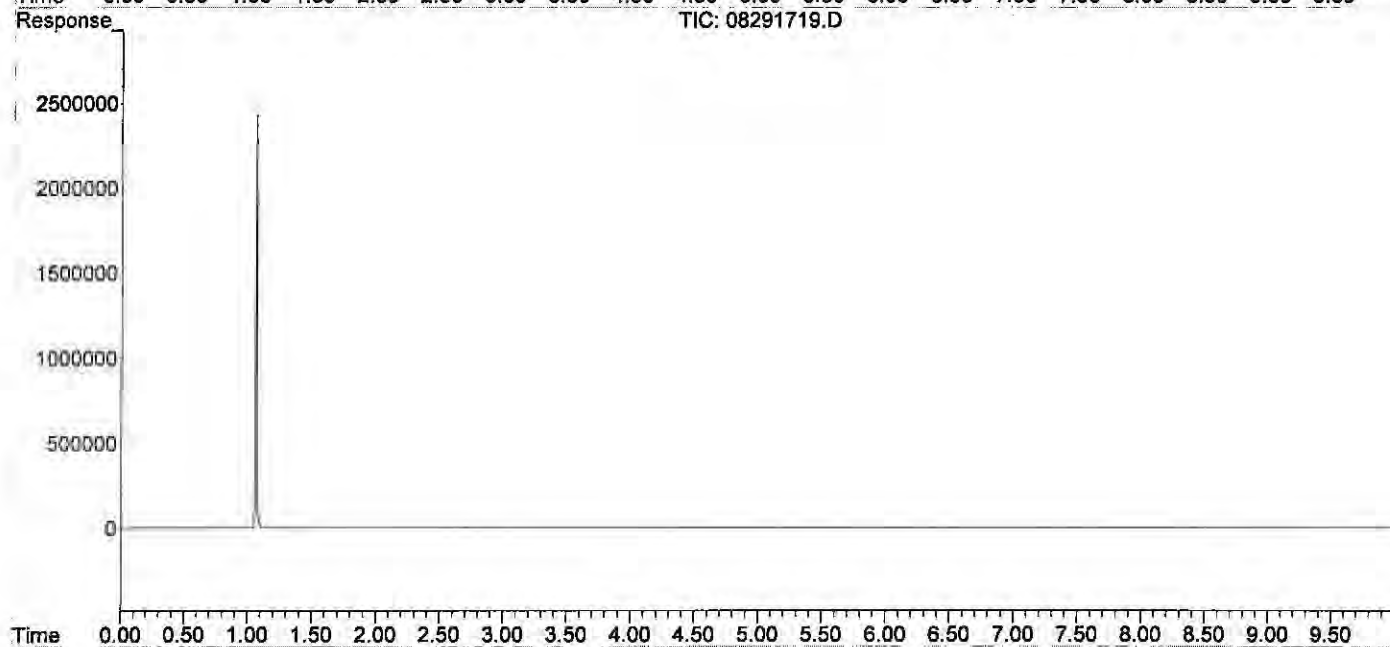
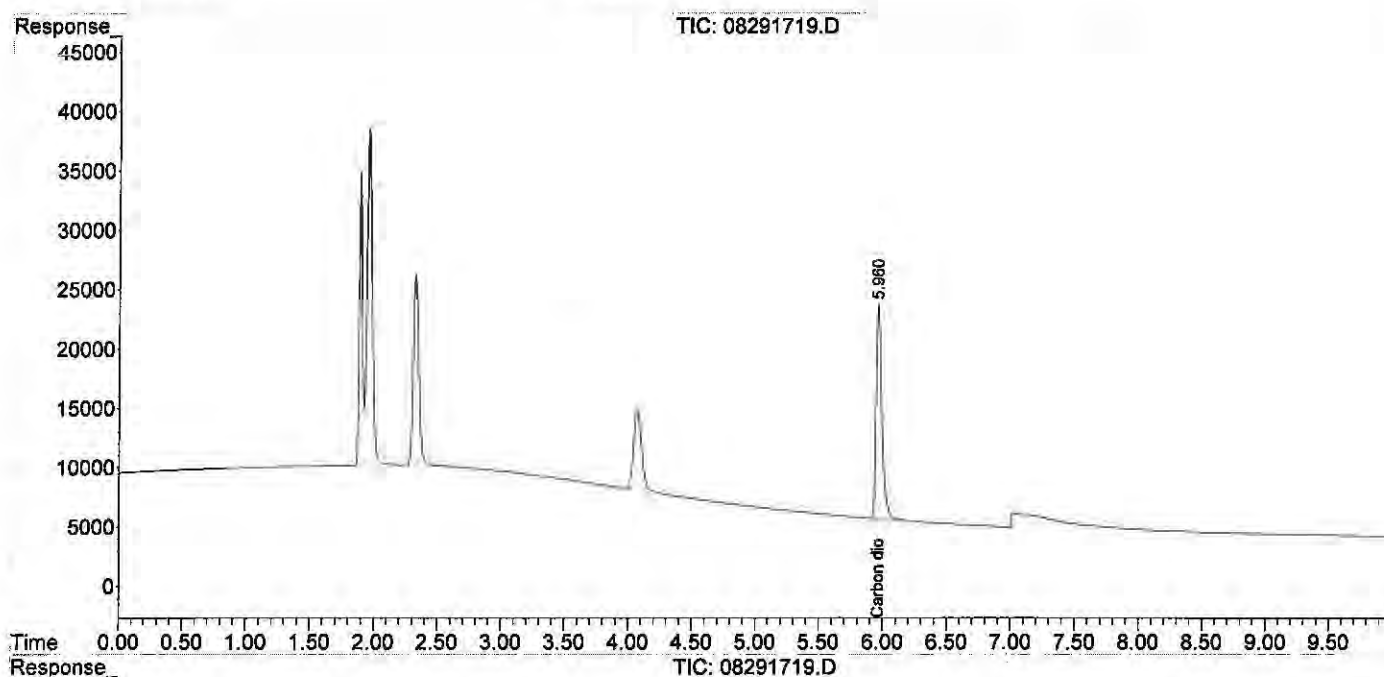
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
 Data File : 08291720.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 29-Aug-2017, 15:44
 Operator : MC
 Sample : 5000ppm s32-08231701 0.1ml
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Aug 29 15:57:17 2017
 Quant Method : I:\GC10\METHODS\RS082817_CO2.M
 Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 QLast Update : Tue Aug 29 15:36:14 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm d
2) Carbon monoxide	1.880	819221	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm d
4) Carbon dioxide	5.948	1132363	4753.126	ppm
6) Methane (FID)	0.000	0	N.D.	ppm d
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

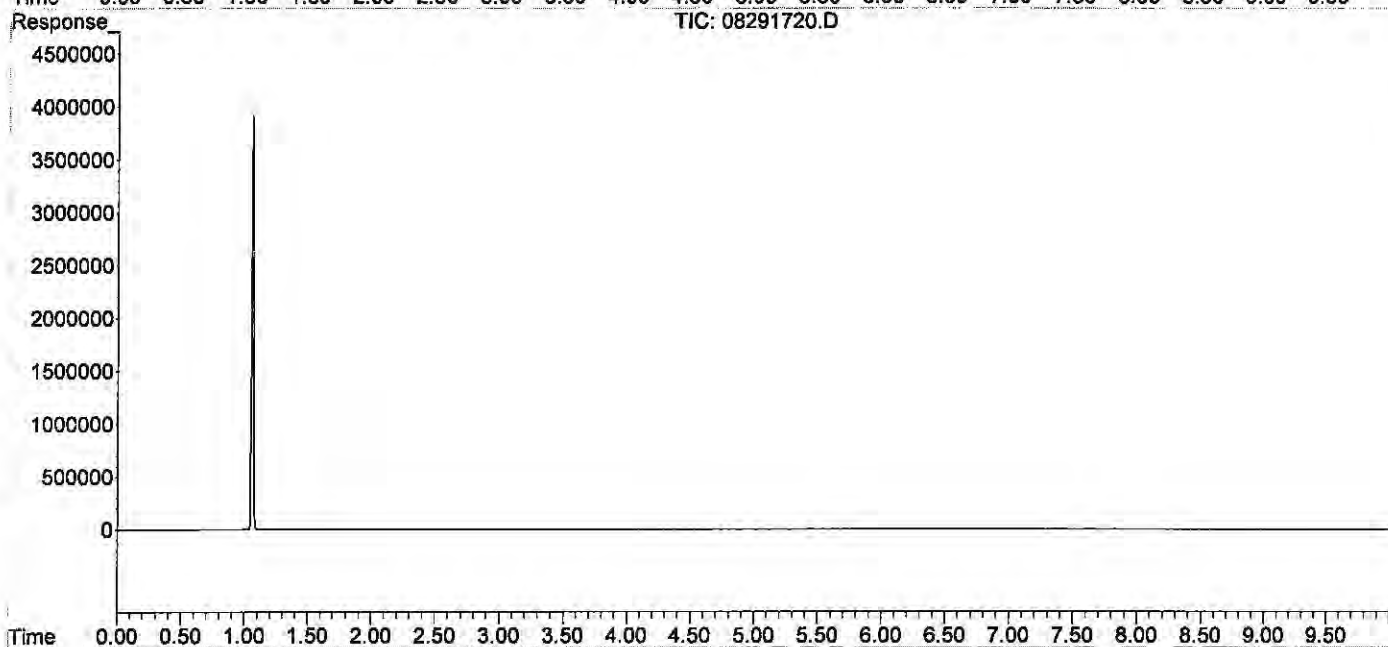
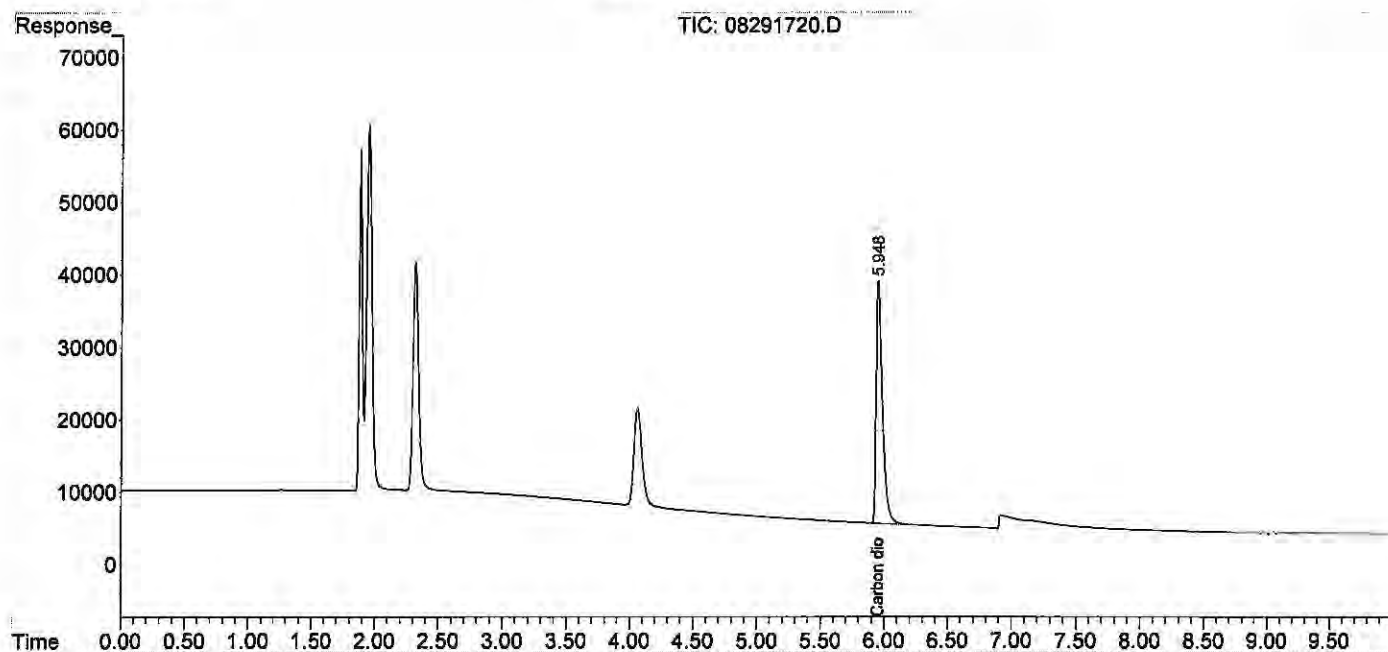
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
 Data File : 08291721.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 29-Aug-2017, 16:00
 Operator : MC
 Sample : 25000ppm s32-08231701 0.5ml
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Aug 29 16:12:53 2017
 Quant Method : I:\GC10\METHODS\RS082817_CO2.M
 Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 QLast Update : Tue Aug 29 15:57:37 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm d
2) Carbon monoxide	1.827	3325463	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm d
4) Carbon dioxide	5.879f	5744295	24443.288	ppm
6) Methane (FID)	0.000	0	N.D.	ppm d
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

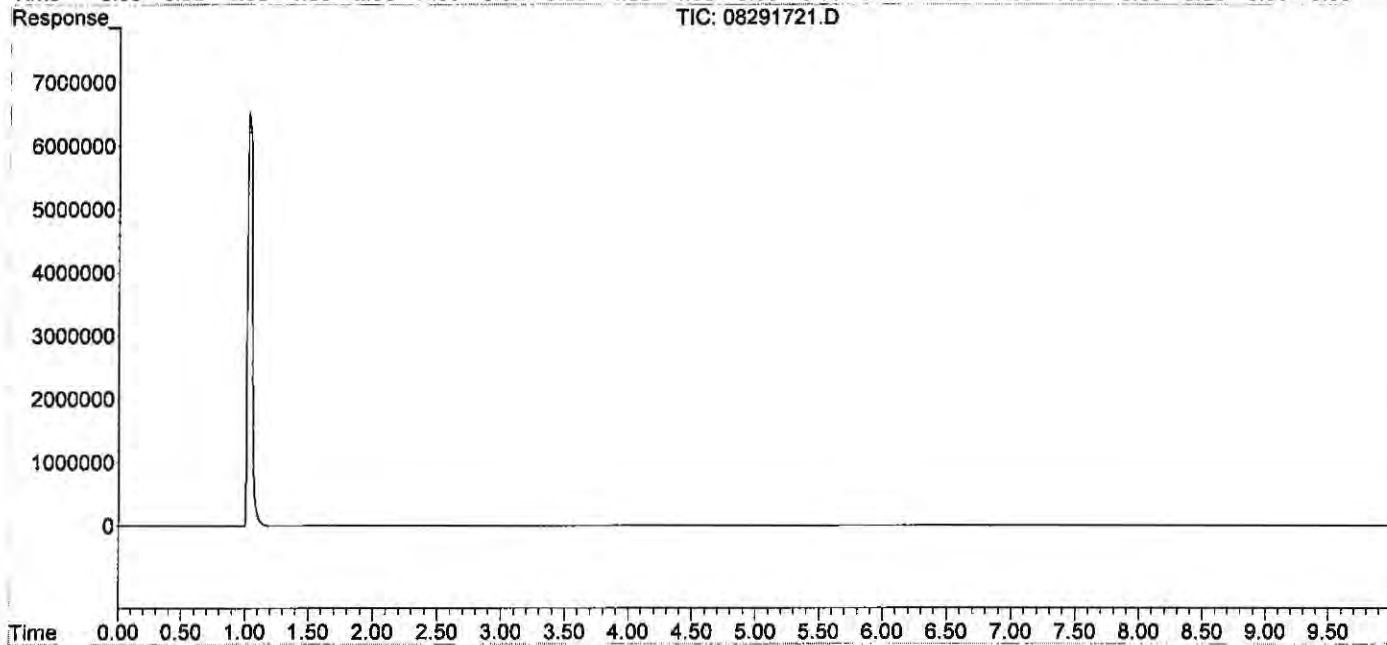
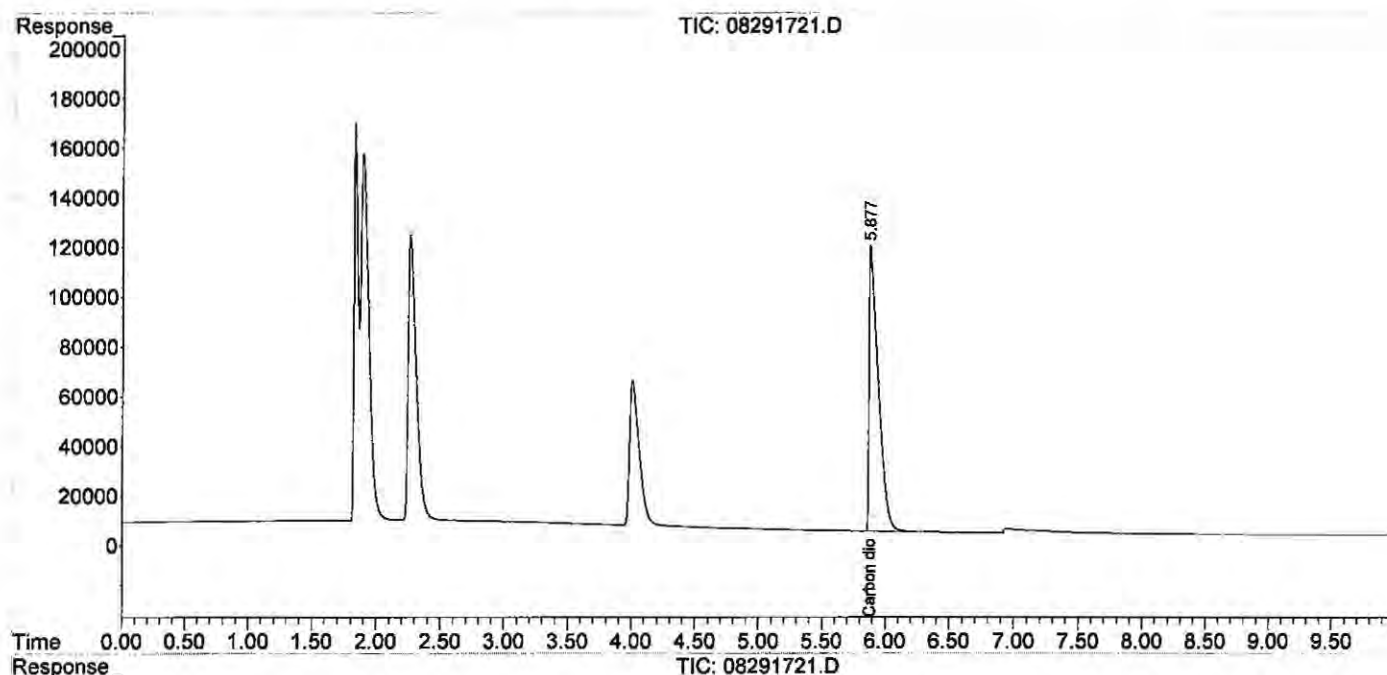
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
 Data File : 08291723.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 29-Aug-2017, 16:35
 Operator : MC
 Sample : icv s30-07071701
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Aug 29 16:54:07 2017
 Quant Method : I:\GC10\METHODS\RS082817_CO2.M
 Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
 QLast Update : Tue Aug 29 16:13:13 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units	

Target Compounds				
1) Oxygen/Argon	1.886	536422	0.113 ppm	Actual %D
2) Carbon monoxide	1.886	536422	N.D. ppm	
3) Methane (TCD)	4.059f	626500	66244.710 ppm	5000 99.16
4) Carbon dioxide	5.947	1163775	4957.948 ppm	
6) Methane (FID)	1.062	37290742	3947.023 ppm	
7) Ethylene	0.000	0	N.D. ppm	
8) Ethane	0.000	0	N.D. ppm	
9) Propylene	0.000	0	N.D. ppm	
10) Propane	0.000	0	N.D. ppm	
11) Isobutylene	0.000	0	N.D. ppm	
12) Isobutane	0.000	0	N.D. ppm	
13) n-Butane	0.000	0	N.D. ppm	

(f)=RT Delta > 1/2 Window

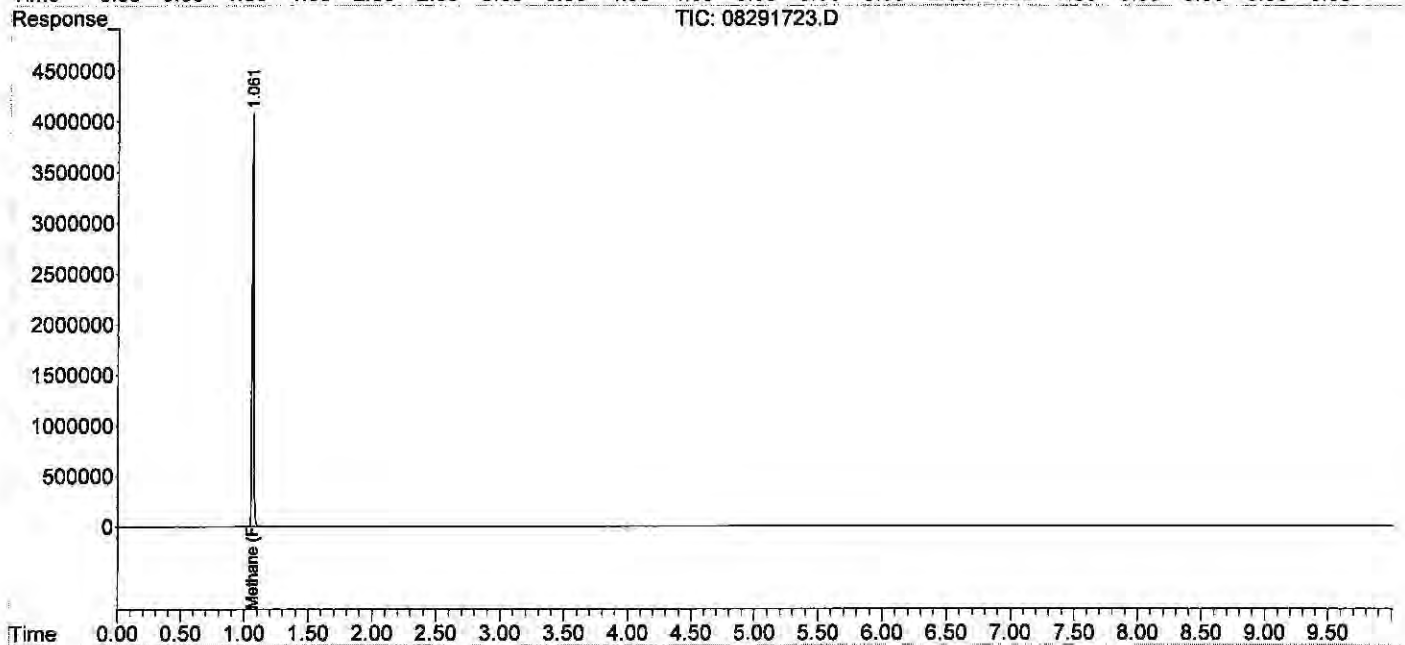
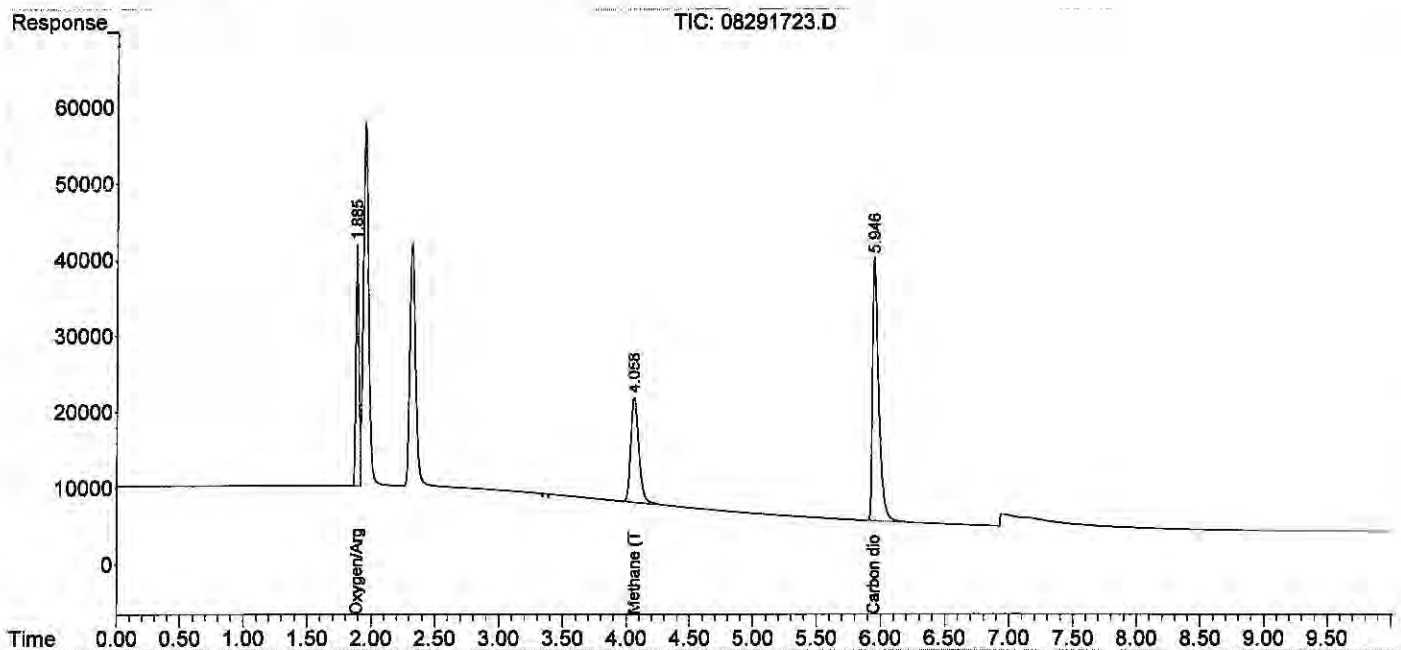
(m)=manual int.

W 9/4/17

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



**ALS Environmental**

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group Analyst : LD
Service Request: P1907270 Date Analysis : 12/04/19
Sample Vol. (ml) : 32.00 ml Head Space Vol.(ml) : 8.00 ml

Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

<u>Sample ID</u>	<u>Inj. Vol.</u>	<u>Carbon Dioxide</u>	<u>WWt.</u> <u>HENRY'S CONSTANT</u> <u>RL</u>
STD S32-10291901	0.100	4915.540	
ACTUAL		5000.00	
%Difference		1.7%	
MCS 0.1ml	0.100	0.000	MCS 0.1ml
RB 0.1ml	0.100	0.000	
LCS S32-08141901	0.100	927.044	LCS S32-08141901
LCSD S32-08141901	0.100	915.106	LCSD S32-08141901
P1907270-001 0.1ml	0.100	1411.462	P1907270-001 0.1ml
P1907270-002 0.1ml	0.100	3164.775	P1907270-002 0.1ml
P1907270-003 0.1ml	0.100	3338.567	P1907270-003 0.1ml

FINAL HEAD SPACE RESULT (ppm)

<u>Carbon Dioxide</u>
44.10
1.42E+03
100.00
0.000
9270.440
9151.060
14114.620
31647.750
33385.670

LD
12/04

P1907270-003 MS 0.1ml	0.100	5085.675	P1907270-003 MS 0.1ml	50856.750
P1907270-003 MSD ml	0.100	5087.082	P1907270-003 MSD ml	50870.820
STD S32-10291901		4971.865		
ACTUAL		5000.00		
%Difference		0.6%		

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
 Data File : 12041901.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 04-Dec-2019, 09:01:48
 Operator : LD
 Sample : STD S32-10291901
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Dec 04 09:16:31 2019
 Quant Method : I:\GC10\METHODS\RS082817_CO2.M
 Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 QLast Update : Tue Aug 29 16:13:13 2017
 Response via : Initial Calibration
 Integrator: ChemStation

LD
12/04

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.886	630289	0.132 ppm
2) Carbon monoxide	1.886	630289	N.D. ppm
3) Methane (TCD)	4.066f	636861	67340.272 ppm
4) Carbon dioxide	5.950	1153821	4915.540 ppm
6) Methane (FID)	0.000	0	N.D. ppm
7) Ethylene	0.000	0	N.D. ppm
8) Ethane	0.000	0	N.D. ppm
9) Propylene	0.000	0	N.D. ppm
10) Propane	0.000	0	N.D. ppm
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	0.000	0	N.D. ppm
13) n-Butane	0.000	0	N.D. ppm

(f)=RT Delta > 1/2 Window

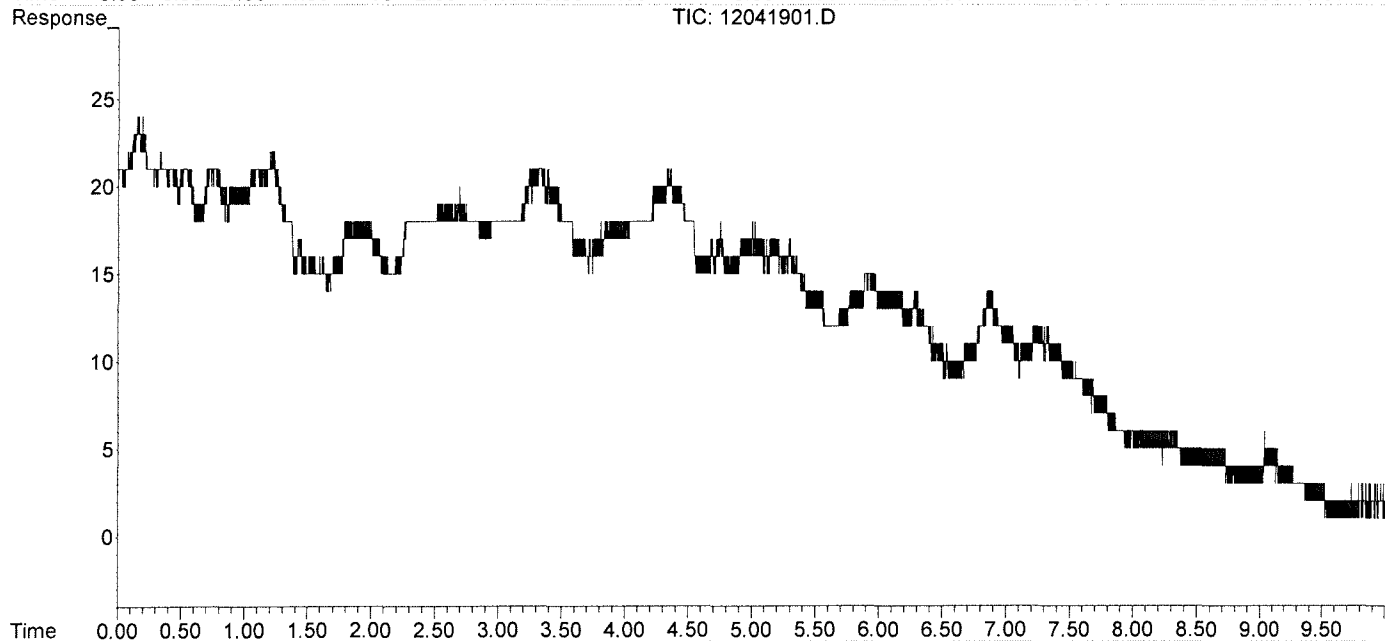
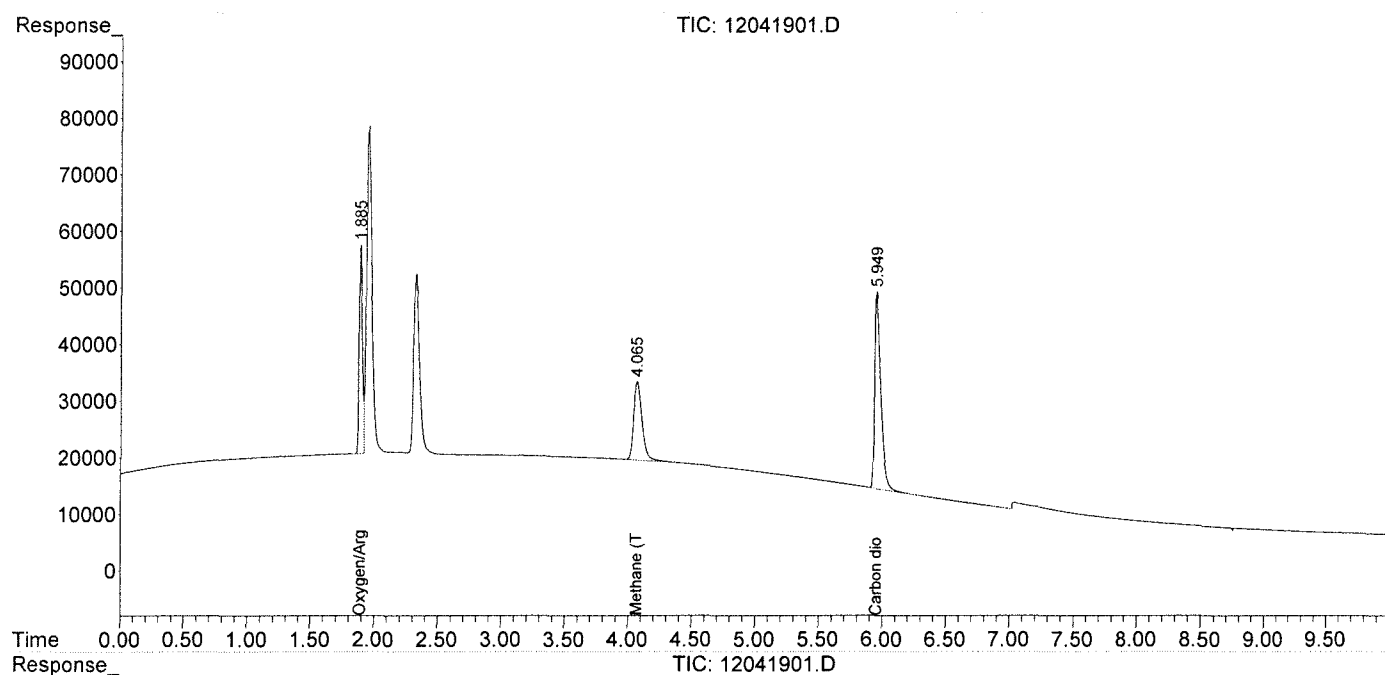
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 09:01:48
Operator : LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 09:16:31 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 13:14:08
Operator : LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 13:27:26 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.893	577112	0.121 ppm
2) Carbon monoxide	1.893	577112	N.D. ppm
3) Methane (TCD)	4.071f	644430	68140.603 ppm
4) Carbon dioxide	5.956	1167042	4971.865 ppm
6) Methane (FID)	0.000	0	N.D. ppm
7) Ethylene	0.000	0	N.D. ppm
8) Ethane	0.000	0	N.D. ppm
9) Propylene	0.000	0	N.D. ppm
10) Propane	0.000	0	N.D. ppm
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	0.000	0	N.D. ppm
13) n-Butane	0.000	0	N.D. ppm

(f)=RT Delta > 1/2 Window

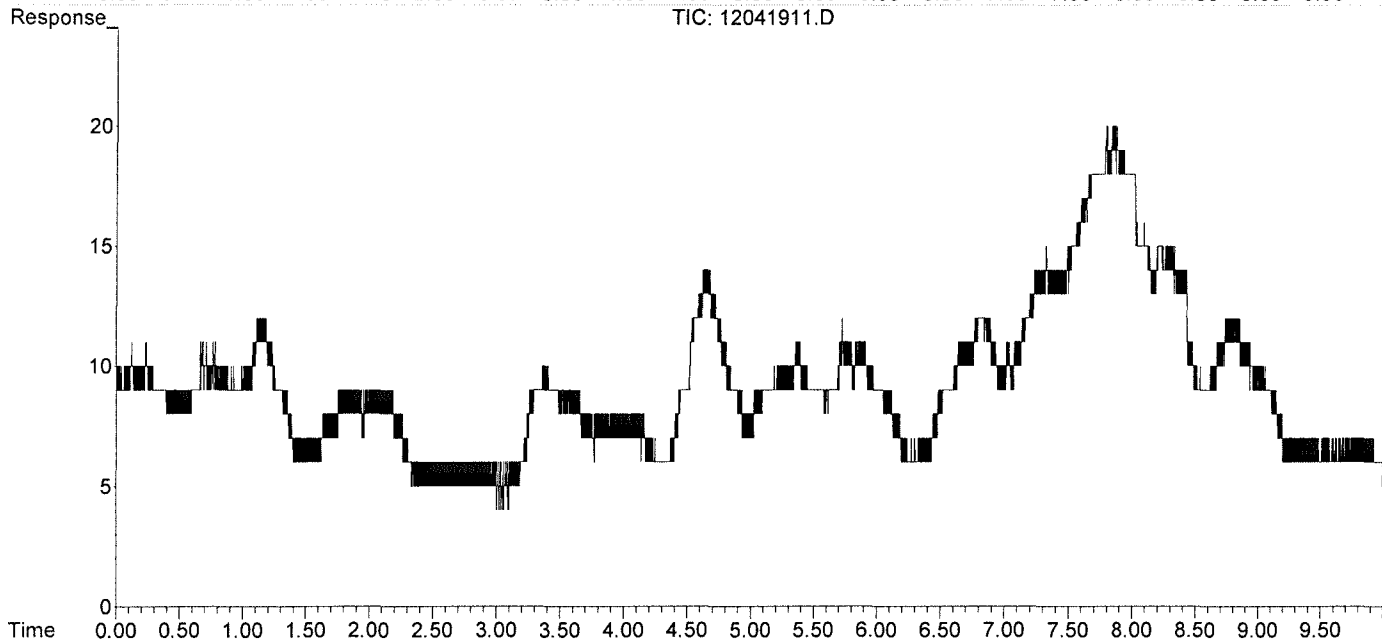
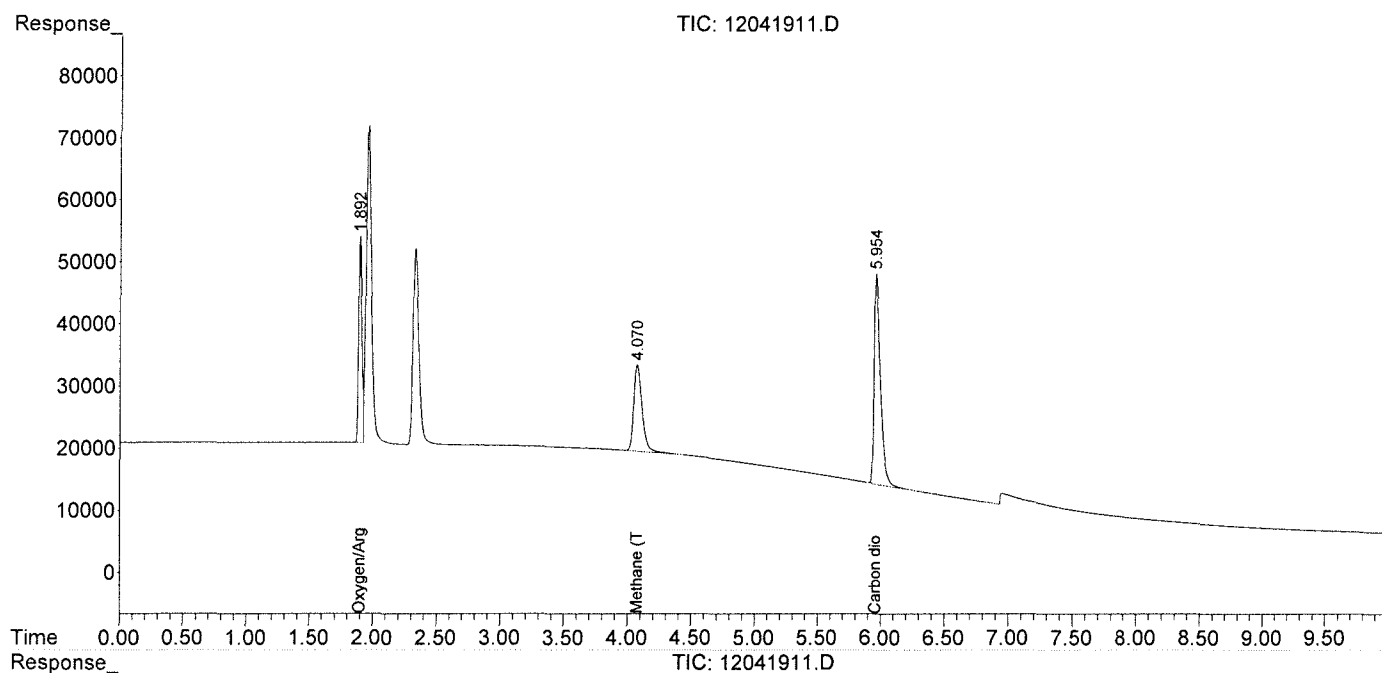
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 13:14:08
Operator : LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 13:27:26 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



[illegible]

[illegible]

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 10:31:10
Operator : LD
Sample : P1907270-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 11:58:51 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	0.000	0	N.D.	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

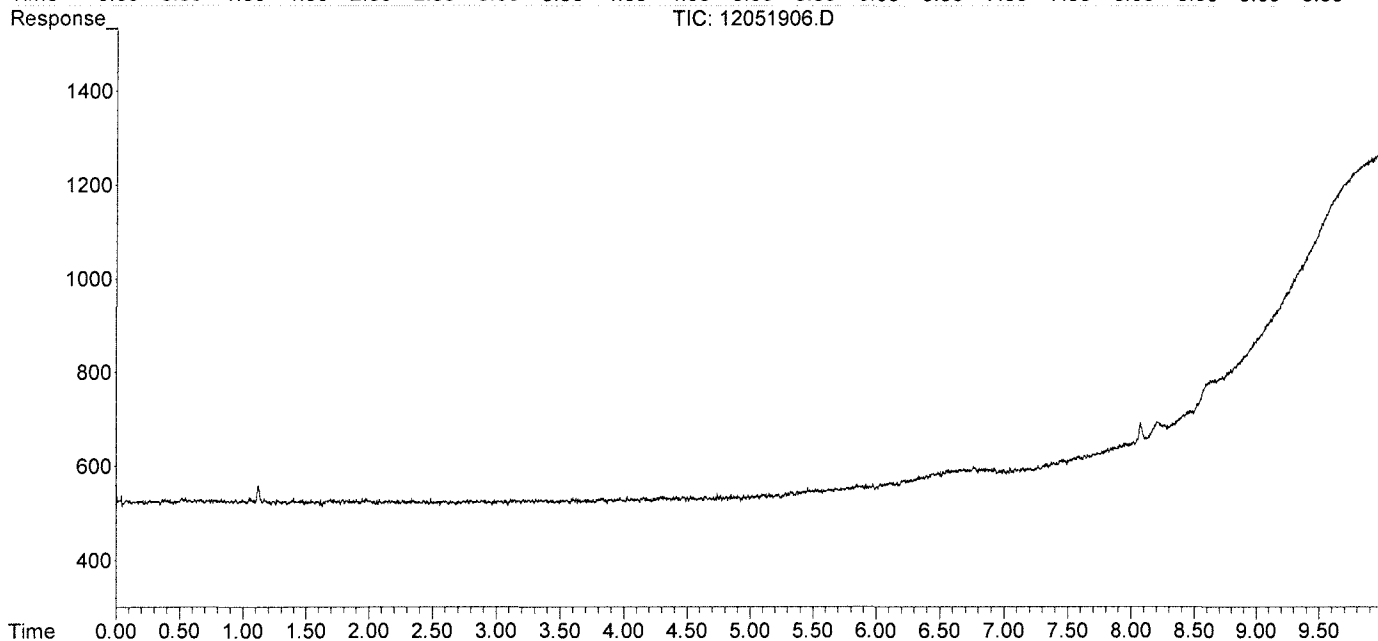
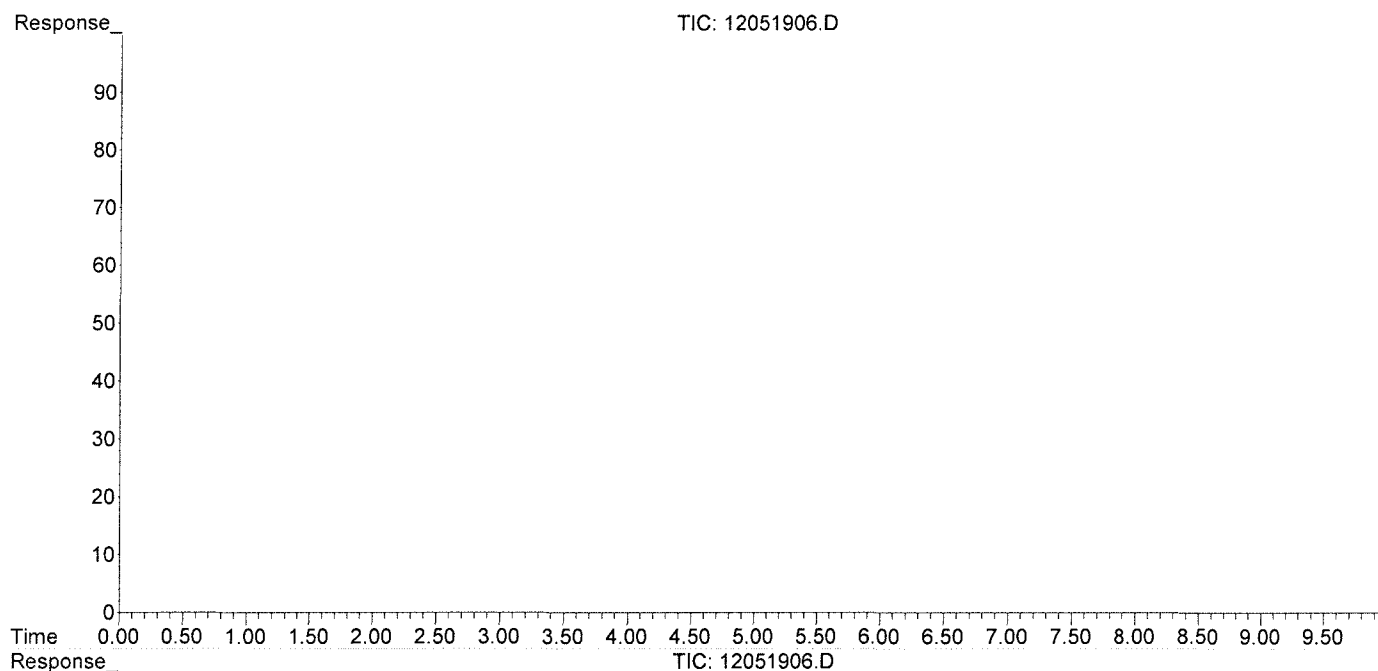
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 10:31:10
Operator : LD
Sample : P1907270-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 11:58:51 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 10:44:26
Operator : LD
Sample : P1907270-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 11:59:02 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	0.000	0	N.D.	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

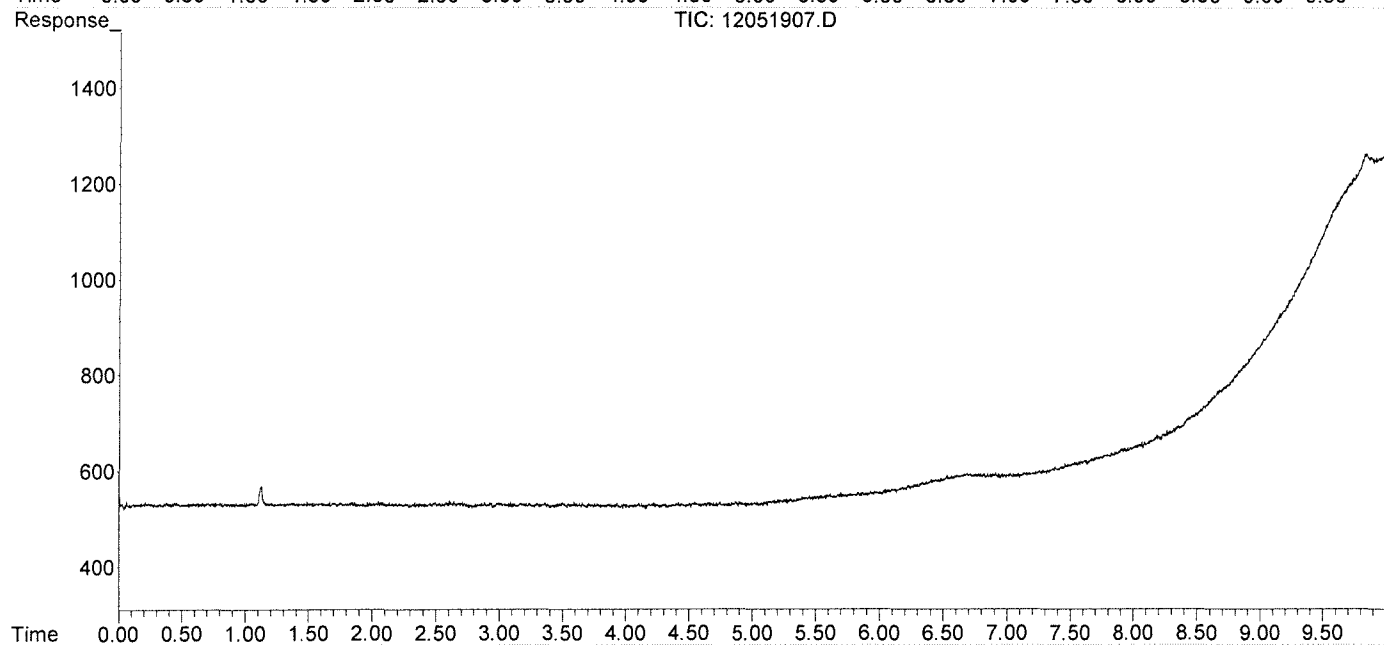
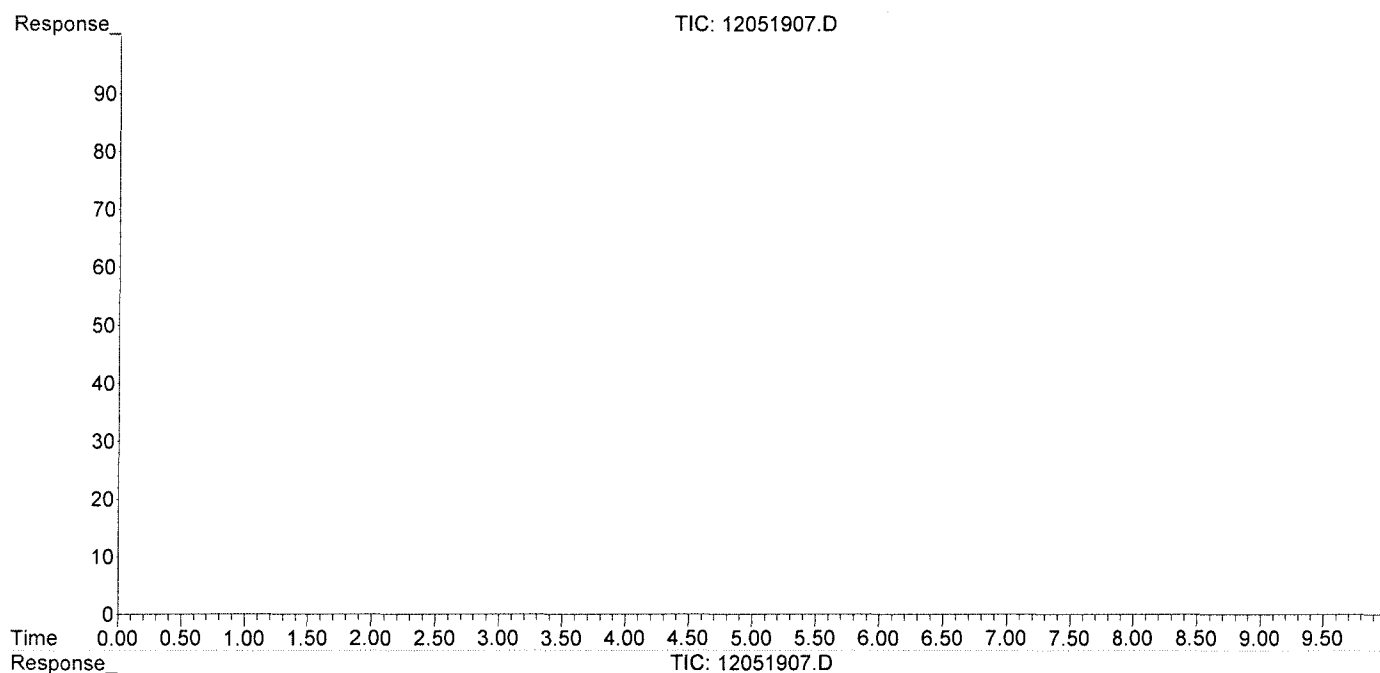
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 10:44:26
Operator : LD
Sample : P1907270-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 11:59:02 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 11:01:43
Operator : LD
Sample : P1907270-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 11:59:10 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.117	1832	0.202	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

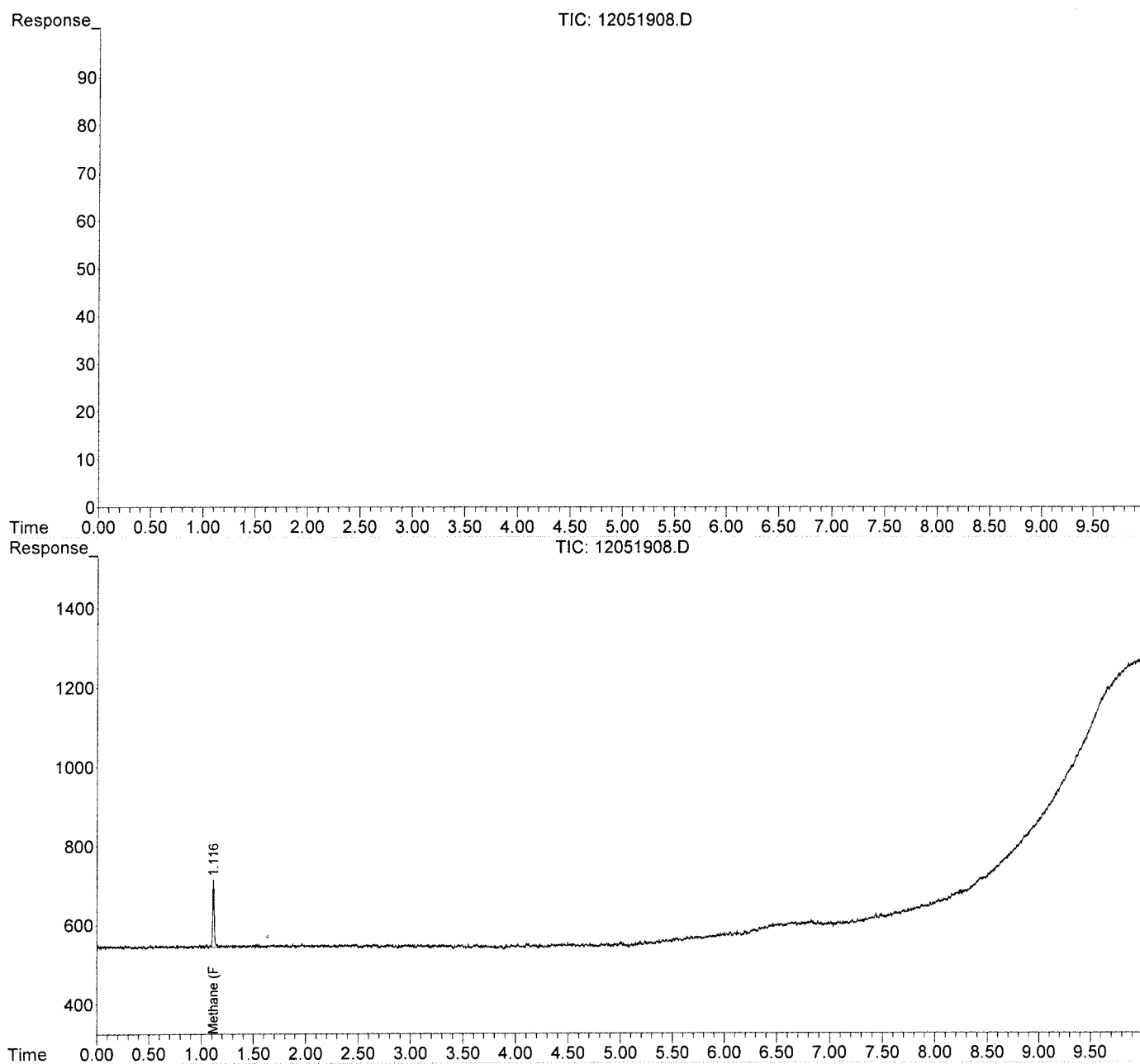
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 11:01:43
Operator : LD
Sample : P1907270-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 11:59:10 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 09:19:57
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 10:26:22 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.114	1304	0.144	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

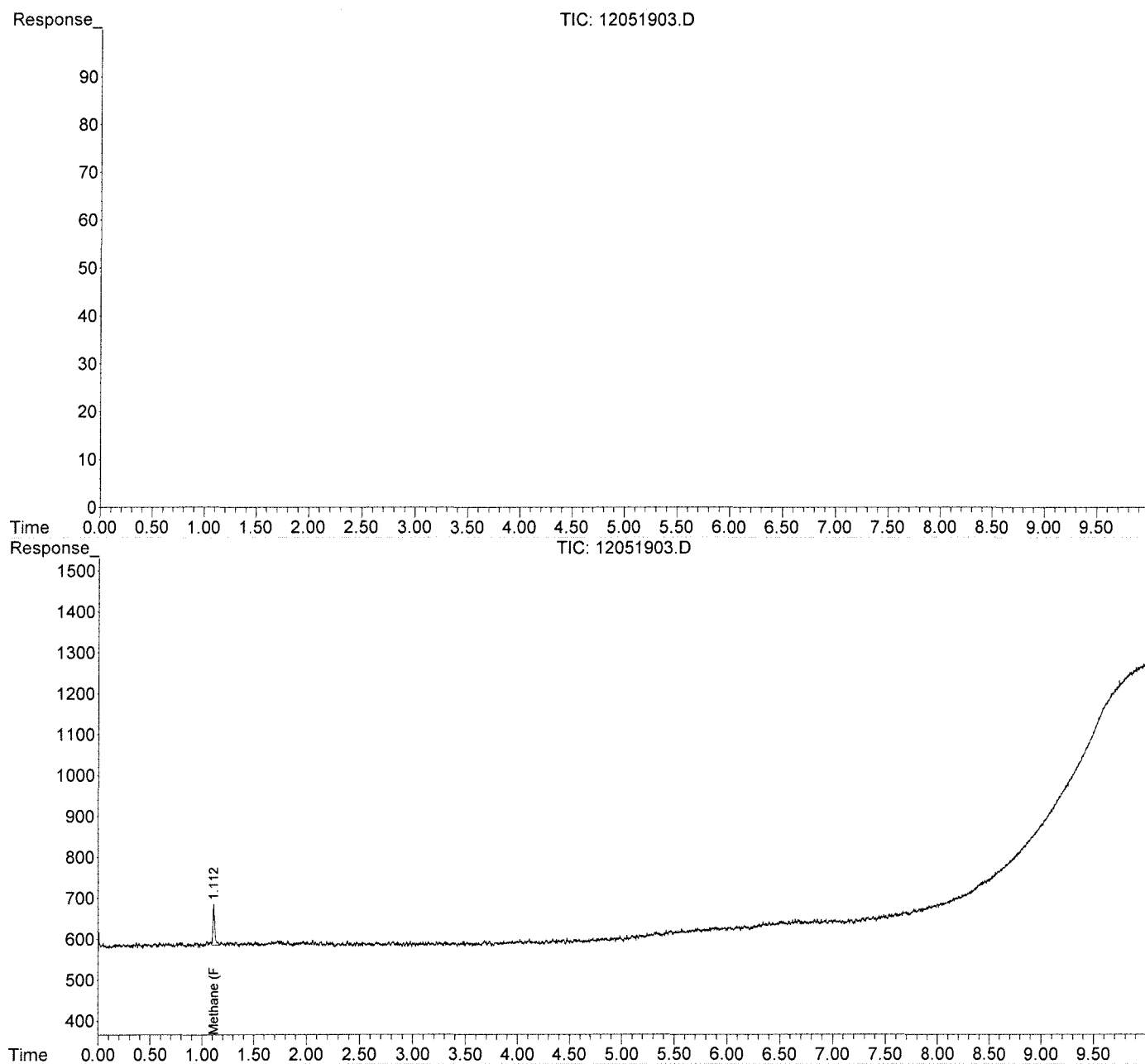
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 09:19:57
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 10:26:22 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 12:05:43
Operator : LD
Sample : P1907270-003 MS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 12:30:09 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.111	14512	1.600	ppm
7) Ethylene	1.683	17245	1.031	ppm
8) Ethane	1.950	20226	1.193	ppm
9) Propylene	4.328	23739	1.013	ppm
10) Propane	4.450	30776	1.237	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	6.649	41097	1.544	ppm
13) n-Butane	6.649	41097	1.544	ppm

(f)=RT Delta > 1/2 Window

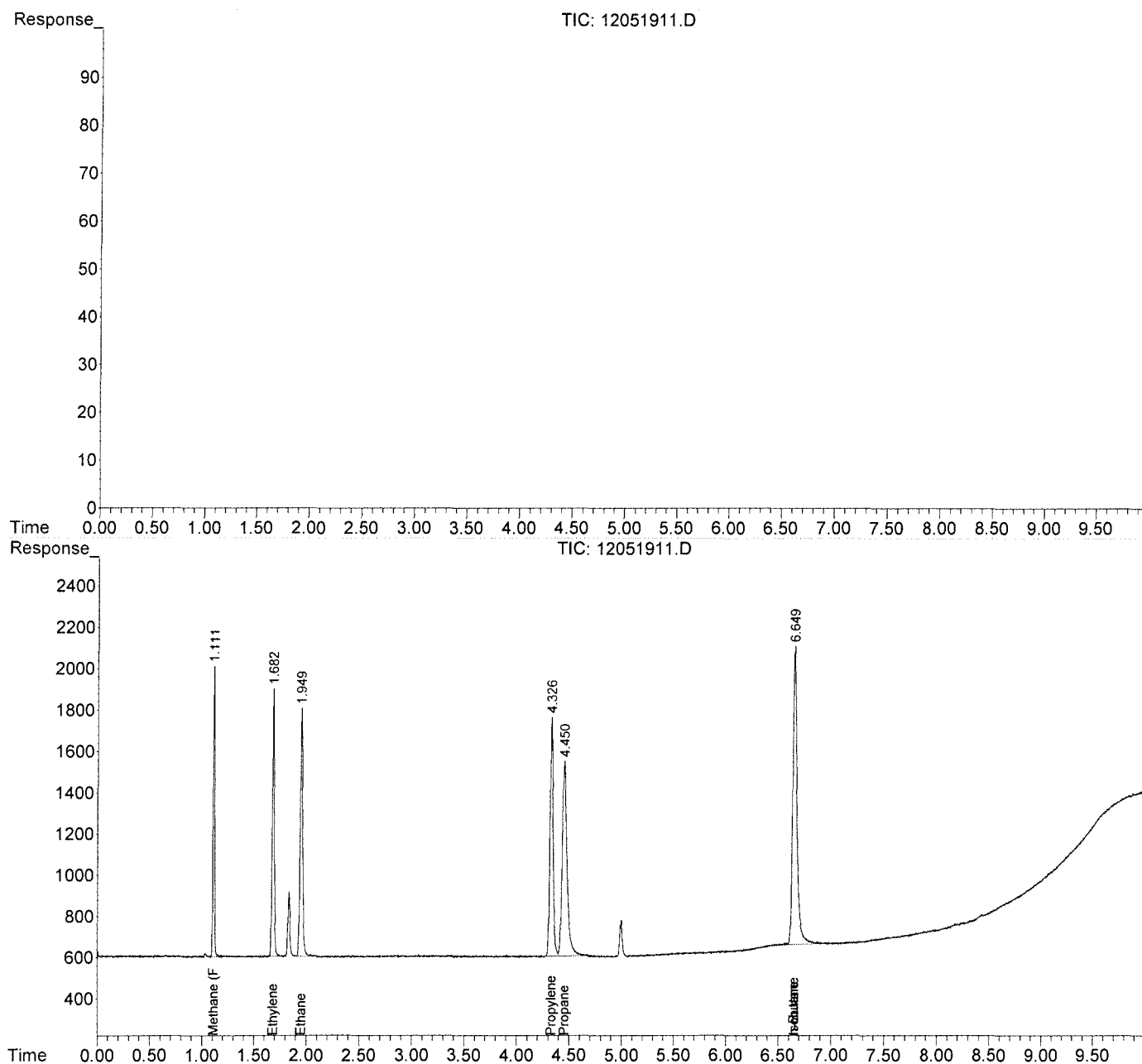
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 12:05:43
Operator : LD
Sample : P1907270-003 MS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 12:30:09 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 12:18:26
Operator : LD
Sample : P1907270-003 MSD 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 12:30:55 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.108	14320	1.579	ppm
7) Ethylene	1.672	17066	1.020	ppm
8) Ethane	1.937	20225	1.193	ppm
9) Propylene	4.326	23699	1.011	ppm
10) Propane	4.449	30666	1.233	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	6.653	40102	1.507	ppm
13) n-Butane	6.653	40102	1.507	ppm

(f)=RT Delta > 1/2 Window

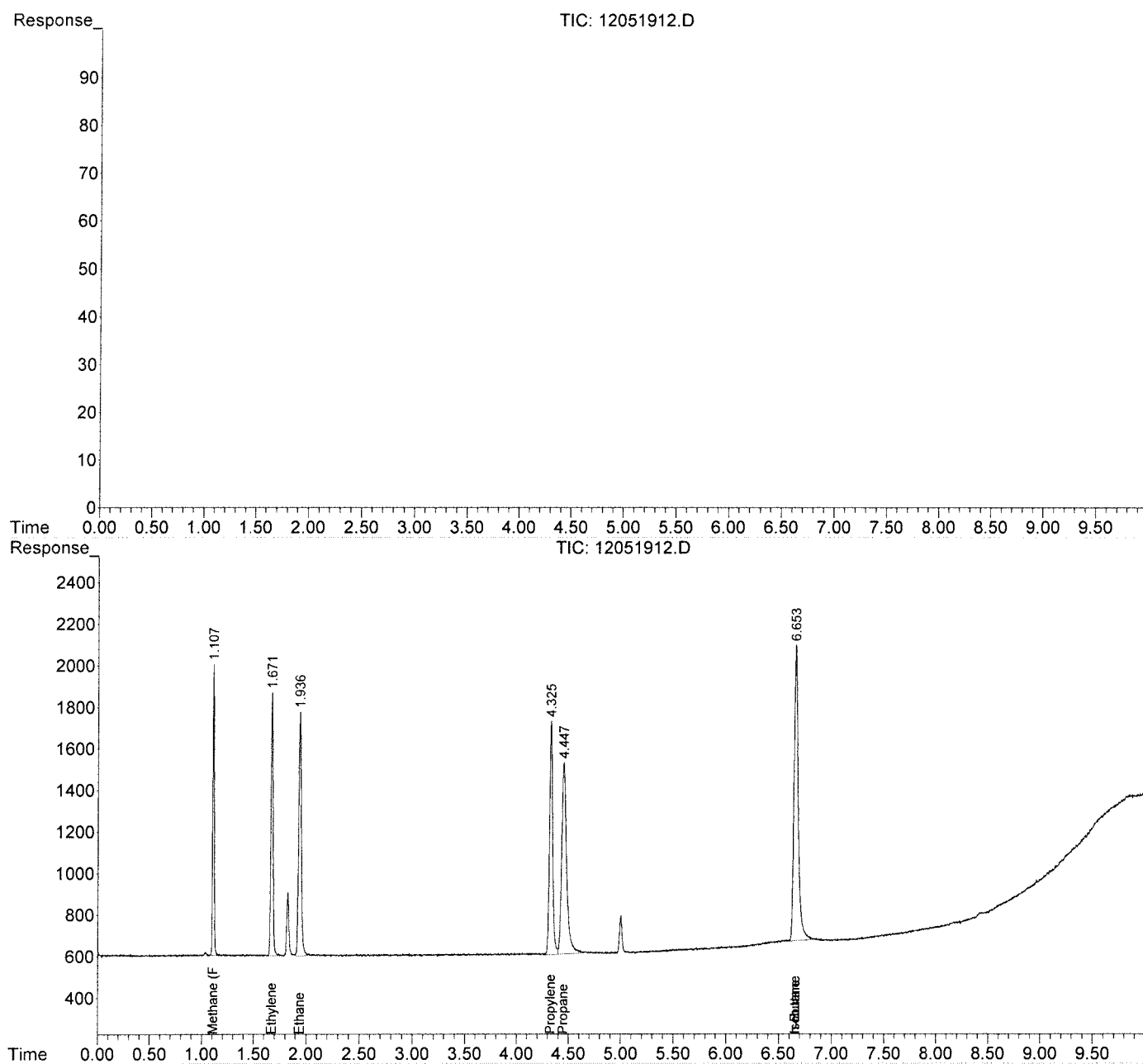
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 12:18:26
Operator : LD
Sample : P1907270-003 MSD 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 12:30:55 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 09:56:31
Operator : LD
Sample : LCS FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 10:26:36 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.114	13777	1.519	ppm
7) Ethylene	1.688	17630	1.054	ppm
8) Ethane	1.955	21547	1.271	ppm
9) Propylene	4.333	23787	1.015	ppm
10) Propane	4.455	32563	1.309	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	6.657	43353	1.629	ppm
13) n-Butane	6.657	43353	1.629	ppm

(f)=RT Delta > 1/2 Window

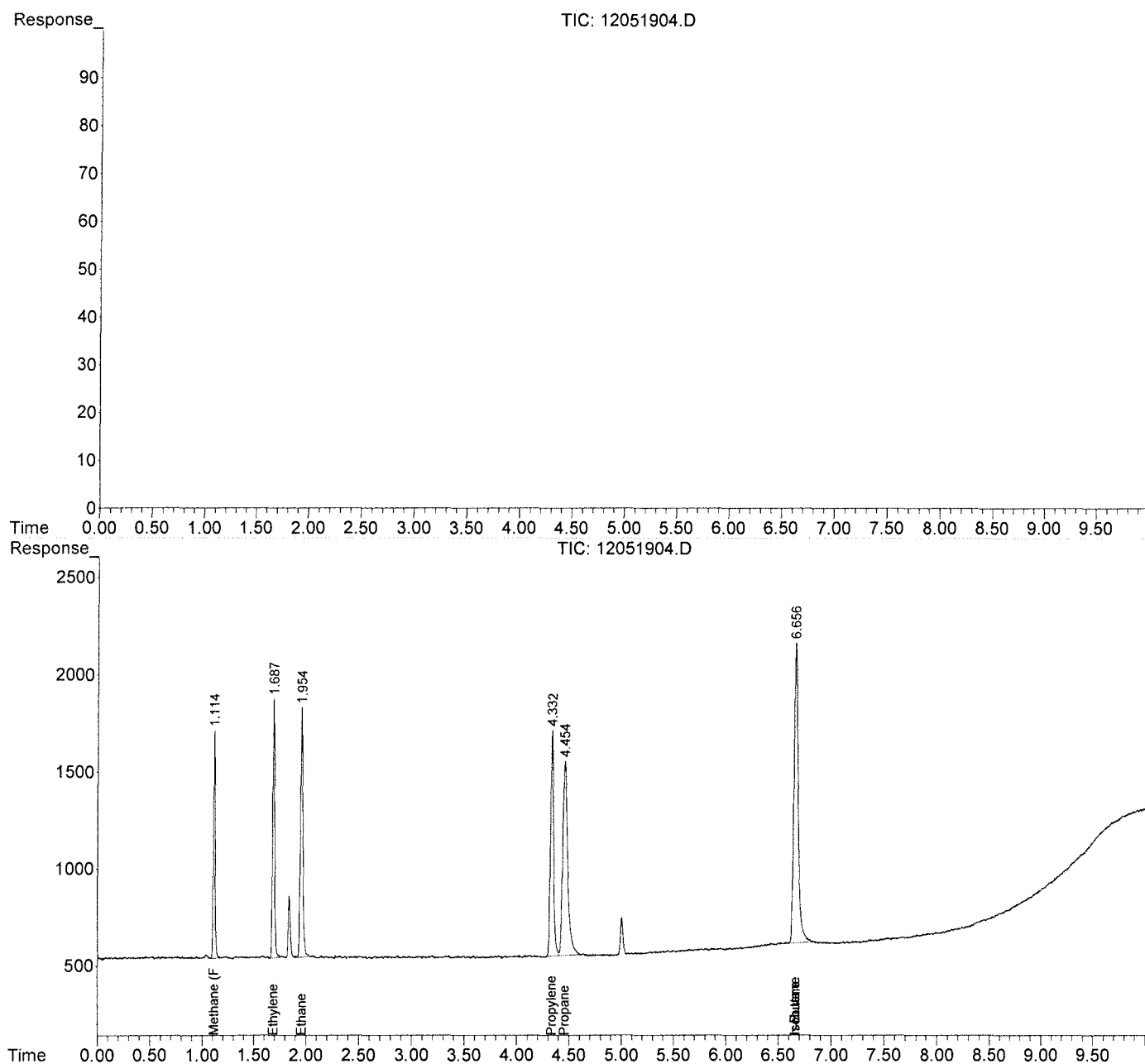
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 09:56:31
Operator : LD
Sample : LCS FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 10:26:36 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 10:09:58
Operator : LD
Sample : LCSD FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 10:28:25 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.111	12909	1.423	ppm
7) Ethylene	1.684	17735	1.060	ppm
8) Ethane	1.952	21591	1.274	ppm
9) Propylene	4.336	24243	1.035	ppm
10) Propane	4.458	33003	1.326	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	6.659	44022	1.654	ppm
13) n-Butane	6.659	44022	1.654	ppm

(f)=RT Delta > 1/2 Window

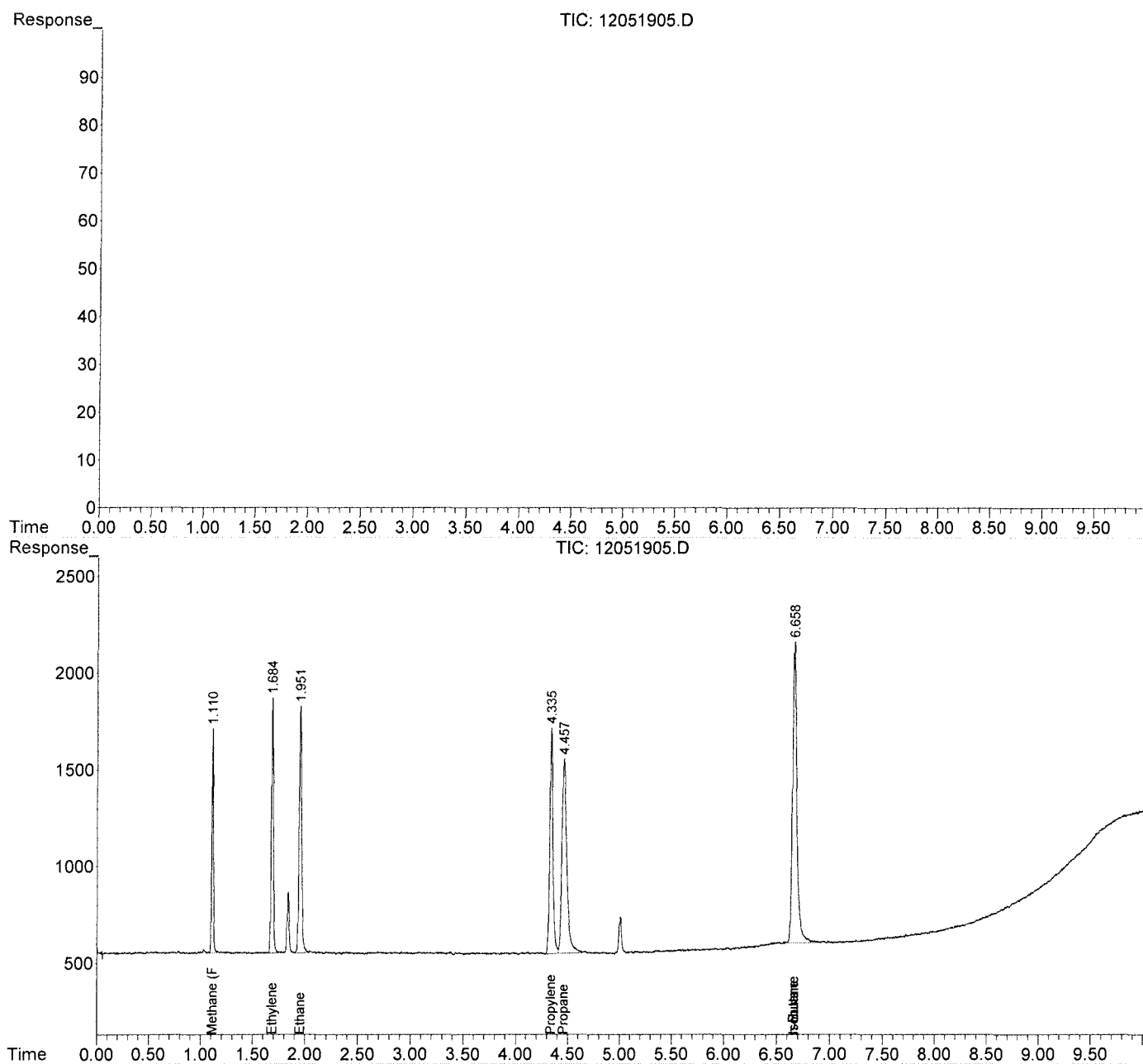
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 10:09:58
Operator : LD
Sample : LCSD FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 10:28:25 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Response Factor Report HP5890

Method Path : J:\GC10\METHODS\
 Method File : RS091217_R.M
 Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 Last Update : Wed Sep 13 11:14:47 2017
 Response Via : Initial Calibration

Calibration Files

1 =09121702.D 2 =09121703.D 3 =09121704.D
 4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg	%RSD
1)	Oxygen/Argon	3.739		1.014			0.001	0.793 E6	189.17
2)	Carbon monoxide	3.739		1.014			0.001	0.594 E6	221.92
3)	Methane (TCD)						2.161	0.951 E2	106.37
4)	Carbon dioxide	2.365	2.569	2.558	2.361	2.459	2.314	2.438 E2	4.44

Signal #2 Calibration Files

1 =09121702.D 2 =09121703.D 3 =09121704.D
 4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg	%RSD
6)	Methane (FID)		1.180	0.975	0.908	0.870	0.868	0.907 E4	11.66
7)	Ethylene	1.736	1.638	1.780	1.720	1.628	1.670	1.673 E4	3.90
8)	Ethane	1.781	1.676	1.784	1.730	1.692	1.675	1.695 E4	3.83
9)	Propylene	2.505	2.296	2.592	2.480	2.346	2.252	2.343 E4	6.56
10)	Propane	2.439	2.283	2.645	2.555	2.433	2.522	2.488 E4	4.20
11)	Isobutylene							0.652 E1	138.46
12)	Isobutane	6.058	4.793	2.214	1.553	1.353		2.662 E4	86.17
13)	n-Butane	6.058	4.793	2.214	1.553	1.353		2.662 E4	86.17

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS091217_R.M Wed Sep 13 15:11:48 2017



Edit Compounds -- Compound #6 -- Methane (FID)

Search by: ☒ Ret Time

☐ Name

☐ Index

Find Compound

Compound Database

External Standard Compound

- ☒ Oxygen/Argon
- ☒ Carbon monoxide
- ☒ Methane (TCD)
- ☒ Carbon dioxide
- ☒ Signal #2
- ☒ Methane (FID)
- ☒ Ethylene
- ☒ Ethane
- ☒ Propylene
- ☒ Propane
- ☒ Isobutylene
- ☒ Isobutane
- ☒ n-Butane

Identification

Calibration

User-Defined

Advanced

Reporting

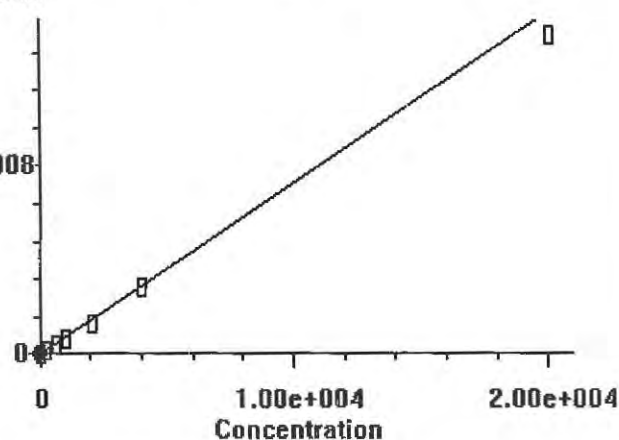
Lvl ID	Concentration	Response
1	0.151000	
2	0.302000	3564.400000
3	1.510000	14725.268625
4	4.530000	41128.575000
5	10.570000	91966.784531
6	200.000000	1735997.497500
7	600.000000	5189848.900000
8	1000.000000	8598533.570000
9	2000.000000	16098209.390000
10	4000.000000	35776839.311352

Lvl ID	Concentration	Response
11	20000.000000	169009160.49199

Methane (FID)

Response

1.00e+008



0.000e+000 Quadratic term

9.071e+003 Linear term

0.000e+000 Constant term

11.657% RF Rel Std Dev

OK

Cancel

Help

Print Calibration Curve

Copy Calibration Curve

Edit Compounds -- Compound #7 -- Ethylene

Search by: ☒ Ret Time☐ Name☐ Index

Find Compound

Compound Database
External Standard Compound

Identification

Calibration

User-Defined

Advanced

Reporting

Oxygen/Argon

Lvl ID

Concentration

Response

Carbon monoxide

1

0.151000

2621.970000

Methane (TCD)

2

0.302000

4946.731301

Carbon dioxide

3

1.510000

26884.746847

Signal #2

4

4.530000

77902.721497

Methane (FID)

5

10.570000

172085.529560

Ethylene

6

200.000000

3339702.313219

Ethane

7

600.000000

10007758.776971

Propylene

8

1000.000000

16608503.805988

Propane

9

2000.000000

31192443.898600

Isobutylene

10

4000.000000

Isobutane

n-Butane

Lvl ID

Concentration

Response

11

20000.000000

Ethylene

Response

2.00e+007

0

0

1.00e+003

2.00e+003

Concentration

0.000e+000

Quadratic term

1.673e+004

Linear term

0.000e+000

Constant term

3.897%

RF Rel Std Dev

OK

Cancel

Help

Print Calibration Curve

Copy Calibration Curve

Edit Compounds: -- Compound #8 -- Ethane

Search by ☒ Ret Time

☐ Name

☐ Index

Find Compound

Compound Database
External Standard Compound

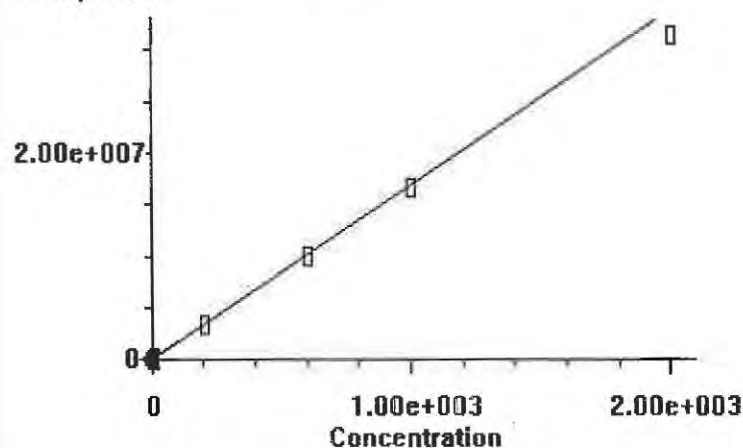
Identification Calibration User-Defined Advanced Reporting

	Lvl ID	Concentration	Response
Oxygen/Argon	1	0.151000	2689.928008
Carbon monoxide	2	0.302000	5060.331943
Methane (TCD)	3	1.510000	26943.667500
Carbon dioxide	4	4.530000	78353.525045
Signal #2	5	10.570000	178840.731148
Methane (FID)	6	200.000000	3350442.319129
Ethylene	7	600.000000	10048964.218029
Propylene	8	1000.000000	16703164.879012
Propane	9	2000.000000	31424217.938900
Isobutylene	10	4000.000000	
Isobutane			
n-Butane			

Lvl ID	Concentration	Response
11	20000.000000	

Ethane

Response



0.000e+000	Quadratic term
1.695e+004	Linear term
0.000e+000	Constant term
3.831%	RF Rel Std Dev

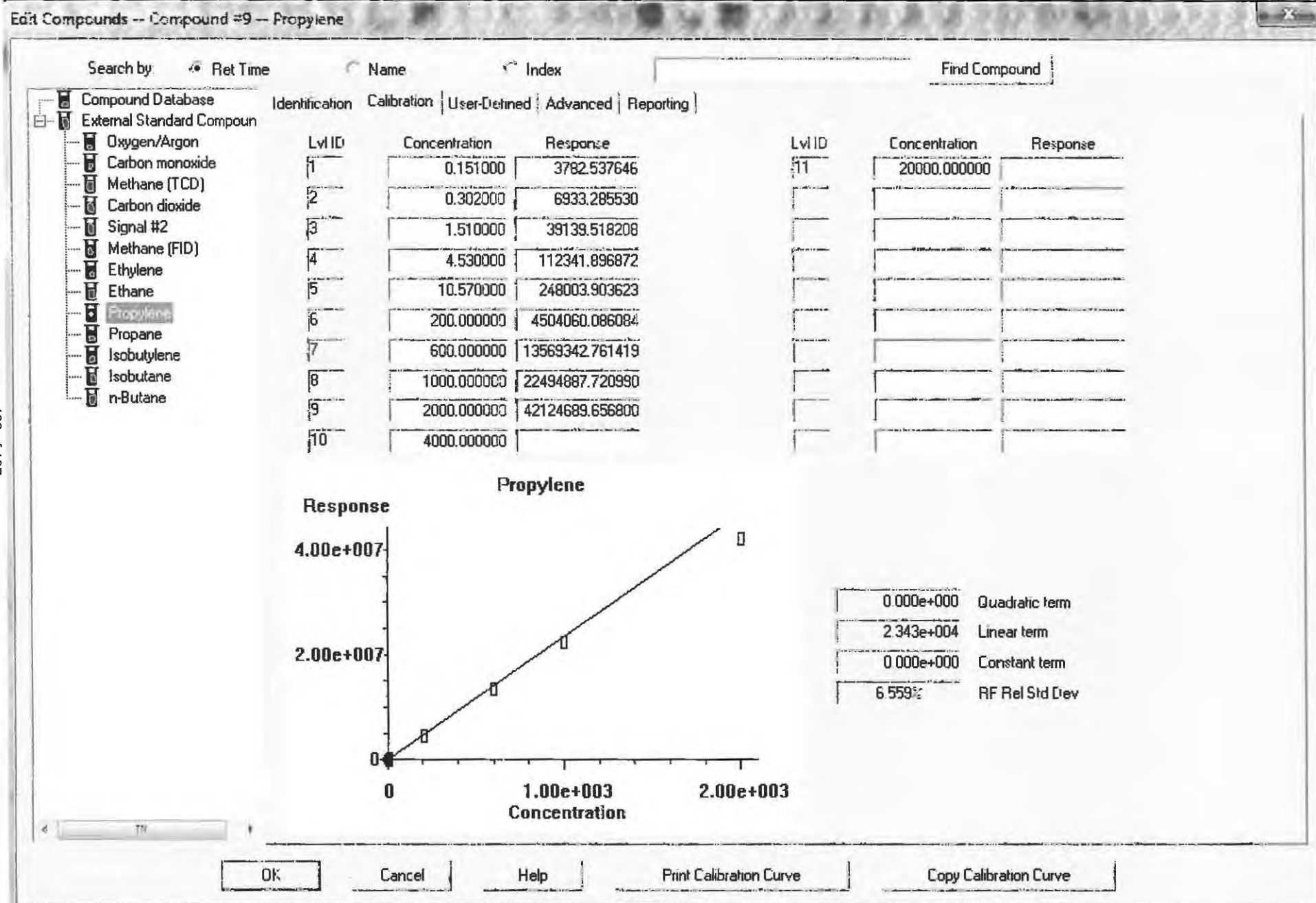
OK

Cancel

Help

Print Calibration Curve

Copy Calibration Curve



Edit Compounds -- Compound #10 -- Propane

Search by ☒ Ret Time☐ Name☐ Index

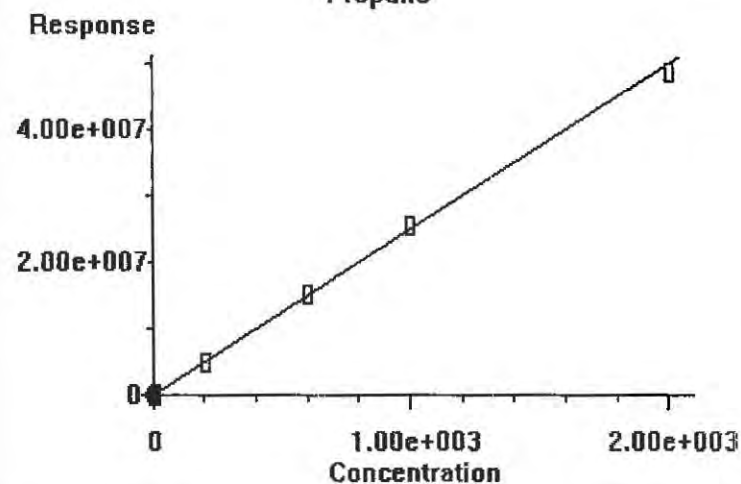
Find Compound

Compound Database
External Standard Compound

Identification Calibration User-Defined Advanced Reporting

	Lvl ID	Concentration	Response	Lvl ID	Concentration	Response
Oxygen/Argon	1	0.151000	3682.897354	11	20000.000000	
Carbon monoxide	2	0.302000	6894.237803			
Methane (TCD)	3	1.510000	39934.166792			
Carbon dioxide	4	4.530000	115723.428128			
Signal #2	5	10.570000	257124.432806			
Methane (FID)	6	200.000000	5043035.663916			
Ethylene	7	600.000000	15251325.797404			
Ethane	8	1000.000000	25459410.657938			
Propylene	9	2000.000000	48593085.287451			
Propane	10	4000.000000				
Isobutylene						
Isobutane						
n-Butane						

Propane



0.000e+000	Quadratic term
2.488e+004	Linear term
0.000e+000	Constant term
4.200%	RF Rel Std Dev

OK

Cancel

Help

Print Calibration Curve

Copy Calibration Curve

Method Path : J:\GC10\METHODS\
 Method File : RS091217_R.M
 Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 Last Update : Wed Sep 13 11:14:47 2017
 Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121702.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121703.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121704.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121705.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121706.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121707.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121711.D
11	11	20000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121712.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Sep 13 11:04 2017	Sep 12 15:03 2017	12-Sep-2017, 10:52
2	2	Sep 13 11:05 2017	Sep 13 11:05 2017	12-Sep-2017, 11:05
3	3	Sep 13 11:06 2017	Sep 13 11:05 2017	12-Sep-2017, 11:45
4	4	Sep 13 11:09 2017	Sep 13 11:06 2017	12-Sep-2017, 12:09
5	5	Sep 13 11:09 2017	Sep 13 11:09 2017	12-Sep-2017, 12:30
6	6	Sep 13 11:10 2017	Sep 13 11:10 2017	12-Sep-2017, 12:47
7	7	Sep 13 11:11 2017	Sep 13 11:10 2017	12-Sep-2017, 13:00
8	8	Sep 13 11:12 2017	Sep 13 11:11 2017	12-Sep-2017, 13:47
9	9	Sep 13 11:12 2017	Sep 13 11:12 2017	12-Sep-2017, 14:07
10	10	Sep 13 11:14 2017	Sep 13 11:13 2017	12-Sep-2017, 14:48
11	11	Sep 13 11:14 2017	Sep 13 11:14 2017	12-Sep-2017, 15:21

RS091217_R.M Wed Sep 13 15:11:22 2017



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.767	373920	0.128 ppm
2) Carbon monoxide	1.767	373920	N.D. ppm
3) Methane (TCD)	0.000	0	N.D. ppm
4) Carbon dioxide	0.000	0	N.D. ppm
6) Methane (FID)	0.000	0	N.D. ppm d
7) Ethylene	1.595	2622	0.156 ppm
8) Ethane	1.848	2690	0.156 ppm
9) Propylene	4.222	3783	0.154 ppm
10) Propane	4.348	3683	0.139 ppm
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	6.582f	6058	NoCal ppm
13) n-Butane	6.582f	6058	NoCal ppm

(f)=RT Delta > 1/2 Window

(m)=manual int.

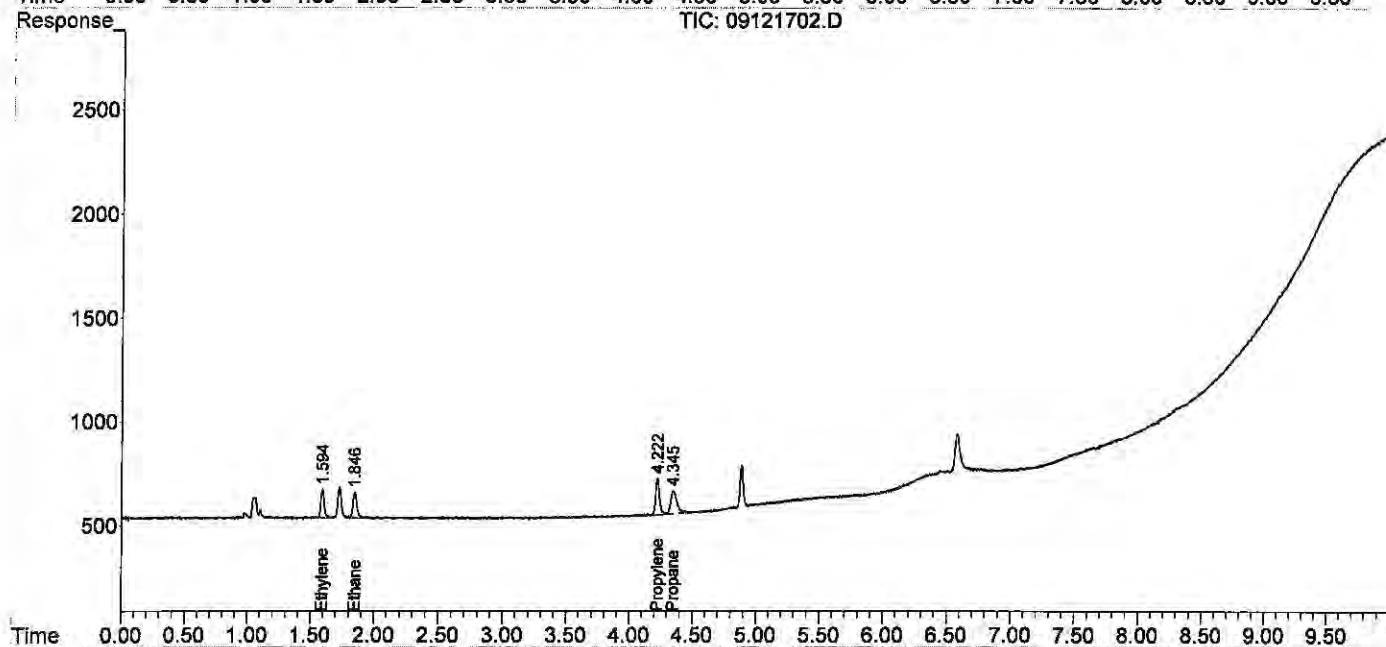
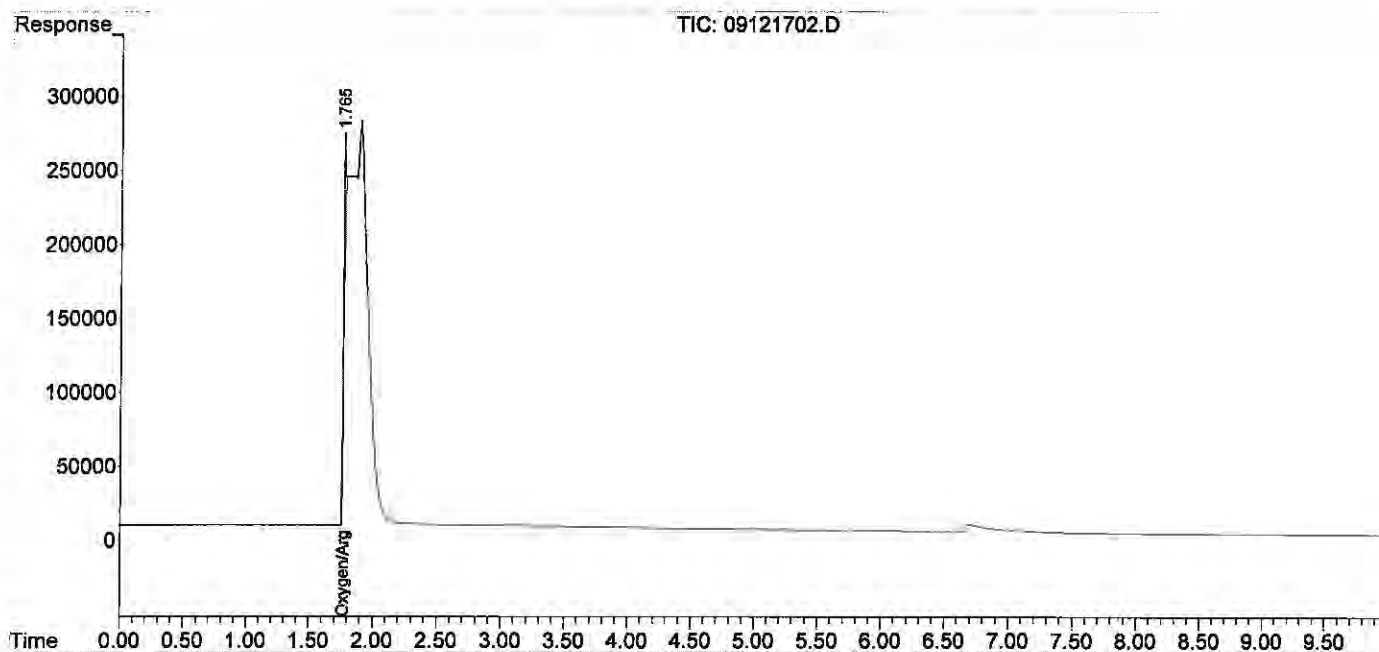
MC 9/13/12



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) Oxygen/Argon	1.913f	-25181981	N.D.	ppm
2) Carbon monoxide	1.913f	-25181981	1.089	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.049	3564	0.391	ppm m
7) Ethylene	1.577	4947	0.292	ppm
8) Ethane	1.828	5060	0.293	ppm
9) Propylene	4.207	6933	0.281	ppm
10) Propane	4.337	6894	0.268	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	6.579f	9587	0.158	ppm
13) n-Butane	6.579f	9587	0.158	ppm

(f)=RT Delta > 1/2 Window

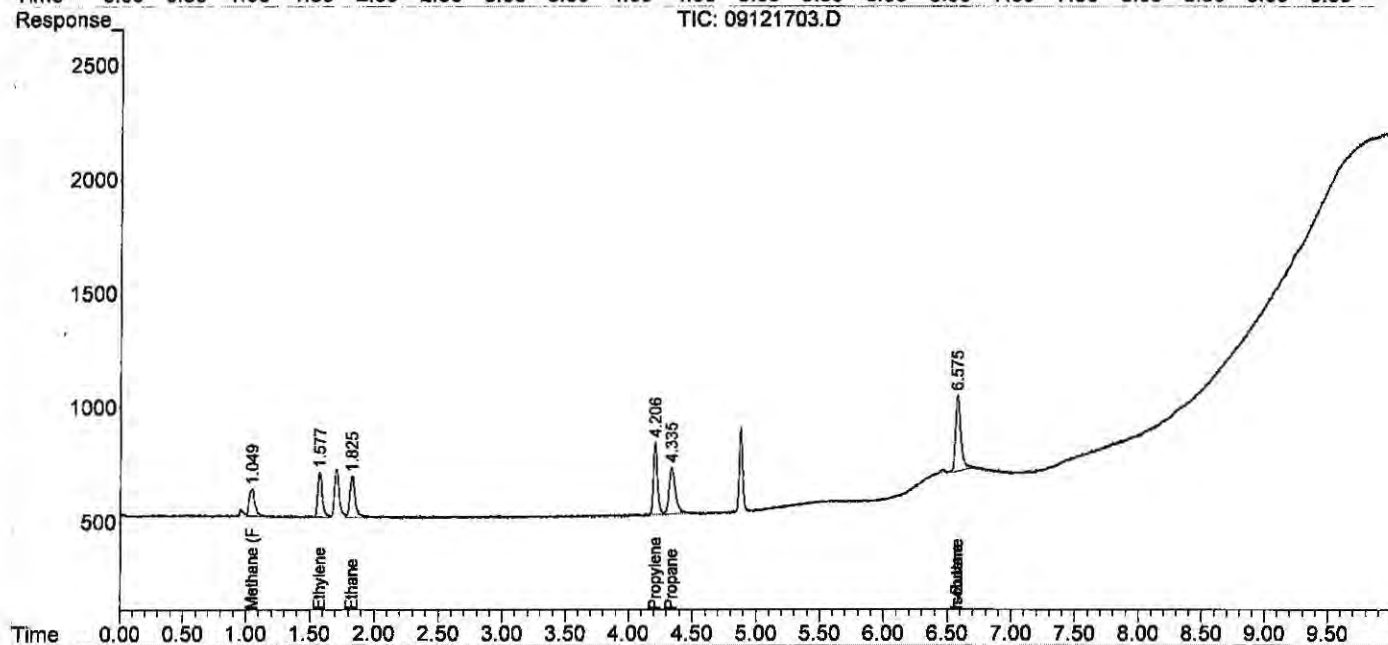
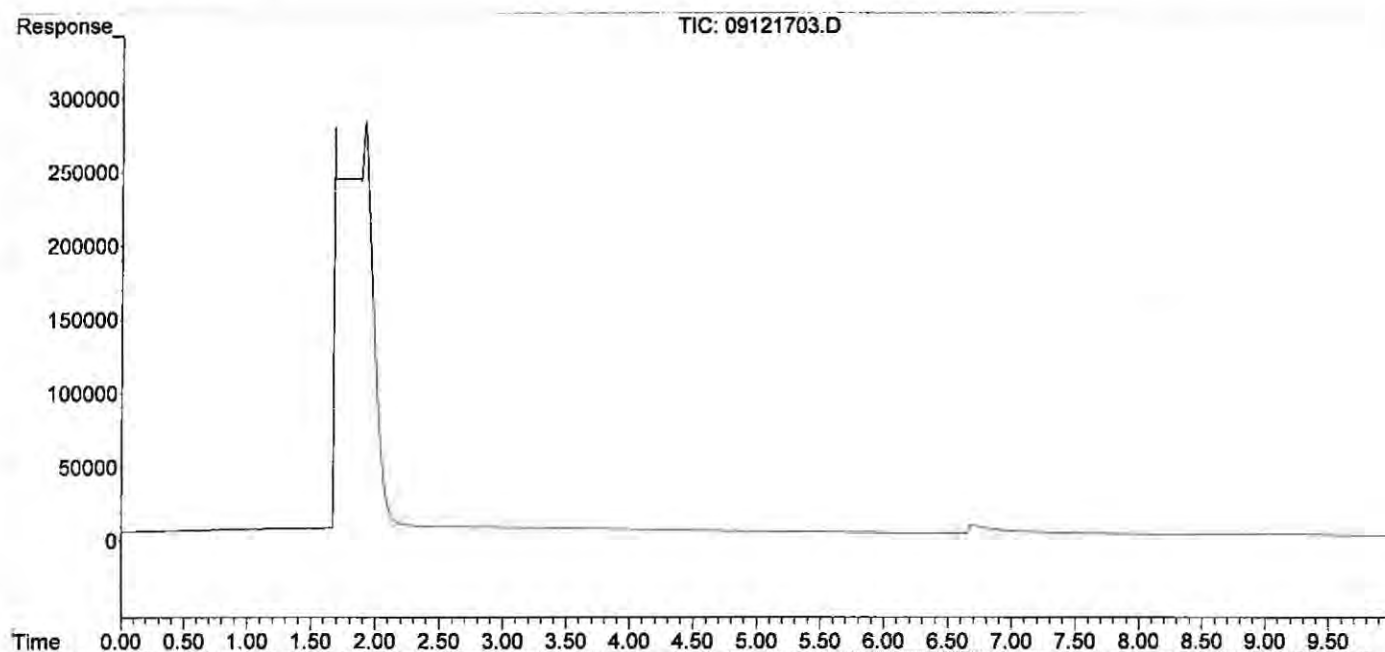
(m)=manual int.



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

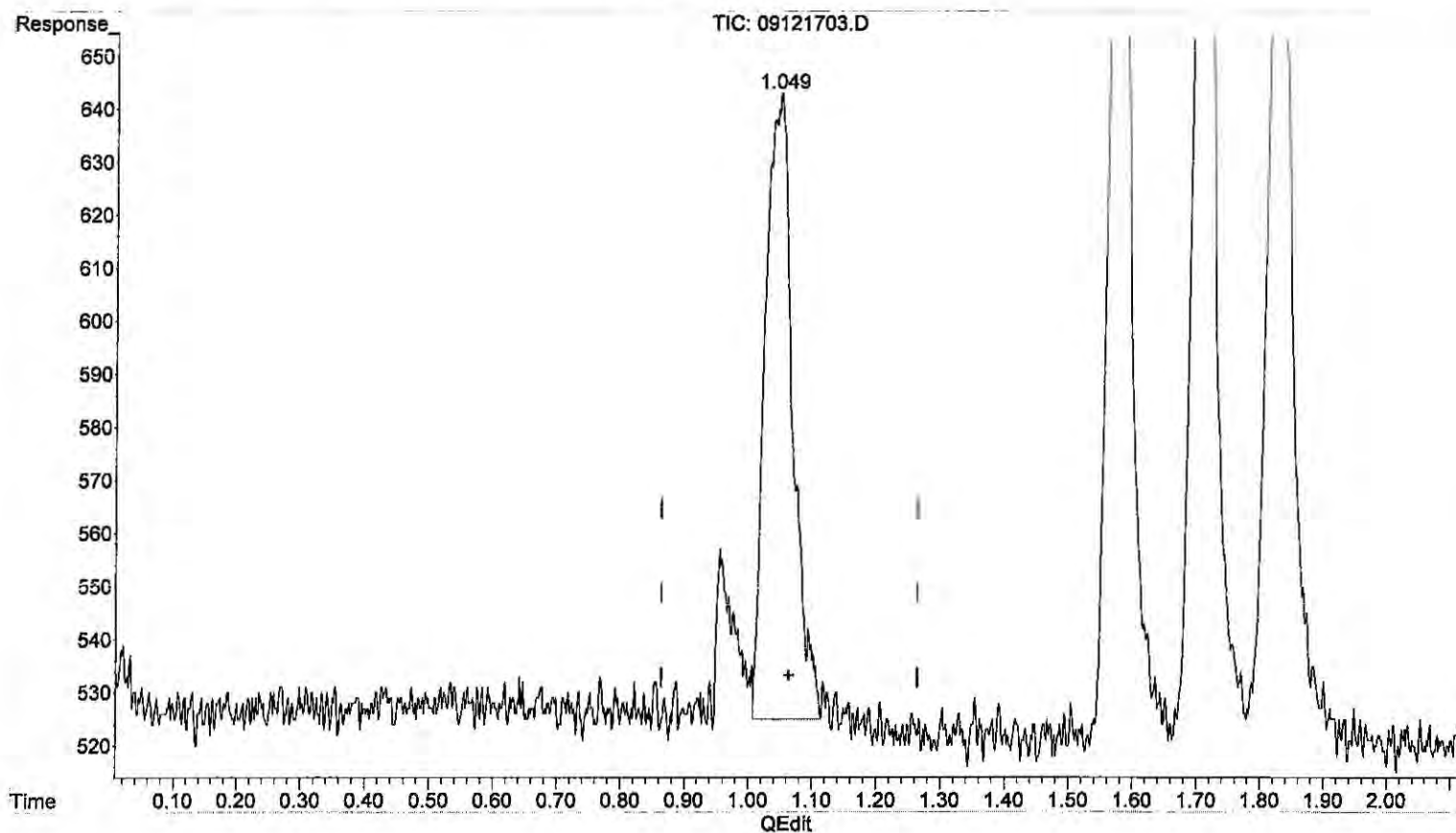
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.049min 0.391 ppm m

response 3564

MC 9/13/17
Bu
Ms
prw

Wg/17

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.847	2536230	1.056 ppm
2) Carbon monoxide	1.847	2536230	N.D. ppm
3) Methane (TCD)	0.000	0	N.D. ppm
4) Carbon dioxide	0.000	0	N.D. ppm
6) Methane (FID)	1.064	14725	1.613 ppm
7) Ethylene	1.598	26885	1.582 ppm
8) Ethane	1.851	26944	1.555 ppm
9) Propylene	4.220	39140	1.589 ppm
10) Propane	4.349	39934	1.596 ppm
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	6.578f	55348	1.020 ppm
13) n-Butane	6.578f	55348	1.020 ppm

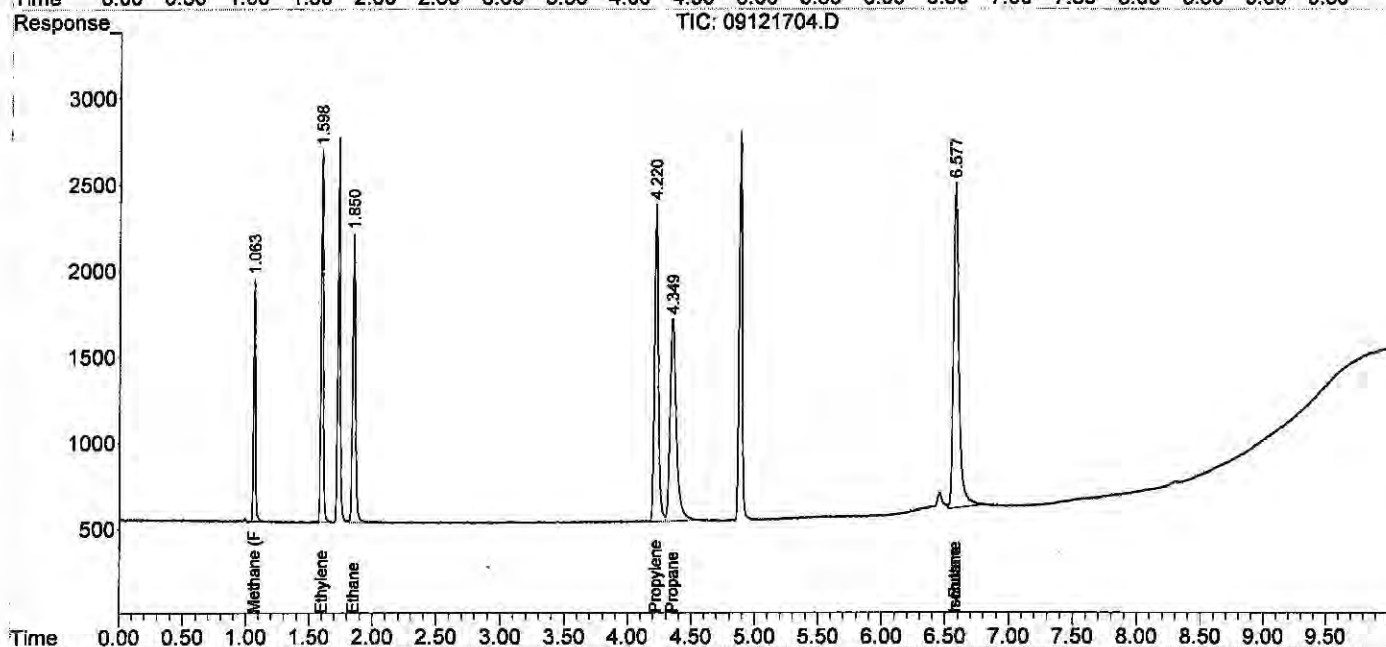
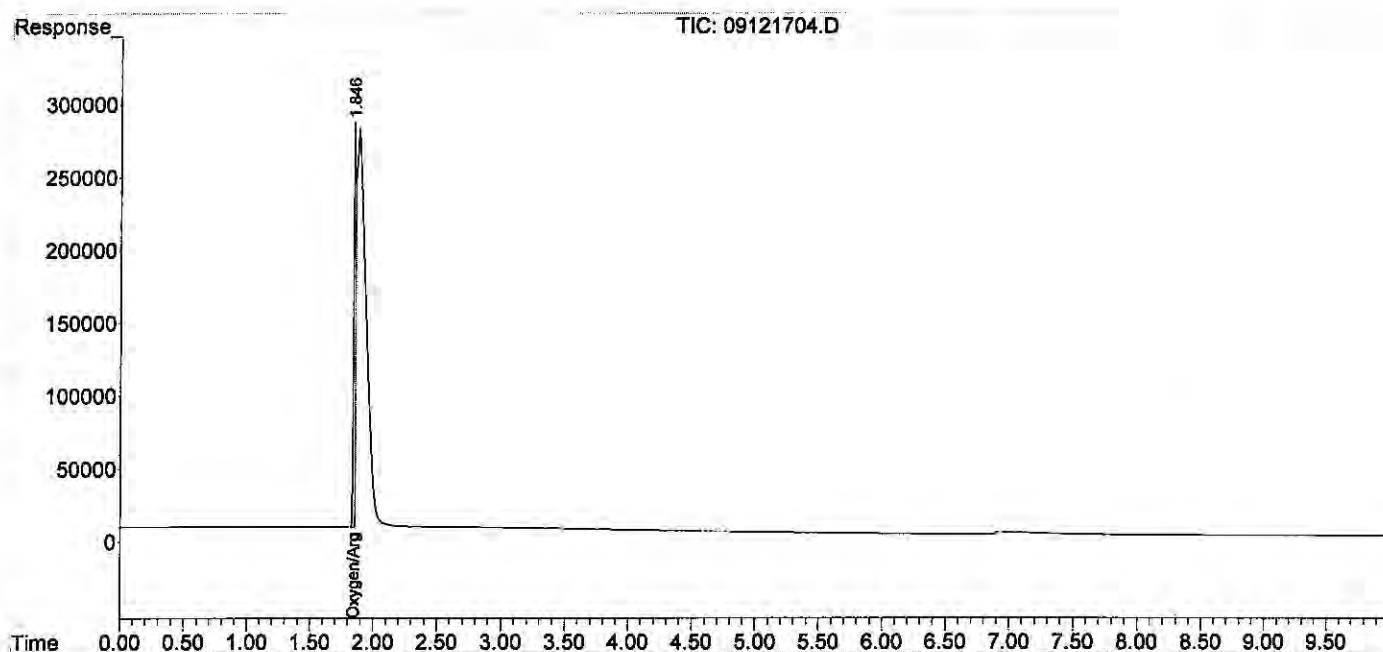
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.738	-331216	N.D.	ppm
2) Carbon monoxide	1.738	-331216	0.019	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.052	41129	4.522	ppm
7) Ethylene	1.586	77903	4.637	ppm
8) Ethane	1.838	78354	4.558	ppm
9) Propylene	4.218	112342	4.614	ppm
10) Propane	4.347	115723	4.680	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	6.580f	155256	3.565	ppm
13) n-Butane	6.580f	155256	3.565	ppm

(f)=RT Delta > 1/2 Window

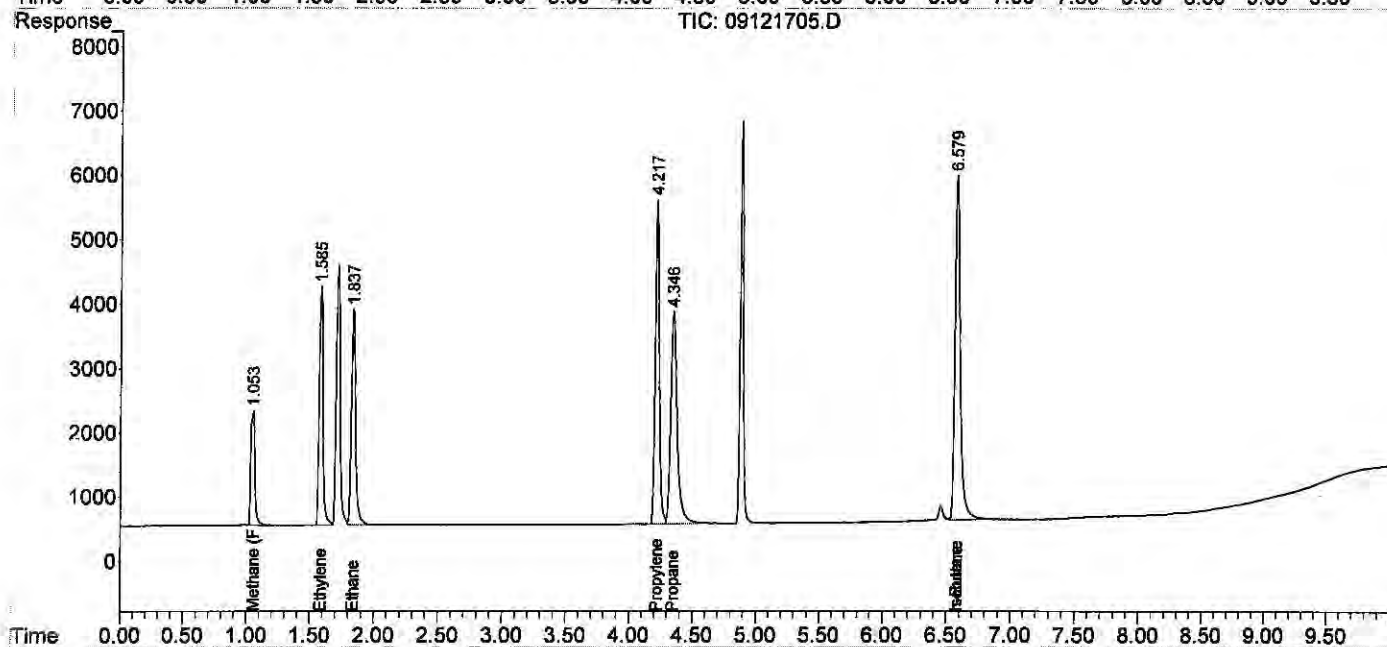
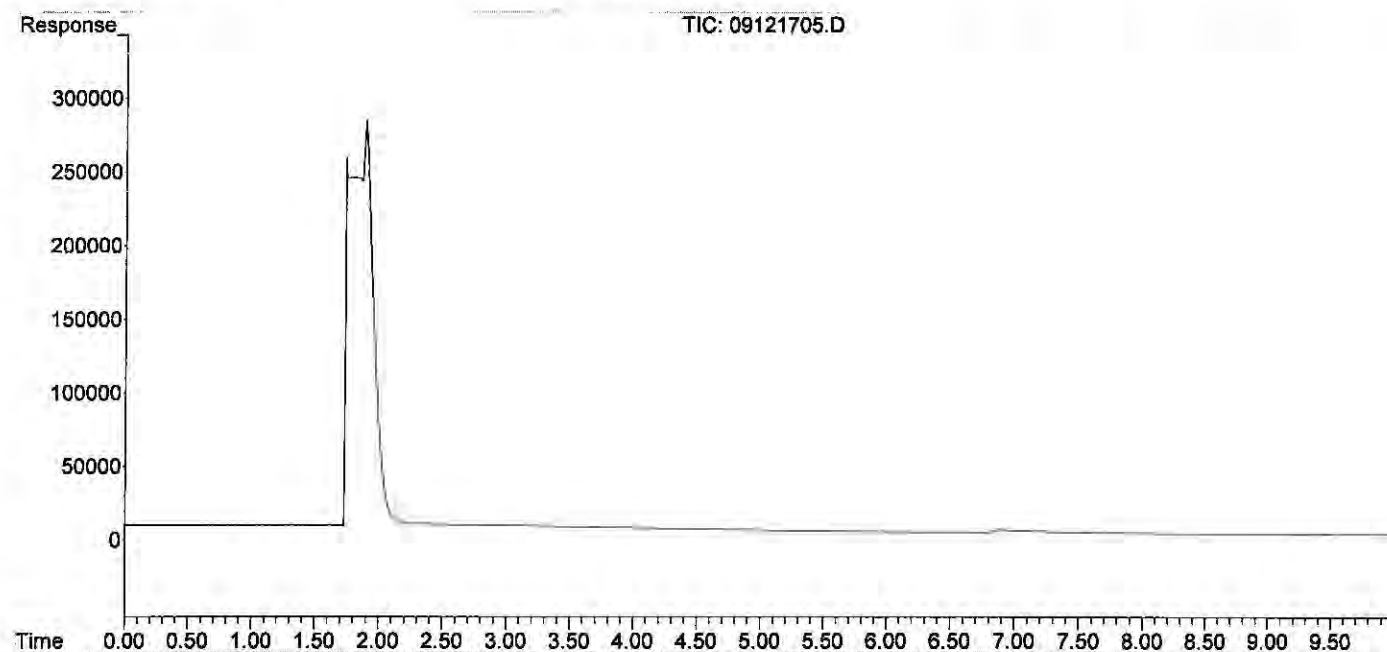
(m)=manual int.



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.929f	-31871242	N.D.	ppm
2) Carbon monoxide	1.929f	-31871242	1.818	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.025	91967	10.135	ppm
7) Ethylene	1.568	172086	10.273	ppm
8) Ethane	1.822	178841	10.441	ppm
9) Propylene	4.214	248004	10.236	ppm
10) Propane	4.344	257124	10.458	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	6.578f	338181	9.254	ppm
13) n-Butane	6.578f	338181	9.254	ppm

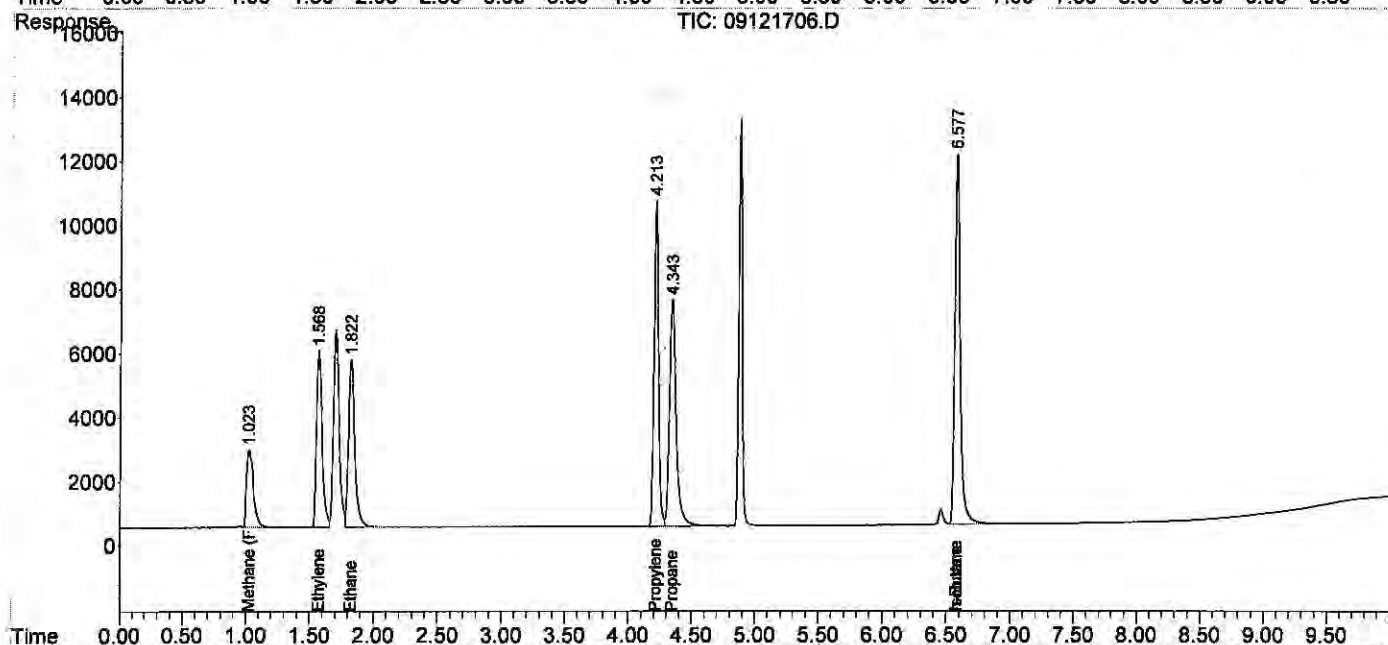
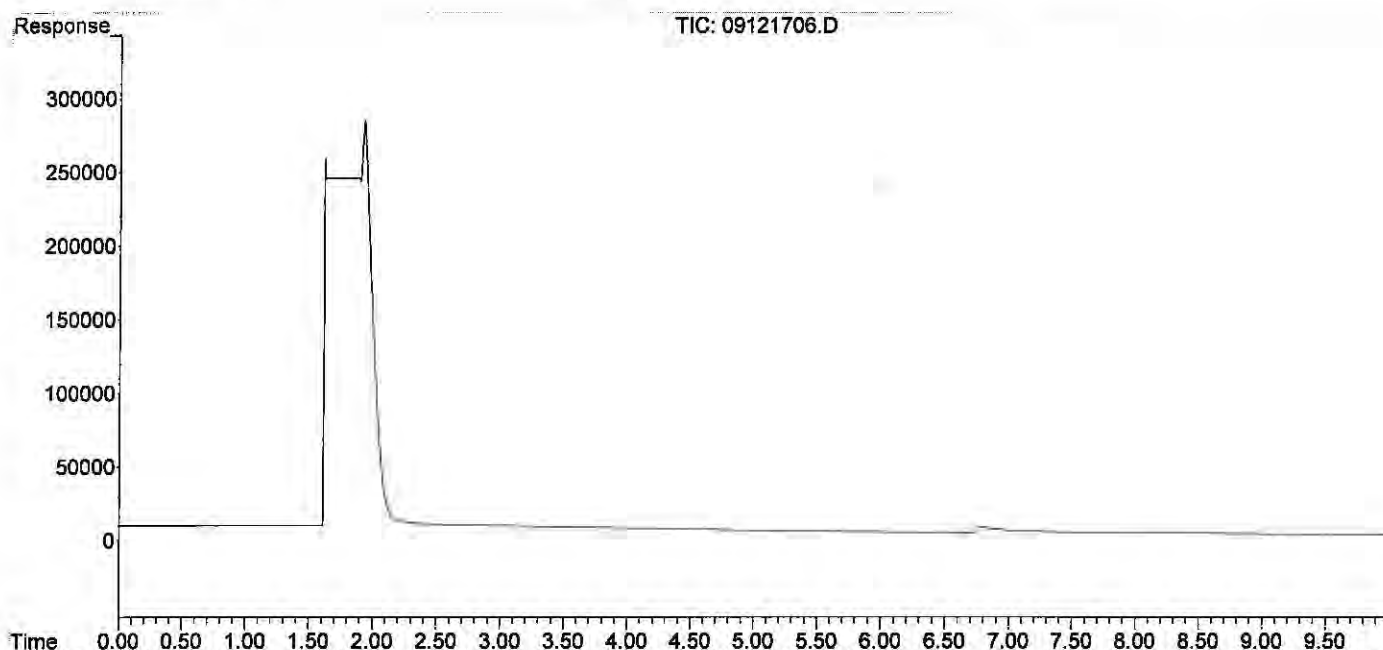
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217 R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.897	155286	0.065	ppm
2) Carbon monoxide	1.897	155286	N.D.	ppm
3) Methane (TCD)	4.079f	27015	2856.472	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.063	1735997	190.792	ppm
7) Ethylene	1.597	3339702	198.758	ppm
8) Ethane	1.849	3350442	194.597	ppm
9) Propylene	4.201	4504060	185.706	ppm
10) Propane	4.333	5043036	204.809	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

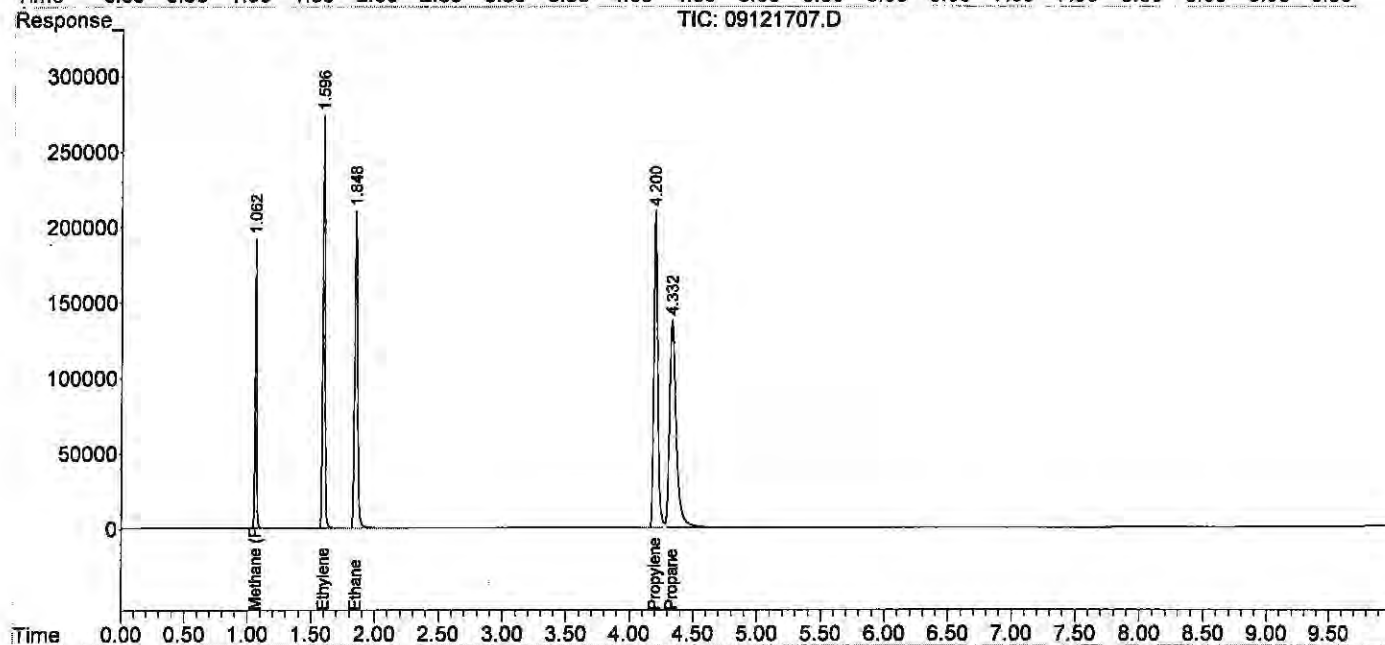
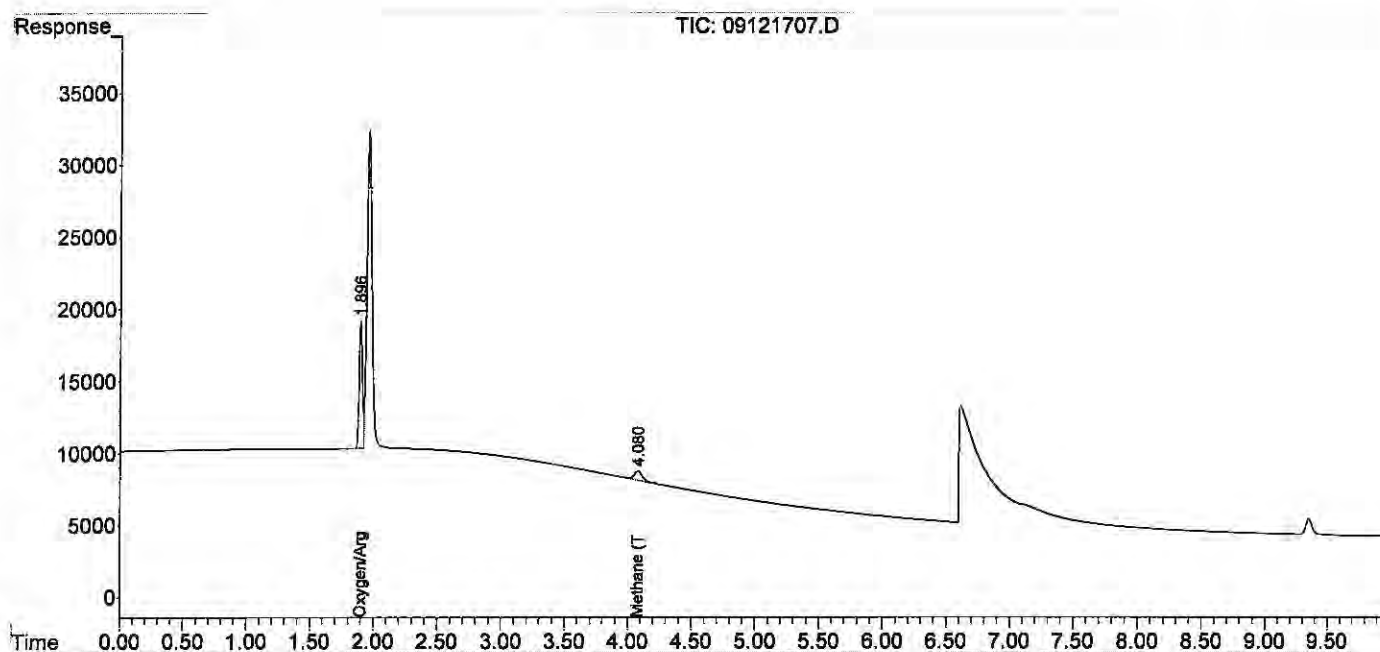
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.884	196022	0.124	ppm
2) Carbon monoxide	1.884	196022	N.D.	ppm
3) Methane (TCD)	4.070f	88282	782.730	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.044	5189849	539.759	ppm
7) Ethylene	1.573	10007759	590.286	ppm
8) Ethane	1.822	10048964	583.213	ppm
9) Propylene	4.160	13569343	562.612	ppm
10) Propane	4.300	15251326	615.171	ppm
11) Isobutylene	6.143	9815	NoCal	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

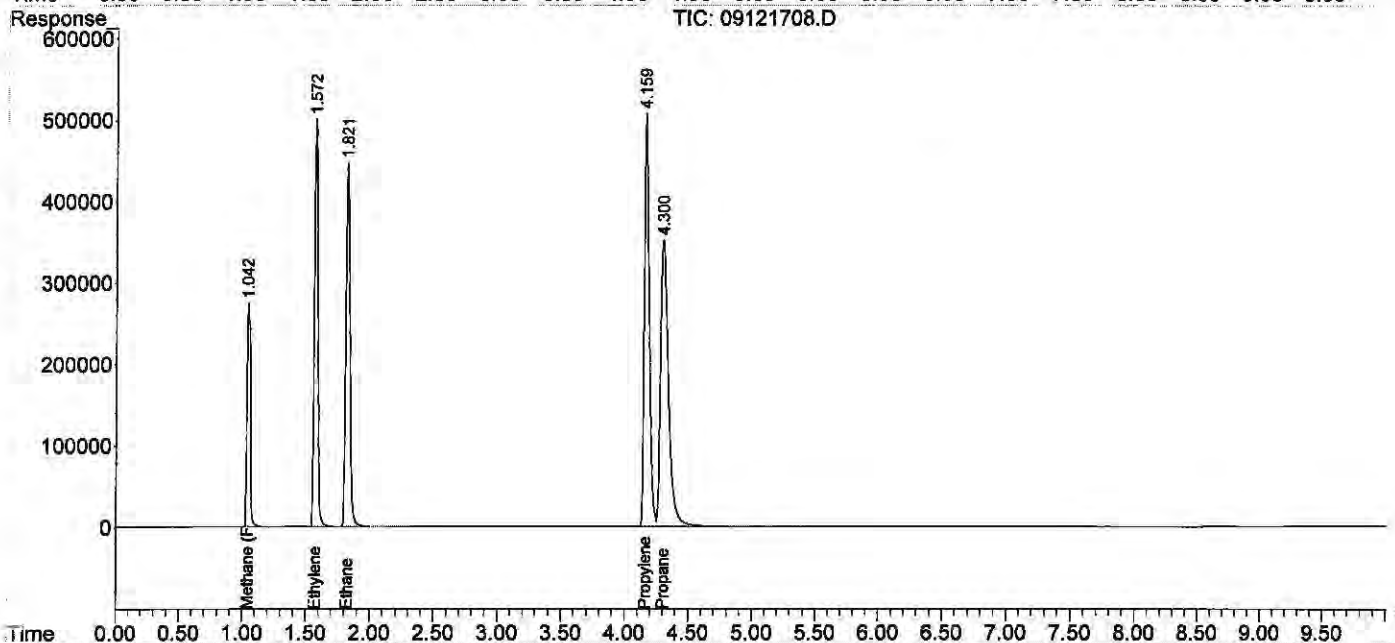
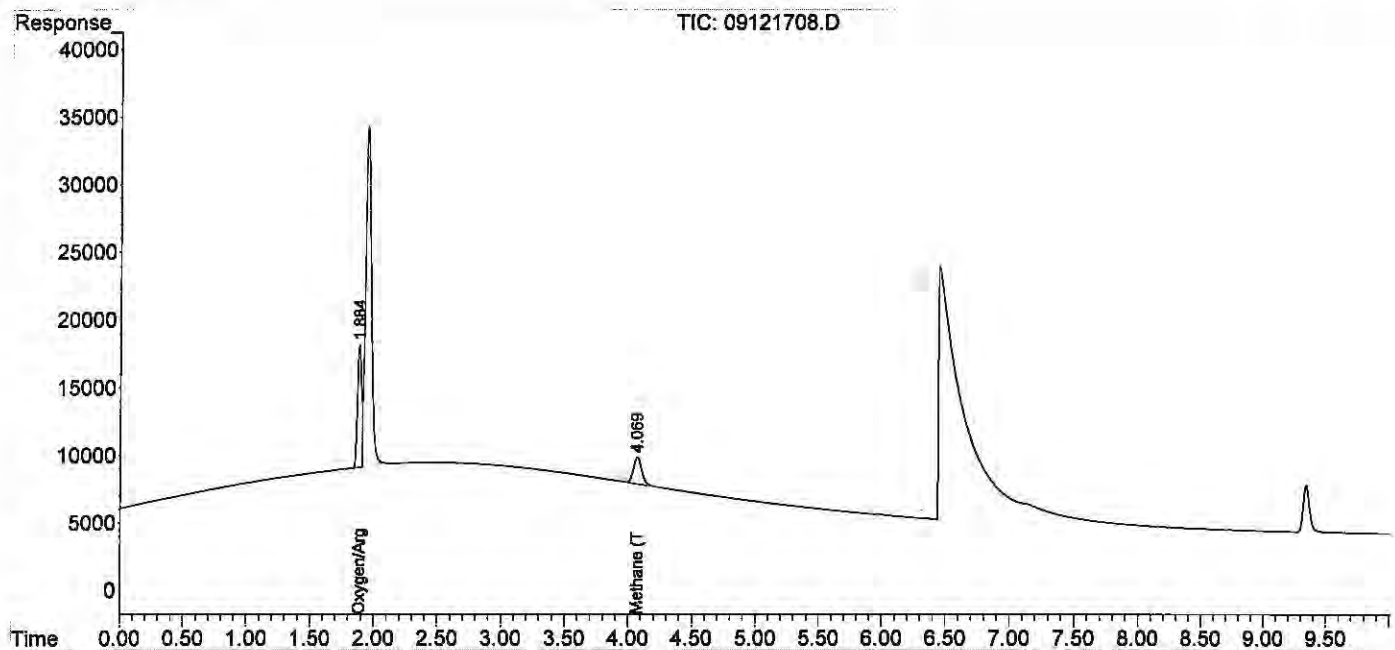
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
 Data File : 09121709.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 12-Sep-2017, 13:47
 Operator : MC
 Sample : 1000ppm 0.5ml s32-09121701
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Sep 13 11:11:46 2017
 Quant Method : J:\GC10\METHODS\RS091217_R.M
 Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 QLast Update : Wed Sep 13 11:11:38 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	1.879	192611	0.162	ppm
2) Carbon monoxide	1.879	192611	N.D.	ppm
3) Methane (TCD)	4.070f	145492	1244.729	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.039	8598534	945.644	ppm
7) Ethylene	1.576	16608504	981.887	ppm
8) Ethane	1.827	16709165	973.644	ppm
9) Propylene	4.161	22494888	941.060	ppm
10) Propane	4.298	25459411	1023.223	ppm
11) Isobutylene	6.138	16970	8645.243	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

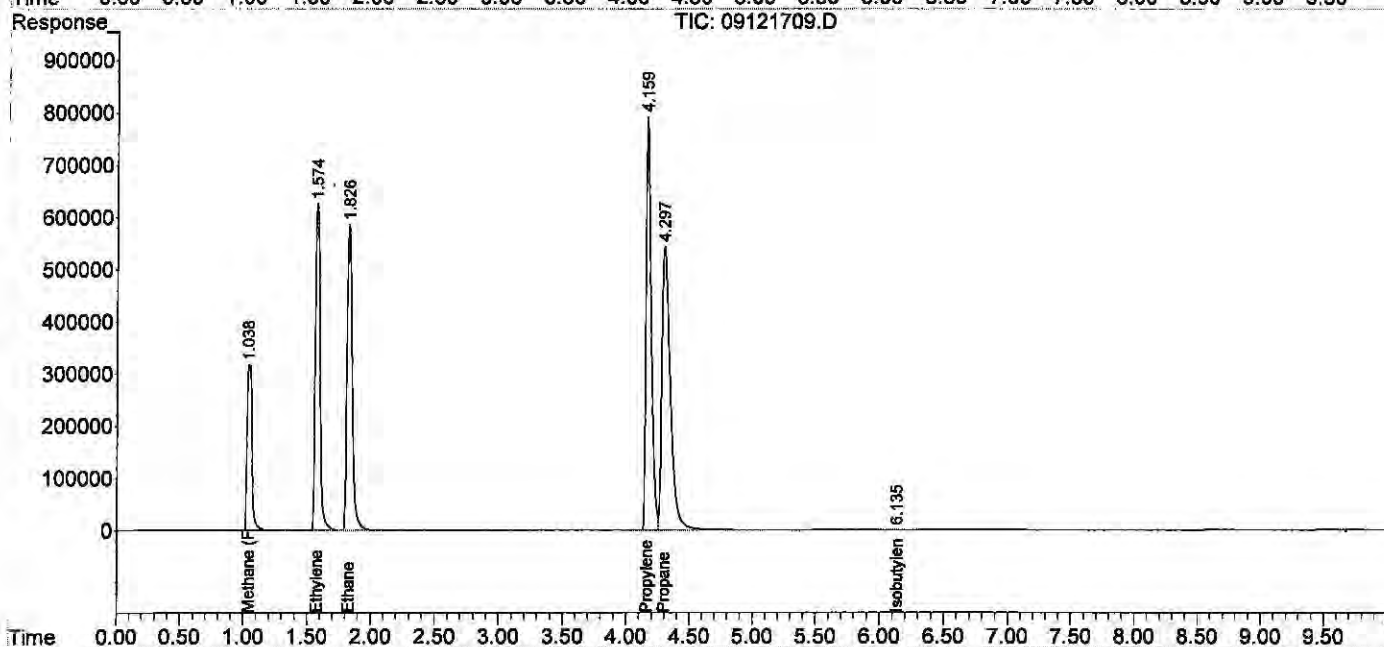
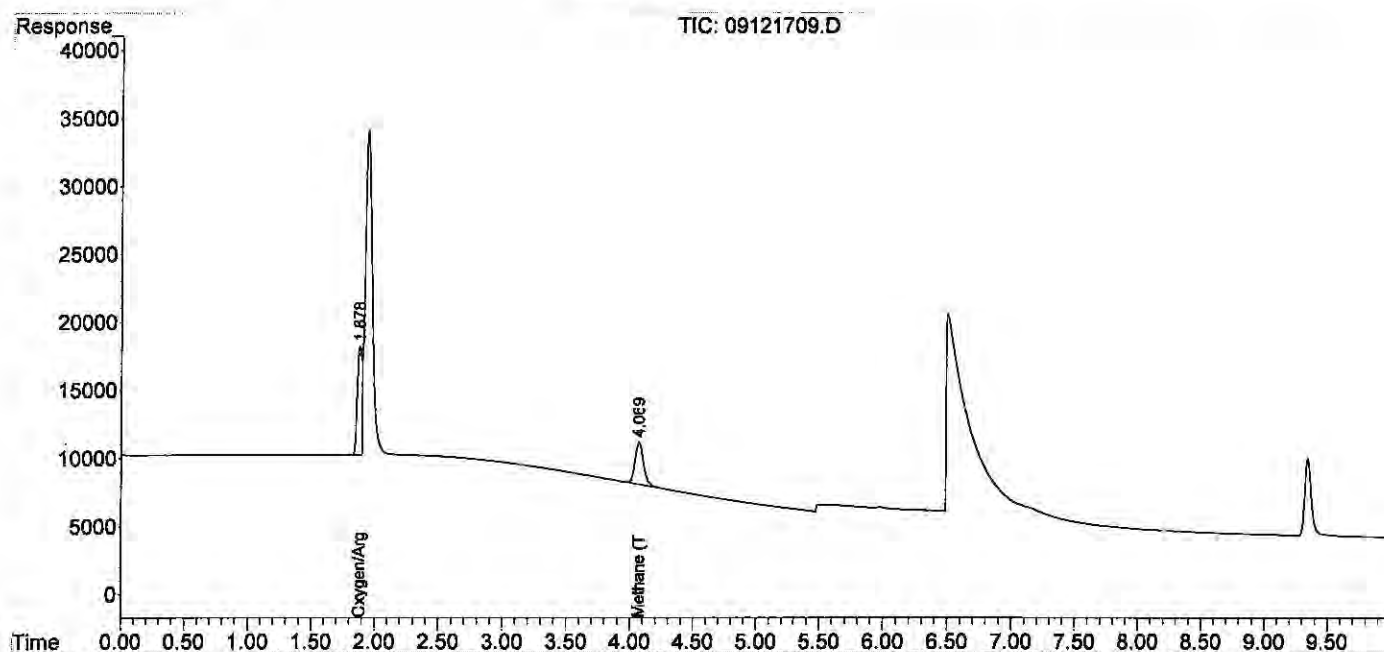
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.922f	1578147	1.659 ppm
2) Carbon monoxide	1.922f	1578147	N.D. ppm
3) Methane (TCD)	4.057f	281651	3526.607 ppm
4) Carbon dioxide	0.000	0	N.D. ppm
6) Methane (FID)	1.016	16098209	1763.622 ppm
7) Ethylene	1.552	31192444	1848.268 ppm
8) Ethane	1.801	31424218	1837.143 ppm
9) Propylene	4.129	42124690	1775.341 ppm m
10) Propane	4.269	48583085	1946.921 ppm
11) Isobutylene	6.136	33832	25613.603 ppm
12) Isobutane	6.576f	3845	0.120 ppm
13) n-Butane	6.576f	3845	0.120 ppm

(f)=RT Delta > 1/2 Window

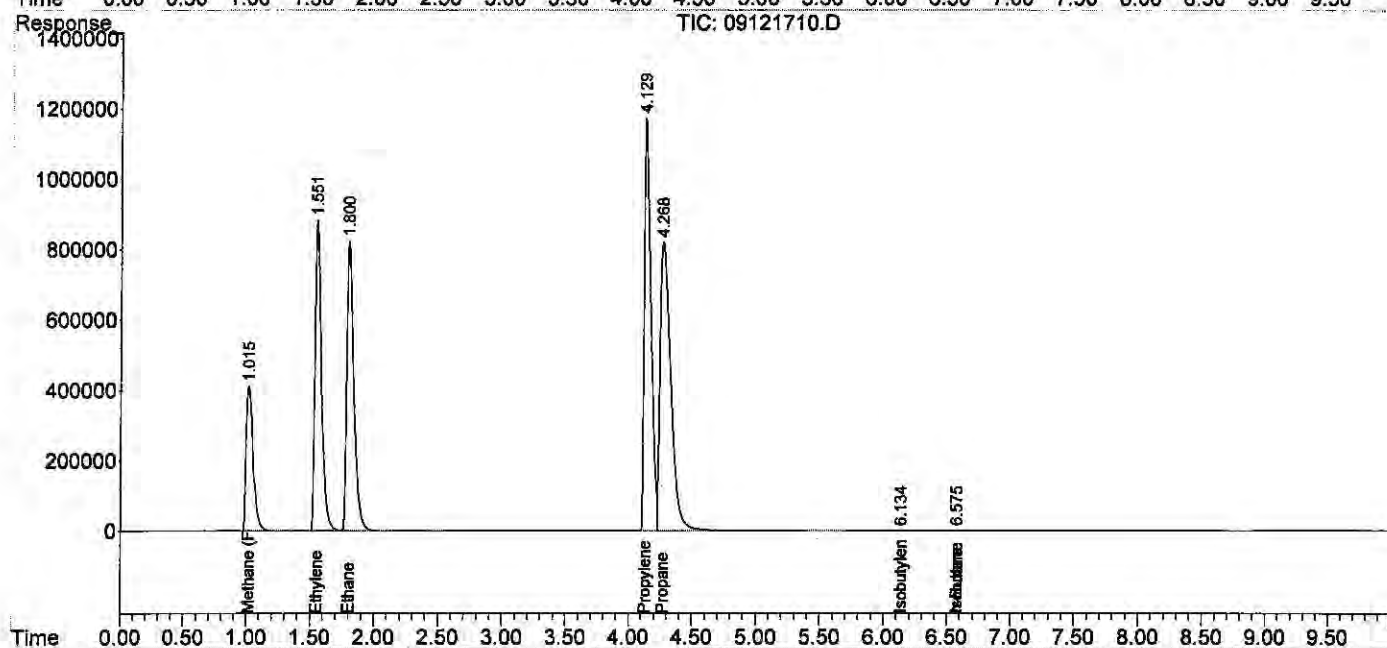
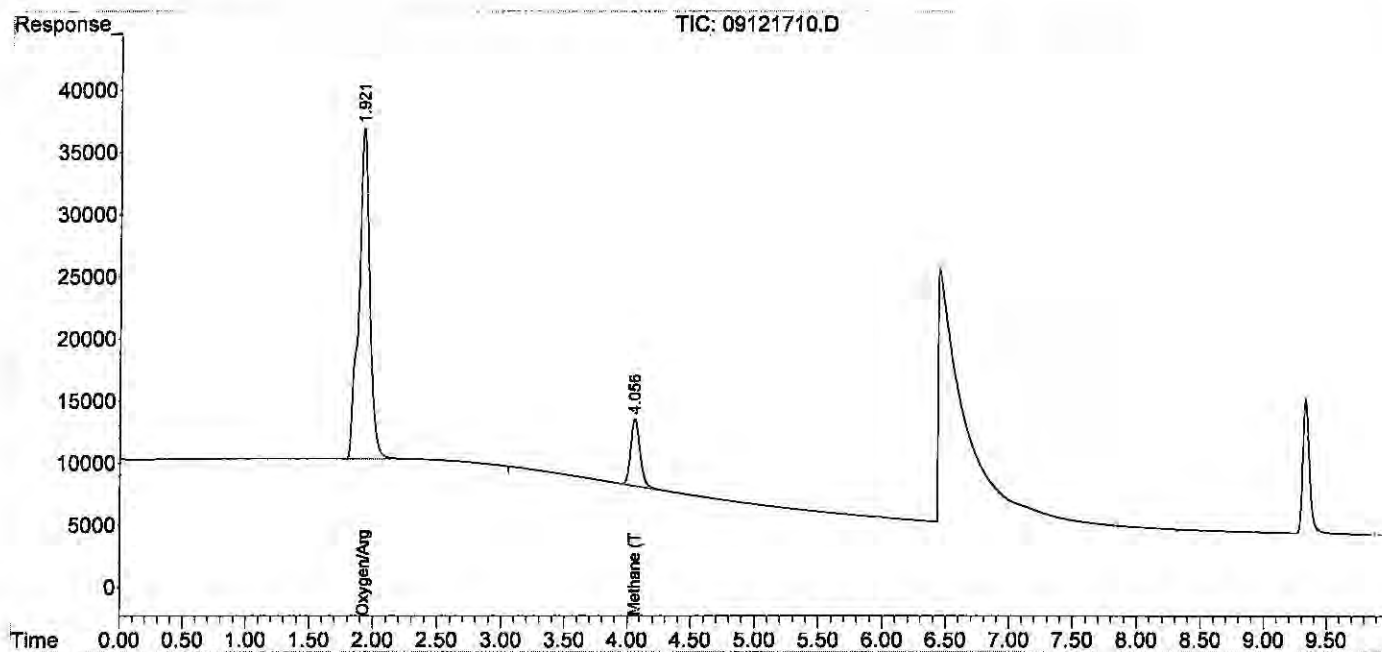
(m)=manual int.



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217 R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

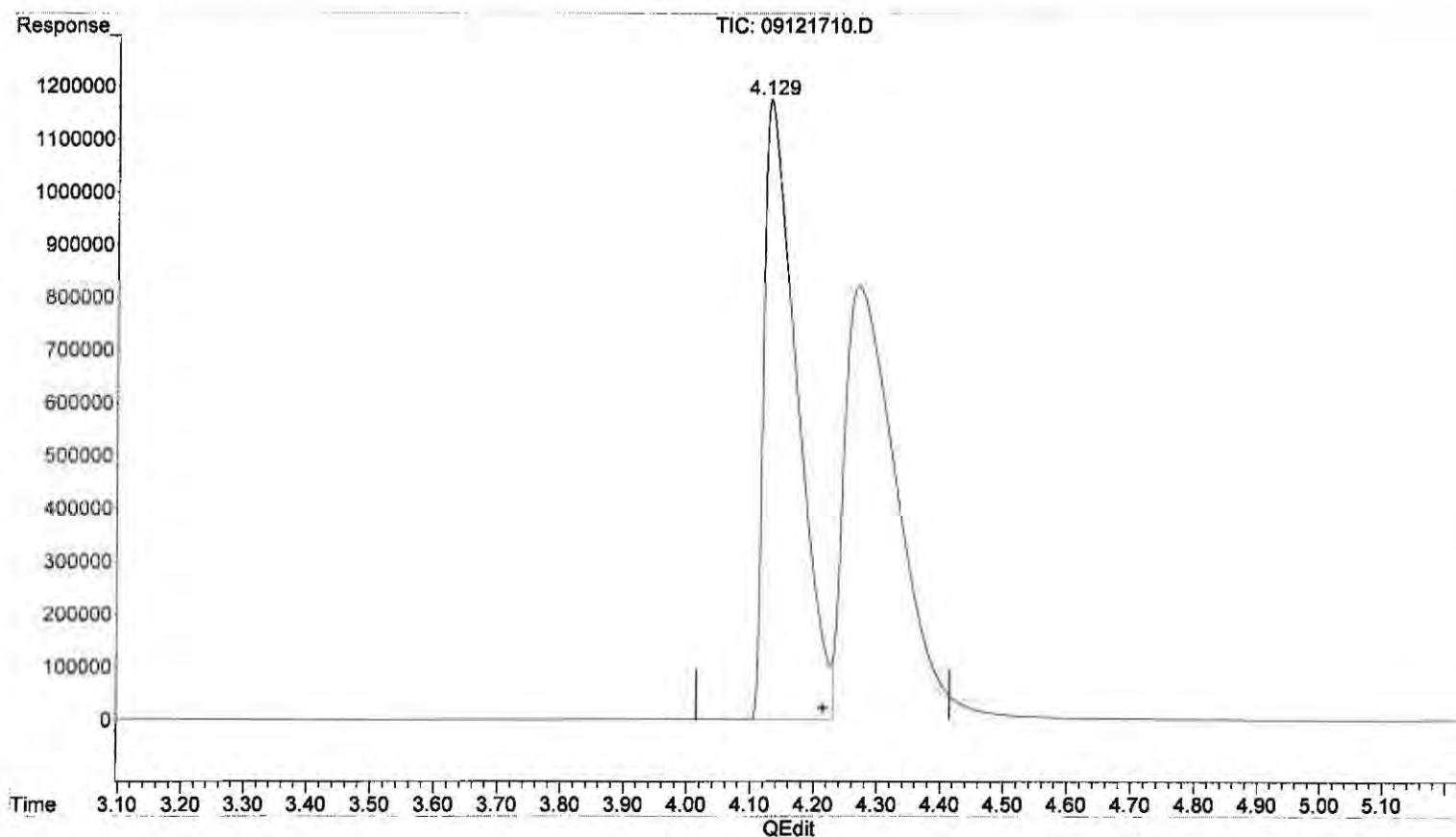
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(9) Propylene

4.129min 1775.341 ppm m

response 42124690

M 4/13/17
WP

Mo
Pren

W 9/21/17

(+) = Expected Retention Time

RS091217_R.M Wed Sep 13 15:08:03 2017

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Page: 1



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
 Data File : 09121711.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 12-Sep-2017, 14:48
 Operator : MC
 Sample : 4000ppm 0.1ml s32-08231701
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Sep 13 11:13:37 2017
 Quant Method : J:\GC10\METHODS\RS091217_R.M
 Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 QLast Update : Wed Sep 13 11:13:29 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm d
2) Carbon monoxide	0.000	0	N.D.	ppm d
3) Methane (TCD)	0.000	0	N.D.	ppm d
4) Carbon dioxide	0.000	0	N.D.	ppm d
6) Methane (FID)	1.059	35776839	3925.122	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

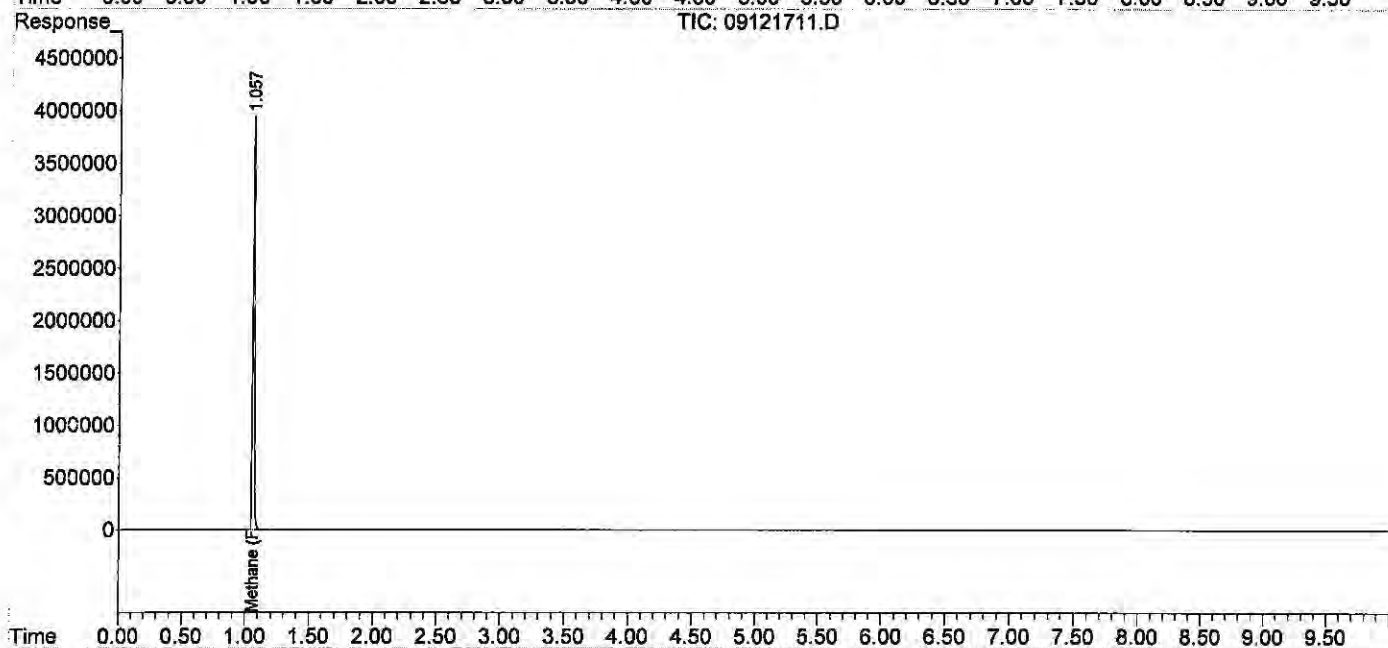
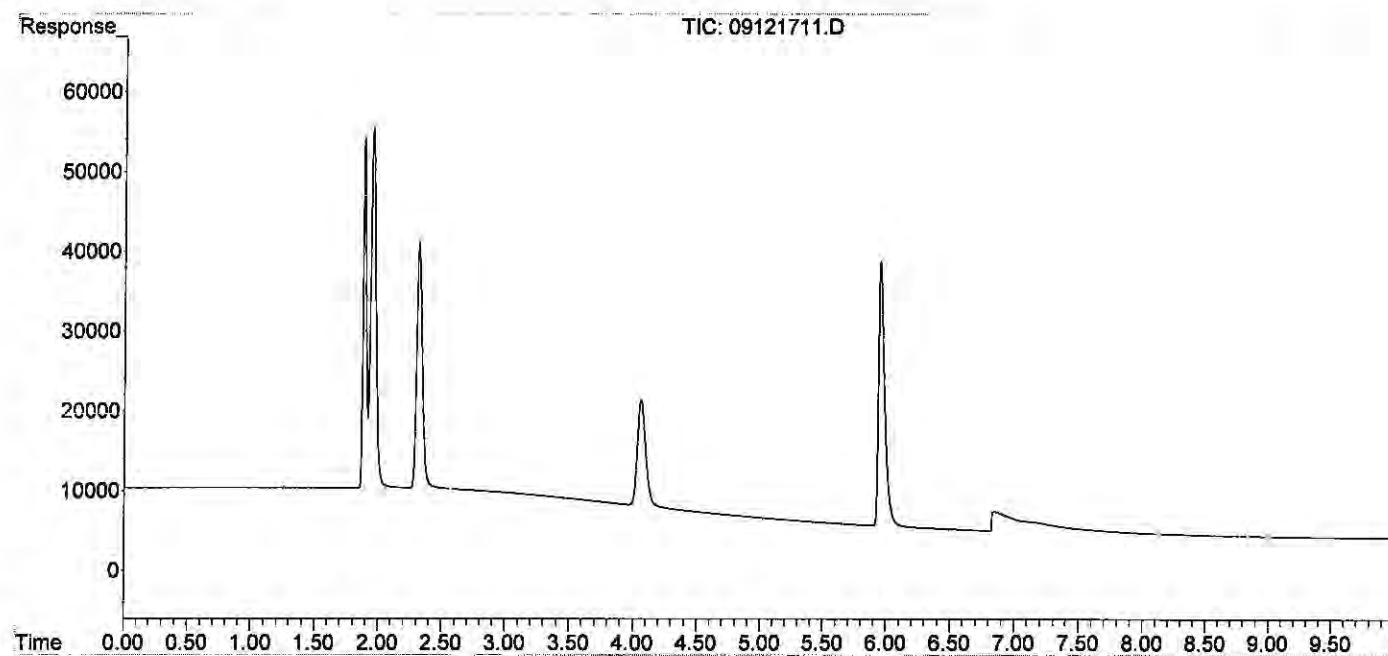
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
 Data File : 09121712.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 12-Sep-2017, 15:21
 Operator : MC
 Sample : 20000ppm 0.5ml s32-08231701
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Sep 13 11:14:17 2017
 Quant Method : J:\GC10\METHODS\RS091217_R.M
 Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
 QLast Update : Wed Sep 13 11:13:29 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units
Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm d
2) Carbon monoxide	1.836	3190788	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm d
4) Carbon dioxide	0.000	0	N.D.	ppm d
6) Methane (FID)	1.034	169009160	18492.064	ppm
7) Ethylene	0.000	0	N.D.	ppm
8) Ethane	0.000	0	N.D.	ppm
9) Propylene	0.000	0	N.D.	ppm
10) Propane	0.000	0	N.D.	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

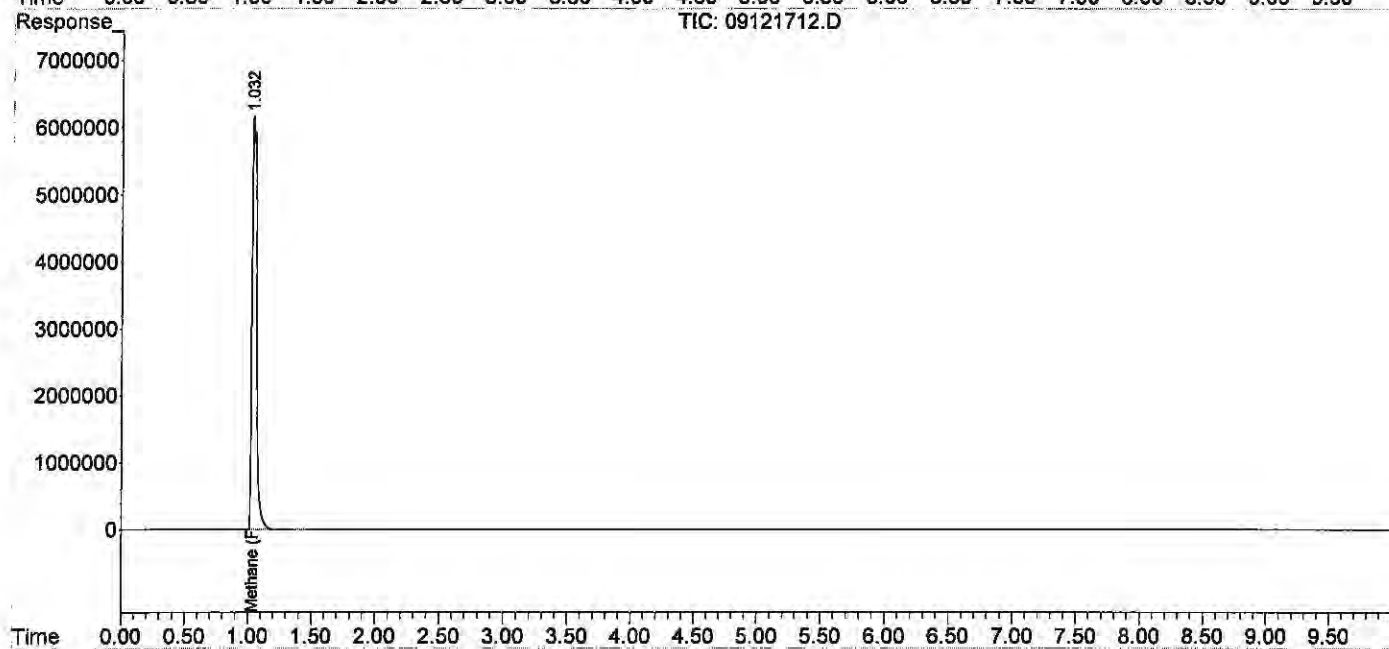
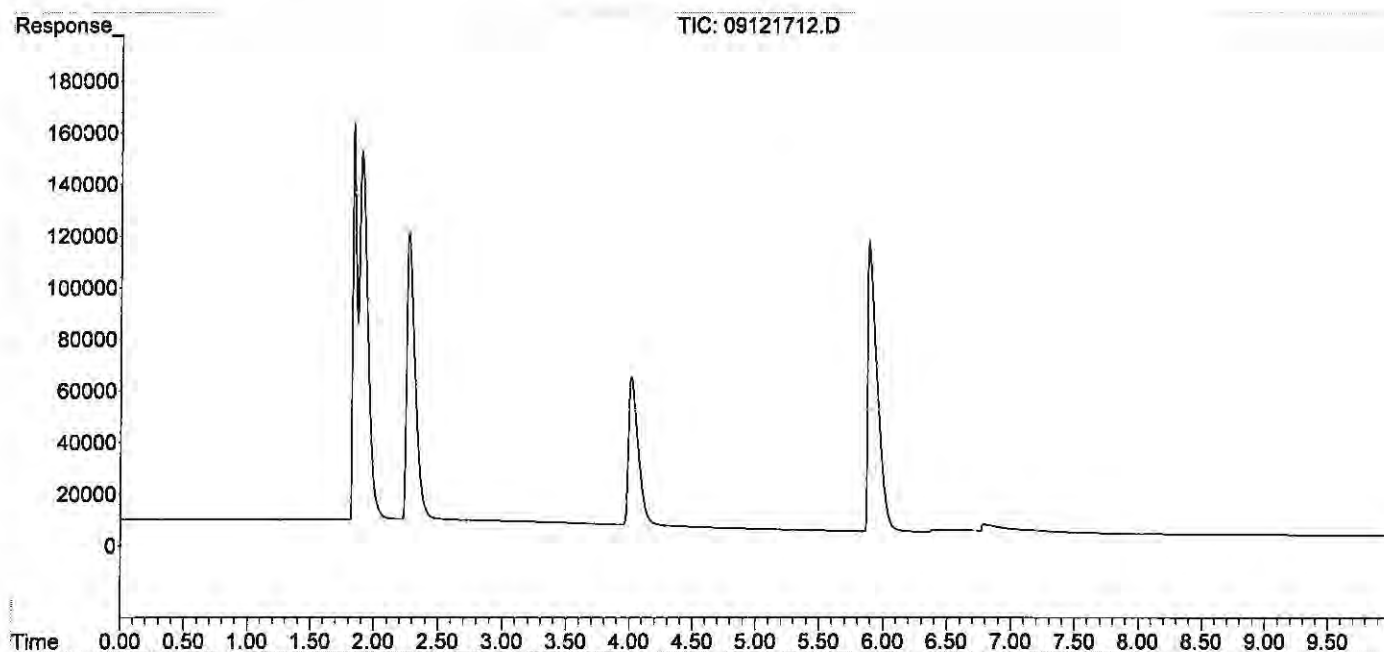
(m)=manual int.



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
 Data File : 09121715.D
 Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
 Acq On : 12-Sep-2017, 16:15
 Operator : MC
 Sample : icv s30-05241604
 Misc :
 ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
 Integration File signal 2: autoint2.e
 Quant Time: Sep 13 11:15:11 2017
 Quant Method : J:\GC10\METHODS\RS091217_R.M
 Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
 QLast Update : Wed Sep 13 11:13:29 2017
 Response via : Initial Calibration
 Integrator: ChemStation

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Oxygen/Argon	1.843	2922459	3.687 ppm
2) Carbon monoxide	1.843	2922459	N.D. ppm
3) Methane (TCD)	0.000	0	N.D. ppm <i>actual 2/1</i>
4) Carbon dioxide	0.000	0	N.D. ppm
6) Methane (FID)	1.063	13748	1.516 ppm <i>1.50 101.1</i>
7) Ethylene	1.598	24153	1.443 ppm <i>1.50 96.2</i>
8) Ethane	1.850	24488	1.445 ppm <i>1.50 96.3</i>
9) Propylene	4.221	36004	1.537 ppm <i>1.50 102.5</i>
10) Propane	4.350	37738	1.517 ppm <i>1.50 100.5</i>
11) Isobutylene	0.000	0	N.D. ppm
12) Isobutane	6.579f	48019	1.804 ppm <i>9/14/2</i>
13) n-Butane	6.579f	48019	1.804 ppm

(f)=RT Delta > 1/2 Window

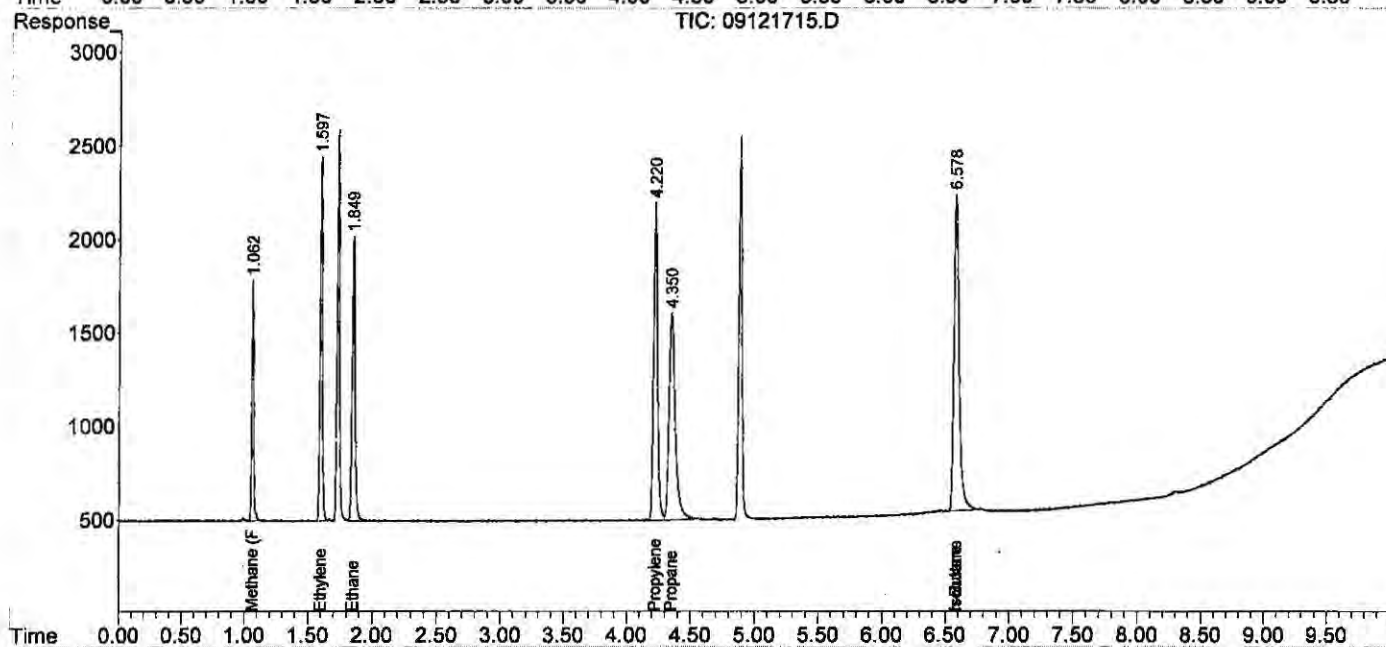
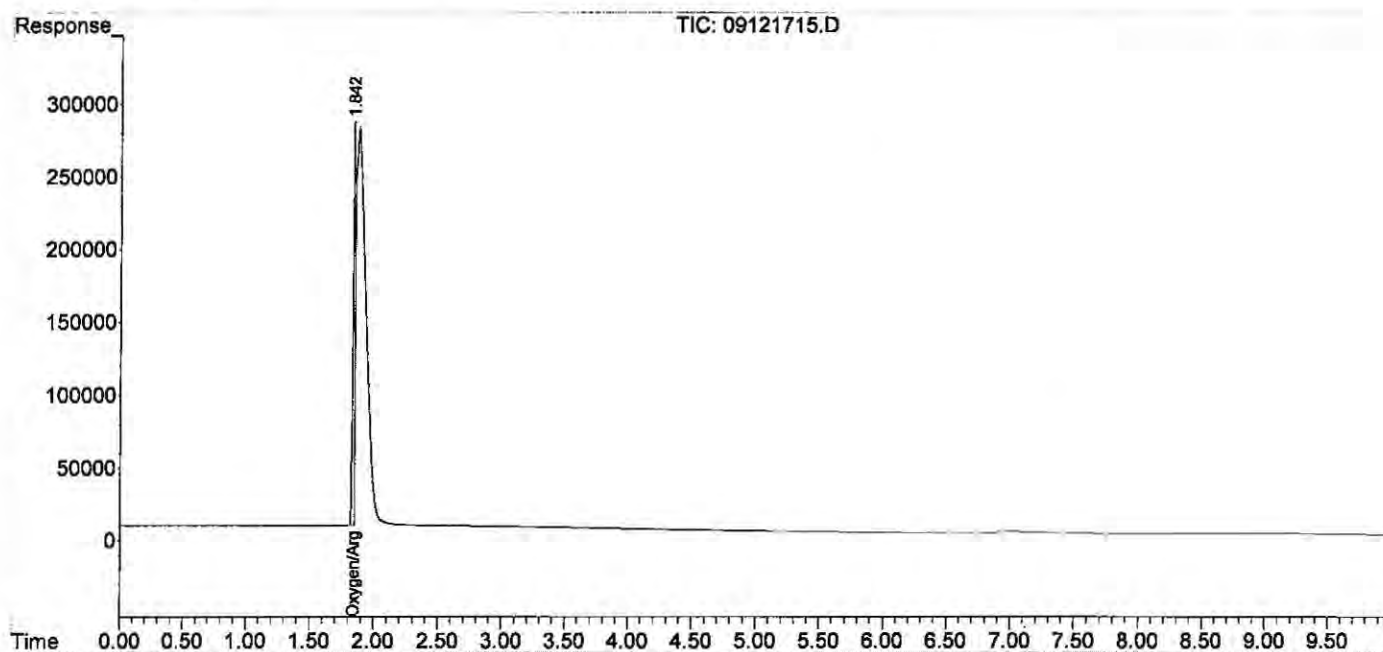
(m)=manual int.

Wg/2017

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD

Client : ALS Laboratory Group

Analyst : LD

Instrument : GC#10

Service Request: P1907270

Date Analysis : 12/05/19

Detector : FID#10, TCD#10

Sample Vol. (ml) : 32.00 ml

Head Space Vol.(ml) : 8.00 ml

Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

<u>Sample ID</u>	<u>Inj. Vol.</u>	<u>Methane</u>	<u>Ethylene</u>	<u>Ethane</u>
STD S32-05221901	0.100	96.039	102.285	101.494
ACTUAL		101.50	100.90	101.40
%Difference		5.4%	1.4%	0.1%
MCS 0.1ml	0.100	0.144	0.000	0.000
RB 0.1ml	0.100	0.000	0.000	0.000
LCS FID 0.1ml	0.100	1.519	1.054	1.271
LCSD FID 0.1ml	0.100	1.423	1.060	1.274
P1907270-001 0.1ml	0.100	0.000	0.000	0.000
P1907270-002 0.1ml	0.100	0.000	0.000	0.000
P1907270-003 0.1ml	0.100	0.202	0.000	0.000

FINAL HEAD SPACE RESULT (ppm)

	<u>Methane</u>	<u>Ethylene</u>	<u>Ethane</u>
<u>Wwt.</u>	16.04	28.05	30.07
<u>HENRY'S CONSTANT</u>	3.76E+04	1.02E+04	2.63E+04
<u>RL</u>	1.30	1.00	0.60
MCS 0.1ml	1.440	0.000	0.000
LCS FID 0.1ml	15.190	10.540	12.710
LCSD FID 0.1ml	14.230	10.600	12.740
P1907270-001 0.1ml	0.000	0.000	0.000
P1907270-002 0.1ml	0.000	0.000	0.000
P1907270-003 0.1ml	2.020	0.000	0.000

P1907270-003 MS 0.1ml	0.100	1.600	1.031	1.193
P1907270-003 MSD 0.1m	0.100	1.579	1.020	1.193
STD S32-05221901		91.079	96.551	95.764
ACTUAL		101.50	100.90	101.40
%Difference		10.3%	4.3%	5.6%

P1907270-003 MS 0.1ml	16.000	10.310	11.930
P1907270-003 MSD 0.1ml	15.790	10.200	11.930

LD
12/05

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 08:25:06
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 08:38:23 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

LD
12/05

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.106	871133	96.039	ppm
7) Ethylene	1.676	1711668	102.285	ppm
8) Ethane	1.942	1720336	101.494	ppm
9) Propylene	4.318	2528244	107.899	ppm
10) Propane	4.441	2589307	104.071	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

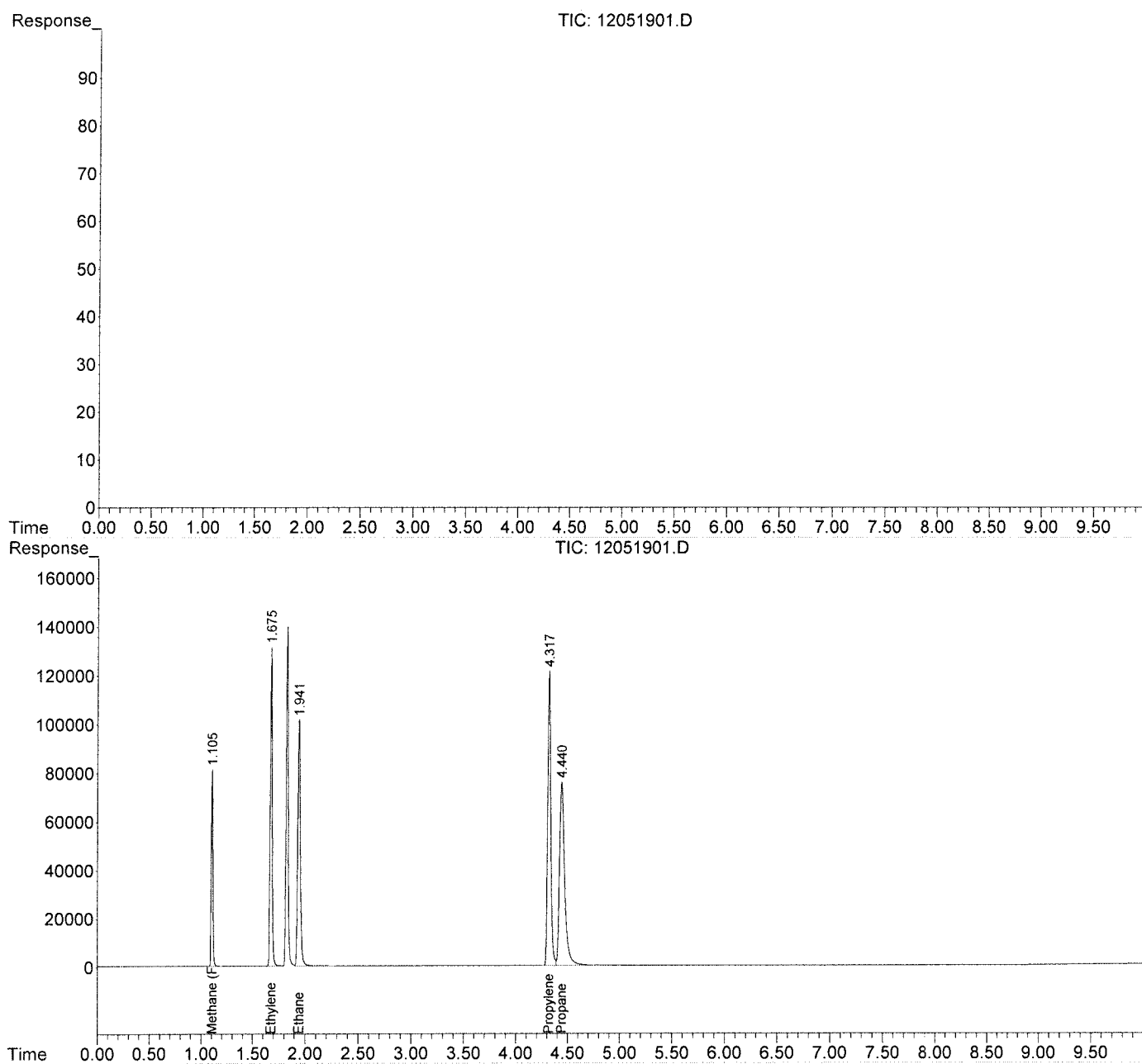
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 08:25:06
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 08:38:23 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-T03C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 12:44:40
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 13:00:08 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	R.T.	Response	Conc	Units

Target Compounds				
1) Oxygen/Argon	0.000	0	N.D.	ppm
2) Carbon monoxide	0.000	0	N.D.	ppm
3) Methane (TCD)	0.000	0	N.D.	ppm
4) Carbon dioxide	0.000	0	N.D.	ppm
6) Methane (FID)	1.114	826145	91.079	ppm
7) Ethylene	1.683	1615709	96.551	ppm
8) Ethane	1.948	1623212	95.764	ppm
9) Propylene	4.317	2359349	100.691	ppm
10) Propane	4.440	2419845	97.260	ppm
11) Isobutylene	0.000	0	N.D.	ppm
12) Isobutane	0.000	0	N.D.	ppm
13) n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window

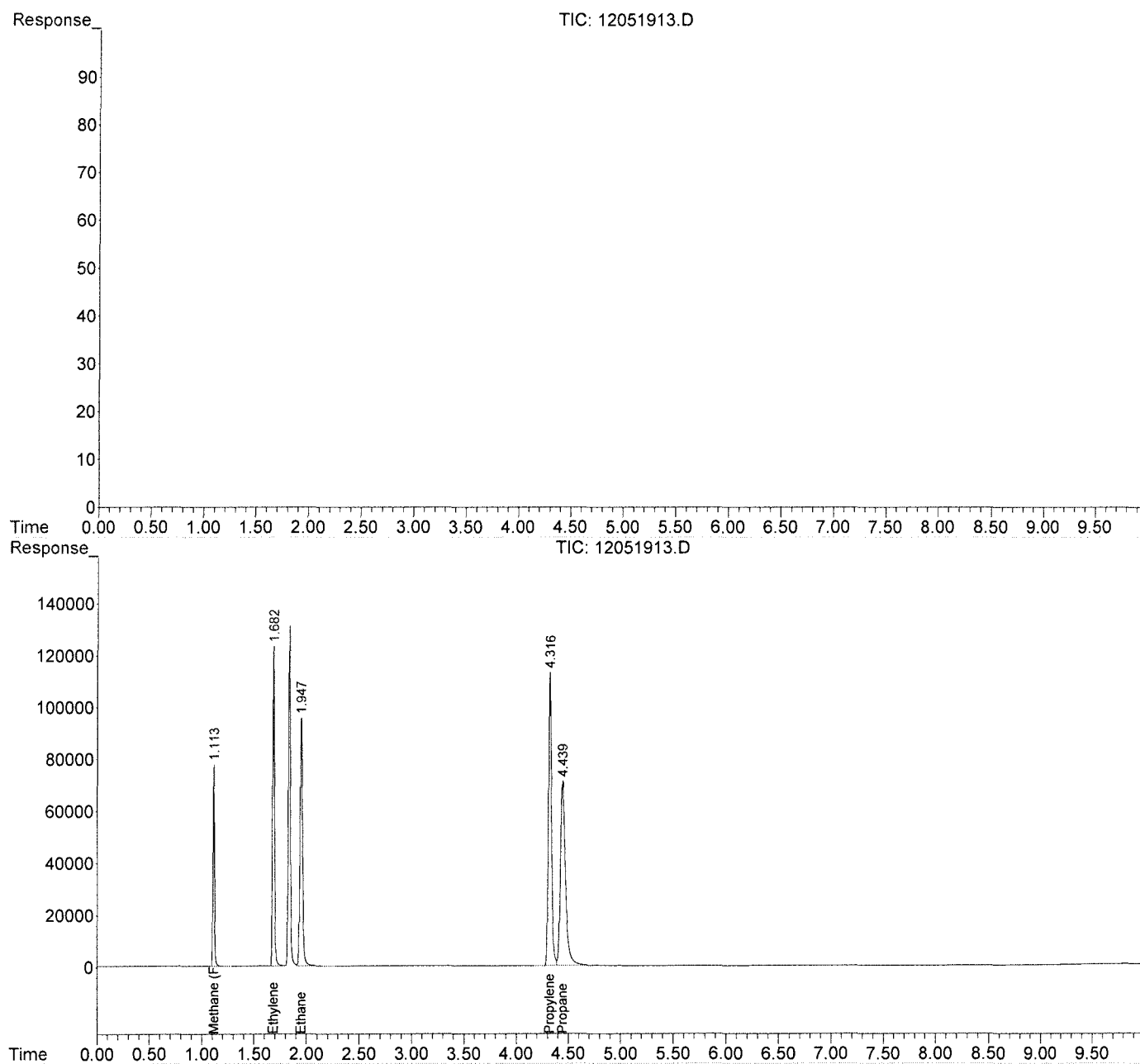
(m)=manual int.



Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 12:44:40
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 13:00:08 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



[illegible]

[illegible]

HS19111343 8260 Raw Data

ALS WO# HS19111343



MSVOA06 -Logbook

Batch: 38366
 Date: 11-18-2019
 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	11-18-2019 01:23 pm	1.00	50 mL	50 mL	X111801.D	Liquid	Y	NA
	<i>Auto find/ purged</i>									
2	VSTD000.25	ICAL1	11-18-2019 01:47 pm	1.00	50 mL	50 mL	X111802.D	Liquid	Y	NA
	<i>0.10 uL cal std/100 mL DI</i>									
3	VSTD000.5	ICAL2	11-18-2019 02:35 pm	1.00	50 mL	50 mL	X111803.D	Liquid	Y	NA
	<i>0.10 uL cal std/50 mL DI</i>									
4	VSTD001	ICAL3	11-18-2019 02:59 pm	1.00	50 mL	50 mL	X111804.D	Liquid	Y	NA
	<i>0.20 uL cal std/50 mL DI</i>									
5	VSTD002	ICAL4	11-18-2019 03:23 pm	1.00	50 mL	50 mL	X111805.D	Liquid	Y	NA
	<i>0.40 uL cal std/50 mL DI</i>									
6	VSTD005	ICAL5	11-18-2019 03:47 pm	1.00	50 mL	50 mL	X111806.D	Liquid	Y	NA
	<i>1.0 uL cal std/50 mL DI</i>									
7	VSTD020	ICAL6	11-18-2019 04:11 pm	1.00	50 mL	50 mL	X111807.D	Liquid	Y	NA
	<i>4.0 uL cal std/50 mL DI</i>									
8	VSTD050	ICAL7	11-18-2019 04:35 pm	1.00	50 mL	50 mL	X111808.D	Liquid	Y	NA
	<i>10 uL cal std/50 mL DI</i>									
9	VSTD100	ICAL8	11-18-2019 04:59 pm	1.00	50 mL	50 mL	X111809.D	Liquid	Y	NA
	<i>20 uL cal std/50 mL DI</i>									
10	VSTD150	ICAL9	11-18-2019 05:22 pm	1.00	50 mL	50 mL	X111810.D	Liquid	Y	NA
	<i>30 uL cal std/50 mL DI</i>									
11	VSTD200	ICAL	11-18-2019 05:46 pm	1.00	50 mL	50 mL	X111811.D	Liquid	Y	NA
	<i>40 uL cal std/50 mL DI</i>									
12	BLANK	SAMP	11-18-2019 06:10 pm	1.00	50 mL	50 mL	X111812.D	Liquid	Y	NA
13	BLANK	SAMP	11-18-2019 06:34 pm	1.00	50 mL	50 mL	X111813.D	Liquid	Y	NA
14	CCV	ICCV	11-18-2019 06:58 pm	1.00	50 mL	50 mL	X111814.D	Liquid	Y	NA
	<i>10 uL cal std/50 mL DI</i>									
15	BLANK	SAMP	11-18-2019 07:22 pm	1.00	50 mL	50 mL	X111815.D	Liquid	Y	NA
16	BFB	TUNE	11-18-2019 07:47 pm	1.00	50 mL	50 mL	Y111801.D	Liquid	Y	NA
	<i>Auto find/ purged</i>									
17	CCV	CCV	11-18-2019 08:10 pm	1.00	50 mL	50 mL	Y111802a.D	Liquid	Y	NA
	<i>10 uL cal std/50 mL DI/ not used</i>									
18	CCV	CCV	11-18-2019 08:34 pm	1.00	50 mL	50 mL	Y111803.D	Liquid	Y	NA
	<i>10 uL cal std/50 mL DI</i>									
19	CCB	SAMP	11-18-2019 08:58 pm	1.00	50 mL	50 mL	Y111804.D	Liquid	Y	NA
20	VLCSW-191118	LCS	11-18-2019 09:22 pm	1.00	50 mL	50 mL	Y111805.D	Liquid	Y	NA
	<i>4.0 uL cal std/50 mL DI</i>									
21	BLK	SAMP	11-18-2019 09:46 pm	1.00	50 mL	50 mL	Y111806.D	Liquid	Y	NA
22	VBLKW-191118	MBLK	11-18-2019 10:10 pm	1.00	50 mL	50 mL	Y111807.D	Liquid	Y	NA
23	HS19110861-01	SAMP	11-18-2019 10:34 pm	1.00	50 mL	50 mL	Y111808.D	Liquid	Y	NA
24	HS19110861-02	SAMP	11-18-2019 10:59 pm	1.00	50 mL	50 mL	Y111809.D	Liquid	Y	NA
25	HS19110861-03	SAMP	11-18-2019 11:23 pm	1.00	50 mL	50 mL	Y111810.D	Liquid	Y	NA
26	HS19110861-04	SAMP	11-18-2019 11:47 pm	1.00	50 mL	50 mL	Y111811.D	Liquid	Y	NA
27	HS19110861-05	SAMP	11-19-2019 12:11 am	1.00	50 mL	50 mL	Y111812.D	Liquid	Y	NA
28	HS19110861-06	SAMP	11-19-2019 12:35 am	1.00	50 mL	50 mL	Y111813.D	Liquid	Y	NA
29	HS19110829-13	SAMP	11-19-2019 12:59 am	1.00	50 mL	50 mL	Y111814.D	Liquid	Y	NA
30	HS19110829-11	SAMP	11-19-2019 01:23 am	1.00	50 mL	50 mL	Y111815.D	Liquid	Y	NA
31	HS19110829-01	SAMP	11-19-2019 01:47 am	1.00	50 mL	50 mL	Y111816.D	Liquid	Y	NA
32	HS19110829-01MS	MS	11-19-2019 02:11 am	1.00	50 mL	50 mL	Y111817.D	Liquid	Y	NA
	<i>3.50 uL cal std/40 mL samp</i>									



MSVOA06 -Logbook

#	<u>Samp ID</u>	<u>Type</u>	<u>Analyzed</u>	<u>DF</u>	<u>Init Wt/Vol</u>	<u>Final Vol</u>	<u>File ID</u>	<u>Matrix</u>	<u>Status</u>	<u>pH</u>
33	HS19110829-01MSD	MSD	11-19-2019 02:35 am	1.00	50 mL	50 mL	Y111818.D	Liquid	Y	NA
	<i>3.5 uL cal std/40 mL samp</i>									
34	HS19110829-02	SAMP	11-19-2019 02:59 am	1.00	50 mL	50 mL	Y111819.D	Liquid	Y	NA
35	HS19110829-03	SAMP	11-19-2019 03:23 am	1.00	50 mL	50 mL	Y111820.D	Liquid	Y	NA
36	HS19110829-04	SAMP	11-19-2019 03:47 am	1.00	50 mL	50 mL	Y111821.D	Liquid	Y	NA
37	HS19110829-05	SAMP	11-19-2019 04:11 am	1.00	50 mL	50 mL	Y111822.D	Liquid	Y	NA
38	HS19110829-06	SAMP	11-19-2019 04:35 am	1.00	50 mL	50 mL	Y111823.D	Liquid	Y	NA
39	HS19110829-07	SAMP	11-19-2019 04:59 am	1.00	50 mL	50 mL	Y111824.D	Liquid	Y	NA
40	HS19110829-08	SAMP	11-19-2019 05:23 am	1.00	50 mL	50 mL	Y111825.D	Liquid	Y	NA
41	HS19110829-09	SAMP	11-19-2019 05:47 am	1.00	50 mL	50 mL	Y111826.D	Liquid	Y	NA
42	HS19110829-10	SAMP	11-19-2019 06:11 am	1.00	50 mL	50 mL	Y111827.D	Liquid	Y	NA
43	HS19110829-12	SAMP	11-19-2019 06:36 am	1.00	50 mL	50 mL	Y111828.D	Liquid	Y	NA
44	HS19110716-06	SAMP	11-19-2019 07:00 am	1.00	50 mL	50 mL	Y111829.D	Liquid	Y	NA

Chemical	Value
SURR SPK ID	31106-04-03
IS ID	31106-04-04
ICV STD ID	30603-92-01
LCS/MS ID	30603-92-01
CAL STD ID	31106-04-01/02
BFB ID	31106-04-03
pH Paper	634-64-11



FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111343

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
=====	=====	=====	=====	=====
cis-1,3-Dichloropropene	50.00	52.07	104	80-120
trans-1,3-Dichloroprope	50.00	51.83	104	80-120
1,3-Dichlorobenzene	50.00	50.58	101	80-120
2,2-Dichloropropane	50.00	52.35	105	80-120
1,1-Dichloropropene	50.00	49.88	100	80-120
Dibromomethane	50.00	50.50	101	80-120
1,2-Dibromoethane	50.00	50.00	100	80-120
trans-1,2-Dichloroethen	50.00	52.31	105	80-120
1,1,1,2-Tetrachloroetha	50.00	51.37	103	80-120
1,1,1-Trichloroethane	50.00	52.74	105	80-120
1,1,2,2-Tetrachloroetha	50.00	49.68	99	80-120
Toluene	50.00	49.55	99	80-120
1,1,2-Trichloroethane	50.00	49.22	98	80-120
1,1-Dichloroethane	50.00	51.46	103	80-120
1,1-Dichloroethene	50.00	53.02	106	80-120
Trichlorofluoromethane	50.00	55.57	111	80-120
1,2,3-Trichlorobenzene	50.00	58.28	116	80-120
Tetrachloroethene	50.00	49.33	99	80-120
1,2,4-Trichlorobenzene	50.00	55.34	111	80-120
1,2,4-Trimethylbenzene	50.00	50.40	101	80-120
tert-Butylbenzene	50.00	51.37	103	80-120
Trichloroethene	50.00	51.78	104	80-120
1,2-Dichlorobenzene	50.00	49.42	99	80-120
1,2-Dichloroethane	50.00	51.38	103	80-120
1,2-Dichloropropane	50.00	49.50	99	80-120
1,3,5-Trimethylbenzene	50.00	52.04	104	80-120
1,3-Dichloropropane	50.00	49.18	98	80-120
1,4-Dichlorobenzene	50.00	49.63	99	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: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111343

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
=====	=====	=====	=====	=====
2-Butanone	100.00	105.25	105	80-120
2-Chlorotoluene	50.00	50.41	101	80-120
2-Hexanone	100.00	96.09	96	80-120
4-Chlorotoluene	50.00	50.58	101	80-120
Styrene	50.00	50.35	101	80-120
4-Methyl-2-Pentanone	100.00	97.68	98	80-120
Acetone	100.00	111.37	111	80-120
Benzene	50.00	50.85	102	80-120
Bromobenzene	50.00	51.16	102	80-120
Bromochloromethane	50.00	51.34	103	80-120
Bromodichloromethane	50.00	51.00	102	80-120
Bromoform	50.00	49.08	98	80-120
Bromomethane	50.00	57.73	115	80-120
Carbon Disulfide	100.00	109.76	110	80-120
Carbon Tetrachloride	50.00	51.07	102	80-120
Chlorobenzene	50.00	49.20	98	80-120
Chloroethane	50.00	51.64	103	80-120
Chloroform	50.00	49.36	99	80-120
Chloromethane	50.00	50.43	101	80-120
cis-1,2-Dichloroethene	50.00	53.16	106	80-120
Dibromochloromethane	50.00	49.93	100	80-120
Dichlorodifluoromethane	50.00	52.99	106	80-120
Ethylbenzene	50.00	50.22	100	80-120
Hexachlorobutadiene	50.00	61.69	123*	80-120
Isopropylbenzene	50.00	50.14	100	80-120
m,p-Xylenes	100.00	101.69	102	80-120
Methylene Chloride	50.00	49.65	99	80-120
n-Butylbenzene	50.00	52.07	104	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: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111343

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
=====	=====	=====	=====	=====
n-Propylbenzene	50.00	51.90	104	80-120
Naphthalene	50.00	51.04	102	80-120
o-Xylene	50.00	49.72	99	80-120
sec-Butylbenzene	50.00	51.77	104	80-120
Vinyl Chloride	50.00	51.98	104	80-120
1,2,3-Trichloropropane	50.00	49.40	99	80-120
p-Isopropyltoluene	50.00	51.77	104	80-120
1,2-Dibromo-3-Chloropro	50.00	51.39	103	80-120
Freon TF	50.00	55.79	112	80-120

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

* Values outside of QC limits

COMMENTS:

FORM III VOA



FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111343

Lab File ID: X111801

BFB Injection Date: 11/18/19

Instrument ID: VOA6

BFB Injection Time: 1323

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	20.9
75	30.0 - 60.0% of mass 95	54.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.6
173	Less than 2.0% of mass 174	0.4 (0.7)1
174	Greater than 50.0% of mass 95	65.0
175	5.0 - 9.0% of mass 174	5.8 (8.9)1
176	95.0 - 101.0% of mass 174	62.0 (95.4)1
177	5.0 - 9.0% of mass 176	5.1 (8.2)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	X111802	11/18/19	1347
02	VSTD000.5	VSTD000.5	X111803	11/18/19	1435
03	VSTD001	VSTD001	X111804	11/18/19	1459
04	VSTD002	VSTD002	X111805	11/18/19	1523
05	VSTD005	VSTD005	X111806	11/18/19	1547
06	VSTD020	VSTD020	X111807	11/18/19	1611
07	VSTD050	VSTD050	X111808	11/18/19	1635
08	VSTD100	VSTD100	X111809	11/18/19	1659
09	VSTD150	VSTD150	X111810	11/18/19	1722
10	VSTD200	VSTD200	X111811	11/18/19	1746
11	ICV	ICV	X111814	11/18/19	1858
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

page 1 of 1

FORM V VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111343

Instrument ID: VOA6

Calibration Date(s): 11/18/19 11/18/19

Column: DB624

ID: 0.18 (mm)

Calibration Time(s): 1347

1746

LAB FILE ID:

RF0.25: X111802

RF0.5: X111803

RF1: X111804

RF2: X111805

RF5: X111806

RF20: X111807

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
=====	=====	=====	=====	=====	=====	=====
cis-1,3-Dichloropropene		0.326	0.553	0.497	0.554	0.476
trans-1,3-Dichloropropene		0.304	0.464	0.458	0.504	0.445
1,3-Dichlorobenzene		1.036	1.601	1.542	1.622	1.411
2,2-Dichloropropane		0.547	0.815	0.674	0.705	0.610
1,1-Dichloropropene		0.332	0.476	0.441	0.432	0.372
Dibromomethane		0.139	0.244	0.233	0.245	0.207
1,2-Dibromoethane		0.245	0.385	0.380	0.402	0.348
trans-1,2-Dichloroethene		0.285	0.489	0.436	0.440	0.386
1,1,1,2-Tetrachloroethane		0.248	0.403	0.375	0.406	0.356
1,1,1-Trichloroethane		0.492	0.775	0.723	0.717	0.640
1,1,2,2-Tetrachloroethane		0.602	0.844	0.735	0.800	0.680
Toluene		1.077	1.582	1.498	1.570	1.359
1,1,2-Trichloroethane		0.180	0.311	0.285	0.294	0.253
1,1-Dichloroethane		0.569	0.830	0.781	0.786	0.690
1,1-Dichloroethene		0.349	0.423	0.469	0.464	0.390
Trichlorofluoromethane		0.511	0.831	0.818	0.813	0.707
1,2,3-Trichlorobenzene		421	1182	2753	6553	21856
Tetrachloroethene		0.266	0.412	0.394	0.398	0.333
1,2,4-Trichlorobenzene		0.325	0.435	0.465	0.518	0.418
1,2,4-Trimethylbenzene		1.739	2.619	2.442	2.563	2.286
tert-Butylbenzene		1.338	2.168	2.060	2.126	1.865
Trichloroethene		0.226	0.390	0.387	0.396	0.344
1,2-Dichlorobenzene		0.916	1.484	1.429	1.497	1.292
1,2-Dichloroethane		0.277	0.470	0.408	0.432	0.391
1,2-Dichloropropane		0.294	0.294	0.312	0.339	0.284
1,3,5-Trimethylbenzene		1.606	2.354	2.372	2.481	2.215
1,3-Dichloropropane		0.431	0.613	0.570	0.583	0.512
1,4-Dichlorobenzene		1.108	1.632	1.581	1.609	1.417
2-Butanone		0.167	0.156	0.152	0.164	0.146
2-Chlorotoluene		1.263	1.990	1.903	2.032	1.735
2-Hexanone		0.180	0.237	0.204	0.235	0.191
4-Chlorotoluene		1.550	2.500	2.222	2.378	2.079
Styrene		0.702	1.134	1.076	1.148	1.004
4-Methyl-2-Pentanone		0.220	0.321	0.313	0.331	0.281
Acetone		4579	5956	7954	15992	43200
Benzene		0.788	1.327	1.220	1.289	1.109
Bromobenzene		0.584	1.003	0.940	0.994	0.873
Bromochloromethane		0.229	0.323	0.309	0.284	0.255
Bromodichloromethane		0.298	0.490	0.424	0.473	0.395
Bromoform		887	3197	5989	16084	56416
Bromomethane		2741	6334	12041	28671	93456
Carbon Disulfide		0.747	1.257	1.216	1.254	1.101
Carbon Tetrachloride		0.340	0.503	0.483	0.478	0.403
Chlorobenzene		0.738	1.108	1.028	1.090	0.934

FORM VI VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911134

Instrument ID: VOA6

Calibration Date(s): 11/18/19 11/18/19

Column: DB624

ID: 0.18 (mm)

Calibration Time(s): 1347

1746

LAB FILE ID: RF0.25: X111802 RF0.5: X111803 RF1: X111804
RF2: X111805 RF5: X111806 RF20: X111807

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
=====	=====	=====	=====	=====	=====	=====
Chloroethane		0.279	0.361	0.345	0.323	0.283
Chloroform		0.775	0.990	0.890	0.850	0.736
Chloromethane		2201	6118	10461	24949	85402
cis-1,2-Dichloroethene		0.327	0.540	0.493	0.541	0.454
Dibromochloromethane		0.253	0.433	0.392	0.429	0.370
Dichlorodifluoromethane		1269	3829	7335	18346	63810
Ethylbenzene		0.353	0.562	0.515	0.576	0.493
Hexachlorobutadiene		1376	2468	4522	11525	37789
Isopropylbenzene		1.054	1.627	1.570	1.602	1.425
m,p-Xylenes		0.393	0.653	0.644	0.678	0.591
Methylene Chloride		0.422	0.556	0.483	0.491	0.406
n-Butylbenzene		1.620	2.055	2.004	2.069	1.888
n-Propylbenzene		2.290	3.358	3.192	3.345	2.976
Naphthalene		0.510	0.569	0.604	0.614	0.512
o-Xylene		0.390	0.677	0.656	0.658	0.582
sec-Butylbenzene		1.995	2.859	2.859	2.813	2.501
Vinyl Chloride		0.490	0.545	0.546	0.504	0.454
1,2,3-Trichloropropane		0.455	0.730	0.701	0.662	0.580
p-Isopropyltoluene		1.839	2.630	2.538	2.573	2.307
1,2-Dibromo-3-Chloropropane		125	464	859	2641	8805
Freon TF		0.296	0.488	0.452	0.457	0.380
=====	=====	=====	=====	=====	=====	=====
4-Bromofluorobenzene		3844	5731	10468	25804	94194
Dibromofluoromethane		2303	3882	8127	20237	75094
Toluene-d8		1.628	1.327	1.357	1.369	1.263
1,2-Dichloroethane-d4		2522	4458	8034	20921	75813

FORM VI VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911134

Instrument ID: VOA6

Calibration Date(s): 11/18/19 11/18/19

Column: DB624

ID: 0.18 (mm)

Calibration Time(s): 1347

1746

LAB FILE ID: RF50: X111808 RF100: X111809 RF150: X111810
RF200: X111811

COMPOUND	RF50	RF100	RF150	RF200
=====	=====	=====	=====	=====
cis-1,3-Dichloropropene	0.499	0.494	0.497	0.493
trans-1,3-Dichloropropene	0.452	0.455	0.456	0.461
1,3-Dichlorobenzene	1.457	1.422	1.398	1.417
2,2-Dichloropropane	0.644	0.644	0.646	0.658
1,1-Dichloropropene	0.402	0.392	0.391	0.392
Dibromomethane	0.211	0.206	0.208	0.208
1,2-Dibromoethane	0.348	0.347	0.350	0.351
trans-1,2-Dichloroethene	0.410	0.413	0.416	0.427
1,1,1,2-Tetrachloroethane	0.368	0.369	0.369	0.370
1,1,1-Trichloroethane	0.673	0.676	0.678	0.697
1,1,2,2-Tetrachloroethane	0.672	0.670	0.662	0.661
Toluene	1.411	1.408	1.420	1.435
1,1,2-Trichloroethane	0.256	0.258	0.256	0.259
1,1-Dichloroethane	0.710	0.716	0.728	0.737
1,1-Dichloroethene	0.430	0.429	0.426	0.434
Trichlorofluoromethane	0.823	0.824	0.813	0.840
1,2,3-Trichlorobenzene	52554	102660	156391	210414
Tetrachloroethene	0.352	0.340	0.332	0.334
1,2,4-Trichlorobenzene	0.421	0.402	0.400	0.406
1,2,4-Trimethylbenzene	2.419	2.440	2.397	2.446
tert-Butylbenzene	2.012	2.011	1.967	1.996
Trichloroethene	0.359	0.350	0.348	0.348
1,2-Dichlorobenzene	1.330	1.327	1.324	1.344
1,2-Dichloroethane	0.401	0.397	0.397	0.398
1,2-Dichloropropane	0.295	0.290	0.290	0.290
1,3,5-Trimethylbenzene	2.368	2.377	2.339	2.377
1,3-Dichloropropane	0.516	0.521	0.514	0.516
1,4-Dichlorobenzene	1.465	1.445	1.412	1.445
2-Butanone	0.146	0.147	0.153	0.148
2-Chlorotoluene	1.853	1.827	1.787	1.800
2-Hexanone	0.192	0.201	0.204	0.204
4-Chlorotoluene	2.208	2.230	2.205	2.250
Styrene	1.056	1.073	1.093	1.113
4-Methyl-2-Pentanone	0.283	0.291	0.298	0.298
Acetone	103091	202207	284604	372223
Benzene	1.164	1.135	1.133	1.128
Bromobenzene	0.878	0.857	0.837	0.854
Bromochloromethane	0.263	0.261	0.260	0.255
Bromodichloromethane	0.412	0.408	0.412	0.412
Bromoform	143798	293256	447981	602595
Bromomethane	215480	396733	529714	
Carbon Disulfide	1.192	1.188	1.192	1.228
Carbon Tetrachloride	0.452	0.442	0.435	0.440
Chlorobenzene	0.965	0.966	0.974	0.982

FORM VI VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911134

Instrument ID: VOA6

Calibration Date(s): 11/18/19 11/18/19

Column: DB624

ID: 0.18 (mm)

Calibration Time(s): 1347

1746

LAB FILE ID: RF50: X111808 RF100: X111809 RF150: X111810
RF200: X111811

COMPOUND	RF50	RF100	RF150	RF200
=====	=====	=====	=====	=====
Chloroethane	0.311	0.311	0.310	0.311
Chloroform	0.751	0.754	0.761	0.780
Chloromethane	215753	420936	613254	811388
cis-1,2-Dichloroethene	0.470	0.475	0.478	0.488
Dibromochloromethane	0.381	0.386	0.386	0.387
Dichlorodifluoromethane	186161	359790	504807	695305
Ethylbenzene	0.512	0.509	0.506	0.512
Hexachlorobutadiene	99881	192455		
Isopropylbenzene	1.523	1.544	1.538	1.560
m,p-Xylenes	0.623	0.628	0.627	0.639
Methylene Chloride	0.421	0.425	0.428	0.436
n-Butylbenzene	2.162	2.176	2.153	2.197
n-Propylbenzene	3.234	3.176	3.089	3.155
Naphthalene	0.521	0.505	0.514	0.512
o-Xylene	0.600	0.608	0.611	0.623
sec-Butylbenzene	2.823	2.798	2.726	2.790
Vinyl Chloride	0.505	0.510	0.510	0.523
1,2,3-Trichloropropane	0.577	0.564	0.549	0.543
p-Isopropyltoluene	2.571	2.546	2.480	2.534
1,2-Dibromo-3-Chloropropane	21800	42468	65470	86827
Freon TF	0.459	0.462	0.452	0.472
=====	=====	=====	=====	=====
4-Bromofluorobenzene	222328	465570	688600	933083
Dibromofluoromethane	173990	354918	514854	681300
Toluene-d8	1.212	1.246	1.223	1.231
1,2-Dichloroethane-d4	178006	364646	532181	713282

FORM VI VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911134

Instrument ID: VOA6

Calibration Date(s): 11/18/19 11/18/19

Column: DB624

ID: 0.18 (mm)

Calibration Time(s): 1347

1746

COMPOUND	CURVE	COEFFICIENTS			%RSD OR R^2	MAX %RSD OR R^2
		A0	A1	A2		
=====	=====	=====	=====	=====	=====	=====
cis-1,3-Dichloropropene	AVRG		0.48761342		13.630	15.000
trans-1,3-Dichloropropene	AVRG		0.44441818		12.432	15.000
1,3-Dichlorobenzene	AVRG		1.43390401		11.978	15.000
2,2-Dichloropropane	AVRG		0.66029305		11.040	15.000
1,1-Dichloropropene	AVRG		0.40332539		10.380	15.000
Dibromomethane	AVRG		0.21136309		14.886	15.000
1,2-Dibromoethane	AVRG		0.35067597		12.763	15.000
trans-1,2-Dichloroethene	AVRG		0.41138839		13.381	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.36274186		12.717	15.000
1,1,1-Trichloroethane	AVRG		0.67453438		11.648	15.000
1,1,2,2-Tetrachloroethane	AVRG		0.70308768		10.825	15.000
Toluene	AVRG		1.41788930		10.479	15.000
1,1,2-Trichloroethane	AVRG		0.26137158		14.102	15.000
1,1-Dichloroethane	AVRG		0.72750643		10.197	15.000
1,1-Dichloroethene	AVRG		0.42373367		8.607	15.000
Trichlorofluoromethane	AVRG		0.77561874		13.736	15.000
1,2,3-Trichlorobenzene	2ORDR	-1.73e-002	5.50264123	-0.1707432	0.9998373	0.9900000
Tetrachloroethene	AVRG		0.35131312		12.801	15.000
1,2,4-Trichlorobenzene	AVRG		0.42118311		12.391	15.000
1,2,4-Trimethylbenzene	AVRG		2.37245105		10.778	15.000
tert-Butylbenzene	AVRG		1.94917789		12.586	15.000
Trichloroethene	AVRG		0.34966887		14.517	15.000
1,2-Dichlorobenzene	AVRG		1.32701574		12.905	15.000
1,2-Dichloroethane	AVRG		0.39691390		12.978	15.000
1,2-Dichloropropane	AVRG		0.29867989		5.660	15.000
1,3,5-Trimethylbenzene	AVRG		2.27648393		11.444	15.000
1,3-Dichloropropane	AVRG		0.53064503		9.928	15.000
1,4-Dichlorobenzene	AVRG		1.45709302		10.715	15.000
2-Butanone	AVRG		0.15342086		5.109	15.000
2-Chlorotoluene	AVRG		1.79889065		12.374	15.000
2-Hexanone	AVRG		0.20539492		9.225	15.000
4-Chlorotoluene	AVRG		2.18043218		12.121	15.000
Styrene	AVRG		1.04451403		12.966	15.000
4-Methyl-2-Pentanone	AVRG		0.29296235		10.958	15.000
Acetone	LINR	-7.72e-002	8.02348321		0.9999004	0.9900000
Benzene	AVRG		1.14377224		13.444	15.000
Bromobenzene	AVRG		0.86897432		14.186	15.000
Bromochloromethane	AVRG		0.27086566		10.835	15.000
Bromodichloromethane	AVRG		0.41377448		13.021	15.000
Bromoform	LINR	1.997e-002	3.29171060		0.9995506	0.9900000
Bromomethane	LINR	-4.72e-002	2.10632186		0.9967362	0.9900000
Carbon Disulfide	AVRG		1.15275096		13.789	15.000
Carbon Tetrachloride	AVRG		0.44181701		10.990	15.000
Chlorobenzene	AVRG		0.97614522		10.975	15.000

FORM VI VOA



FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911134

Instrument ID: VOA6

Calibration Date(s): 11/18/19 11/18/19

Column: DB624

ID: 0.18 (mm)

Calibration Time(s): 1347

1746

COMPOUND	CURVE	COEFFICIENTS			%RSD	MAX %RSD
		A0	A1	A2	OR R ²	OR R ²
=====	=====	=====	=====	=====	=====	=====
Chloroethane	AVRG		0.31480657		8.302	15.000
Chloroform	AVRG		0.80974969		10.425	15.000
Chloromethane	LINR	3.748e-003	1.83460007		0.9998260	0.9900000
cis-1,2-Dichloroethene	AVRG		0.47416954		13.204	15.000
Dibromochloromethane	AVRG		0.37970849		13.683	15.000
Dichlorodifluoromethane	LINR	1.763e-002	2.15619239		0.9988587	0.9900000
Ethylbenzene	AVRG		0.50436028		12.486	15.000
Hexachlorobutadiene	LINR	-1.03e-002	2.88504774		0.9991601	0.9900000
Isopropylbenzene	AVRG		1.49389834		11.672	15.000
m,p-Xylenes	AVRG		0.60861655		13.850	15.000
Methylene Chloride	AVRG		0.45210476		10.732	15.000
n-Butylbenzene	AVRG		2.03598696		9.063	15.000
n-Propylbenzene	AVRG		3.09059969		10.434	15.000
Naphthalene	AVRG		0.54020307		8.055	15.000
o-Xylene	AVRG		0.60066696		14.145	15.000
sec-Butylbenzene	AVRG		2.68486077		10.468	15.000
Vinyl Chloride	AVRG		0.50958661		5.494	15.000
1,2,3-Trichloropropane	AVRG		0.59573805		14.502	15.000
p-Isopropyltoluene	AVRG		2.44651692		10.015	15.000
1,2-Dibromo-3-Chloropropane	LINR	-6.81e-003	12.9714748		0.9998714	0.9900000
Freon TF	AVRG		0.43530320		13.846	15.000
=====	=====	=====	=====	=====	=====	=====
4-Bromofluorobenzene	LINR	8.357e-003	2.13170980		0.9997055	0.9900000
Dibromofluoromethane	LINR	7.36e-003	2.18334297		0.9997712	0.9900000
Toluene-d8	AVRG		1.31739803		9.895	15.000
1,2-Dichloroethane-d4	LINR	1.473e-002	2.09453233		0.9994184	0.9900000

FORM VI VOA



Data File: \\nahstus005\Target\chem\voa6.i\X191118,b\X111801.D

Page 1

Date : 18-NOV-2019 13:23

Client ID: BFB

Instrument: voa6.i

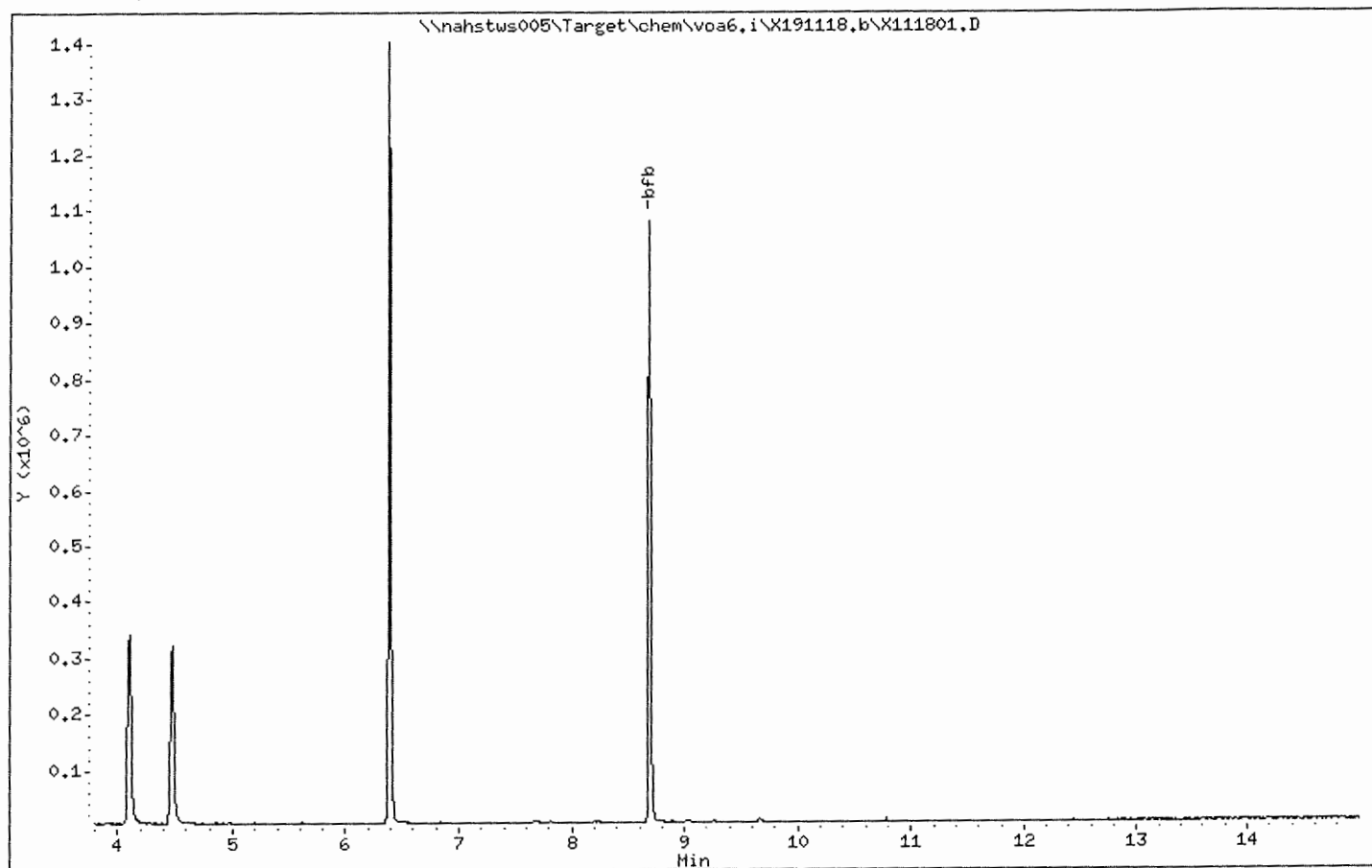
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstus005\Target\chem\voa6.i\X191118.b\X111801.D

Page 2

Date : 18-NOV-2019 13:23

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

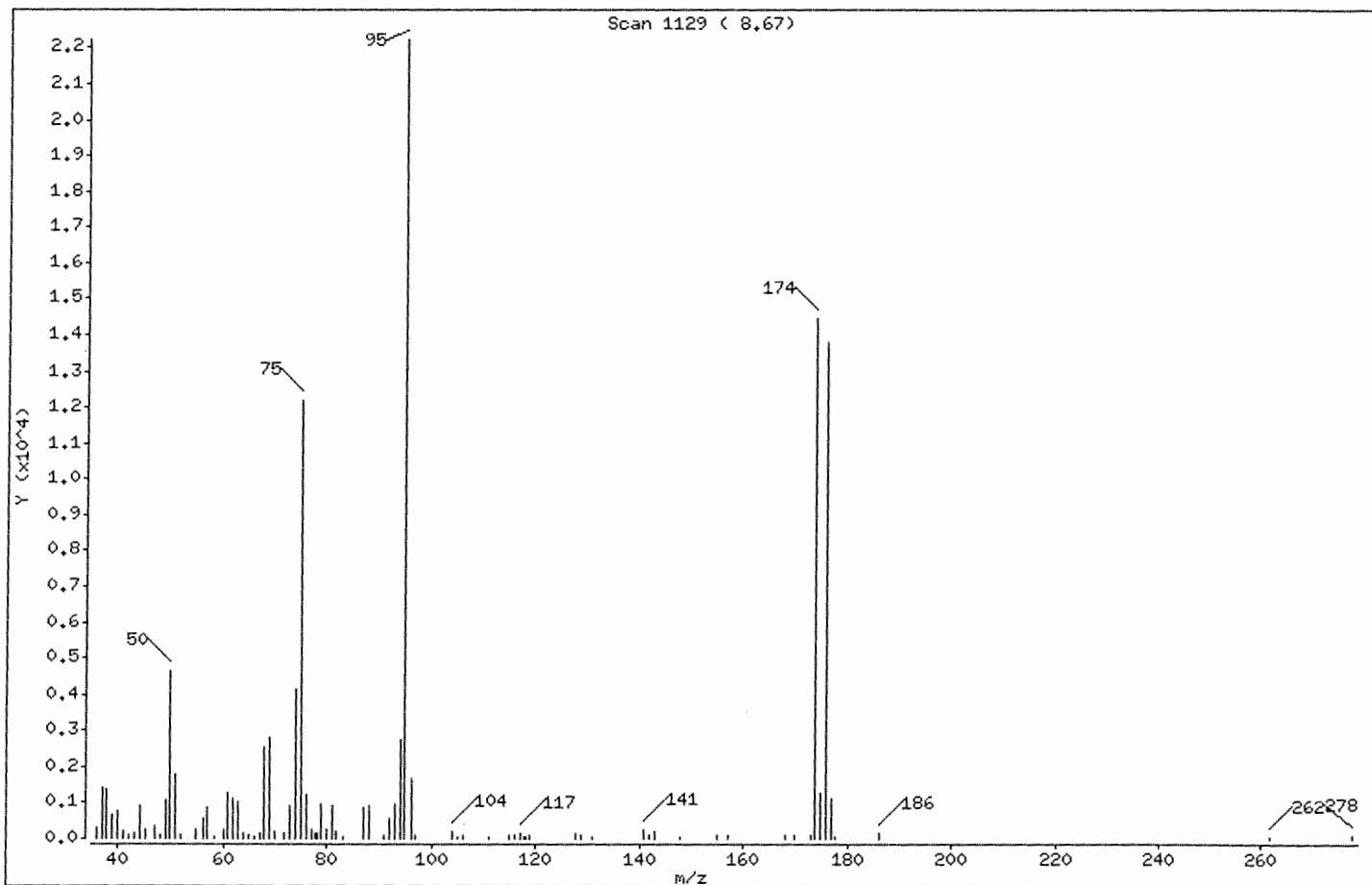
Volume Injected (uL): 2.0

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	20.86
75	30.00 - 60.00% of mass 95	54.86
96	5.00 - 9.00% of mass 95	7.62
173	Less than 2.00% of mass 174	0.43 (0.66)
174	Greater than 50.00% of mass 95	65.03
175	5.00 - 9.00% of mass 174	5.82 (8.95)
176	95.00 - 101.00% of mass 174	62.04 (95.41)
177	5.00 - 9.00% of mass 176	5.11 (8.24)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111801.D

Date : 18-NOV-2019 13:23

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: X111801.D
 Spectrum: Scan 1129 (8.67)
 Location of Maximum: 95.00
 Number of points: 83

m/z	Y	m/z	Y	m/z	Y	m/z	Y

36.00	329	61.00	1259	81.80	217	127.90	153
37.00	1409	62.00	1149	83.00	50	128.90	116
38.00	1370	62.90	1001	86.90	880	130.90	70
39.00	662	64.00	138	88.00	941	141.00	249
40.00	775	65.10	110	91.10	116	141.90	94

41.00	191	66.00	72	92.10	565	142.90	216
42.00	77	67.10	153	93.00	990	148.10	62
43.00	166	68.00	2578	94.00	2783	155.00	87
44.10	928	69.00	2816	95.00	22224	157.00	77
45.10	261	69.90	217	96.10	1694	168.00	85

47.00	367	71.90	143	97.00	111	170.00	86
48.10	104	73.00	931	103.90	180	172.90	96
49.00	1057	74.00	4135	105.10	52	173.90	14452
50.00	4636	75.00	12193	106.00	100	174.90	1293
51.00	1802	76.00	1227	111.10	63	175.90	13788

52.10	85	77.10	248	115.10	93	176.90	1136
55.00	269	77.80	150	116.00	100	177.80	71
56.10	539	78.10	174	117.00	158	186.00	161
56.90	843	78.90	948	117.70	74	261.90	57
58.20	60	79.90	265	118.10	74	277.90	85

60.00	231	80.90	936	119.00	127		

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D
 Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
 Inj Date : 18-NOV-2019 13:47
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD000.25;VSTD000.25;1;1;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 17:46 Cal File: X111811.D
 Als bottle: 2 Calibration Sample, Level: 1
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS					AMOUNTS	
		RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182 (1.000)		431958	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970 (1.000)		586737	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671 (1.000)		529029	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662 (1.000)		277425	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476 (1.070)		1323	0.25000	1.05 (Ta)
\$ 69 4-Bromofluorobenzene	95	8.695	8.695 (1.134)		3260	0.25000	1.07 (a)
\$ 30 Dibromofluoromethane	113	4.103	4.103 (0.981)		1295	0.25000	0.69 (a)
\$ 48 Toluene-d8	98	6.388	6.388 (0.833)		5247	0.25000	0.37 (Ta)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778 (1.014)		814	0.25000	0.21 (a)
31 1,1,1-Trichloroethane	97	4.089	4.089 (0.978)		1177	0.25000	0.20 (a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845 (0.915)		861	0.25000	0.22 (aM)
138 Freon TF	101	1.912	1.912 (0.457)		755	0.25000	0.20 (aM)
53 1,1,2-Trichloroethane	83	6.847	6.847 (0.893)		656	0.25000	0.23 (aM)
22 1,1-Dichloroethane	63	2.922	2.922 (0.699)		1571	0.25000	0.24 (aM)
11 1,1-Dichloroethene	96	1.919	1.919 (0.459)		909	0.25000	0.24 (a)
32 1,1-Dichloropropene	75	4.283	4.283 (0.862)		1579	0.25000	0.33 (a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746 (1.216)		224	0.25000	(aM)
71 1,2,3-Trichloropropane	75	8.867	8.867 (0.918)		702	0.25000	0.21 (aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345 (1.174)		320	0.25000	0.13 (aM)
79 1,2,4-Trimethylbenzene	105	9.383	9.383 (0.971)		2742	0.25000	0.20 (a)
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658 (1.103)		103	0.25000	(aM)
57 1,2-Dibromoethane	107	7.262	7.262 (0.947)		708	0.25000	0.19 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS					AMOUNTS	
		RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	1523	0.25000	0.20 (a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	938	0.25000	0.20 (aM)
42 1,2-Dichloropropane	63	5.450	5.450	(1.097)	858	0.25000	0.24 (aM)
75 1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	2444	0.25000	0.19 (a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	1534	0.25000	0.19 (a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	1126	0.25000	0.20 (a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	1760	0.25000	0.21 (a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	1234	0.25000	0.21 (aM)
24 2-Butanone	43	3.588	3.588	(0.858)	827	0.50000	0.62 (aM)
76 2-Chlorotoluene	91	8.974	8.974	(0.929)	2277	0.25000	0.22 (a)
52 2-Hexanone	43	7.090	7.090	(0.924)	809	0.50000	0.37 (Ta)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	2873	0.25000	0.23 (a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	2596	0.25000	0.19 (a)
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	1190	0.50000	0.38 (aM)
10 Acetone	43	1.969	1.969	(0.471)	3213	0.50000	(aM)
37 Benzene	78	4.519	4.519	(0.909)	3088	0.25000	0.23 (a)
74 Bromobenzene	156	8.817	8.817	(0.913)	940	0.25000	0.19 (a)
29 Bromochloromethane	128	3.795	3.795	(0.908)	660	0.25000	0.28 (aM)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	1101	0.25000	0.22 (aM)
66 Bromoform	173	8.416	8.416	(1.097)	495	0.25000	1.15 (aM)
6 Bromomethane	94	1.339	1.339	(0.320)	1552	0.25000	(aM)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	3999	0.50000	0.40 (a)
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	1084	0.25000	0.20 (aM)
59 Chlorobenzene	112	7.692	7.692	(1.003)	2603	0.25000	0.25 (a)
7 Chloroethane	64	1.403	1.403	(0.336)	672	0.25000	0.24 (aM)
28 Chloroform	83	3.910	3.910	(0.935)	2414	0.25000	0.34 (aM)
3 Chloromethane	50	1.074	1.074	(0.257)	1640	0.25000	0.53 (aM)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1103	0.25000	0.26 (a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1351	0.25000	0.23 (aM)
55 Dibromochloromethane	129	7.184	7.184	(0.937)	883	0.25000	0.21 (a)
44 Dibromomethane	93	5.558	5.558	(1.118)	573	0.25000	0.23 (aM)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	642	0.25000	1.04 (aM)
61 Ethylbenzene	106	7.800	7.800	(1.017)	1072	0.25000	0.20 (a)
91 Hexachlorobutadiene	225	11.481	11.481	(1.188)	367	0.25000	(aM)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	2992	0.25000	0.18 (a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	2521	0.50000	0.39 (a)
17 Methylene Chloride	84	2.306	2.306	(0.551)	1174	0.25000	0.30 (a)
87 n-Butylbenzene	91	9.999	9.999	(1.035)	2169	0.25000	0.19 (a)
73 n-Propylbenzene	91	8.917	8.917	(0.923)	3456	0.25000	0.20 (a)
92 Naphthalene	128	11.553	11.553	(1.196)	764	0.25000	0.25 (a)
63 o-Xylene	106	8.244	8.244	(1.075)	1221	0.25000	0.19 (a)
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	3012	0.25000	0.20 (a)
64 Styrene	104	8.265	8.265	(1.078)	2388	0.25000	0.21 (a)
78 tert-Butylbenzene	119	9.340	9.340	(0.967)	2350	0.25000	0.21 (a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	914	0.25000	0.24 (a)
50 Toluene	91	6.453	6.453	(0.841)	3631	0.25000	0.24 (a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	826	0.25000	0.23 (aM)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	996	0.25000	0.19 (a)
38 Trichloroethene	130	5.214	5.214	(1.049)	945	0.25000	0.23 (a)
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	1233	0.25000	0.18 (a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	1052	0.25000	0.23 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D Page 3
Report Date: 06-Dec-2019 19:56

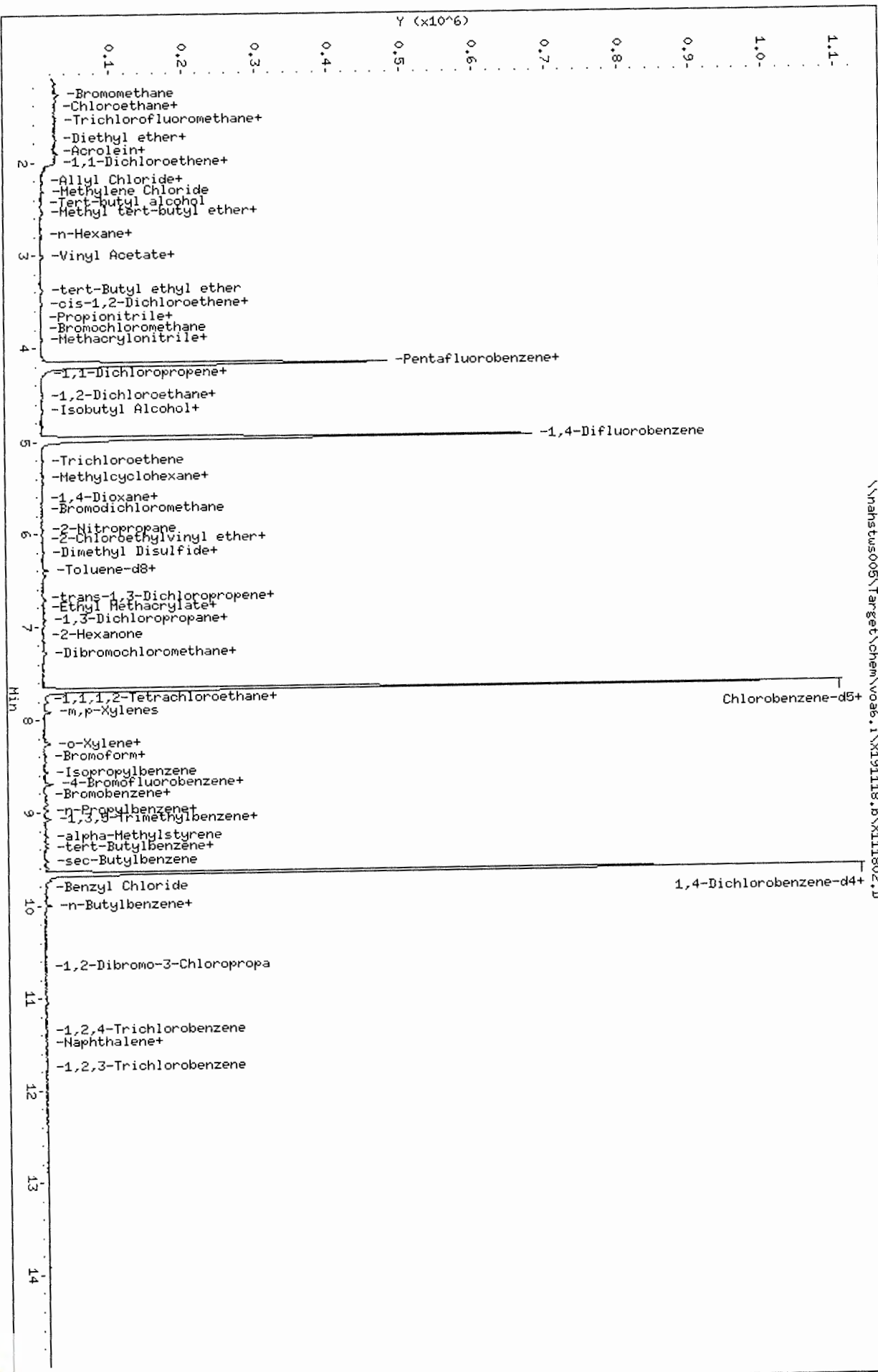
QC Flag Legend

- 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: \\nahstus005\Target\chem\voa6.i\X191118.b\X111802.D
 Date : 18-NOV-2019 13:47
 Client ID: VSTD000.25
 Sample Info: VSTD000.25;VSTD000.25;111;
 Purge Volume: 5.0
 Column Phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
 Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
 Inj Date : 18-NOV-2019 14:35
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD000.5;VSTD000.5;1;2;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 13:47 Cal File: X111802.D
 Als bottle: 4 Calibration Sample, Level: 2
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	417797	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	575000	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	520290	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	274172	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	2522	0.50000	1.36 (Ta)
\$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3844	0.50000	1.20 (a)
\$ 30 Dibromofluoromethane	113	4.110	4.110	(0.983)	2303	0.50000	0.96 (a)
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	8468	0.50000	0.61 (a)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	1290	0.50000	0.34 (a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	2055	0.50000	0.36 (a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	1652	0.50000	0.42 (aM)
138 Freon TF	101	1.911	1.911	(0.457)	1235	0.50000	0.33 (a)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	936	0.50000	0.34 (a)
22 1,1-Dichloroethane	63	2.928	2.928	(0.700)	2376	0.50000	0.39 (Ta)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	1458	0.50000	0.41 (aM)
32 1,1-Dichloropropene	75	4.289	4.289	(0.863)	1907	0.50000	0.41 (a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	421	0.50000	(aM)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	1248	0.50000	0.38 (aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	892	0.50000	0.38 (aM)
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	4769	0.50000	0.36 (aM)
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	125	0.50000	(aM)
57 1,2-Dibromoethane	107	7.269	7.269	(0.948)	1273	0.50000	0.34 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT (ug/l)	ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	2511	0.50000	0.34 (a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	1591	0.50000	0.34 (aM)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	1693	0.50000	0.49 (aM)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	4403	0.50000	0.35 (a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	2841	0.50000	0.36 (a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	2241	0.50000	0.40 (a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	3038	0.50000	0.38 (a)
26 2,2-Dichloropropane	77	3.523	3.523	(0.842)	2284	0.50000	0.41 (aM)
24 2-Butanone	43	3.595	3.595	(0.860)	1395	1.00000	1.08 (aM)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	3464	0.50000	0.35 (a)
52 2-Hexanone	43	7.090	7.090	(0.924)	1875	1.00000	0.87 (a)
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	4251	0.50000	0.35 (a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	5043	0.50000	0.37 (a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	2291	1.00000	0.75 (a)
10 Acetone	43	1.976	1.976	(0.473)	4579	1.00000	0.53 (aM)
37 Benzene	78	4.519	4.519	(0.909)	4530	0.50000	0.34 (a)
74 Bromobenzene	156	8.809	8.809	(0.911)	1601	0.50000	0.33 (a)
29 Bromochloromethane	128	3.802	3.802	(0.909)	956	0.50000	0.42 (a)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	1712	0.50000	0.35 (aM)
66 Bromoform	173	8.415	8.415	(1.097)	887	0.50000	1.27 (aM)
6 Bromomethane	94	1.338	1.338	(0.320)	2741	0.50000	(a)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	6243	1.00000	0.64 (aM)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	1955	0.50000	0.38 (aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	3839	0.50000	0.37 (a)
7 Chloroethane	64	1.403	1.403	(0.336)	1164	0.50000	0.44 (aM)
28 Chloroform	83	3.917	3.917	(0.937)	3238	0.50000	0.47 (a)
3 Chloromethane	50	1.073	1.073	(0.257)	2201	0.50000	0.67 (a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1368	0.50000	0.34 (a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1873	0.50000	0.33 (a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	1318	0.50000	0.33 (a)
44 Dibromomethane	93	5.564	5.564	(1.120)	802	0.50000	0.32 (a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	1269	0.50000	1.20 (aM)
61 Ethylbenzene	106	7.807	7.807	(1.018)	1838	0.50000	0.35 (a)
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	1376	0.50000	0.21 (a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	5484	0.50000	0.35 (a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	4089	1.00000	0.64 (a)
17 Methylene Chloride	84	2.305	2.305	(0.551)	1764	0.50000	0.46 (aM)
87 n-Butylbenzene	91	9.998	9.998	(1.034)	4442	0.50000	0.39 (aM)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	6280	0.50000	0.37 (a)
92 Naphthalene	128	11.560	11.560	(1.196)	1399	0.50000	0.47 (a)
63 o-Xylene	106	8.243	8.243	(1.075)	2028	0.50000	0.32 (a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	5469	0.50000	0.37 (a)
64 Styrene	104	8.265	8.265	(1.078)	3653	0.50000	0.33 (a)
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	3670	0.50000	0.34 (a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	1382	0.50000	0.37 (a)
50 Toluene	91	6.453	6.453	(0.841)	5603	0.50000	0.37 (a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	1192	0.50000	0.34 (a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	1749	0.50000	0.34 (a)
38 Trichloroethene	130	5.206	5.206	(1.048)	1298	0.50000	0.32 (a)
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	2137	0.50000	0.32 (a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	2046	0.50000	0.48 (aM)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D Page 3
Report Date: 06-Dec-2019 19:56

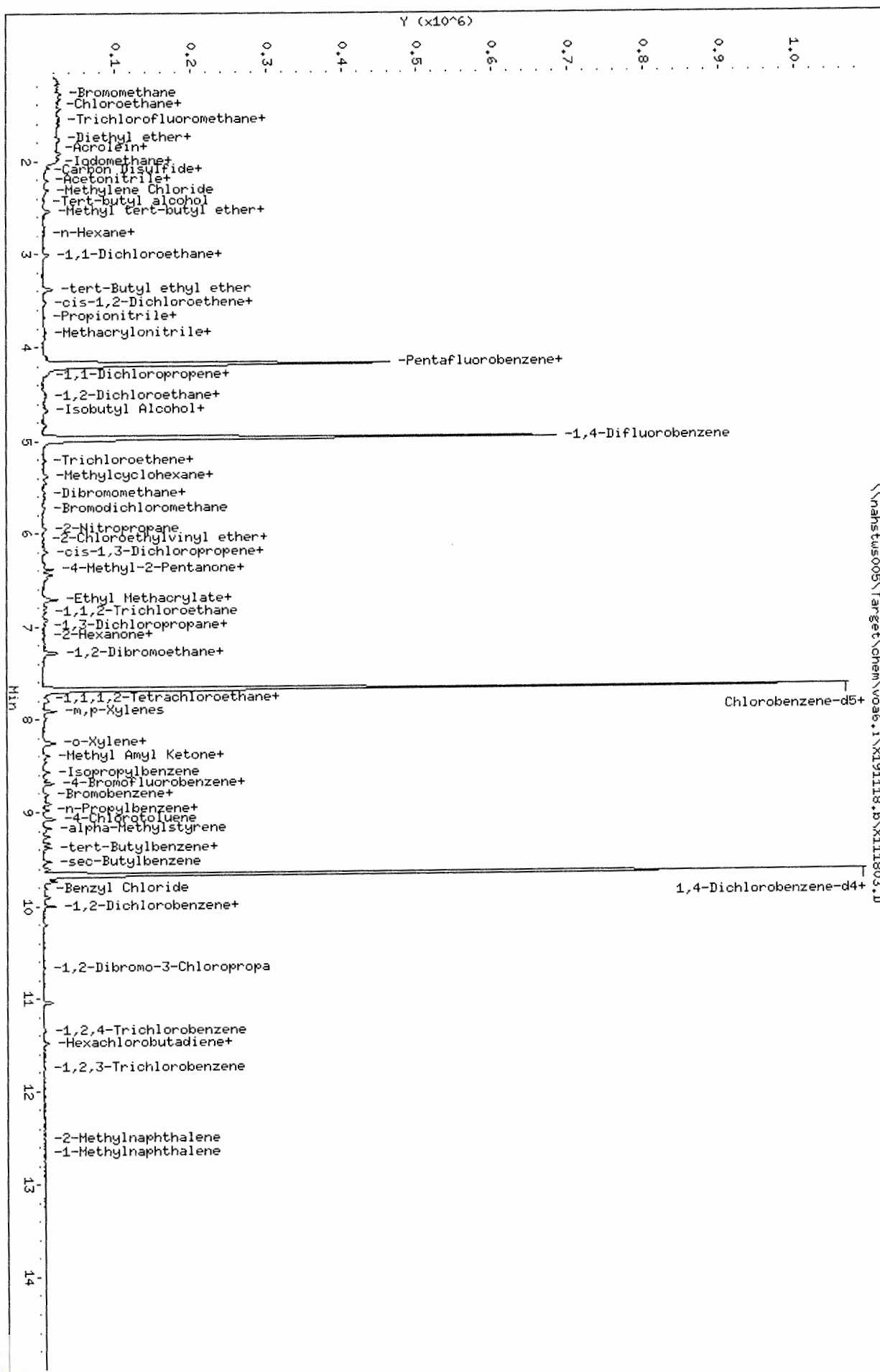
QC Flag Legend

- T - Target compound detected outside RT window.
- a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
- M - Compound response manually integrated.



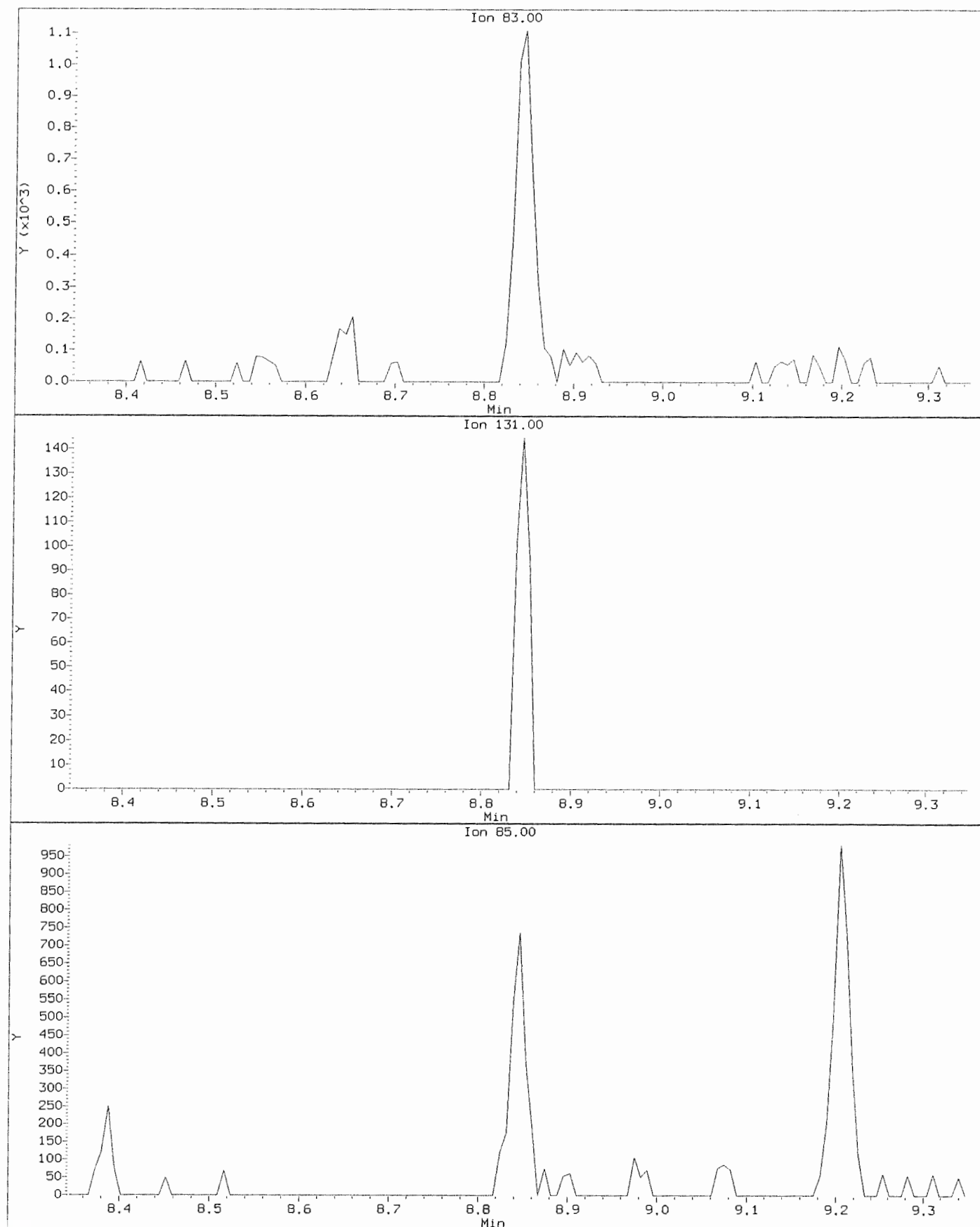
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 Date : 18-NOV-2019 14:35
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 Purge Volume: 5.0
 Column Phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



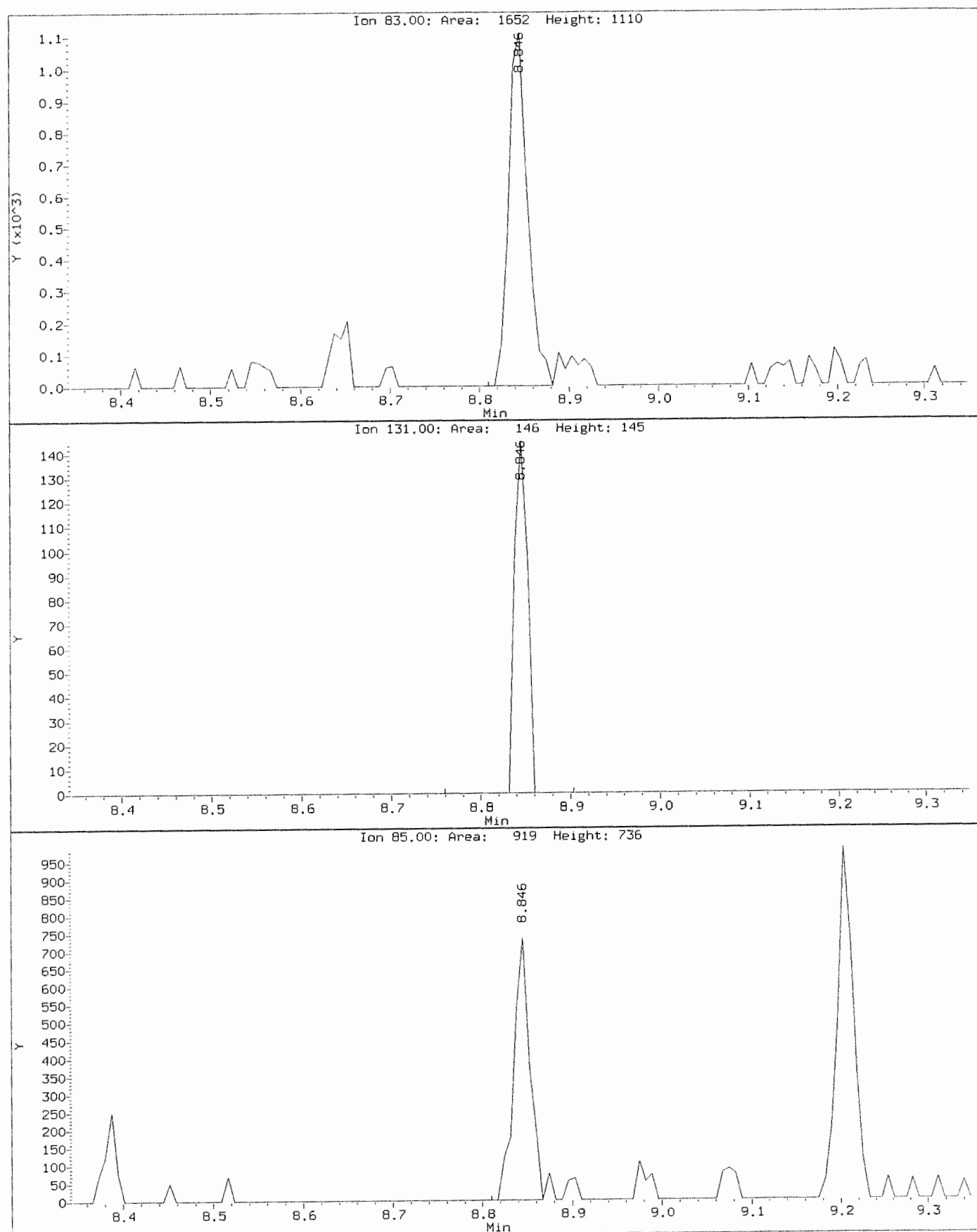
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



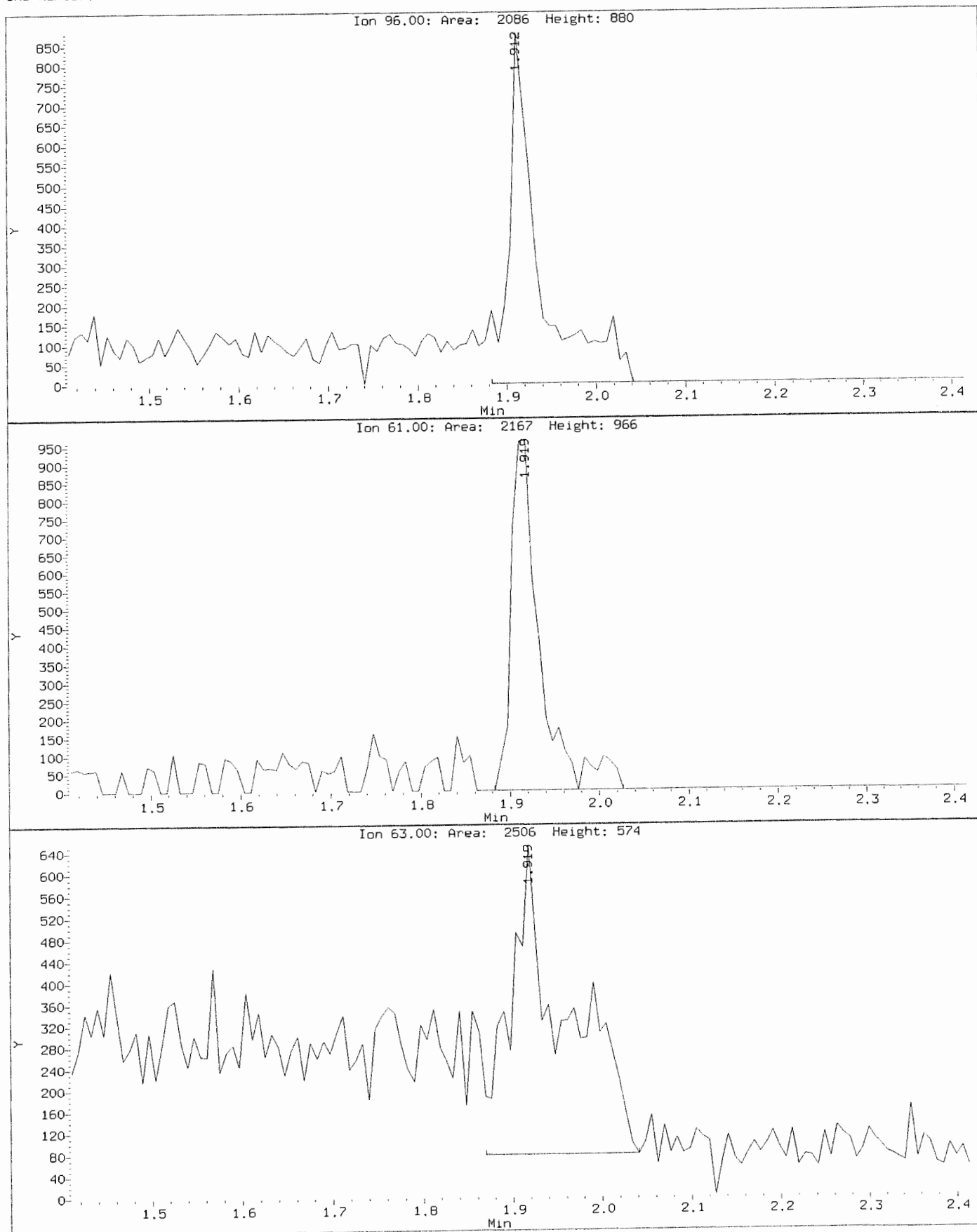
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



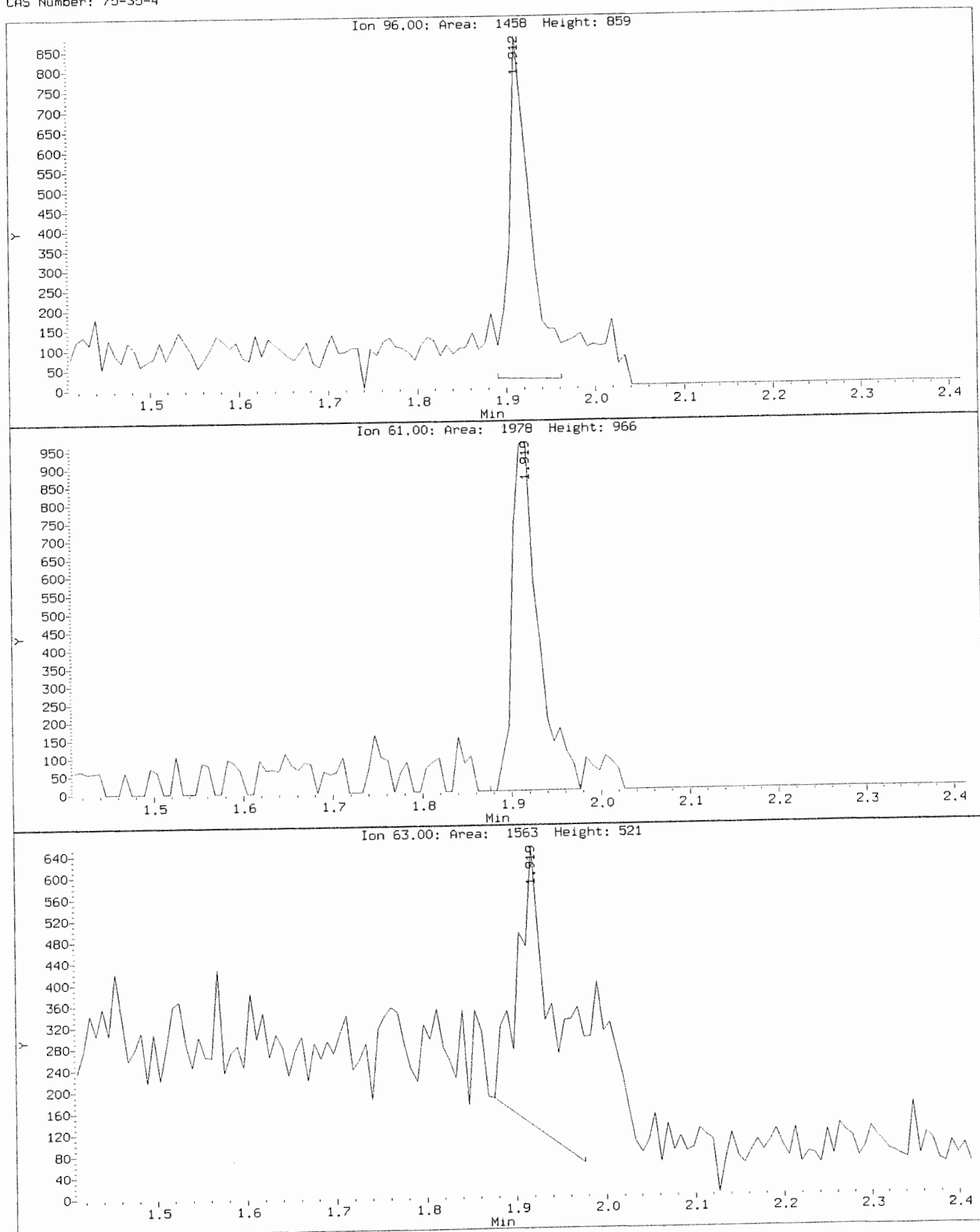
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



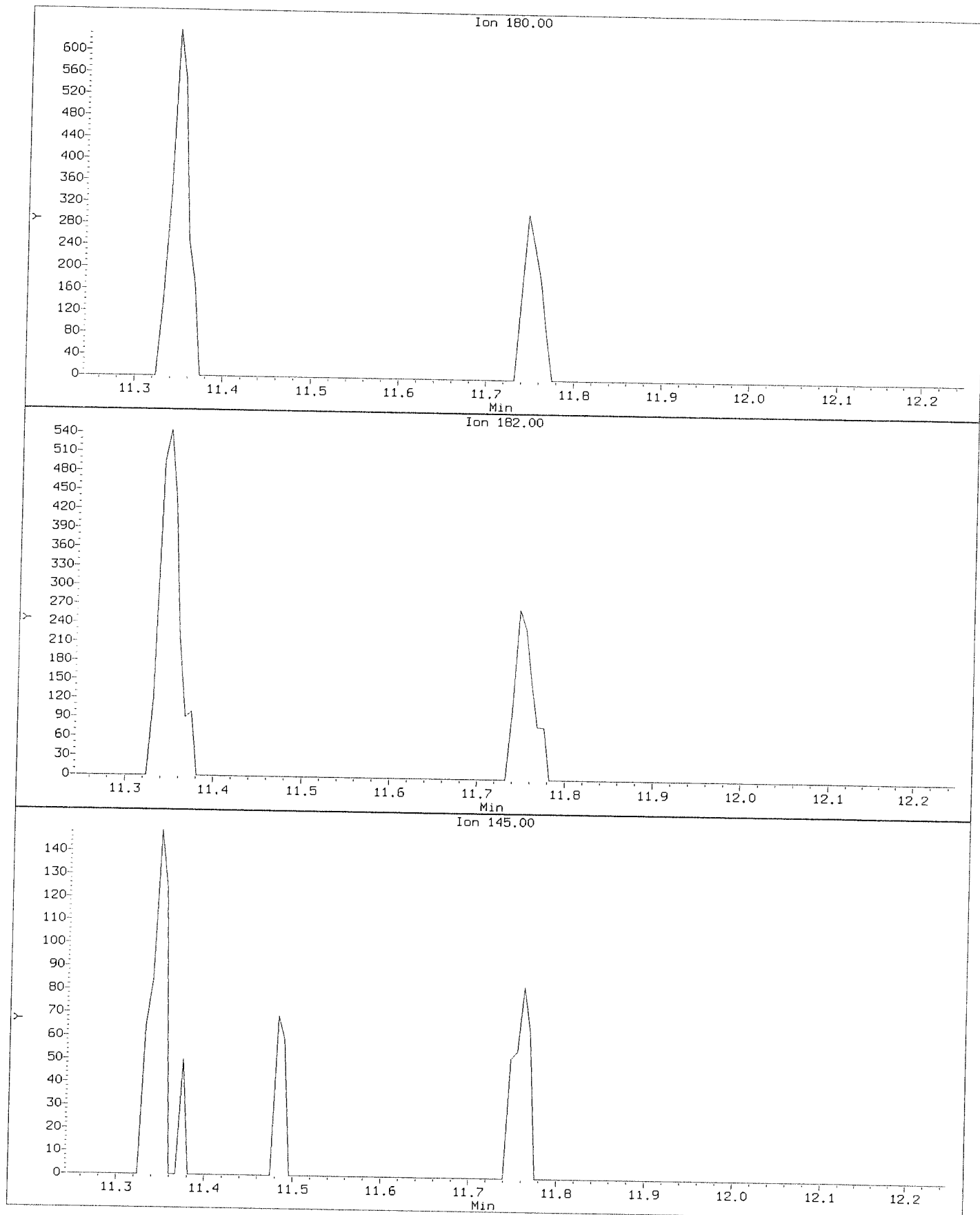
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Injection Date: 18-NOV-2019 14:35
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Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



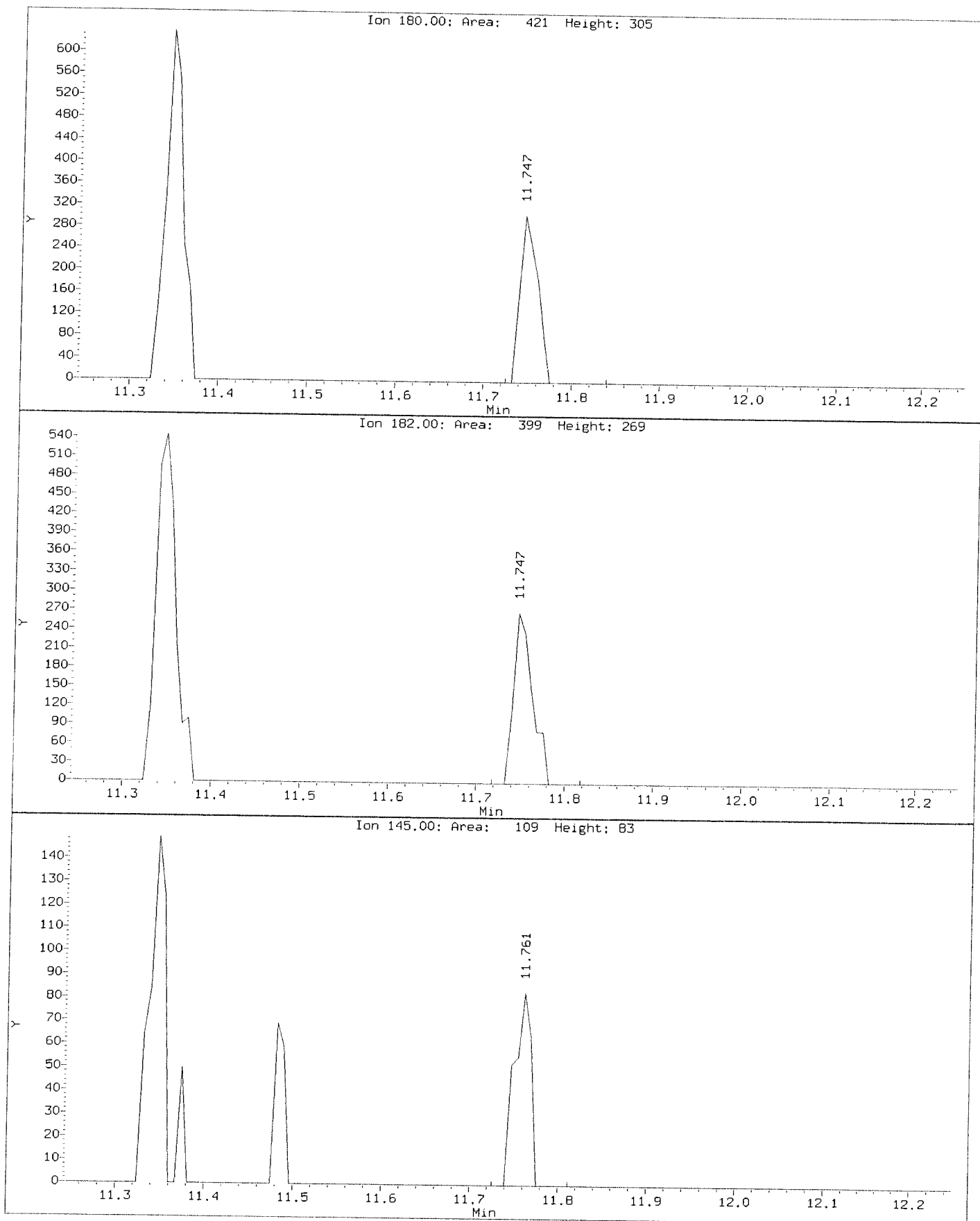
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Injection Date: 18-NOV-2019 14:35
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Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



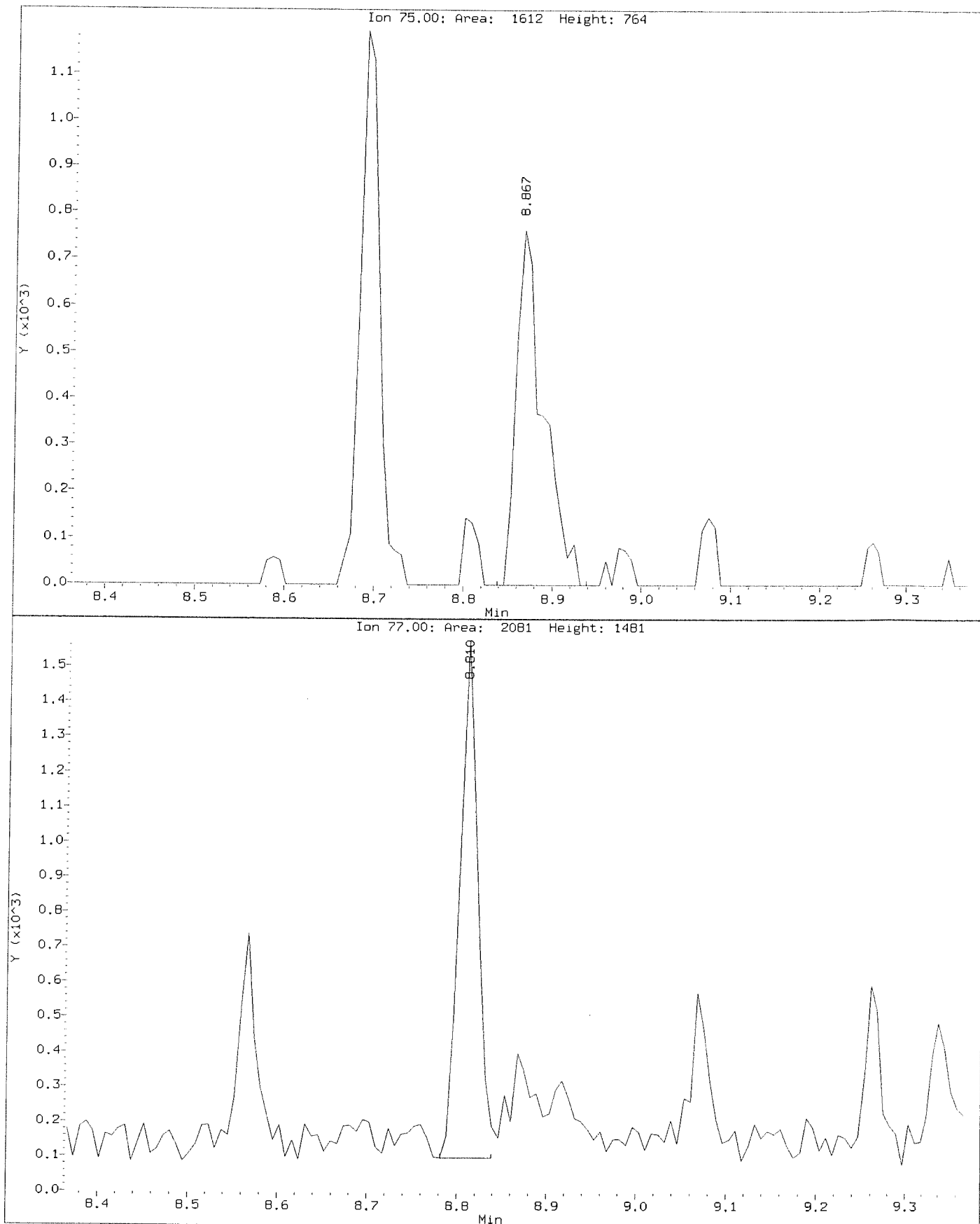
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Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



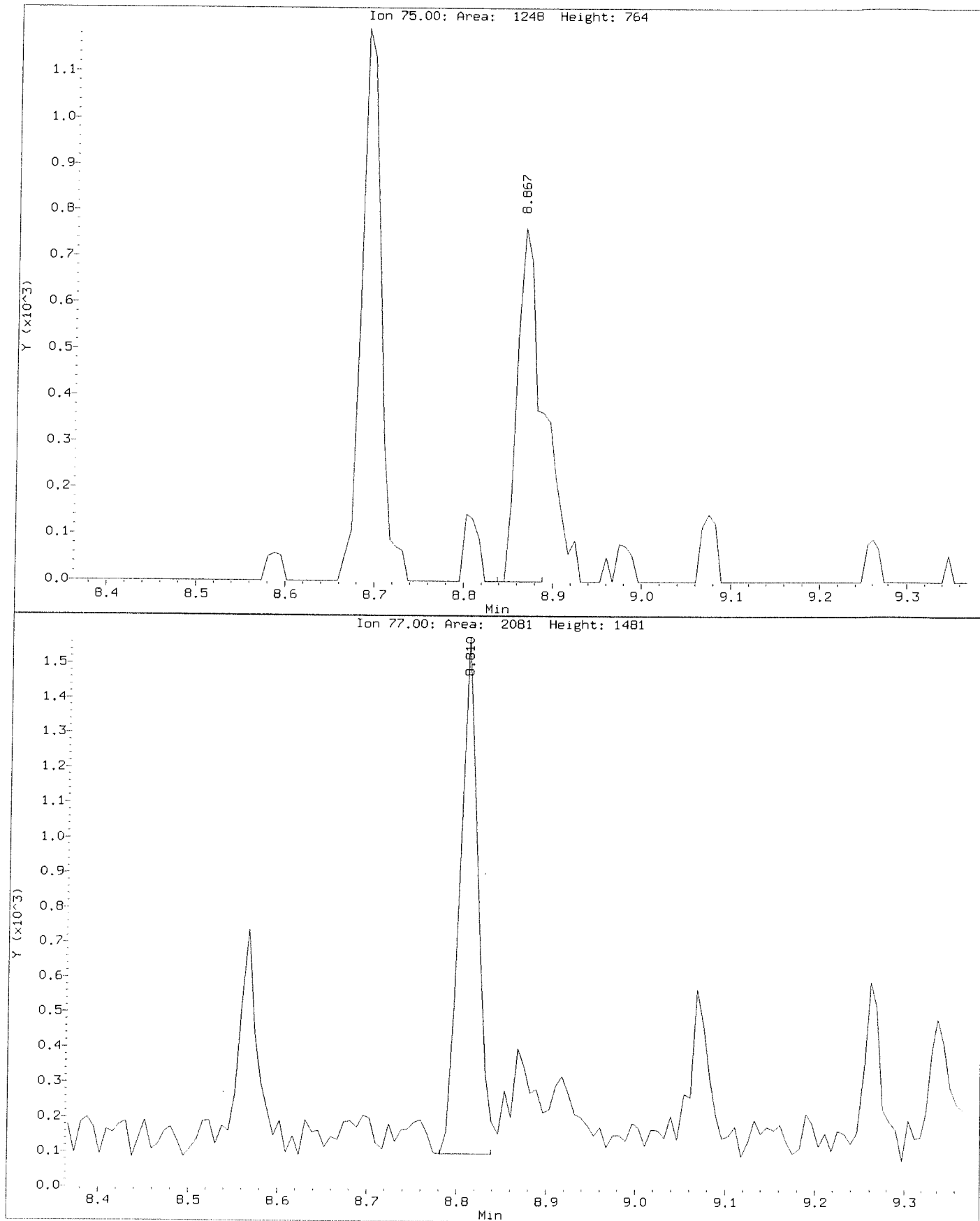
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Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



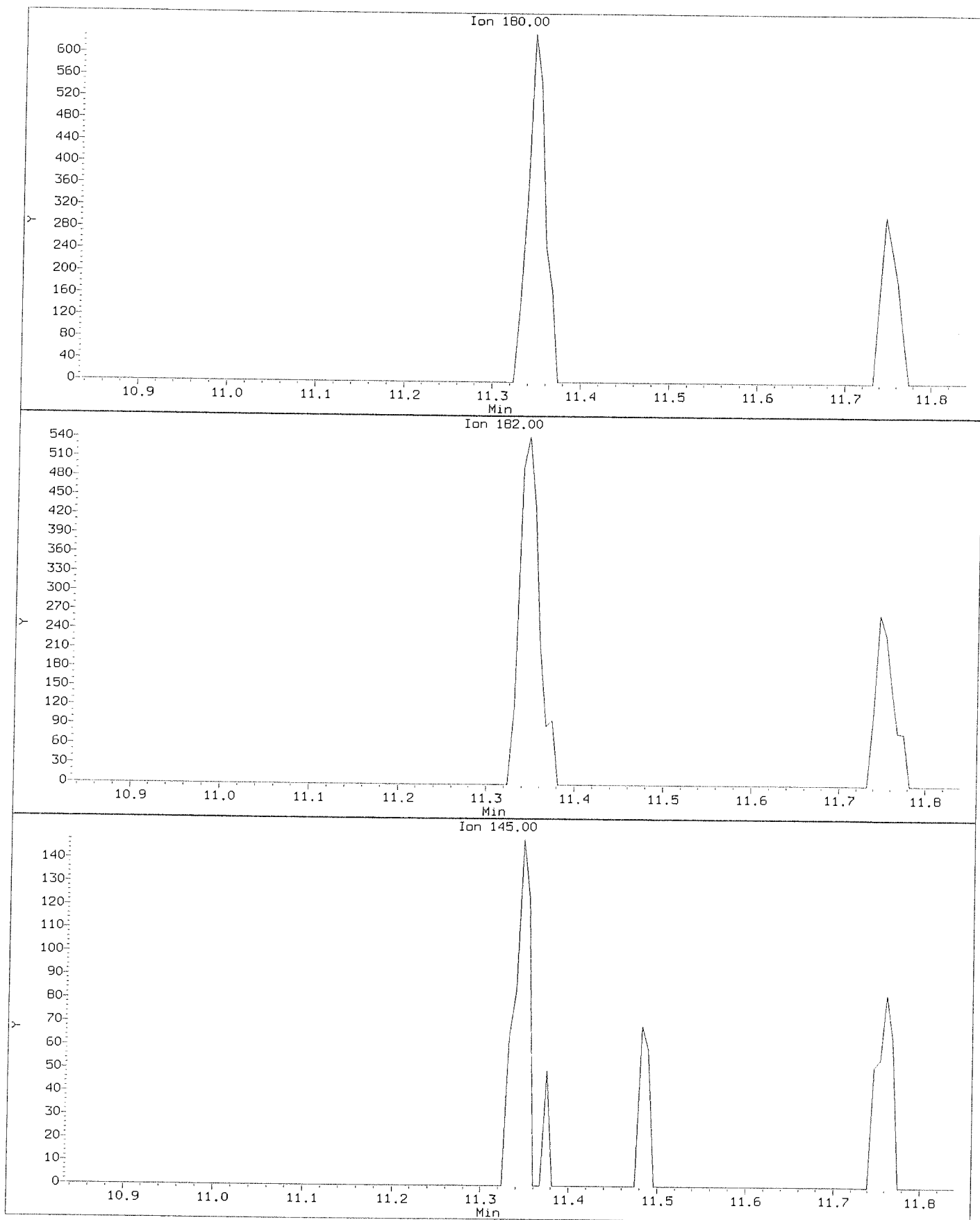
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Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



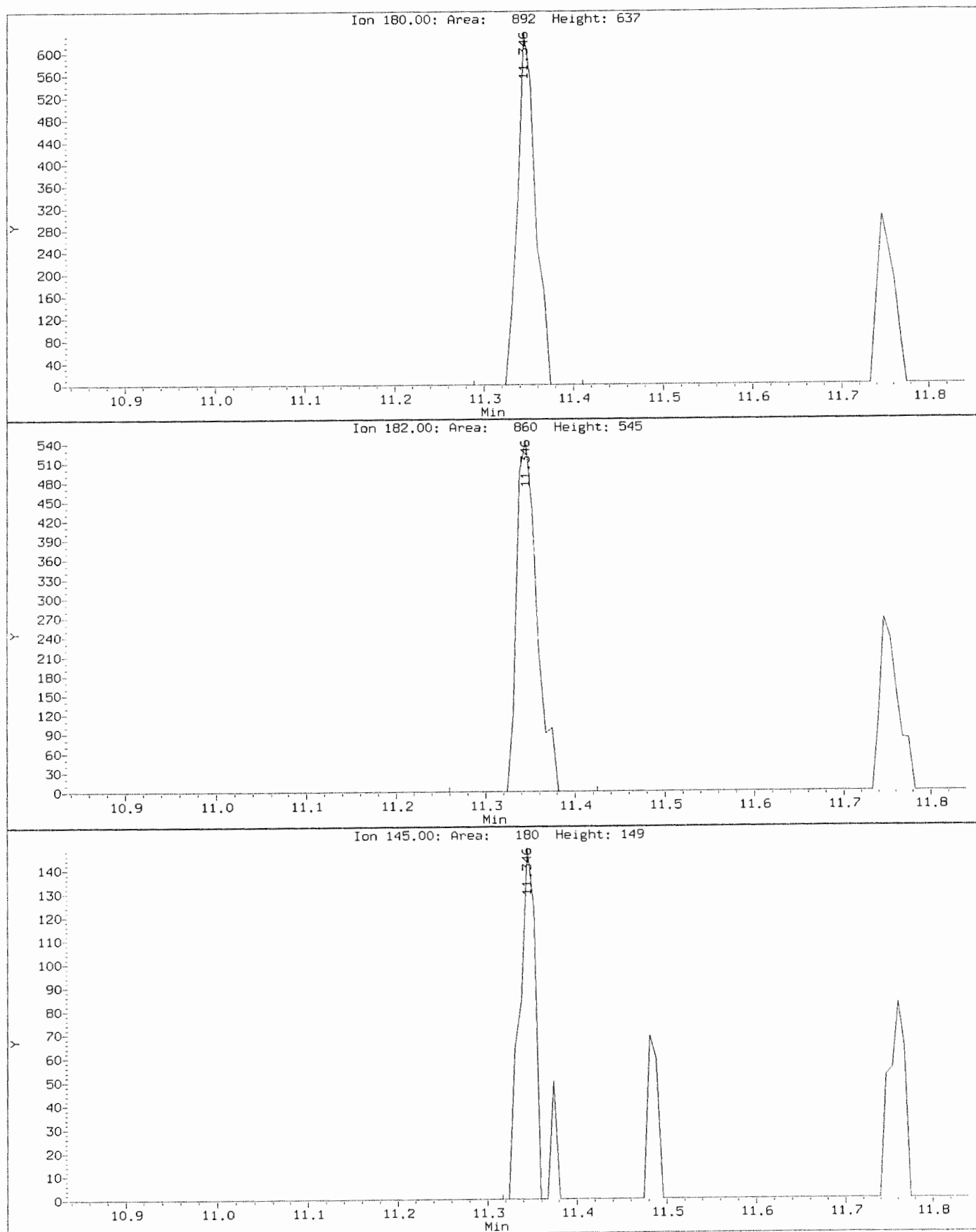
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Injection Date: 18-NOV-2019 14:35
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Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



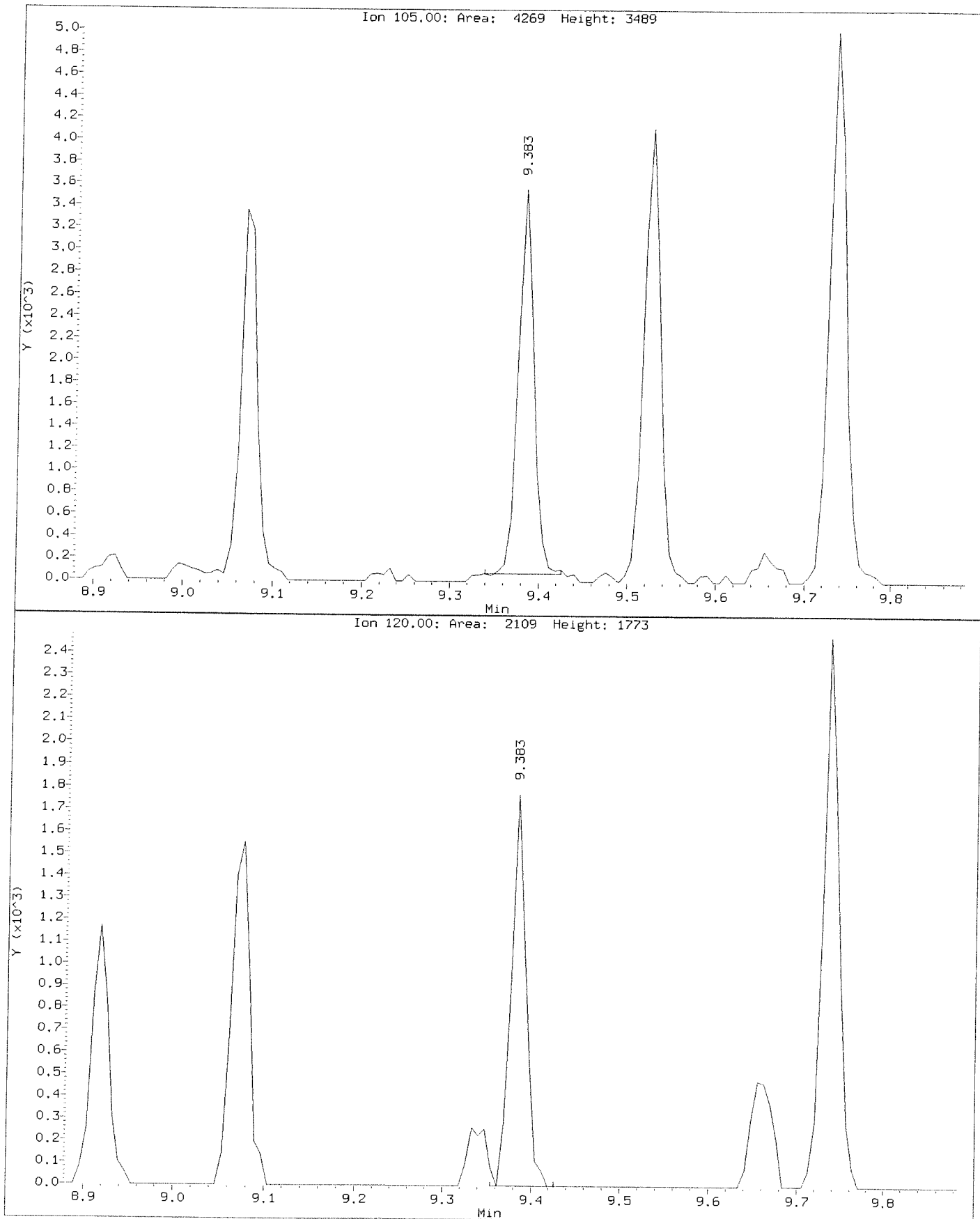
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Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



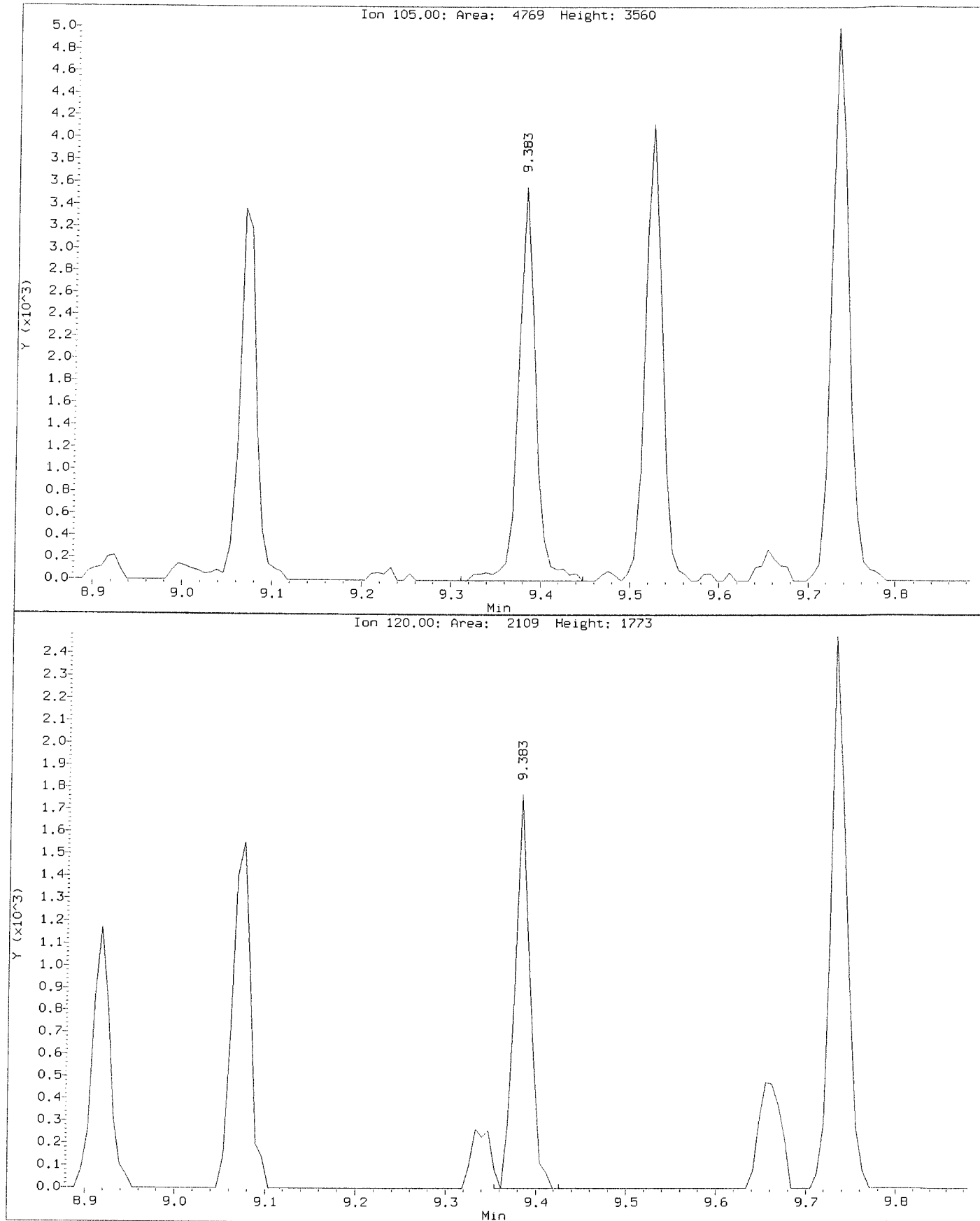
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Client Sample ID: VSTD000.5

Compound: 1,2,4-Trimethylbenzene
CAS Number: 95-63-6



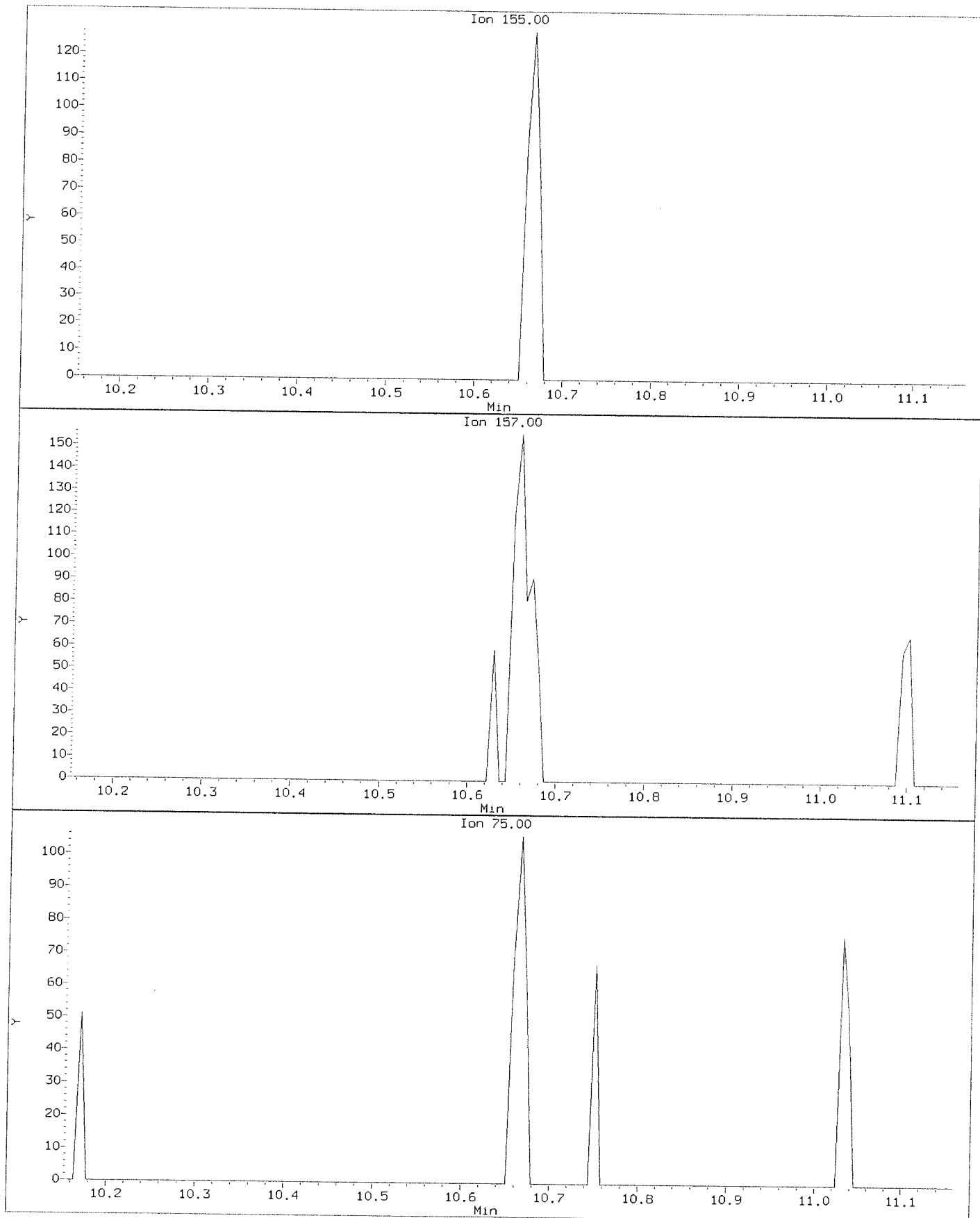
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Client Sample ID: VSTD000.5

Compound: 1,2,4-Trimethylbenzene
CAS Number: 95-63-6



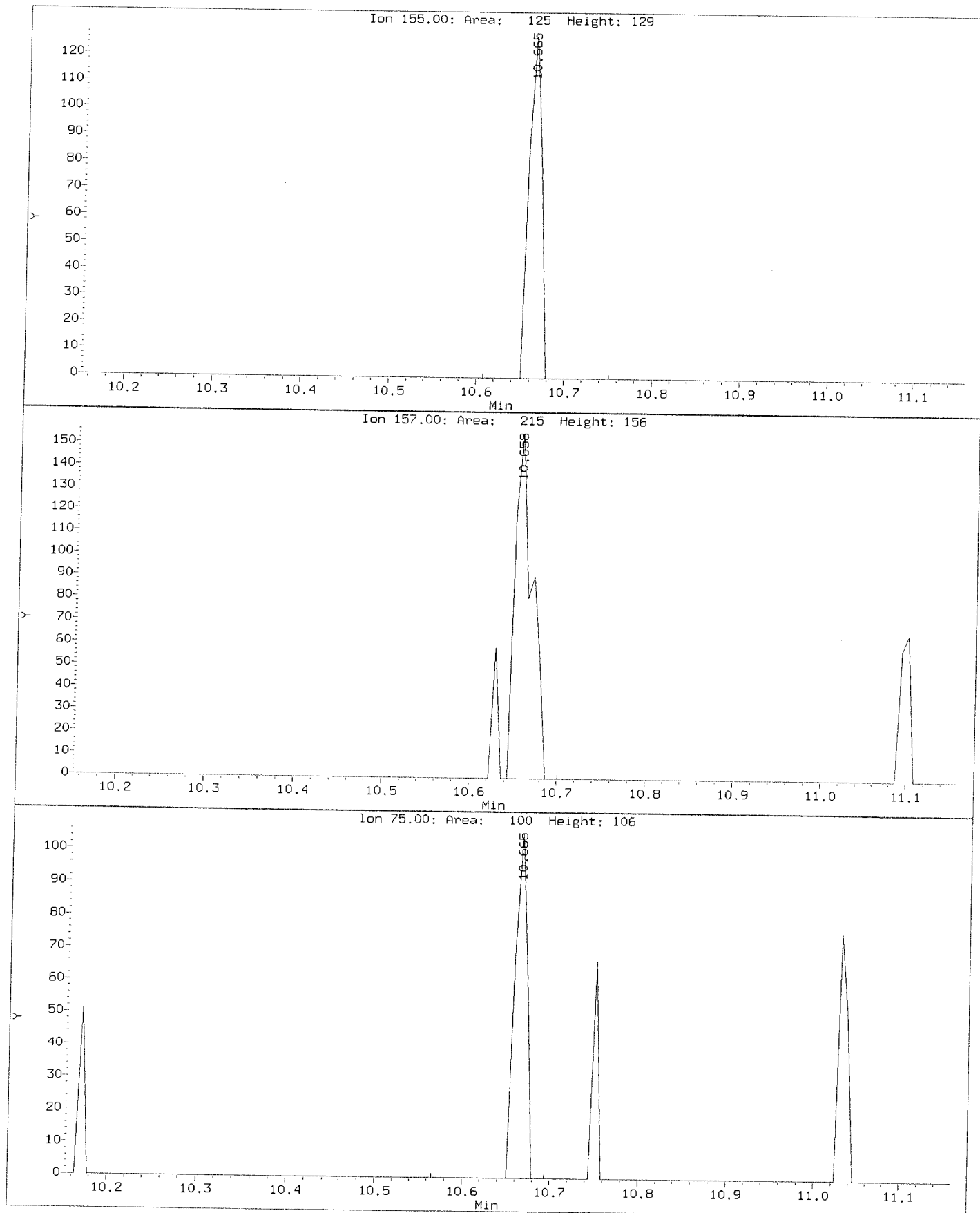
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Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



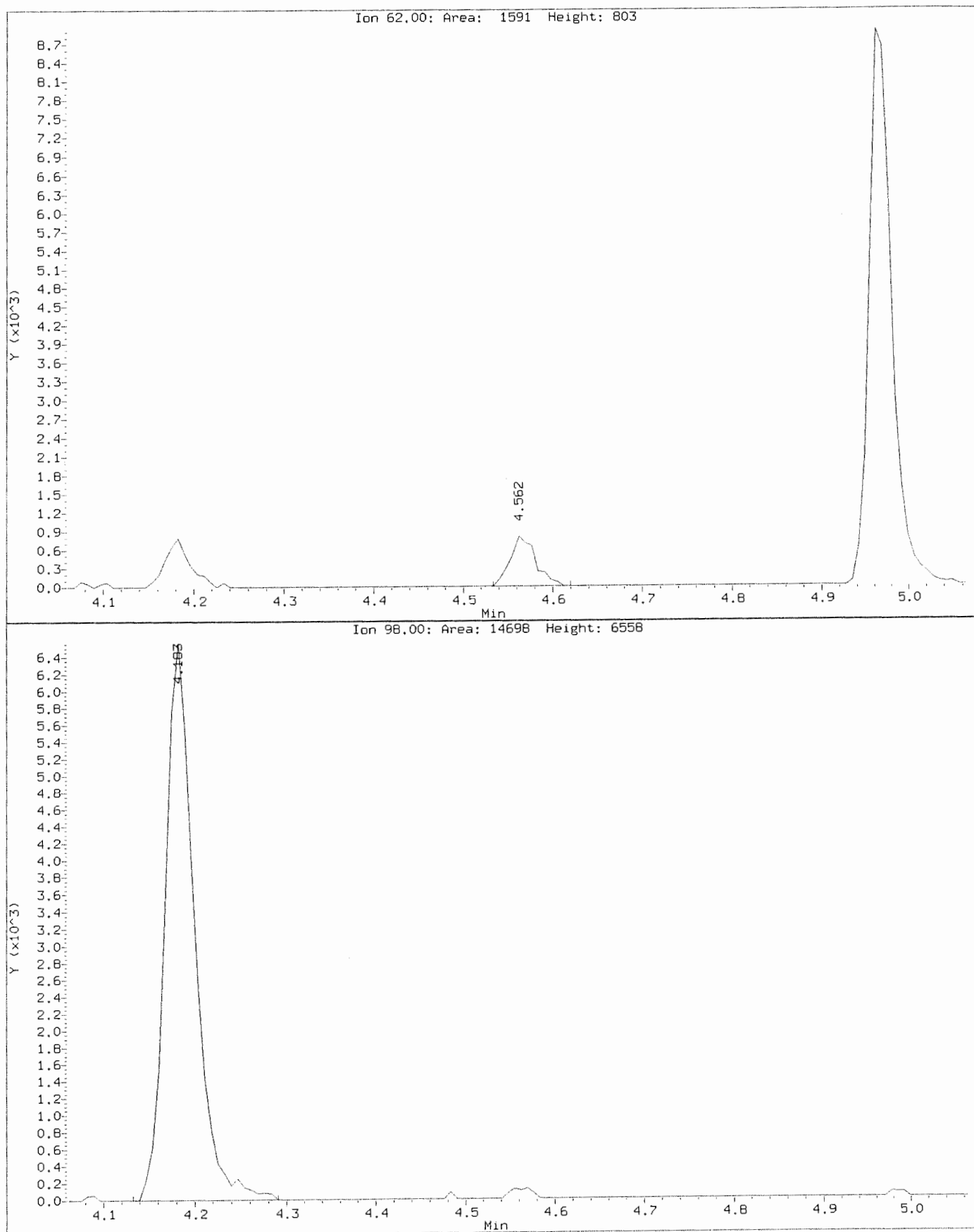
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Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



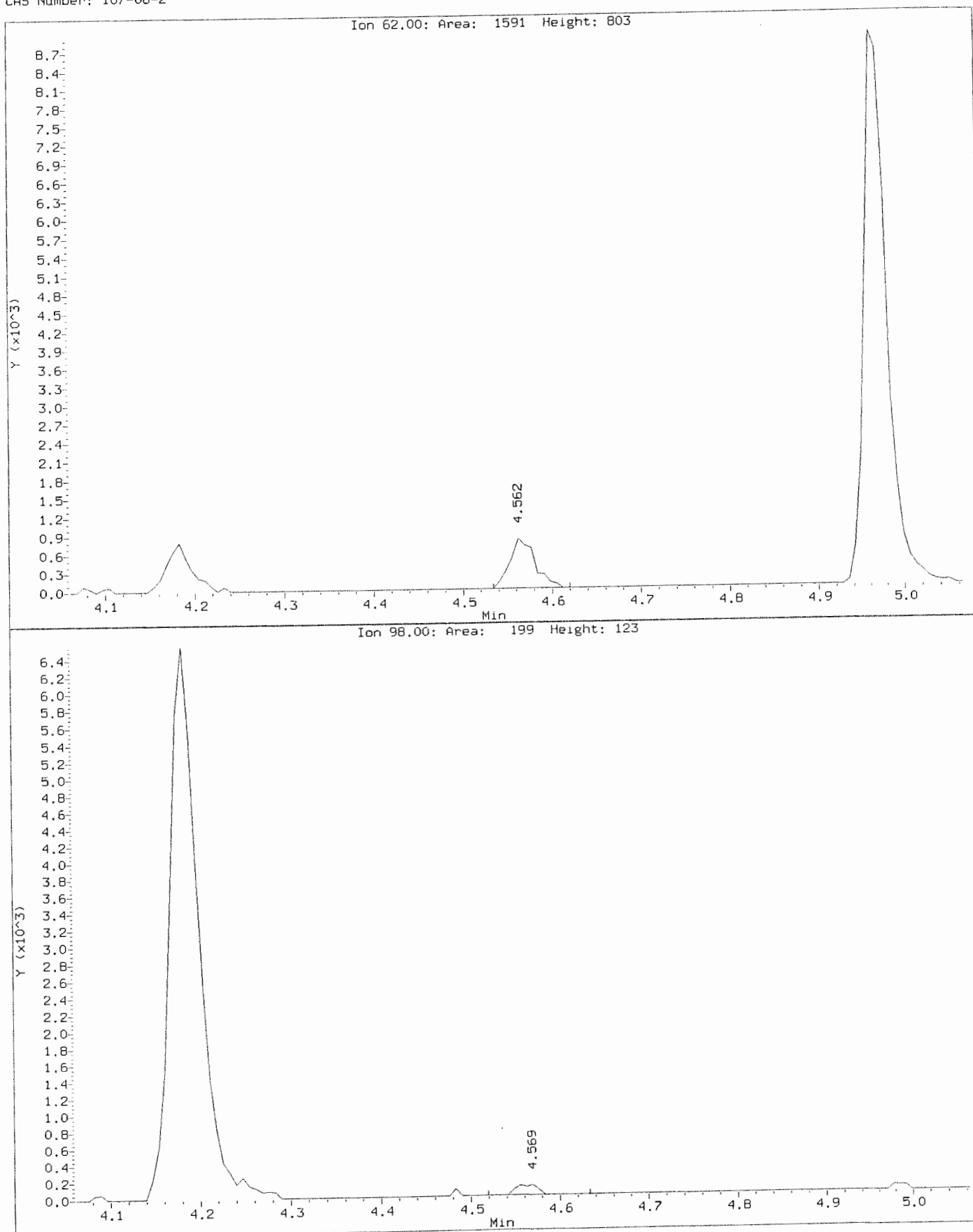
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2



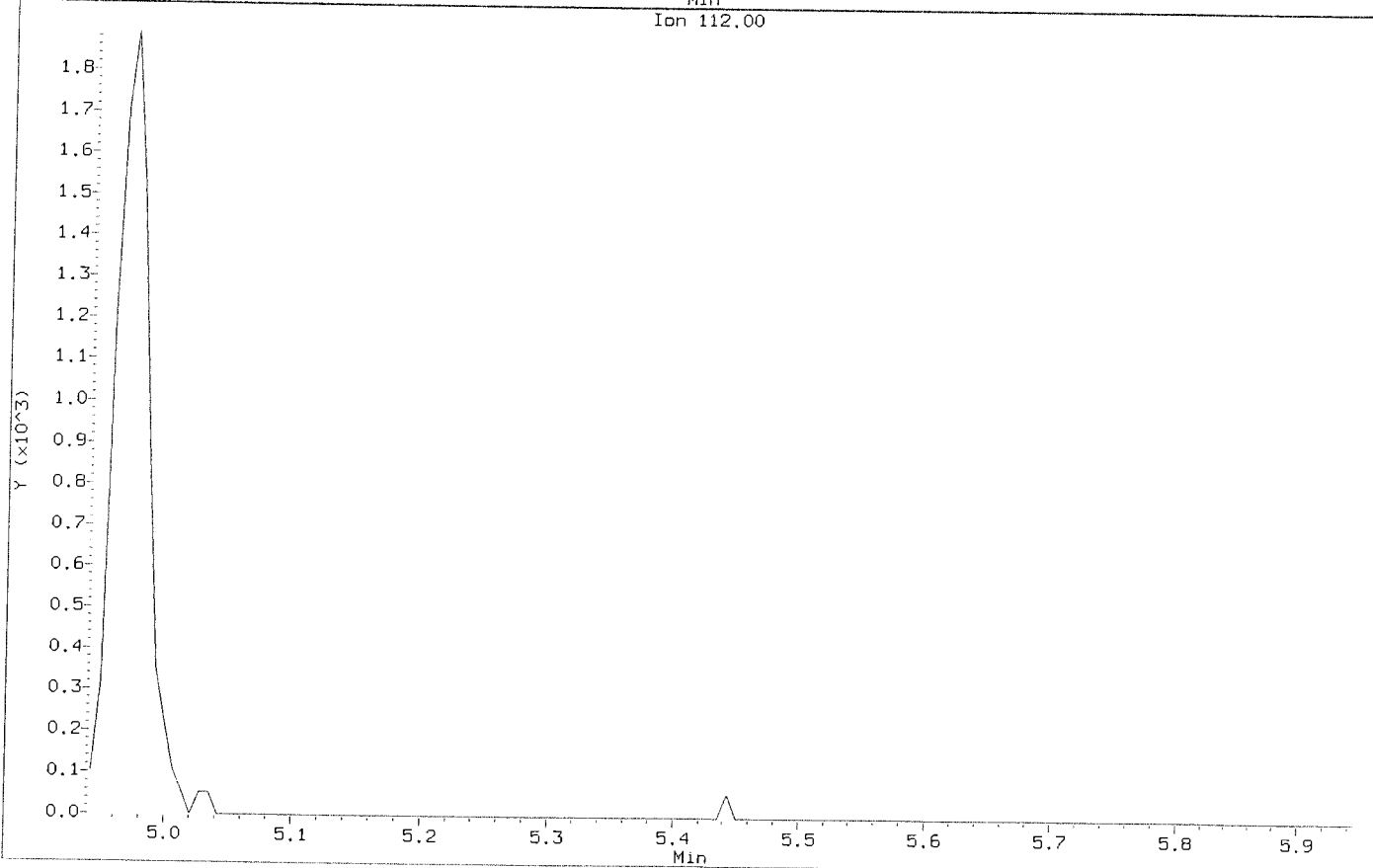
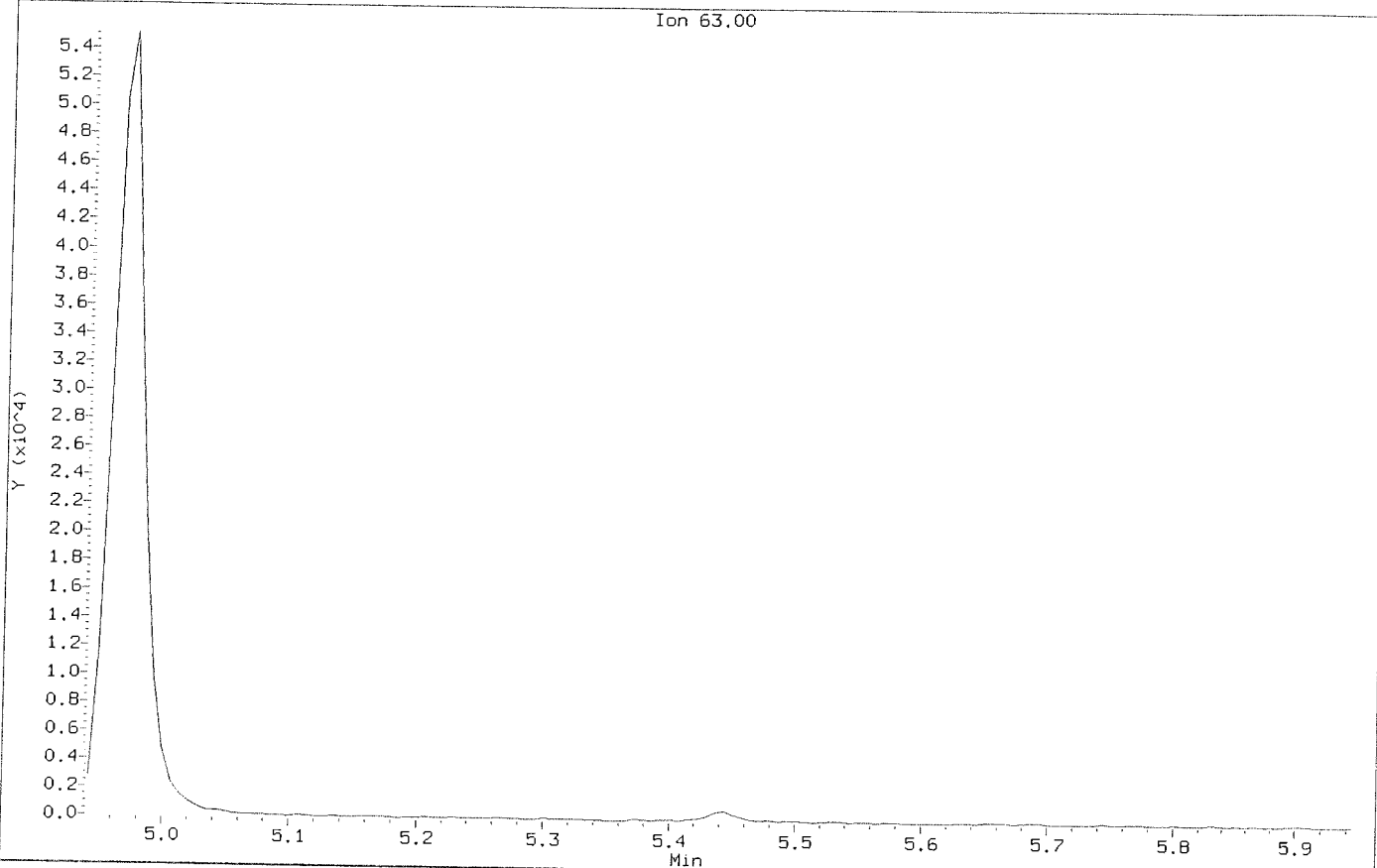
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Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2



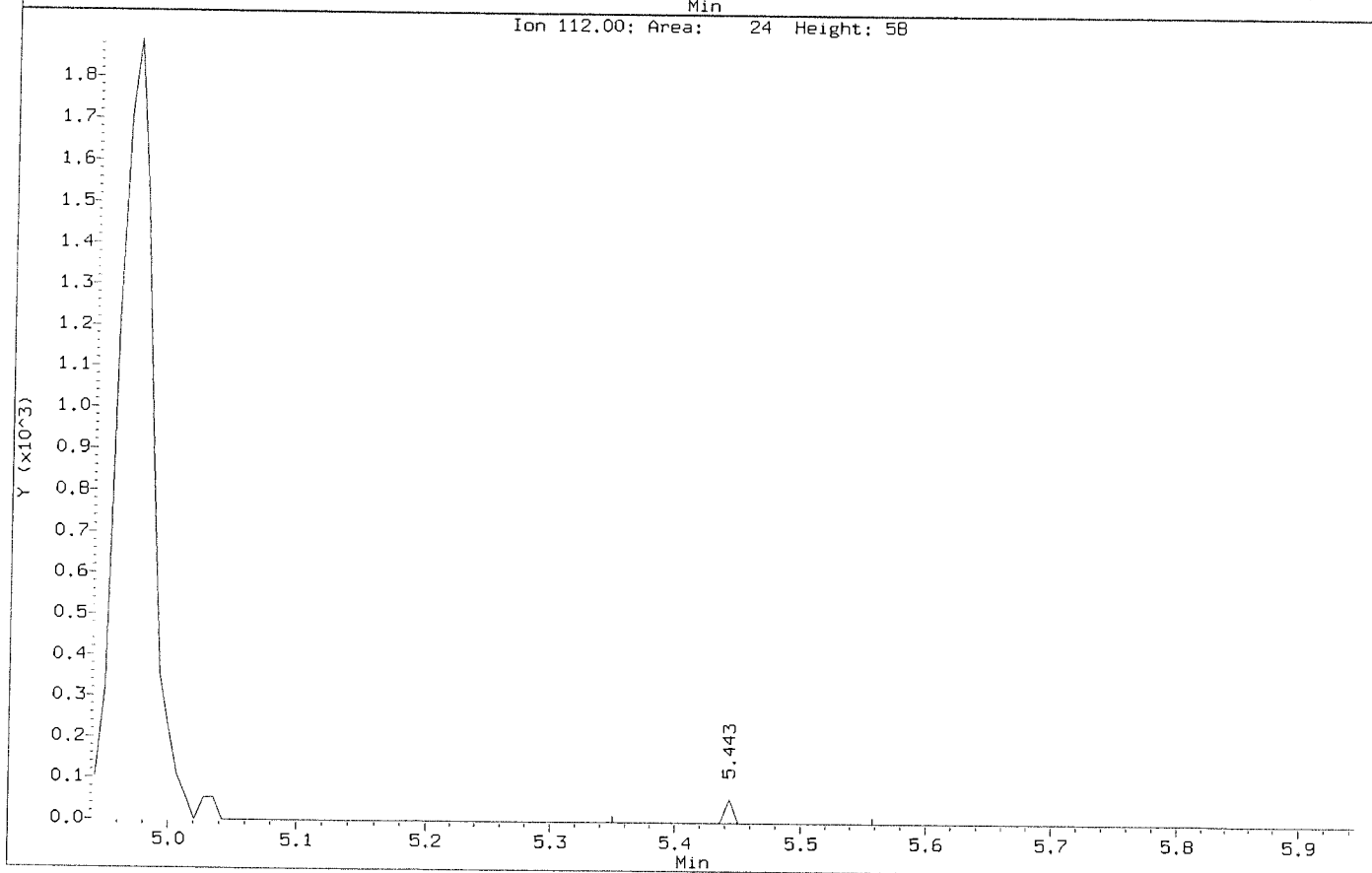
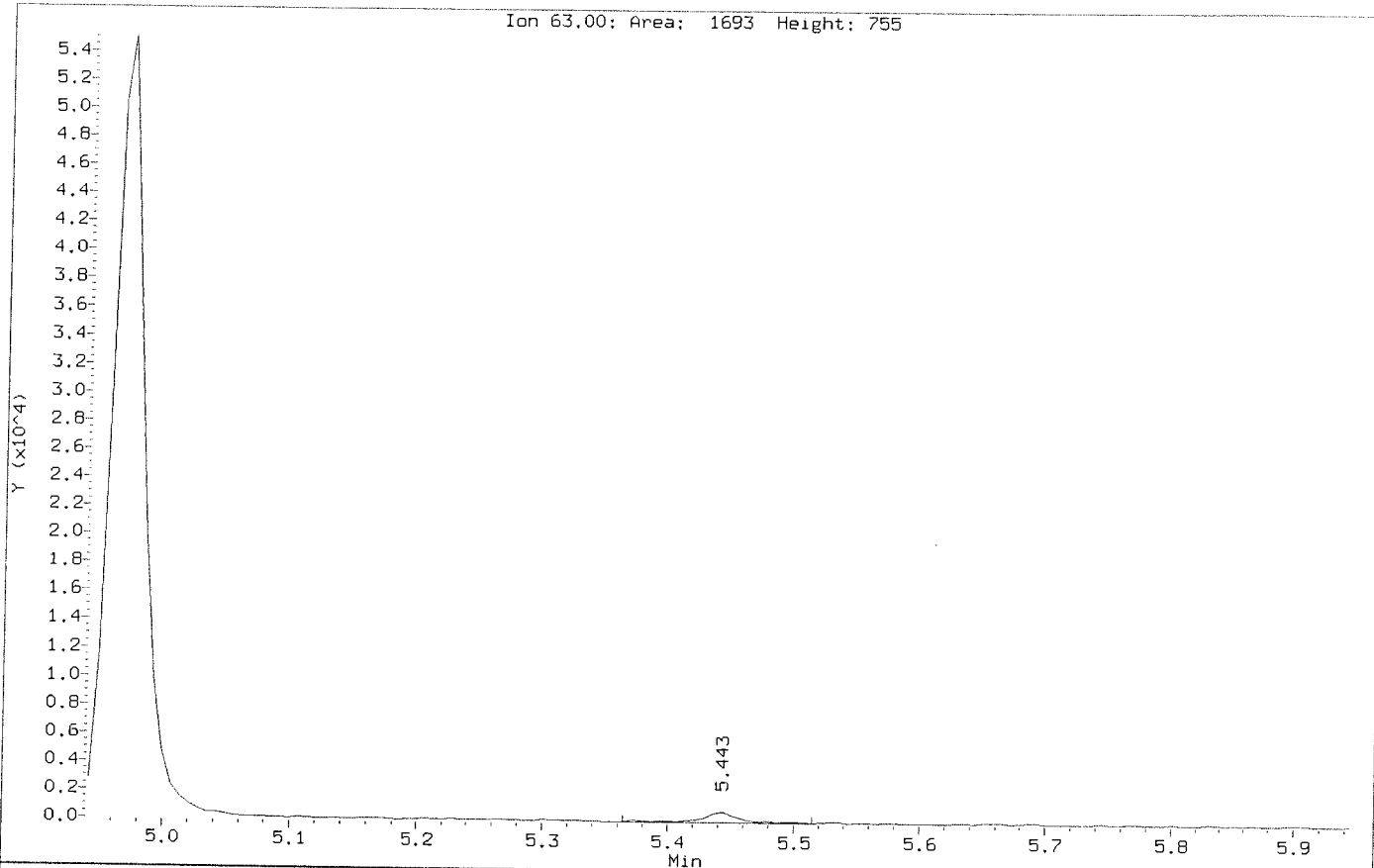
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Client Sample ID: VSTD000.5

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



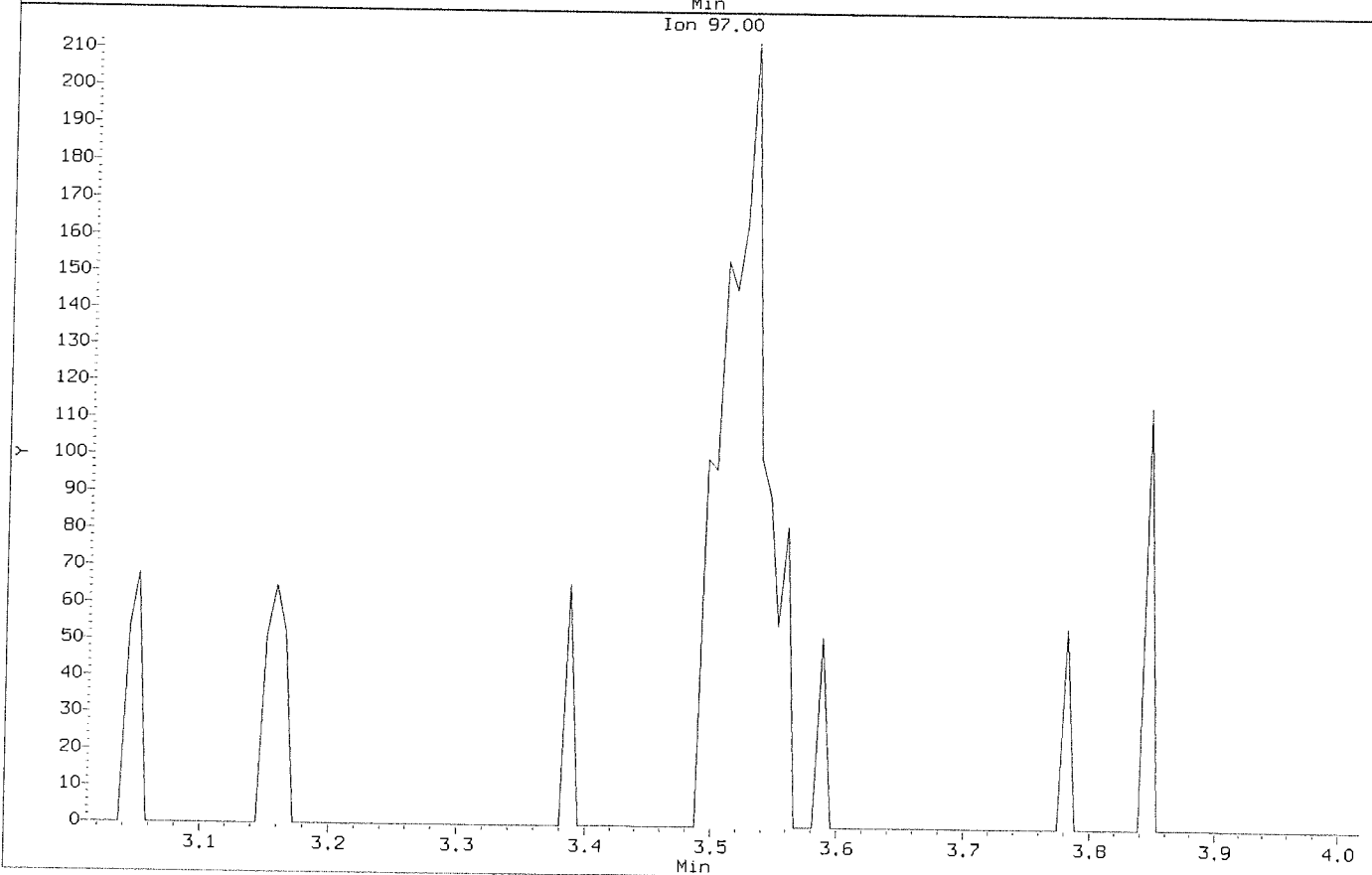
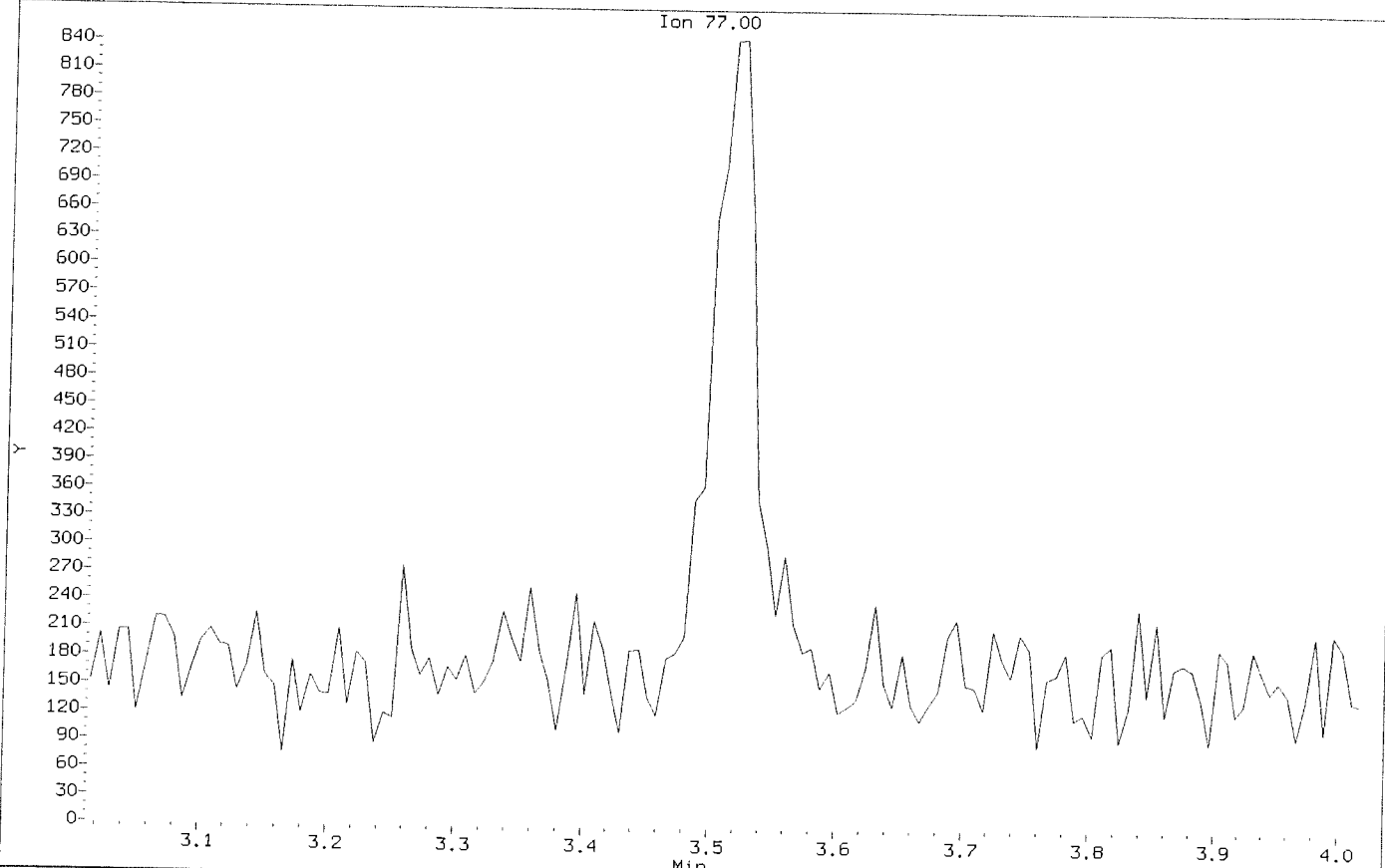
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Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



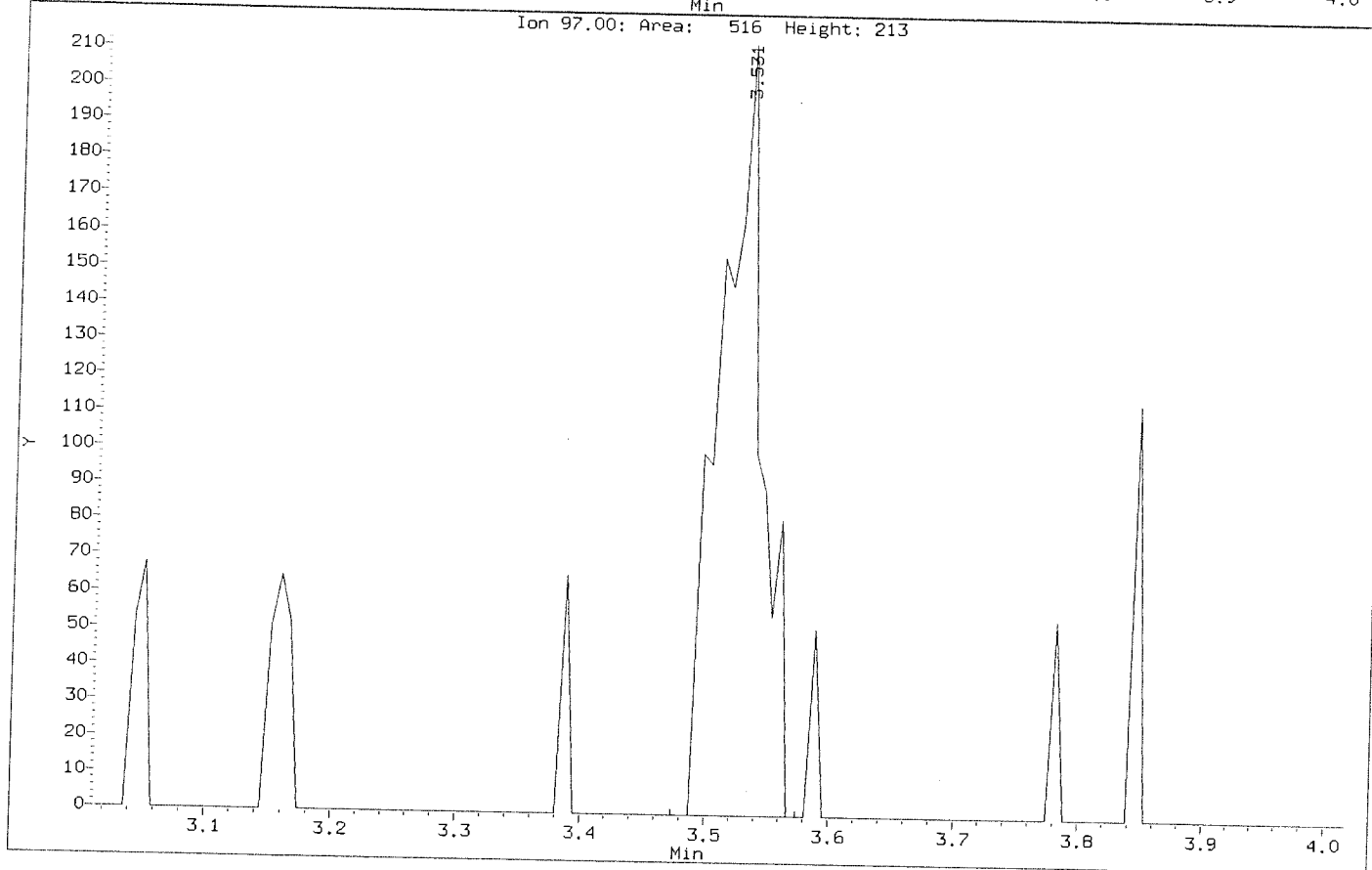
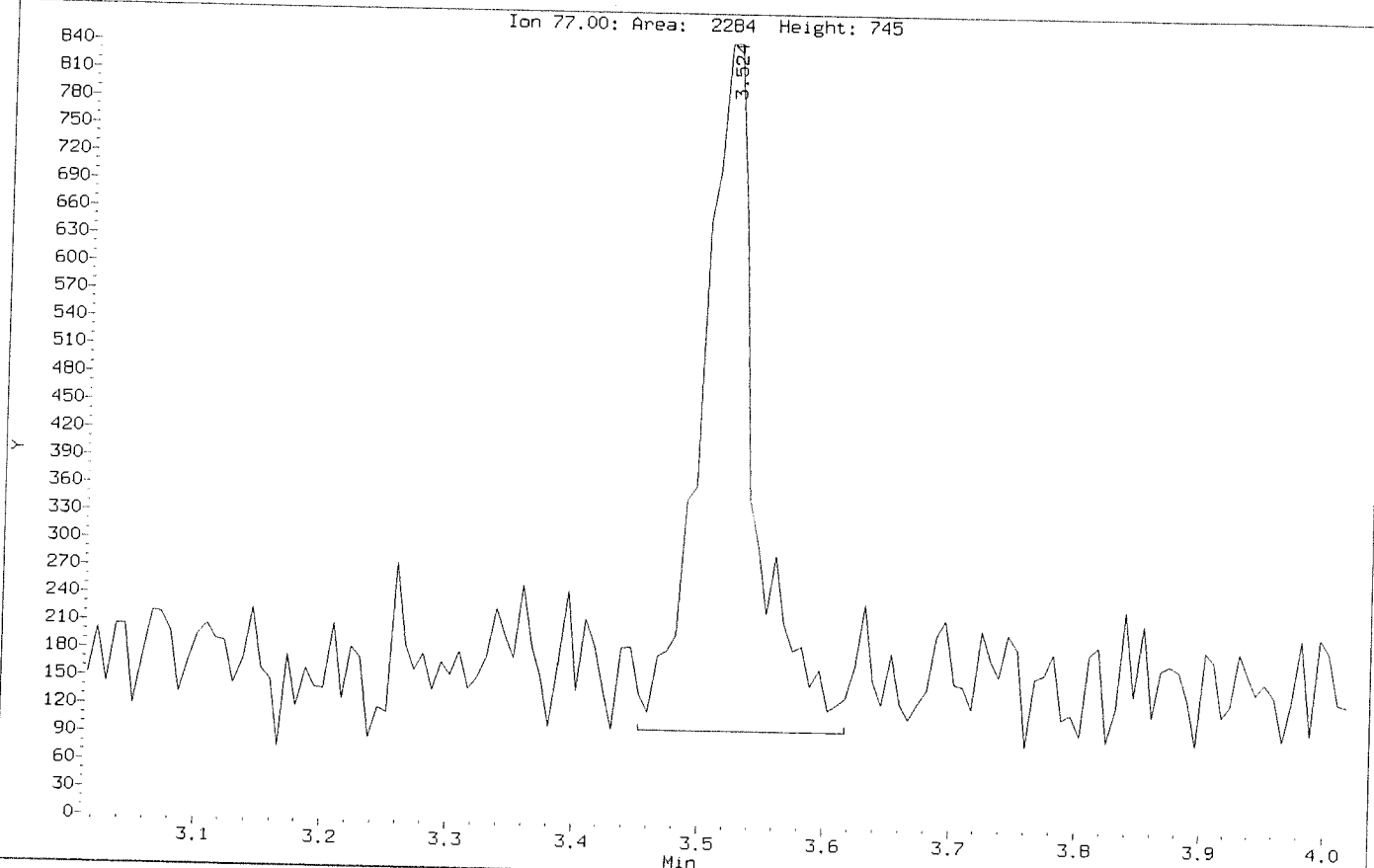
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Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7



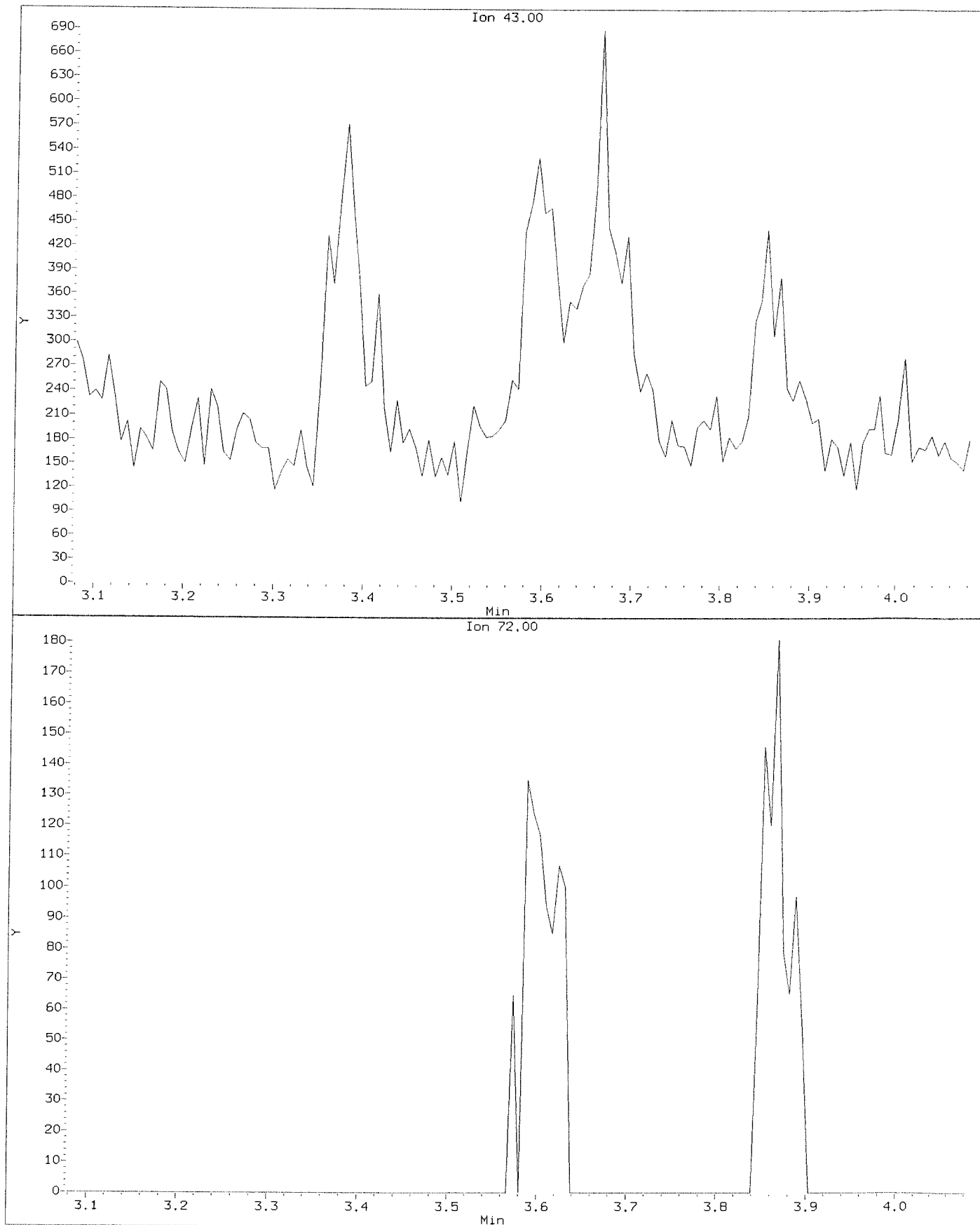
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Client Sample ID: VSTD000.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7



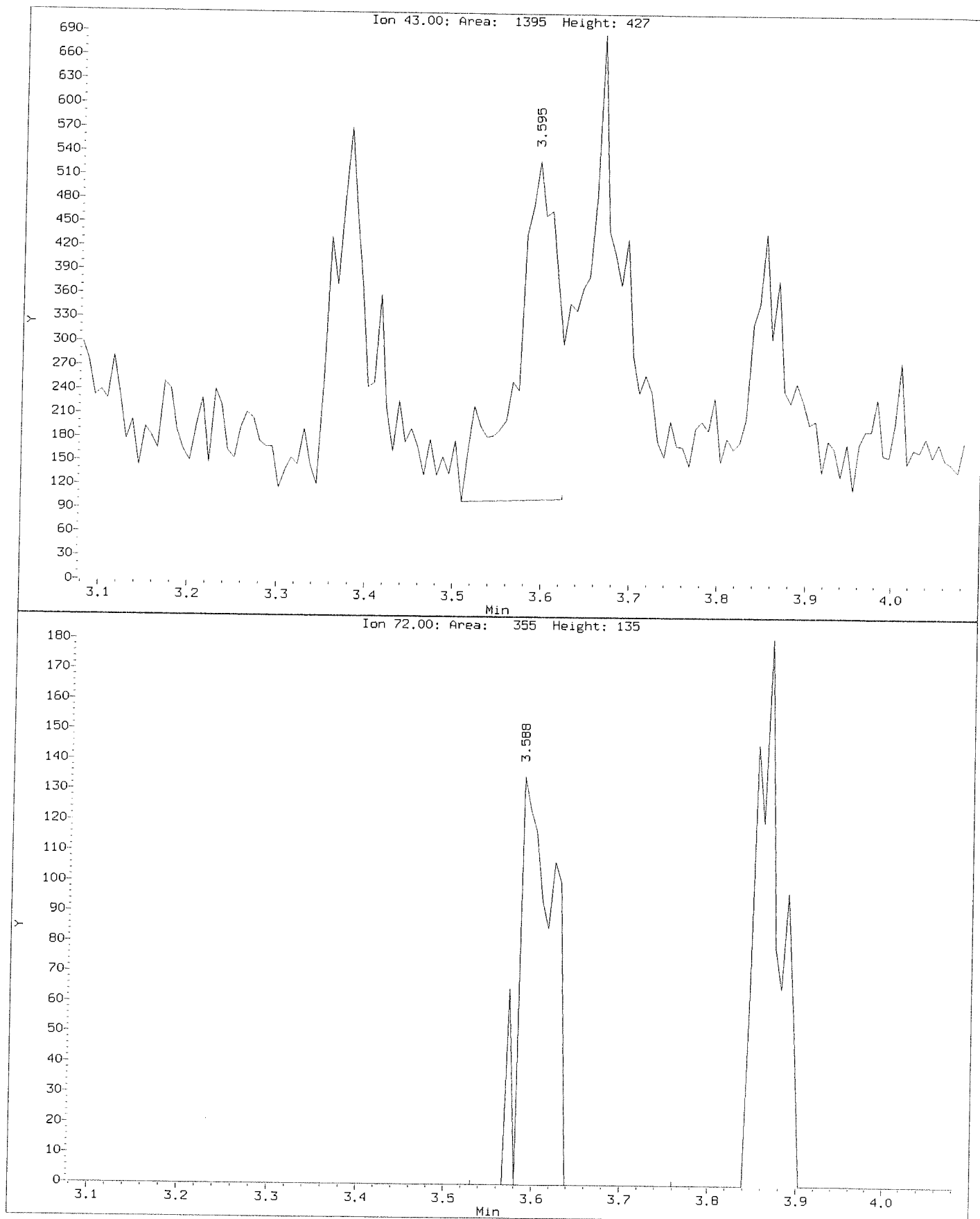
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Client Sample ID: VSTD000.5

Compound: 2-Butanone
CAS Number: 78-93-3



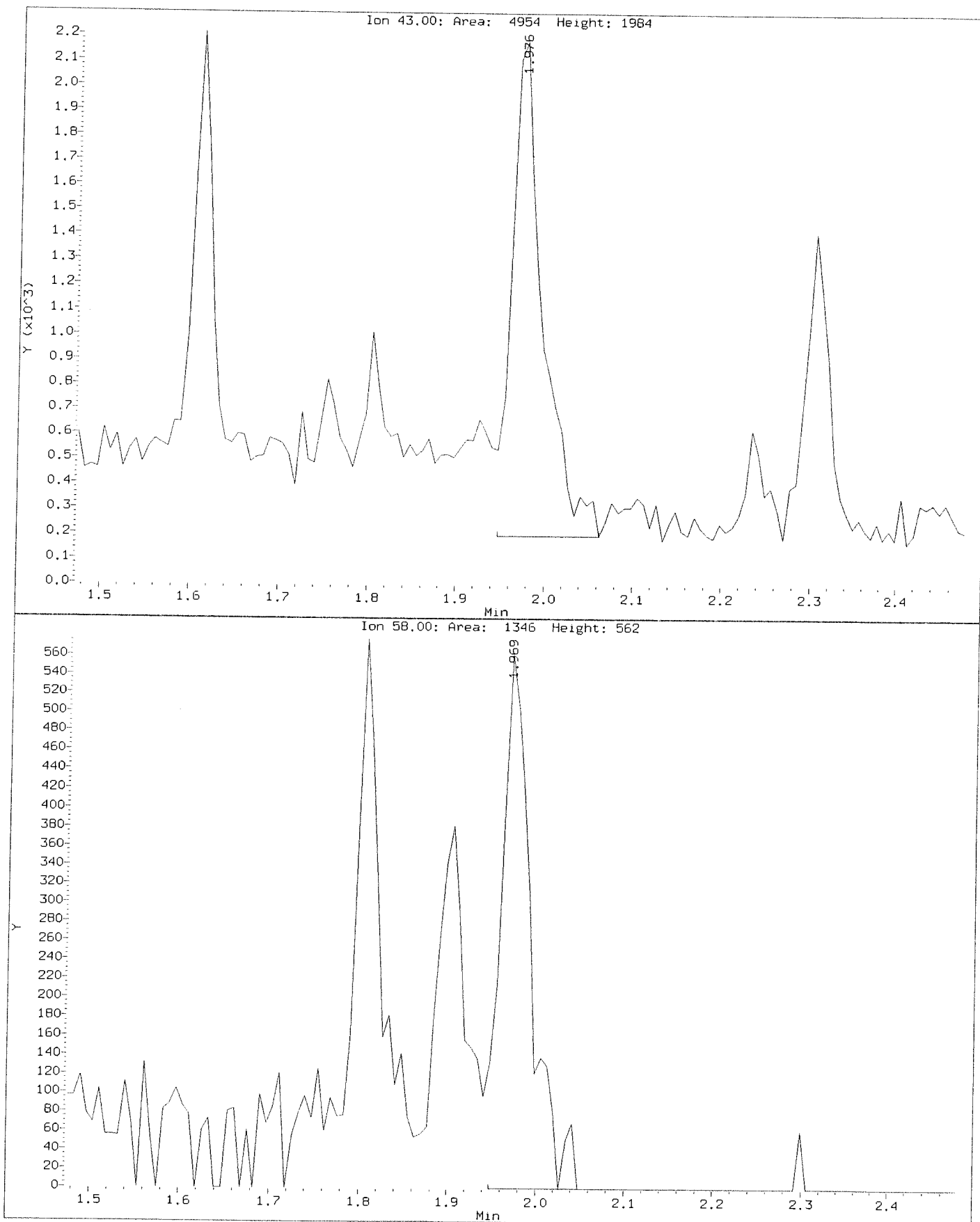
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Client Sample ID: VSTD000.5

Compound: 2-Butanone
CAS Number: 78-93-3



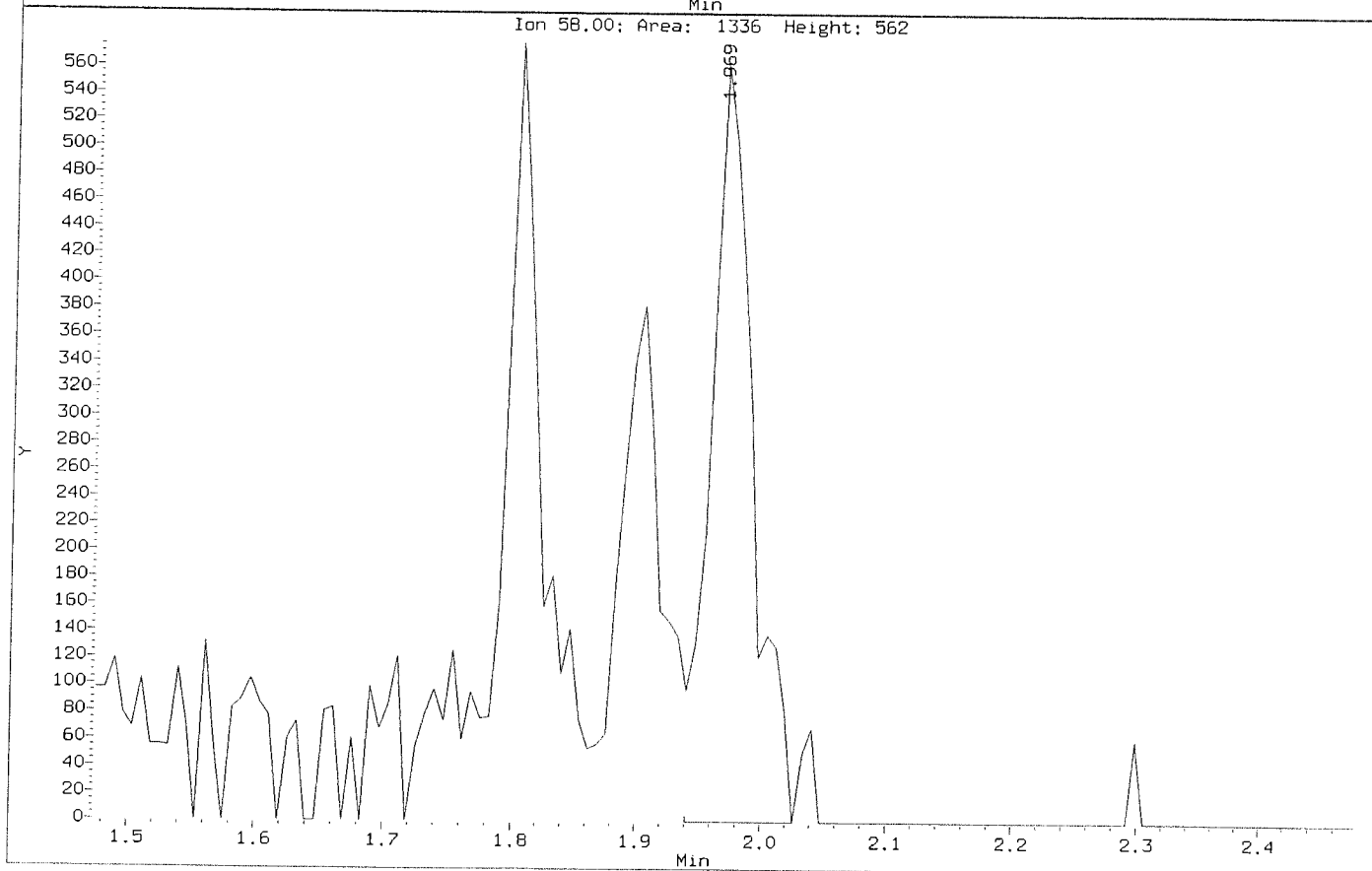
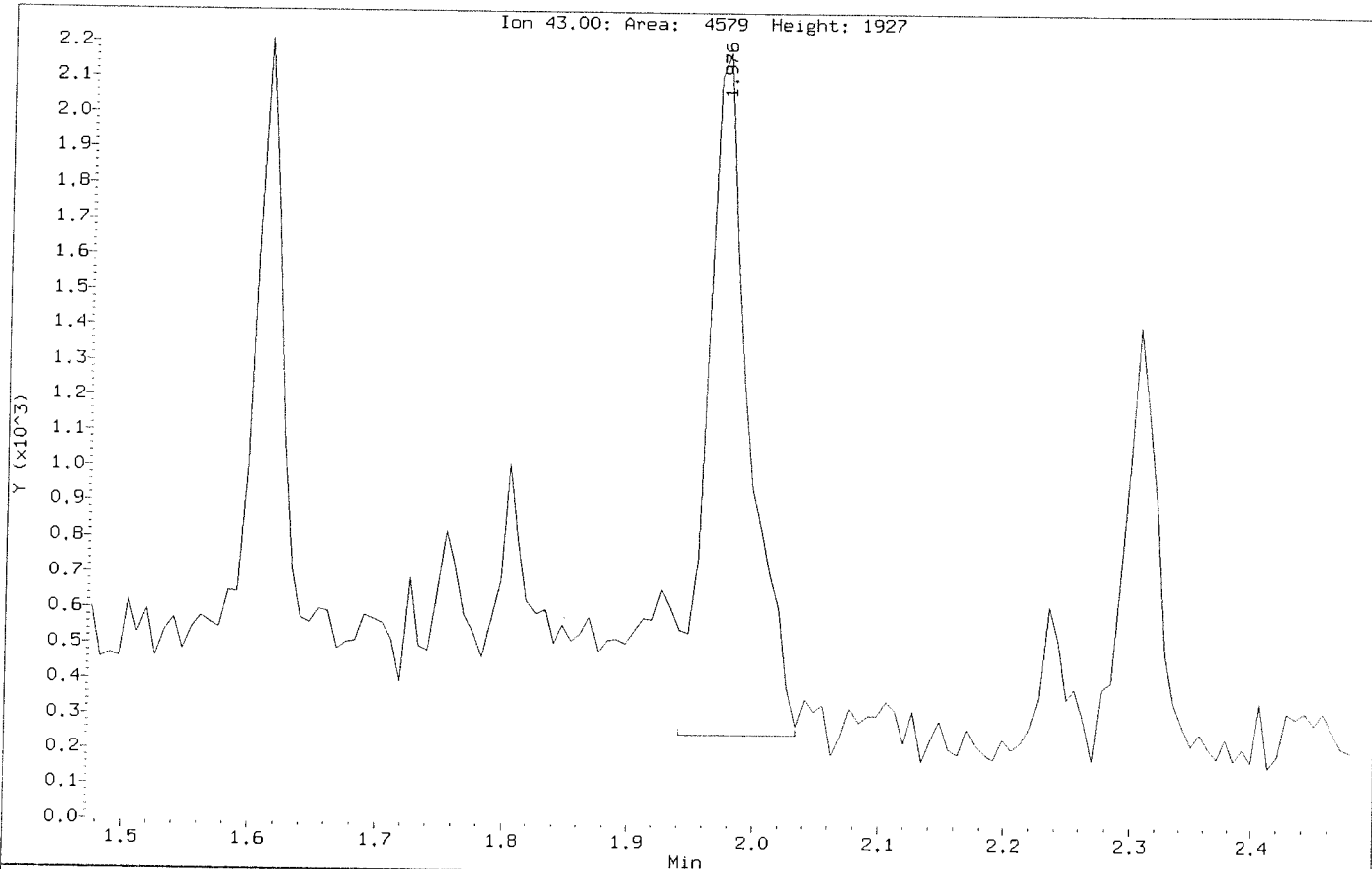
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Client Sample ID: VSTD000.5

Compound: Acetone
CAS Number: 67-64-1



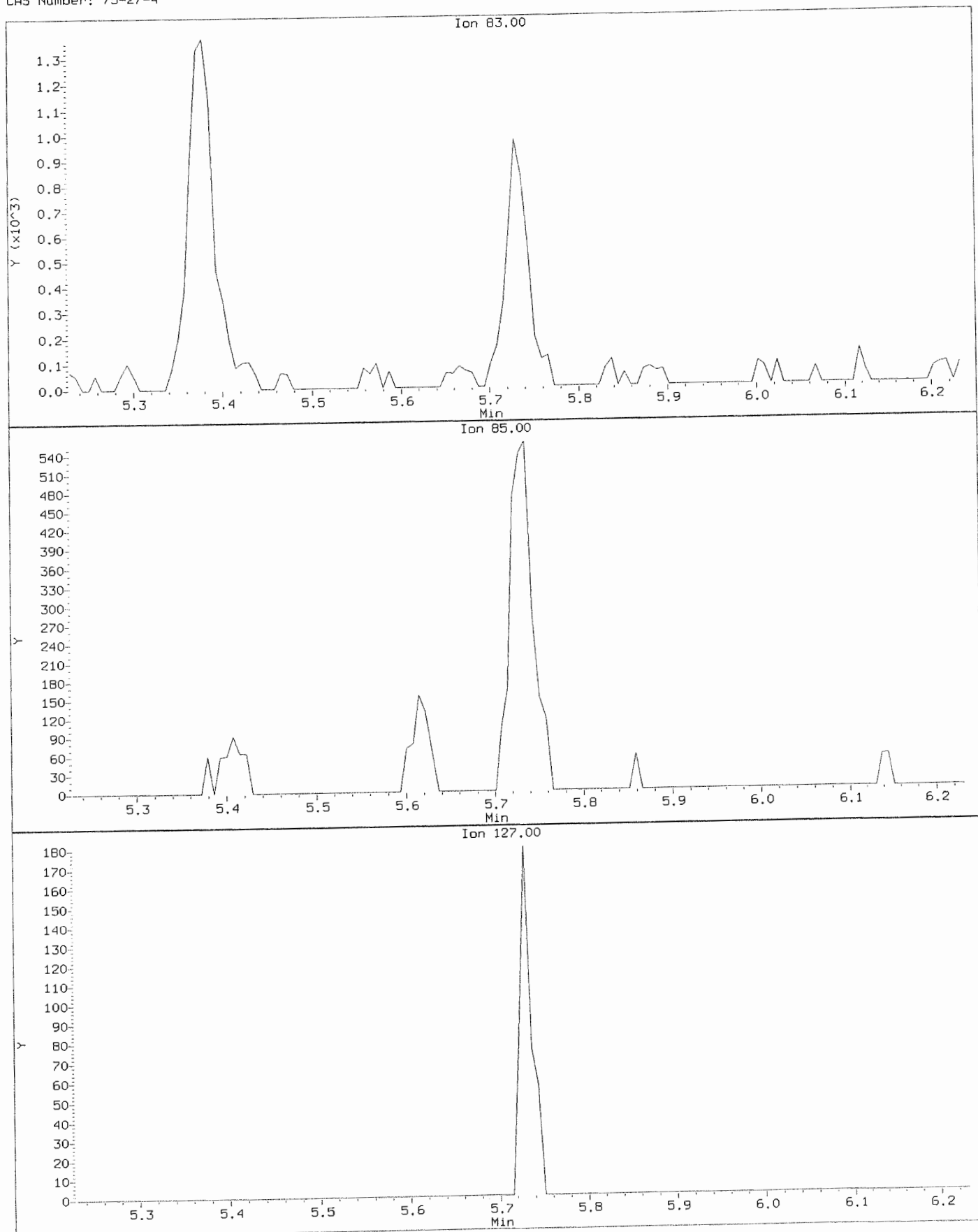
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Compound: Acetone
CAS Number: 67-64-1



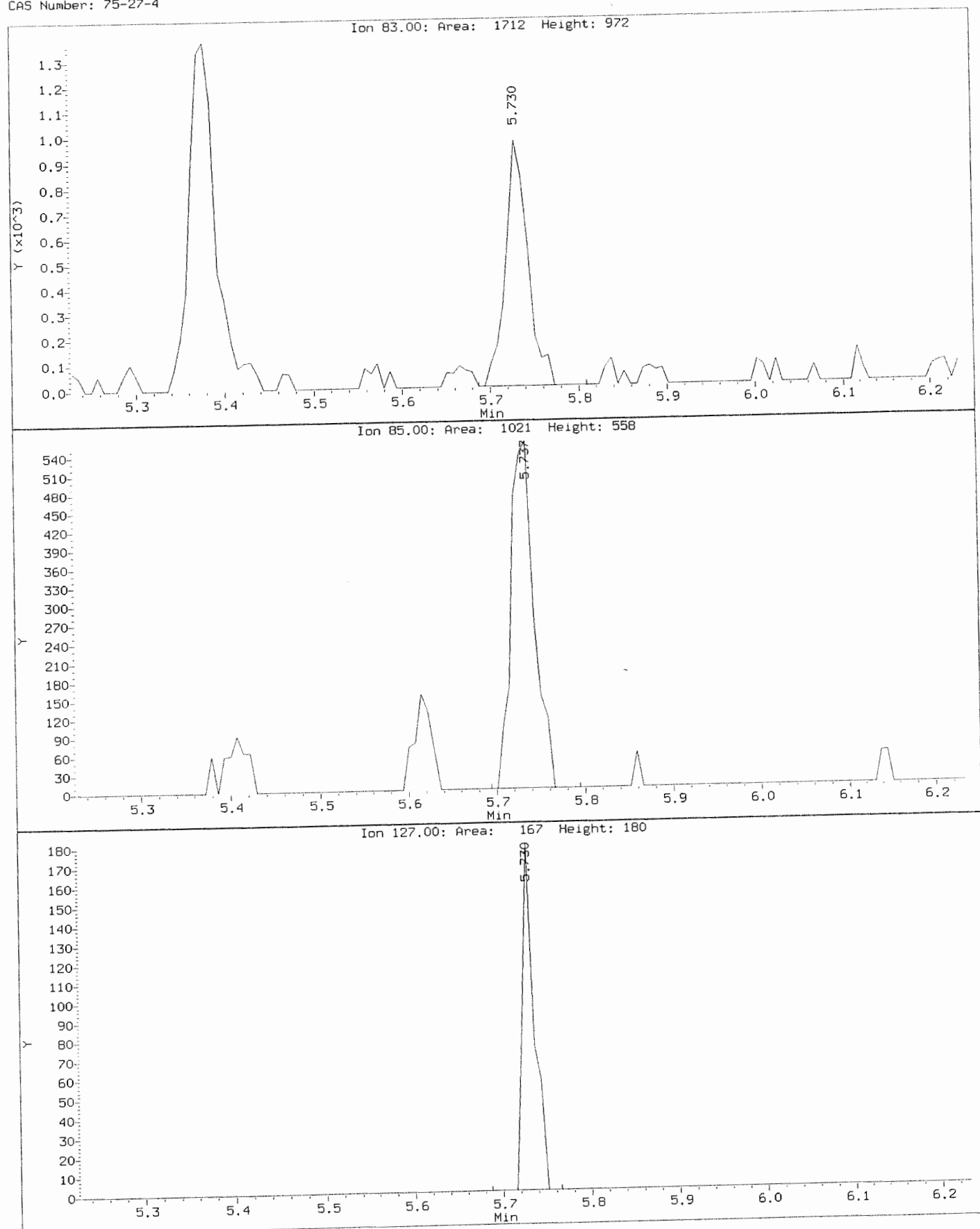
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Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



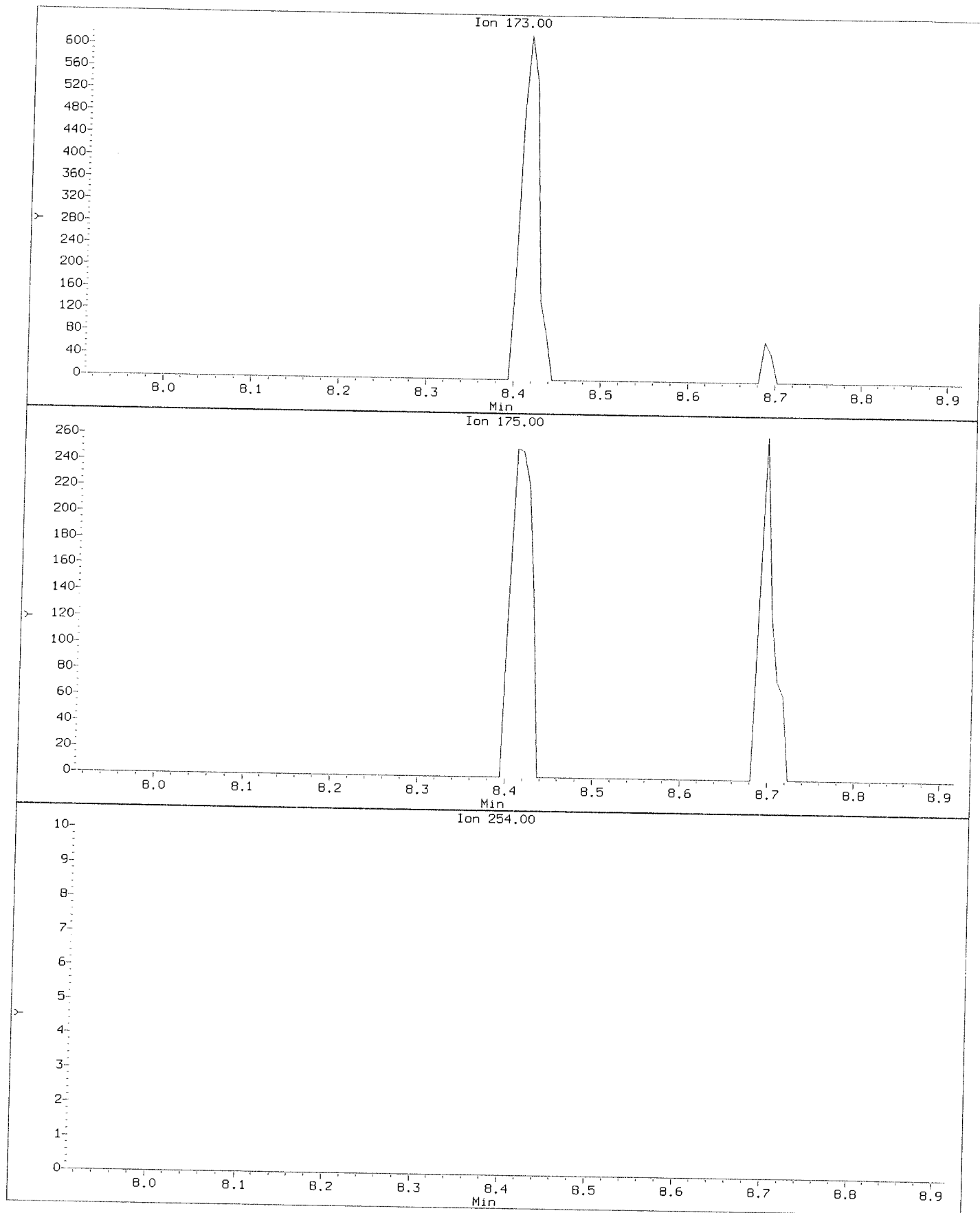
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Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



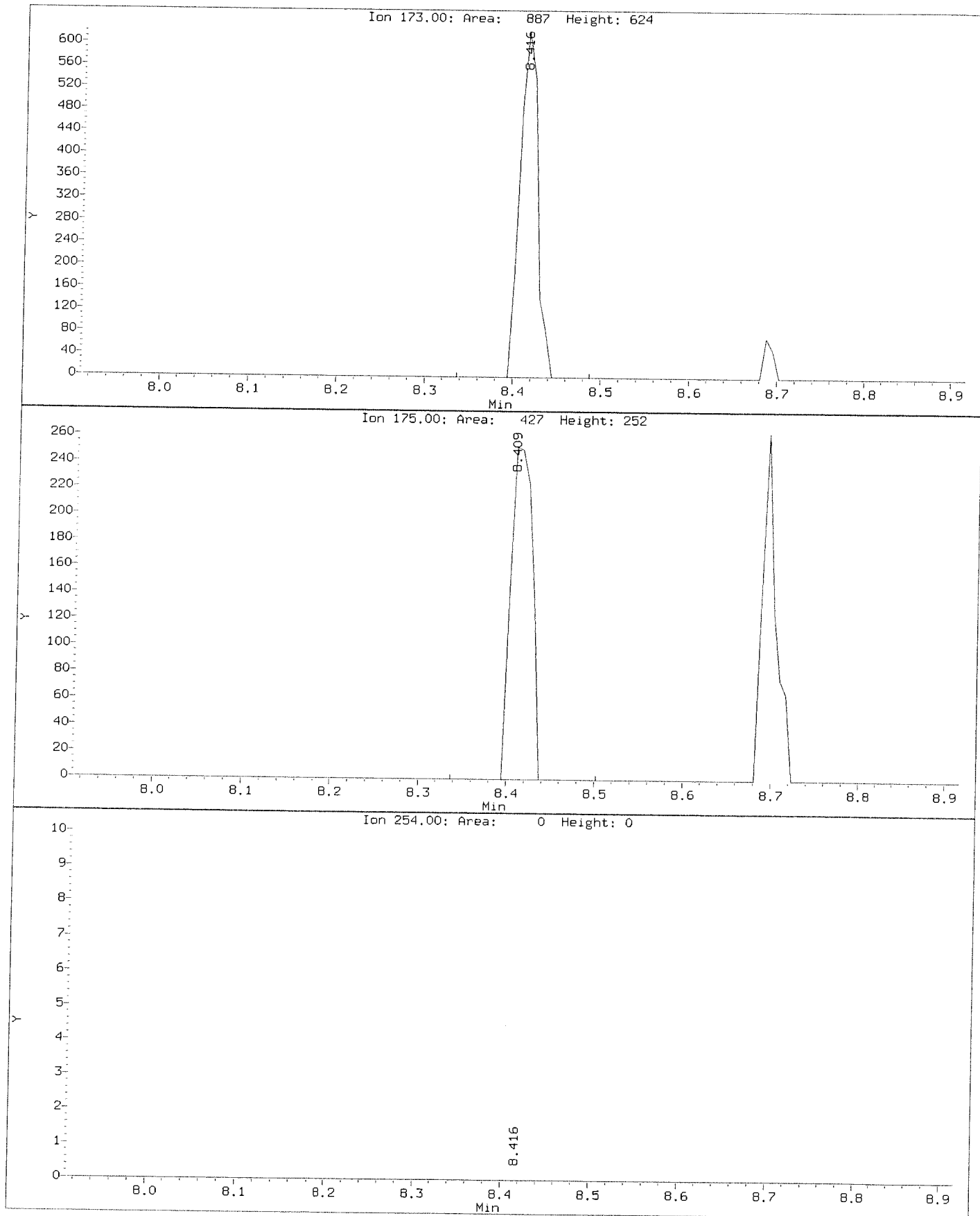
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: Bromoform
CAS Number: 75-25-2



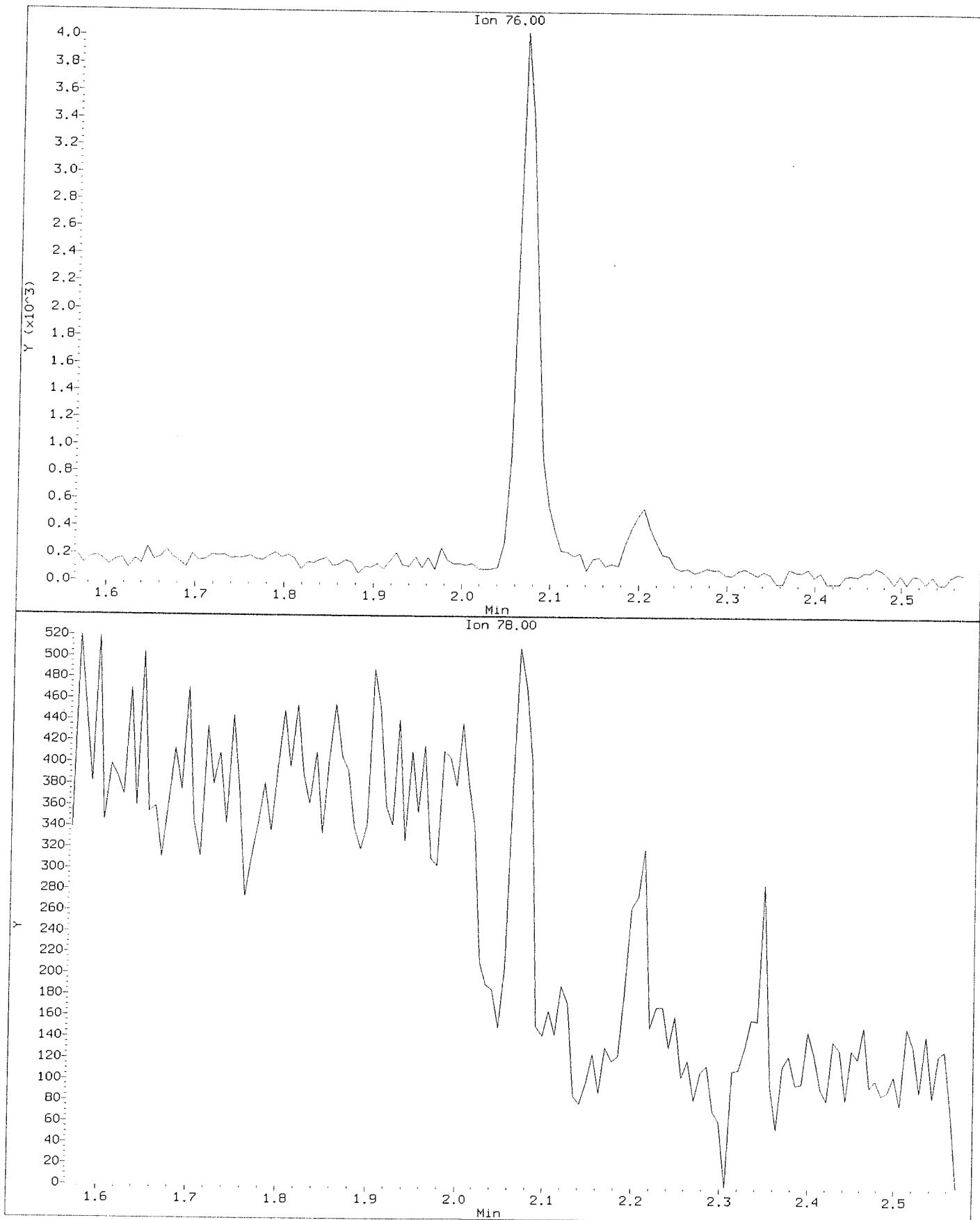
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Client Sample ID: VSTD000.5

Compound: Bromoform
CAS Number: 75-25-2



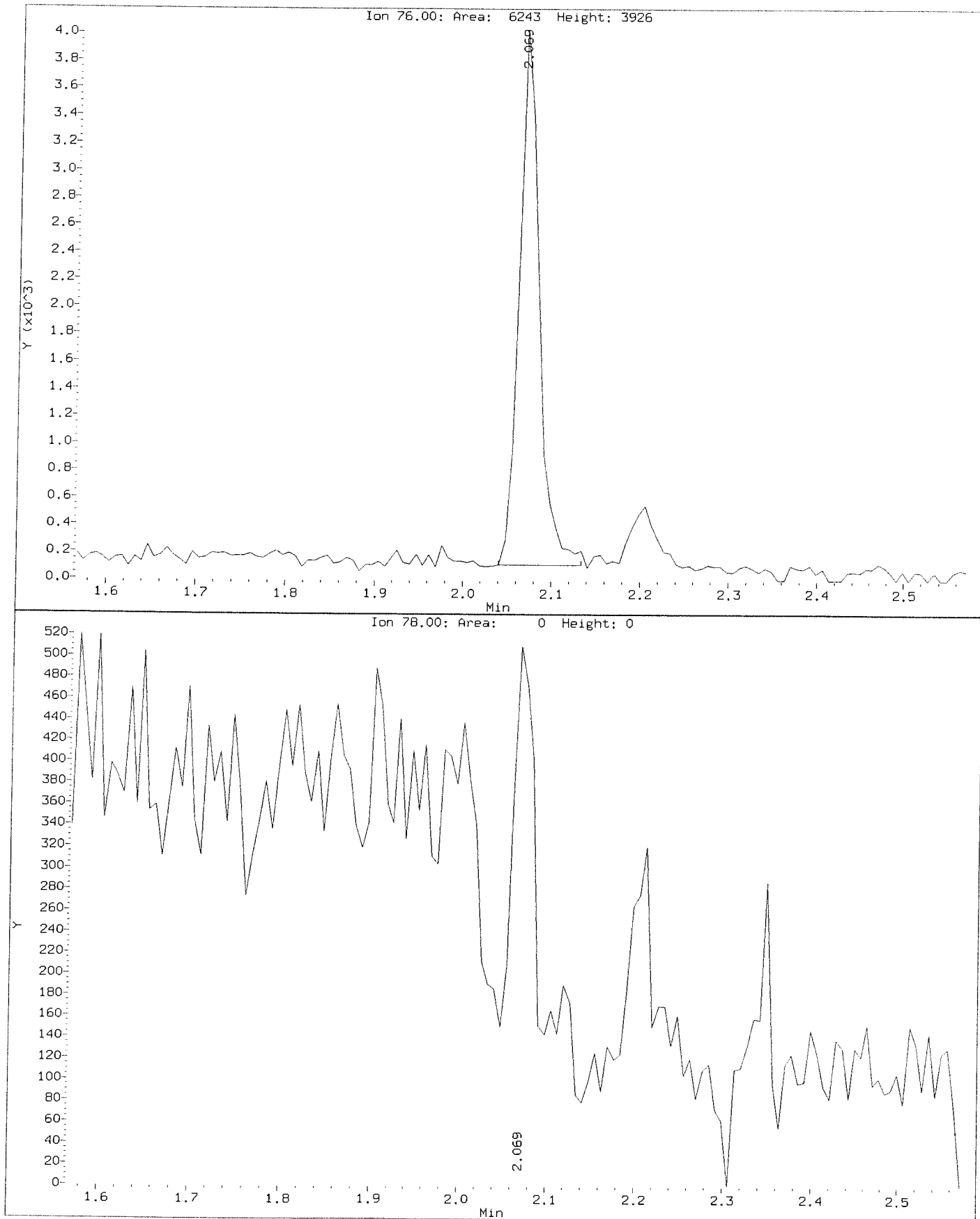
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Carbon Disulfide
CAS Number: 75-15-0



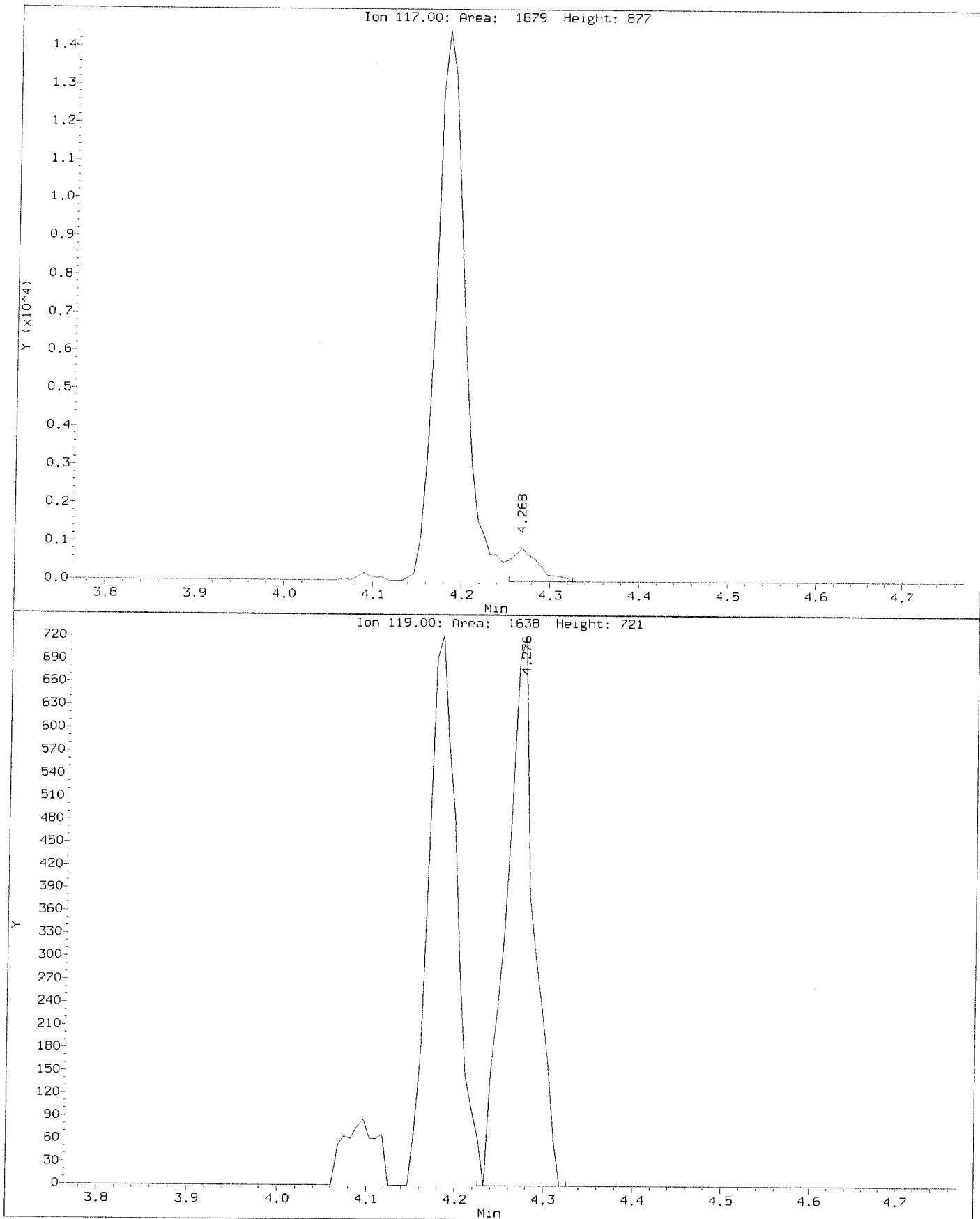
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Client Sample ID: VSTD000.5

Compound: Carbon Disulfide
CAS Number: 75-15-0



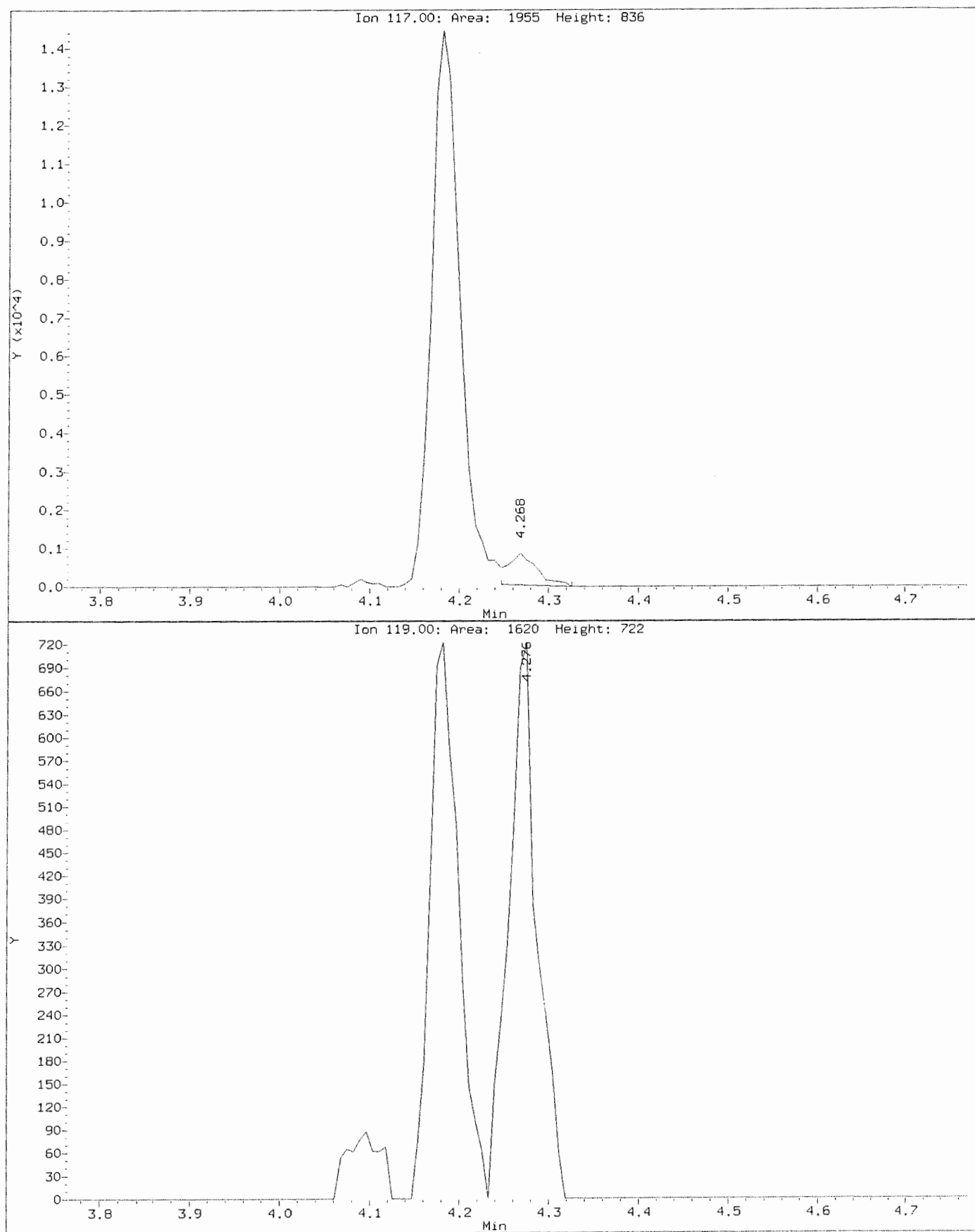
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Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



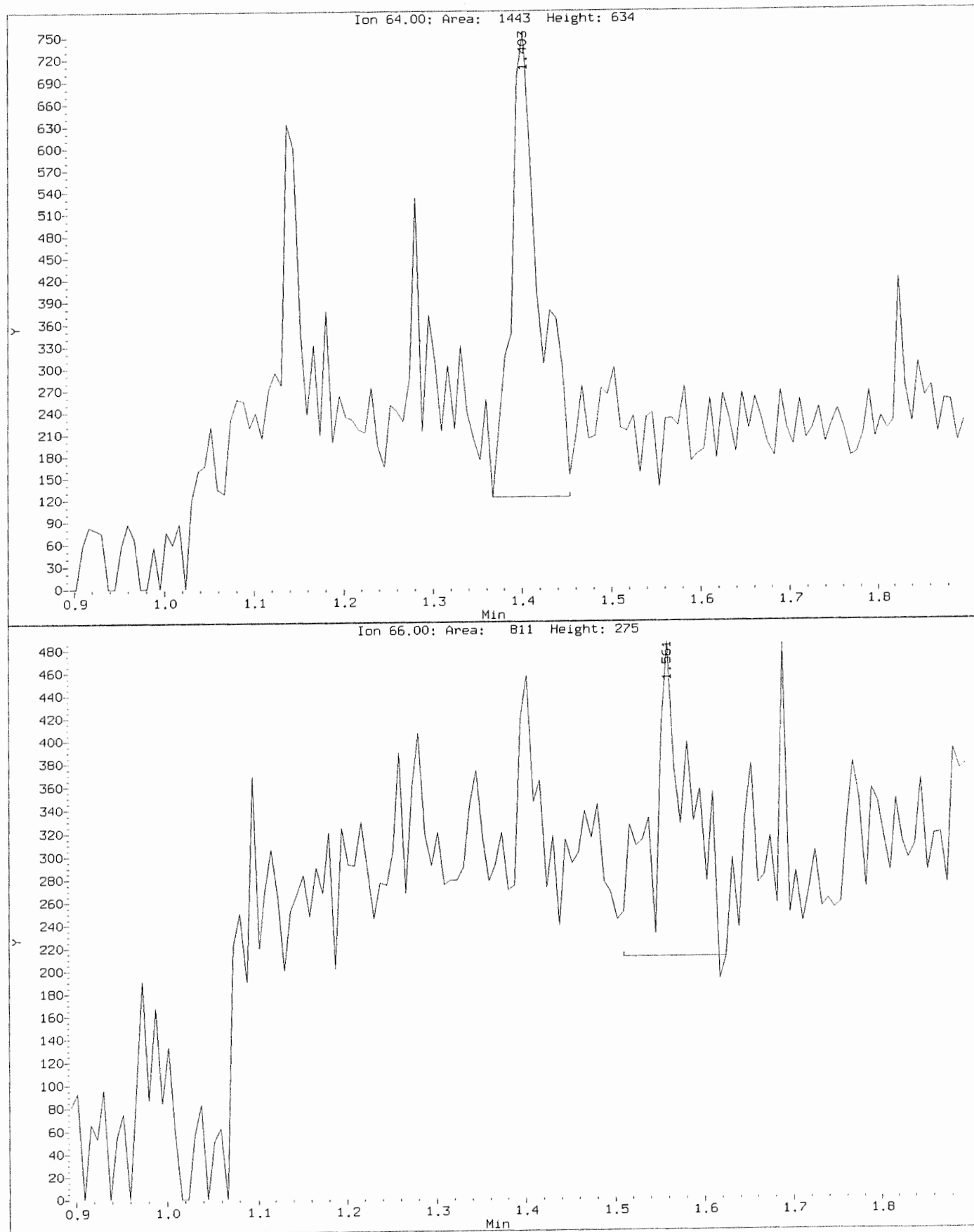
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Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



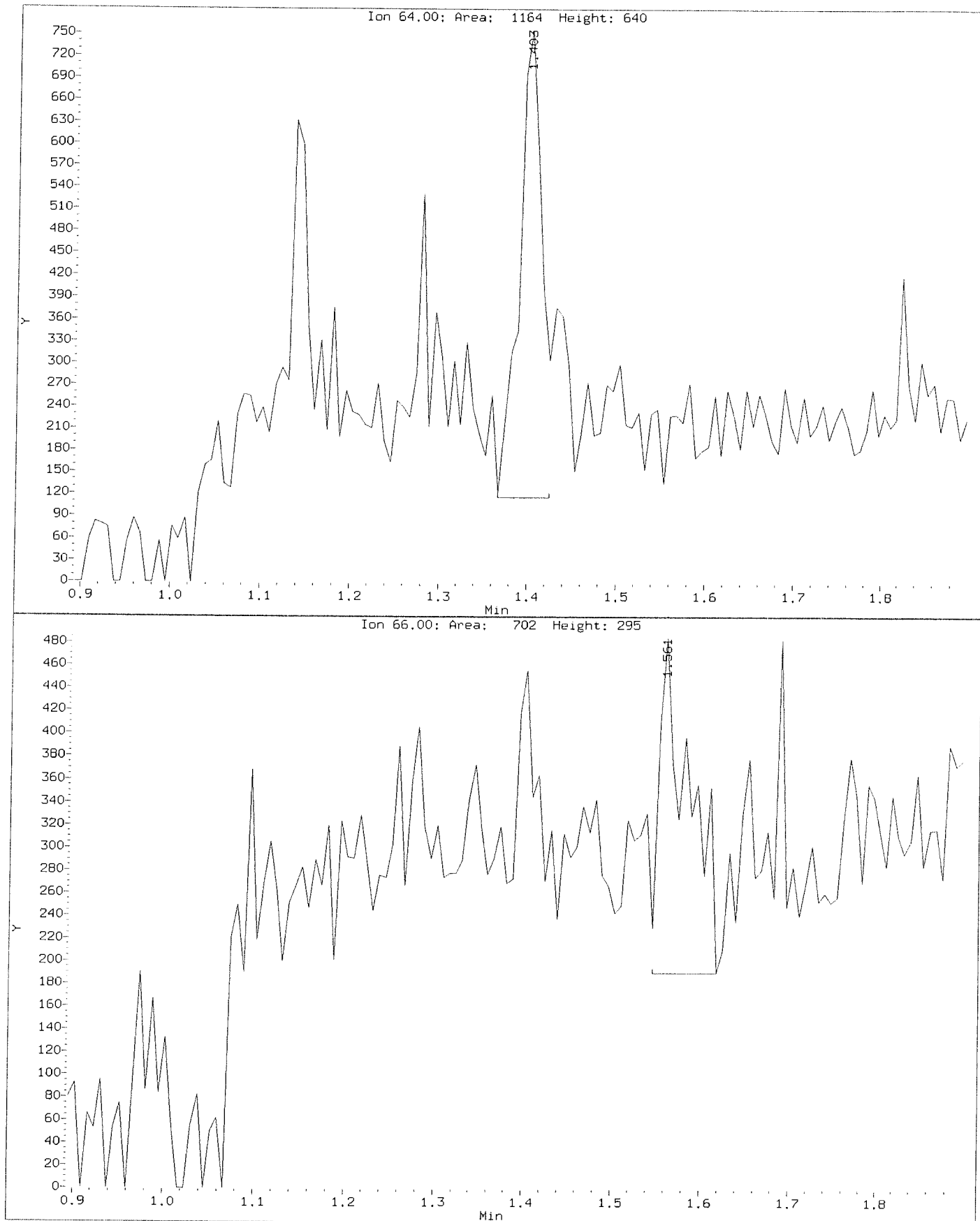
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Injection Date: 18-NOV-2019 14:35
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Client Sample ID: VSTD000.5

Compound: Chloroethane
CAS Number: 75-00-3



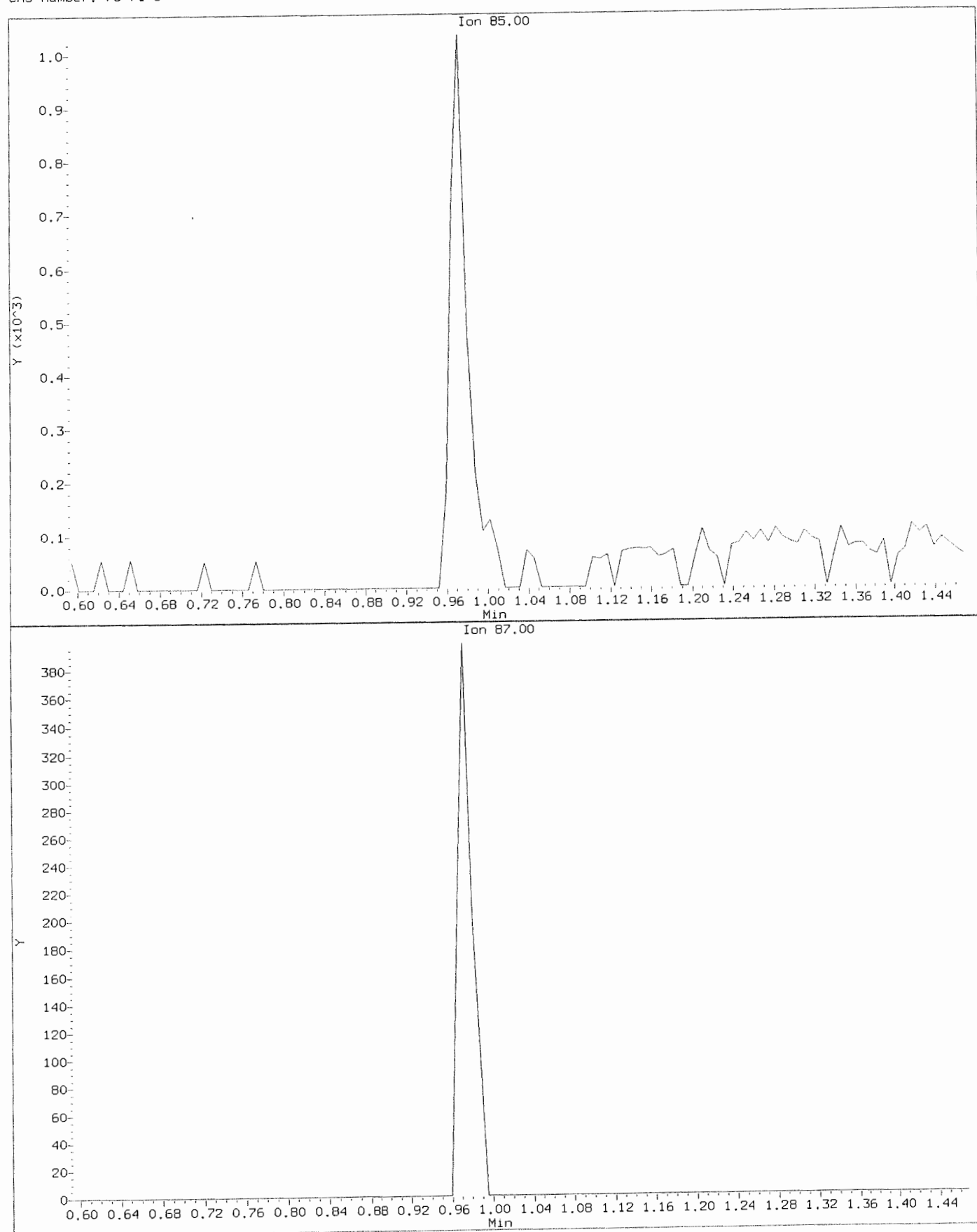
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Client Sample ID: VSTD000.5

Compound: Chloroethane
CAS Number: 75-00-3



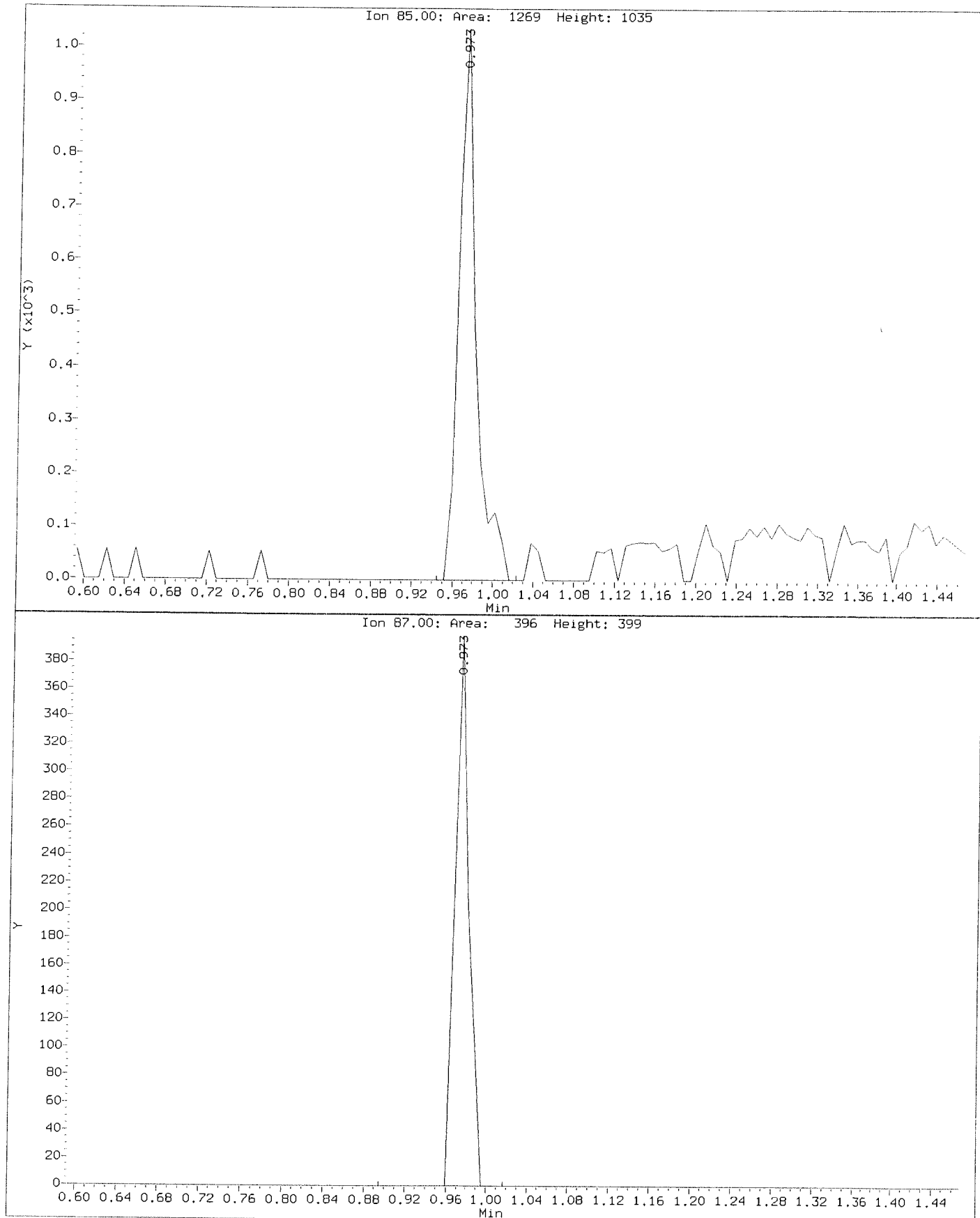
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



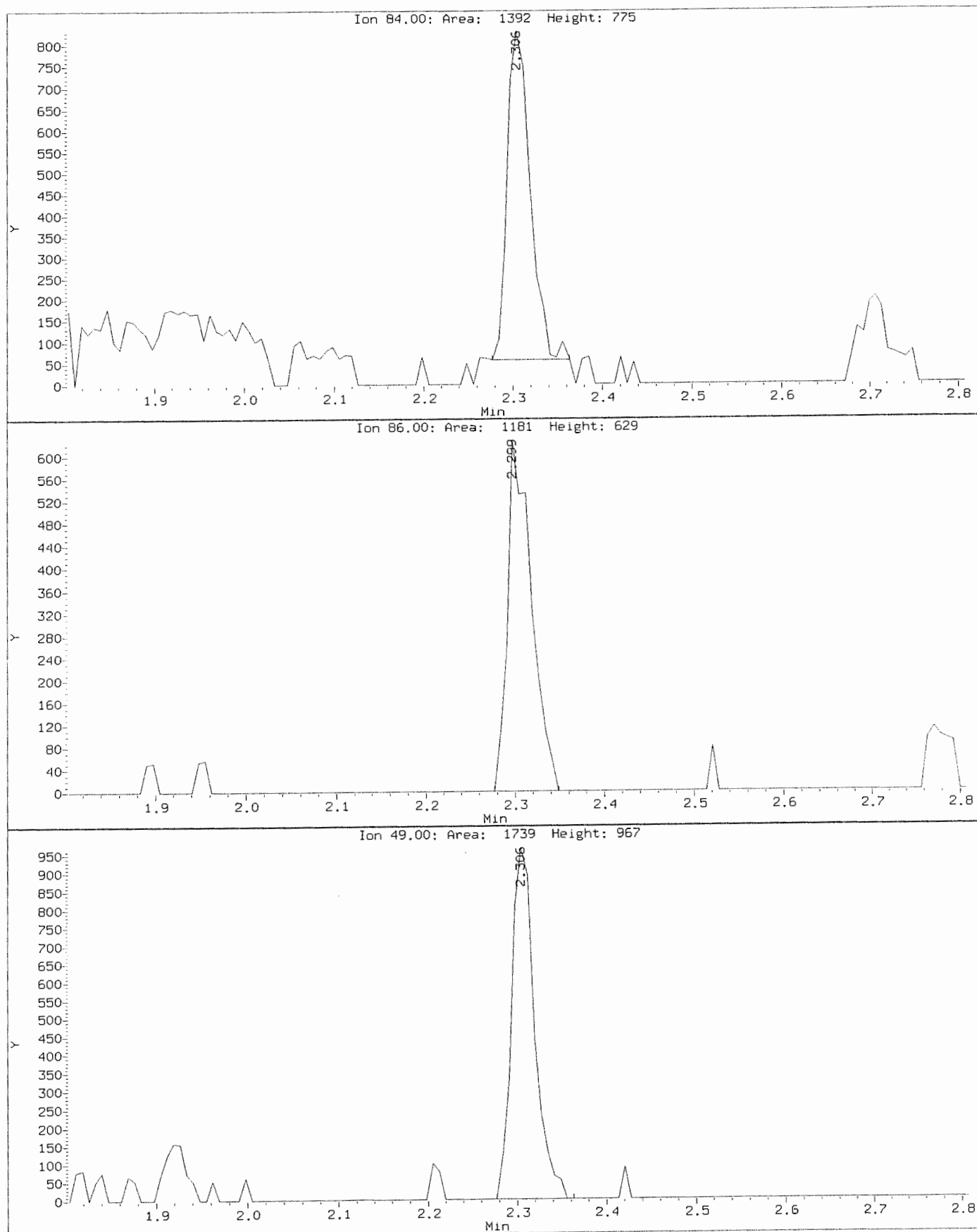
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Client Sample ID: VSTD000.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



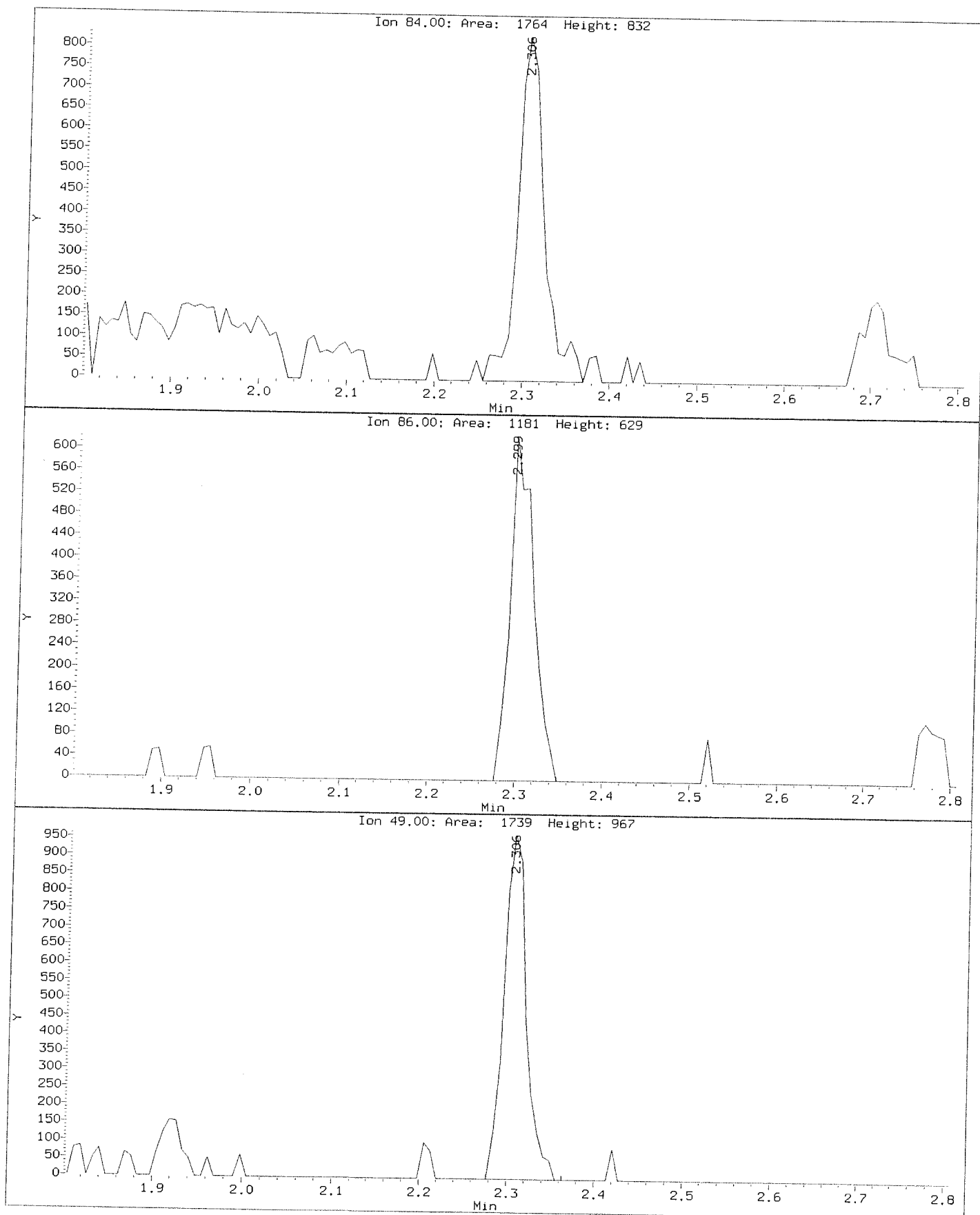
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: Methylene Chloride
CAS Number: 75-09-2



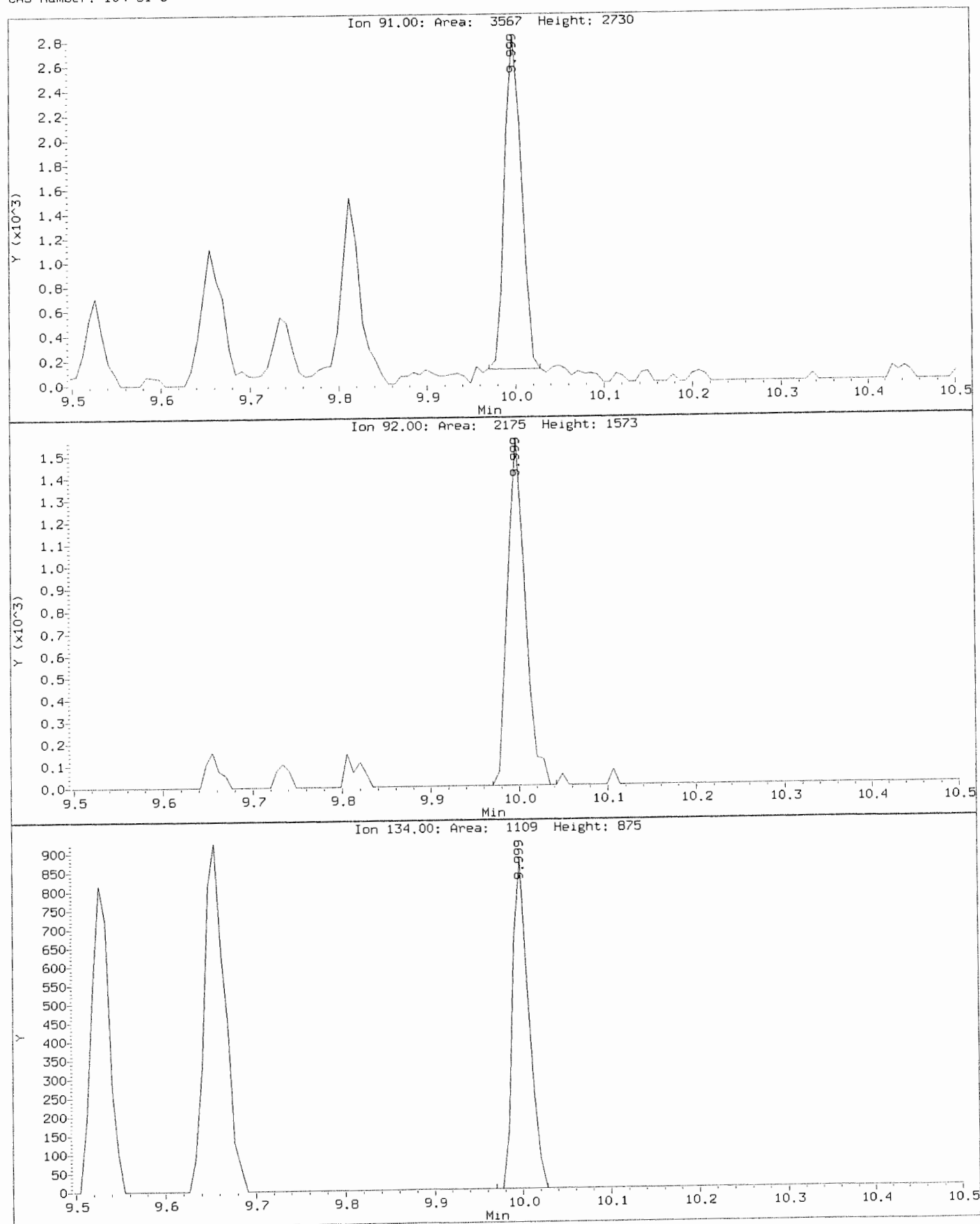
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Client Sample ID: VSTD000.5

Compound: Methylene Chloride
CAS Number: 75-09-2



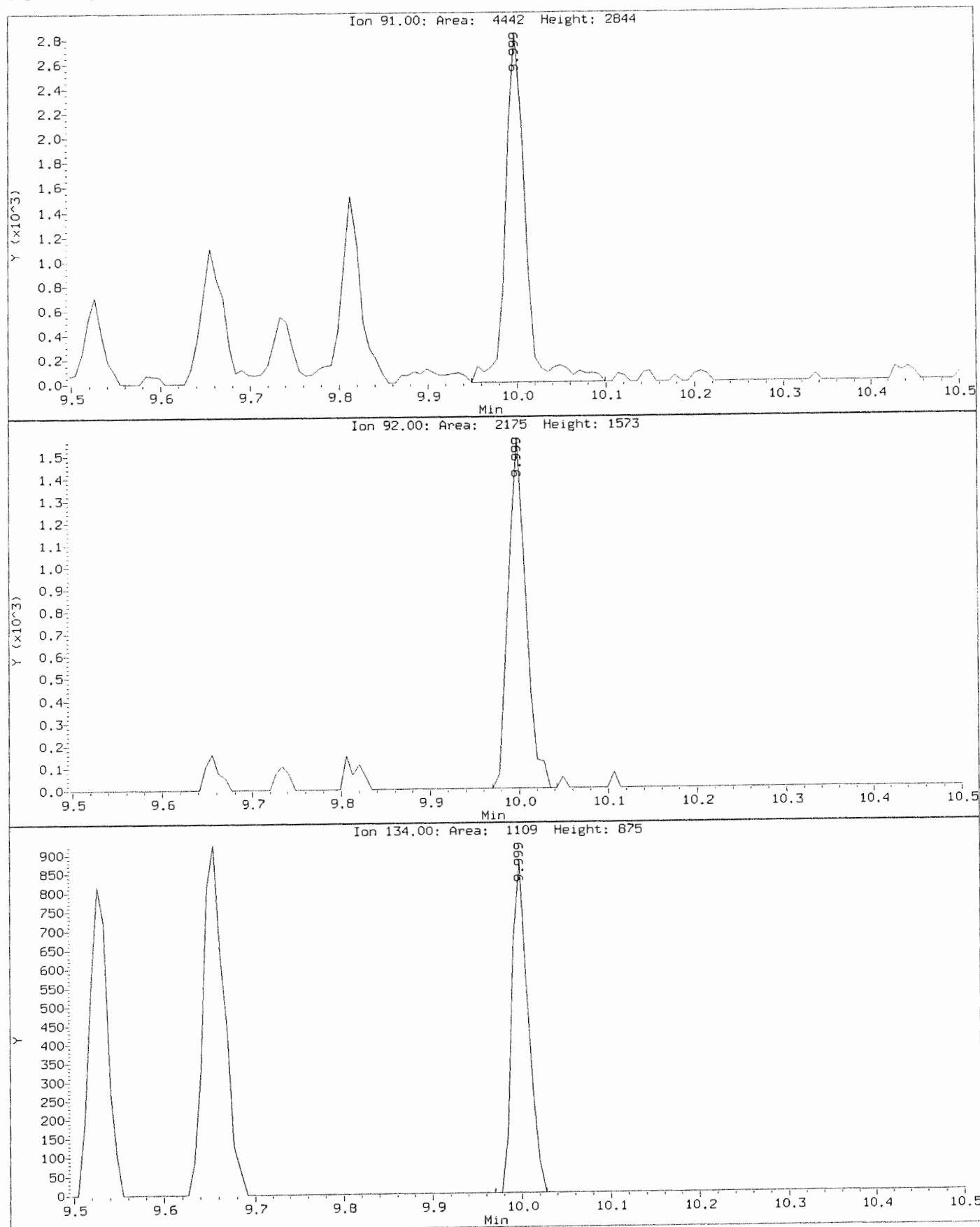
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: n-Butylbenzene
CAS Number: 104-51-8



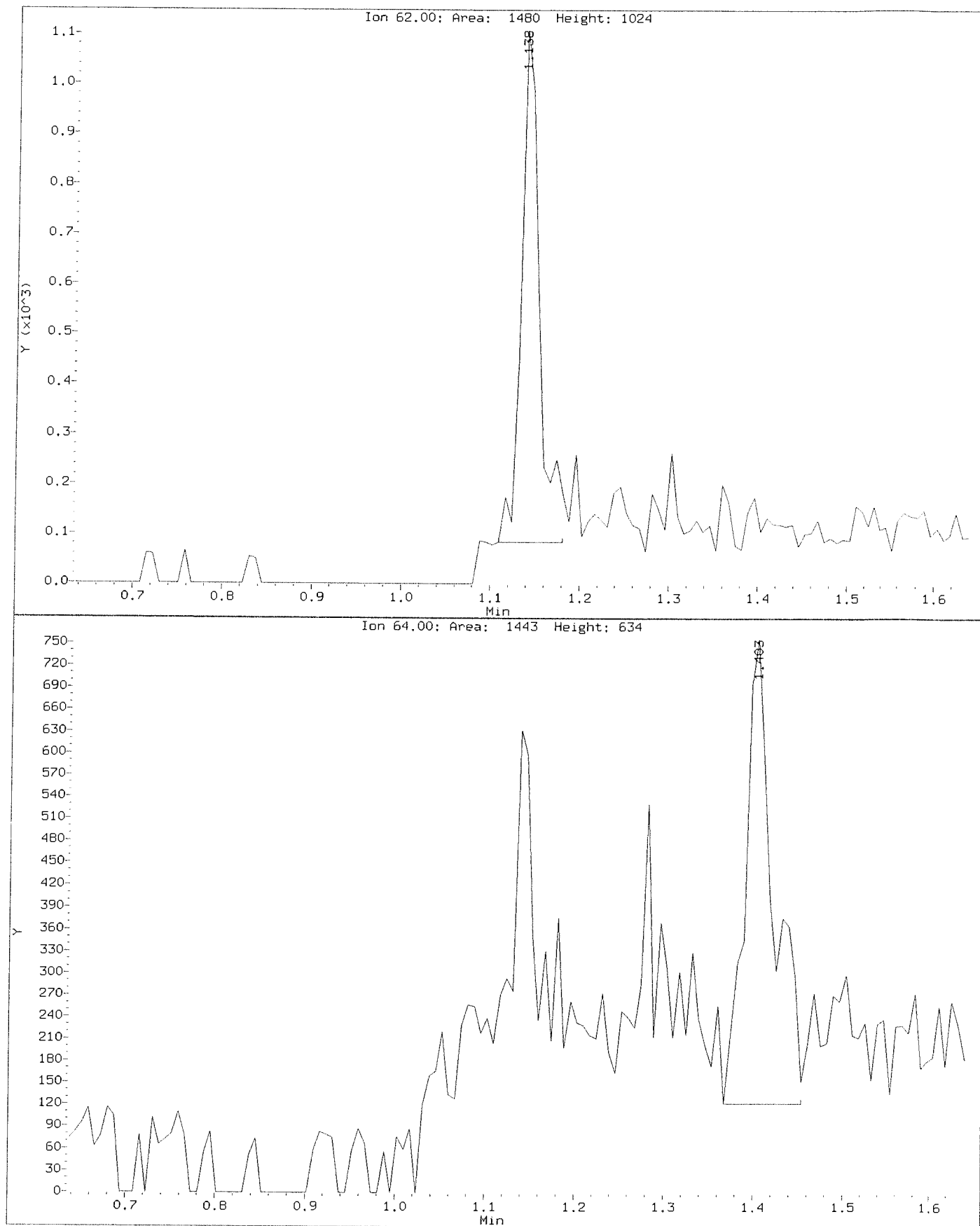
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Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: n-Butylbenzene
CAS Number: 104-51-8



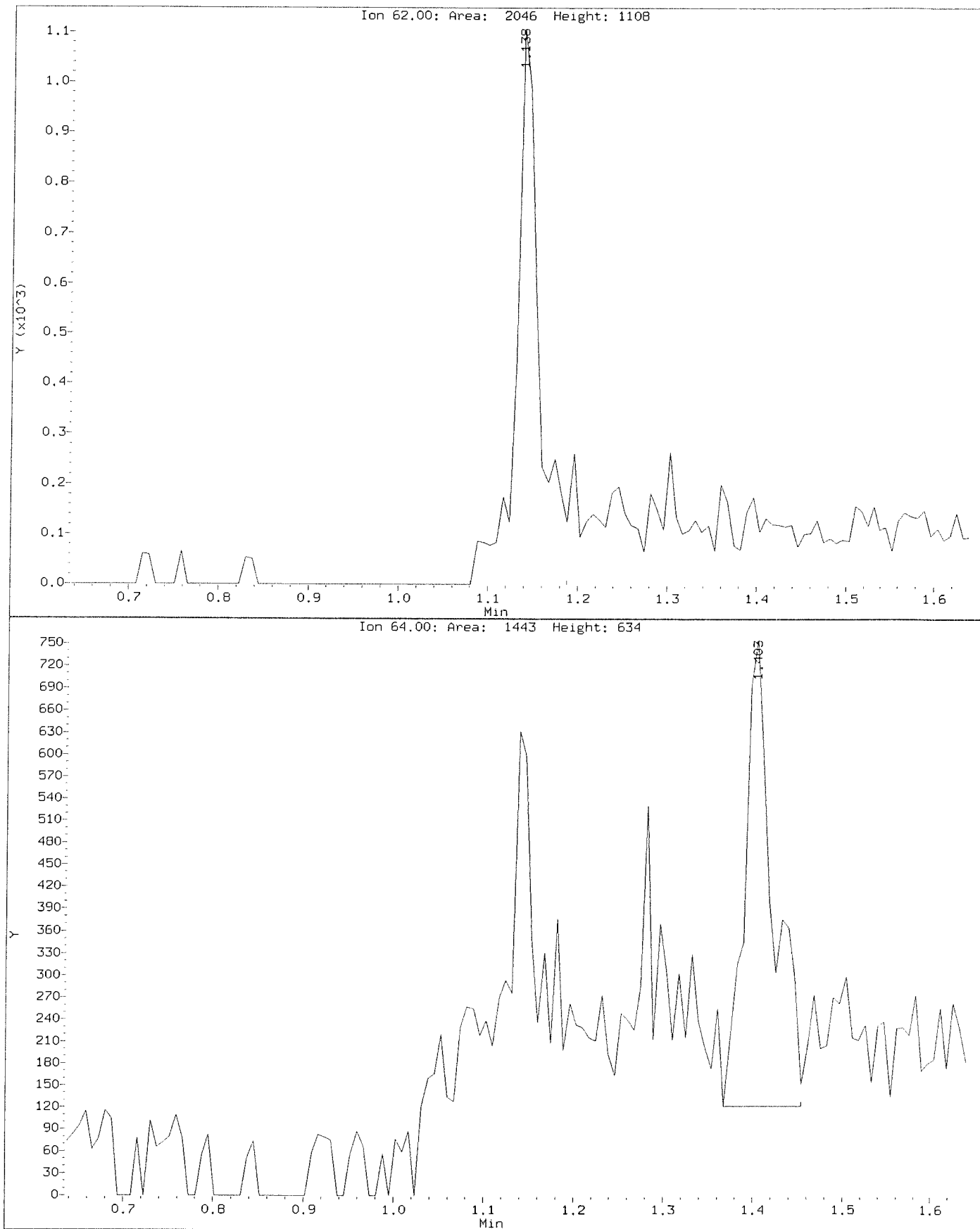
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Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.1\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.1
Client Sample ID: VSTD000.5

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D
 Lab Smp Id: VSTD001 Client Smp ID: VSTD001
 Inj Date : 18-NOV-2019 14:59
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD001;VSTD001;1;3;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 14:35 Cal File: X111803.D
 Als bottle: 5 Calibration Sample, Level: 3
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT (ug/l)	ON-COL (ug/l)
*****	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	416007	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	570122	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	516622	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	279609	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	4458	1.00000	1.85 (a)
\$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	5731	1.00000	1.60 (a)
\$ 30 Dibromofluoromethane	113	4.104	4.104	(0.981)	3882	1.00000	1.38 (a)
\$ 48 Toluene-d8	98	6.389	6.389	(0.833)	13715	1.00000	1.00 (a)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	4166	1.00000	1.11 (a)
31 1,1,1-Trichloroethane	97	4.082	4.082	(0.976)	6451	1.00000	1.14 (a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	4719	1.00000	1.20 (aM)
138 Freon TF	101	1.919	1.919	(0.459)	4065	1.00000	1.12 (a)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	3216	1.00000	1.19 (a)
22 1,1-Dichloroethane	63	2.929	2.929	(0.700)	6907	1.00000	1.14 (a)
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	3522	1.00000	0.99 (a)
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	5427	1.00000	1.18 (a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	1182	1.00000	0.29 (a)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	4081	1.00000	1.22 (aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	2432	1.00000	1.03 (aM)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	14648	1.00000	1.10 (a)
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	464	1.00000	0.73 (aM)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	3982	1.00000	1.09 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT	ON-COL
						(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	8297	1.00000	1.11(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	5359	1.00000	1.18(a)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	3352	1.00000	0.98(aM)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	13162	1.00000	1.03(a)
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	8955	1.00000	1.11(a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	6334	1.00000	1.15(a)
84 1,4-Dichlorobenzene	146	9.684	9.684	(1.001)	9129	1.00000	1.12(a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	6785	1.00000	1.23(a)
24 2-Butanone	43	3.588	3.588	(0.858)	2602	2.00000	2.03(a)
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	11127	1.00000	1.10(a)
52 2-Hexanone	43	7.090	7.090	(0.924)	4893	2.00000	2.30(a)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	13982	1.00000	1.14(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	14705	1.00000	1.07(a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	6643	2.00000	2.19(a)
10 Acetone	43	1.969	1.969	(0.471)	5956	2.00000	1.88(a)
37 Benzene	78	4.519	4.519	(0.909)	15129	1.00000	1.16(a)
74 Bromobenzene	156	8.810	8.810	(0.911)	5611	1.00000	1.15(a)
29 Bromochloromethane	128	3.803	3.803	(0.909)	2687	1.00000	1.19(a)
39 Bromodichloromethane	83	5.730	5.730	(1.153)	5583	1.00000	1.18(aM)
66 Bromoform	173	8.416	8.416	(1.097)	3197	1.00000	2.01(Ta)
6 Bromomethane	94	1.339	1.339	(0.320)	6334	1.00000	(aM)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	20920	2.00000	2.18(a)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	5740	1.00000	1.13(aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	11449	1.00000	1.13(a)
7 Chloroethane	64	1.403	1.403	(0.336)	3001	1.00000	1.14(aM)
28 Chloroform	83	3.910	3.910	(0.935)	8234	1.00000	1.22(a)
3 Chloromethane	50	1.074	1.074	(0.257)	6118	1.00000	1.53(aM)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	4494	1.00000	1.13(a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	6302	1.00000	1.13(a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	4470	1.00000	1.13(a)
44 Dibromomethane	93	5.558	5.558	(1.118)	2789	1.00000	1.15(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	3829	1.00000	1.87(aM)
61 Ethylbenzene	106	7.800	7.800	(1.017)	5813	1.00000	1.11(a)
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	2468	1.00000	0.76(a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	16809	1.00000	1.08(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	13495	2.00000	2.14(a)
17 Methylene Chloride	84	2.306	2.306	(0.551)	4626	1.00000	1.22(a)
87 n-Butylbenzene	91	9.999	9.999	(1.034)	11491	1.00000	1.00(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	18779	1.00000	1.08(a)
92 Naphthalene	128	11.553	11.553	(1.195)	3182	1.00000	1.05(a)
63 o-Xylene	106	8.244	8.244	(1.075)	6995	1.00000	1.12(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	15987	1.00000	1.06(a)
64 Styrene	104	8.265	8.265	(1.078)	11719	1.00000	1.08(a)
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	12122	1.00000	1.11(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	4263	1.00000	1.17(a)
50 Toluene	91	6.453	6.453	(0.841)	16346	1.00000	1.11(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	4068	1.00000	1.18(a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	5295	1.00000	1.04(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	4445	1.00000	1.11(a)
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	6912	1.00000	1.07(a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	4533	1.00000	1.06(aM)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D Page 3
Report Date: 06-Dec-2019 19:56

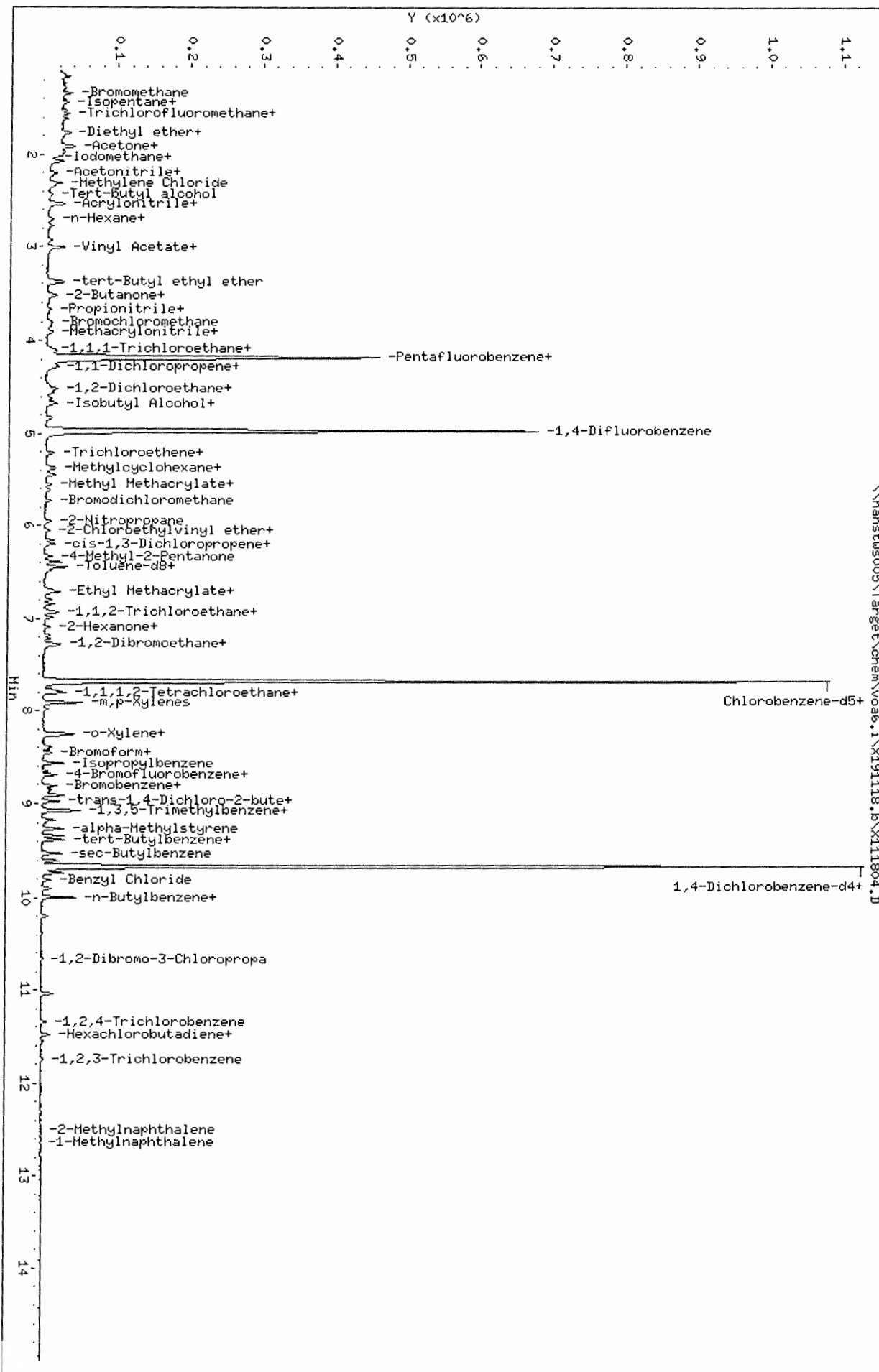
QC Flag Legend

- T - Target compound detected outside RT window.
- a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
- M - Compound response manually integrated.



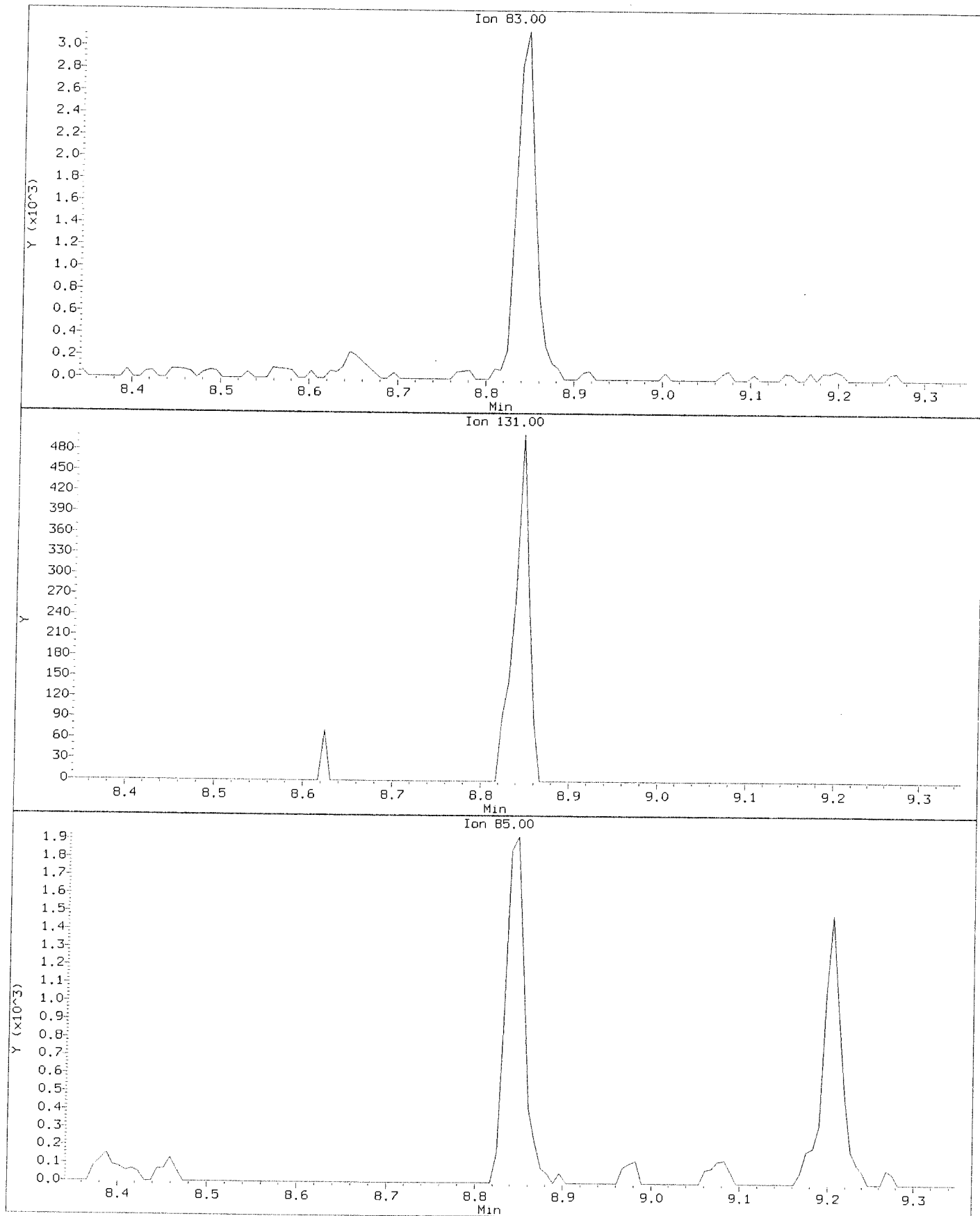
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 Date : 18-NOV-2019 14:59
 Client ID: VSTD001
 Sample Info: VSTD001;VSTD001;1;3;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



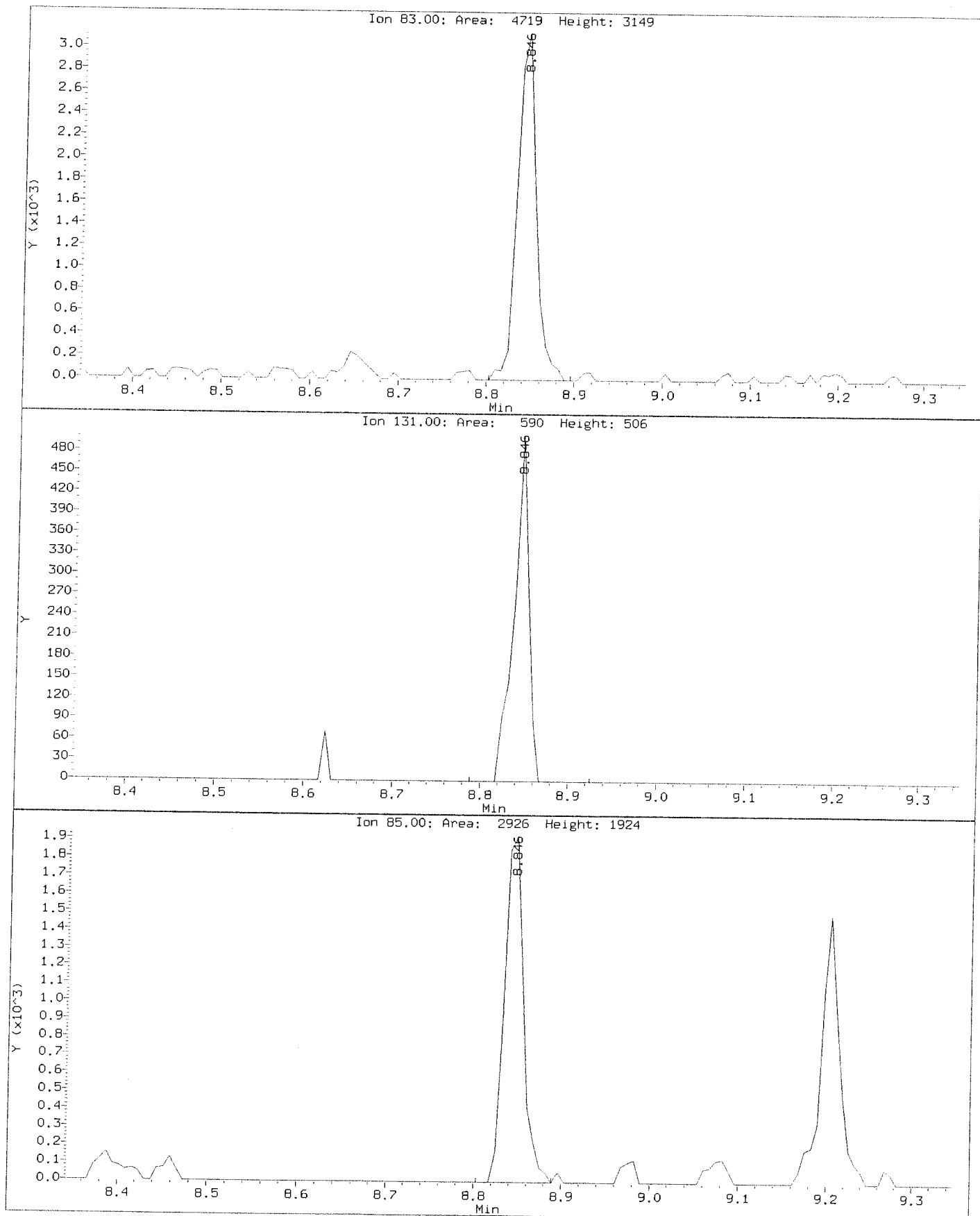
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Injection Date: 18-NOV-2019 14:59
Instrument: voa6.1
Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



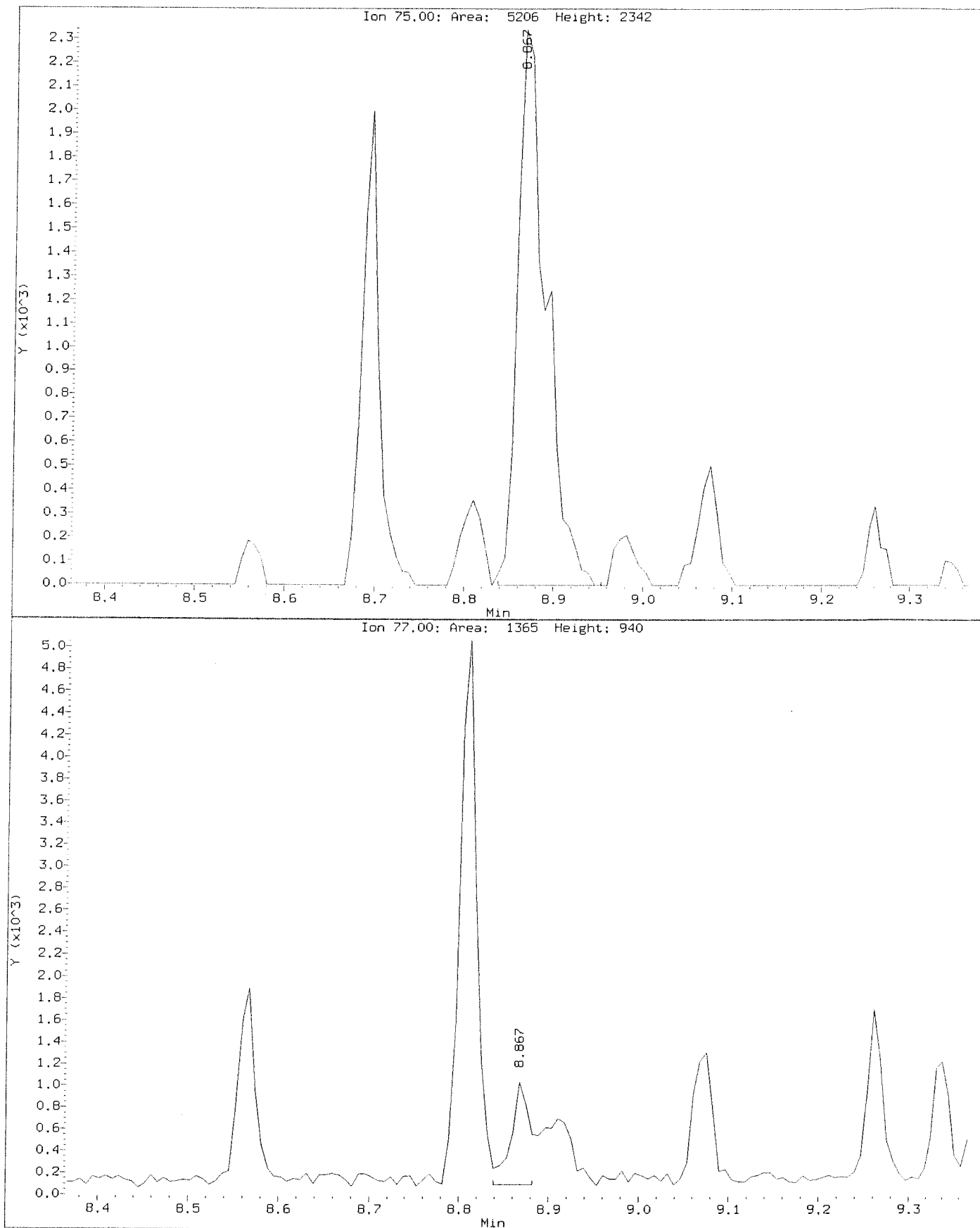
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Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



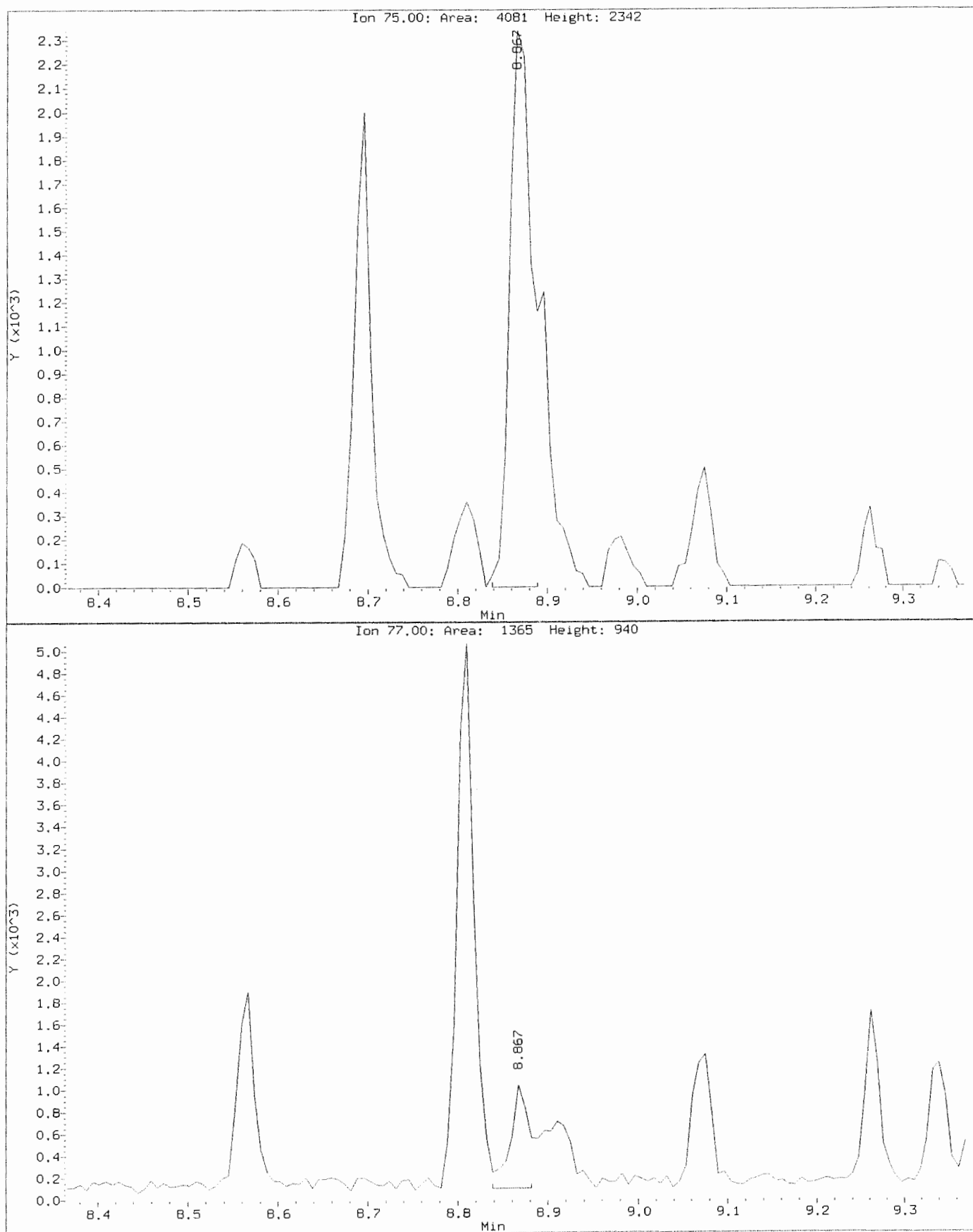
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Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



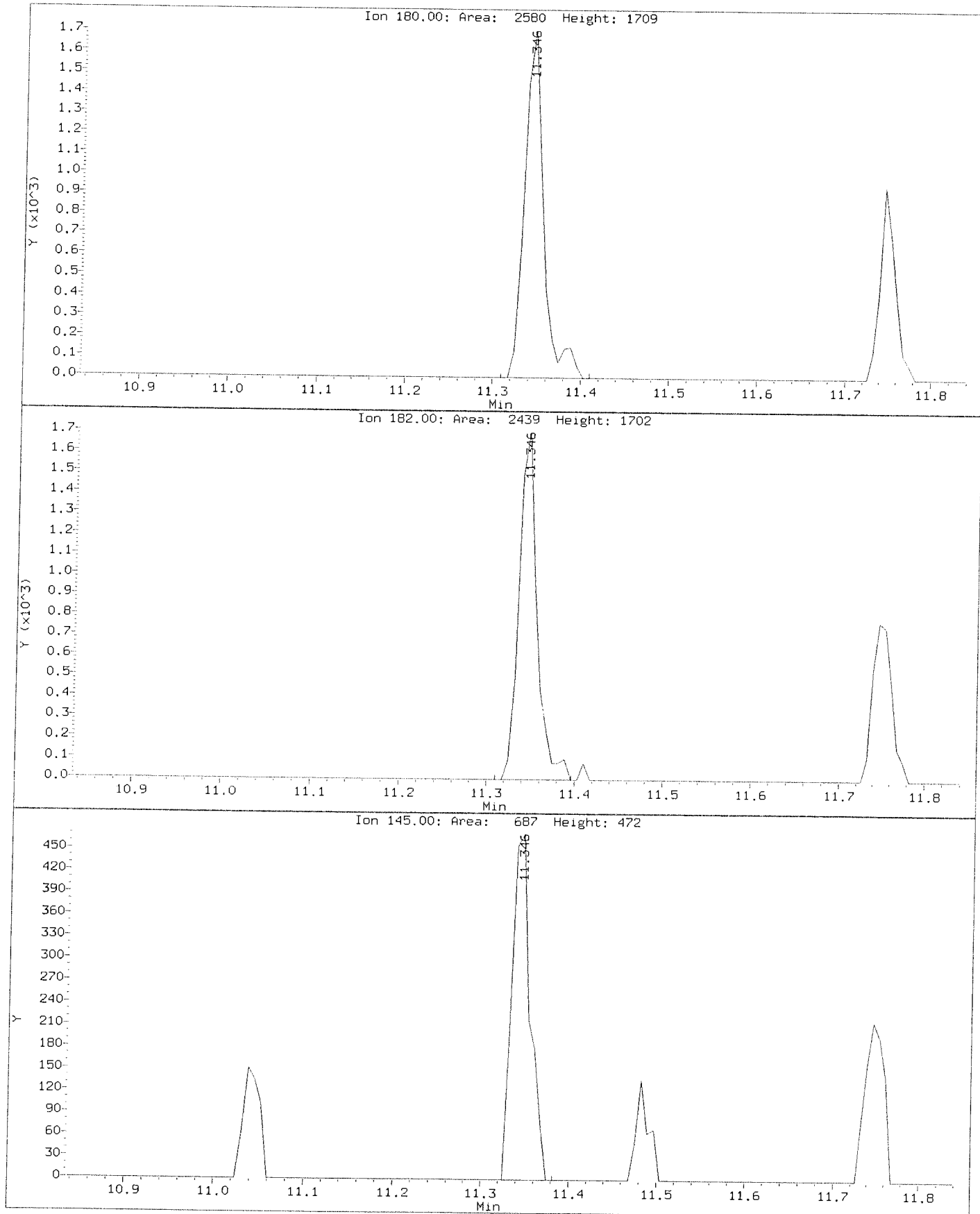
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Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



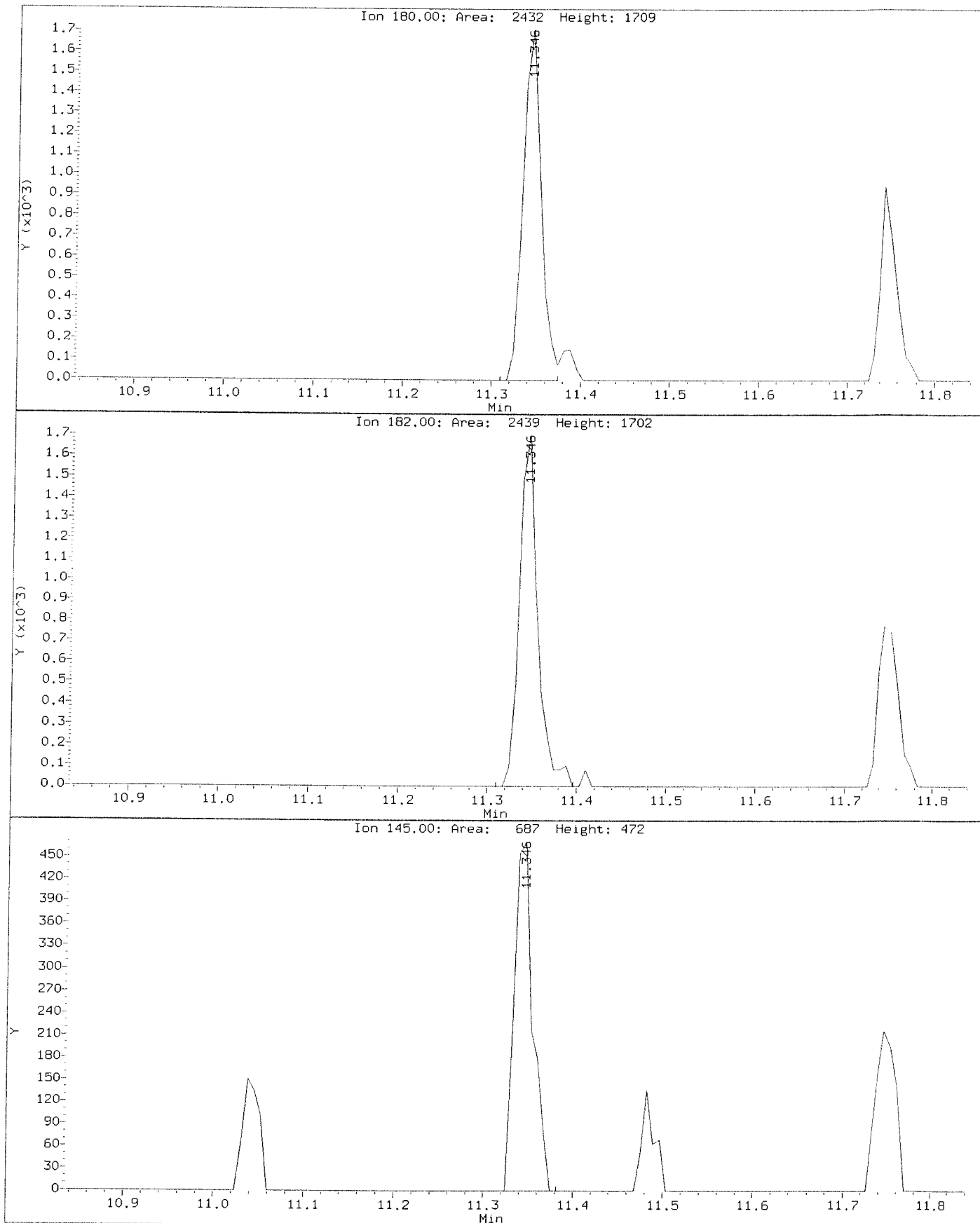
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Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



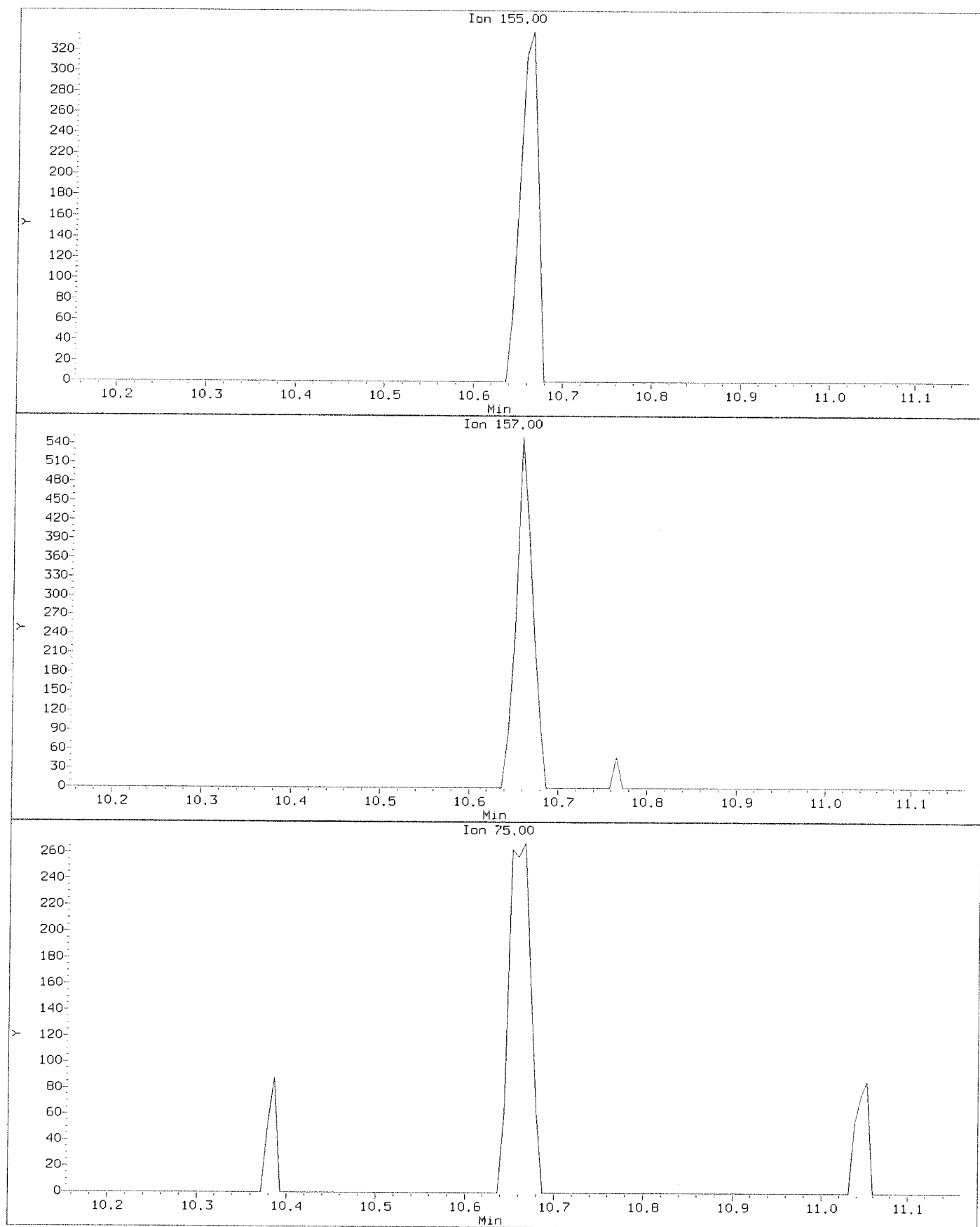
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Client Sample ID: VSTD001

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



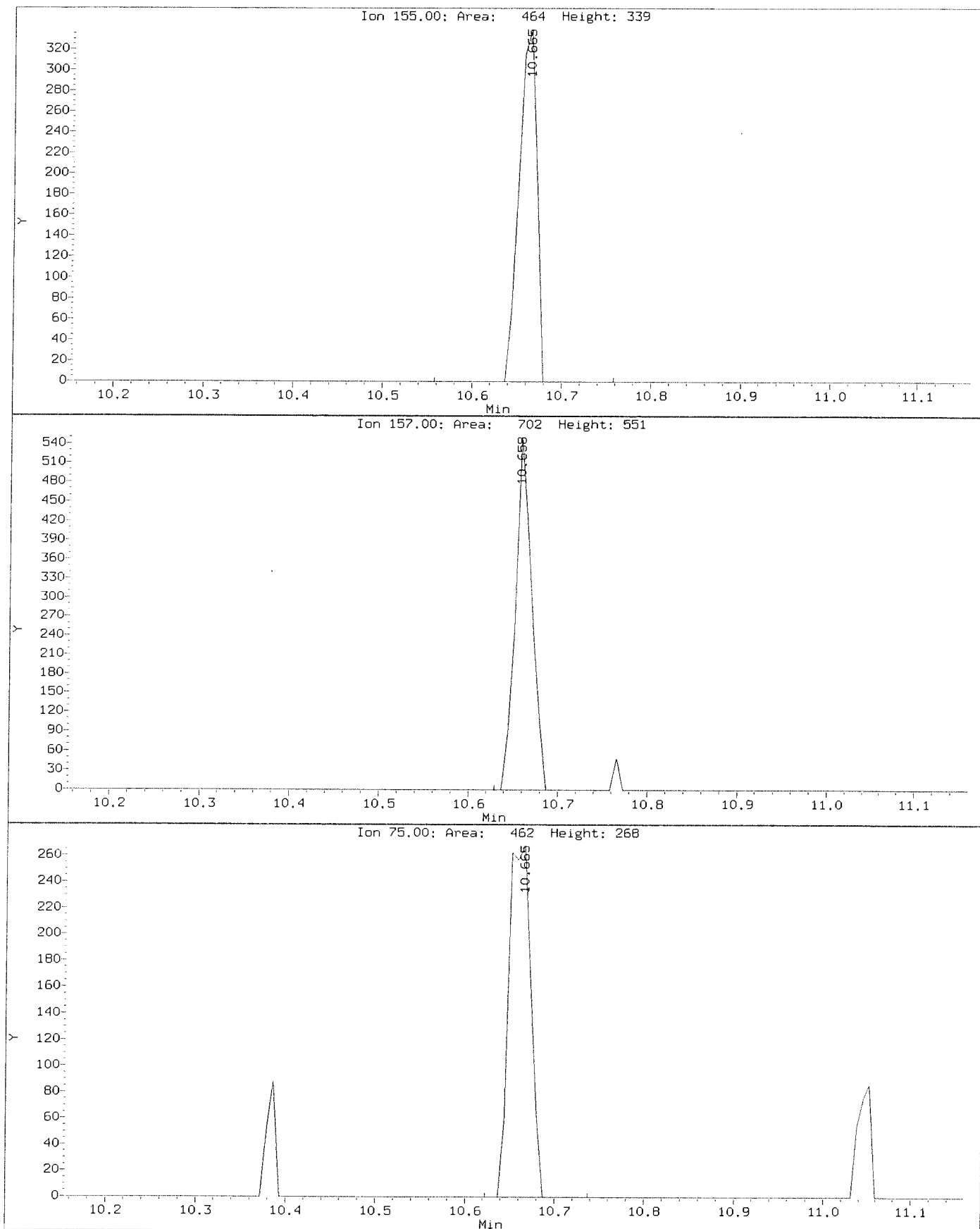
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Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



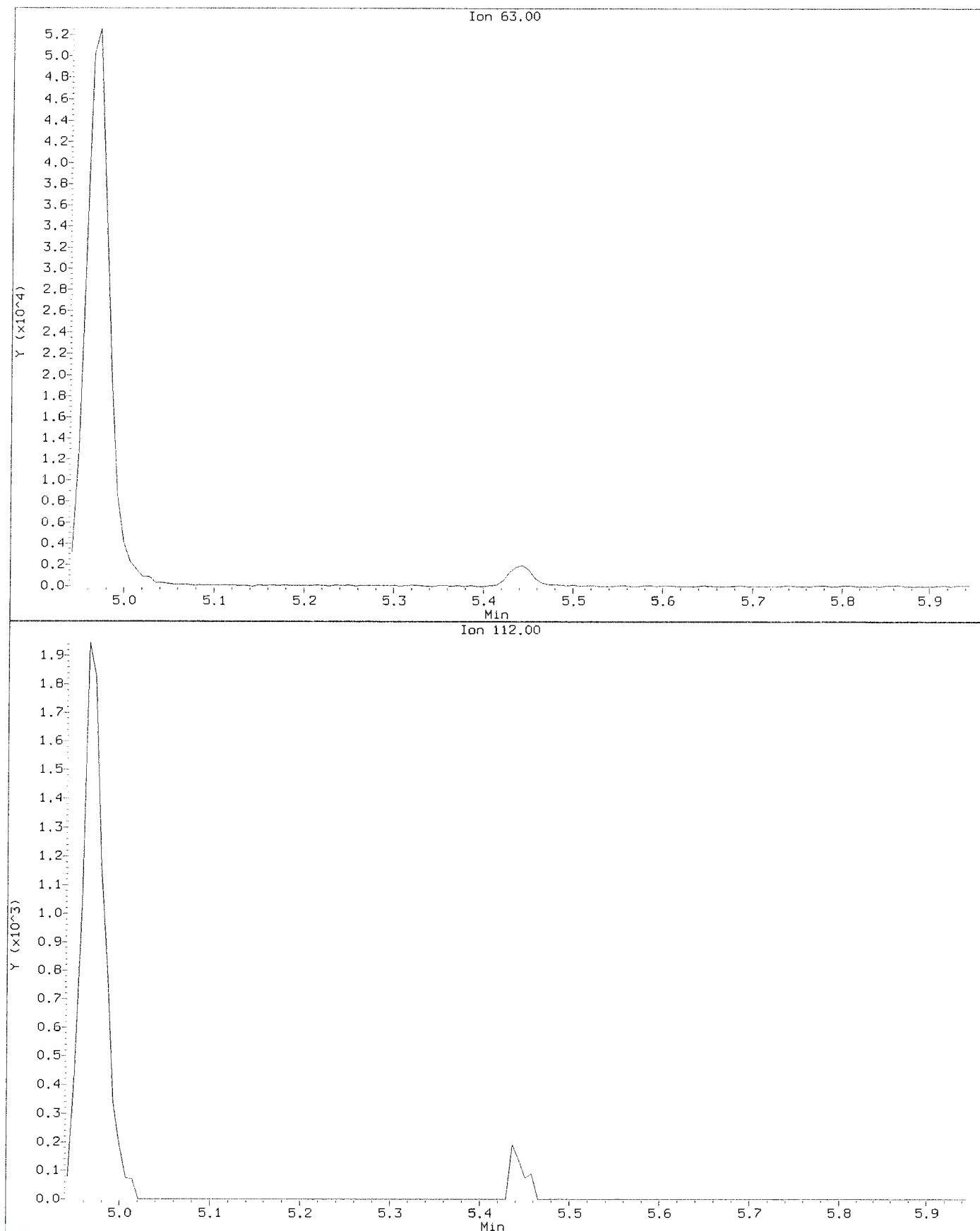
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Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



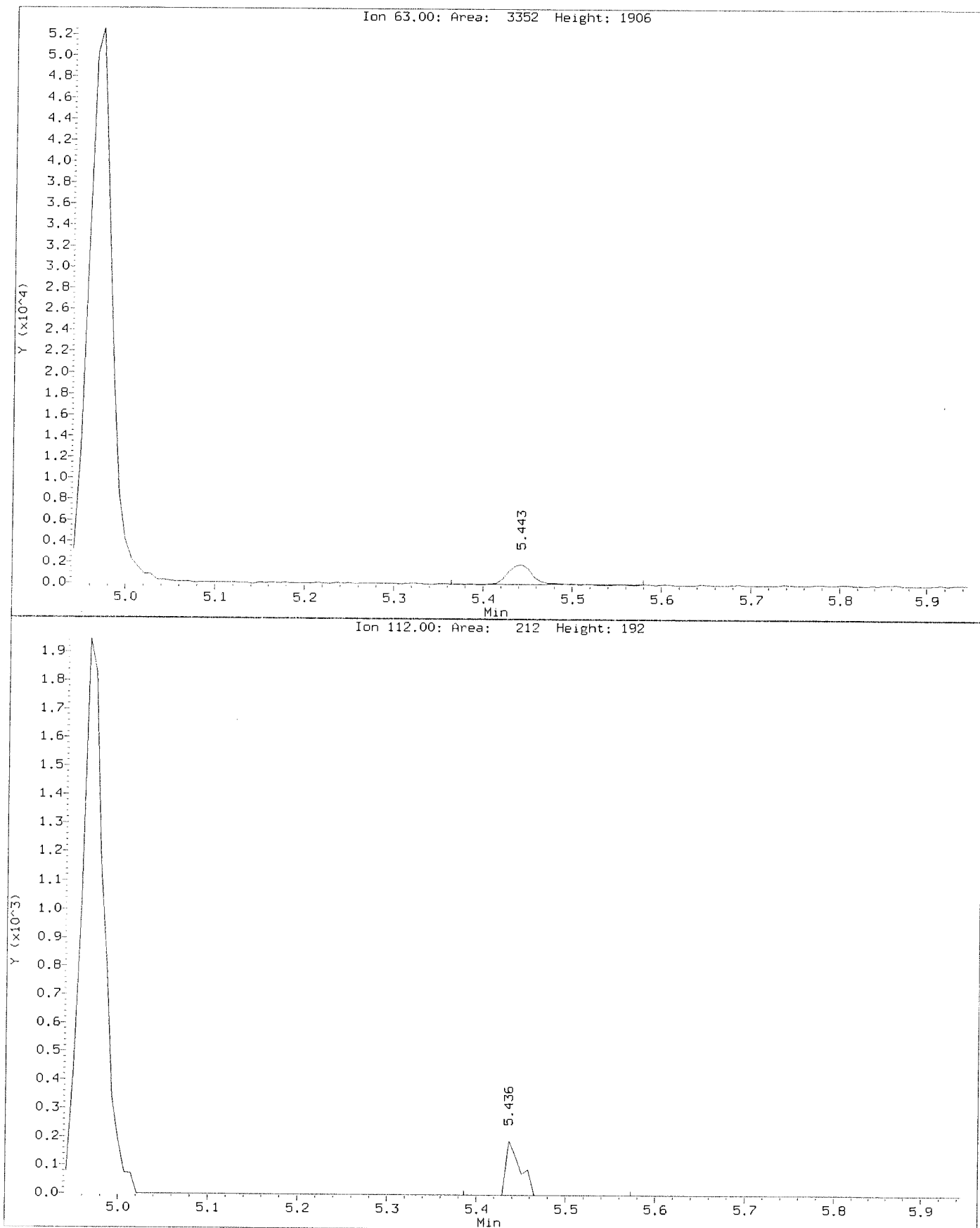
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Instrument: voa6.1
Client Sample ID: VSTD001

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



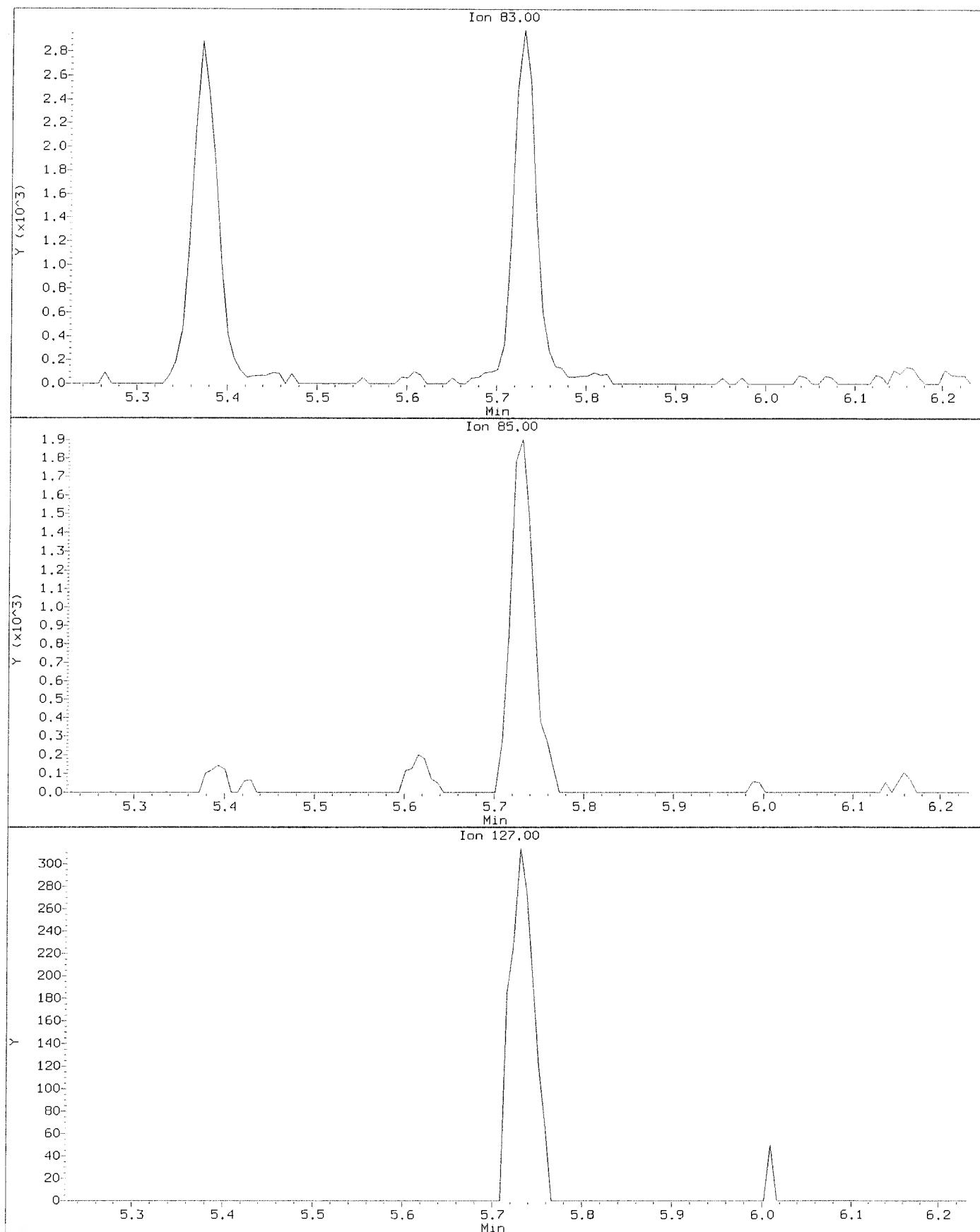
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Client Sample ID: VSTD001

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



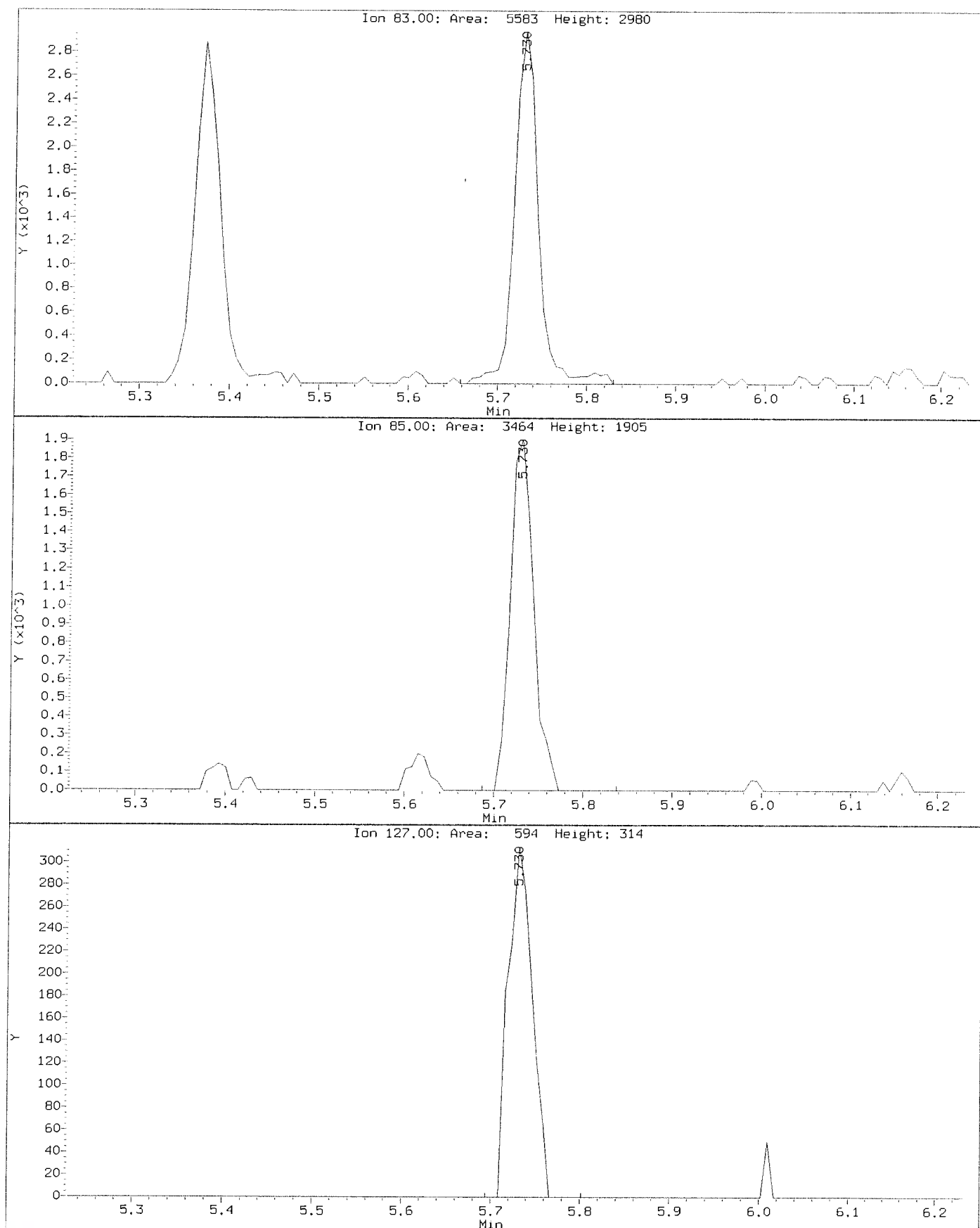
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Injection Date: 18-NOV-2019 14:59
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Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



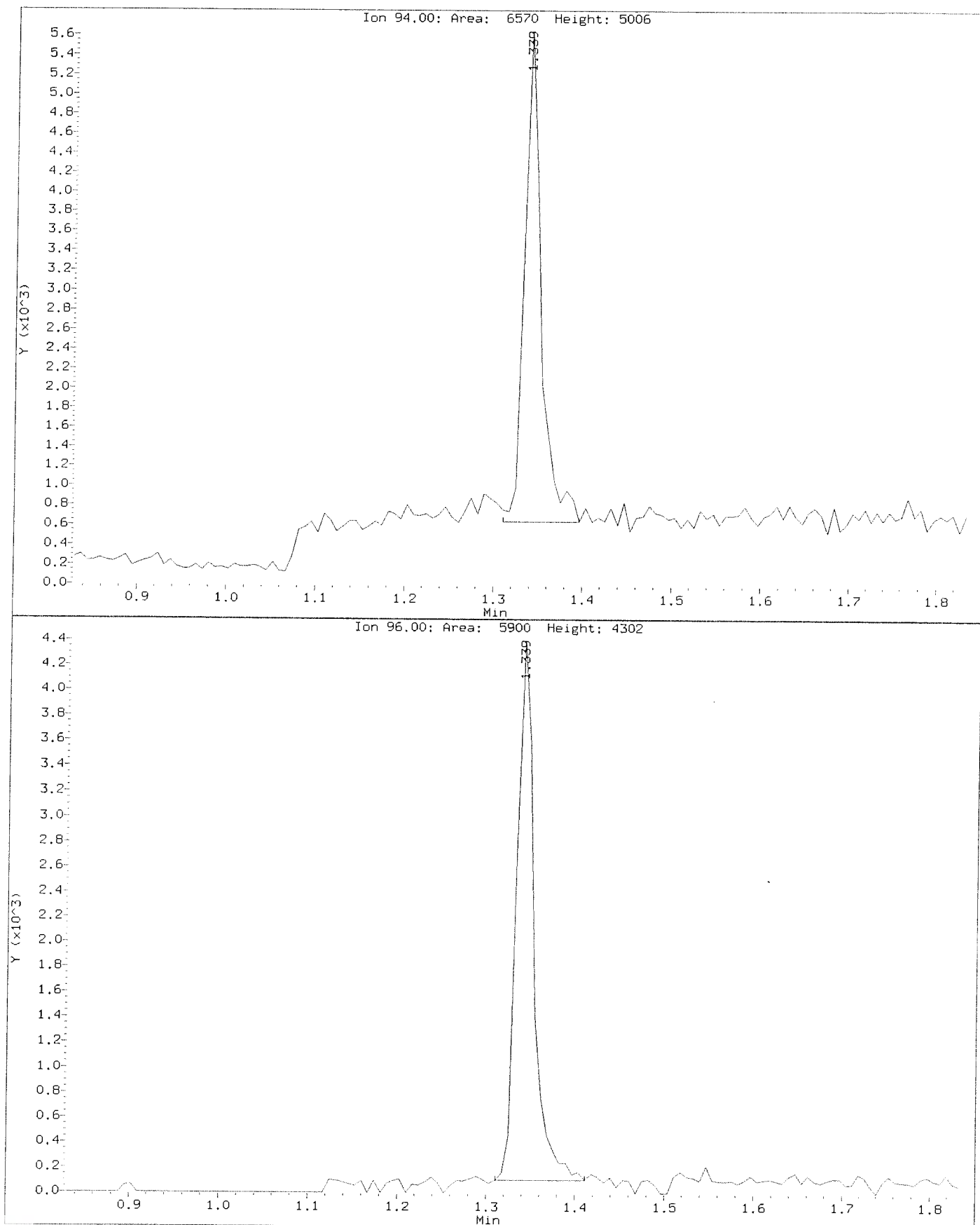
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Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



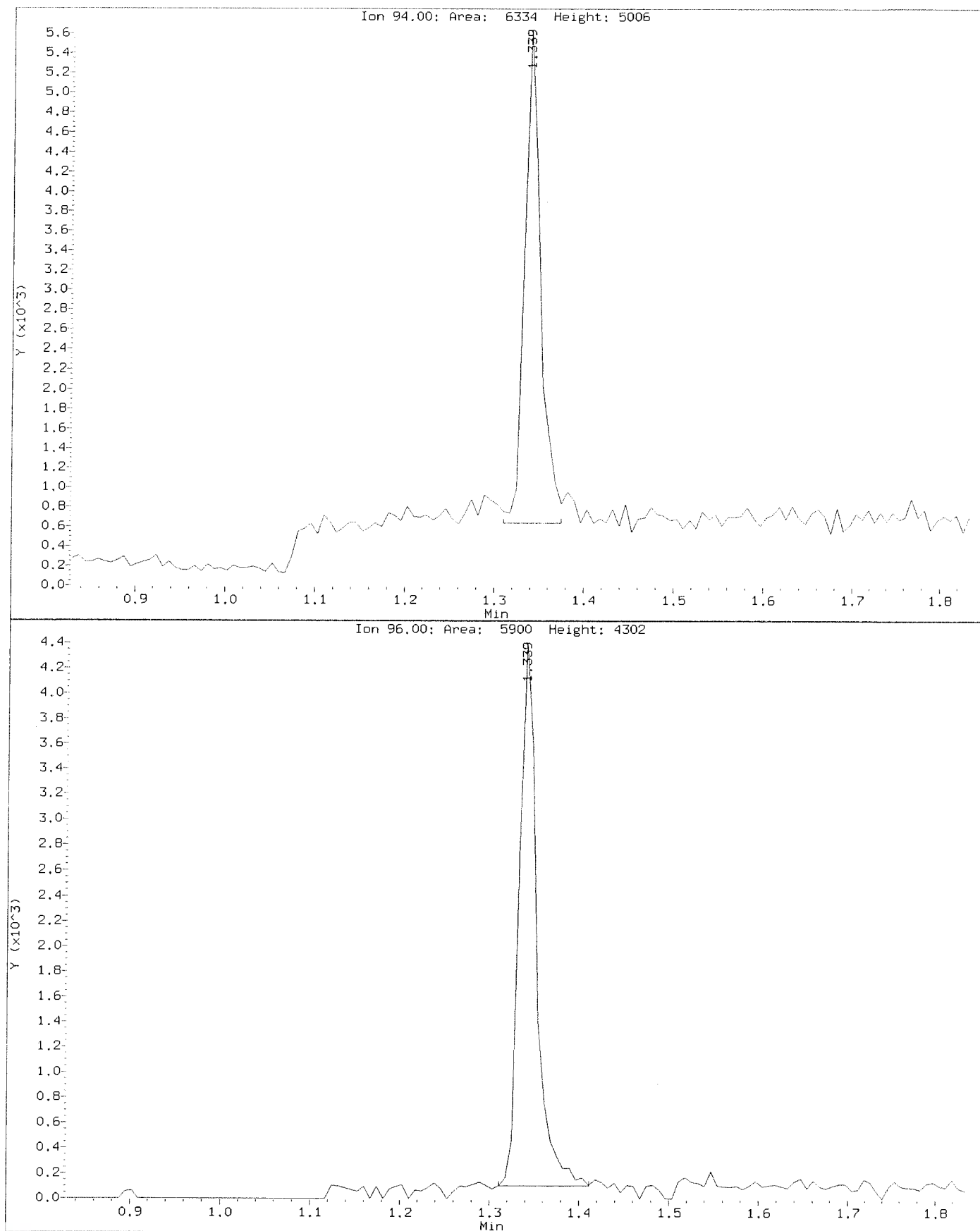
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Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromomethane
CAS Number: 74-83-9



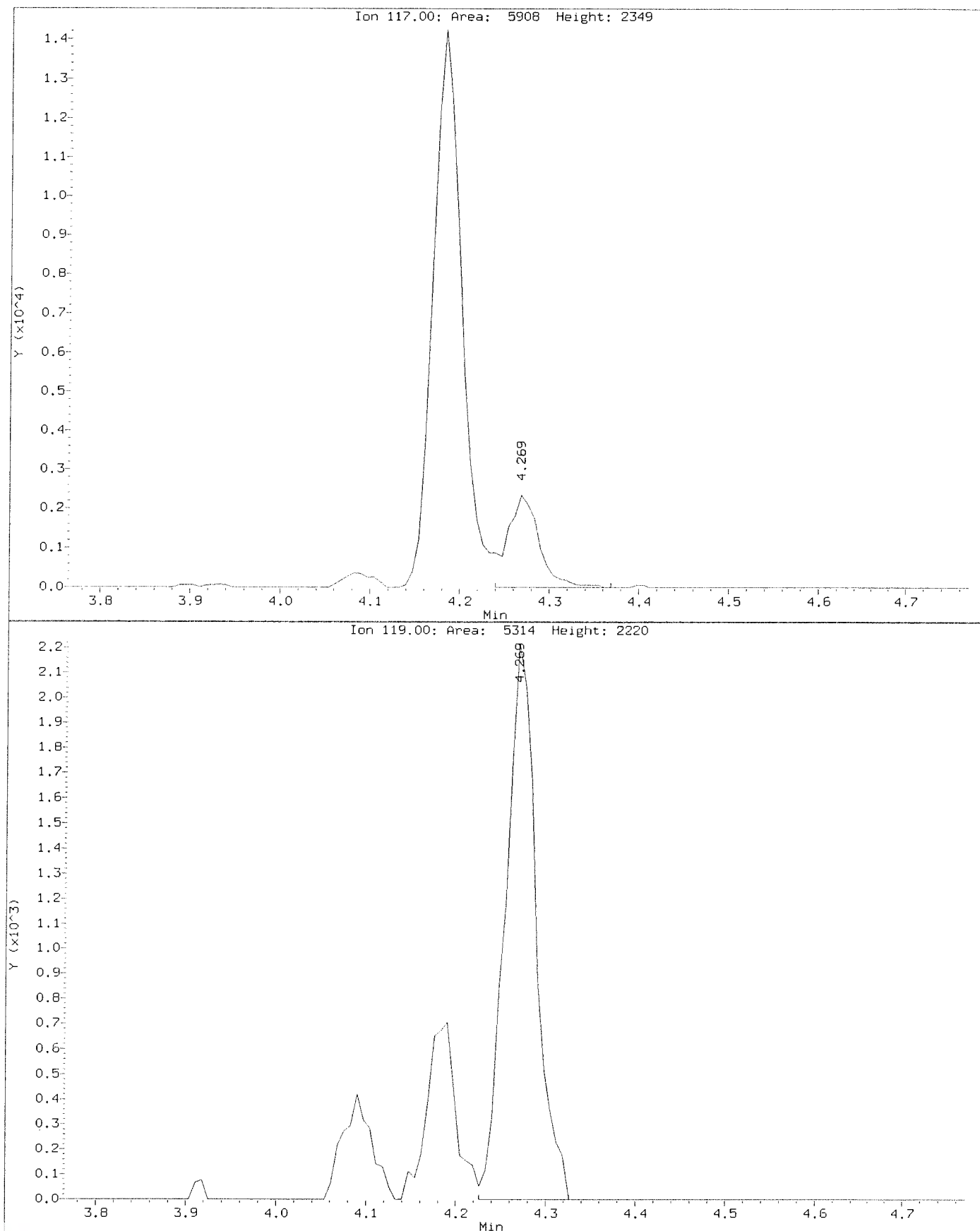
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Compound: Bromomethane
CAS Number: 74-83-9



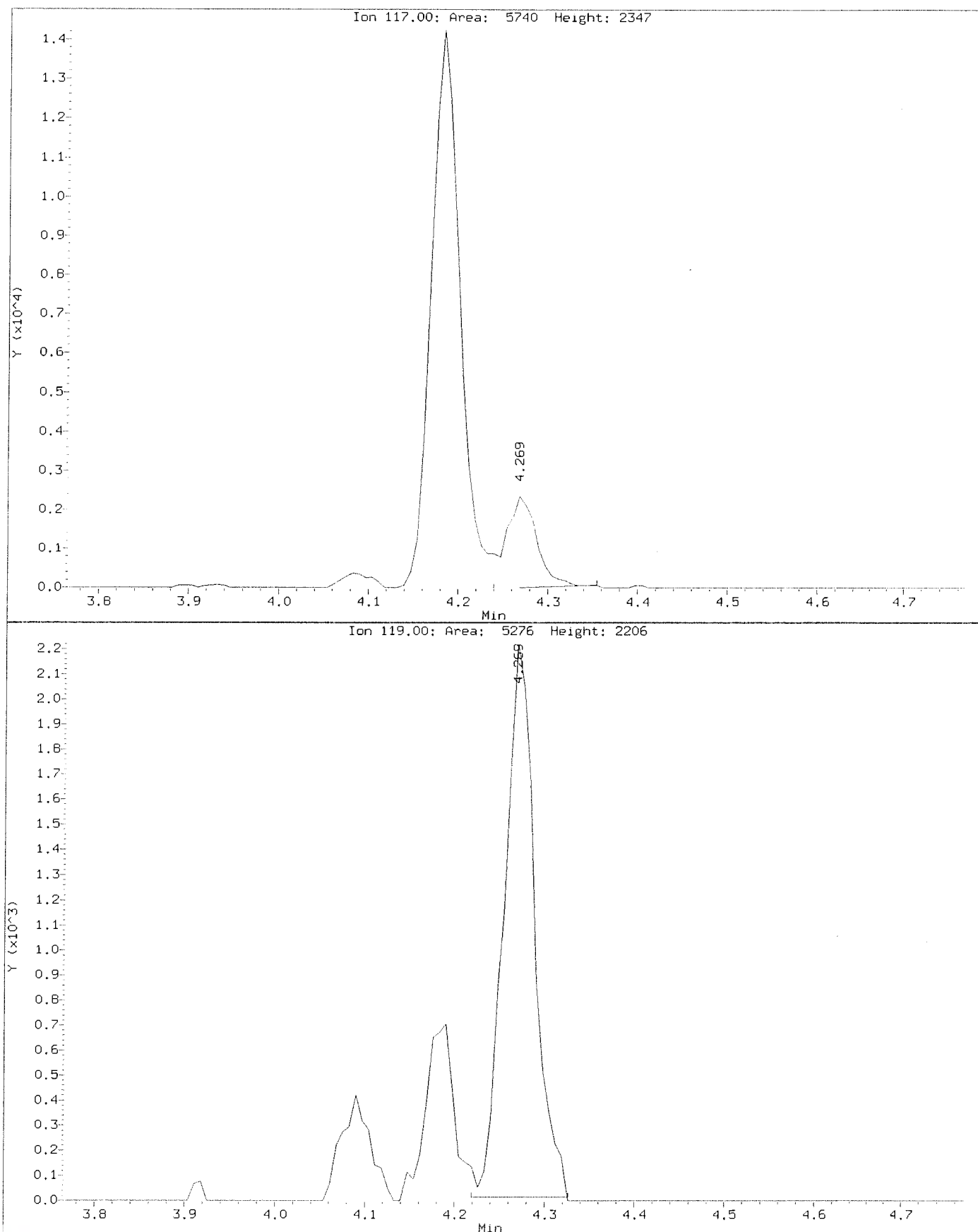
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Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



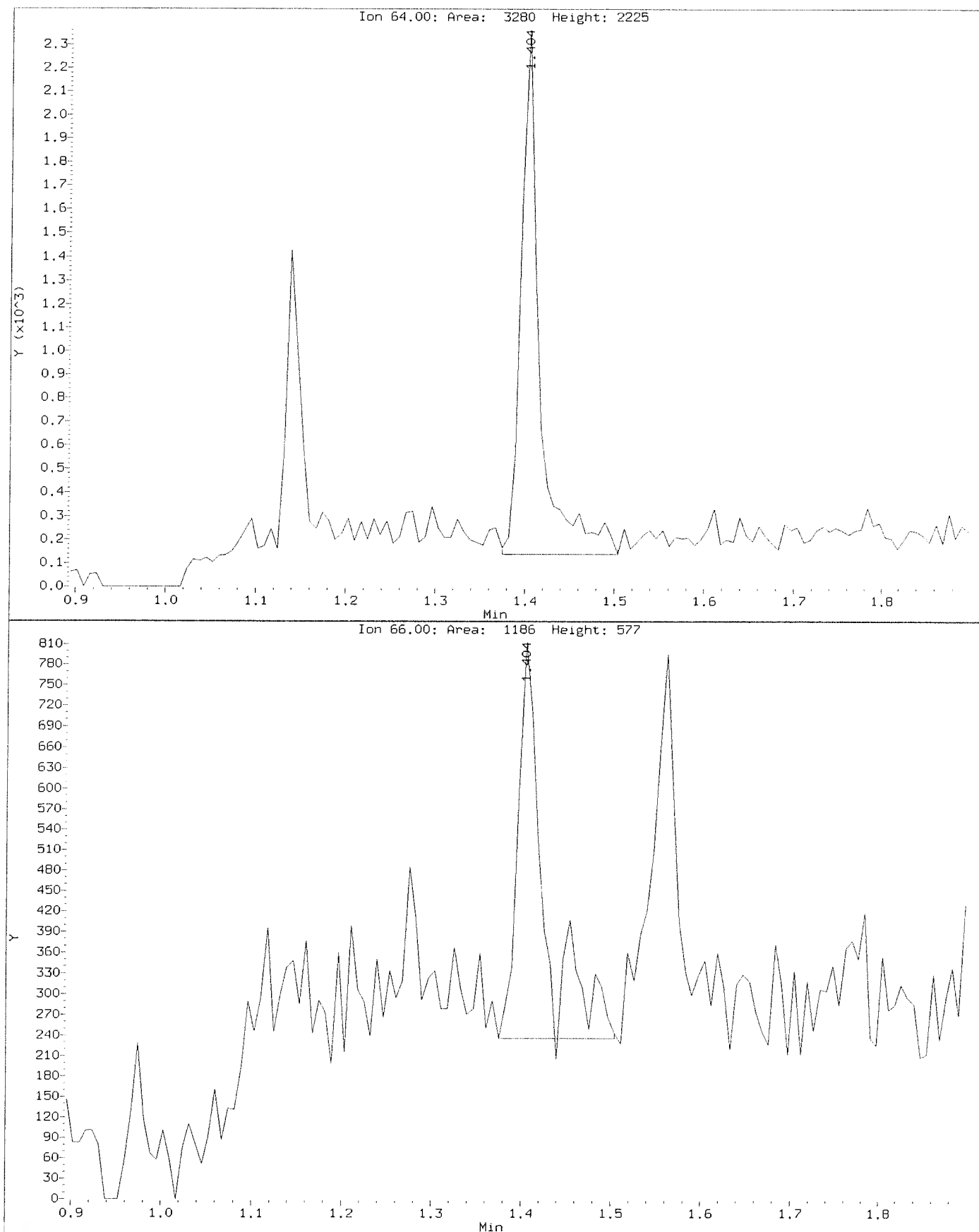
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Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



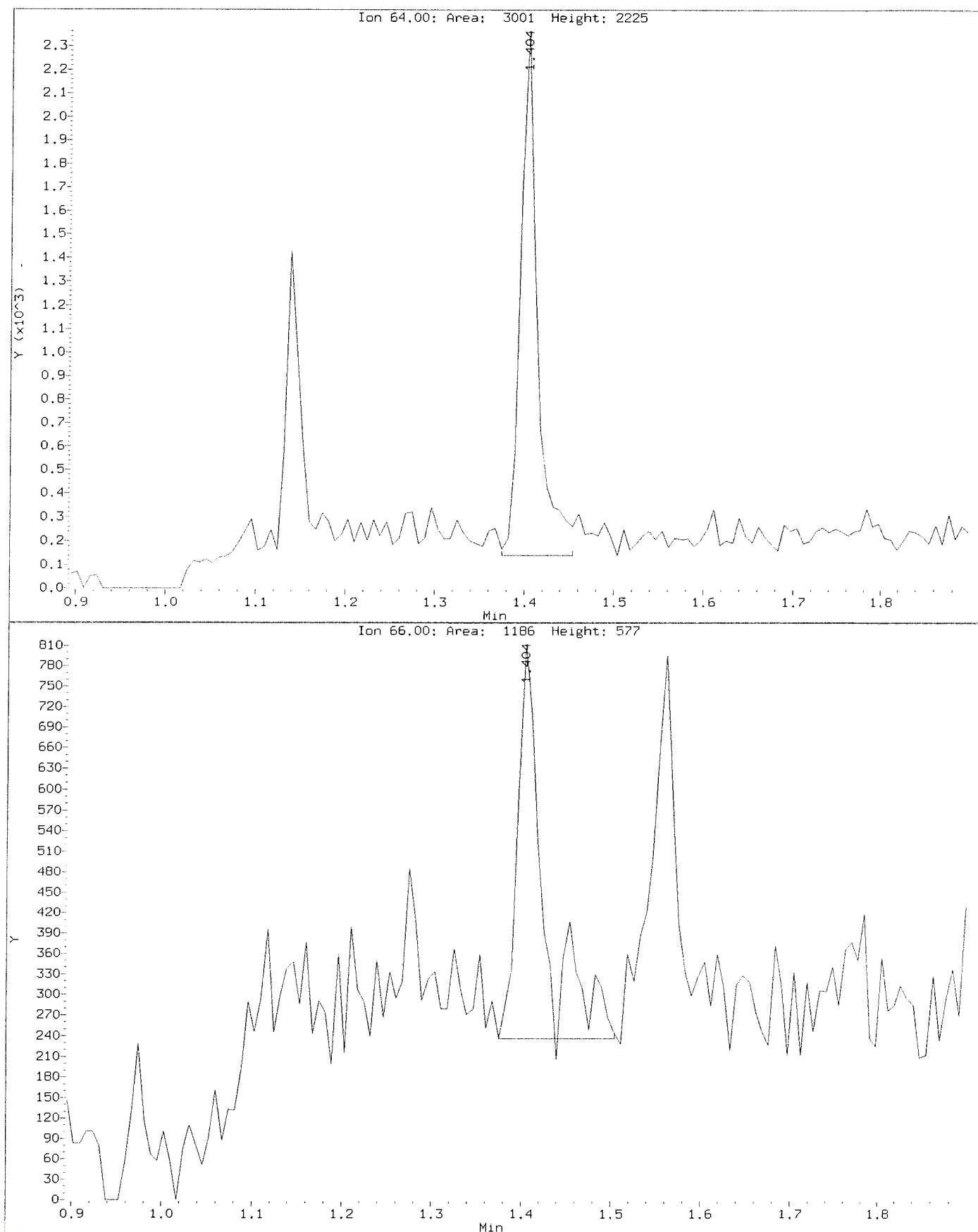
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Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3



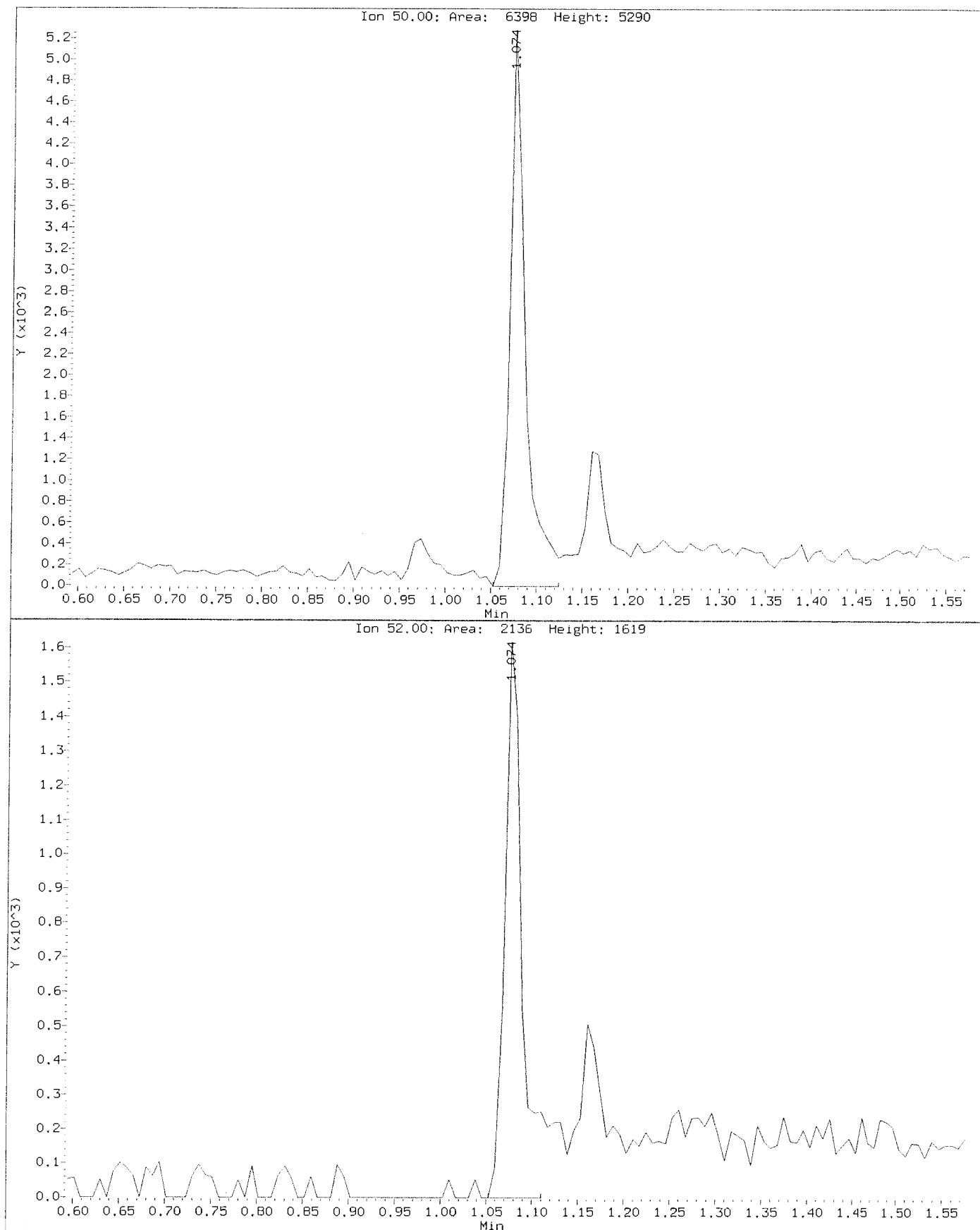
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Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3



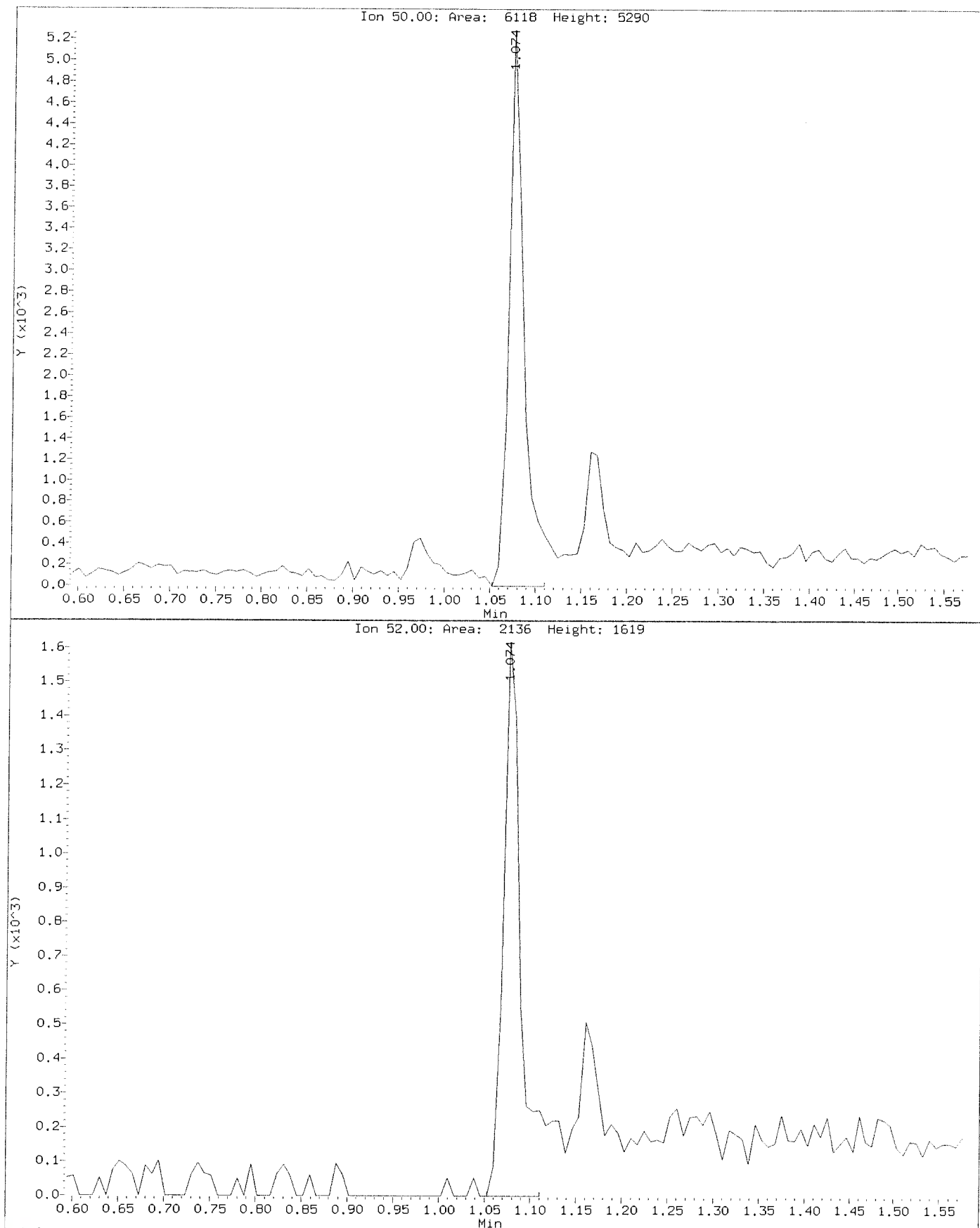
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Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloromethane
CAS Number: 74-87-3



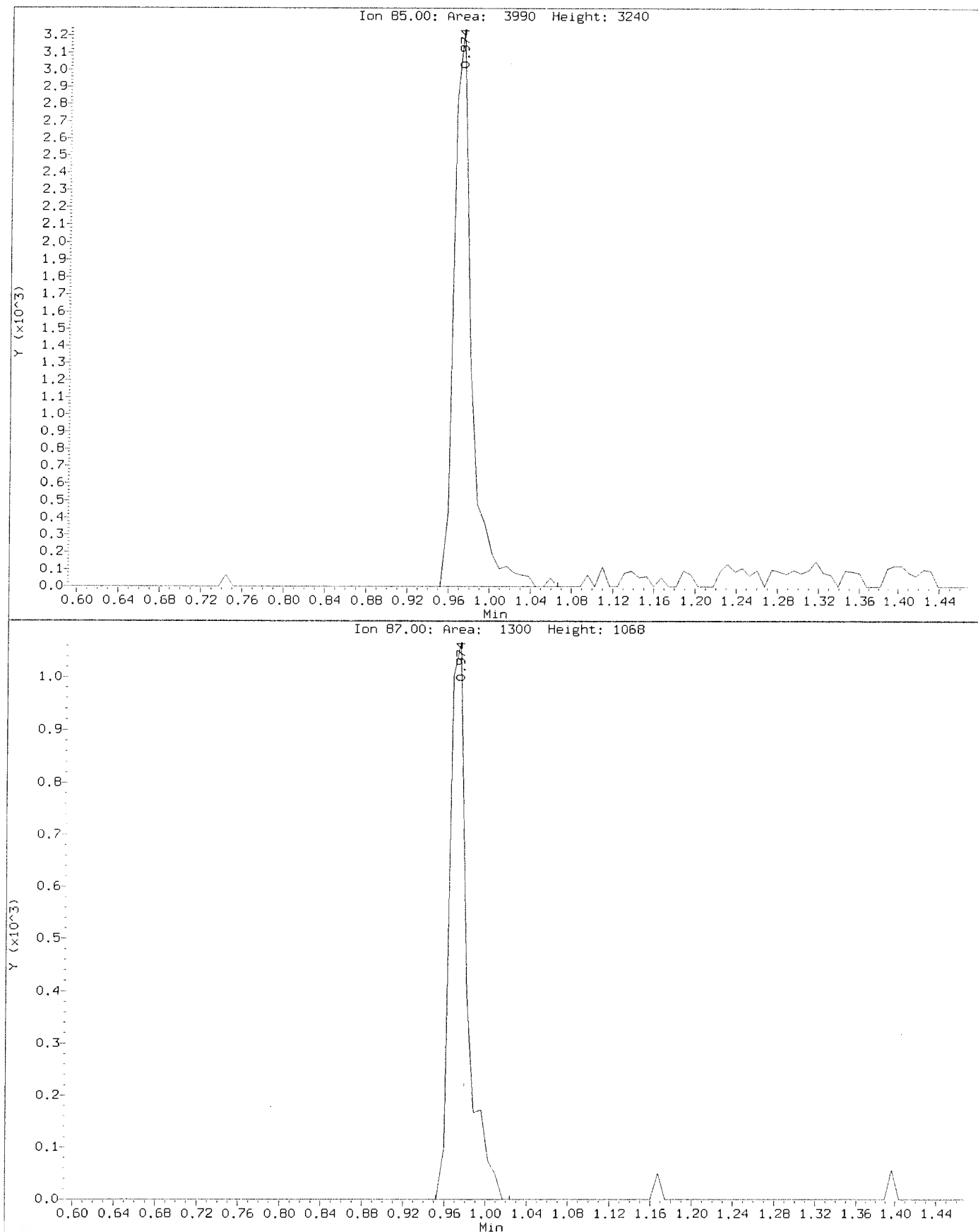
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Compound: Chloromethane
CAS Number: 74-87-3



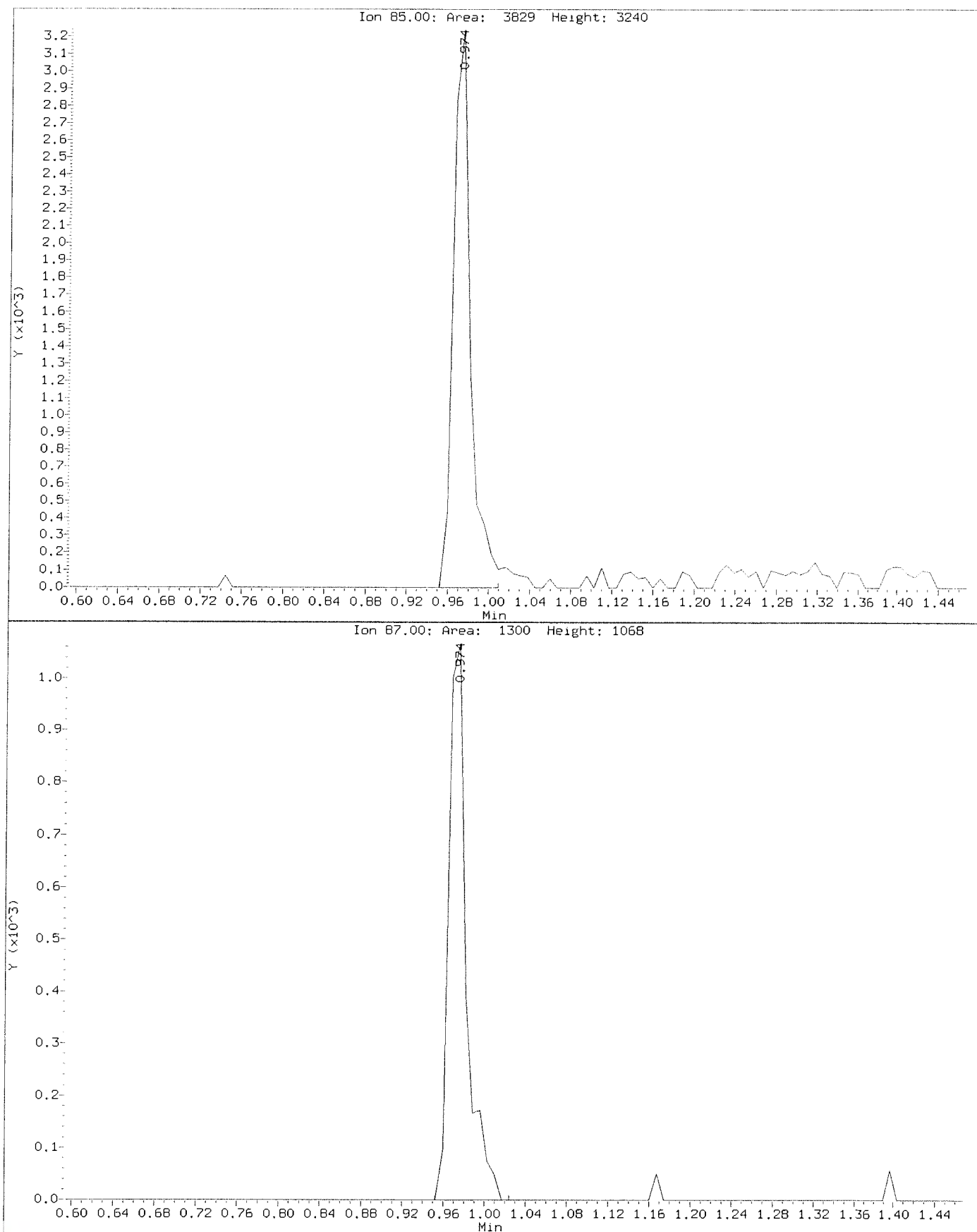
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Instrument: voa6.1
Client Sample ID: VSTD001

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



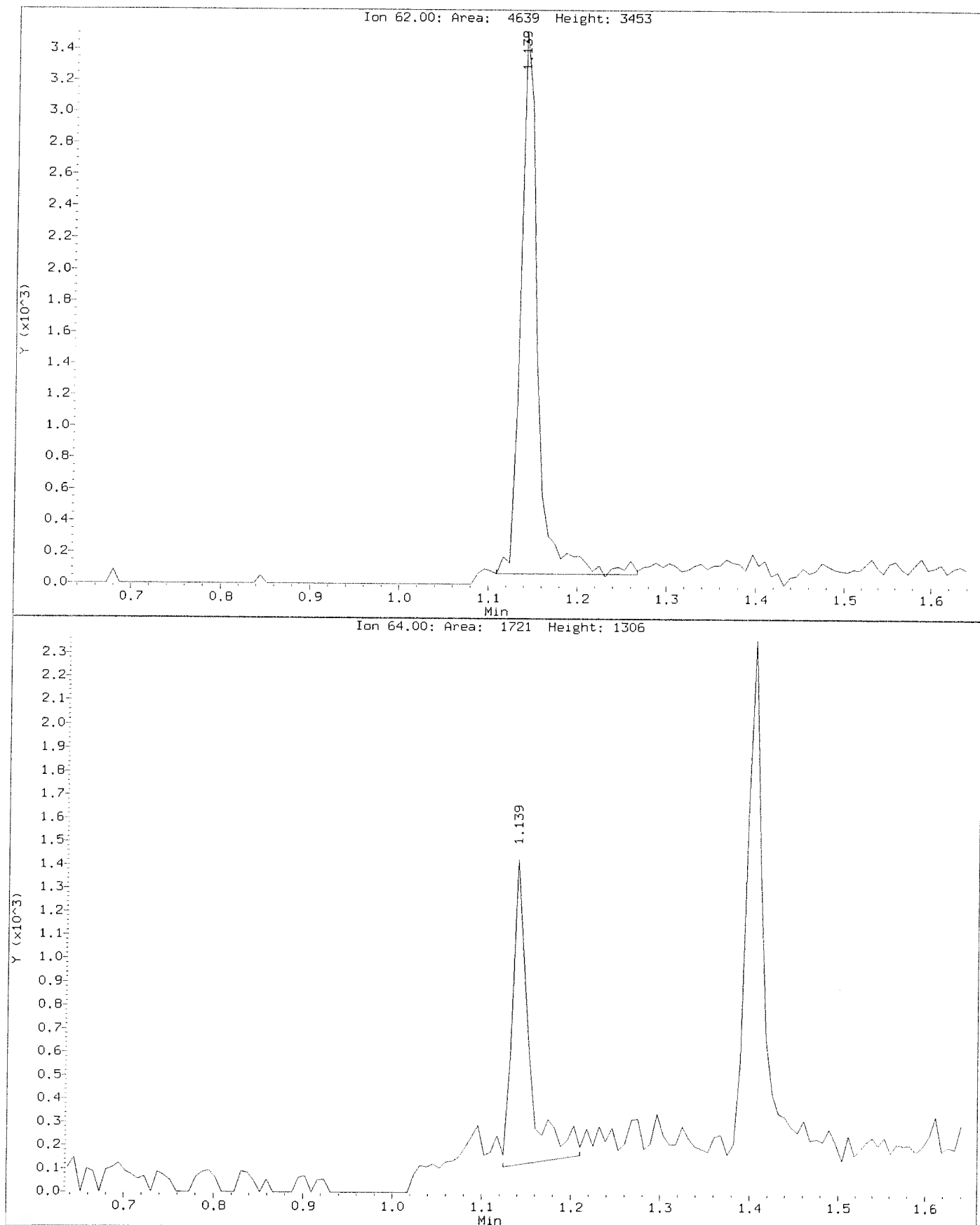
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Client Sample ID: VSTD001

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



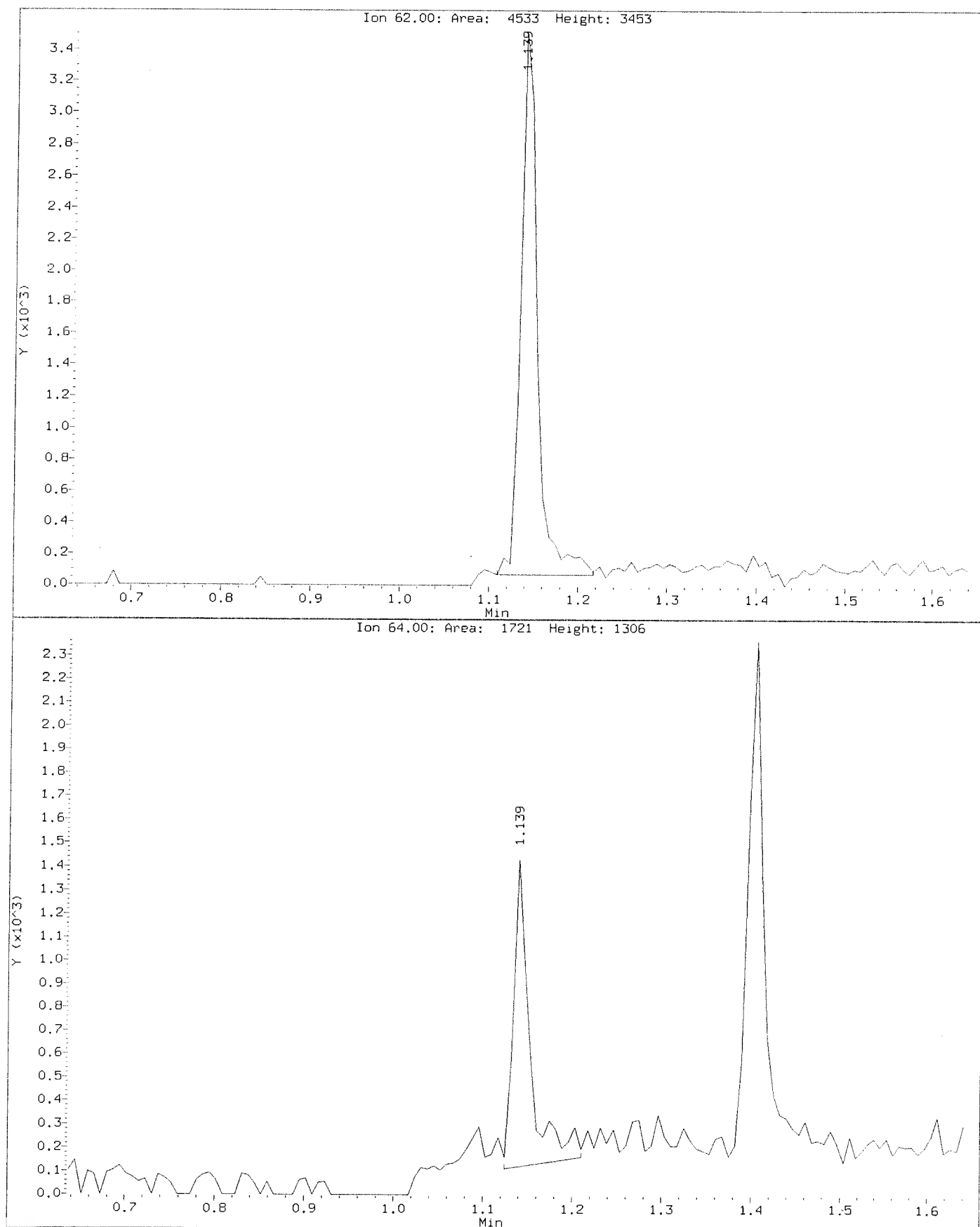
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Injection Date: 18-NOV-2019 14:59
Instrument: voa6.1
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D
 Lab Smp Id: VSTD002 Client Smp ID: VSTD002
 Inj Date : 18-NOV-2019 15:23
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD002;VSTD002;1;4;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 14:59 Cal File: X111804.D
 Als bottle: 6 Calibration Sample, Level: 4
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG						AMOUNTS	
		RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)	
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	415277	50.0000		
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	574320	50.0000		
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	519547	50.0000		
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	278615	50.0000		
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	8034	2.00000	2.76 (a)	
\$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	10468	2.00000	2.56 (a)	
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	8127	2.00000	2.50 (a)	
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	28201	2.00000	2.06 (a)	
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	7788	2.00000	2.06 (a)	
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	12006	2.00000	2.14 (a)	
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	8194	2.00000	2.09 (a)	
138 Freon TF	101	1.911	1.911	(0.457)	7504	2.00000	2.07 (a)	
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	5924	2.00000	2.18 (a)	
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	12973	2.00000	2.14 (a)	
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	7795	2.00000	2.21 (a)	
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	10135	2.00000	2.18 (a)	
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	2753	2.00000	1.85 (a)	
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	7810	2.00000	2.35 (aM)	
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	5184	2.00000	2.20 (a)	
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	27218	2.00000	2.05 (a)	
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	859	2.00000	1.65 (a)	
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	7900	2.00000	2.16 (a)	



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	15931	2.00000	2.15 (a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	9378	2.00000	2.05 (a)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	7169	2.00000	2.08 (aM)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	26432	2.00000	2.08 (a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	17183	2.00000	2.15 (a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	11850	2.00000	2.14 (a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	17620	2.00000	2.17 (a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	11201	2.00000	2.04 (a)
24 2-Butanone	43	3.588	3.588	(0.858)	5067	4.00000	3.97 (a)
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	21210	2.00000	2.11 (a)
52 2-Hexanone	43	7.090	7.090	(0.924)	8468	4.00000	3.96 (a)
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	24759	2.00000	2.03 (a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	28289	2.00000	2.07 (a)
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	13007	4.00000	4.27 (a)
10 Acetone	43	1.976	1.976	(0.473)	7954	4.00000	3.82 (a)
37 Benzene	78	4.519	4.519	(0.909)	28031	2.00000	2.13 (a)
74 Bromobenzene	156	8.809	8.809	(0.911)	10482	2.00000	2.16 (a)
29 Bromochloromethane	128	3.795	3.795	(0.908)	5128	2.00000	2.27 (a)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	9742	2.00000	2.04 (a)
66 Bromoform	173	8.415	8.415	(1.097)	5989	2.00000	2.89 (a)
6 Bromomethane	94	1.338	1.338	(0.320)	12041	2.00000	0.69 (a)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	40384	4.00000	4.21 (a)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	11097	2.00000	2.18 (aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	21369	2.00000	2.10 (a)
7 Chloroethane	64	1.403	1.403	(0.336)	5731	2.00000	2.19 (a)
28 Chloroform	83	3.910	3.910	(0.935)	14792	2.00000	2.19 (a)
3 Chloromethane	50	1.073	1.073	(0.257)	10461	2.00000	2.49 (a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	8197	2.00000	2.08 (a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	11415	2.00000	2.03 (a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	8154	2.00000	2.06 (a)
44 Dibromomethane	93	5.557	5.557	(1.118)	5355	2.00000	2.20 (a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	7335	2.00000	2.78 (a)
61 Ethylbenzene	106	7.799	7.799	(1.017)	10700	2.00000	2.04 (a)
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	4522	2.00000	1.82 (a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	32629	2.00000	2.10 (a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	26786	4.00000	4.23 (a)
17 Methylene Chloride	84	2.305	2.305	(0.551)	8025	2.00000	2.13 (a)
87 n-Butylbenzene	91	9.998	9.998	(1.034)	22333	2.00000	1.96 (a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	35573	2.00000	2.06 (a)
92 Naphthalene	128	11.553	11.553	(1.195)	6733	2.00000	2.23 (a)
63 o-Xylene	106	8.244	8.244	(1.075)	13637	2.00000	2.18 (a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	31860	2.00000	2.12 (a)
64 Styrene	104	8.265	8.265	(1.078)	22366	2.00000	2.06 (a)
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	22956	2.00000	2.11 (a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	8185	2.00000	2.24 (a)
50 Toluene	91	6.453	6.453	(0.841)	31139	2.00000	2.11 (a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	7239	2.00000	2.11 (a)
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	10523	2.00000	2.06 (a)
38 Trichloroethene	130	5.214	5.214	(1.049)	8894	2.00000	2.21 (a)
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	13581	2.00000	2.10 (a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	9073	2.00000	2.14 (a)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D Page 3
Report Date: 06-Dec-2019 19:56

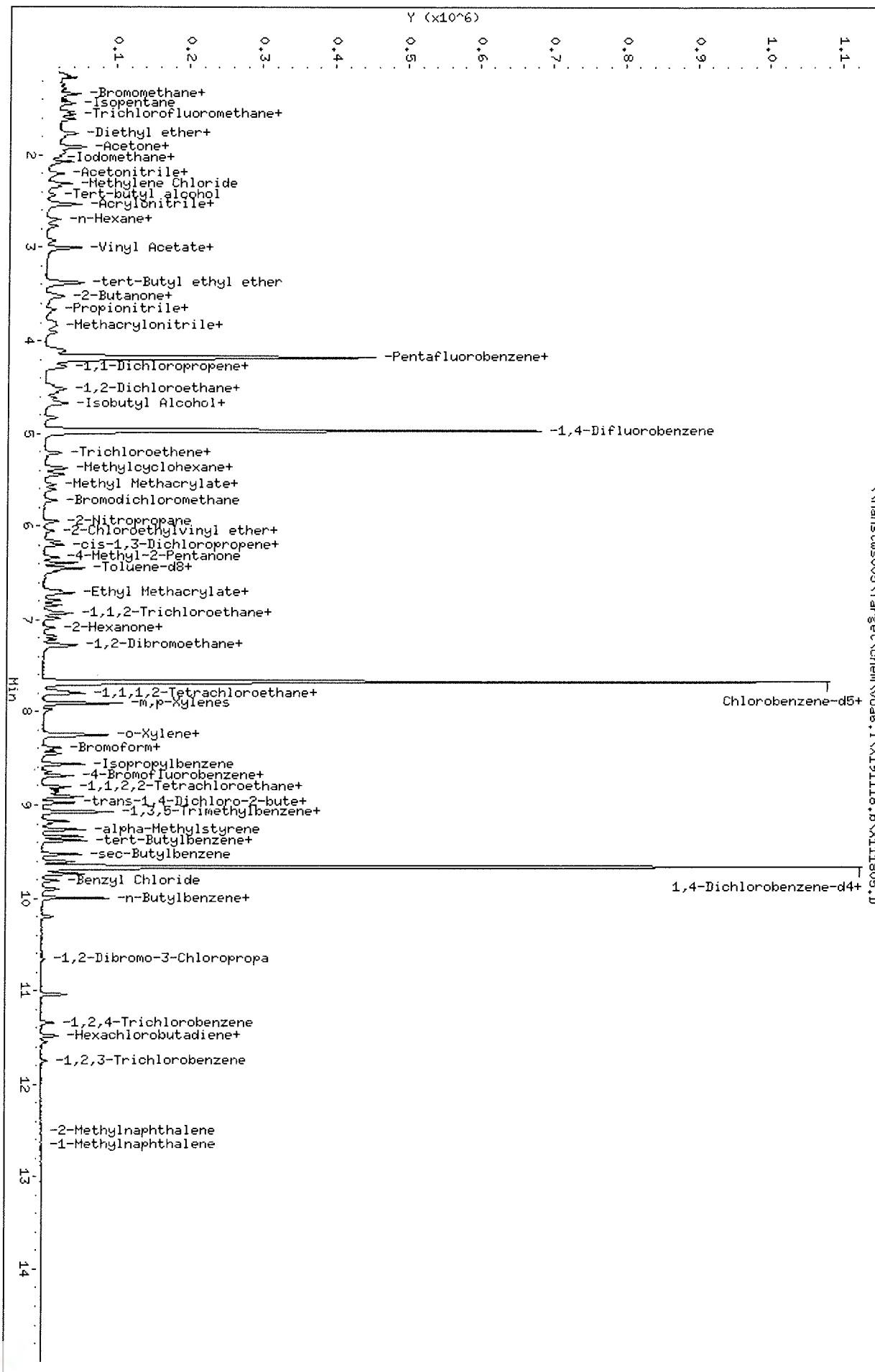
QC Flag Legend

- a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
- M - Compound response manually integrated.



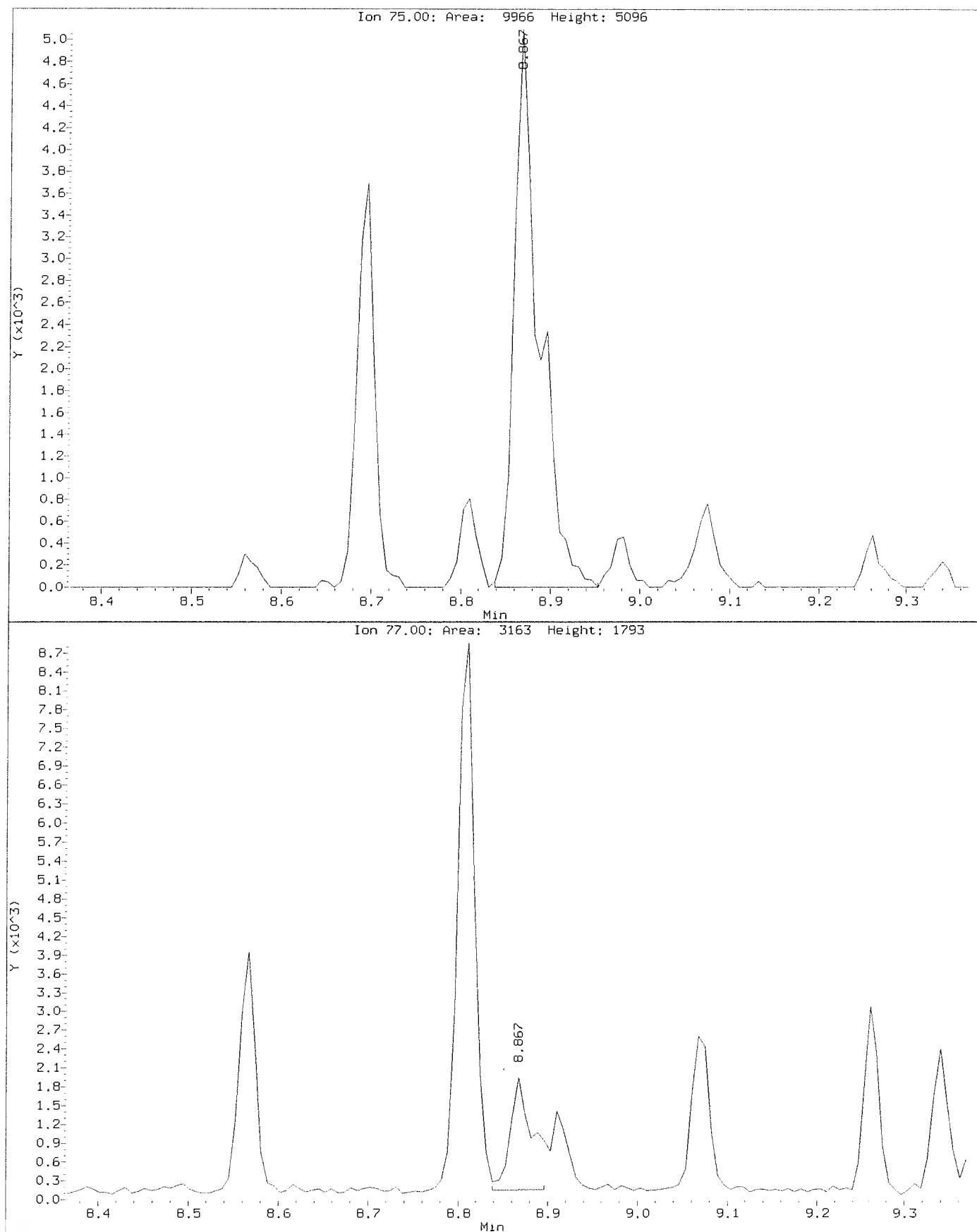
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 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



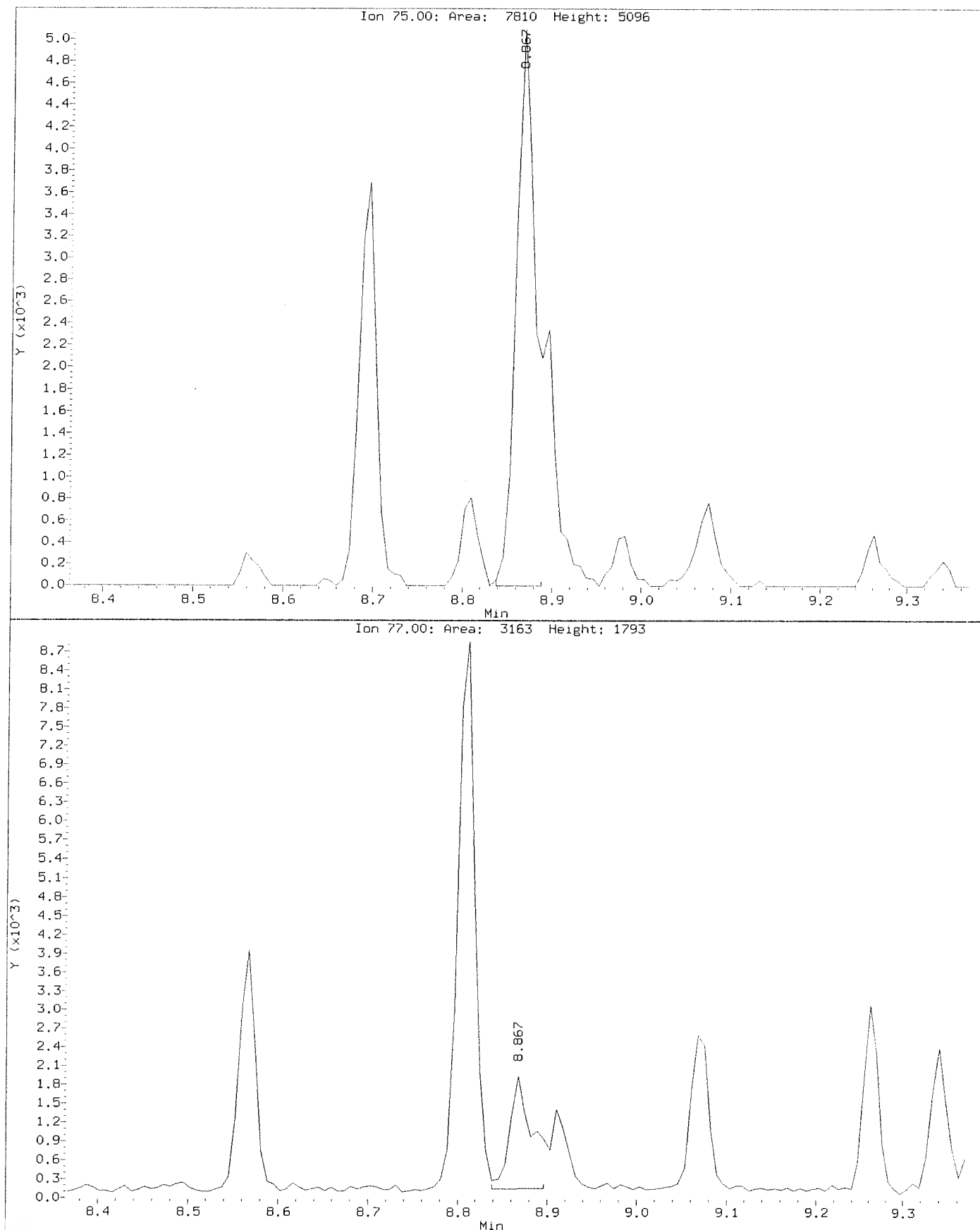
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Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



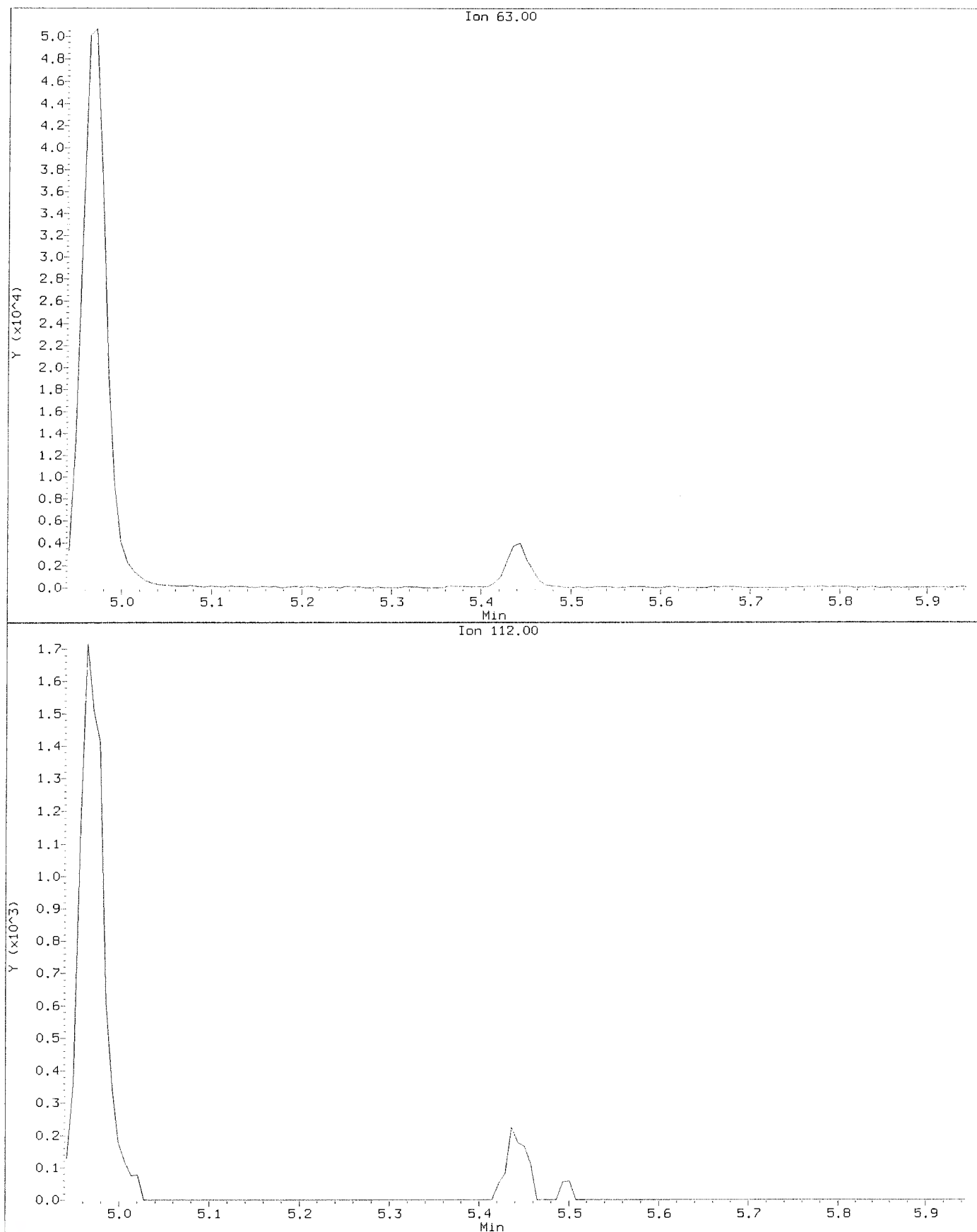
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Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



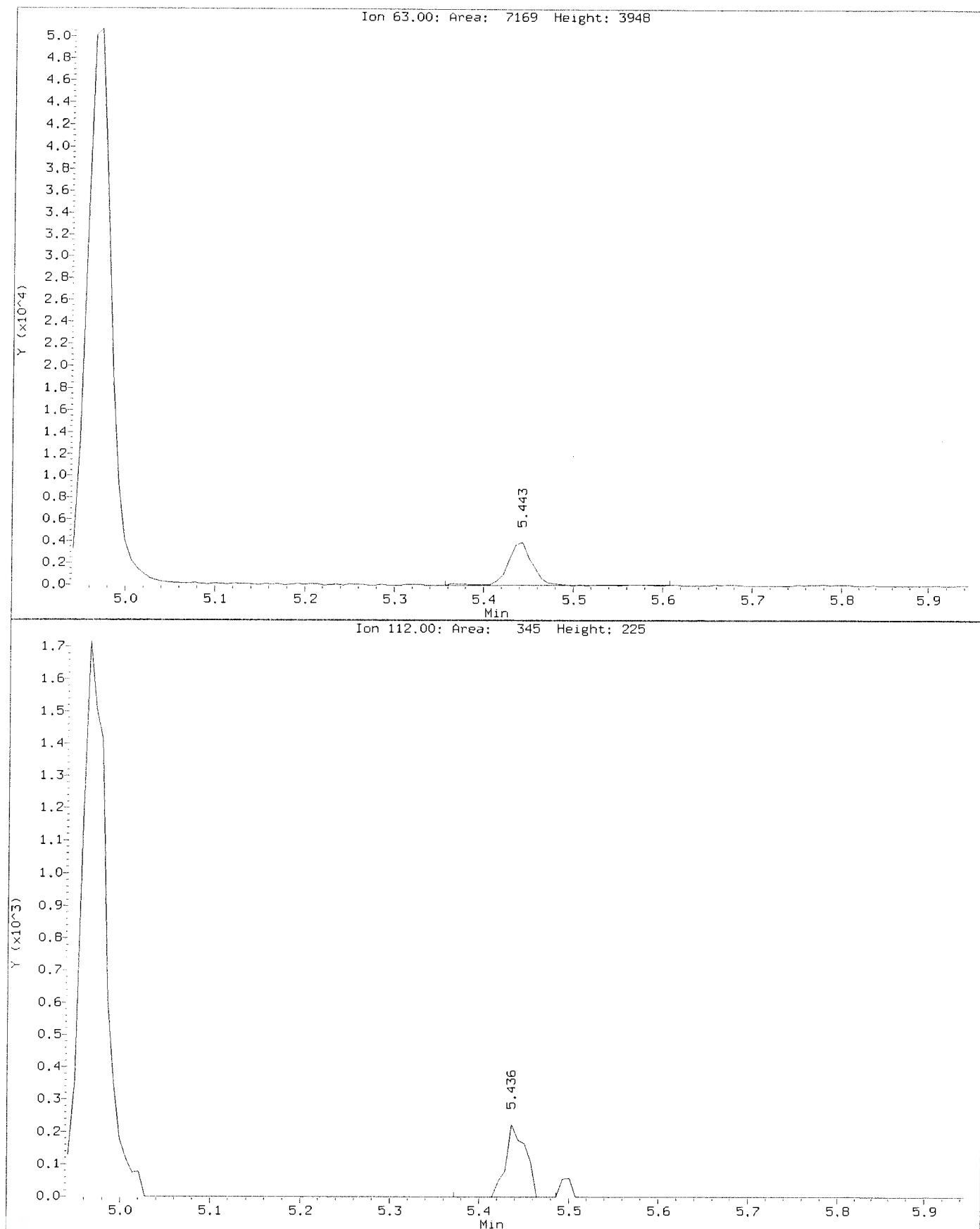
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Instrument: voa6.1
Client Sample ID: VSTD002

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



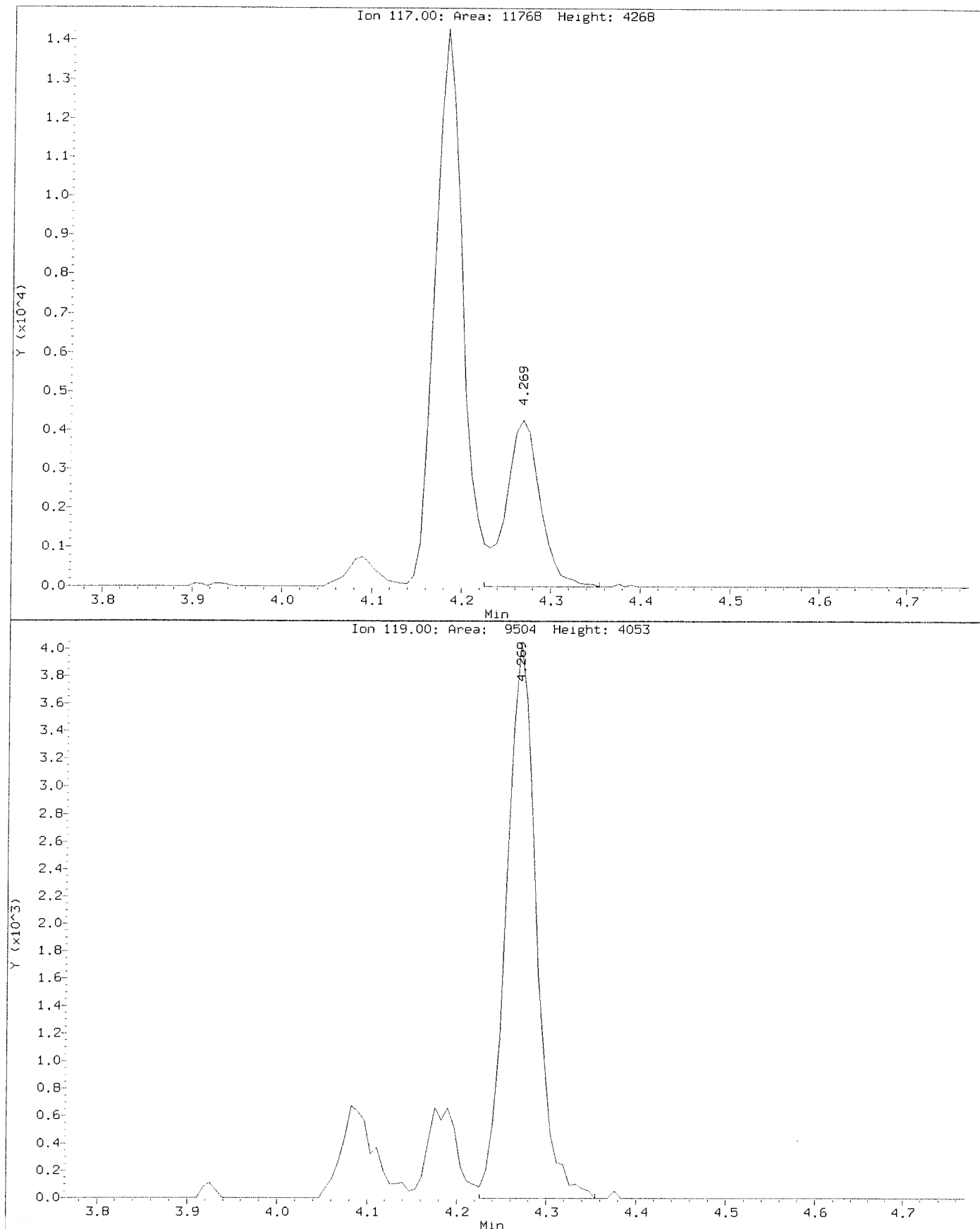
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Instrument: voa6.1
Client Sample ID: VSTD002

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



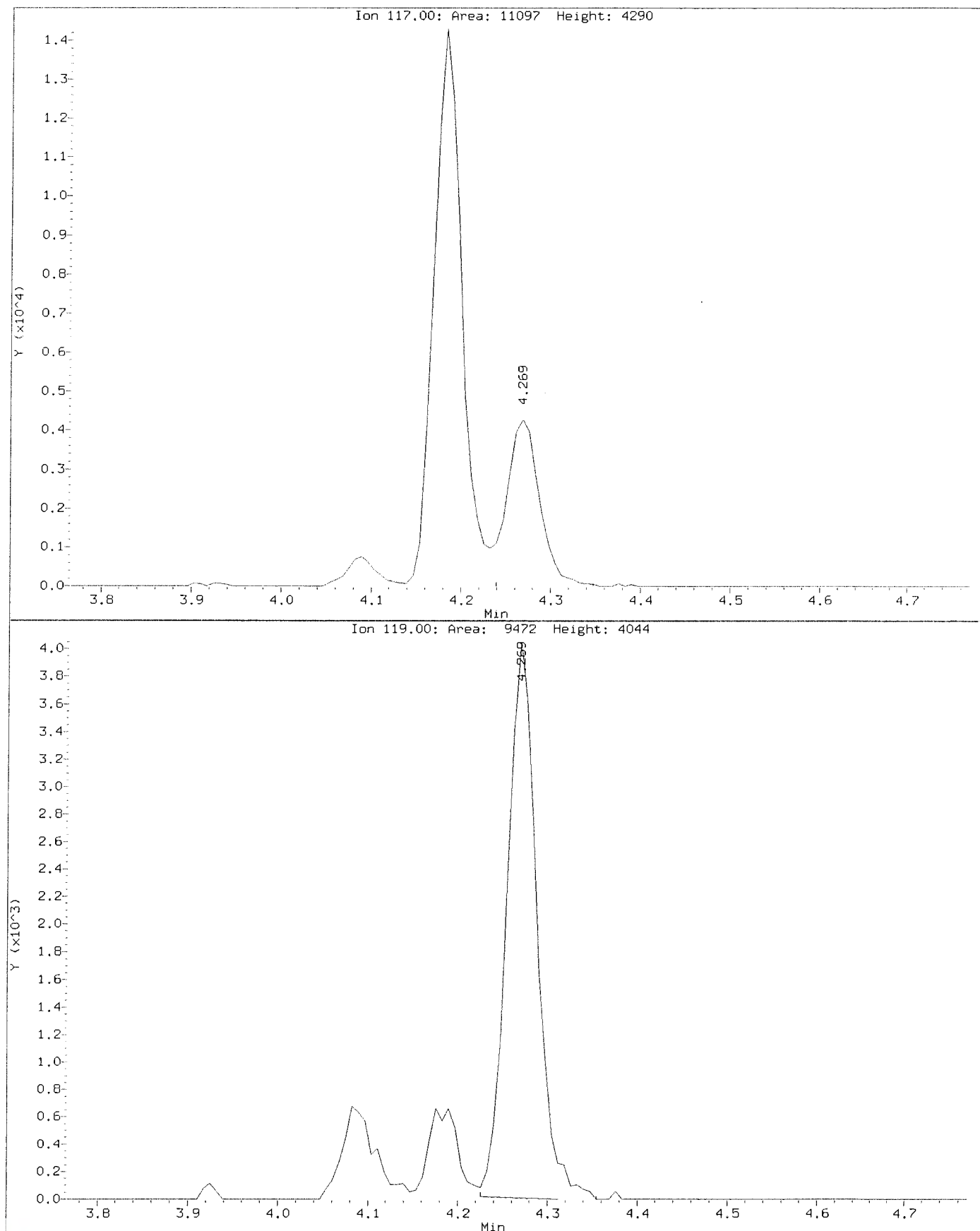
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Injection Date: 18-NOV-2019 15:23
Instrument: voa6.1
Client Sample ID: VSTD002

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D
Injection Date: 18-NOV-2019 15:23
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D
 Lab Smp Id: VSTD005 Client Smp ID: VSTD005
 Inj Date : 18-NOV-2019 15:47
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD005;VSTD005;1;5;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
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 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 15:23 Cal File: X111805.D
 Als bottle: 7 Calibration Sample, Level: 5
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG						AMOUNTS	
		MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
*****	****	****	*****	*****	*****	*****	*****	*****
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	410845	50.0000		
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	563063	50.0000		
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	510927	50.0000		
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	277846	50.0000		
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	20921	5.00000	6.06	
\$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	25804	5.00000	5.80	
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	20237	5.00000	5.74	
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	69936	5.00000	5.19	
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	20728	5.00000	5.59	
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	29459	5.00000	5.31	
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	22230	5.00000	5.68	
138 Freon TF	101	1.919	1.919	(0.459)	18786	5.00000	5.25	
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	15003	5.00000	5.61	
22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	32313	5.00000	5.40	
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	19077	5.00000	5.47	
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	24310	5.00000	5.35	
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	6553	5.00000	5.62	
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	18403	5.00000	5.55 (M)	
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	14399	5.00000	6.15	
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	71210	5.00000	5.40	
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	2641	5.00000	5.82	
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	20565	5.00000	5.73	



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG						AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE		CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====		=====	=====
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	41602		5.00000	5.64
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	24346		5.00000	5.44
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	19076		5.00000	5.67
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	68944		5.00000	5.45
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	45064		5.00000	5.65
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	29776		5.00000	5.49
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	44703		5.00000	5.52
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	28965		5.00000	5.33
24 2-Butanone	43	3.581	3.581	(0.856)	13522		10.0000	10.72
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	56464		5.00000	5.64
52 2-Hexanone	43	7.090	7.090	(0.924)	23980		10.0000	11.42
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	66074		5.00000	5.45
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	71485		5.00000	5.25
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	33803		10.0000	11.29
10 Acetone	43	1.969	1.969	(0.471)	15992		10.0000	11.75
37 Benzene	78	4.512	4.512	(0.908)	72584		5.00000	5.63
74 Bromobenzene	156	8.810	8.810	(0.911)	27619		5.00000	5.71
29 Bromochloromethane	128	3.795	3.795	(0.908)	11669		5.00000	5.24
39 Bromodichloromethane	83	5.729	5.729	(1.153)	26638		5.00000	5.71
66 Bromoform	173	8.416	8.416	(1.097)	16084		5.00000	6.17
6 Bromomethane	94	1.338	1.338	(0.320)	28671		5.00000	4.99 (a)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	103008		10.0000	10.87
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	26931		5.00000	5.41 (M)
59 Chlorobenzene	112	7.699	7.699	(1.004)	55668		5.00000	5.58
7 Chloroethane	64	1.403	1.403	(0.336)	13261		5.00000	5.12
28 Chloroform	83	3.910	3.910	(0.935)	34944		5.00000	5.25
3 Chloromethane	50	1.073	1.073	(0.257)	24949		5.00000	5.75
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	22227		5.00000	5.70
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	31191		5.00000	5.68
55 Dibromochloromethane	129	7.176	7.176	(0.936)	21920		5.00000	5.64
44 Dibromomethane	93	5.558	5.558	(1.118)	13775		5.00000	5.78
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	18346		5.00000	5.69
61 Ethylbenzene	106	7.800	7.800	(1.017)	29424		5.00000	5.70
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	11525		5.00000	5.47
67 Isopropylbenzene	105	8.566	8.566	(1.117)	81869		5.00000	5.36
62 m,p-Xylenes	106	7.907	7.907	(1.031)	69325		10.0000	11.14
17 Methylene Chloride	84	2.306	2.306	(0.551)	20180		5.00000	5.43
87 n-Butylbenzene	91	9.999	9.999	(1.034)	57498		5.00000	5.08
73 n-Propylbenzene	91	8.917	8.917	(0.922)	92937		5.00000	5.41
92 Naphthalene	128	11.546	11.546	(1.194)	17063		5.00000	5.68
63 o-Xylene	106	8.244	8.244	(1.075)	33646		5.00000	5.48
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	78149		5.00000	5.23
64 Styrene	104	8.258	8.258	(1.077)	58650		5.00000	5.49
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	59074		5.00000	5.45
56 Tetrachloroethene	164	6.933	6.933	(0.904)	20334		5.00000	5.66
50 Toluene	91	6.446	6.446	(0.840)	80201		5.00000	5.53
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	18086		5.00000	5.35
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	28395		5.00000	5.67
38 Trichloroethene	130	5.207	5.207	(1.048)	22280		5.00000	5.65
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	33411		5.00000	5.24
5 Vinyl Chloride	62	1.138	1.138	(0.272)	20691		5.00000	4.94 (a)



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Report Date: 06-Dec-2019 19:56

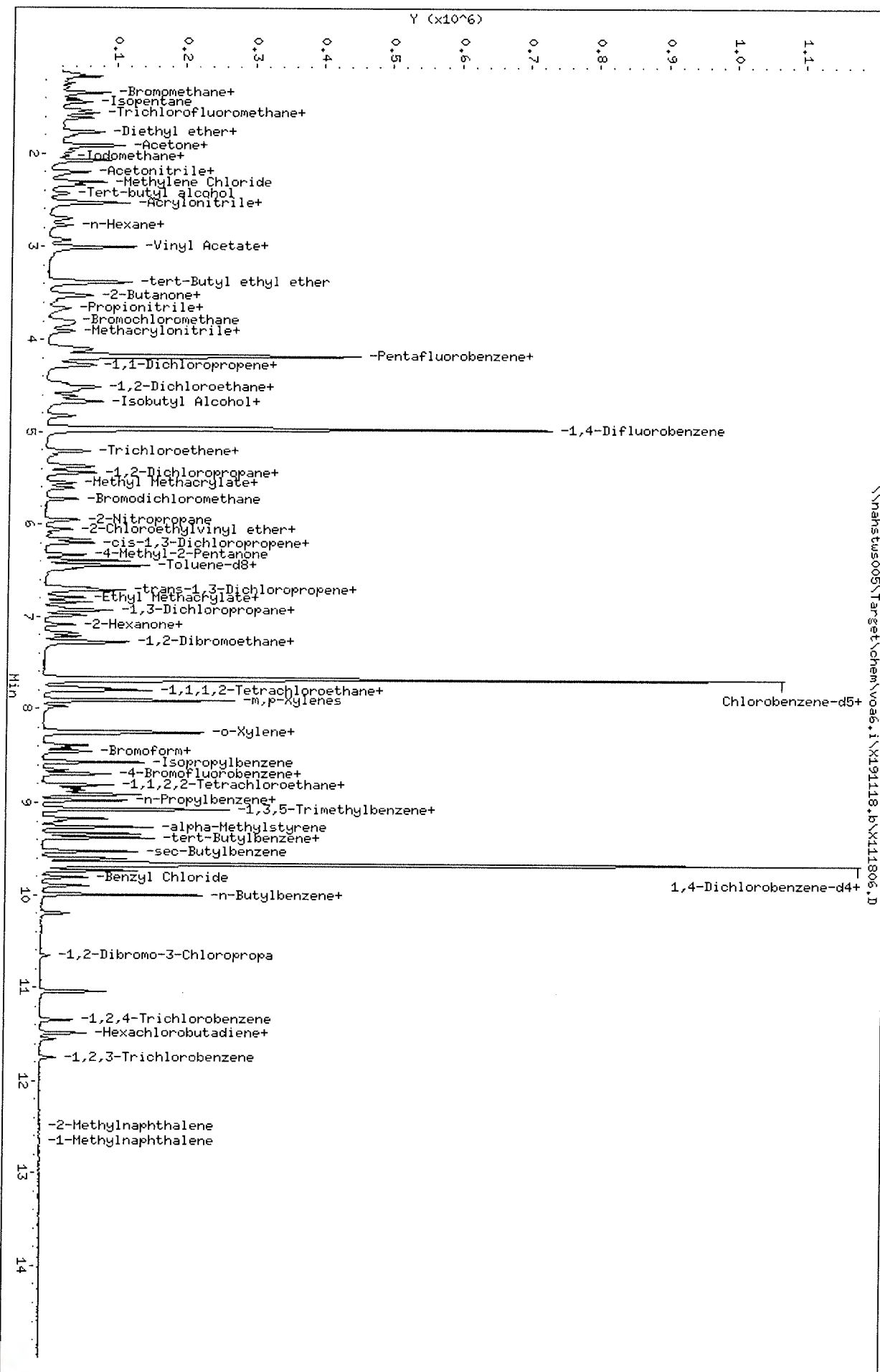
QC Flag Legend

- a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
- M - Compound response manually integrated.



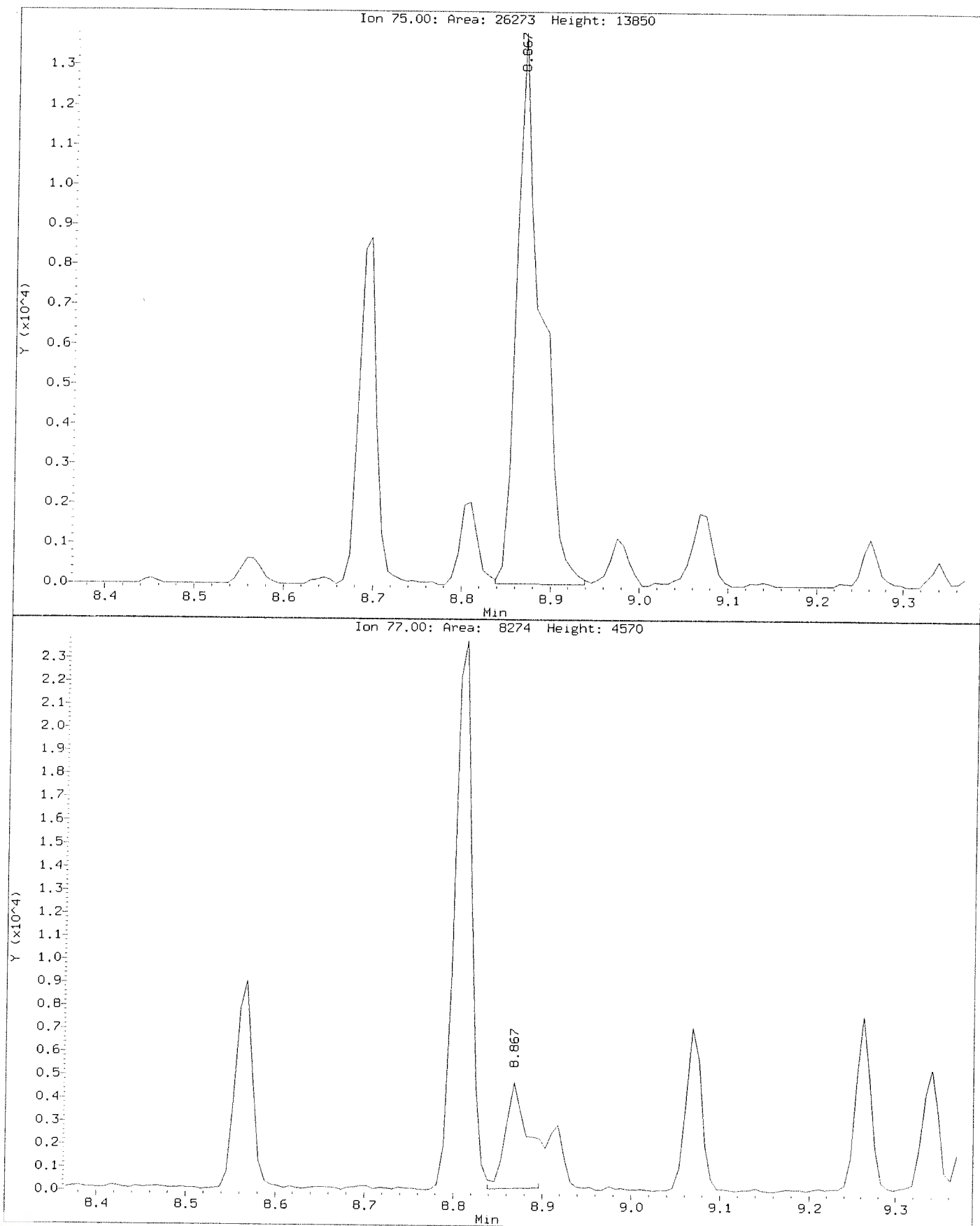
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 Column phase: DB624

Instrument: voa6.i
 Operator: PC
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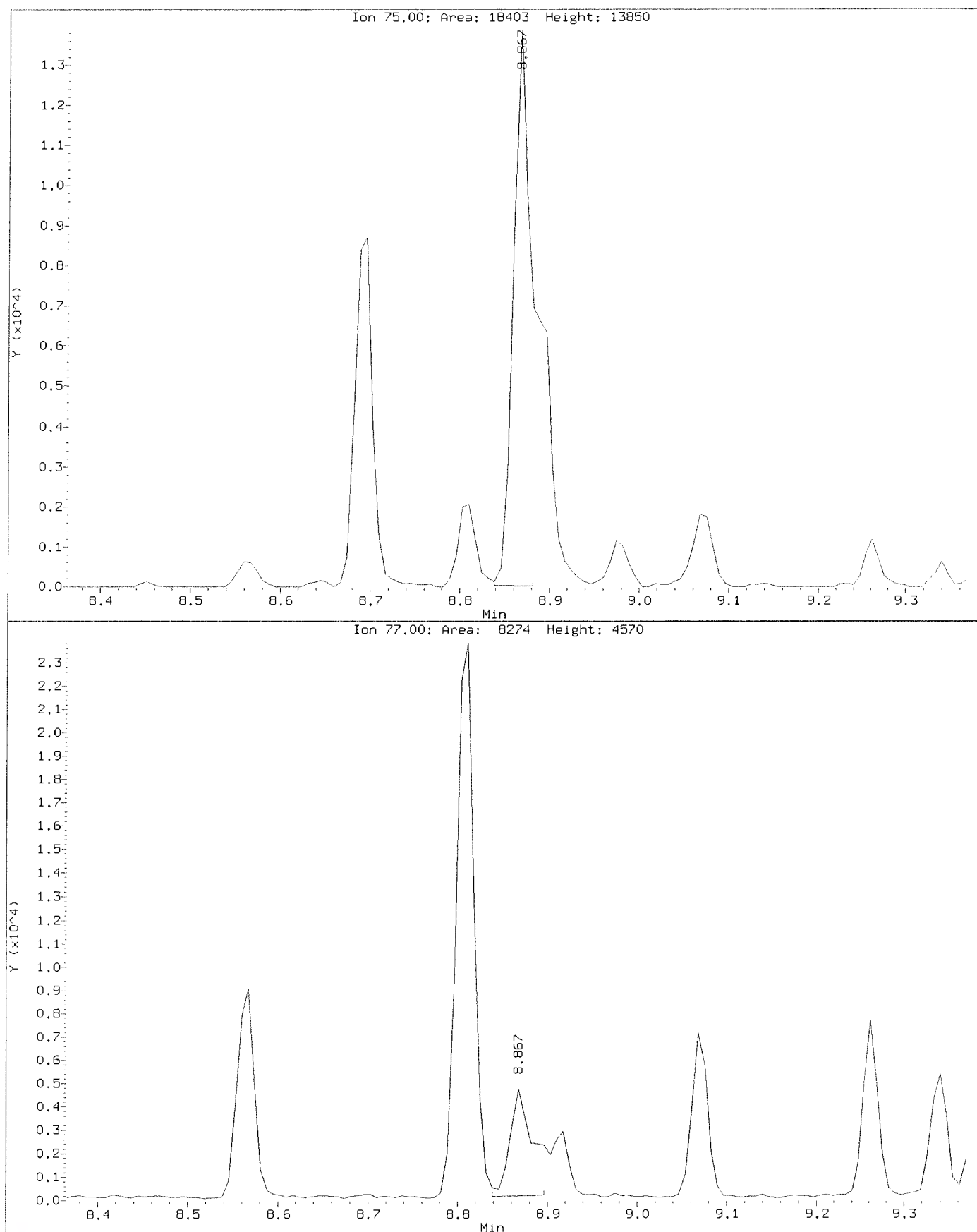
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Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



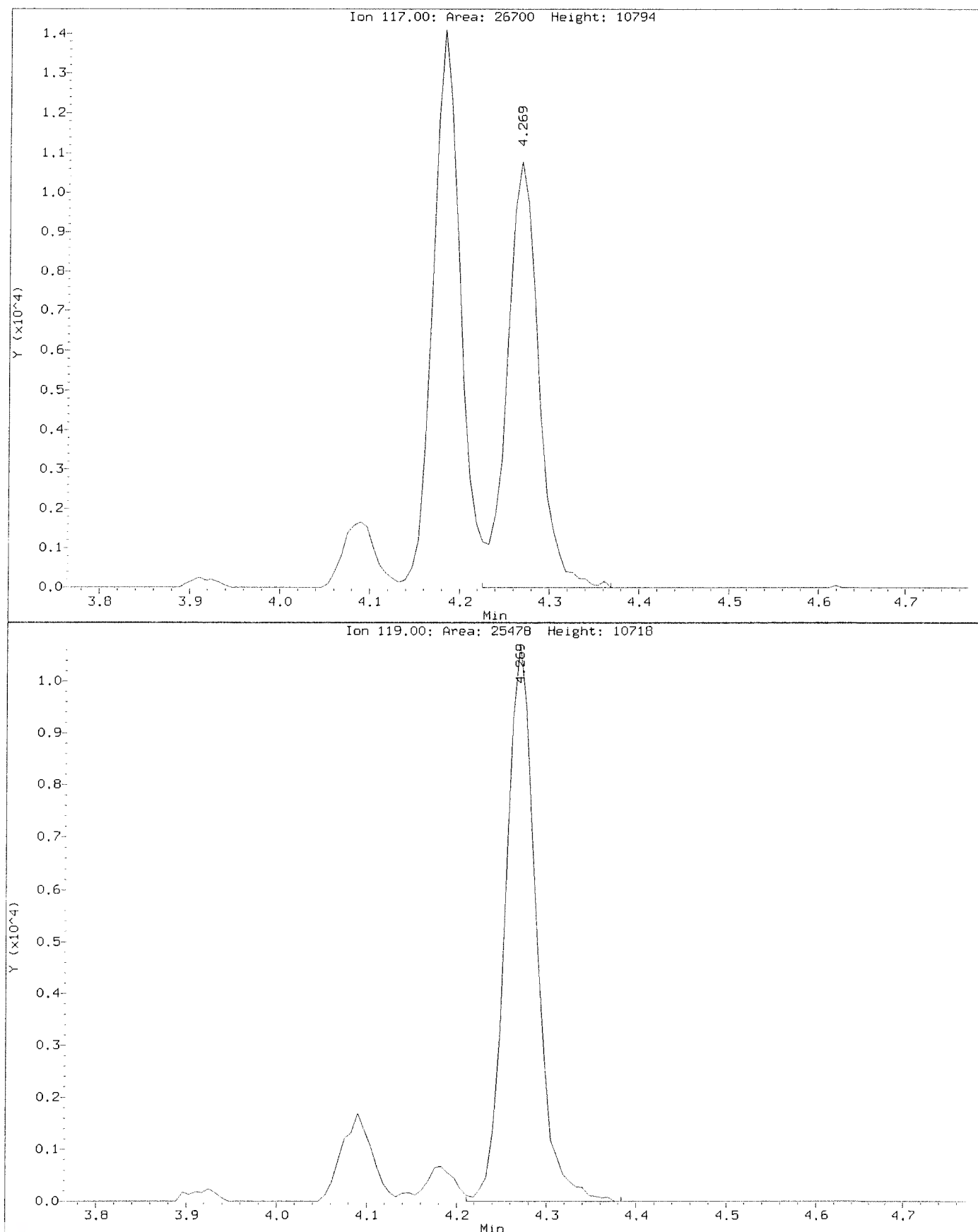
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Injection Date: 18-NOV-2019 15:47
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



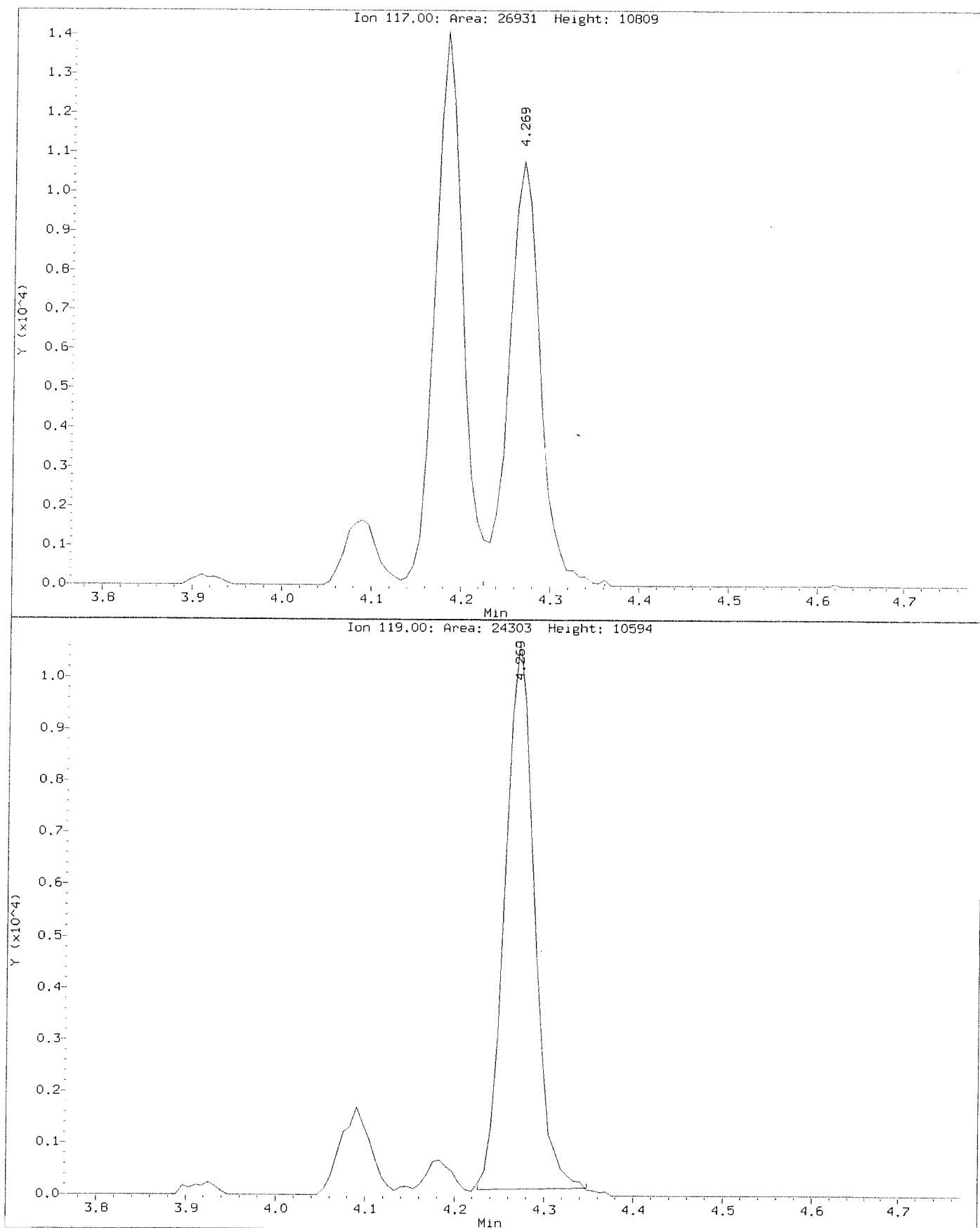
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Injection Date: 18-NOV-2019 15:47
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.1\X191118.b\X111806.D
Injection Date: 18-NOV-2019 15:47
Instrument: voa6.1
Client Sample ID: VSTD005

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D
 Lab Smp Id: VSTD020 Client Smp ID: VSTD020
 Inj Date : 18-NOV-2019 16:11
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD020;VSTD020;1;6;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 15:47 Cal File: X111806.D
 Als bottle: 8 Calibration Sample, Level: 6
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

							AMOUNTS	
QUANT SIG							CAL-AMT	ON-COL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)	
=====	=====	=====	=====	=====	=====	=====	=====	
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	411693	50.0000		
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	563792	50.0000		
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	515046	50.0000		
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	278890	50.0000		
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	75813	20.0000	20.02	
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	94194	20.0000	19.91	
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	75094	20.0000	20.28	
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	260273	20.0000	19.17	
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	73347	20.0000	19.62	
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	105363	20.0000	18.97	
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	75821	20.0000	19.33	
138 Freon TF	101	1.919	1.919	(0.459)	62543	20.0000	17.44	
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	52184	20.0000	19.38	
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	113669	20.0000	18.97	
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	64160	20.0000	18.38	
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	84000	20.0000	18.47	
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	21856	20.0000	20.64	
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	64689	20.0000	19.46 (M)	
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	46623	20.0000	19.84	
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.971)	254992	20.0000	19.26	
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.103)	8805	20.0000	20.13	
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	71738	20.0000	19.85	



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG	AMOUNTS					
		MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.035)	144121	20.0000	19.47
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	88277	20.0000	19.72
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	64004	20.0000	19.00
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	247054	20.0000	19.45
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.994)	157428	20.0000	19.68
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	105400	20.0000	19.28
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	158049	20.0000	19.44
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	100376	20.0000	18.46
24 2-Butanone	43	3.580	3.580	(0.856)	48098	40.0000	38.07
76 2-Chlorotoluene	91	8.974	8.974	(0.929)	193547	20.0000	19.28
52 2-Hexanone	43	7.083	7.083	(0.923)	78795	40.0000	37.24
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	231980	20.0000	19.07
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	257377	20.0000	18.86
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	115695	40.0000	38.33
10 Acetone	43	1.976	1.976	(0.473)	43200	40.0000	38.23
37 Benzene	78	4.512	4.512	(0.908)	250181	20.0000	19.39
74 Bromobenzene	156	8.809	8.809	(0.912)	97394	20.0000	20.09
29 Bromochloromethane	128	3.795	3.795	(0.908)	41933	20.0000	18.80
39 Bromodichloromethane	83	5.729	5.729	(1.153)	89170	20.0000	19.11
66 Bromoform	173	8.415	8.415	(1.097)	56416	20.0000	19.02
6 Bromomethane	94	1.338	1.338	(0.320)	93456	20.0000	21.54
19 Carbon Disulfide	76	2.069	2.069	(0.495)	362755	40.0000	38.21
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	90839	20.0000	18.23 (M)
59 Chlorobenzene	112	7.699	7.699	(1.004)	192384	20.0000	19.13
7 Chloroethane	64	1.403	1.403	(0.336)	46616	20.0000	17.98
28 Chloroform	83	3.910	3.910	(0.935)	121141	20.0000	18.16
3 Chloromethane	50	1.073	1.073	(0.257)	85402	20.0000	19.21
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	74754	20.0000	19.14
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	107408	20.0000	19.53
55 Dibromochloromethane	129	7.176	7.176	(0.936)	76215	20.0000	19.48
44 Dibromomethane	93	5.557	5.557	(1.118)	46676	20.0000	19.58
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	63810	20.0000	17.59
61 Ethylbenzene	106	7.799	7.799	(1.017)	101554	20.0000	19.54
91 Hexachlorobutadiene	225	11.481	11.481	(1.188)	37789	20.0000	19.03
67 Isopropylbenzene	105	8.566	8.566	(1.117)	293670	20.0000	19.08
62 m,p-Xylenes	106	7.907	7.907	(1.031)	243460	40.0000	38.83
17 Methylene Chloride	84	2.305	2.305	(0.551)	66846	20.0000	17.95
87 n-Butylbenzene	91	9.998	9.998	(1.035)	210608	20.0000	18.54
73 n-Propylbenzene	91	8.917	8.917	(0.923)	331965	20.0000	19.25
92 Naphthalene	128	11.546	11.546	(1.195)	57138	20.0000	18.96
63 o-Xylene	106	8.244	8.244	(1.075)	119876	20.0000	19.37
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	278964	20.0000	18.62
64 Styrene	104	8.258	8.258	(1.077)	206802	20.0000	19.22
78 tert-Butylbenzene	119	9.339	9.339	(0.967)	208031	20.0000	19.13
56 Tetrachloroethene	164	6.933	6.933	(0.904)	68625	20.0000	18.96
50 Toluene	91	6.446	6.446	(0.840)	280019	20.0000	19.17
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	63600	20.0000	18.77
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	100272	20.0000	20.00
38 Trichloroethene	130	5.206	5.206	(1.048)	77608	20.0000	19.68
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	116474	20.0000	18.23
5 Vinyl Chloride	62	1.138	1.138	(0.272)	74818	20.0000	17.83



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D Page 3
Report Date: 06-Dec-2019 19:56

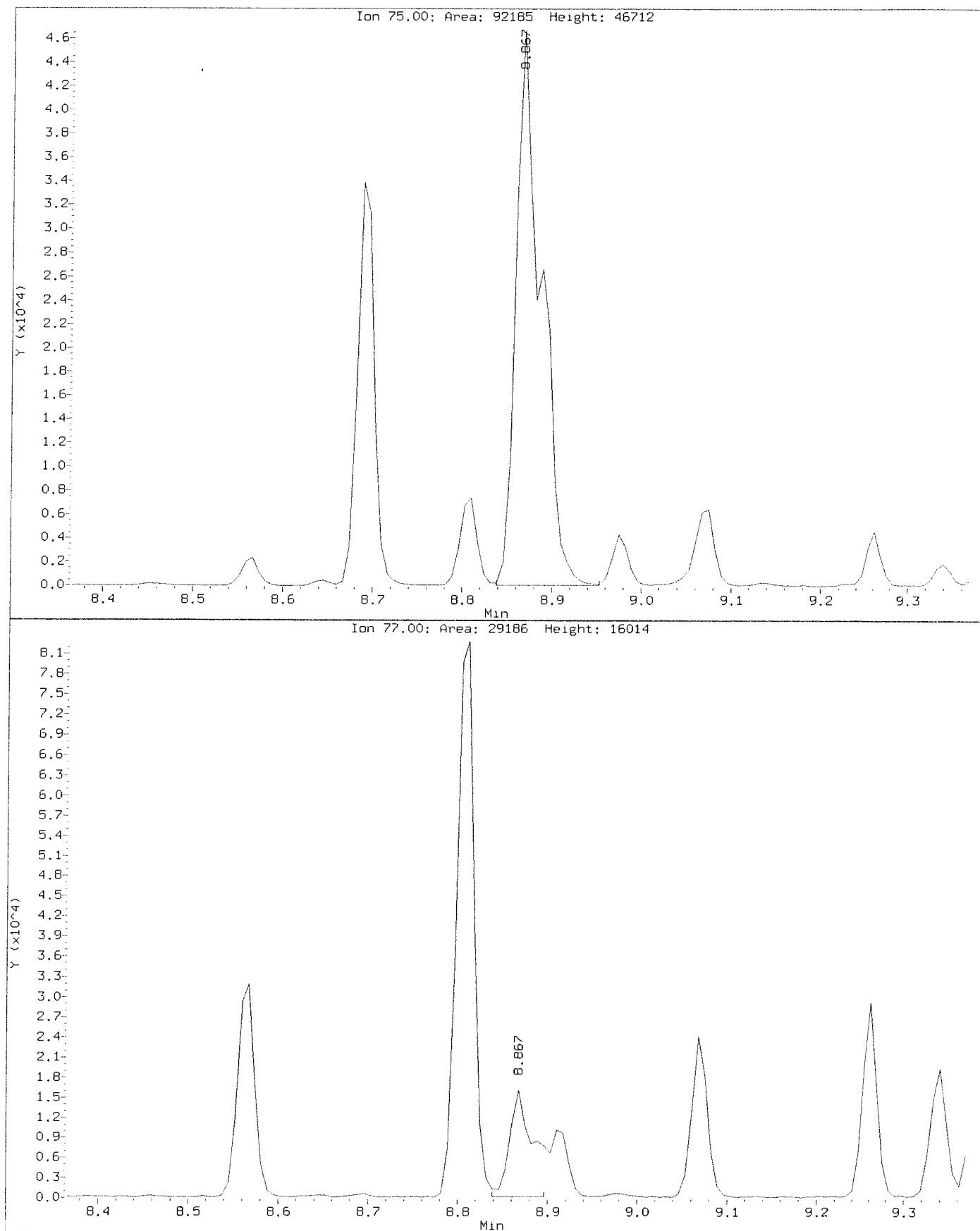
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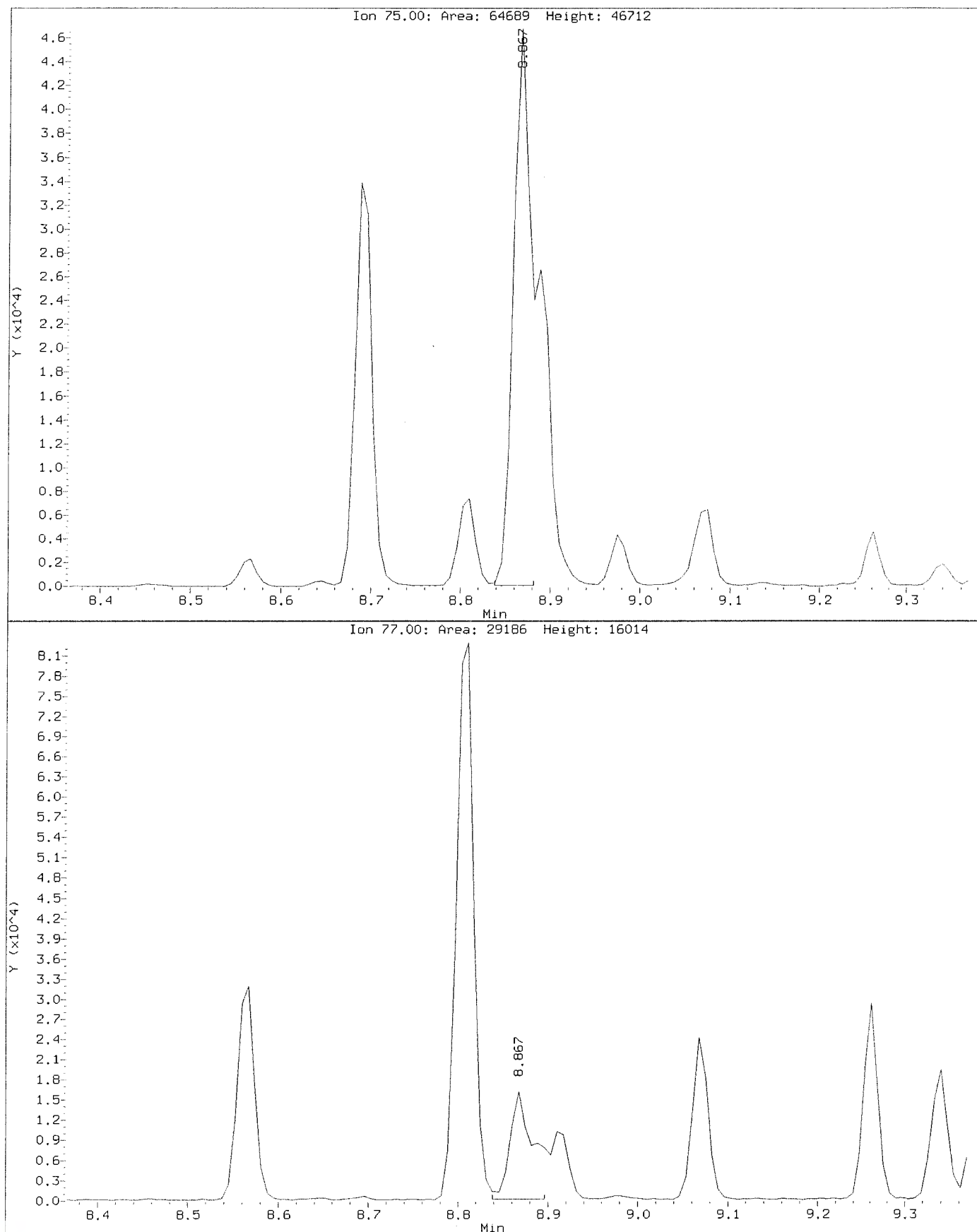
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Injection Date: 18-NOV-2019 16:11
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



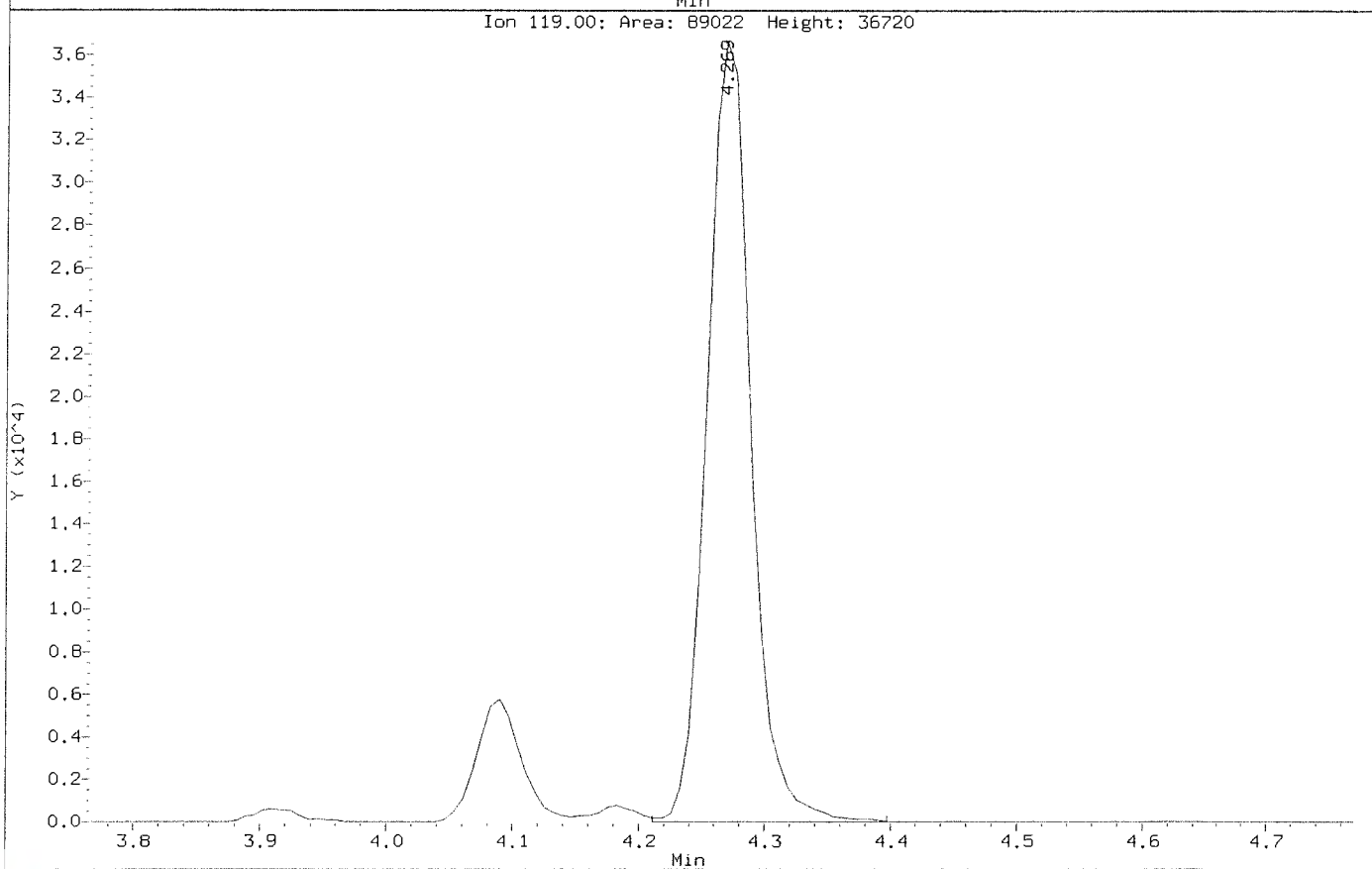
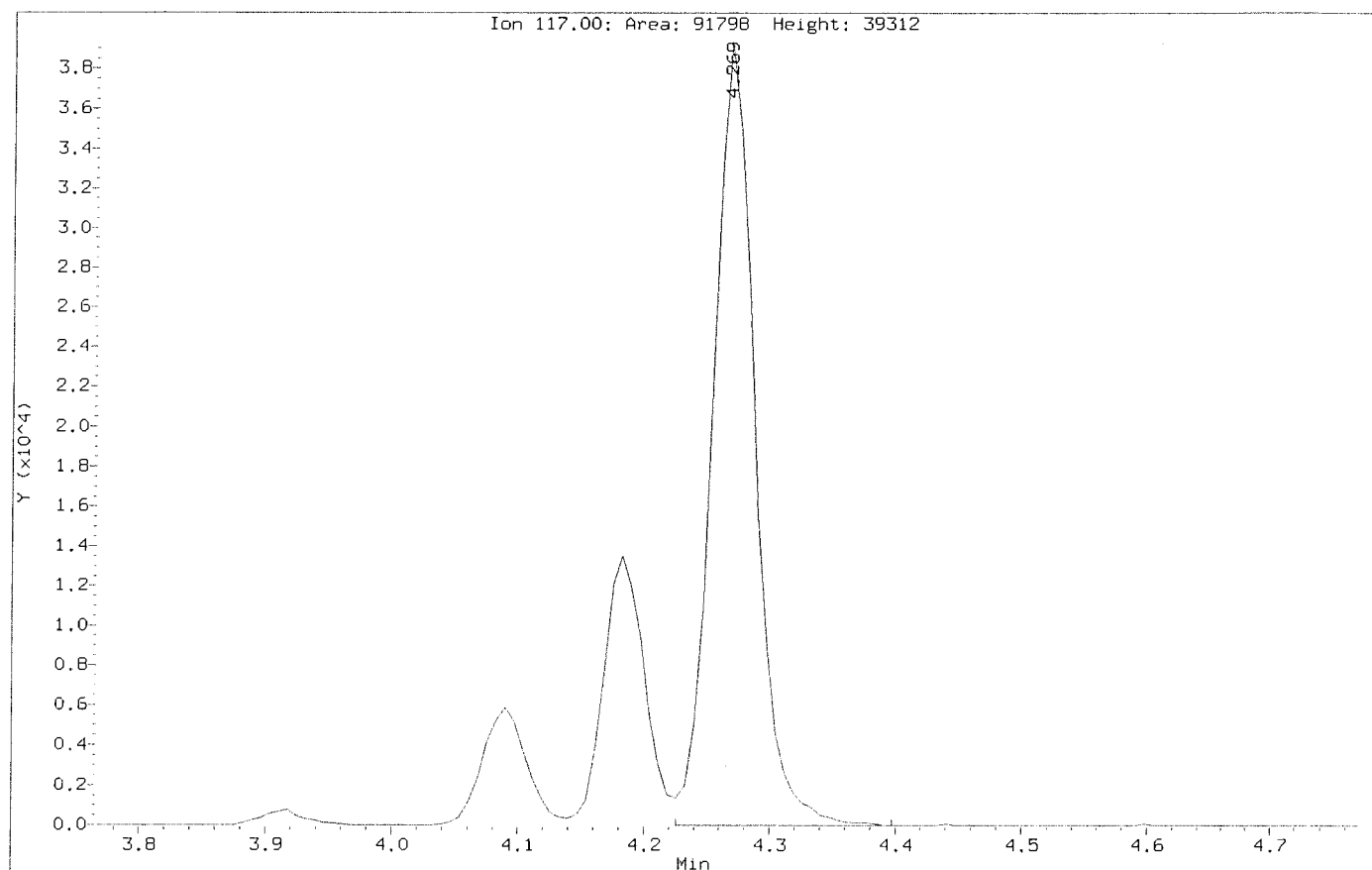
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Injection Date: 18-NOV-2019 16:11
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



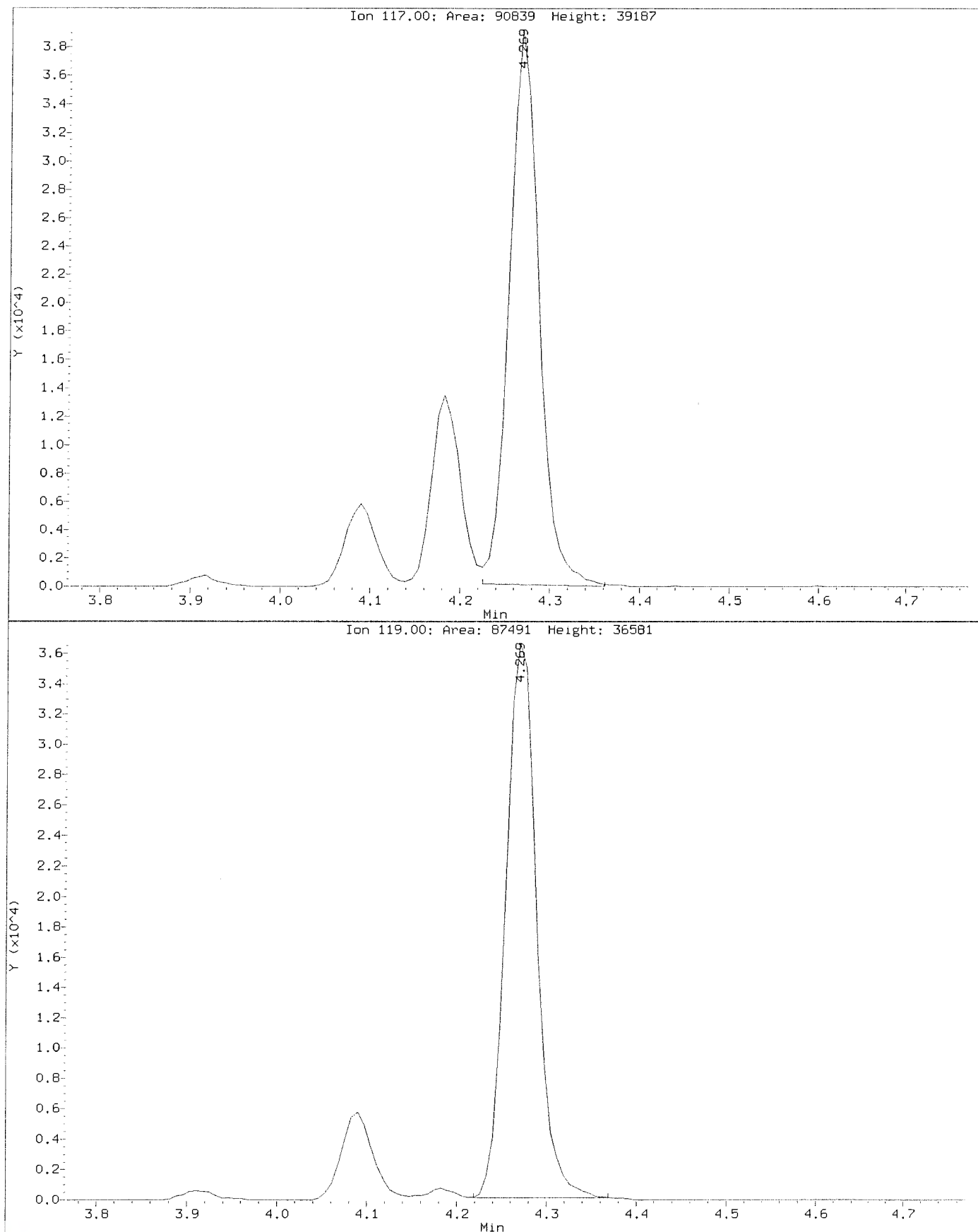
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Injection Date: 18-NOV-2019 16:11
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D
Injection Date: 18-NOV-2019 16:11
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D
 Lab Smp Id: VSTD050 Client Smp ID: VSTD050
 Inj Date : 18-NOV-2019 16:35
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD050;VSTD050;1;7;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:11 Cal File: X111807.D
 Als bottle: 9 Calibration Sample, Level: 7
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

						AMOUNTS	
QUANT SIG						CAL-AMT	ON-COL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	399282	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	548073	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	502523	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	273444	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	178006	50.0000	47.42
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	222328	50.0000	47.57
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	173990	50.0000	47.93
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	608955	50.0000	45.99
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	184913	50.0000	50.72
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	268813	50.0000	49.90
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	183844	50.0000	47.81
138 Freon TF	101	1.911	1.911	(0.457)	183115	50.0000	52.67
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	128481	50.0000	48.90
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	283343	50.0000	48.77
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	171500	50.0000	50.68
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	220463	50.0000	49.86
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	52554	50.0000	51.69
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	157820	50.0000	48.44 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	115181	50.0000	50.00
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	661580	50.0000	50.99
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	21800	50.0000	51.36
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	174730	50.0000	49.57



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT	SIG						AMOUNTS	
			MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146		9.999	9.999	(1.034)		363670	50.0000	50.11
33 1,2-Dichloroethane	62		4.562	4.562	(0.918)		219760	50.0000	50.51
42 1,2-Dichloropropane	63		5.443	5.443	(1.095)		161607	50.0000	49.36
75 1,3,5-Trimethylbenzene	105		9.067	9.067	(0.938)		647527	50.0000	52.01
83 1,3-Dichlorobenzene	146		9.605	9.605	(0.993)		398343	50.0000	50.79
54 1,3-Dichloropropane	76		6.983	6.983	(0.910)		259218	50.0000	48.60
84 1,4-Dichlorobenzene	146		9.683	9.683	(1.001)		400593	50.0000	50.27
26 2,2-Dichloropropane	77		3.516	3.516	(0.841)		257082	50.0000	48.75
24 2-Butanone	43		3.573	3.573	(0.854)		116745	100.000	95.28
76 2-Chlorotoluene	91		8.974	8.974	(0.928)		506692	50.0000	51.50
52 2-Hexanone	43		7.090	7.090	(0.924)		193251	100.000	93.61
77 4-Chlorotoluene	91		9.075	9.075	(0.939)		603806	50.0000	50.63
82 p-Isopropyltoluene	119		9.655	9.655	(0.999)		703086	50.0000	52.54
45 4-Methyl-2-Pentanone	43		6.324	6.324	(0.824)		284508	100.000	96.62
10 Acetone	43		1.976	1.976	(0.473)		103091	100.000	99.72
37 Benzene	78		4.512	4.512	(0.908)		637799	50.0000	50.87
74 Bromobenzene	156		8.809	8.809	(0.911)		240153	50.0000	50.53
29 Bromochloromethane	128		3.795	3.795	(0.908)		105150	50.0000	48.61
39 Bromodichloromethane	83		5.729	5.729	(1.153)		226127	50.0000	49.85
66 Bromoform	173		8.416	8.416	(1.097)		143798	50.0000	48.09
6 Bromomethane	94		1.338	1.338	(0.320)		215480	50.0000	54.47
19 Carbon Disulfide	76		2.069	2.069	(0.495)		951783	100.000	103.39
34 Carbon Tetrachloride	117		4.268	4.268	(0.859)		247524	50.0000	51.11 (M)
59 Chlorobenzene	112		7.699	7.699	(1.004)		485055	50.0000	49.44
7 Chloroethane	64		1.403	1.403	(0.336)		124291	50.0000	49.44
28 Chloroform	83		3.910	3.910	(0.935)		300015	50.0000	46.39
3 Chloromethane	50		1.073	1.073	(0.257)		215753	50.0000	49.75
27 cis-1,2-Dichloroethene	96		3.530	3.530	(0.844)		187629	50.0000	49.55
46 cis-1,3-Dichloropropene	75		6.159	6.159	(1.239)		273432	50.0000	51.15
55 Dibromochloromethane	129		7.176	7.176	(0.936)		191497	50.0000	50.17
44 Dibromomethane	93		5.557	5.557	(1.118)		115707	50.0000	49.94
2 Dichlorodifluoromethane	85		0.973	0.973	(0.233)		186161	50.0000	51.14
61 Ethylbenzene	106		7.799	7.799	(1.017)		257283	50.0000	50.75
91 Hexachlorobutadiene	225		11.488	11.488	(1.188)		99881	50.0000	52.17
67 Isopropylbenzene	105		8.566	8.566	(1.117)		765390	50.0000	50.97
62 m,p-Xylenes	106		7.907	7.907	(1.031)		625932	100.000	102.32
17 Methylene Chloride	84		2.305	2.305	(0.551)		168044	50.0000	46.54
87 n-Butylbenzene	91		9.999	9.999	(1.034)		591076	50.0000	53.08
73 n-Propylbenzene	91		8.917	8.917	(0.922)		884464	50.0000	52.32
92 Naphthalene	128		11.546	11.546	(1.194)		142473	50.0000	48.22
63 o-Xylene	106		8.244	8.244	(1.075)		301622	50.0000	49.96
81 sec-Butylbenzene	105		9.526	9.526	(0.985)		772064	50.0000	52.58
64 Styrene	104		8.258	8.258	(1.077)		530825	50.0000	50.56
78 tert-Butylbenzene	119		9.340	9.340	(0.966)		550071	50.0000	51.60
56 Tetrachloroethene	164		6.933	6.933	(0.904)		176674	50.0000	50.03
50 Toluene	91		6.446	6.446	(0.840)		709296	50.0000	49.77
20 trans-1,2-Dichloroethene	96		2.527	2.527	(0.604)		163591	50.0000	49.79
51 trans-1,3-Dichloropropene	75		6.682	6.682	(1.344)		247921	50.0000	50.89
38 Trichloroethene	130		5.206	5.206	(1.048)		196625	50.0000	51.29
8 Trichlorofluoromethane	101		1.560	1.560	(0.373)		328789	50.0000	53.08
5 Vinyl Chloride	62		1.138	1.138	(0.272)		201503	50.0000	49.51



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D Page 3
Report Date: 06-Dec-2019 19:56

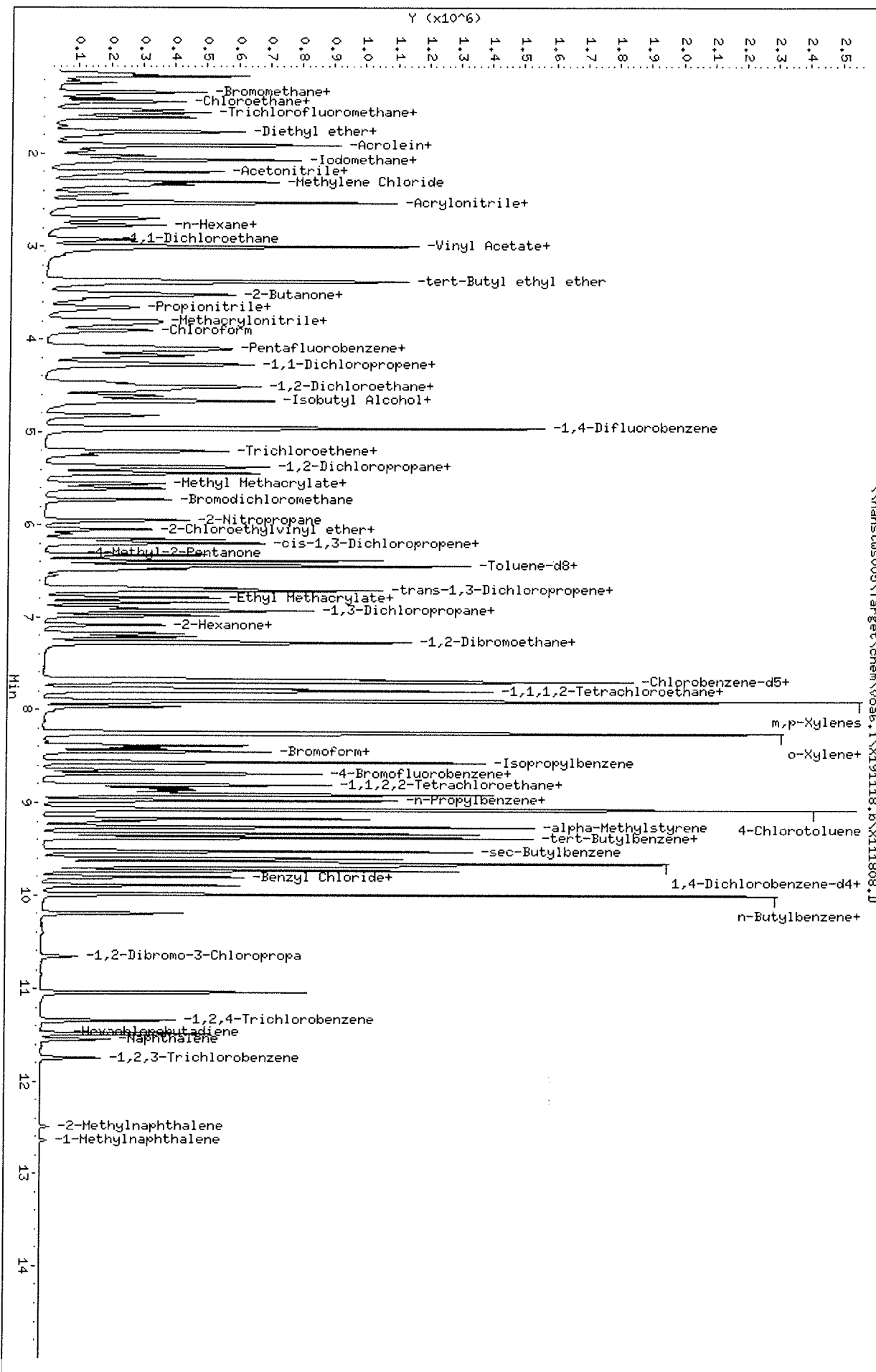
QC Flag Legend

M - Compound response manually integrated.



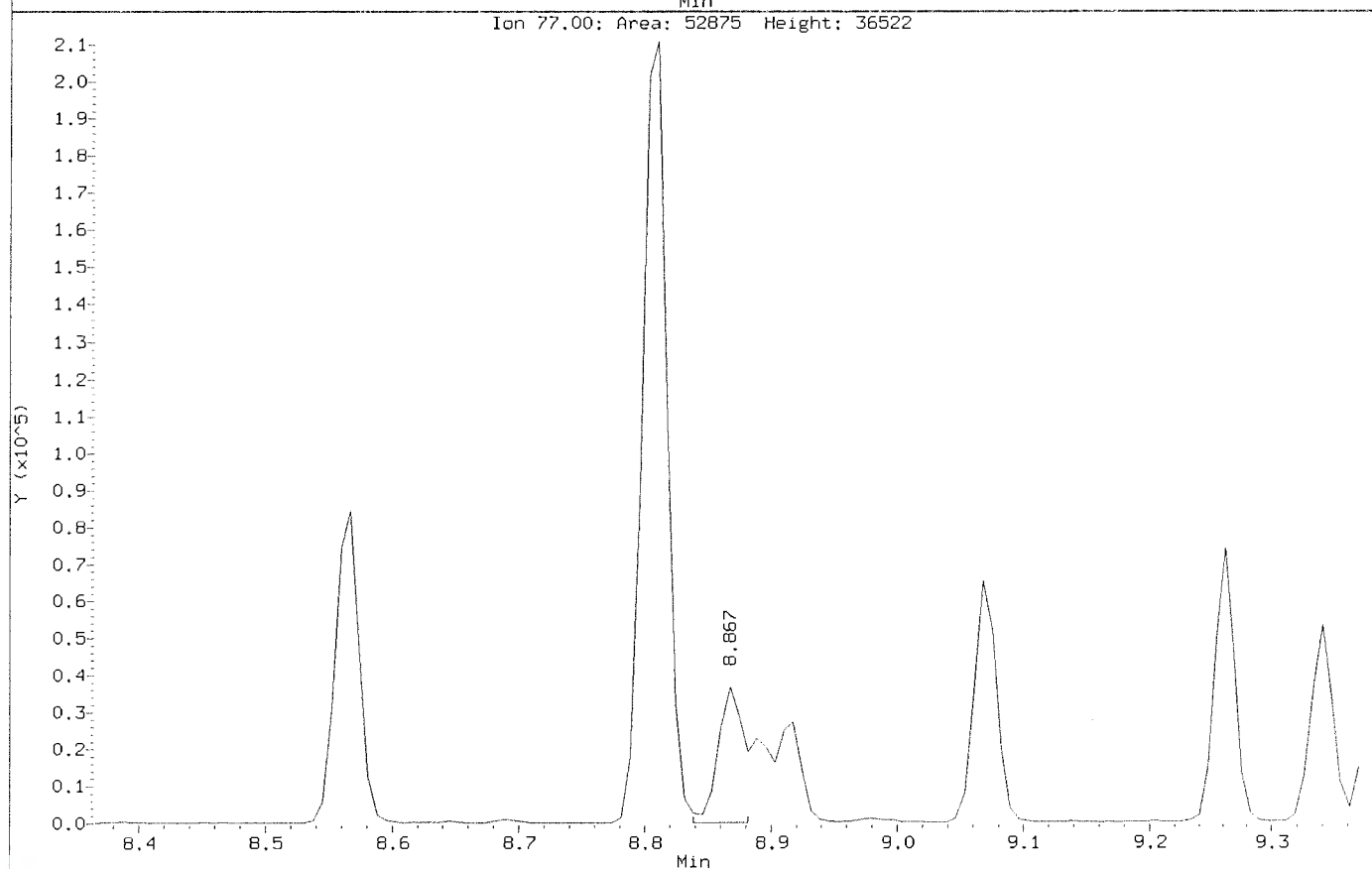
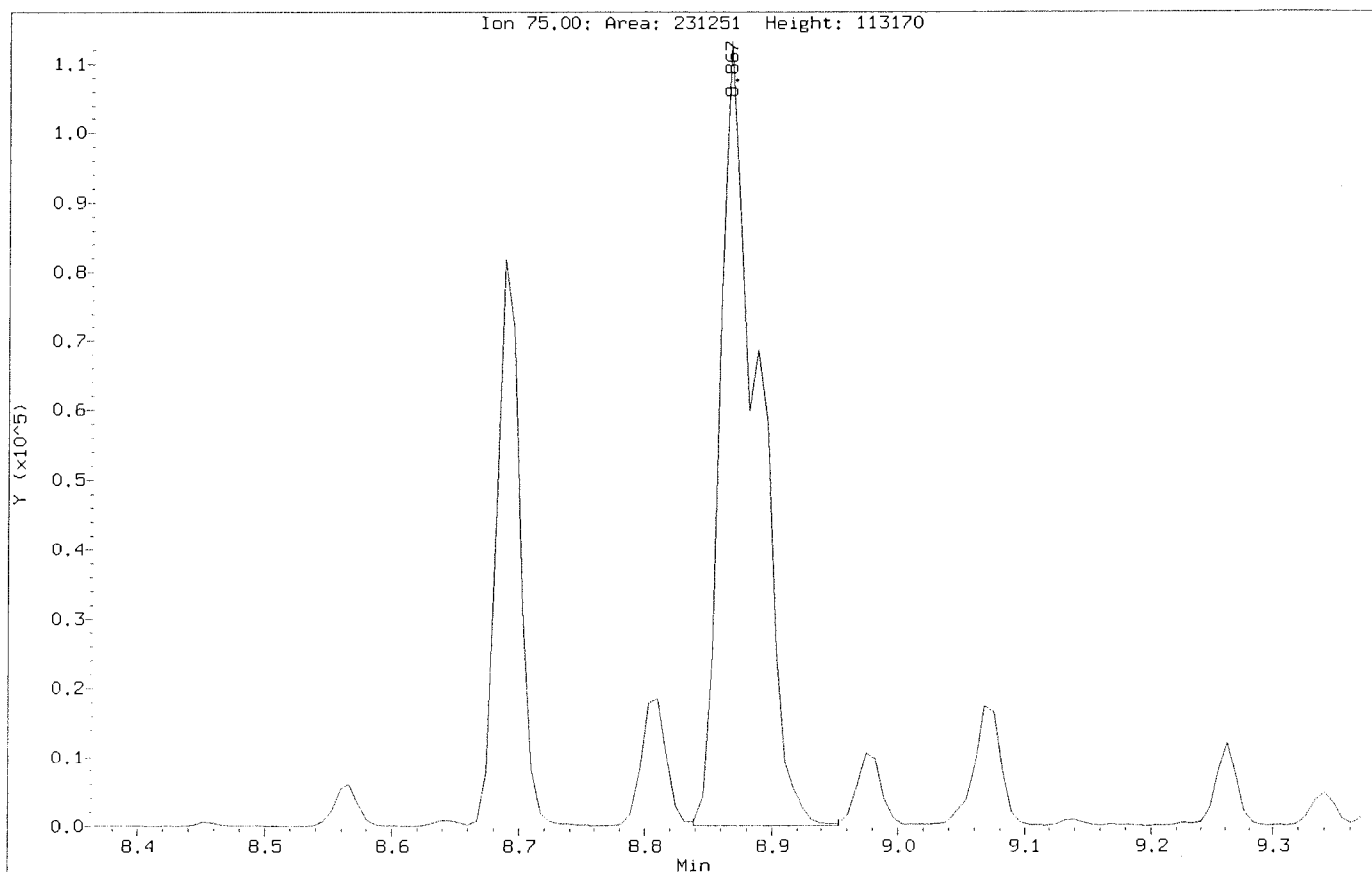
Data File: \\nahstus005\Target\chem\voa6.i\X191118.b\X111808.D
 Date: 18-NOV-2019 16:35
 Client ID: VSTD050
 Sample Info: VSTD050\VSTD050;1;7;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



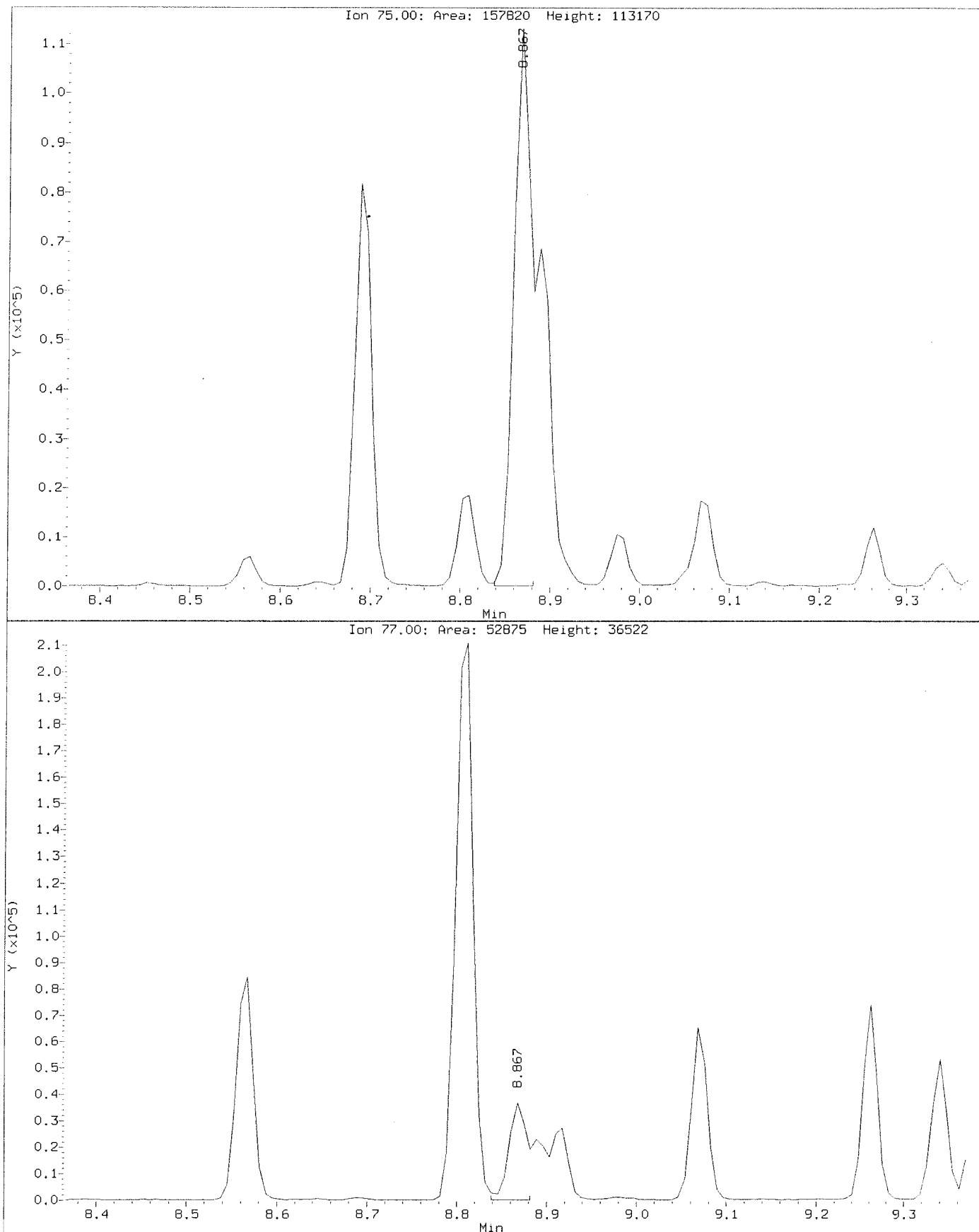
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Injection Date: 18-NOV-2019 16:35
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



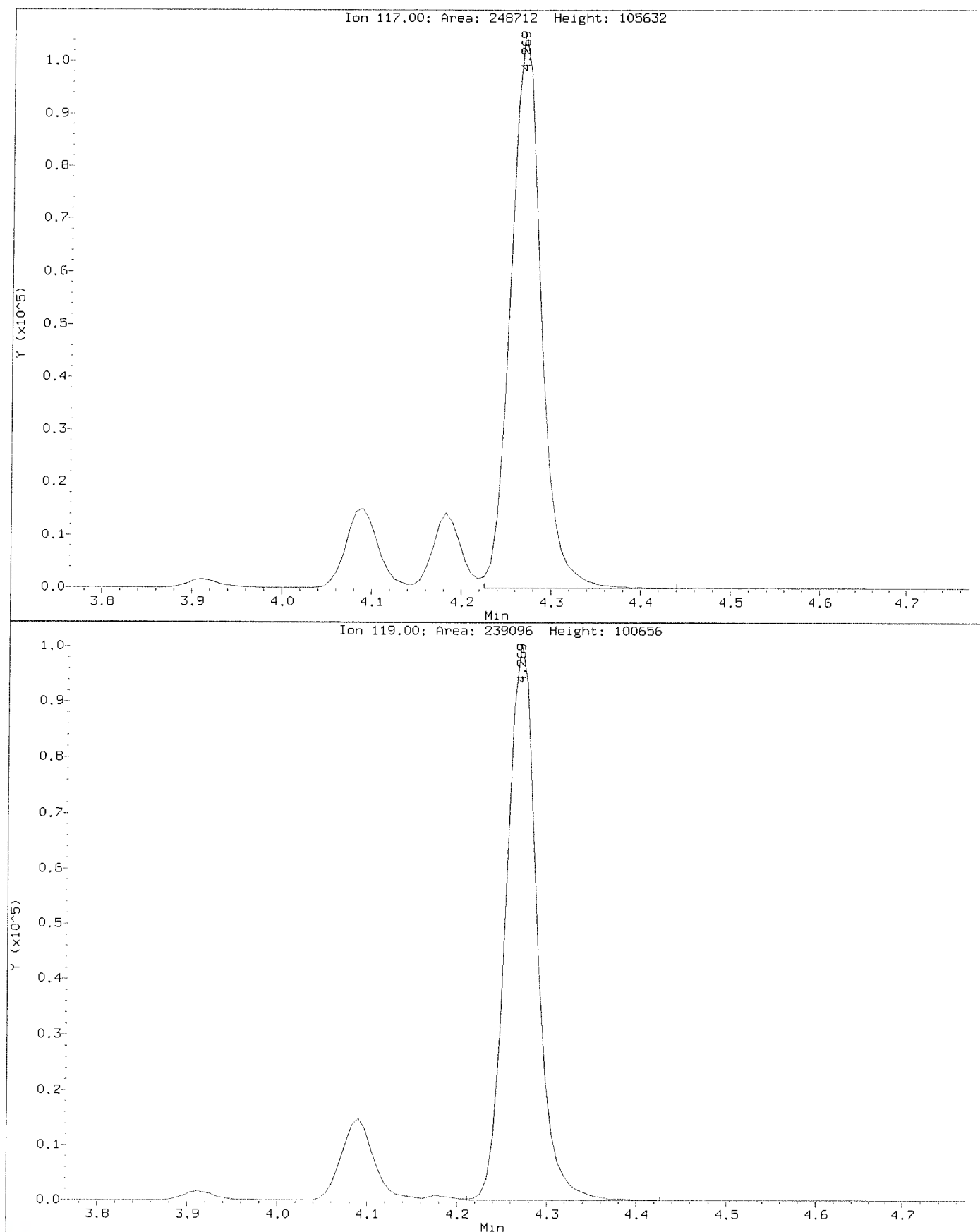
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Injection Date: 18-NOV-2019 16:35
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



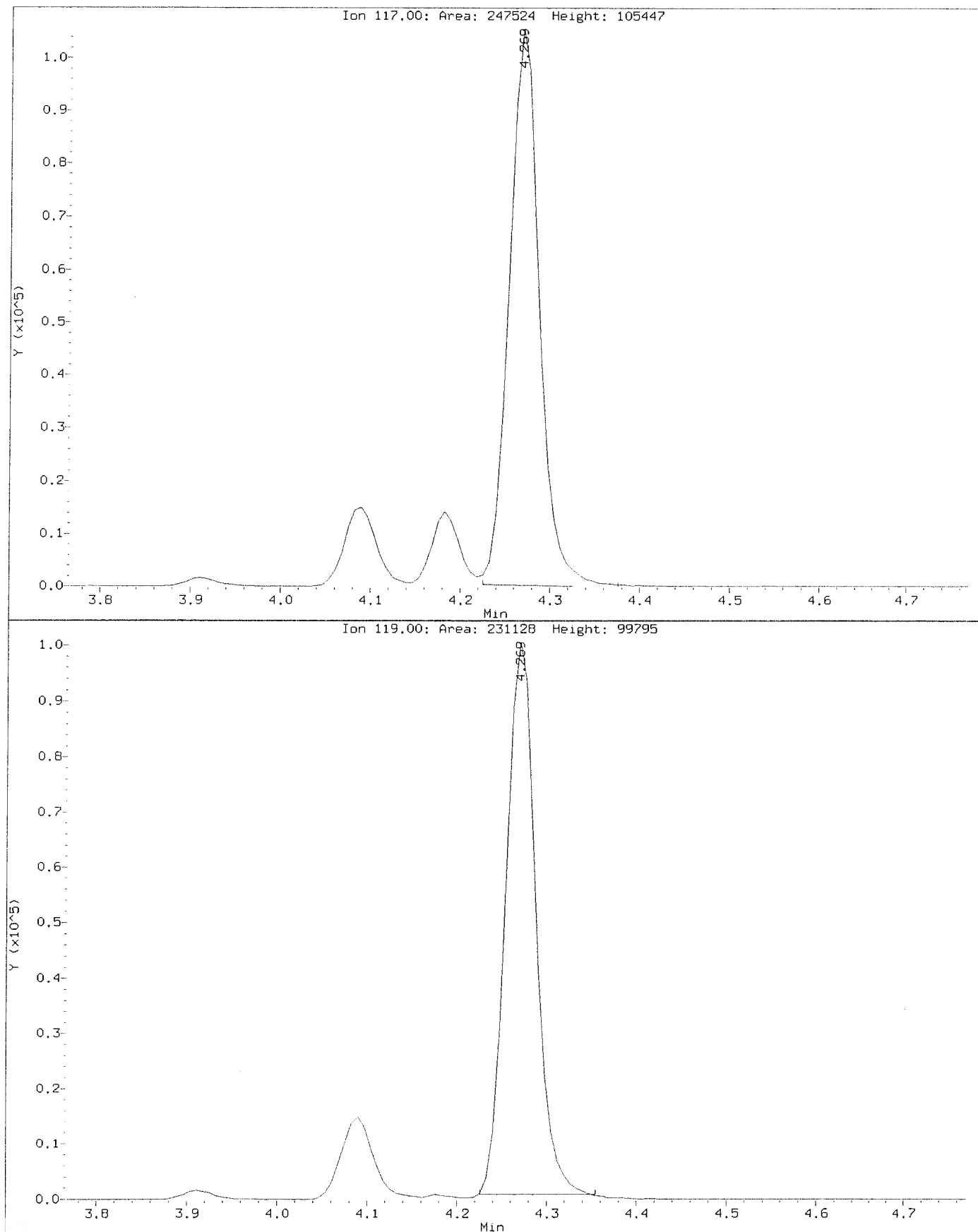
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Injection Date: 18-NOV-2019 16:35
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D
Injection Date: 18-NOV-2019 16:35
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D
 Lab Smp Id: VSTD100 Client Smp ID: VSTD100
 Inj Date : 18-NOV-2019 16:59
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD100;VSTD100;1;8;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 10 Calibration Sample, Level: 8
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG					AMOUNTS	
			RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
*****	****		****	*****	*****	*****	*****	*****
* 1 Pentafluorobenzene	168		4.182	4.182	(1.000)	392699	50.0000	
* 36 1,4-Difluorobenzene	114		4.970	4.970	(1.000)	554744	50.0000	
* 47 Chlorobenzene-d5	117		7.671	7.671	(1.000)	502006	50.0000	
* 70 1,4-Dichlorobenzene-d4	152		9.669	9.669	(1.000)	278931	50.0000	
\$ 35 1,2-Dichloroethane-d4	65		4.476	4.476	(1.070)	364646	100.000	97.98
\$ 69 4-Bromofluorobenzene	95		8.695	8.695	(1.134)	465570	100.000	99.26
\$ 30 Dibromofluoromethane	113		4.103	4.103	(0.981)	354918	100.000	99.03
\$ 48 Toluene-d8	98		6.388	6.388	(0.833)	1251601	100.000	94.62
60 1,1,1,2-Tetrachloroethane	131		7.778	7.778	(1.014)	370675	100.000	101.77
31 1,1,1-Trichloroethane	97		4.089	4.089	(0.978)	531073	100.000	100.24
68 1,1,2,2-Tetrachloroethane	83		8.845	8.845	(0.915)	374065	100.000	95.36
138 Freon TF	101		1.911	1.911	(0.457)	363001	100.000	106.17
53 1,1,2-Trichloroethane	83		6.840	6.840	(0.892)	259169	100.000	98.76
22 1,1-Dichloroethane	63		2.921	2.921	(0.699)	562516	100.000	98.44
11 1,1-Dichloroethene	96		1.911	1.911	(0.457)	336639	100.000	101.15
32 1,1-Dichloropropene	75		4.282	4.282	(0.862)	435155	100.000	97.24
93 1,2,3-Trichlorobenzene	180		11.746	11.746	(1.215)	102660	100.000	99.24
71 1,2,3-Trichloropropane	75		8.867	8.867	(0.917)	314678	100.000	94.68 (M)
90 1,2,4-Trichlorobenzene	180		11.338	11.338	(1.173)	224252	100.000	95.44
79 1,2,4-Trimethylbenzene	105		9.382	9.382	(0.970)	1360930	100.000	102.82
89 1,2-Dibromo-3-Chloropropane	155		10.658	10.658	(1.102)	42468	100.000	98.40
57 1,2-Dibromoethane	107		7.262	7.262	(0.947)	348356	100.000	98.94



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT	ON-COL
						(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	740257	100.000	99.99
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	440676	100.000	100.06
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	322033	100.000	97.17
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1326043	100.000	104.41
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	793024	100.000	99.13
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	523367	100.000	98.23
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	805891	100.000	99.14
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	505741	100.000	97.52
24 2-Butanone	43	3.580	3.580	(0.856)	231090	200.000	191.78
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	1019206	100.000	101.56
52 2-Hexanone	43	7.090	7.090	(0.924)	404339	200.000	196.07
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	1244013	100.000	102.27
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	1420650	100.000	104.09
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	584699	200.000	198.78
10 Acetone	43	1.976	1.976	(0.473)	202207	200.000	202.71 (A)
37 Benzene	78	4.519	4.519	(0.909)	1259183	100.000	99.22
74 Bromobenzene	156	8.809	8.809	(0.911)	477901	100.000	98.58
29 Bromochloromethane	128	3.795	3.795	(0.908)	204995	100.000	96.36
39 Bromodichloromethane	83	5.729	5.729	(1.153)	453036	100.000	98.68
66 Bromoform	173	8.415	8.415	(1.097)	293256	100.000	97.14
6 Bromomethane	94	1.331	1.331	(0.318)	396733	100.000	104.04
19 Carbon Disulfide	76	2.069	2.069	(0.495)	1866170	200.000	206.12 (A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	490954	100.000	100.15 (H)
59 Chlorobenzene	112	7.699	7.699	(1.004)	969904	100.000	98.96
7 Chloroethane	64	1.396	1.396	(0.334)	244234	100.000	98.78
28 Chloroform	83	3.910	3.910	(0.935)	592217	100.000	93.11
3 Chloromethane	50	1.073	1.073	(0.257)	420936	100.000	98.51
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	373378	100.000	100.25
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	548280	100.000	101.34
55 Dibromochloromethane	129	7.176	7.176	(0.936)	387071	100.000	101.53
44 Dibromomethane	93	5.557	5.557	(1.118)	228649	100.000	97.50
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	359790	100.000	99.65
61 Ethylbenzene	106	7.799	7.799	(1.017)	511284	100.000	100.96
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	192455	100.000	99.01
67 Isopropylbenzene	105	8.566	8.566	(1.117)	1550450	100.000	103.37
62 m,p-Xylenes	106	7.907	7.907	(1.031)	1262031	200.000	206.53 (A)
17 Methylene Chloride	84	2.305	2.305	(0.551)	333987	100.000	94.05
87 n-Butylbenzene	91	9.999	9.999	(1.034)	1214189	100.000	106.90
73 n-Propylbenzene	91	8.917	8.917	(0.922)	1771664	100.000	102.75
92 Naphthalene	128	11.546	11.546	(1.194)	281768	100.000	93.49
63 o-Xylene	106	8.244	8.244	(1.075)	610719	100.000	101.26
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	1561099	100.000	104.22
64 Styrene	104	8.258	8.258	(1.077)	1077784	100.000	102.77
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	1121644	100.000	103.15
56 Tetrachloroethene	164	6.933	6.933	(0.904)	341567	100.000	96.83
50 Toluene	91	6.446	6.446	(0.840)	1413996	100.000	99.32
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	324394	100.000	100.39
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	504686	100.000	102.35
38 Trichloroethene	130	5.206	5.206	(1.048)	388311	100.000	100.09
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	647137	100.000	106.23
5 Vinyl Chloride	62	1.138	1.138	(0.272)	400884	100.000	100.16



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D Page 3
Report Date: 06-Dec-2019 19:56

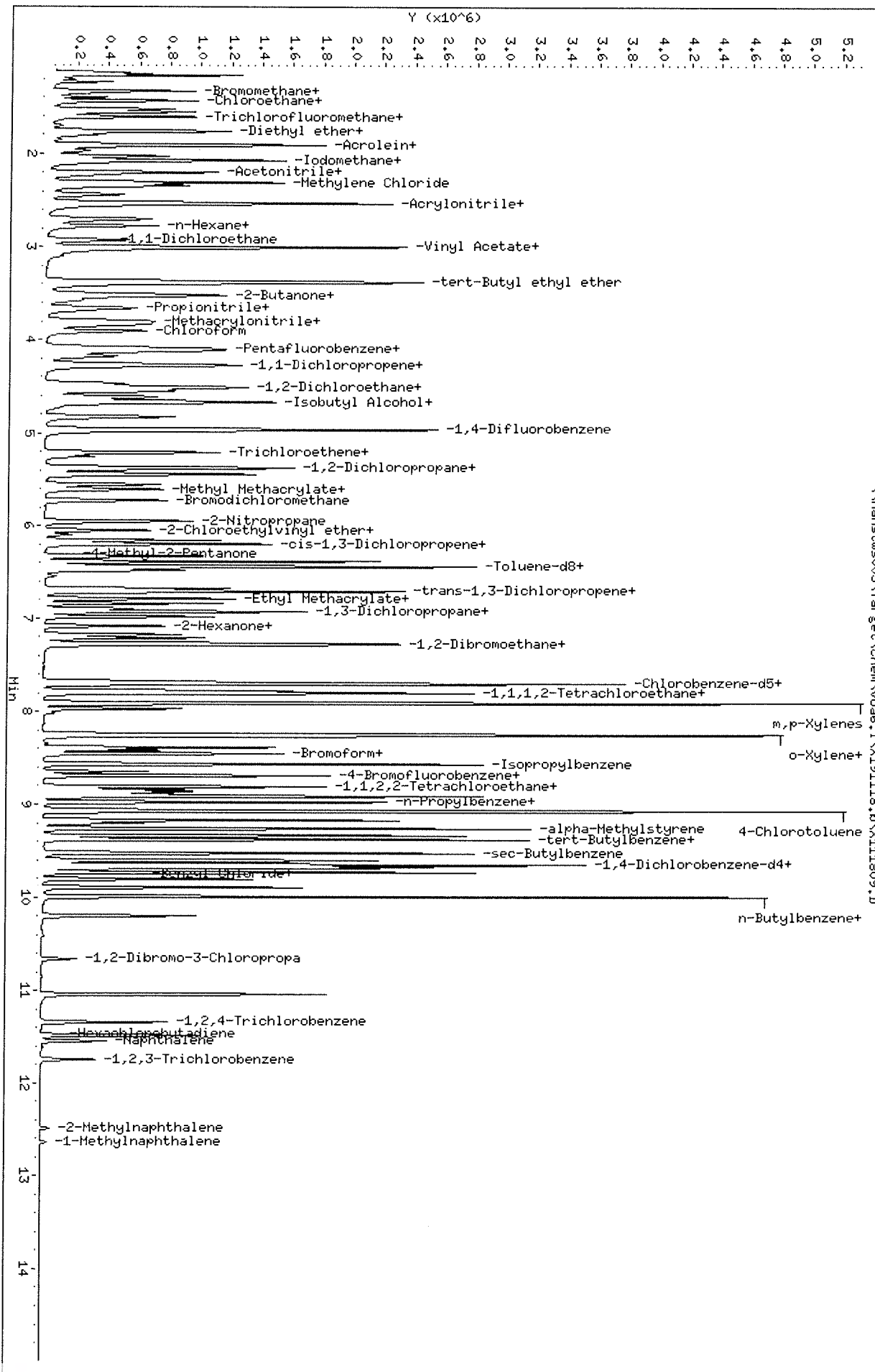
QC Flag Legend

- A - Target compound detected but, quantitated amount exceeded maximum amount.
- M - Compound response manually integrated.
- H - Operator selected an alternate compound hit.



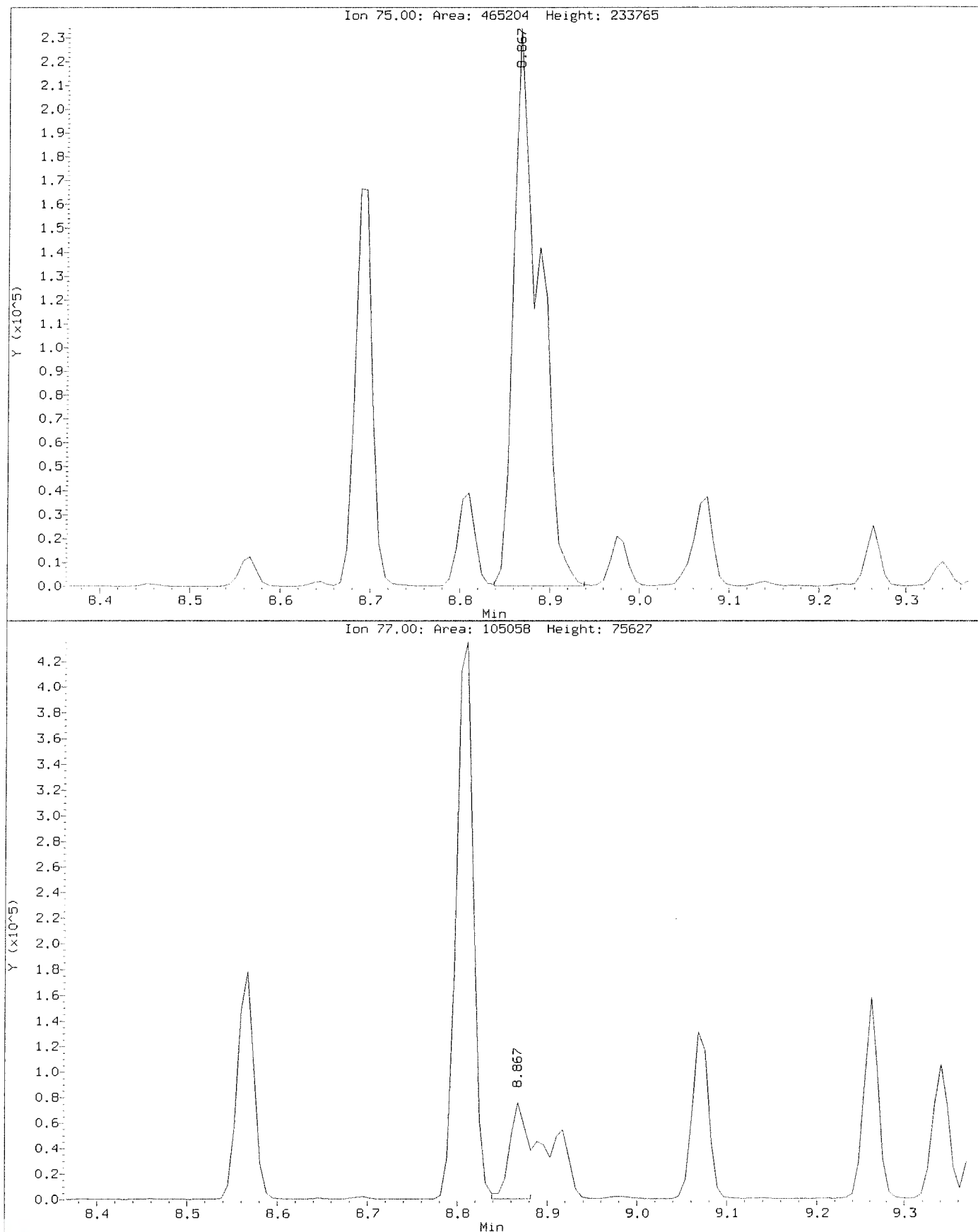
Data File: \\nahstus005\Target\chem\voa6.i\X191118.b\X111809.D
 Date: 18-NOV-2019 16:59
 Client ID: VSTD100
 Sample Info: VSTD100;VSTD100;1;8;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



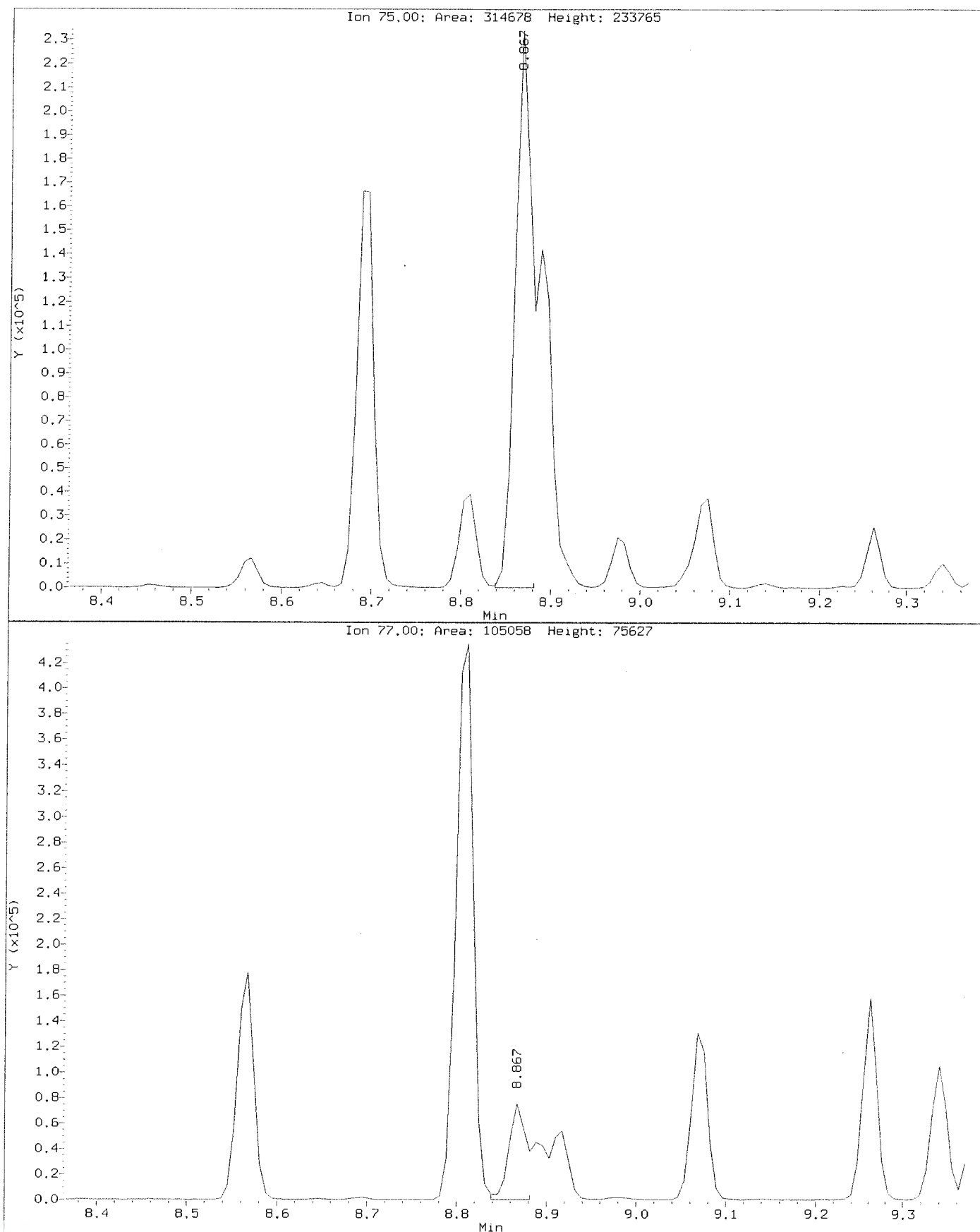
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Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



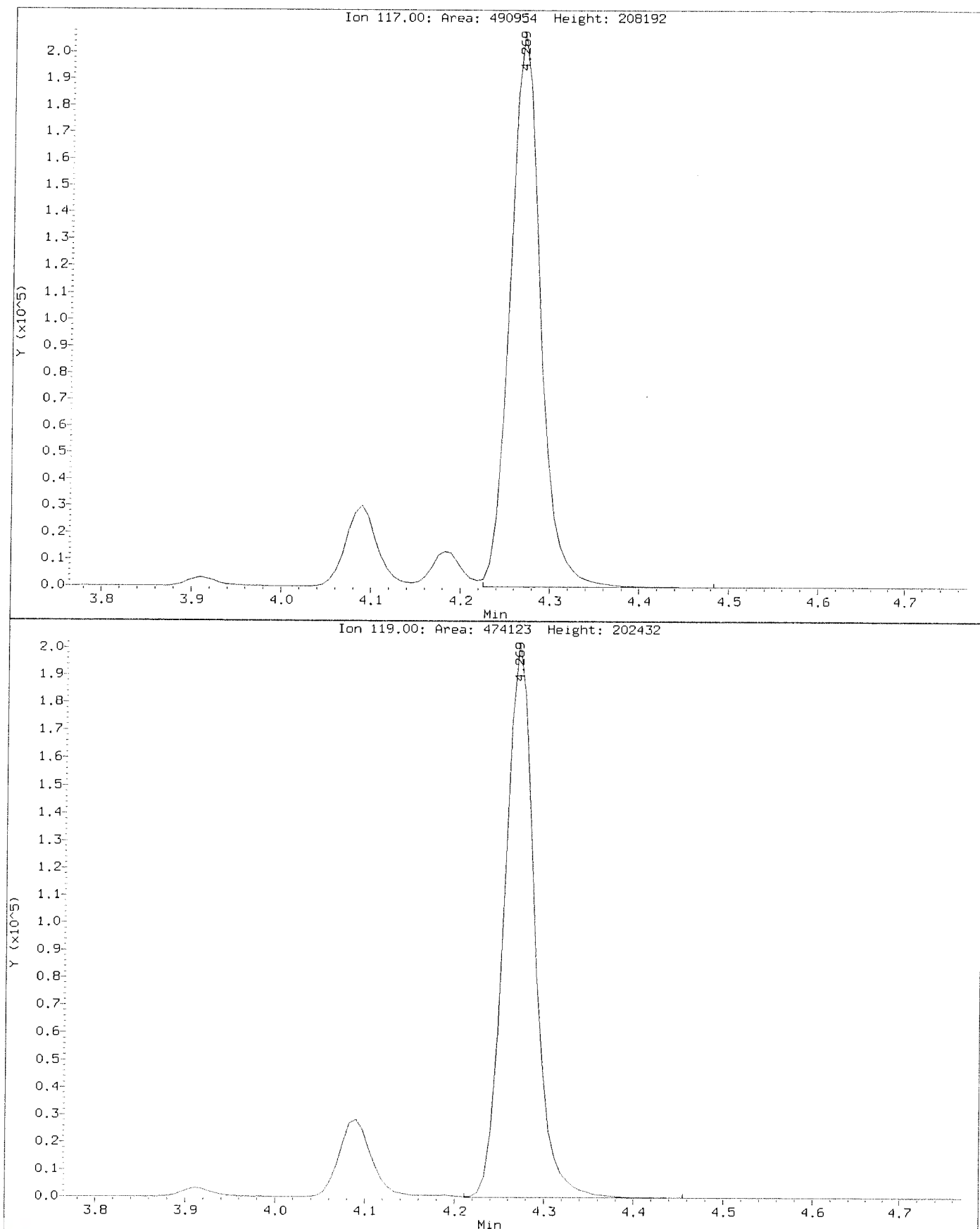
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Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



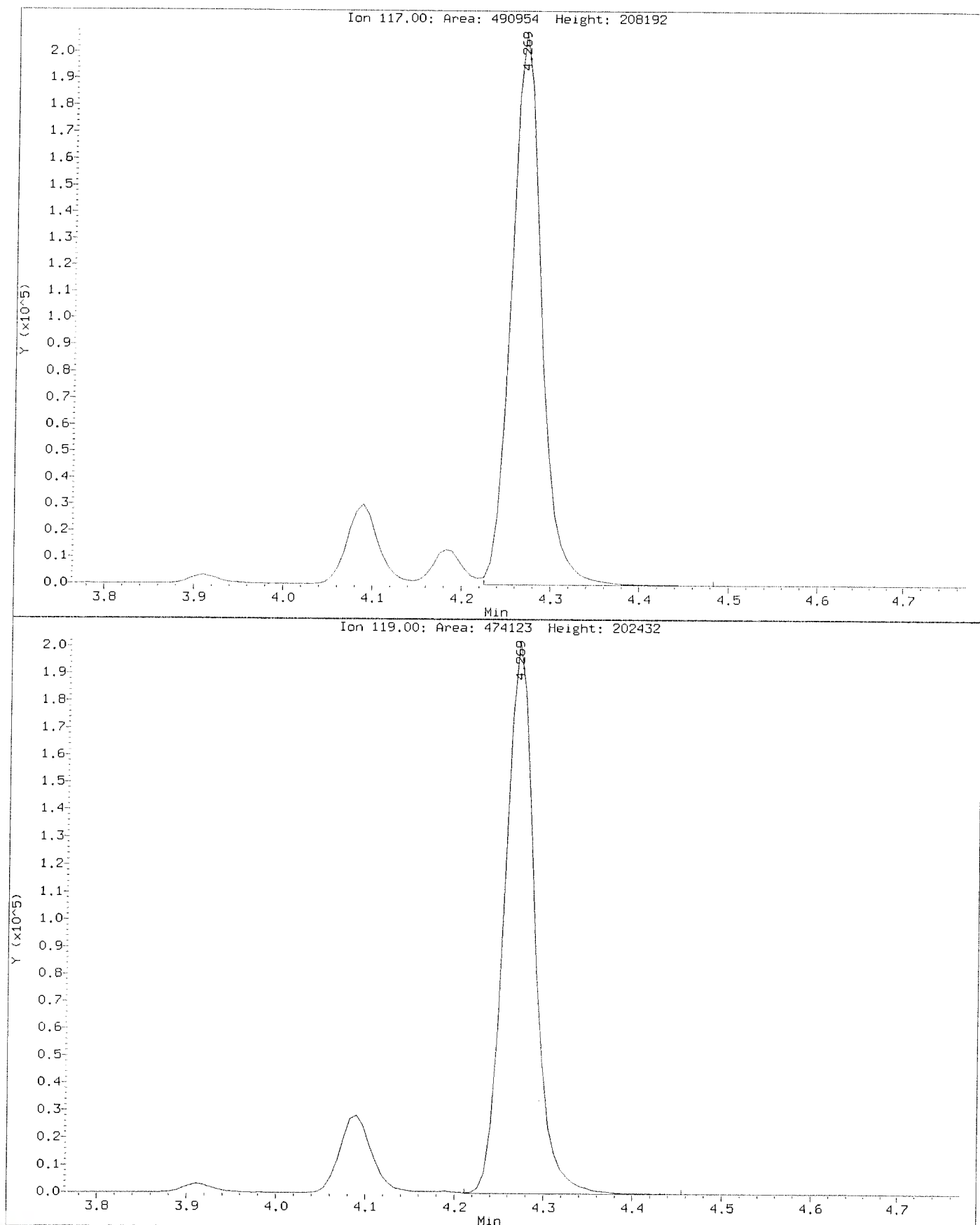
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Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.1\X191118.b\X111809.D
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.1
Client Sample ID: VSTD100

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D
 Lab Smp Id: VSTD150 Client Smp ID: VSTD150
 Inj Date : 18-NOV-2019 17:22
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD150;VSTD150;1;9;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:59 Cal File: X111809.D
 Als bottle: 11 Calibration Sample, Level: 9
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
*****	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	378157	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	542191	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	494760	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	282310	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	532181	150.000	148.11
\$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	688600	150.000	148.76
\$ 30 Dibromofluoromethane	113	4.104	4.104	(0.981)	514854	150.000	148.99
\$ 48 Toluene-d8	98	6.389	6.389	(0.833)	1815269	150.000	139.25
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	548257	150.000	152.74
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	768782	150.000	150.69
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	560927	150.000	141.29
138 Freon TF	101	1.912	1.912	(0.457)	513260	150.000	155.89
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	380298	150.000	147.04
22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	825788	150.000	150.08
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	483391	150.000	150.83
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	635821	150.000	145.37
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	156391	150.000	148.93
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	465353	150.000	138.34 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	338737	150.000	142.44
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	2030171	150.000	151.55
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	65470	150.000	150.06
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	518766	150.000	149.49



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG						AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE		CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====		=====	=====
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	1121580		150.000	149.69
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	645436		150.000	149.95
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	471959		150.000	145.71
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1980658		150.000	154.09
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1183710		150.000	146.20
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	763789		150.000	145.46
84 1,4-Dichlorobenzene	146	9.684	9.684	(1.001)	1195790		150.000	145.34
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	732900		150.000	146.75
24 2-Butanone	43	3.573	3.573	(0.854)	346972		300.000	299.02 (A)
76 2-Chlorotoluene	91	8.982	8.982	(0.929)	1513395		150.000	149.00
52 2-Hexanone	43	7.090	7.090	(0.924)	606144		300.000	298.23 (A)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	1867848		150.000	151.71
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	2100293		150.000	152.04
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	884349		300.000	305.06 (A)
10 Acetone	43	1.976	1.976	(0.473)	284604		300.000	298.06 (A)
37 Benzene	78	4.512	4.512	(0.908)	1843665		150.000	148.64
74 Bromobenzene	156	8.810	8.810	(0.911)	709083		150.000	144.52
29 Bromochloromethane	128	3.795	3.795	(0.908)	294445		150.000	143.73
39 Bromodichloromethane	83	5.730	5.730	(1.153)	669356		150.000	149.18
66 Bromoform	173	8.416	8.416	(1.097)	447981		150.000	150.02
6 Bromomethane	94	1.331	1.331	(0.318)	529714		150.000	145.16
19 Carbon Disulfide	76	2.069	2.069	(0.495)	2705391		300.000	310.30 (A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	707541		150.000	147.68 (H)
59 Chlorobenzene	112	7.699	7.699	(1.004)	1445648		150.000	149.66
7 Chloroethane	64	1.396	1.396	(0.334)	351927		150.000	147.81
28 Chloroform	83	3.910	3.910	(0.935)	863467		150.000	140.99
3 Chloromethane	50	1.074	1.074	(0.257)	613254		150.000	148.94
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	542390		150.000	151.24
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	808388		150.000	152.88
55 Dibromochloromethane	129	7.176	7.176	(0.936)	573494		150.000	152.63
44 Dibromomethane	93	5.558	5.558	(1.118)	338759		150.000	147.80
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	504807		150.000	144.79
61 Ethylbenzene	106	7.800	7.800	(1.017)	751250		150.000	150.52
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	279881		150.000	142.49
67 Isopropylbenzene	105	8.566	8.566	(1.117)	2283588		150.000	154.47
62 m,p-Xylenes	106	7.907	7.907	(1.031)	1861660		300.000	309.12 (A)
17 Methylene Chloride	84	2.306	2.306	(0.551)	485622		150.000	142.02
87 n-Butylbenzene	91	9.999	9.999	(1.034)	1823176		150.000	158.59
73 n-Propylbenzene	91	8.917	8.917	(0.922)	2616190		150.000	149.92
92 Naphthalene	128	11.546	11.546	(1.194)	435593		150.000	142.81
63 o-Xylene	106	8.244	8.244	(1.075)	906786		150.000	152.56
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	2308597		150.000	152.28
64 Styrene	104	8.258	8.258	(1.077)	1622659		150.000	156.99
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	1665732		150.000	151.35
56 Tetrachloroethene	164	6.933	6.933	(0.904)	493485		150.000	141.95
50 Toluene	91	6.446	6.446	(0.840)	2107838		150.000	150.23
20 trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	472385		150.000	151.82
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	741568		150.000	153.87
38 Trichloroethene	130	5.207	5.207	(1.048)	566006		150.000	149.27
8 Trichlorofluoromethane	101	1.553	1.553	(0.372)	922117		150.000	157.19
5 Vinyl Chloride	62	1.138	1.138	(0.272)	578026		150.000	149.97



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D Page 3
Report Date: 06-Dec-2019 19:56

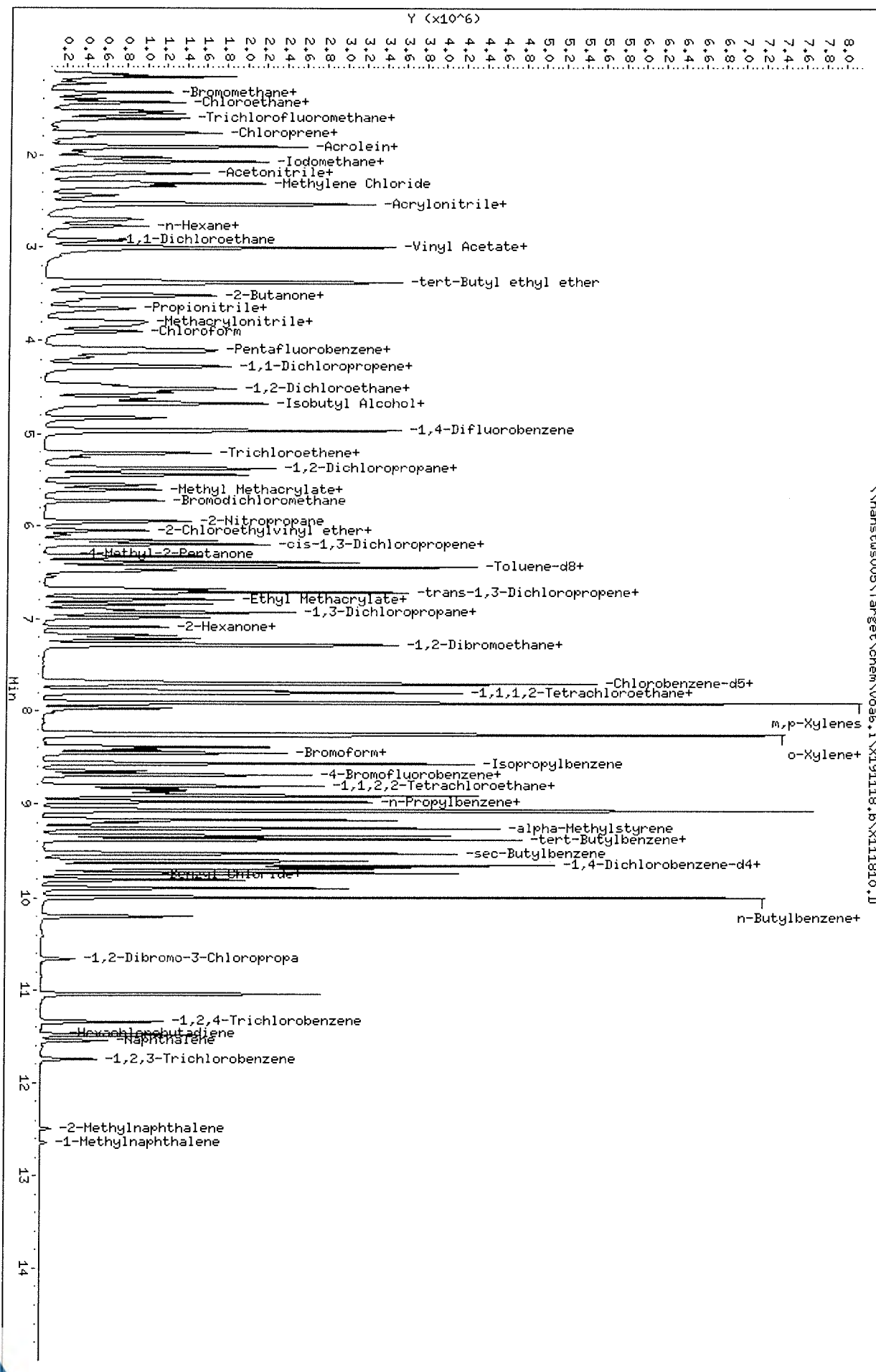
QC Flag Legend

- A - Target compound detected but, quantitated amount exceeded maximum amount.
- M - Compound response manually integrated.
- H - Operator selected an alternate compound hit.



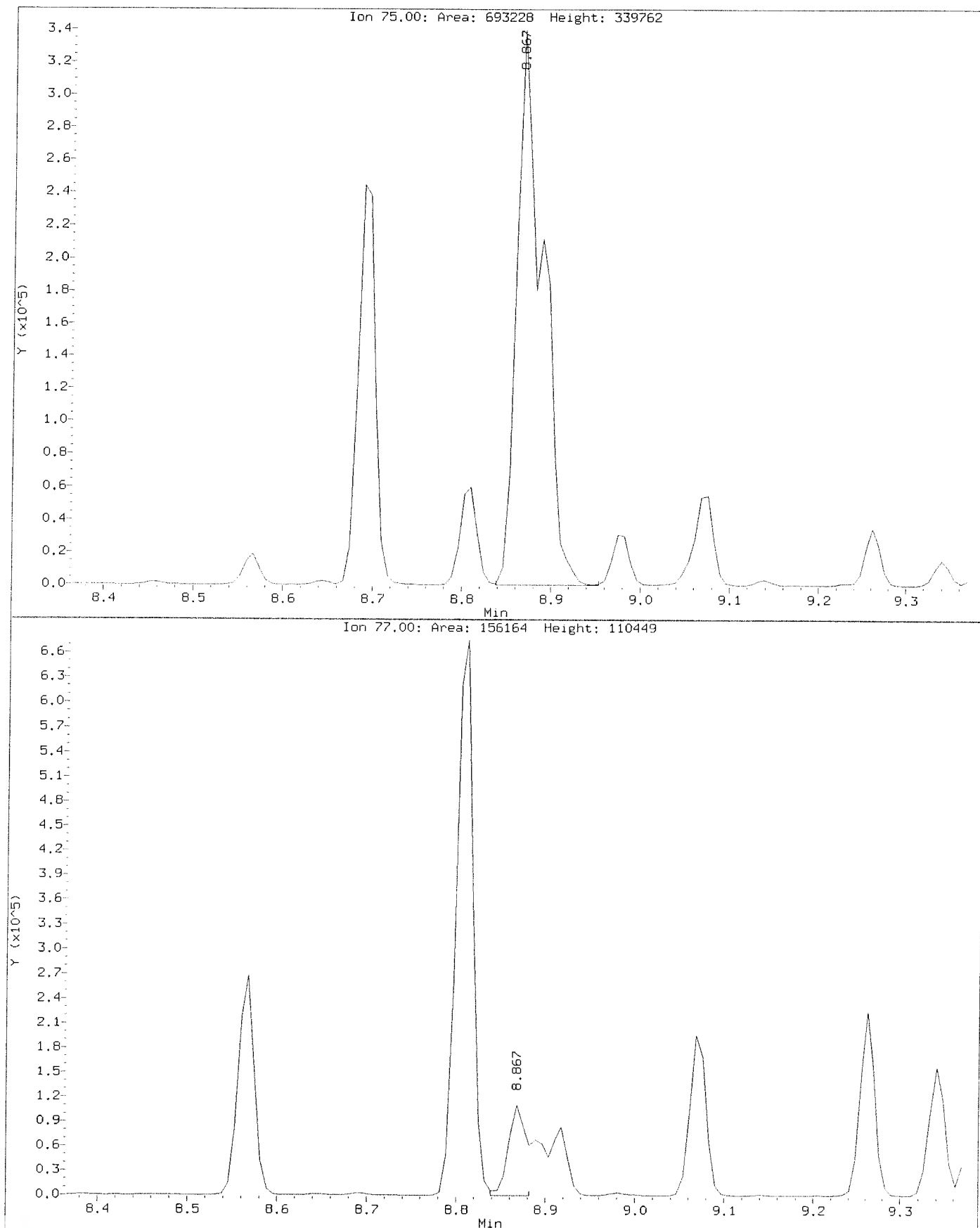
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 Date : 18-NOV-2019 17:22
 Client ID: VSTD150
 Sample Info: VSTD150;VSTD150;1;9;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



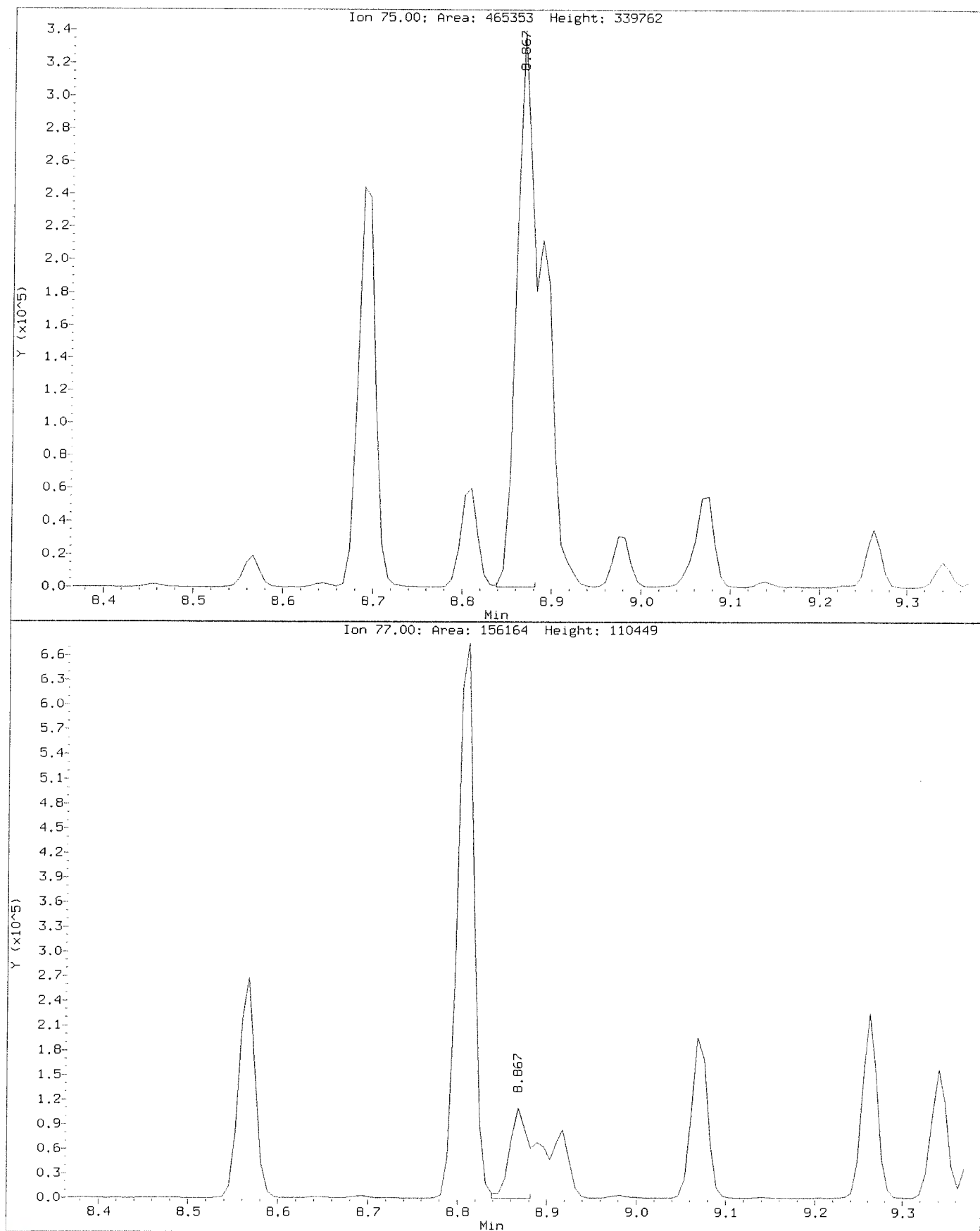
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Injection Date: 18-NOV-2019 17:22
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



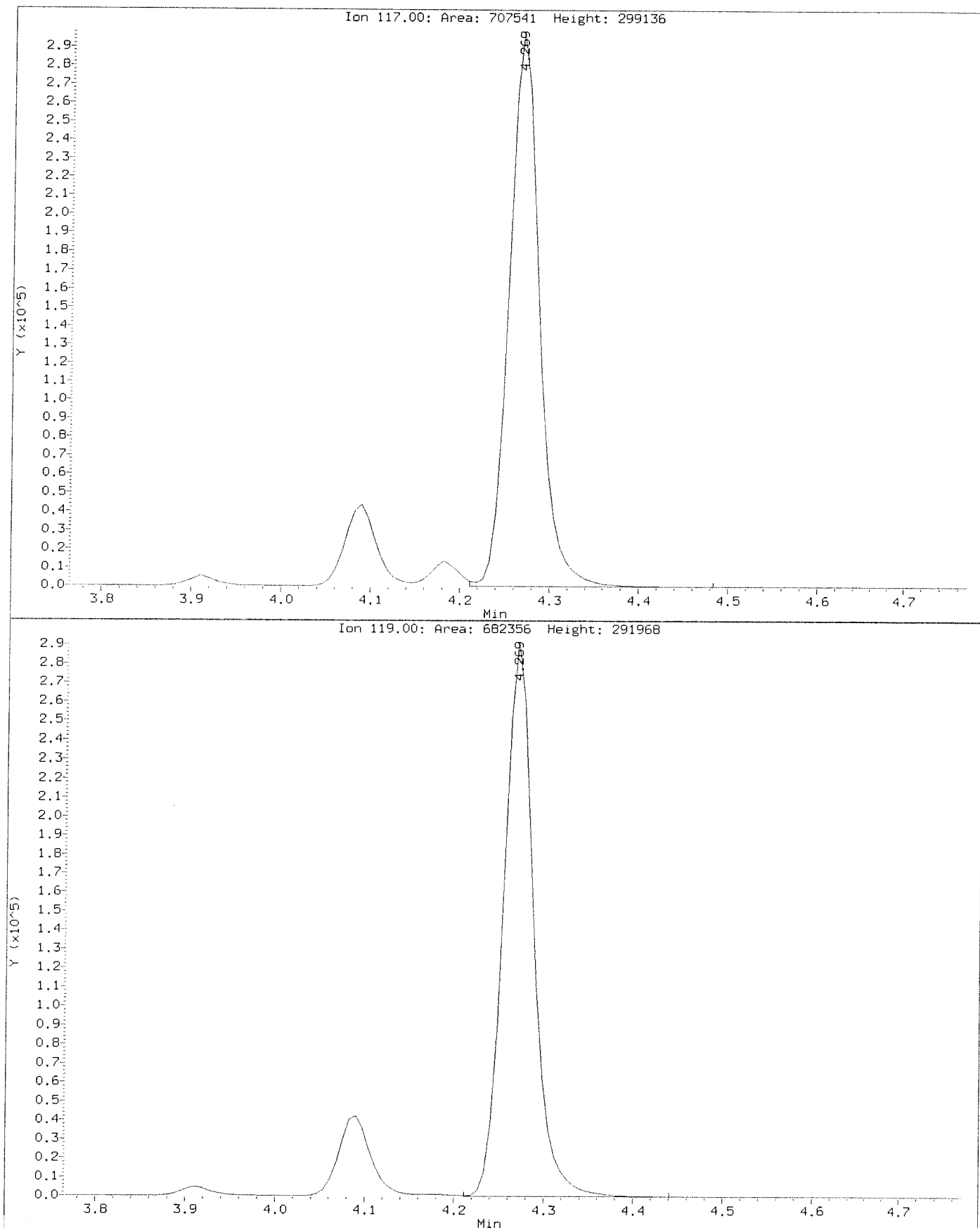
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Instrument: voa6.1
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



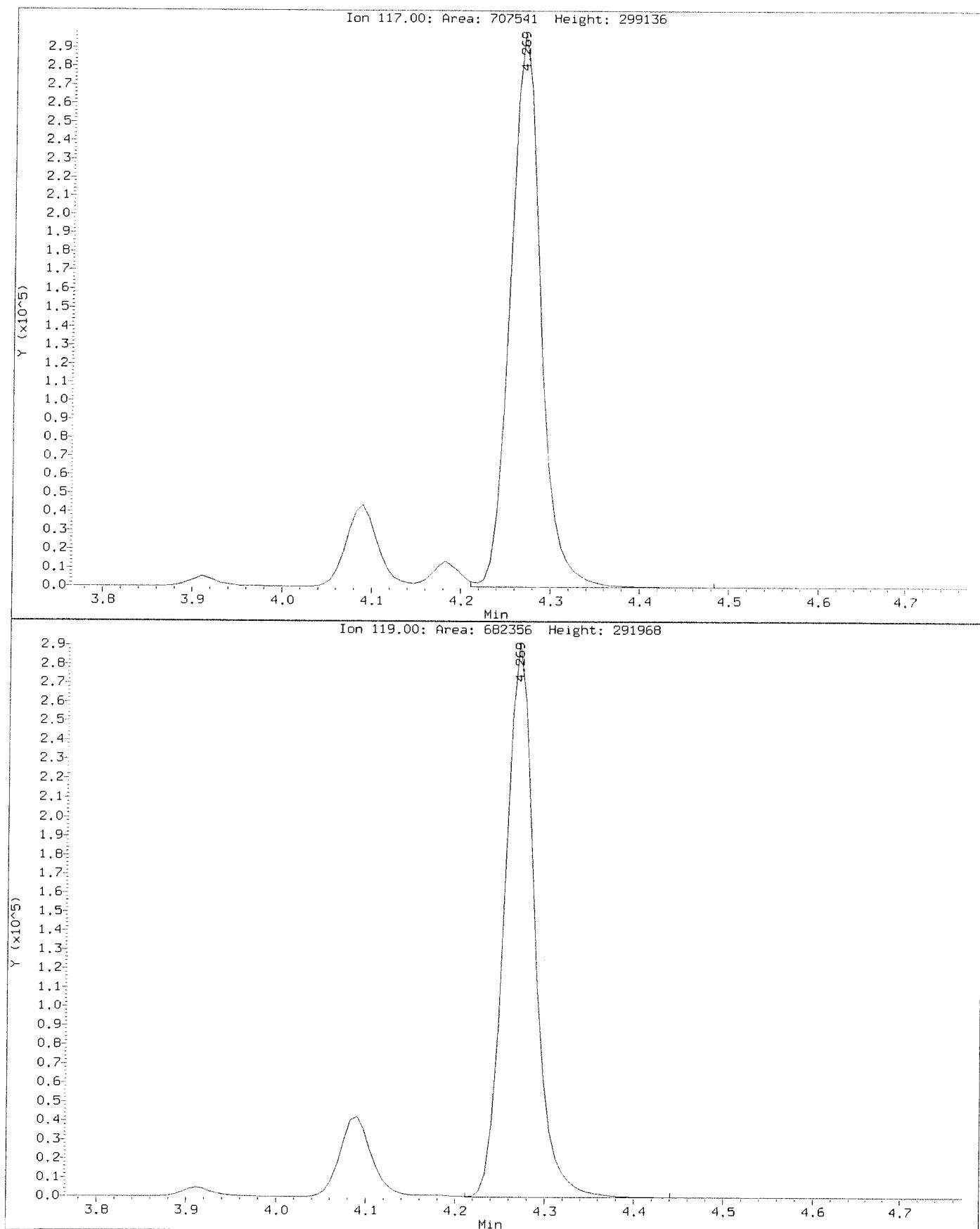
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Injection Date: 18-NOV-2019 17:22
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D
Injection Date: 18-NOV-2019 17:22
Instrument: voa6.1
Client Sample ID: VSTD150

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D
 Lab Smp Id: VSTD200 Client Smp ID: VSTD200
 Inj Date : 18-NOV-2019 17:46
 Operator : PC Inst ID: voa6.i
 Smp Info : VSTD200;VSTD200;1;10;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 17:22 Cal File: X111810.D
 Als bottle: 12 Calibration Sample, Level: 10
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS					AMOUNTS	
		RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182 (1.000)		369517	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970 (1.000)		542684	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670 (1.000)		493817	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669 (1.000)		280605	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476 (1.070)		713282	200.000	202.89 (A)
\$ 69 4-Bromofluorobenzene	95	8.695	8.695 (1.134)		933083	200.000	201.81 (A)
\$ 30 Dibromofluoromethane	113	4.103	4.103 (0.981)		681300	200.000	201.64 (A)
\$ 48 Toluene-d8	98	6.388	6.388 (0.833)		2431773	200.000	186.90
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778 (1.014)		731912	200.000	204.29 (A)
31 1,1,1-Trichloroethane	97	4.089	4.089 (0.978)		1030058	200.000	206.62 (A)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845 (0.915)		742176	200.000	188.09
138 Freon TF	101	1.911	1.911 (0.457)		696977	200.000	216.65 (A)
53 1,1,2-Trichloroethane	83	6.847	6.847 (0.893)		511936	200.000	198.31
22 1,1-Dichloroethane	63	2.921	2.921 (0.699)		1089650	200.000	202.66 (A)
11 1,1,1-Dichloroethene	96	1.911	1.911 (0.457)		641291	200.000	204.78 (A)
32 1,1-Dichloropropene	75	4.282	4.282 (0.862)		849992	200.000	194.17
93 1,2,3-Trichlorobenzene	180	11.746	11.746 (1.215)		210414	200.000	200.64 (A)
71 1,2,3-Trichloropropane	75	8.867	8.867 (0.917)		609450	200.000	182.28 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338 (1.173)		455609	200.000	192.75
79 1,2,4-Trimethylbenzene	105	9.382	9.382 (0.970)		2745695	200.000	206.21 (A)
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657 (1.102)		86827	200.000	200.34 (A)
57 1,2-Dibromoethane	107	7.262	7.262 (0.947)		693307	200.000	200.18 (A)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG	AMOUNTS					
		CAL-AMT	ON-COL				
	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	1508205	200.000	202.51 (A)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	865099	200.000	200.81 (A)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	629023	200.000	194.03
75 1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	2668415	200.000	208.86 (A)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1590132	200.000	197.60
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	1018788	200.000	194.39
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	1621999	200.000	198.35
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	972273	200.000	199.24
24 2-Butanone	43	3.580	3.580	(0.856)	437867	400.000	386.18 (A)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	2019887	200.000	200.07 (A)
52 2-Hexanone	43	7.090	7.090	(0.924)	806375	400.000	397.51 (A)
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	2525879	200.000	206.41 (A)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	2843849	200.000	207.12 (A)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	1178590	400.000	407.33 (A)
10 Acetone	43	1.976	1.976	(0.473)	372223	400.000	400.25 (A)
37 Benzene	78	4.512	4.512	(0.908)	2449808	200.000	197.34
74 Bromobenzene	156	8.809	8.809	(0.911)	958177	200.000	196.47
29 Bromochloromethane	128	3.795	3.795	(0.908)	376537	200.000	188.10
39 Bromodichloromethane	83	5.729	5.729	(1.153)	893499	200.000	198.95
66 Bromoform	173	8.415	8.415	(1.097)	602595	200.000	201.83 (A)
6 Bromomethane	94	1.331	1.331	(0.318)	631015	200.000	177.48 (M)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	3628864	400.000	425.96 (A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	954439	200.000	199.03 (H)
59 Chlorobenzene	112	7.699	7.699	(1.004)	1940751	200.000	201.30 (A)
7 Chloroethane	64	1.396	1.396	(0.334)	459143	200.000	197.35
28 Chloroform	83	3.910	3.910	(0.935)	1152726	200.000	192.62
3 Chloromethane	50	1.073	1.073	(0.257)	811388	200.000	201.60 (A)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	721487	200.000	205.88 (A)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1069987	200.000	202.17 (A)
55 Dibromochloromethane	129	7.183	7.183	(0.937)	764698	200.000	203.91 (A)
44 Dibromomethane	93	5.557	5.557	(1.118)	451528	200.000	196.82
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	695305	200.000	203.74 (A)
61 Ethylbenzene	106	7.807	7.807	(1.018)	1011964	200.000	203.15 (A)
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	373475	200.000	191.48
67 Isopropylbenzene	105	8.566	8.566	(1.117)	3082382	200.000	208.91 (A)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	2525960	400.000	420.22 (A)
17 Methylene Chloride	84	2.305	2.305	(0.551)	644942	200.000	193.02
87 n-Butylbenzene	91	9.998	9.998	(1.034)	2465783	200.000	215.80 (A)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	3540988	200.000	204.15 (A)
92 Naphthalene	128	11.546	11.546	(1.194)	574298	200.000	189.43
63 o-Xylene	106	8.244	8.244	(1.075)	1231007	200.000	207.50 (A)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	3131997	200.000	207.86 (A)
64 Styrene	104	8.265	8.265	(1.078)	2199171	200.000	213.18 (A)
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	2240944	200.000	204.85 (A)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	660581	200.000	190.38
50 Toluene	91	6.453	6.453	(0.841)	2834294	200.000	202.39 (A)
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	630988	200.000	207.54 (A)
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	1000892	200.000	207.50 (A)
38 Trichloroethene	130	5.206	5.206	(1.048)	754871	200.000	198.90
8 Trichlorofluoromethane	101	1.553	1.553	(0.371)	1241567	200.000	216.59 (A)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	773023	200.000	205.26 (A)



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D Page 3
Report Date: 06-Dec-2019 19:56

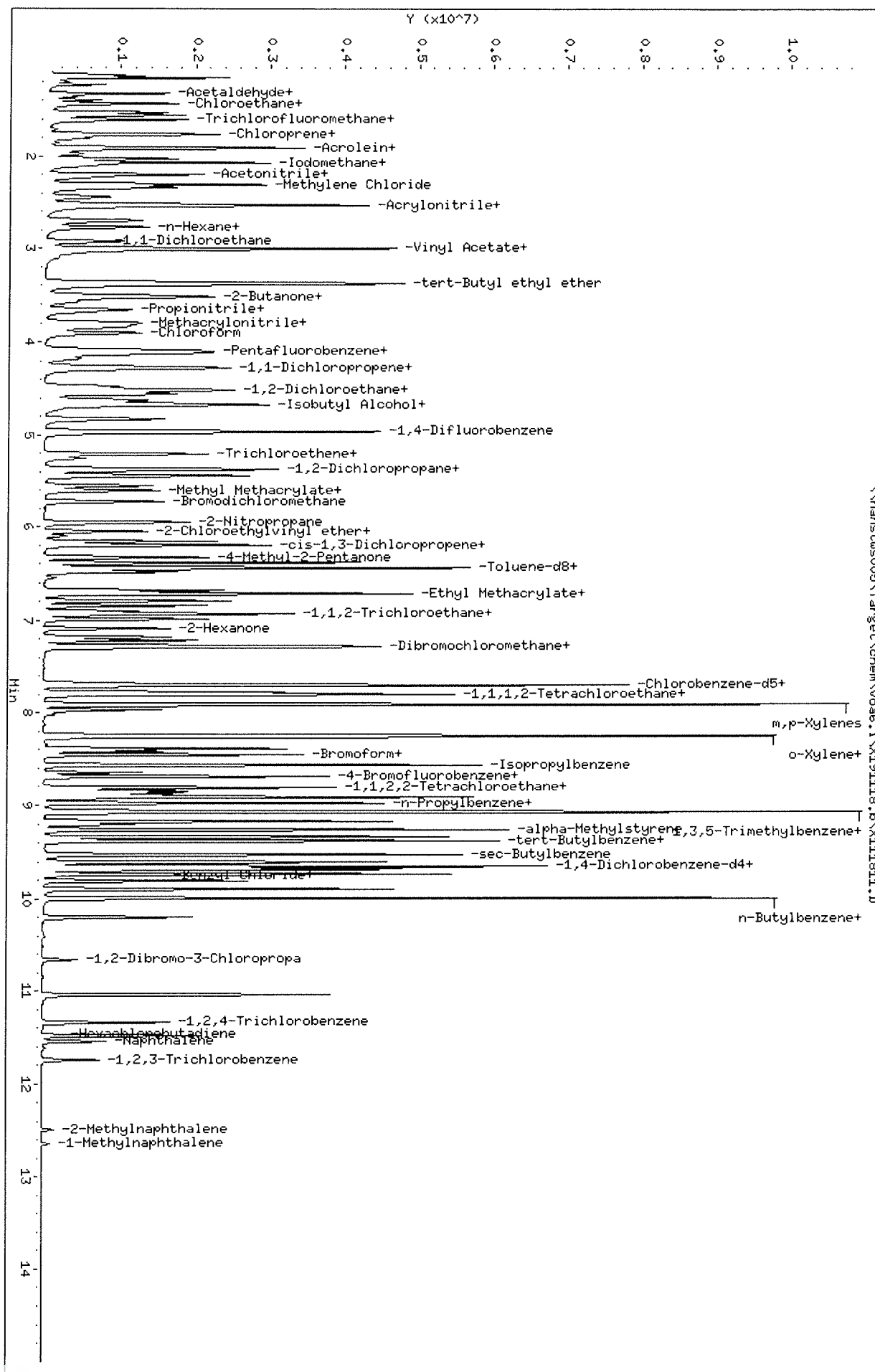
QC Flag Legend

- A - Target compound detected but, quantitated amount exceeded maximum amount.
- M - Compound response manually integrated.
- H - Operator selected an alternate compound hit.



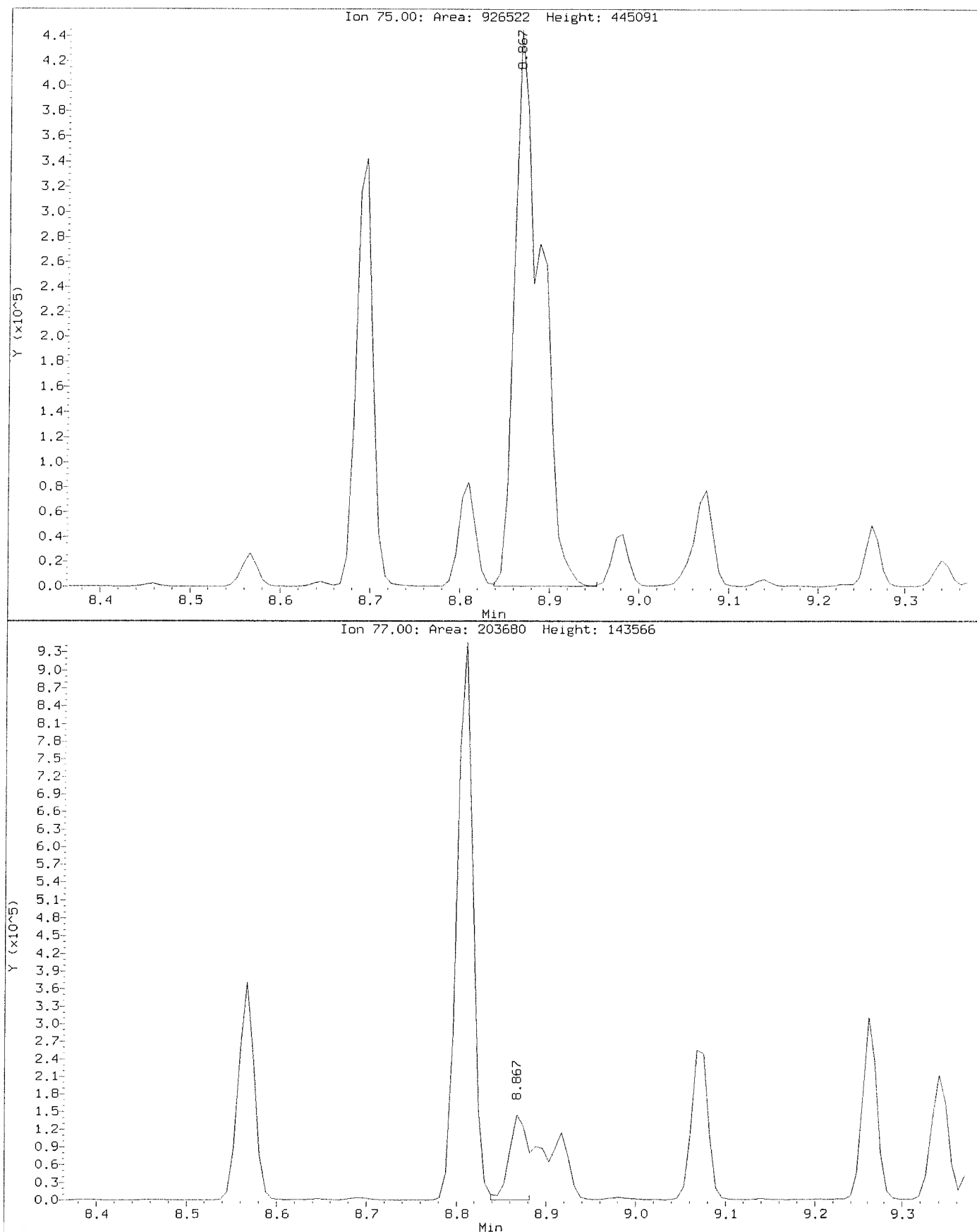
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 Date : 18-NOV-2019 17:46
 Client ID: VST1200
 Sample Info: VST1200;VST1200;1;10;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



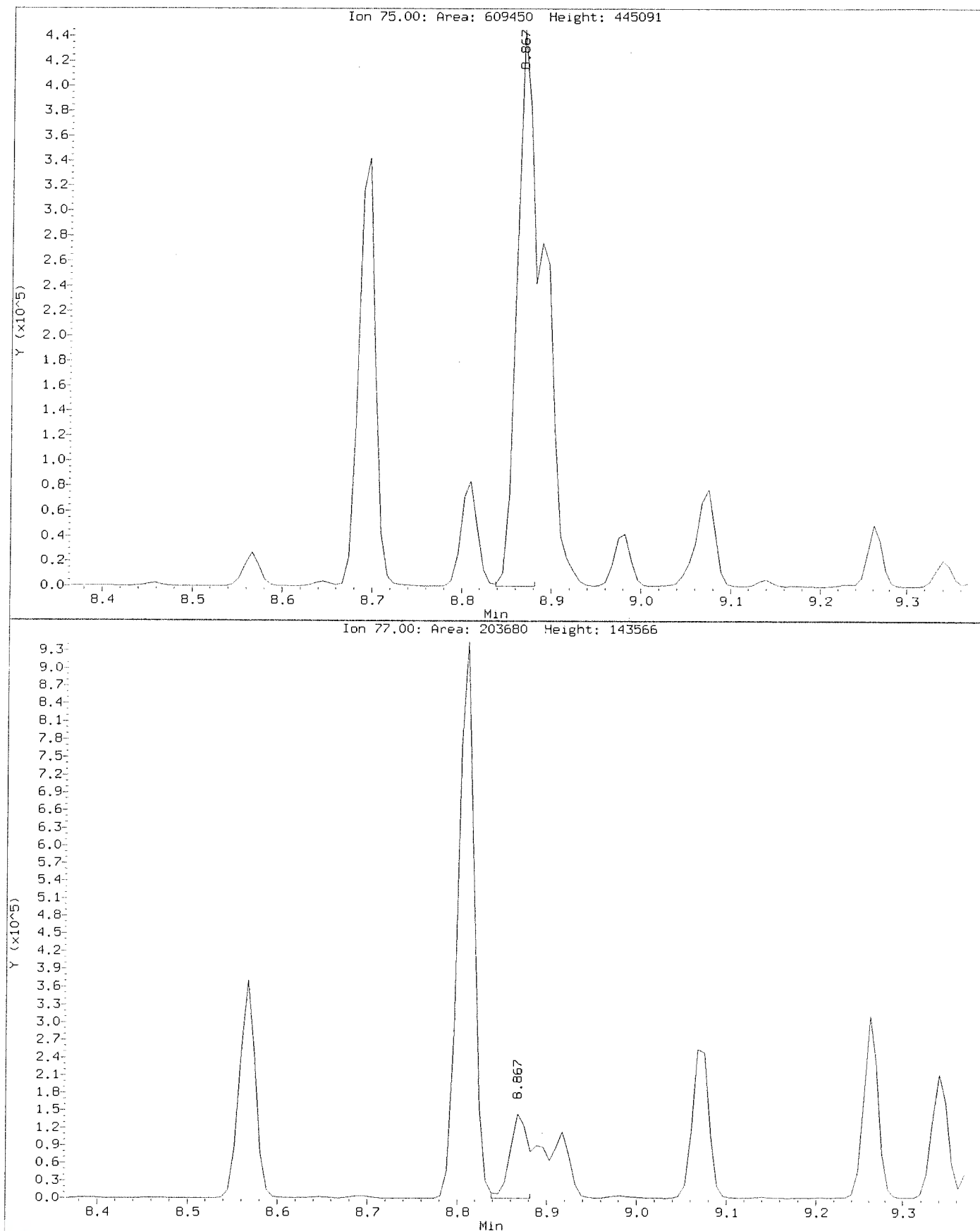
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Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



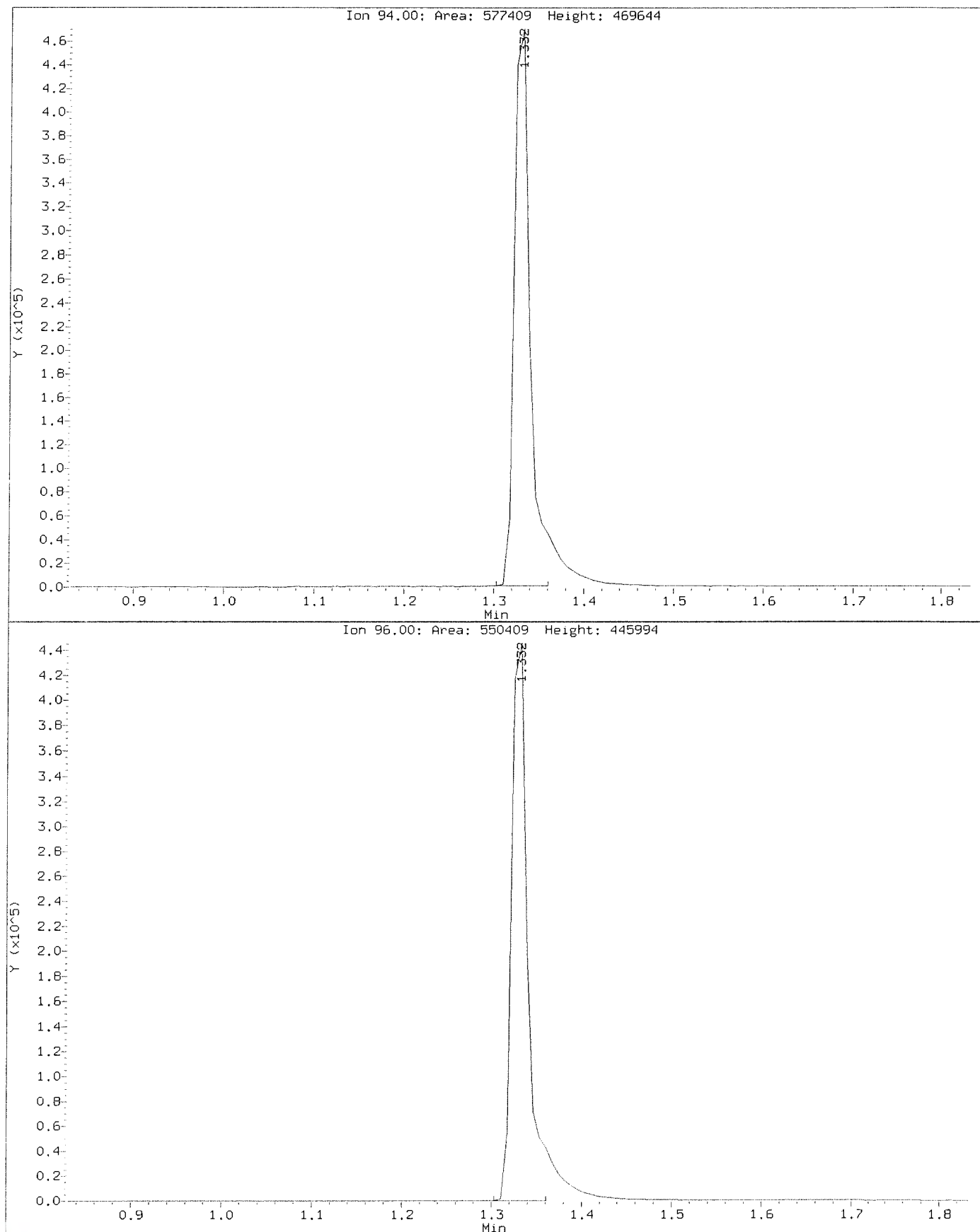
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Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



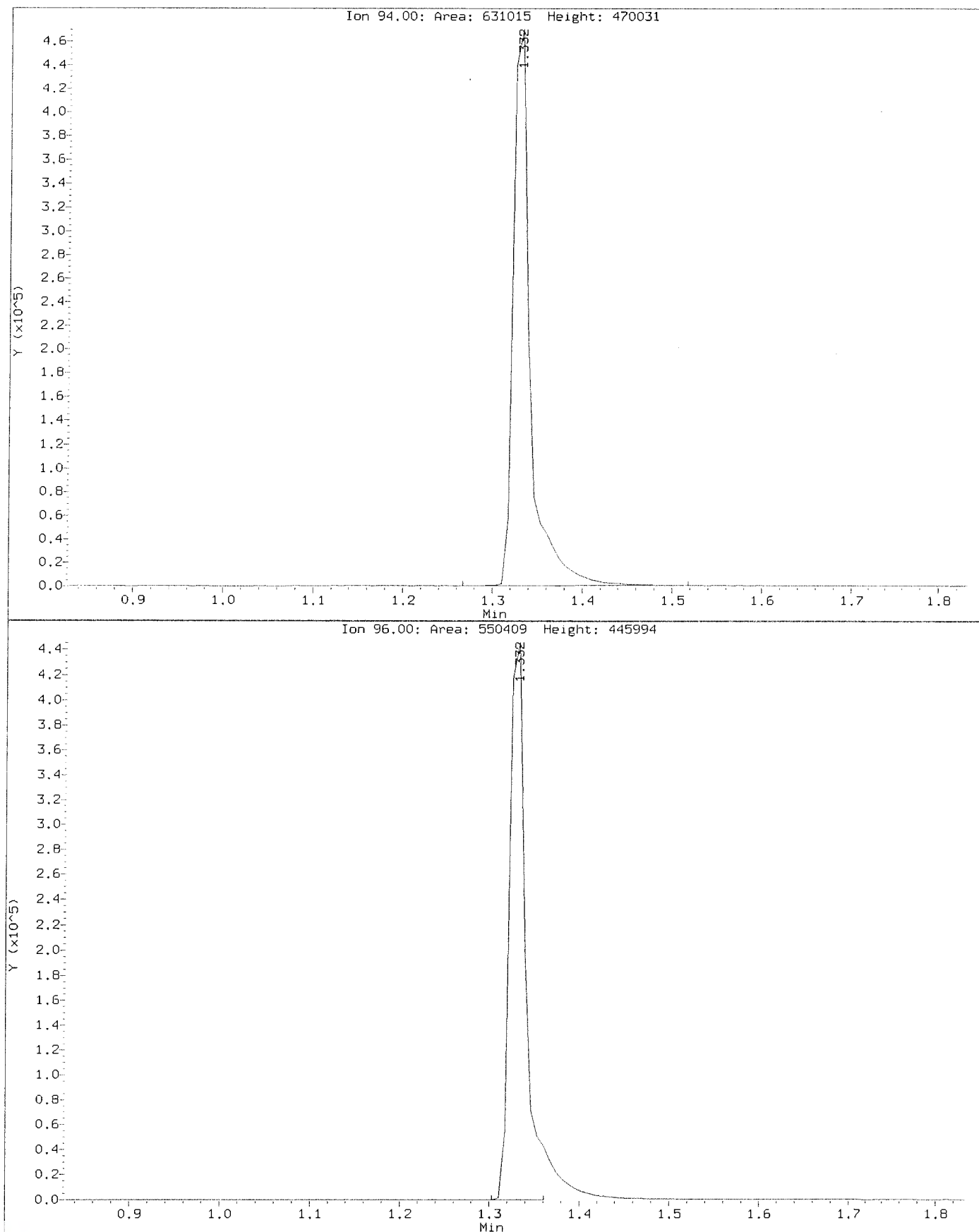
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Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Bromomethane
CAS Number: 74-83-9



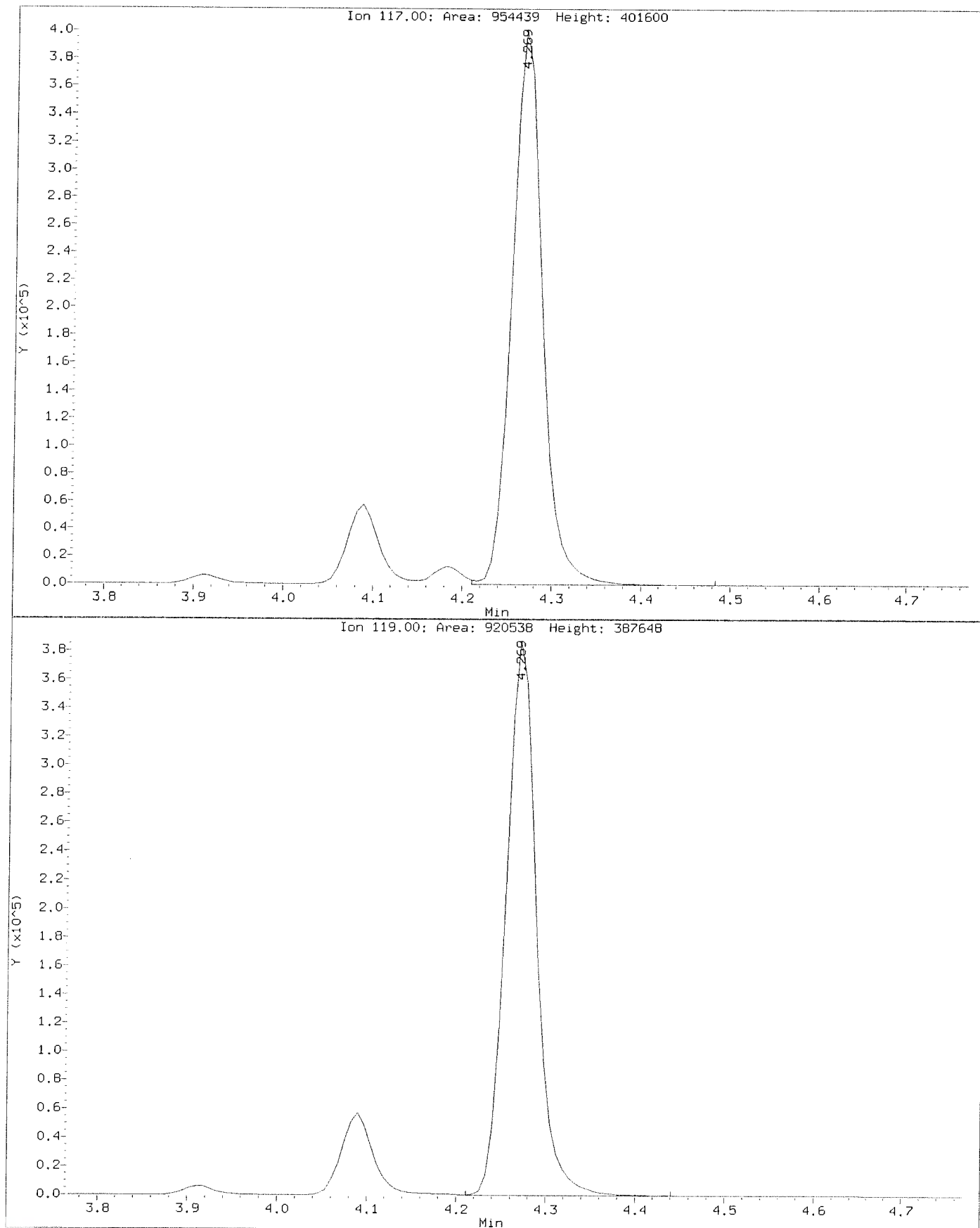
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Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Bromomethane
CAS Number: 74-83-9



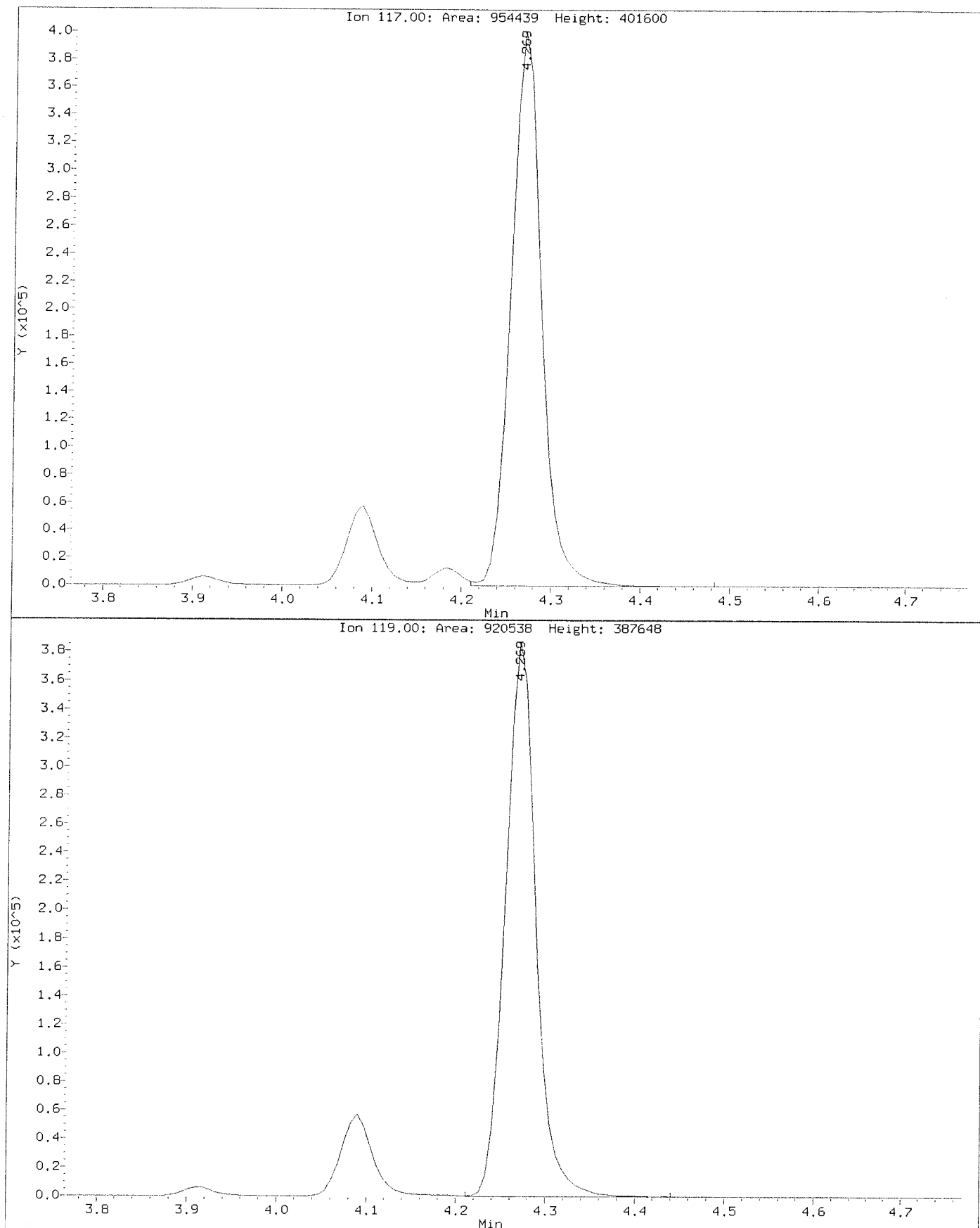
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Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D Page 1
 Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D
 Lab Smp Id: ICV Client Smp ID: ICV
 Inj Date : 18-NOV-2019 18:58
 Operator : PC Inst ID: voa6.i
 Smp Info : CCV;CCV;2;;ICV
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
 Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
 Cal Date : 18-NOV-2019 17:46 Cal File: X111811.D
 Als bottle: 15 QC Sample: METHSPIKE
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG						CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	365284	50.0000		
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	526230	50.0000		
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	487659	50.0000		
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	262170	50.0000		
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	177715	51.6875	51.68	
\$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	217553	47.9674	47.96	
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	172534	51.9307	51.93	
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	603087	46.9372	46.93	
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	181751	51.3728	51.37	
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	259914	52.7430	52.74	
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	183157	49.6822	49.68	
138 Freon TF	101	1.919	1.911	(0.459)	177448	55.7980	55.79	
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	125473	49.2205	49.22	
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	273555	51.4692	51.46	
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	164159	53.0287	53.02	
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	211745	49.8829	49.88	
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	56746	58.2884	58.28	
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	154338	49.4088	49.40 (M)	
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	122229	55.3465	55.34	
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	627033	50.4058	50.40	
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	20914	51.3981	51.39	
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	171012	50.0005	50.00	



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D Page 2
 Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN (ug/l)	FINAL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	343886	49.4226	49.42
33 1,2-Dichloroethane	62	4.555	4.562	(0.916)	214666	51.3880	51.38
42 1,2-Dichloropropane	63	5.436	5.443	(1.094)	155619	49.5052	49.50
75 1,3,5-Trimethylbenzene	105	9.067	9.074	(0.938)	621241	52.0454	52.04
83 1,3-Dichlorobenzene	146	9.604	9.612	(0.993)	380305	50.5823	50.58
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	254579	49.1895	49.18
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	379206	49.6335	49.63
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	252567	52.3575	52.35
24 2-Butanone	43	3.573	3.580	(0.854)	117980	105.260	105.25
76 2-Chlorotoluene	91	8.974	8.981	(0.928)	475545	50.4166	50.41
52 2-Hexanone	43	7.090	7.090	(0.924)	192493	96.0902	96.09
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	578291	50.5814	50.58
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	664137	51.7722	51.77
45 4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	279109	97.6823	97.68
10 Acetone	43	1.969	1.976	(0.471)	104925	111.376	111.37
37 Benzene	78	4.512	4.512	(0.908)	612198	50.8565	50.85
74 Bromobenzene	156	8.809	8.809	(0.911)	233126	51.1647	51.16
29 Bromochloromethane	128	3.795	3.795	(0.908)	101596	51.3407	51.34
39 Bromodichloromethane	83	5.729	5.729	(1.153)	222106	51.0024	51.00
66 Bromoform	173	8.415	8.415	(1.097)	142491	49.0895	49.08
6 Bromomethane	94	1.338	1.331	(0.320)	208417	57.7314	57.73
19 Carbon Disulfide	76	2.069	2.069	(0.495)	924383	109.763	109.76
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	237498	51.0754	51.07
59 Chlorobenzene	112	7.699	7.699	(1.004)	468418	49.2009	49.20
7 Chloroethane	64	1.403	1.396	(0.336)	118785	51.6484	51.64
28 Chloroform	83	3.910	3.910	(0.935)	292027	49.3641	49.36
3 Chloromethane	50	1.073	1.073	(0.257)	200113	50.4397	50.43
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	184183	53.1686	53.16
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	267228	52.0716	52.07
55 Dibromochloromethane	129	7.176	7.183	(0.936)	184910	49.9303	49.93
44 Dibromomethane	93	5.557	5.557	(1.118)	112351	50.5059	50.50
2 Dichlorodifluoromethane	85	0.973	0.966	(0.233)	176572	52.9949	52.99
61 Ethylbenzene	106	7.799	7.807	(1.017)	247055	50.2234	50.22
91 Hexachlorobutadiene	225	11.481	11.488	(1.187)	113053	61.6918	61.69(R)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	730633	50.1455	50.14
62 m,p-Xylenes	106	7.907	7.907	(1.031)	603641	101.692	101.69
17 Methylene Chloride	84	2.305	2.305	(0.551)	164000	49.6528	49.65
87 n-Butylbenzene	91	9.998	9.998	(1.034)	555875	52.0702	52.07
73 n-Propylbenzene	91	8.917	8.917	(0.922)	841108	51.9034	51.90
92 Naphthalene	128	11.546	11.546	(1.194)	144573	51.0408	51.04
63 o-Xylene	106	8.243	8.244	(1.075)	291303	49.7239	49.72
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	728868	51.7743	51.77
64 Styrene	104	8.258	8.265	(1.077)	512981	50.3548	50.35
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	525095	51.3776	51.37
56 Tetrachloroethene	164	6.933	6.933	(0.904)	169030	49.3314	49.33
50 Toluene	91	6.446	6.453	(0.840)	685240	49.5512	49.55
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	157233	52.3156	52.31
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	242451	51.8354	51.83
38 Trichloroethene	130	5.206	5.206	(1.048)	190582	51.7868	51.78
8 Trichlorofluoromethane	101	1.560	1.553	(0.373)	314898	55.5726	55.57
5 Vinyl Chloride	62	1.138	1.138	(0.272)	193522	51.9818	51.98



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D Page 3
Report Date: 06-Dec-2019 19:56

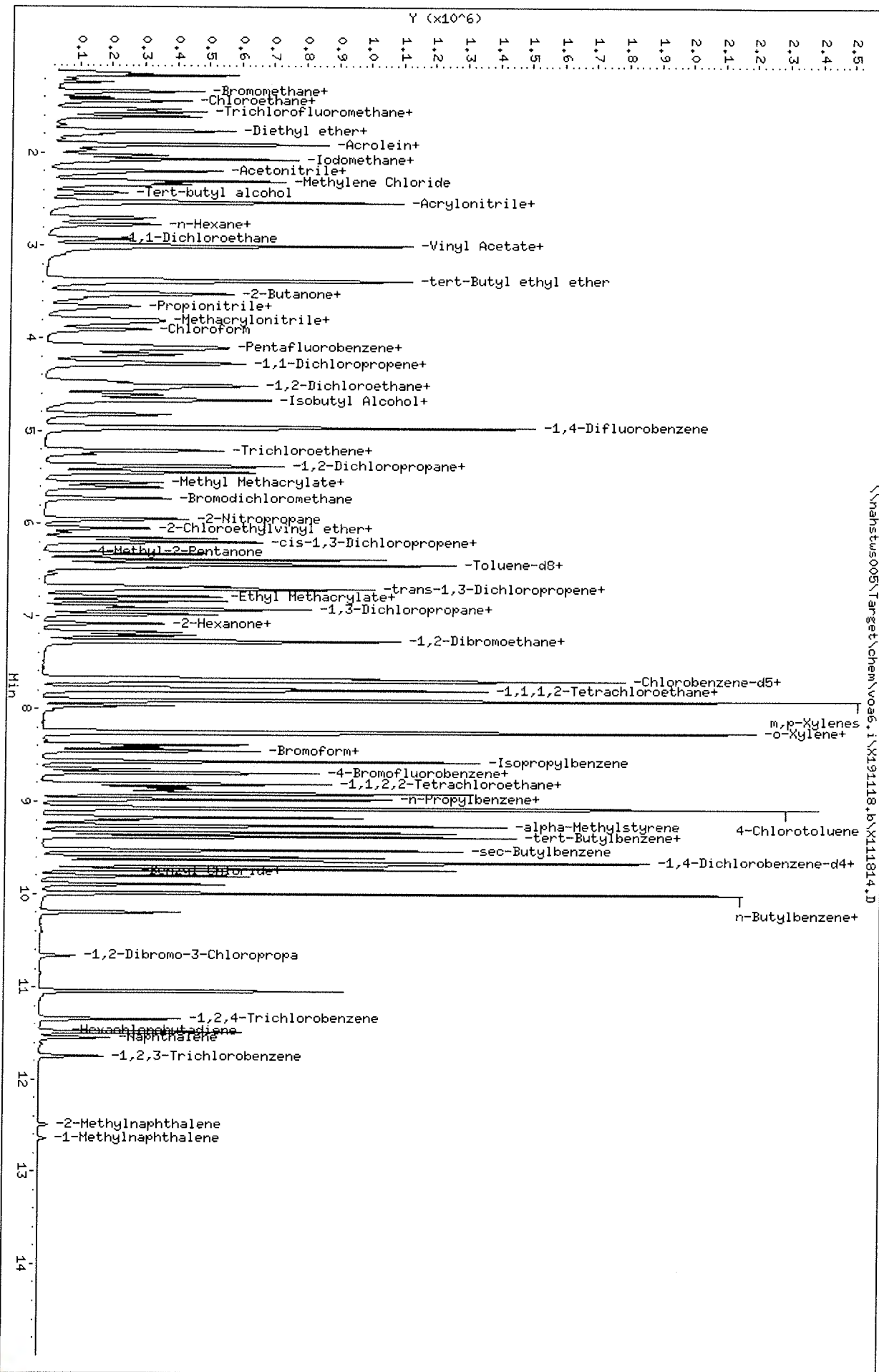
QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.



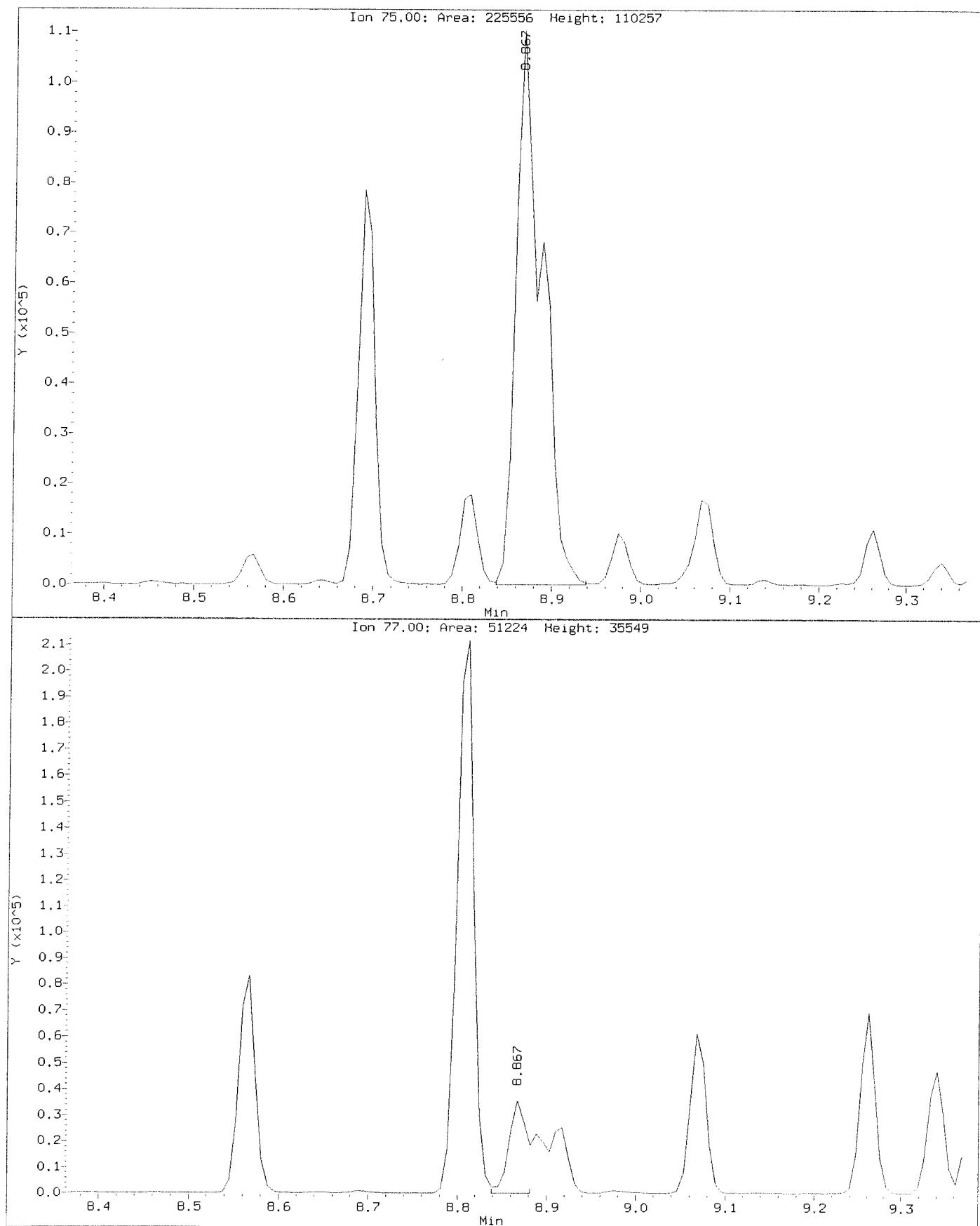
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D
 Date: 18-NOV-2019 18:58
 Client ID: ICV
 Sample Info: CCV;CCV;2;;ICV
 Purge Volume: 5.0
 Column Phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



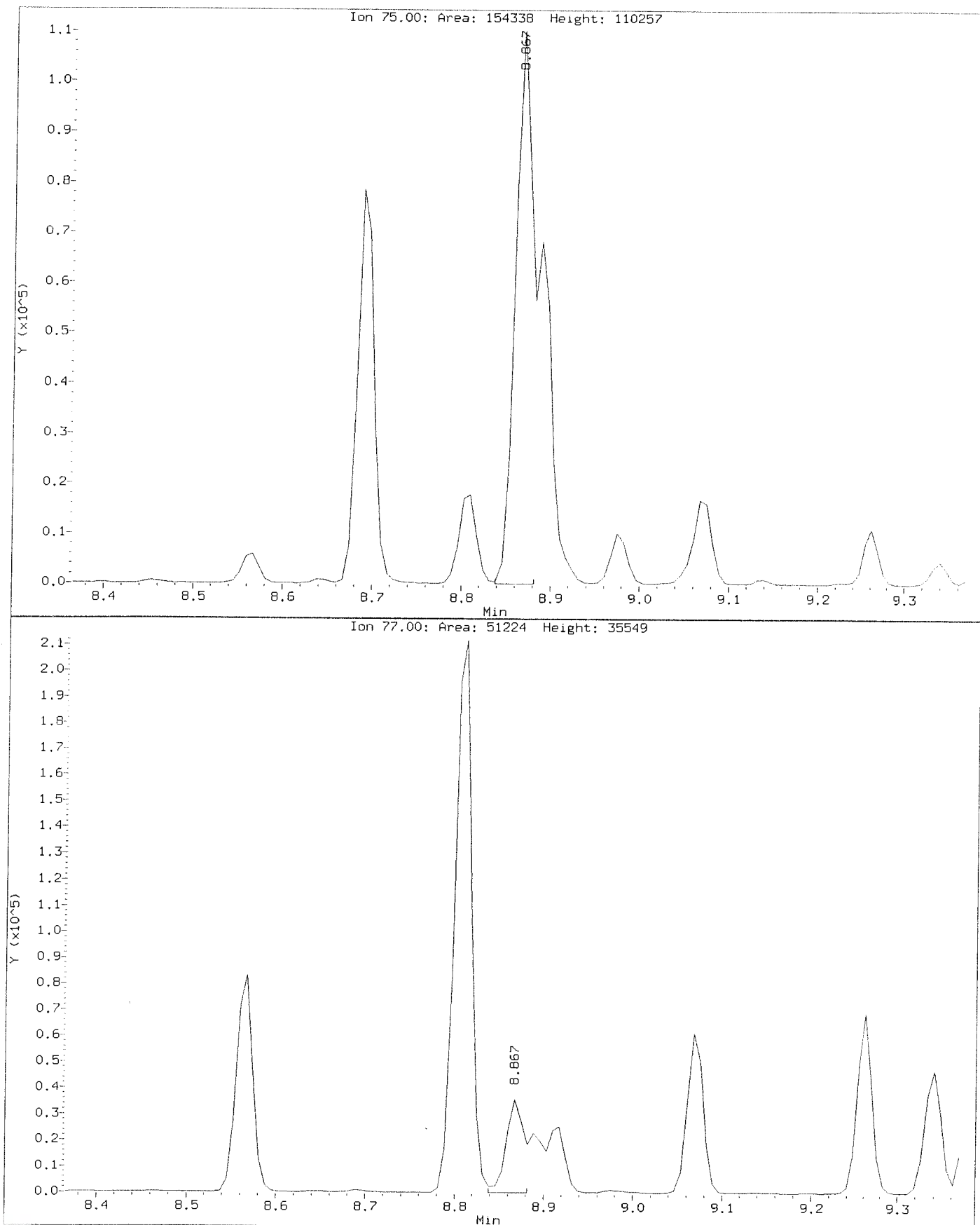
Data File: \\nahstws005\Target\chem\voa6.1\X191118.b\BEFORE\X111814.D
Injection Date: 18-NOV-2019 18:58
Instrument: voo6.1
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.1\X191118.b\X111814.D
Injection Date: 18-NOV-2019 18:58
Instrument: voa6.1
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



MSVOA06 -Logbook

Batch: 38419
 Date: 12-02-2019
 Method: 8260
 Comments:

Analyst: Devak Giga
 Reviewer:
 Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	VSTD050	ICAL7	11-18-2019 04:35 pm	1.00	5.00 mL	0.00 mL	X111808.D	Liquid	Y	NA
2	BFB	TUNE	12-02-2019 10:42 am	1.00	0.00 mL	0.00 mL	X120201.D	Liquid	Y	NA
	<i>Auto find/ purged</i>									
3	CCV	CCV	12-02-2019 11:06 am	1.00	5.00 mL	0.00 mL	X120202.D	Liquid	Y	NA
	<i>10 uL cal std/50 mL DI</i>									
4	BLANK	SAMP	12-02-2019 11:30 am	1.00	5.00 mL	0.00 mL	X120203.D	Liquid	Y	NA
5	CCB	SAMP	12-02-2019 11:54 am	1.00	5.00 mL	0.00 mL	X120204.D	Liquid	Y	NA
	<i>CCB</i>									
6	VLCSW-191202	LCS	12-02-2019 12:18 pm	1.00	5.00 mL	0.00 mL	X120205.D	Liquid	Y	NA
	<i>4.0 uL cal std/50 mL DI</i>									
7	BLK	SAMP	12-02-2019 12:42 pm	1.00	5.00 mL	0.00 mL	X120206.D	Liquid	Y	NA
8	VLKW-191202	MBLK	12-02-2019 01:06 pm	1.00	5.00 mL	0.00 mL	X120207.D	Liquid	Y	NA
9	HS19111343-08	SAMP	12-02-2019 01:30 pm	1.00	5.00 mL	0.00 mL	X120208.D	Liquid	Y	NA
10	HS19111343-06	SAMP	12-02-2019 01:54 pm	1.00	5.00 mL	0.00 mL	X120209.D	Liquid	Y	NA
11	HS19111343-01	SAMP	12-02-2019 02:18 pm	1.00	5.00 mL	0.00 mL	X120210.D	Liquid	Y	NA
12	HS19111343-02	SAMP	12-02-2019 02:42 pm	1.00	5.00 mL	0.00 mL	X120211.D	Liquid	Y	NA
13	HS19111343-03	SAMP	12-02-2019 03:06 pm	1.00	5.00 mL	0.00 mL	X120212.D	Liquid	Y	NA
14	HS19111343-04	SAMP	12-02-2019 03:30 pm	1.00	5.00 mL	0.00 mL	X120213.D	Liquid	Y	NA
15	HS19111343-05	SAMP	12-02-2019 03:54 pm	1.00	5.00 mL	0.00 mL	X120214.D	Liquid	Y	NA
16	HS19111343-07	SAMP	12-02-2019 04:18 pm	1.00	5.00 mL	0.00 mL	X120215.D	Liquid	Y	NA
17	HS19111195-02	SAMP	12-02-2019 04:42 pm	10.00	5.00 mL	0.00 mL	X120216.D	Liquid	Y	NA
18	HS19111343-06MS	MS	12-02-2019 05:06 pm	1.00	5.00 mL	0.00 mL	X120217.D	Liquid	Y	NA
	<i>3.5 uL cal std/40 mL samp</i>									
19	HS19111343-06MSD	MSD	12-02-2019 05:30 pm	1.00	5.00 mL	0.00 mL	X120218.D	Liquid	Y	NA
	<i>3.5 uL cal std/40 mL samp</i>									
20	CCV-END	CCV	12-02-2019 05:54 pm	1.00	5.00 mL	0.00 mL	X120219.D	Liquid	Y	NA
	<i>10 uL cal std/50 mL DI</i>									
21	HS19111195-02	SAMP	12-02-2019 06:18 pm	100.00	5.00 mL	0.00 mL	X120220.D	Liquid	Y	NA
22	HS19120021-01	SAMP	12-02-2019 06:42 pm	1.00	5.00 mL	0.00 mL	X120221.D	Liquid	Y	NA
23	HS19120021-02	SAMP	12-02-2019 07:06 pm	1.00	5.00 mL	0.00 mL	X120222.D	Liquid	Y	NA
24	HS19120021-03	SAMP	12-02-2019 07:30 pm	1.00	5.00 mL	0.00 mL	X120223.D	Liquid	Y	NA
25	HS19120021-04	SAMP	12-02-2019 07:54 pm	1.00	5.00 mL	0.00 mL	X120224.D	Liquid	Y	NA
26	HS19120021-05	SAMP	12-02-2019 08:19 pm	1.00	5.00 mL	0.00 mL	X120225.D	Liquid	Y	NA
27	HS19120021-06	SAMP	12-02-2019 08:43 pm	1.00	5.00 mL	0.00 mL	X120226.D	Liquid	Y	NA
28	HS19120021-07	SAMP	12-02-2019 09:07 pm	1.00	5.00 mL	0.00 mL	X120227.D	Liquid	Y	NA
29	HS19120021-08	SAMP	12-02-2019 09:31 pm	1.00	5.00 mL	0.00 mL	X120228.D	Liquid	Y	NA
30	HS19120021-09	SAMP	12-02-2019 09:55 pm	1.00	5.00 mL	0.00 mL	X120229.D	Liquid	Y	NA
31	HS19120021-10	SAMP	12-02-2019 10:19 pm	1.00	5.00 mL	0.00 mL	X120230.D	Liquid	Y	NA
32	BFB	TUNE	12-02-2019 10:43 pm	1.00	0.00 mL	0.00 mL	Y120201.D	Liquid	Y	NA
	<i>Auto find/ purged</i>									
33	CCV	CCV	12-02-2019 11:07 pm	1.00	5.00 mL	0.00 mL	Y120202a.D	Liquid	Y	NA
	<i>10 uL cal std/50 mL DI</i>									
34	CCV	CCV	12-02-2019 11:31 pm	1.00	5.00 mL	0.00 mL	Y120203.D	Liquid	Y	NA
	<i>10 uL cal std/50 mL DI</i>									
35	CCB	SAMP	12-02-2019 11:55 pm	1.00	5.00 mL	0.00 mL	Y120204.D	Liquid	Y	NA
	<i>CCB</i>									



MSVOA06 -Logbook

#	<u>Samp ID</u>	<u>Type</u>	<u>Analyzed</u>	<u>DF</u>	<u>Init Wt/Vol</u>	<u>Final Vol</u>	<u>File ID</u>	<u>Matrix</u>	<u>Status</u>	<u>pH</u>
36	VLCSW-191202	LCS	12-03-2019 12:19 am	1.00	5.00 mL	0.00 mL	Y120205.D	Liquid	Y	NA
	<i>4.0 uL cal std/50 mL DI</i>									
37	BLK	SAMP	12-03-2019 12:43 am	1.00	5.00 mL	0.00 mL	Y120206.D	Liquid	Y	NA
38	VLKW-191202	MBLK	12-03-2019 01:07 am	1.00	5.00 mL	0.00 mL	Y120207.D	Liquid	Y	NA
39	HS19111432-01	SAMP	12-03-2019 01:31 am	1.00	5.00 mL	0.00 mL	Y120208.D	Liquid	Y	NA
40	HS19111391-05	SAMP	12-03-2019 01:55 am	100.00	5.00 mL	0.00 mL	Y120209.D	Liquid	Y	NA
41	HS19111192-04	SAMP	12-03-2019 02:19 am	500.00	5.00 mL	0.00 mL	Y120210.D	Liquid	Y	NA
42	HS19111391-01	SAMP	12-03-2019 02:43 am	500.00	5.00 mL	0.00 mL	Y120211.D	Liquid	Y	NA
43	HS19111432-01MS	MS	12-03-2019 03:07 am	1.00	5.00 mL	0.00 mL	Y120212.D	Liquid	Y	NA
	<i>3.5 uL cal std/40 mL samp</i>									
44	HS19111432-01MSD	MSD	12-03-2019 03:31 am	1.00	5.00 mL	0.00 mL	Y120213.D	Liquid	Y	NA
	<i>3.5 uL cal std/40 mL samp</i>									
45	HS19120016-01	SAMP	12-03-2019 03:55 am	1.00	5.00 mL	0.00 mL	Y120214.D	Liquid	Y	NA
46	HS19120016-02	SAMP	12-03-2019 04:19 am	1.00	5.00 mL	0.00 mL	Y120215.D	Liquid	Y	NA
47	HS19111404-01	SAMP	12-03-2019 04:43 am	1.00	5.00 mL	0.00 mL	Y120216.D	Liquid	Y	NA
48	HS19111412-01	SAMP	12-03-2019 05:07 am	1.00	5.00 mL	0.00 mL	Y120217.D	Liquid	Y	NA
49	HS19111305-04	SAMP	12-03-2019 05:31 am	1.00	5.00 mL	0.00 mL	Y120218.D	Liquid	Y	NA
50	MBLK-147985	MBLK	12-03-2019 05:55 am	20.00	5.00 mL	0.00 mL	Y120219.D	Liquid	Y	NA
51	HS19111220-01	SAMP	12-03-2019 06:20 am	20.00	5.00 mL	0.00 mL	Y120220.D	Liquid	Y	NA
52	HS19111334-01	SAMP	12-03-2019 06:44 am	50.00	5.00 mL	0.00 mL	Y120221.D	Liquid	Y	NA
53	HS19111195-05	SAMP	12-03-2019 07:08 am	10.00	5.00 mL	0.00 mL	Y120222.D	Liquid	Y	NA
54	HS19111446-04	SAMP	12-03-2019 07:32 am	1.00	5.00 mL	0.00 mL	Y120223.D	Liquid	Y	NA
55	HS19111455-03	SAMP	12-03-2019 07:56 am	1.00	5.00 mL	0.00 mL	Y120224.D	Liquid	Y	NA
56	HS19111359-01	SAMP	12-03-2019 08:20 am	1.00	5.00 mL	0.00 mL	Y120225.D	Liquid	Y	NA
57	HS19111397-34	SAMP	12-03-2019 08:44 am	1.00	5.00 mL	0.00 mL	Y120226.D	Liquid	Y	NA
58	HS19111397-35	SAMP	12-03-2019 09:08 am	1.00	5.00 mL	0.00 mL	Y120227.D	Liquid	Y	NA

Chemical	Value
SURR SPK ID	31106-06-03
IS ID	31106-06-04
LCS/MS ID	30603-94-01
CAL STD ID	31106-06-01/02
BFB ID	31106-06-03
pH Paper	634-64-11



FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111343

	CLIENT SAMPLE NO.	SMC1 #	SMC2 #	SMC3 (TOL) #	OTHER (DCE) #	TOT OUT
	=====	=====	=====	=====	=====	=====
01	VLCSW-19202	99	102	93	107	0
02	VBLKW-191202	95	100	97	101	0
03	HS19111343-08	96	101	96	102	0
04	HS19111343-06	96	99	95	100	0
05	HS19111343-01	96	99	96	101	0
06	HS19111343-02	95	101	97	102	0
07	HS19111343-03	97	100	97	102	0
08	HS19111343-04	96	99	96	100	0
09	HS19111343-05	95	100	98	102	0
10	HS19111343-07	96	100	96	100	0
11	HS19111343-06	100	99	95	100	0
12	HS19111343-06	99	100	97	102	0
13						
14						
15						
16						
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22						
23						
24						
25						
26						
27						
28						

QC LIMITS

SMC1 = 4-Bromofluorobenzene (70-130)

SMC2 = Dibromofluoromethane (70-130)

SMC3 (TOL) = Toluene-d8 (0-130)

OTHER(DCE) = 1,2-Dichloroethane-d4 (0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out



FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-191202

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111343

Lab File ID: X120207

Lab Sample ID: VBLKW-191202

Date Analyzed: 12/02/19

Time Analyzed: 1306

GC Column: DB624 ID: 0.18 (mm)

Heated Purge: (Y/N) N

Instrument ID: VOA6

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
	=====	=====	=====	=====
01	VLCSW-19202	VLCSW-191202	X120205	1218
02	HS19111343-0	HS19111343-08	X120208	1330
03	HS19111343-0	HS19111343-06	X120209	1354
04	HS19111343-0	HS19111343-01	X120210	1418
05	HS19111343-0	HS19111343-02	X120211	1442
06	HS19111343-0	HS19111343-03	X120212	1506
07	HS19111343-0	HS19111343-04	X120213	1530
08	HS19111343-0	HS19111343-05	X120214	1554
09	HS19111343-0	HS19111343-07	X120215	1618
10	HS19111343-0	HS19111343-06M	X120217	1706
11	HS19111343-0	HS19111343-06M	X120218	1730
12				
13				
14				
15				
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26				
27				
28				
29				
30				

COMMENTS:



FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111343

Lab File ID: X120101

BFB Injection Date: 12/01/19

Instrument ID: VOA6

BFB Injection Time: 1100

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	18.2
75	30.0 - 60.0% of mass 95	48.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.7 (0.8)1
174	Greater than 50.0% of mass 95	92.6
175	5.0 - 9.0% of mass 174	6.9 (7.4)1
176	95.0 - 101.0% of mass 174	89.7 (96.9)1
177	5.0 - 9.0% of mass 176	6.3 (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	CCV	CCV	X120202	12/02/19	1106
02	VLCSW-19202	VLCSW-191202	X120205	12/02/19	1218
03	VBLKW-191202	VBLKW-191202	X120207	12/02/19	1306
04	HS19111343-0	HS19111343-08	X120208	12/02/19	1330
05	HS19111343-0	HS19111343-06	X120209	12/02/19	1354
06	HS19111343-0	HS19111343-01	X120210	12/02/19	1418
07	HS19111343-0	HS19111343-02	X120211	12/02/19	1442
08	HS19111343-0	HS19111343-03	X120212	12/02/19	1506
09	HS19111343-0	HS19111343-04	X120213	12/02/19	1530
10	HS19111343-0	HS19111343-05	X120214	12/02/19	1554
11	HS19111343-0	HS19111343-07	X120215	12/02/19	1618
12	HS19111343-0	HS19111343-06M	X120217	12/02/19	1706
13	HS19111343-0	HS19111343-06M	X120218	12/02/19	1730
14	CCV-END	CCV-END	X120219	12/02/19	1754
15					
16					
17					
18					
19					
20					
21					
22					

page 1 of 1

FORM V VOA



FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111343

Instrument ID: VOA6

Calibration Date: 12/02/19 Time: 1106

Lab File ID: X120202

Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624

ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
=====	=====	=====	=====	=====	=====	=====	=====
cis-1,3-Dichloropropene	0.4880000	0.5266441	0.5266441	0.2	-7.92	20.00	AVRG
trans-1,3-Dichloropropene	0.4440000	0.4932142	0.4932142	0.1	-11.08	20.00	AVRG
1,3-Dichlorobenzene	1.4340000	1.5609381	1.5609381	0.6	-8.85	20.00	AVRG
2,2-Dichloropropane	0.6600000	0.7020050	0.7020050	0.1	-6.36	20.00	AVRG
1,1-Dichloropropene	0.4030000	0.4172279	0.4172279	0.1	-3.53	20.00	AVRG
Dibromomethane	0.2110000	0.2322683	0.2322683	0.1	-10.08	20.00	AVRG
1,2-Dibromoethane	0.3510000	0.3852920	0.3852920	0.1	-9.77	20.00	AVRG
trans-1,2-Dichloroethene	0.4110000	0.4749108	0.4749108	0.1	-15.55	20.00	AVRG
1,1,1,2-Tetrachloroethane	0.3630000	0.3927961	0.3927961	0.1	-8.21	20.00	AVRG
1,1,1-Trichloroethane	0.6740000	0.7856848	0.7856848	0.1	-16.57	20.00	AVRG
1,1,2,2-Tetrachloroethane	0.7030000	0.7431577	0.7431577	0.3	-5.71	20.00	AVRG
Toluene	1.4180000	1.5187592	1.5187592	0.4	-7.10	20.00	AVRG
1,1,2-Trichloroethane	0.2610000	0.2846376	0.2846376	0.1	-9.06	20.00	AVRG
1,1-Dichloroethane	0.7270000	0.8306231	0.8306231	0.2	-14.25	20.00	AVRG
1,1-Dichloroethene	0.4240000	0.4467752	0.4467752	0.1	-5.37	20.00	AVRG
Trichlorofluoromethane	0.7760000	0.8623505	0.8623505	0.1	-11.13	20.00	AVRG
1,2,3-Trichlorobenzene	62.568255	50.000000	0.1988089	0.1	-25.14	20.00	2RDR <-
Tetrachloroethene	0.3510000	0.3504397	0.3504397	0.2	0.16	20.00	AVRG
1,2,4-Trichlorobenzene	0.4210000	0.4120742	0.4120742	0.2	2.12	20.00	AVRG
1,2,4-Trimethylbenzene	2.3720000	2.6025347	2.6025347	0.1	-9.72	20.00	AVRG
tert-Butylbenzene	1.9490000	2.1389547	2.1389547	0.1	-9.75	20.00	AVRG
Trichloroethene	0.3500000	0.3729307	0.3729307	0.2	-6.55	20.00	AVRG
1,2-Dichlorobenzene	1.3270000	1.4300163	1.4300163	0.4	-7.76	20.00	AVRG
1,2-Dichloroethane	0.3970000	0.4509777	0.4509777	0.1	-13.60	20.00	AVRG
1,2-Dichloropropane	0.2990000	0.3136413	0.3136413	0.1	-4.90	20.00	AVRG
1,3,5-Trimethylbenzene	2.2760000	2.4922048	2.4922048	0.1	-9.50	20.00	AVRG
1,3-Dichloropropane	0.5310000	0.5676613	0.5676613	0.1	-6.90	20.00	AVRG
1,4-Dichlorobenzene	1.4570000	1.5713225	1.5713225	0.4	-7.85	20.00	AVRG
2-Butanone	0.1530000	0.1744571	0.1744571	0.1	-14.02	20.00	AVRG
2-Chlorotoluene	1.7990000	2.0604508	2.0604508	0.1	-14.53	20.00	AVRG
2-Hexanone	0.2050000	0.2132386	0.2132386	0.1	-4.02	20.00	AVRG
4-Chlorotoluene	2.1800000	2.4071213	2.4071213	0.1	-10.42	20.00	AVRG
Styrene	1.0440000	1.1515729	1.1515729	0.3	-10.30	20.00	AVRG
4-Methyl-2-Pentanone	0.2930000	0.3059011	0.3059011	0.1	-4.40	20.00	AVRG
Acetone	99.554097	100.000000	0.1256468	0.1	0.44	20.00	LINR
Benzene	1.1440000	1.2444552	1.2444552	0.5	-8.78	20.00	AVRG
Bromobenzene	0.8690000	0.9476410	0.9476410	0.1	-9.05	20.00	AVRG
Bromochloromethane	0.2710000	0.3098719	0.3098719	0.1	-14.34	20.00	AVRG
Bromodichloromethane	0.4140000	0.4626043	0.4626043	0.2	-11.74	20.00	AVRG
Bromoform	54.302429	50.000000	0.3203697	0.1	-8.60	20.00	LINR
Bromomethane	51.636101	50.000000	0.5413069	0.1	-3.27	20.00	LINR
Carbon Disulfide	1.1530000	1.3088906	1.3088906	0.1	-13.52	20.00	AVRG

page 1 of 2

FORM VII VOA



FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911134

Instrument ID: VOA6

Calibration Date: 12/02/19 Time: 1106

Lab File ID: X120202

Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
=====	=====	=====	=====	=====	=====	=====	=====
Carbon Tetrachloride	0.4420000	0.4577165	0.4577165	0.1	-3.56	20.00	AVRG
Chlorobenzene	0.9760000	1.0405355	1.0405355	0.5	-6.61	20.00	AVRG
Chloroethane	0.3150000	0.3286236	0.3286236	0.1	-4.32	20.00	AVRG
Chloroform	0.8100000	0.9110883	0.9110883	0.2	-12.48	20.00	AVRG
Chloromethane	40.042393	50.000000	0.4412918	0.1	19.92	20.00	LINR
cis-1,2-Dichloroethene	0.4740000	0.5589952	0.5589952	0.1	-17.93	20.00	AVRG
Dibromochloromethane	0.3800000	0.4135296	0.4135296	0.1	-8.82	20.00	AVRG
Dichlorodifluoromethane	58.678441	50.000000	0.5397133	0.1	-17.36	20.00	LINR
Ethylbenzene	0.5040000	0.5451989	0.5451989	0.1	-8.17	20.00	AVRG
Hexachlorobutadiene	0.4020000	0.3304314	0.3304314	0.1	17.80	20.00	AVRG
Isopropylbenzene	1.4940000	1.6363079	1.6363079	0.1	-9.52	20.00	AVRG
m,p-Xylenes	0.6080000	0.6636724	0.6636724	0.1	-9.16	20.00	AVRG
Methylene Chloride	0.4520000	0.4954037	0.4954037	0.1	-9.60	20.00	AVRG
n-Butylbenzene	2.0360000	2.1623213	2.1623213	0.5	-6.20	20.00	AVRG
n-Propylbenzene	3.0900000	3.4071040	3.4071040	0.1	-10.26	20.00	AVRG
Naphthalene	0.5400000	0.5373773	0.5373773	0.2	0.48	20.00	AVRG
o-Xylene	0.6000000	0.6435896	0.6435896	0.3	-7.26	20.00	AVRG
sec-Butylbenzene	2.6850000	2.9105880	2.9105880	0.1	-8.40	20.00	AVRG
Vinyl Chloride	0.5100000	0.5235612	0.5235612	0.1	-2.66	20.00	AVRG
1,2,3-Trichloropropane	0.5960000	0.6381171	0.6381171	0.1	-7.07	20.00	AVRG
p-Isopropyltoluene	2.4460000	2.6140013	2.6140013	0.1	-6.87	20.00	AVRG
1,2-Dibromo-3-Chloropropane	56.621716	50.000000	8.43e-002	0.05	-13.24	20.00	LINR
Freon TF	0.4350000	0.4354613	0.4354613	0.1	-0.11	20.00	AVRG
=====	=====	=====	=====	=====	=====	=====	=====
4-Bromofluorobenzene	53.166091	50.000000	0.4835198	0.1	-6.33	20.00	LINR
Dibromofluoromethane	53.677458	50.000000	0.4864652	0.1	-7.35	20.00	LINR
Toluene-d8	1.3170000	1.2158857	1.2158857	0.1	7.68	20.00	AVRG
1,2-Dichloroethane-d4	55.383871	50.000000	0.5350964	0.1	-10.77	20.00	LINR



FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111343

Instrument ID: VOA6

Calibration Date: 12/02/19 Time: 1754

Lab File ID: X120219

Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624

ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
=====	=====	=====	=====	=====	=====	=====	=====
cis-1,3-Dichloropropene	0.4880000	0.5266441	0.5266441	0.2	-7.92	50.00	AVRG
trans-1,3-Dichloropropene	0.4440000	0.4932142	0.4932142	0.1	-11.08	50.00	AVRG
1,3-Dichlorobenzene	1.4340000	1.5609381	1.5609381	0.6	-8.85	50.00	AVRG
2,2-Dichloropropane	0.6600000	0.7020050	0.7020050	0.1	-6.36	50.00	AVRG
1,1-Dichloropropene	0.4030000	0.4172279	0.4172279	0.1	-3.53	50.00	AVRG
Dibromomethane	0.2110000	0.2322683	0.2322683	0.1	-10.08	50.00	AVRG
1,2-Dibromoethane	0.3510000	0.3852920	0.3852920	0.1	-9.77	50.00	AVRG
trans-1,2-Dichloroethene	0.4110000	0.4749108	0.4749108	0.1	-15.55	50.00	AVRG
1,1,1,2-Tetrachloroethane	0.3630000	0.3927961	0.3927961	0.1	-8.21	50.00	AVRG
1,1,1-Trichloroethane	0.6740000	0.7856848	0.7856848	0.1	-16.57	50.00	AVRG
1,1,2,2-Tetrachloroethane	0.7030000	0.7431577	0.7431577	0.3	-5.71	50.00	AVRG
Toluene	1.4180000	1.5187592	1.5187592	0.4	-7.10	50.00	AVRG
1,1,2-Trichloroethane	0.2610000	0.2846376	0.2846376	0.1	-9.06	50.00	AVRG
1,1-Dichloroethane	0.7270000	0.8306231	0.8306231	0.2	-14.25	50.00	AVRG
1,1-Dichloroethene	0.4240000	0.4467752	0.4467752	0.1	-5.37	50.00	AVRG
Trichlorofluoromethane	0.7760000	0.8623505	0.8623505	0.1	-11.13	50.00	AVRG
1,2,3-Trichlorobenzene	53.498021	50.000000	0.1988089	0.1	-7.00	50.00	2RDR
Tetrachloroethene	0.3510000	0.3504397	0.3504397	0.2	0.16	50.00	AVRG
1,2,4-Trichlorobenzene	0.4210000	0.4120742	0.4120742	0.2	2.12	50.00	AVRG
1,2,4-Trimethylbenzene	2.3720000	2.6025347	2.6025347	0.1	-9.72	50.00	AVRG
tert-Butylbenzene	1.9490000	2.1389547	2.1389547	0.1	-9.75	50.00	AVRG
Trichloroethene	0.3500000	0.3729307	0.3729307	0.2	-6.55	50.00	AVRG
1,2-Dichlorobenzene	1.3270000	1.4300163	1.4300163	0.4	-7.76	50.00	AVRG
1,2-Dichloroethane	0.3970000	0.4509777	0.4509777	0.1	-13.60	50.00	AVRG
1,2-Dichloropropane	0.2990000	0.3136413	0.3136413	0.1	-4.90	50.00	AVRG
1,3,5-Trimethylbenzene	2.2760000	2.4922048	2.4922048	0.1	-9.50	50.00	AVRG
1,3-Dichloropropane	0.5310000	0.5676613	0.5676613	0.1	-6.90	50.00	AVRG
1,4-Dichlorobenzene	1.4570000	1.5713225	1.5713225	0.4	-7.85	50.00	AVRG
2-Butanone	0.1530000	0.1744571	0.1744571	0.1	-14.02	50.00	AVRG
2-Chlorotoluene	1.7990000	2.0604508	2.0604508	0.1	-14.53	50.00	AVRG
2-Hexanone	0.2050000	0.2132386	0.2132386	0.1	-4.02	50.00	AVRG
4-Chlorotoluene	2.1800000	2.4071213	2.4071213	0.1	-10.42	50.00	AVRG
Styrene	1.0440000	1.1515729	1.1515729	0.3	-10.30	50.00	AVRG
4-Methyl-2-Pentanone	0.2930000	0.3059011	0.3059011	0.1	-4.40	50.00	AVRG
Acetone	96.954110	100.000000	0.1256468	0.1	3.04	50.00	LINR
Benzene	1.1440000	1.2444552	1.2444552	0.5	-8.78	50.00	AVRG
Bromobenzene	0.8690000	0.9476410	0.9476410	0.1	-9.05	50.00	AVRG
Bromochloromethane	0.2710000	0.3098719	0.3098719	0.1	-14.34	50.00	AVRG
Bromodichloromethane	0.4140000	0.4626043	0.4626043	0.2	-11.74	50.00	AVRG
Bromoform	53.726859	50.000000	0.3203697	0.1	-7.45	50.00	LINR
Bromomethane	54.650446	50.000000	0.5413069	0.1	-9.30	50.00	LINR
Carbon Disulfide	1.1530000	1.3088906	1.3088906	0.1	-13.52	50.00	AVRG

page 1 of 2

FORM VII VOA



FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS1911134

Instrument ID: VOA6

Calibration Date: 12/02/19 Time: 1754

Lab File ID: X120219

Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624

ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
=====	=====	=====	=====	=====	=====	=====	=====
Carbon Tetrachloride	0.4420000	0.4577165	0.4577165	0.1	-3.56	50.00	AVRG
Chlorobenzene	0.9760000	1.0405355	1.0405355	0.5	-6.61	50.00	AVRG
Chloroethane	0.3150000	0.3286236	0.3286236	0.1	-4.32	50.00	AVRG
Chloroform	0.8100000	0.9110883	0.9110883	0.2	-12.48	50.00	AVRG
Chloromethane	40.667094	50.000000	0.4412918	0.1	18.66	50.00	LINR
cis-1,2-Dichloroethene	0.4740000	0.5589952	0.5589952	0.1	-17.93	50.00	AVRG
Dibromochloromethane	0.3800000	0.4135296	0.4135296	0.1	-8.82	50.00	AVRG
Dichlorodifluoromethane	59.067887	50.000000	0.5397133	0.1	-18.14	50.00	LINR
Ethylbenzene	0.5040000	0.5451989	0.5451989	0.1	-8.17	50.00	AVRG
Hexachlorobutadiene	0.4020000	0.3304314	0.3304314	0.1	17.80	50.00	AVRG
Isopropylbenzene	1.4940000	1.6363079	1.6363079	0.1	-9.52	50.00	AVRG
m,p-Xylenes	0.6080000	0.6636724	0.6636724	0.1	-9.16	50.00	AVRG
Methylene Chloride	0.4520000	0.4954037	0.4954037	0.1	-9.60	50.00	AVRG
n-Butylbenzene	2.0360000	2.1623213	2.1623213	0.5	-6.20	50.00	AVRG
n-Propylbenzene	3.0900000	3.4071040	3.4071040	0.1	-10.26	50.00	AVRG
Naphthalene	0.5400000	0.5373773	0.5373773	0.2	0.48	50.00	AVRG
o-Xylene	0.6000000	0.6435896	0.6435896	0.3	-7.26	50.00	AVRG
sec-Butylbenzene	2.6850000	2.9105880	2.9105880	0.1	-8.40	50.00	AVRG
Vinyl Chloride	0.5100000	0.5235612	0.5235612	0.1	-2.66	50.00	AVRG
1,2,3-Trichloropropane	0.5960000	0.6381171	0.6381171	0.1	-7.07	50.00	AVRG
p-Isopropyltoluene	2.4460000	2.6140013	2.6140013	0.1	-6.87	50.00	AVRG
1,2-Dibromo-3-Chloropropane	54.349882	50.000000	8.43e-002	0.05	-8.70	50.00	LINR
Freon TF	0.4350000	0.4354613	0.4354613	0.1	-0.11	50.00	AVRG
=====	=====	=====	=====	=====	=====	=====	=====
4-Bromofluorobenzene	51.954028	50.000000	0.4835198	0.1	-3.91	50.00	LINR
Dibromofluoromethane	53.474001	50.000000	0.4864652	0.1	-6.95	50.00	LINR
Toluene-d8	1.3170000	1.2158857	1.2158857	0.1	7.68	50.00	AVRG
1,2-Dichloroethane-d4	56.775567	50.000000	0.5350964	0.1	-13.55	50.00	LINR



FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111343

Lab File ID (Standard): X120202

Date Analyzed: 12/02/19

Instrument ID: VOA6

Time Analyzed: 1106

GC Column: DB624

ID: 0.18 (mm)

Heated Purge: (Y/N) N

	IS1 (DCB)		IS2 (CBZ)		IS3 (DFB)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	286109	9.67	499267	7.67	536440	4.97
UPPER LIMIT	572218	10.17	998534	8.17	1072880	5.47
LOWER LIMIT	143055	9.17	249634	7.17	268220	4.47
=====	=====	=====	=====	=====	=====	=====
CLIENT						
SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 VLCSW-19202	277141	9.66	507072	7.67	553059	4.97
02 VBLKW-191202	311979	9.67	618475	7.67	699689	4.97
03 HS19111343-08	319641	9.67	624344	7.67	695673	4.97
04 HS19111343-06	323984	9.66	627604	7.67	702804	4.97
05 HS19111343-01	314415	9.66	623120	7.67	696531	4.97
06 HS19111343-02	309345	9.67	615358	7.67	696898	4.97
07 HS19111343-03	318734	9.67	619699	7.67	696256	4.97
08 HS19111343-04	317004	9.66	635397	7.67	710678	4.97
09 HS19111343-05	303256	9.66	605264	7.67	694092	4.97
10 HS19111343-07	331713	9.67	637028	7.67	709563	4.97
11 HS19111343-06	327412	9.67	611250	7.67	671021	4.97
12 HS19111343-06	320825	9.67	599711	7.67	669718	4.97
13						
14						
15						
16						
17						
18						
19						
20						

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (CBZ) = Chlorobenzene-d5

IS3 (DFB) = 1,4-Difluorobenzene

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.

page 1 of 2

FORM VIII VOA



FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: HS19111343

Lab File ID (Standard): X120202

Date Analyzed: 12/02/19

Instrument ID: VOA6

Time Analyzed: 1106

GC Column: DB624

ID: 0.18 (mm)

Heated Purge: (Y/N) N

	IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	365905	4.18				
UPPER LIMIT	731810	4.68				
LOWER LIMIT	182953	3.68				
=====	=====	=====	=====	=====	=====	=====
CLIENT SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 VLCSW-19202	385029	4.18				
02 VBLKW-191202	496456	4.18				
03 HS19111343-08	495332	4.18				
04 HS19111343-06	497325	4.18				
05 HS19111343-01	498367	4.18				
06 HS19111343-02	493789	4.18				
07 HS19111343-03	489713	4.18				
08 HS19111343-04	504096	4.18				
09 HS19111343-05	494828	4.18				
10 HS19111343-07	502231	4.18				
11 HS19111343-06	476412	4.18				
12 HS19111343-06	474380	4.18				
13						
14						
15						
16						
17						
18						
19						
20						

IS4 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = + 0.50 minutes of internal standard RT

RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.

* Values outside of QC limits.



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120201.D

Page 1

Date : 02-DEC-2019 10:42

Client ID: BFB

Instrument: voa6.i

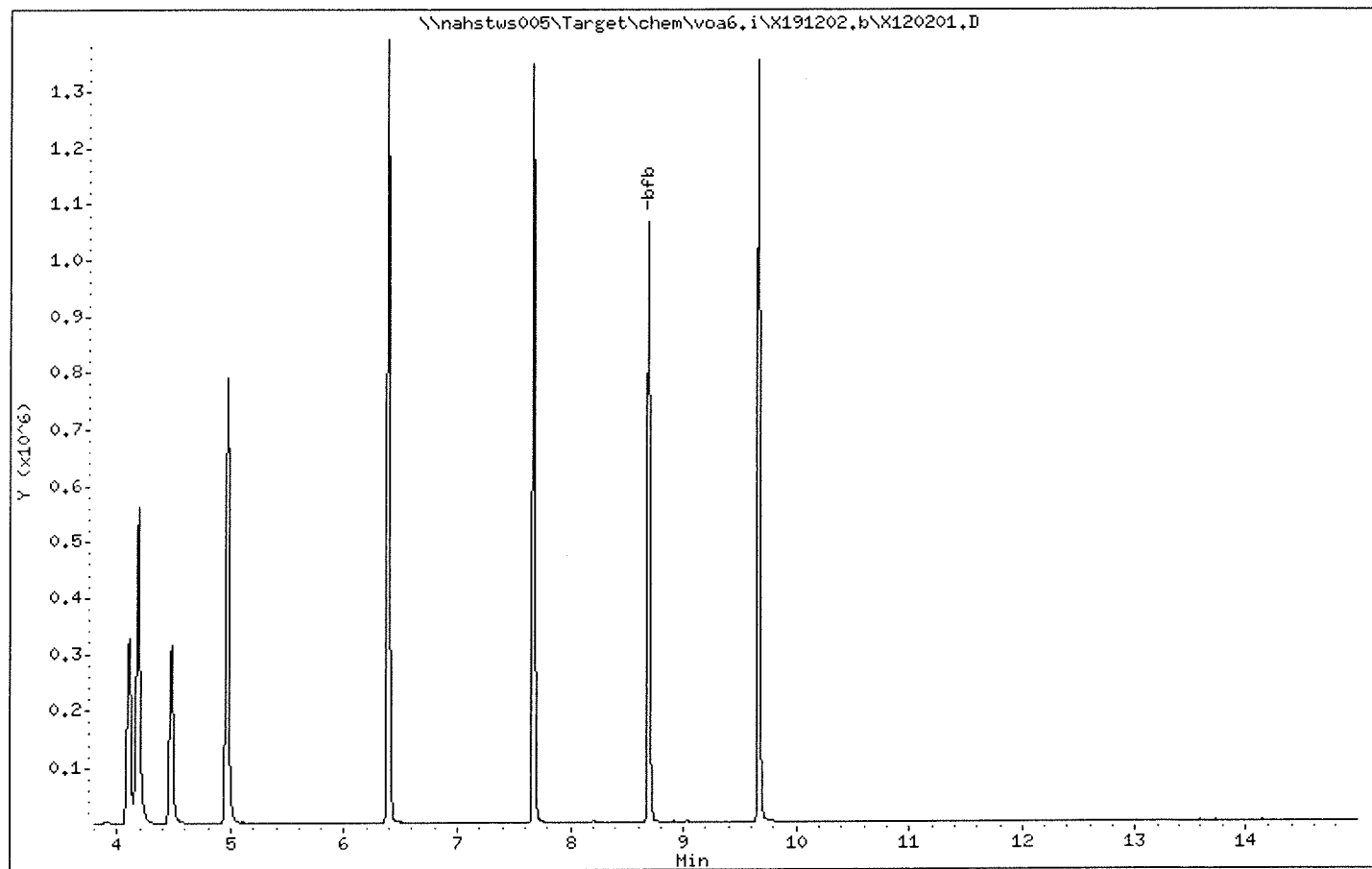
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120201.D

Page 2

Date : 02-DEC-2019 10:42

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

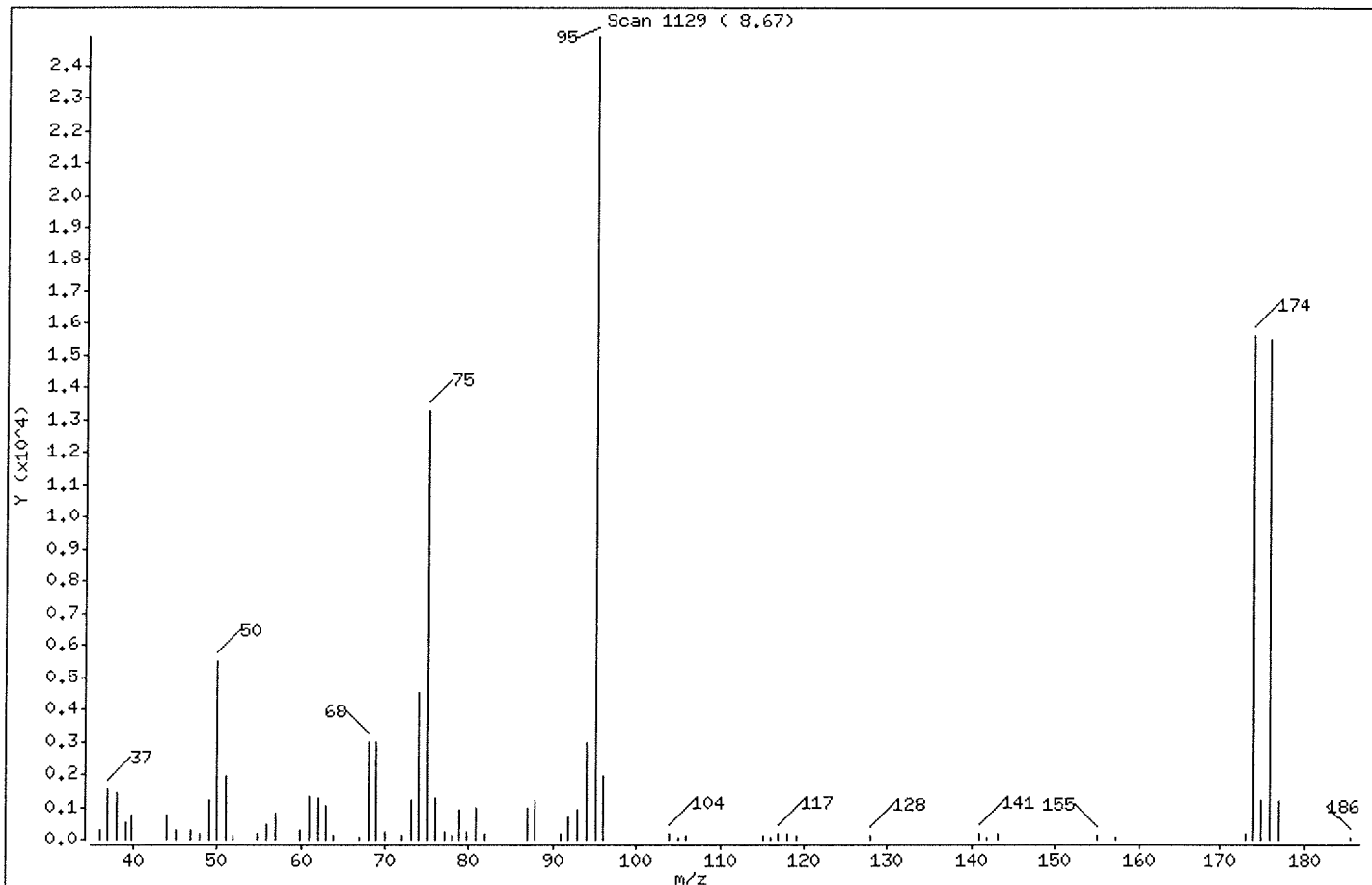
Volume Injected (uL): 2.0

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	21.98
75	30.00 - 60.00% of mass 95	53.41
96	5.00 - 9.00% of mass 95	7.71
173	Less than 2.00% of mass 174	0.80 (1.28)
174	Greater than 50.00% of mass 95	62.77
175	5.00 - 9.00% of mass 174	4.73 (7.54)
176	95.00 - 101.00% of mass 174	62.27 (99.20)
177	5.00 - 9.00% of mass 176	4.81 (7.73)

Data File: \\nahstus005\Target\chem\voa6.i\X191202,b\X120201.D

Page 3

Date : 02-DEC-2019 10:42

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: X120201.D

Spectrum: Scan 1129 (8.67)

Location of Maximum: 95.00

Number of points: 65

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	295	61.00	1295	80.90	977	119.00	131
37.00	1547	62.00	1269	82.00	188	127.90	98
38.00	1446	62.90	1056	86.90	958	140.80	159
39.10	529	63.90	141	87.90	1184	141.00	165
39.90	722	66.90	62	90.90	162	141.70	56
44.00	744	68.00	3001	91.90	713	143.00	150
45.10	294	69.00	2971	93.00	891	154.90	98
46.80	263	70.00	205	94.00	2966	157.10	68
48.00	199	72.00	114	95.00	24896	173.00	200
49.00	1200	73.00	1224	96.00	1920	173.90	15627
50.00	5472	74.00	4533	103.90	174	174.90	1178
51.00	1923	75.00	13296	105.00	51	175.90	15502
51.90	129	76.00	1241	105.90	112	177.00	1198
54.90	180	77.00	247	115.10	89	185.70	53
56.00	486	77.90	121	116.00	76		
57.10	828	78.90	901	116.80	183		
59.90	285	79.80	214	117.90	146		

Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120202.D Page 1
 Report Date: 07-Dec-2019 09:41

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120202.D
 Lab Smp Id: CCV Client Smp ID: CCV
 Inj Date : 02-DEC-2019 11:06
 Operator : PC Inst ID: voa6.i
 Smp Info : CCV;CCV;2;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
 Meth Date : 07-Dec-2019 09:41 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 2 Continuing Calibration Sample
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.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

							AMOUNTS	
QUANT' SIG							CAL-AMT	ON-COL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)	
=====	=====	=====	=====	=====	=====	=====	=====	
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	365905	50.0000		
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	536440	50.0000		
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	499267	50.0000		
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	286109	50.0000		
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	190932	50.0000	55.38	
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	247083	50.0000	53.16	
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	178682	50.0000	53.67	
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	616851	50.0000	46.89	
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	190275	50.0000	52.53	
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	269220	50.0000	54.53	
68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.914)	212357	50.0000	52.78	
138 Freon TF	101	1.912	1.919	(0.457)	161300	50.0000	50.63	
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	138373	50.0000	53.01	
22 1,1-Dichloroethane	63	2.922	2.921	(0.699)	293985	50.0000	55.21	
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	156699	50.0000	50.53	
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	219875	50.0000	50.81	
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	66441	50.0000	62.56	
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	179994	50.0000	52.80 (M)	
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	139830	50.0000	58.01	
79 1,2,4-Trimethylbenzene	105	9.383	9.382	(0.970)	718895	50.0000	52.95	
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.657	(1.102)	25128	50.0000	56.62	
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	189942	50.0000	54.24	
88 1,2-Dichlorobenzene	146	9.999	9.998	(1.034)	404951	50.0000	53.32	



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120202.D Page 2
 Report Date: 07-Dec-2019 09:41

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
33 1,2-Dichloroethane	62	4.555	4.562	(0.916)	240837	50.0000	56.55
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	165366	50.0000	51.60
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	679362	50.0000	52.15
83 1,3-Dichlorobenzene	146	9.605	9.612	(0.993)	428215	50.0000	52.18
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	275985	50.0000	52.08
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	438539	50.0000	52.59
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	263955	50.0000	54.62
24 2-Butanone	43	3.581	3.573	(0.856)	124250	100.000	110.66
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	549193	50.0000	53.35
52 2-Hexanone	43	7.083	7.090	(0.923)	213375	100.000	104.03
77 4-Chlorotoluene	91	9.075	9.074	(0.939)	659929	50.0000	52.89
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	724488	50.0000	51.75
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	309792	100.000	105.89
10 Acetone	43	1.976	1.969	(0.473)	94321	100.000	99.55
37 Benzene	78	4.512	4.512	(0.908)	654923	50.0000	53.37
74 Bromobenzene	156	8.810	8.809	(0.911)	257783	50.0000	51.84
29 Bromochloromethane	128	3.795	3.795	(0.908)	108524	50.0000	54.74
39 Bromodichloromethane	83	5.729	5.729	(1.153)	242323	50.0000	54.58
66 Bromoform	173	8.416	8.415	(1.097)	161696	50.0000	54.30
6 Bromomethane	94	1.338	1.338	(0.320)	187594	50.0000	51.63
19 Carbon Disulfide	76	2.069	2.069	(0.495)	935635	100.000	110.91
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	236334	50.0000	49.85
59 Chlorobenzene	112	7.692	7.699	(1.003)	507170	50.0000	52.03
7 Chloroethane	64	1.403	1.403	(0.336)	119658	50.0000	51.93
28 Chloroform	83	3.910	3.910	(0.935)	317570	50.0000	53.59
3 Chloromethane	50	1.073	1.073	(0.257)	158979	50.0000	40.04 (M)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	195271	50.0000	56.27
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	283146	50.0000	54.12
55 Dibromochloromethane	129	7.176	7.176	(0.936)	203965	50.0000	53.79
44 Dibromomethane	93	5.558	5.557	(1.118)	122953	50.0000	54.21
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	196162	50.0000	58.67
61 Ethylbenzene	106	7.800	7.799	(1.017)	262346	50.0000	52.09
91 Hexachlorobutadiene	225	11.481	11.488	(1.187)	111587	50.0000	48.53
67 Isopropylbenzene	105	8.566	8.566	(1.117)	800696	50.0000	53.67
62 m,p-Xylenes	106	7.907	7.907	(1.031)	644225	100.000	106.00
17 Methylene Chloride	84	2.305	2.305	(0.551)	176113	50.0000	53.22
87 n-Butylbenzene	91	9.999	9.998	(1.034)	628541	50.0000	53.95
73 n-Propylbenzene	91	8.917	8.917	(0.922)	920366	50.0000	52.04
92 Naphthalene	128	11.546	11.546	(1.194)	172324	50.0000	55.74
63 o-Xylene	106	8.244	8.243	(1.075)	315354	50.0000	52.57
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	801689	50.0000	52.18
64 Styrene	104	8.258	8.258	(1.077)	576717	50.0000	55.29
78 tert-Butylbenzene	119	9.340	9.339	(0.966)	585557	50.0000	52.49
56 Tetrachloroethene	164	6.933	6.933	(0.904)	172236	50.0000	49.09
50 Toluene	91	6.446	6.446	(0.840)	734324	50.0000	51.86
20 trans-1,2-Dichloroethene	96	2.528	2.527	(0.604)	166891	50.0000	55.43
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	259367	50.0000	54.39
38 Trichloroethene	130	5.207	5.206	(1.048)	198663	50.0000	52.95
8 Trichlorofluoromethane	101	1.561	1.560	(0.373)	308682	50.0000	54.38
5 Vinyl Chloride	62	1.138	1.138	(0.272)	181227	50.0000	48.59



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120202.D Page 3
Report Date: 07-Dec-2019 09:41

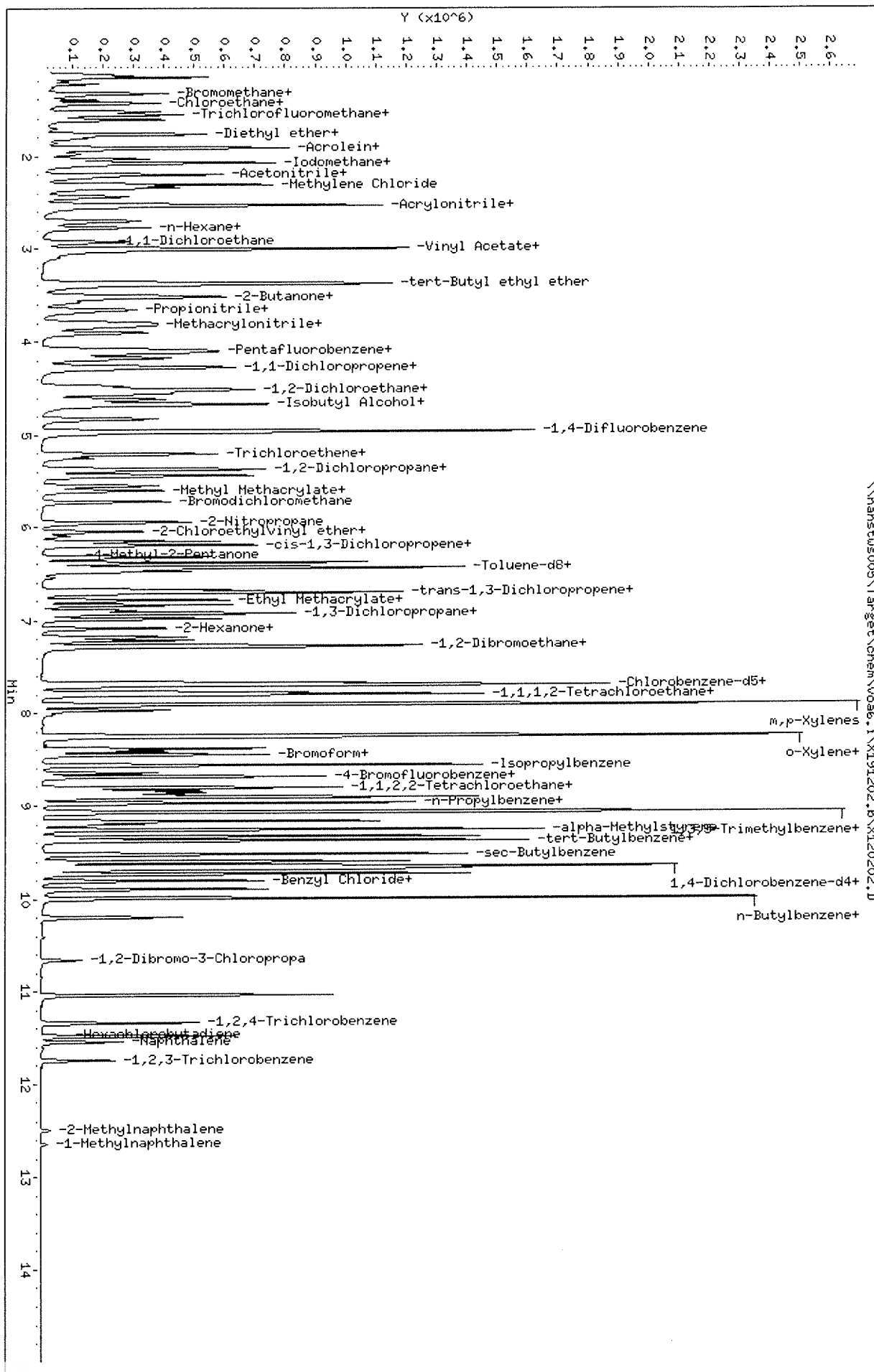
QC Flag Legend

M - Compound response manually integrated.



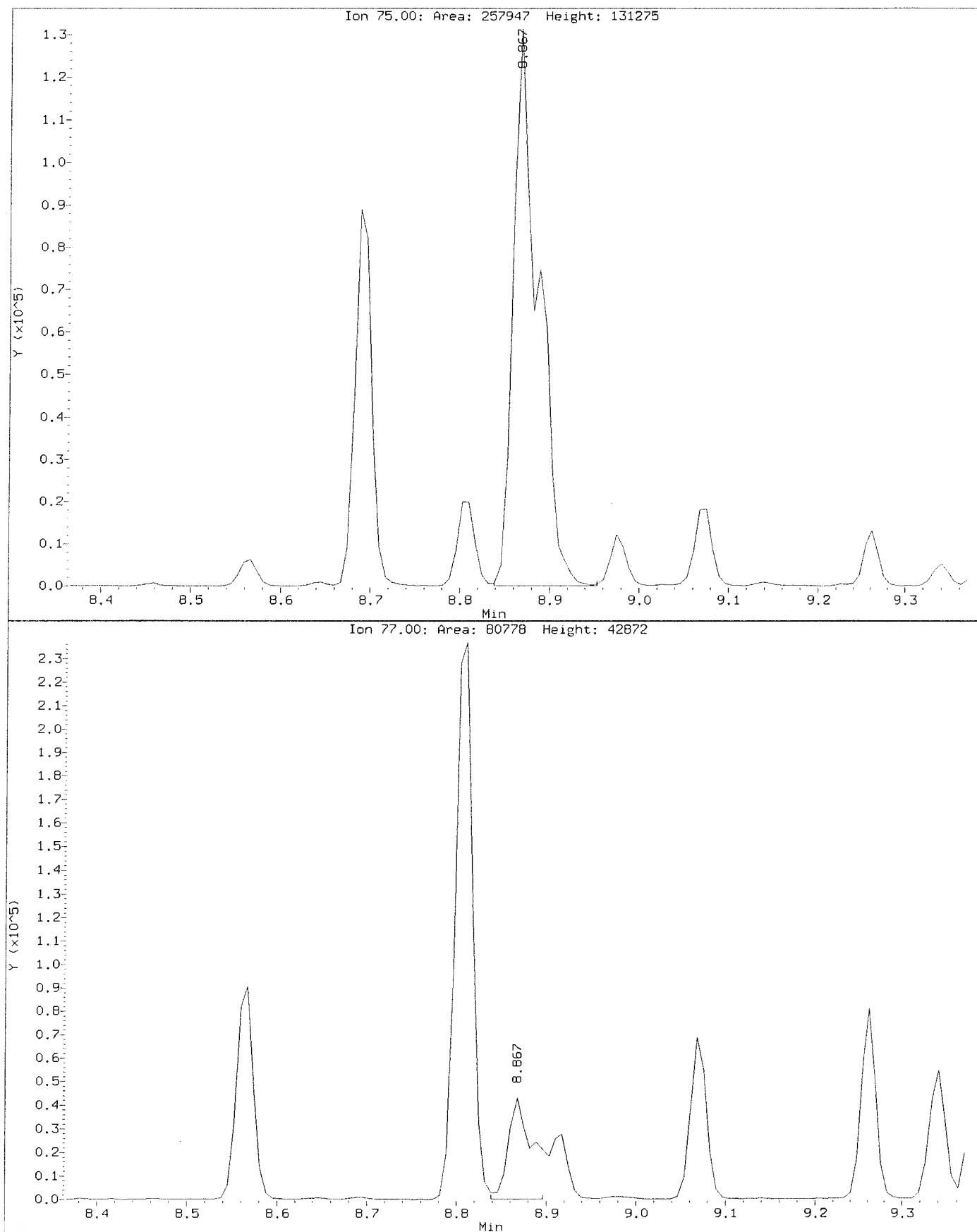
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 Date : 02-DEC-2019 11:06
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 Sample Info: CCV;CCV;2;;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



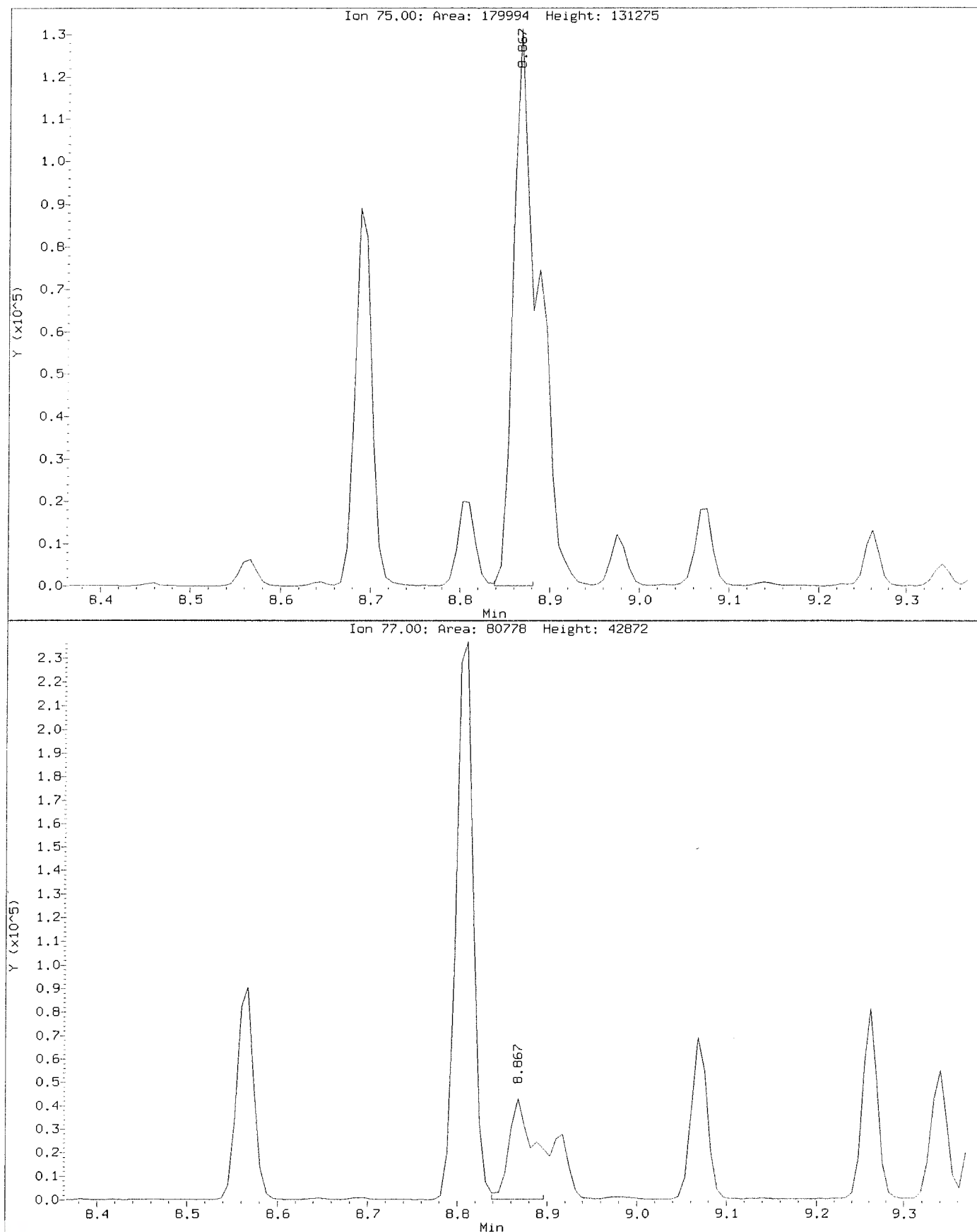
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Injection Date: 02-DEC-2019 11:06
Instrument: voa6.i
Client Sample ID: CCV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



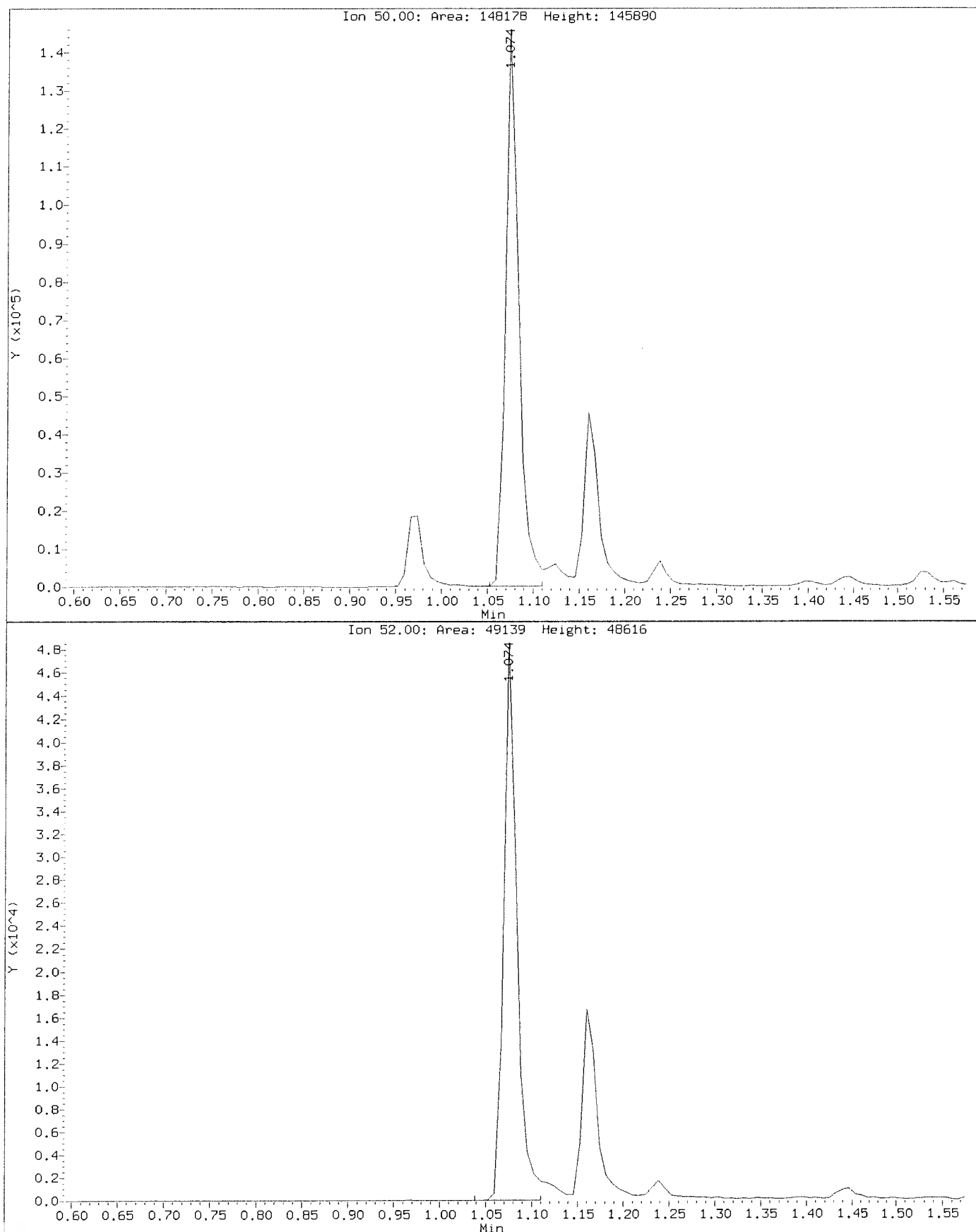
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Instrument: voa6.i
Client Sample ID: CCV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



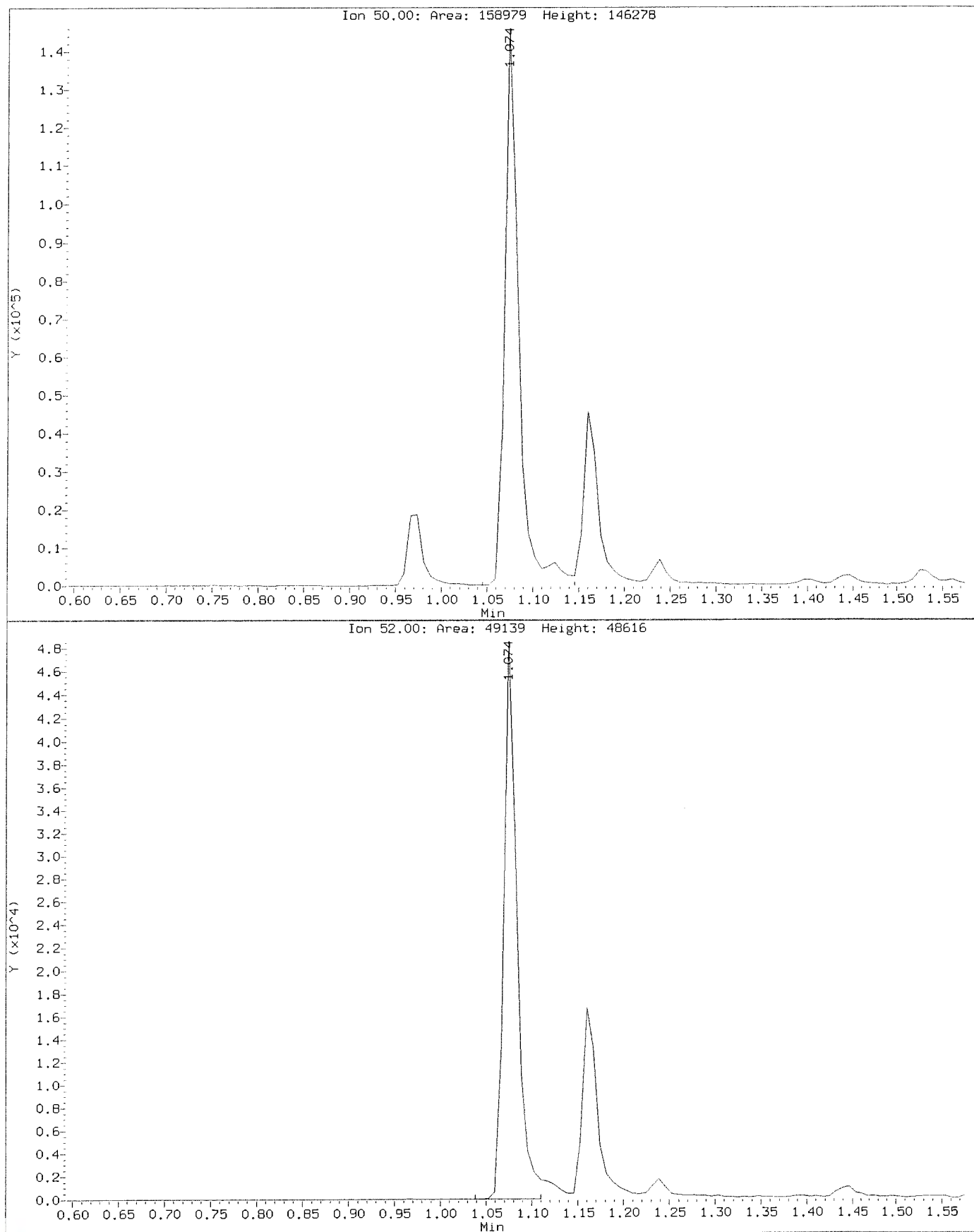
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Injection Date: 02-DEC-2019 11:06
Instrument: voa6.i
Client Sample ID: CCV

Compound: Chloromethane
CAS Number: 74-87-3



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120202.D
Injection Date: 02-DEC-2019 11:06
Instrument: voa6.i
Client Sample ID: CCV

Compound: Chloromethane
CAS Number: 74-87-3



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120205.D Page 1
 Report Date: 07-Dec-2019 09:41

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120205.D
 Lab Smp Id: VLCSW-191202 Client Smp ID: VLCSW-19202
 Inj Date : 02-DEC-2019 12:18
 Operator : PC Inst ID: voa6.i
 Smp Info : VLCSW-191202;VLCSW-19202;3;;LCS
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
 Meth Date : 07-Dec-2019 09:41 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 5 QC Sample: LCS
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.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					CONCENTRATIONS	
		RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)
*****	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	385029	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	553059	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	507072	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	277141	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	194165	53.5490	53.54
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	233589	49.5178	49.51
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	179386	51.2292	51.22
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	619663	46.3809	46.38
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	77735	21.1310	21.13
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	111826	21.5286	21.52
68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.915)	82975	21.2915	21.29
138 Freon TF	101	1.911	1.919	(0.457)	61869	18.4569	18.45
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	57824	21.8147	21.81
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	119920	21.4058	21.40
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	63924	19.5906	19.59
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	90851	20.3645	20.36
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	27174	26.0317	26.03
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	72490	21.9529	21.95 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	55393	23.7276	23.72
79 1,2,4-Trimethylbenzene	105	9.383	9.382	(0.971)	274585	20.8809	20.88
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.657	(1.103)	9760	22.5003	22.50
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	77694	21.8465	21.84
88 1,2-Dichlorobenzene	146	9.991	9.998	(1.034)	156154	21.2298	21.22



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120205.D Page 2
 Report Date: 07-Dec-2019 09:41

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN (ug/l)	FINAL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
33 1,2-Dichloroethane	62	4.555	4.562	(0.916)	98426	22.4188	22.41
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	68546	20.7479	20.74
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	264497	20.9616	20.96
83 1,3-Dichlorobenzene	146	9.605	9.612	(0.994)	166950	21.0056	21.00
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	113368	21.0662	21.06
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	170076	21.0584	21.05
26 2,2-Dichloropropane	77	3.509	3.516	(0.839)	108105	21.2611	21.26
24 2-Butanone	43	3.580	3.573	(0.856)	54531	46.1568	46.15
76 2-Chlorotoluene	91	8.974	8.974	(0.929)	216985	21.7618	21.76
52 2-Hexanone	43	7.083	7.090	(0.923)	90060	43.2357	43.23
77 4-Chlorotoluene	91	9.075	9.074	(0.939)	256538	21.2265	21.22
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	274119	20.2144	20.21
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	127415	42.8854	42.88
10 Acetone	43	1.976	1.969	(0.473)	43999	41.9856	41.98
37 Benzene	78	4.512	4.512	(0.908)	274339	21.6844	21.68
74 Bromobenzene	156	8.809	8.809	(0.912)	102549	21.2909	21.29
29 Bromochloromethane	128	3.795	3.795	(0.908)	45430	21.7804	21.78
39 Bromodichloromethane	83	5.729	5.729	(1.153)	99290	21.6940	21.69
66 Bromoform	173	8.416	8.415	(1.097)	62292	21.2174	21.21
6 Bromomethane	94	1.338	1.338	(0.320)	87030	21.4472	21.44
19 Carbon Disulfide	76	2.069	2.069	(0.495)	382825	43.1262	43.12
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	95701	19.5827	19.58
59 Chlorobenzene	112	7.692	7.699	(1.003)	205305	20.7389	20.73
7 Chloroethane	64	1.403	1.403	(0.336)	57427	23.6891	23.68
28 Chloroform	83	3.910	3.910	(0.935)	132899	21.3131	21.31
3 Chloromethane	50	1.073	1.073	(0.257)	62303	15.0306	15.03
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	82695	22.6476	22.64
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	115561	21.4257	21.42
55 Dibromochloromethane	129	7.176	7.176	(0.936)	82934	21.5369	21.53
44 Dibromomethane	93	5.557	5.557	(1.118)	51597	22.0696	22.06
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	75300	21.9659	21.96
61 Ethylbenzene	106	7.799	7.799	(1.017)	106203	20.7633	20.76
91 Hexachlorobutadiene	225	11.481	11.488	(1.188)	45693	20.5156	20.51
67 Isopropylbenzene	105	8.566	8.566	(1.117)	311329	20.5494	20.54
62 m,p-Xylenes	106	7.907	7.907	(1.031)	256630	41.5780	41.57
17 Methylene Chloride	84	2.305	2.305	(0.551)	73672	21.1612	21.16
87 n-Butylbenzene	91	9.999	9.998	(1.035)	236345	20.9431	20.94
73 n-Propylbenzene	91	8.917	8.917	(0.923)	356035	20.7835	20.78
92 Naphthalene	128	11.546	11.546	(1.195)	68881	23.0044	23.00
63 o-Xylene	106	8.244	8.243	(1.075)	126409	20.7513	20.75
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	299765	20.1432	20.14
64 Styrene	104	8.258	8.258	(1.077)	225903	21.3259	21.32
78 tert-Butylbenzene	119	9.340	9.339	(0.967)	221940	20.5425	20.54
56 Tetrachloroethene	164	6.933	6.933	(0.904)	70310	19.7344	19.73
50 Toluene	91	6.446	6.446	(0.840)	301421	20.9619	20.96
20 trans-1,2-Dichloroethene	96	2.528	2.527	(0.604)	68435	21.6024	21.60
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	105402	21.4415	21.44
38 Trichloroethene	130	5.206	5.206	(1.048)	82241	21.2633	21.26
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	119676	20.0371	20.03
5 Vinyl Chloride	62	1.138	1.138	(0.272)	73185	18.6501	18.65



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120205.D Page 3
Report Date: 07-Dec-2019 09:41

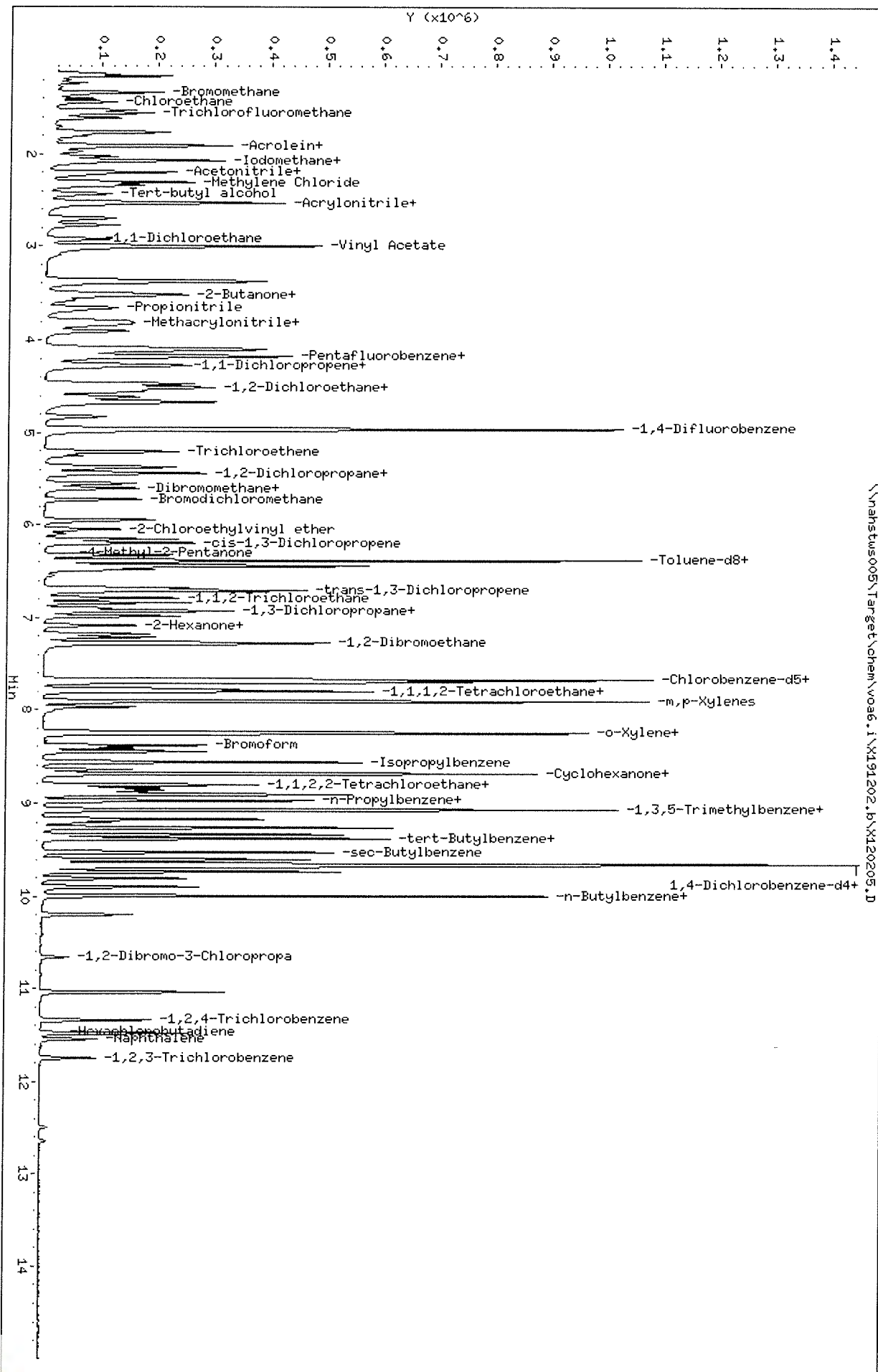
QC Flag Legend

M - Compound response manually integrated.



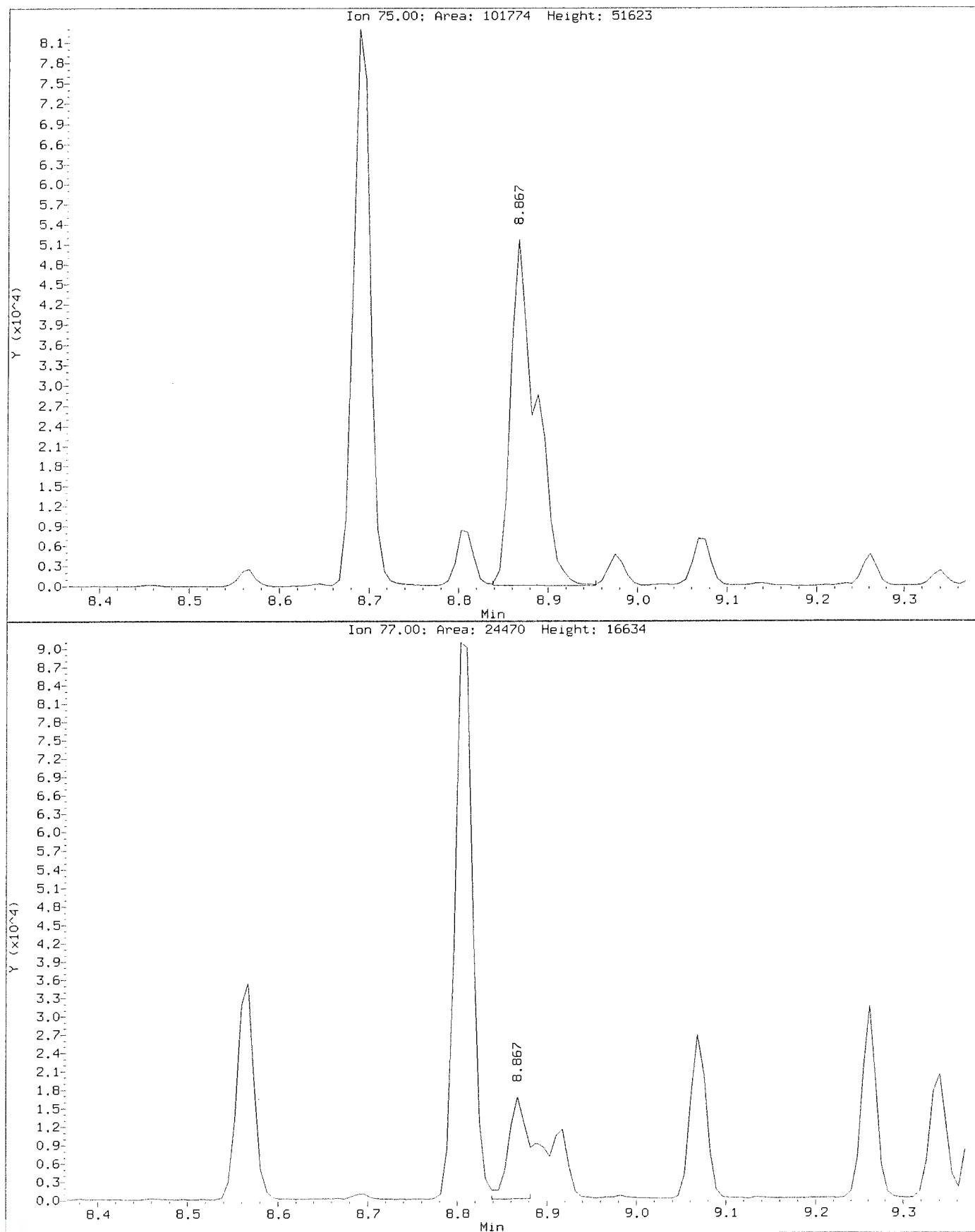
Data File: \\nahstus005\Target\chem\voa6.i\X191202.b\X120205.D
 Date : 02-DEC-2019 12:18
 Client ID: VLCSM-19202
 Sample Info: VLCSM-191202;VLCSM-19202;3;LCS
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



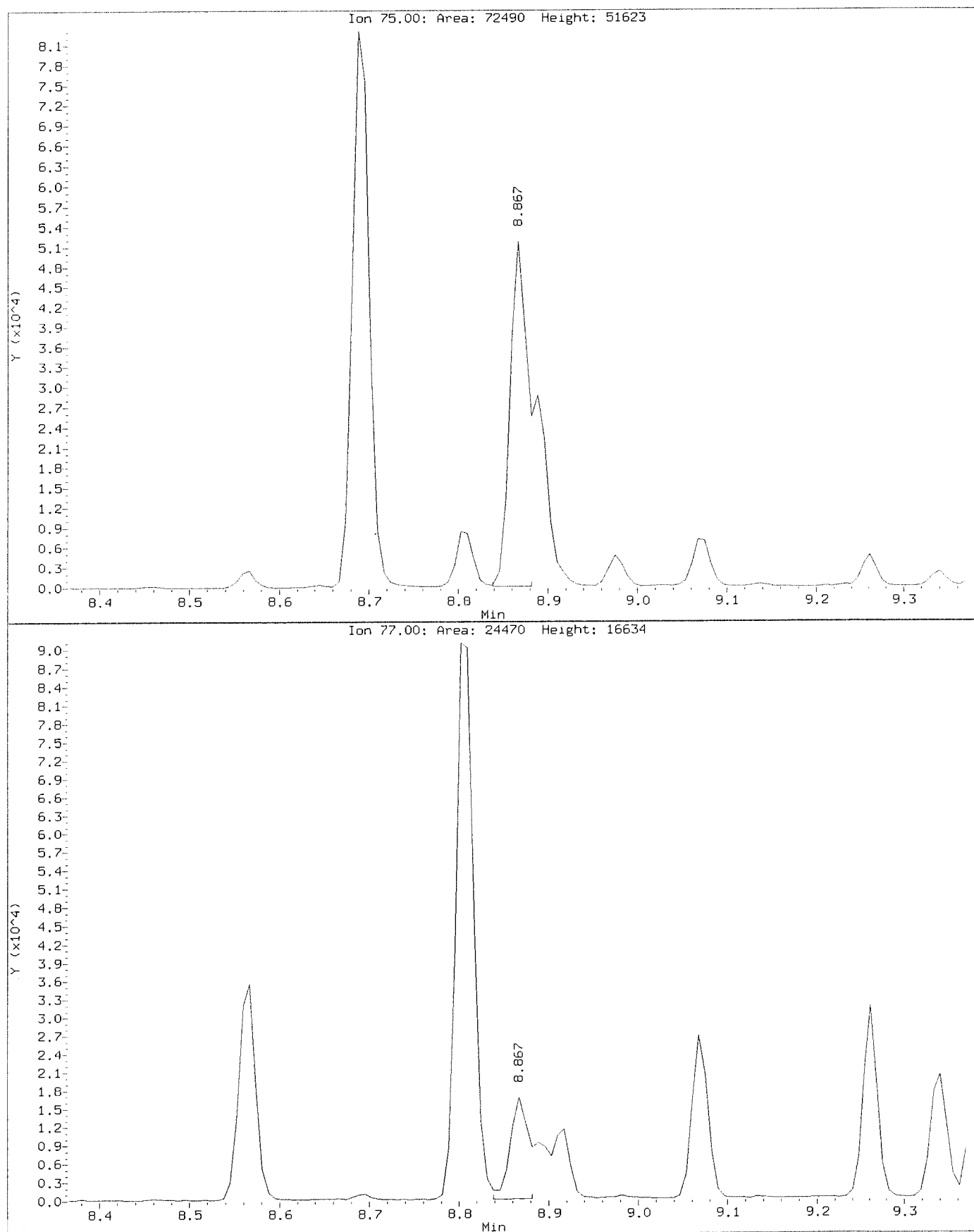
Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\BEFORE\X120205.D
Injection Date: 02-DEC-2019 12:18
Instrument: voa6.i
Client Sample ID: VLCSW-19202

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120205.D
Injection Date: 02-DEC-2019 12:18
Instrument: voa6.i
Client Sample ID: VLCSW-19202

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120207.D Page 1
 Report Date: 07-Dec-2019 09:41

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120207.D
 Lab Smp Id: VBLKW-191202 Client Smp ID: VBLKW-191202
 Inj Date : 02-DEC-2019 13:06
 Operator : PC Inst ID: voa6.i
 Smp Info : VBLKW-191202;VBLKW-191202;3;;BLANK
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
 Meth Date : 07-Dec-2019 09:41 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 7 QC Sample: BLANK
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

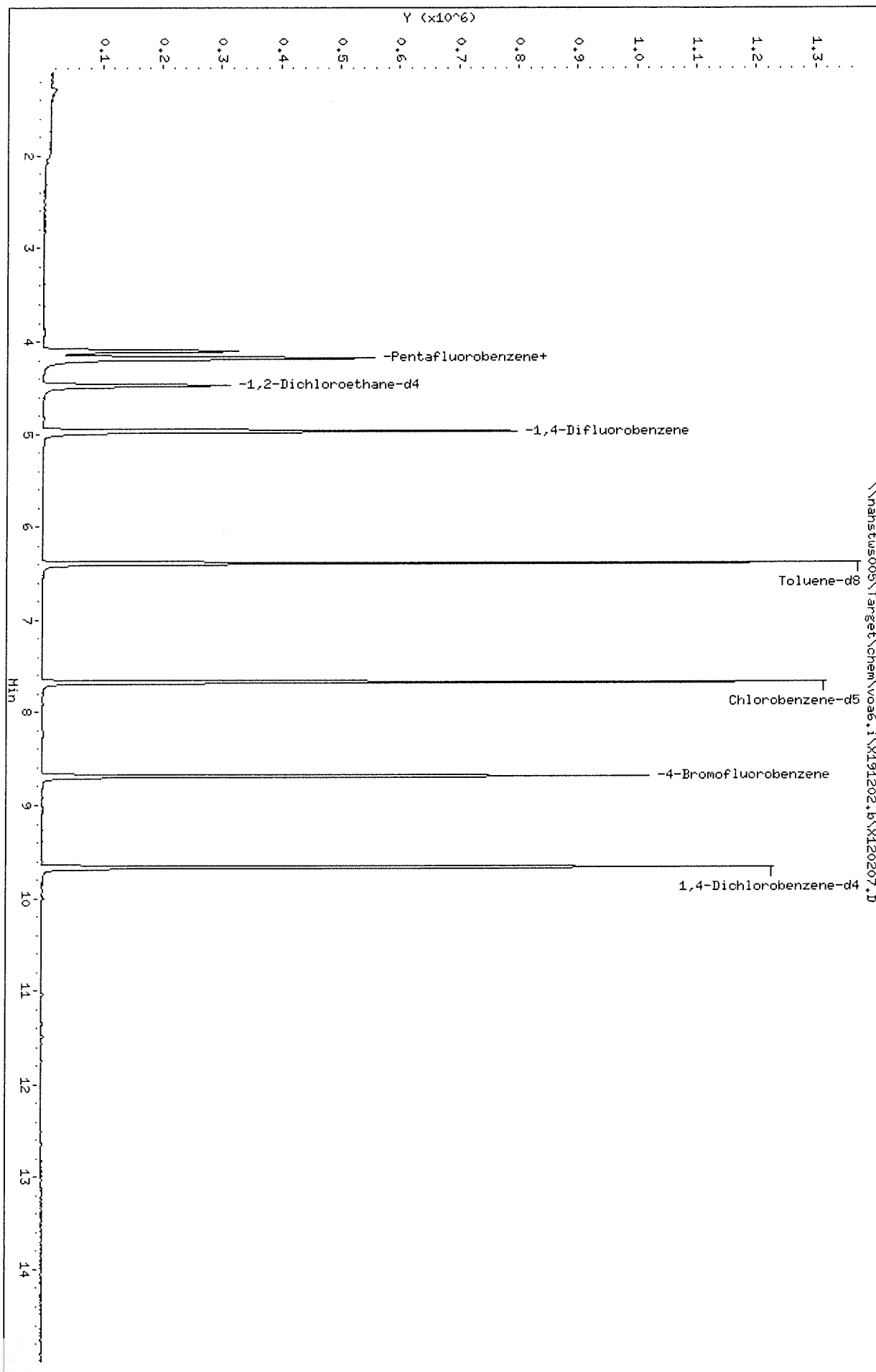
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN	FINAL
	MASS					(ug/l)	(ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	496456	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	699689	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	618475	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	311979	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	235602	50.4366	50.43
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	272334	47.3508	47.35
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	224682	49.7740	49.77
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	794353	48.7466	48.74



Data File: \\nahstus005\Target\chem\voa6.i\X191202.b\X120207.D
Date : 02-DEC-2019 13:06
Client ID: VBLKM-191202
Sample Info: VBLKM-191202;VBLKM-191202;3;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120208.D Page 1
 Report Date: 07-Dec-2019 09:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120208.D
 Lab Smp Id: HS19111343-08 Client Smp ID: HS19111343-08
 Inj Date : 02-DEC-2019 13:30
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111343-08;HS19111343-08;;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
 Meth Date : 07-Dec-2019 09:42 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 8
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

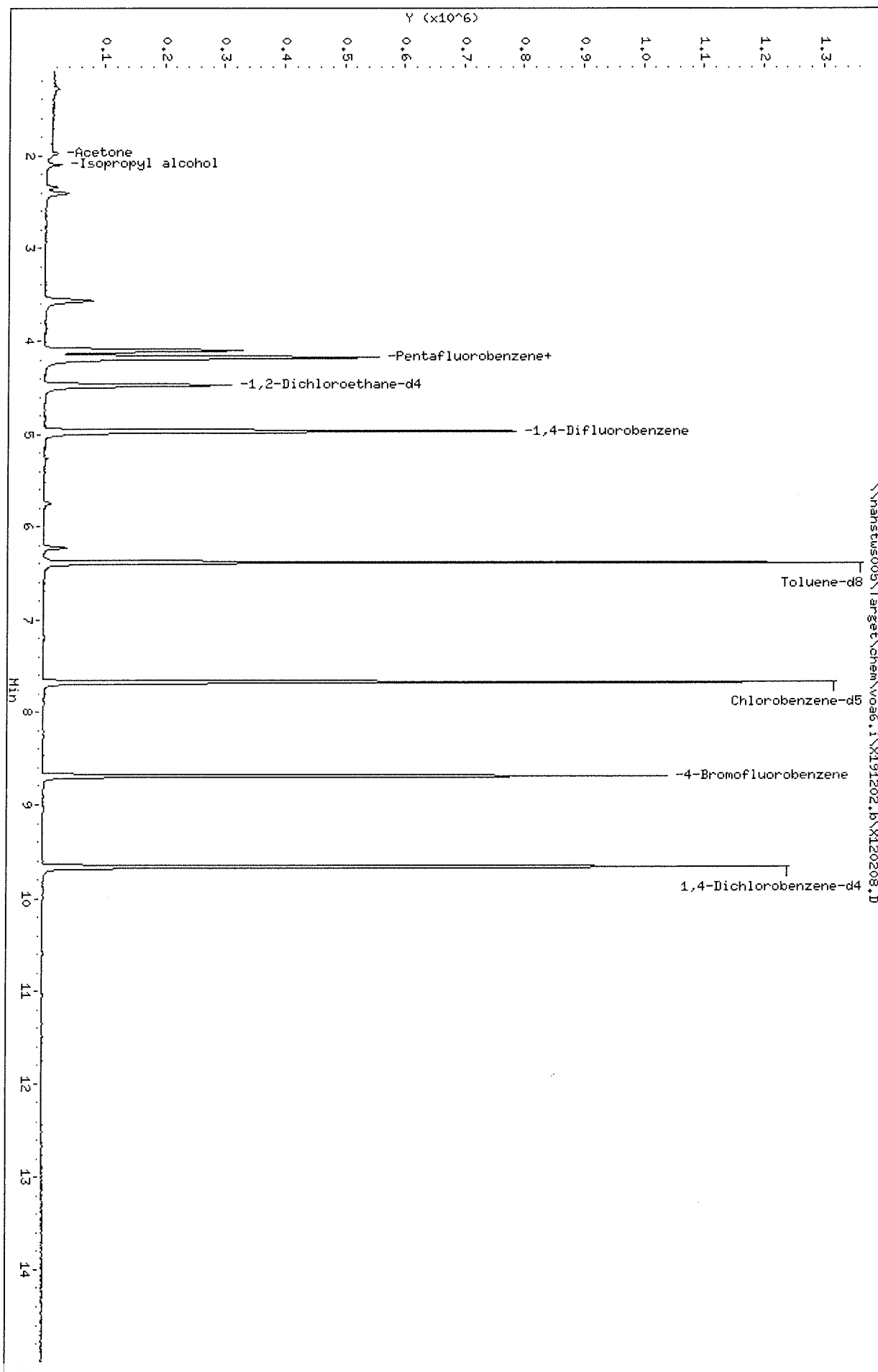
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

						CONCENTRATIONS	
QUANT SIG						ON-COLUMN	FINAL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	495332	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	695673	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	624344	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	319641	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	236781	50.7987	50.79
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	278773	48.0088	48.00
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	226915	50.3782	50.37
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	790168	48.0340	48.03
10 Acetone	43	1.976	1.969	(0.473)	11058	5.09759	5.09



Data File: \\nahstus005\Target\chem\voa6.i\X191202.b\X120208.D
Date : 02-DEC-2019 13:30
Client ID: HS19111343-08
Sample Info: HS19111343-08;HS19111343-08;;
Purge Volume: 5.0
Column Phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120208.D

Page 3

Date : 02-DEC-2019 13:30

Client ID: HS19111343-08

Instrument: voa6.i

Sample Info: HS19111343-08;HS19111343-08;;;

Purge Volume: 5.0

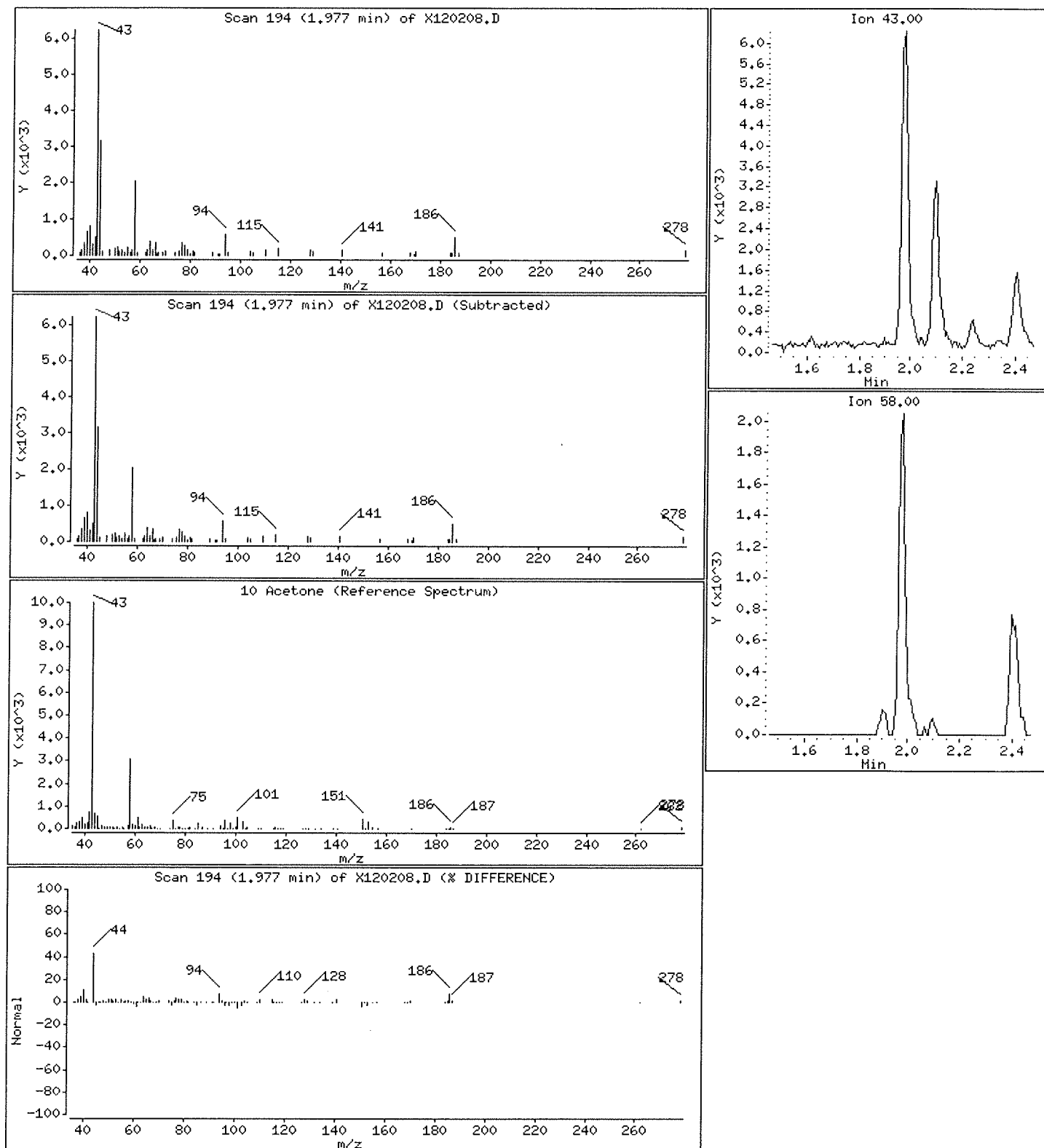
Operator: PC

Column phase: DB624

Column diameter: 0.18

10 Acetone

Concentration: 5.09 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120209.D Page 1
 Report Date: 07-Dec-2019 09:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120209.D
 Lab Smp Id: HS19111343-06 Client Smp ID: HS19111343-06
 Inj Date : 02-DEC-2019 13:54
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111343-06;HS19111343-06;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
 Meth Date : 07-Dec-2019 09:42 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 9
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG					CONCENTRATIONS	
			RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
	MASS						(ug/l)	(ug/l)
=====	=====		=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168		4.182	4.182	(1.000)	497325	50.0000	
* 36 1,4-Difluorobenzene	114		4.970	4.970	(1.000)	702804	50.0000	
* 47 Chlorobenzene-d5	117		7.671	7.670	(1.000)	627604	50.0000	
* 70 1,4-Dichlorobenzene-d4	152		9.662	9.669	(1.000)	323984	50.0000	
\$ 35 1,2-Dichloroethane-d4	65		4.476	4.476	(1.070)	234621	50.1432	50.14
\$ 69 4-Bromofluorobenzene	95		8.688	8.688	(1.133)	280470	48.0498	48.04
\$ 30 Dibromofluoromethane	113		4.104	4.103	(0.981)	224671	49.6852	49.68
\$ 48 Toluene-d8	98		6.389	6.388	(0.833)	784065	47.4154	47.41
56 Tetrachloroethene	164		6.933	6.933	(0.904)	25470	5.77589	5.77
38 Trichloroethene	130		5.214	5.206	(1.049)	2717	0.55280	0.55(a)

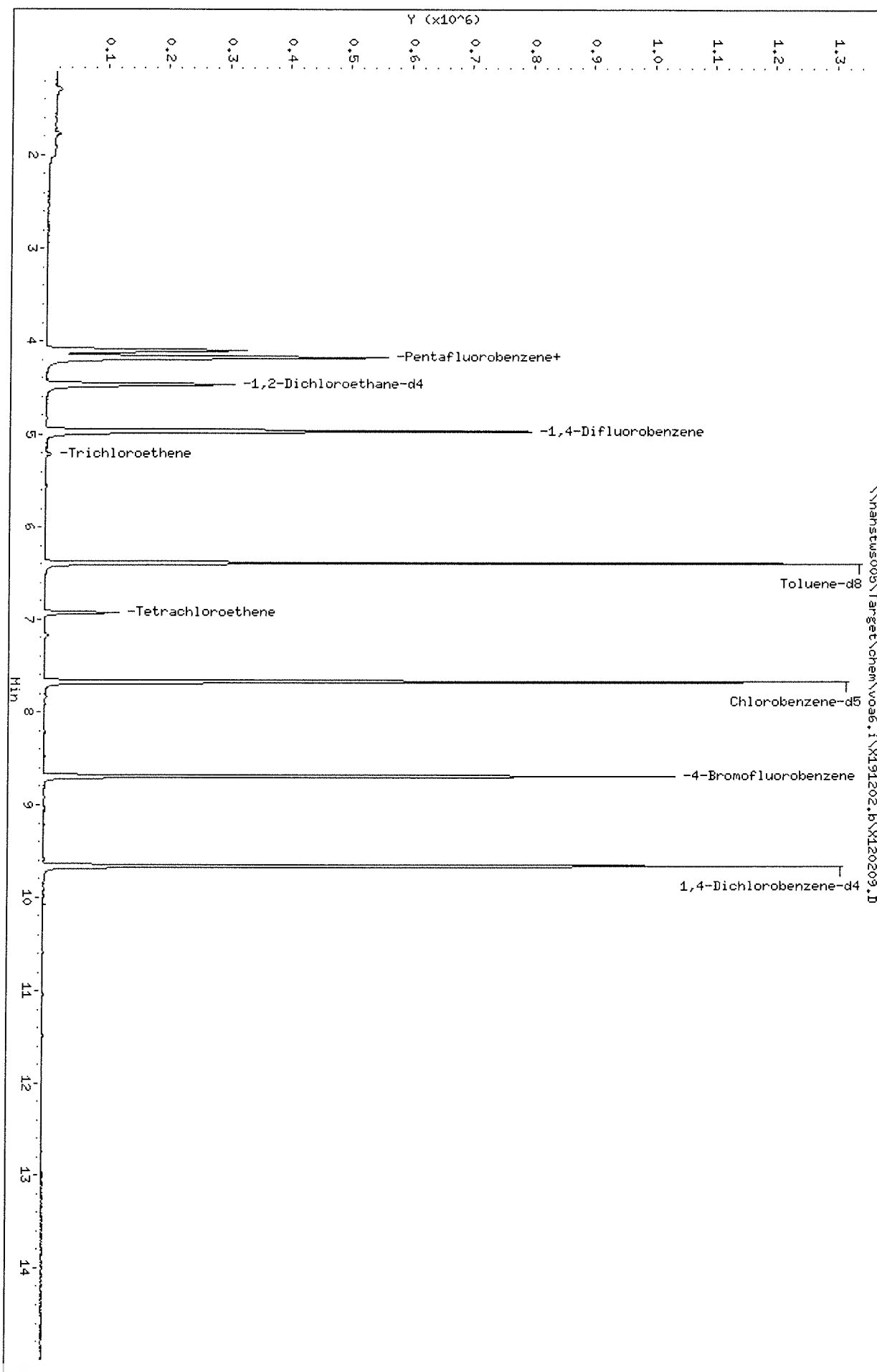
QC Flag Legend

a - Target compound detected but, quantitated amount
 Below Limit Of Quantitation(BLOQ).



Data File: \\nahstus005\Target\chem\voa6.i\X191202.b\X120209.D
Date : 02-DEC-2019 13:54
Client ID: H51911343-06
Sample Info: H51911343-06;H51911343-06;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X120209.D

Page 3

Date : 02-DEC-2019 13:54

Client ID: HS19111343-06

Instrument: voa6.i

Sample Info: HS19111343-06;HS19111343-06;;;

Purge Volume: 5.0

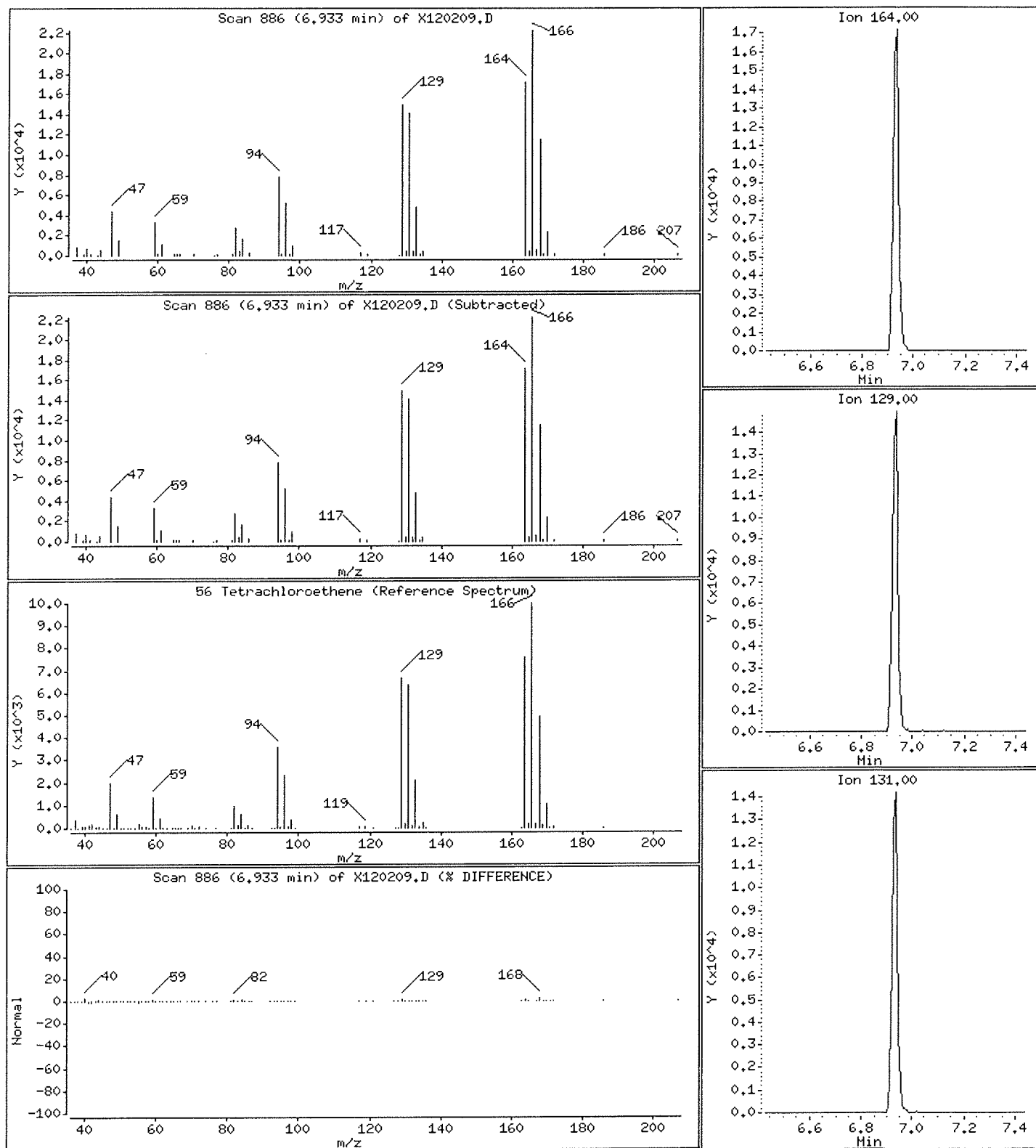
Operator: PC

Column phase: DB624

Column diameter: 0.18

56 Tetrachloroethene

Concentration: 5.77 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X120209.D

Page 4

Date : 02-DEC-2019 13:54

Client ID: HS19111343-06

Instrument: voa6.i

Sample Info: HS19111343-06;HS19111343-06;;;

Purge Volume: 5.0

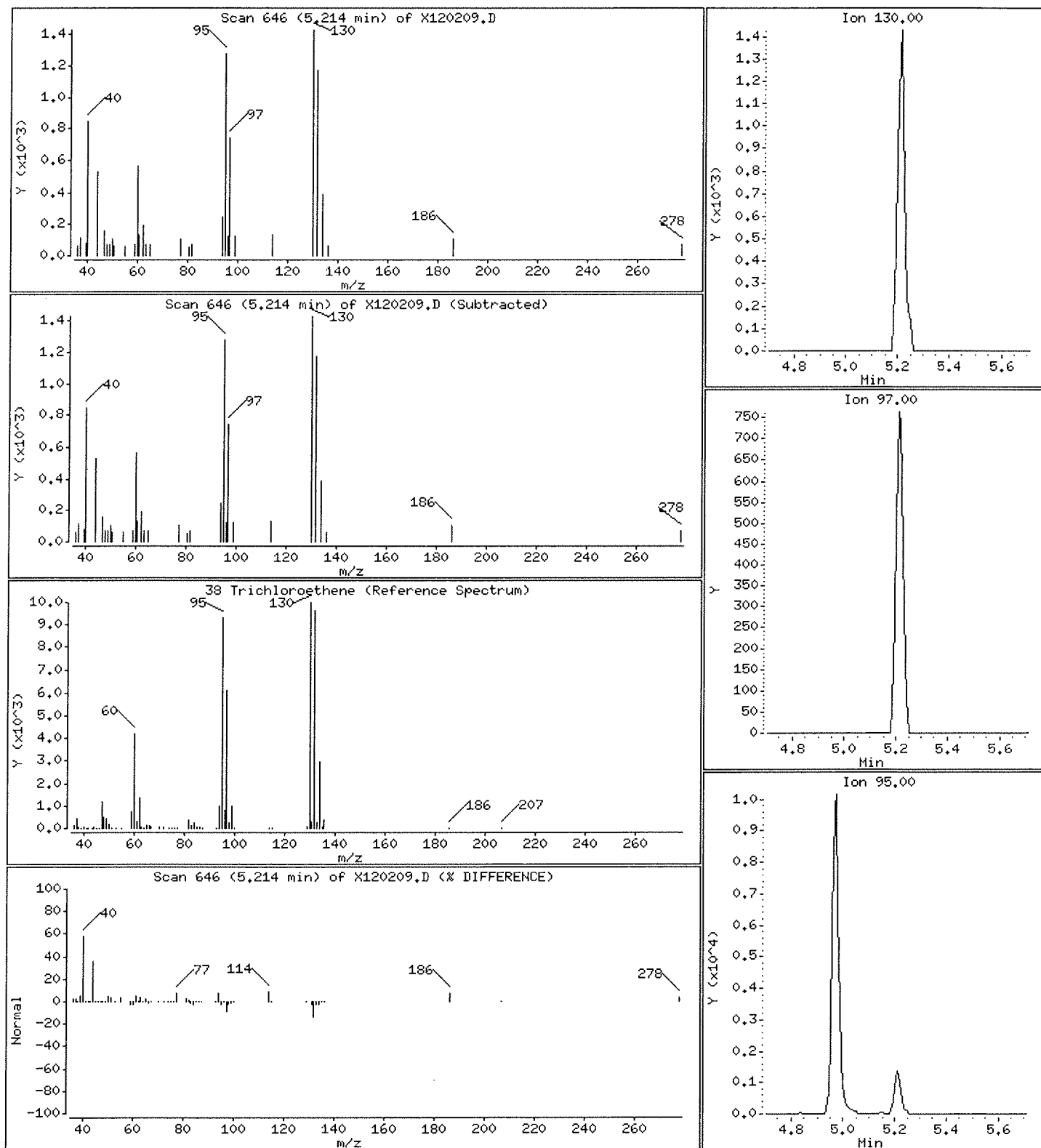
Operator: PC

Column phase: DB624

Column diameter: 0.18

38 Trichloroethene

Concentration: 0.55 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120210.D Page 1
 Report Date: 07-Dec-2019 09:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120210.D
 Lab Smp Id: HS19111343-01 Client Smp ID: HS19111343-01
 Inj Date : 02-DEC-2019 14:18
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111343-01;HS19111343-01;;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
 Meth Date : 07-Dec-2019 09:42 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 10
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

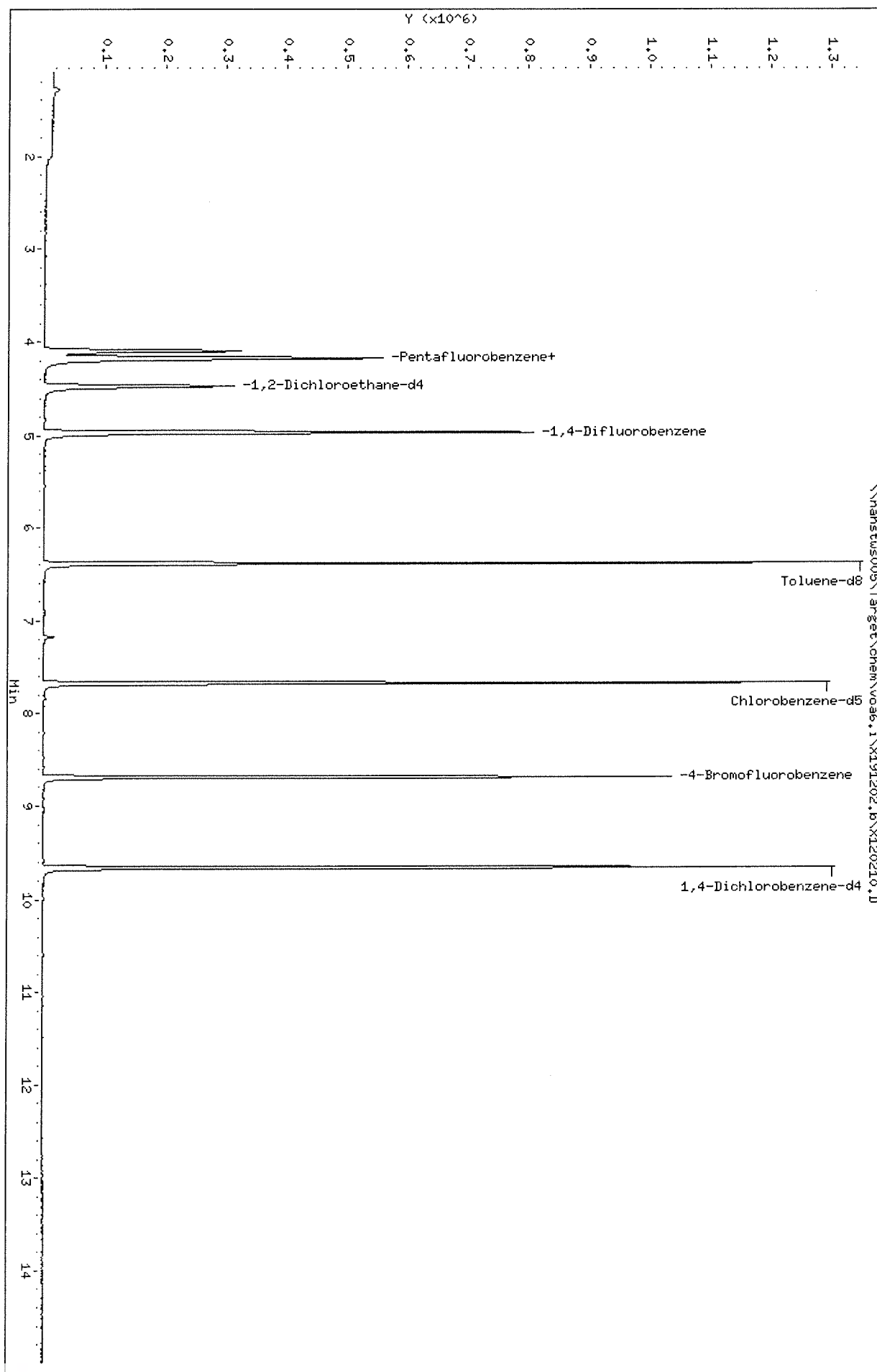
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	498367	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	696531	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	623120	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	314415	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	236797	50.4971	50.49
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	278843	48.1143	48.11
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	223737	49.3775	49.37
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	785415	47.8388	47.83



Data File: \\nahstus005\Target\chem\voa6.i\X191202.b\X120210.D
Date : 02-DEC-2019 14:18
Client ID: HS19111343-01
Sample Info: HS19111343-01;HS19111343-01;;
Purge Volume: 5.0
Column Phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120211.D Page 1
 Report Date: 07-Dec-2019 09:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120211.D
 Lab Smp Id: HS19111343-02 Client Smp ID: HS19111343-02
 Inj Date : 02-DEC-2019 14:42
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111343-02;HS19111343-02;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
 Meth Date : 07-Dec-2019 09:42 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 11
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

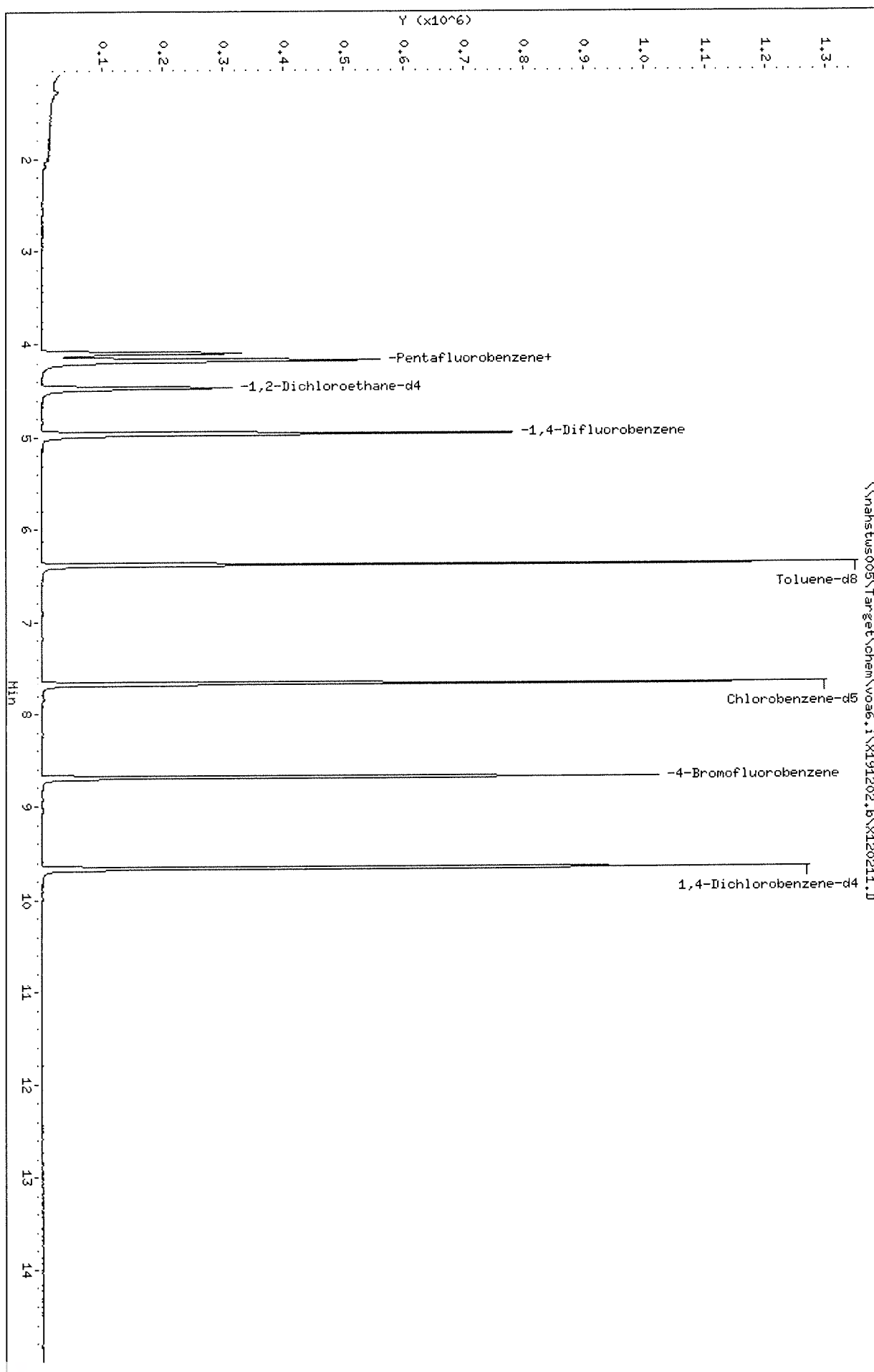
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG						CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	493789	50.0000		
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	696898	50.0000		
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	615358	50.0000		
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	309345	50.0000		
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	237706	51.1513	51.15	
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	272737	47.6583	47.65	
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	226715	50.4903	50.49	
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	787188	48.5516	48.55	



Data File: \\nahstus005\Target\chem\voa6.i\X191202.b\X120211.D
Date : 02-DEC-2019 14:42
Client ID: HSL9111343-02
Sample Info: HSL9111343-02;HSL9111343-02;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120212.D Page 1
 Report Date: 07-Dec-2019 09:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120212.D
 Lab Smp Id: HS19111343-03 Client Smp ID: HS19111343-03
 Inj Date : 02-DEC-2019 15:06
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111343-03;HS19111343-03;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
 Meth Date : 07-Dec-2019 09:42 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 12
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG						CONCENTRATIONS	
			MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168		4.182	4.182	(1.000)		489713	50.0000	
* 36 1,4-Difluorobenzene	114		4.970	4.970	(1.000)		696256	50.0000	
* 47 Chlorobenzene-d5	117		7.671	7.670	(1.000)		619699	50.0000	
* 70 1,4-Dichlorobenzene-d4	152		9.669	9.669	(1.000)		318734	50.0000	
\$ 35 1,2-Dichloroethane-d4	65		4.476	4.476	(1.070)		234091	50.7978	50.79
\$ 69 4-Bromofluorobenzene	95		8.688	8.688	(1.133)		279596	48.5071	48.50
\$ 30 Dibromofluoromethane	113		4.103	4.103	(0.981)		223223	50.1290	50.12
\$ 48 Toluene-d8	98		6.388	6.388	(0.833)		791448	48.4724	48.47
138 Freon TF	101		1.919	1.919	(0.459)		107517	25.2182	25.21
22 1,1-Dichloroethane	63		2.929	2.921	(0.700)		5900	0.82803	0.82(a)
11 1,1-Dichloroethene	96		1.912	1.911	(0.457)		18958	4.56802	4.56(a)
27 cis-1,2-Dichloroethene	96		3.530	3.530	(0.844)		6999	1.50706	1.50(a)
56 Tetrachloroethene	164		6.933	6.933	(0.904)		166006	38.1258	38.12
38 Trichloroethene	130		5.207	5.206	(1.048)		79386	16.3038	16.30

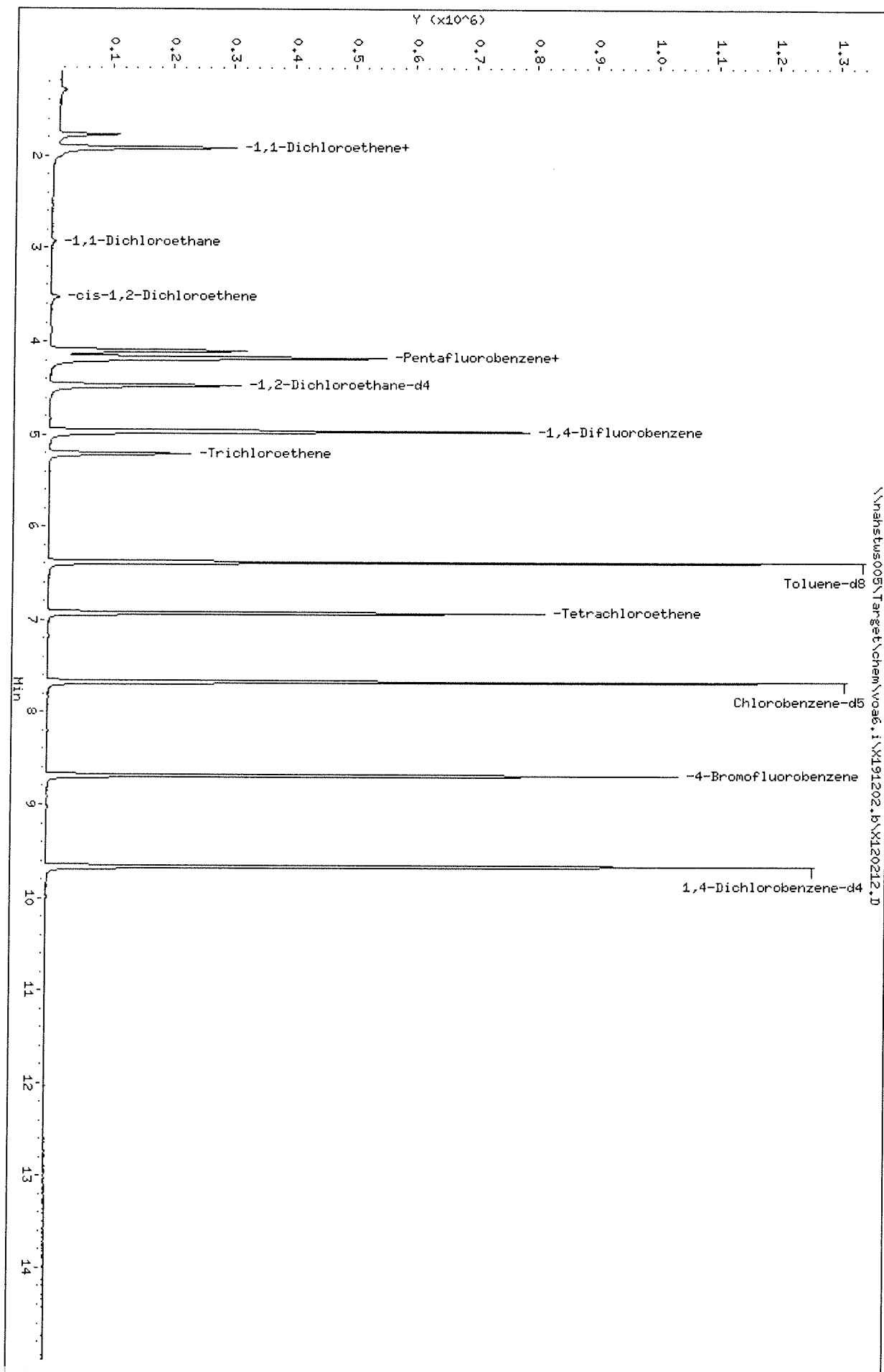
QC Flag Legend

a - Target compound detected but, quantitated amount
 Below Limit Of Quantitation(BLOQ).



Data File: \\nahstus005\Target\chem\voa6.i\X191202.b\X120212.D
Date : 02-DEC-2019 15:06
Client ID: HSL9111343-03
Sample Info: HSL9111343-03;HSL9111343-03;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X120212.D

Page 3

Date : 02-DEC-2019 15:06

Client ID: HS19111343-03

Instrument: voa6.i

Sample Info: HS19111343-03;HS19111343-03;;

Purge Volume: 5.0

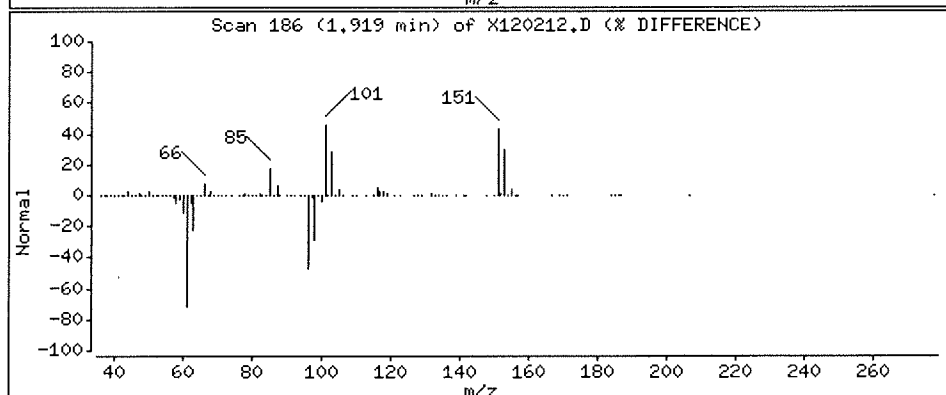
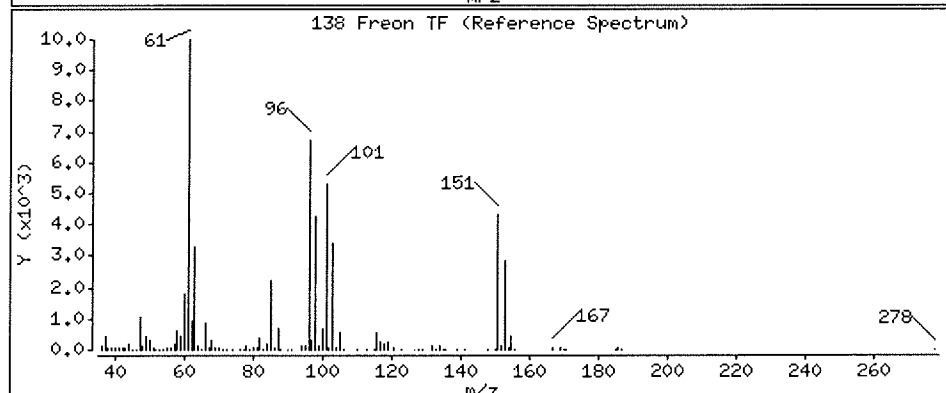
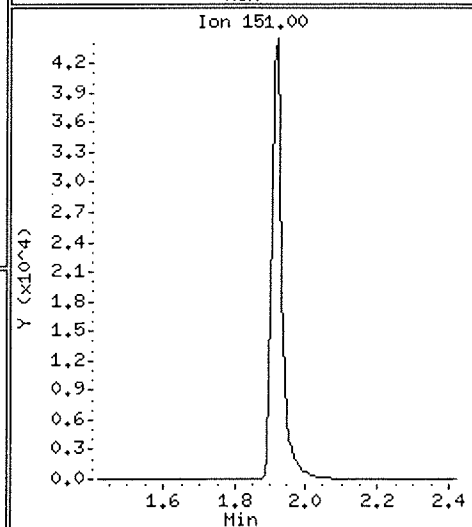
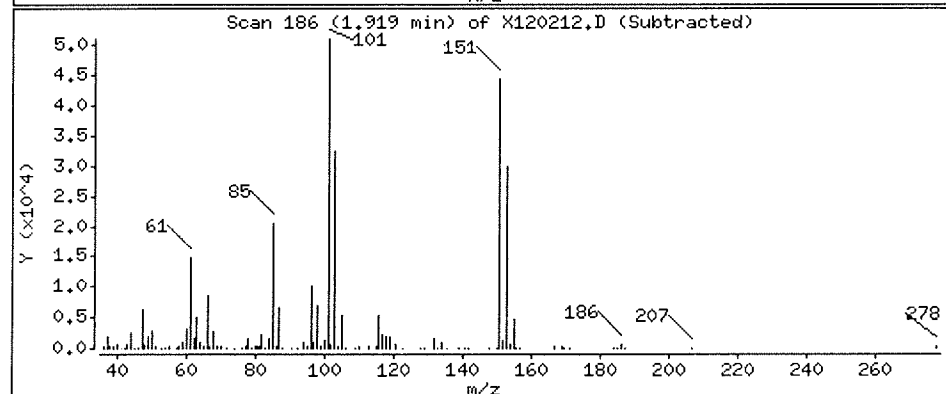
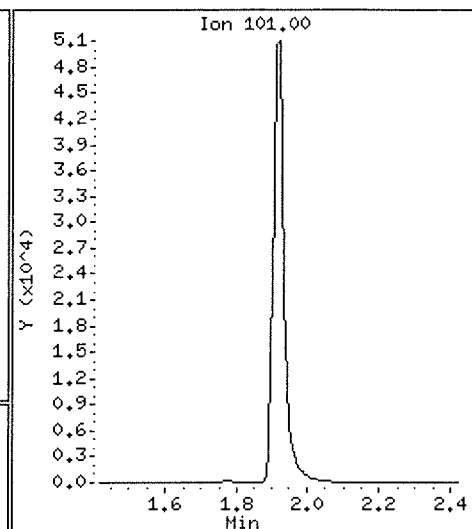
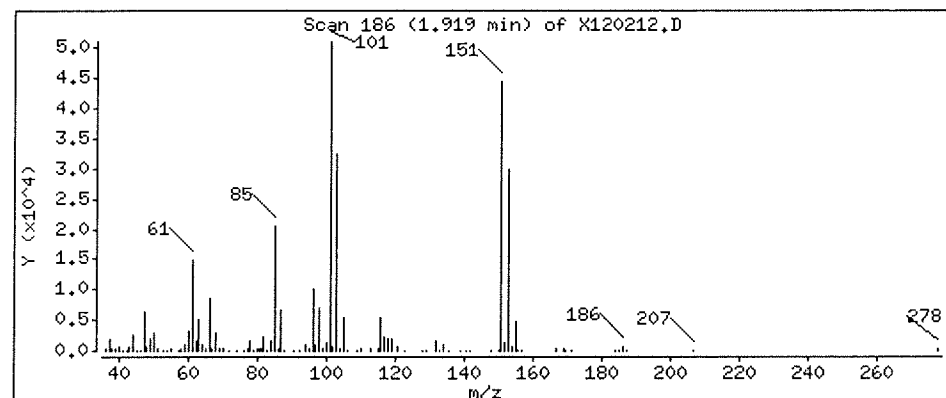
Operator: PC

Column phase: DB624

Column diameter: 0.18

138 Freon TF

Concentration: 25.21 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120212.D

Page 4

Date : 02-DEC-2019 15:06

Client ID: HS19111343-03

Instrument: voa6.i

Sample Info: HS19111343-03;HS19111343-03;;;

Purge Volume: 5.0

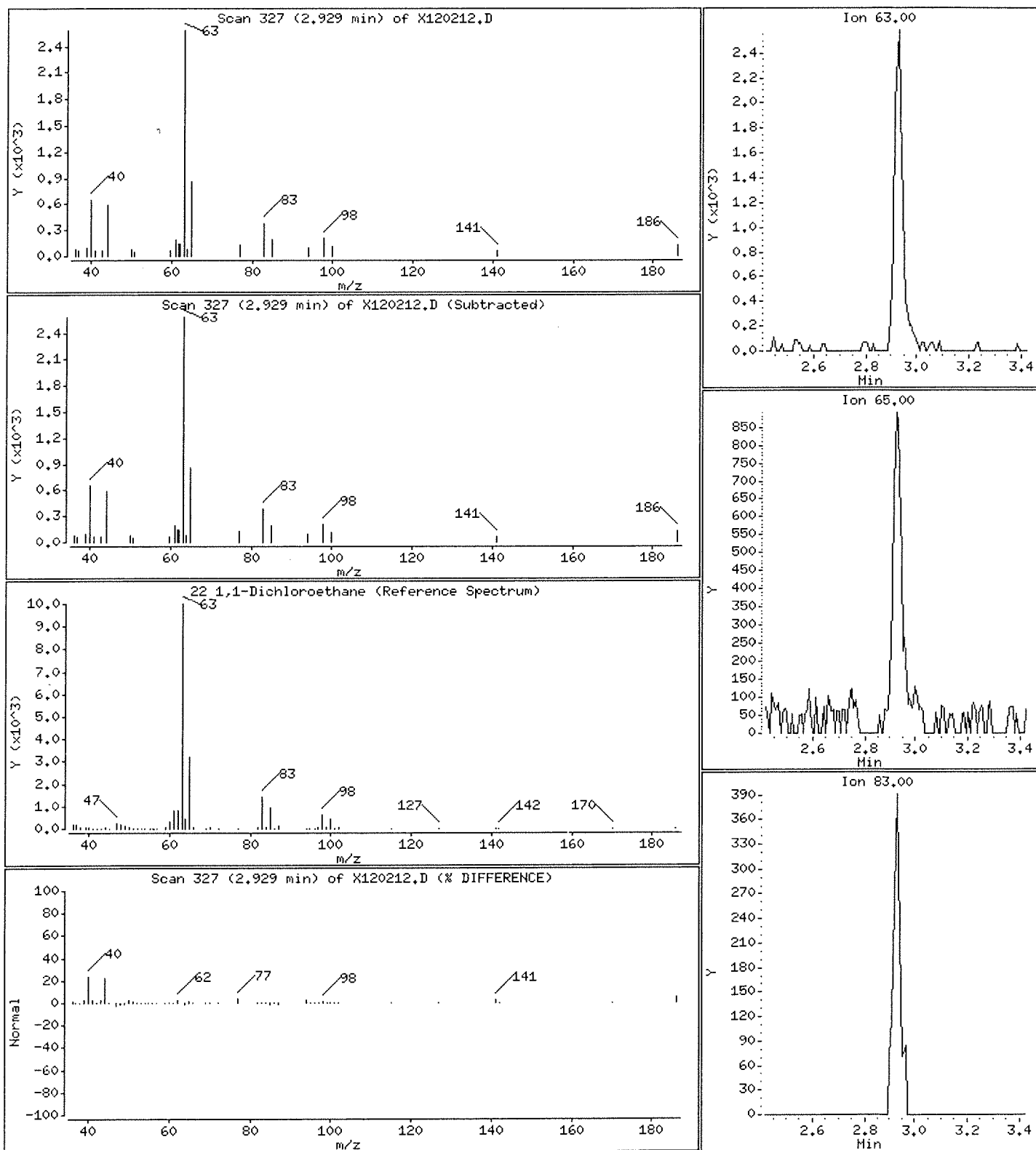
Operator: PC

Column phase: DB624

Column diameter: 0.18

22 1,1-Dichloroethane

Concentration: 0.82 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120212.D

Page 5

Date : 02-DEC-2019 15:06

Client ID: HS19111343-03

Instrument: voa6.i

Sample Info: HS19111343-03;HS19111343-03;;;

Purge Volume: 5.0

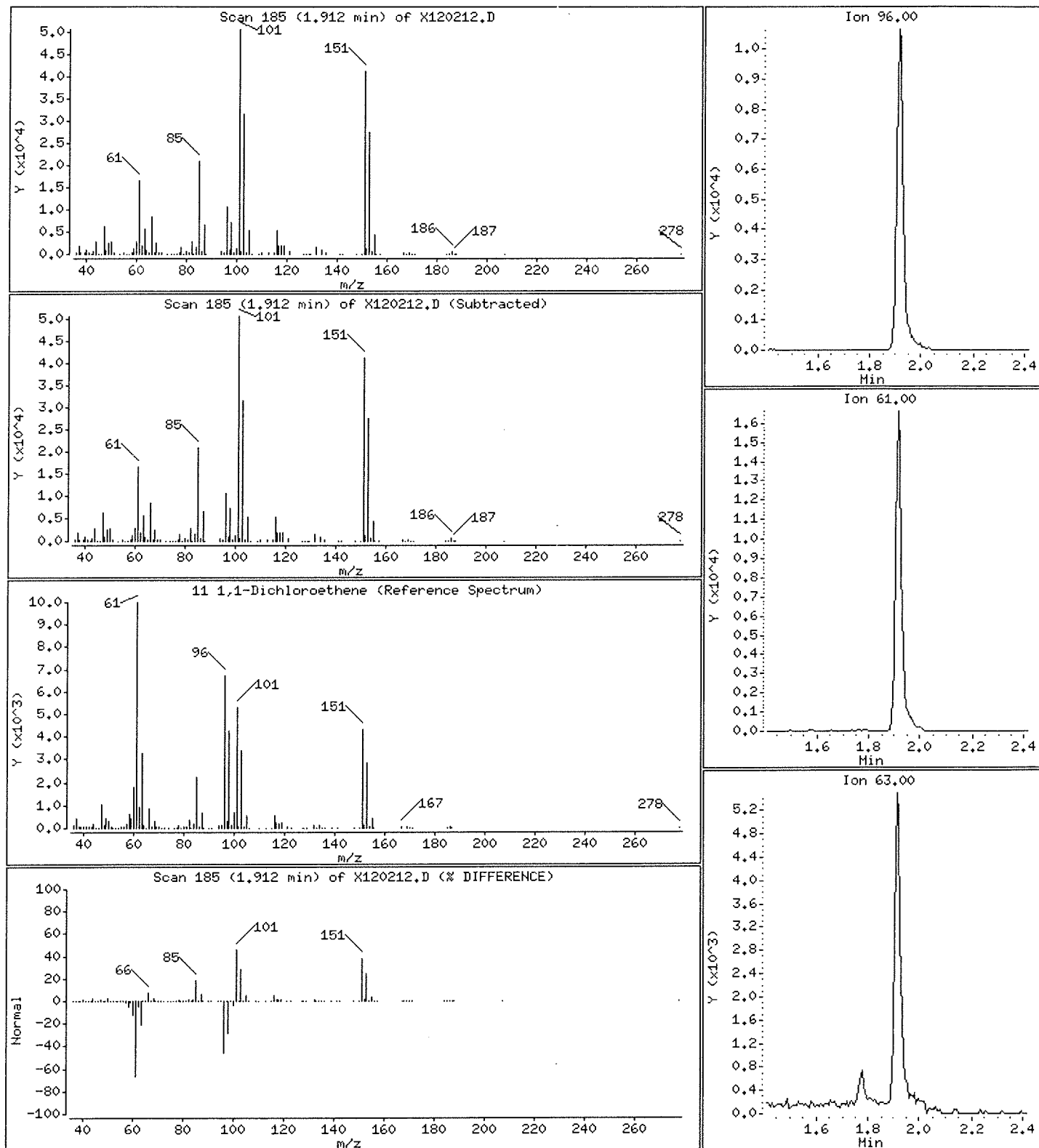
Operator: PC

Column phase: DB624

Column diameter: 0.18

11 1,1-Dichloroethene

Concentration: 4.56 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120212.D

Page 6

Date : 02-DEC-2019 15:06

Client ID: HS19111343-03

Instrument: voa6.i

Sample Info: HS19111343-03;HS19111343-03;;

Purge Volume: 5.0

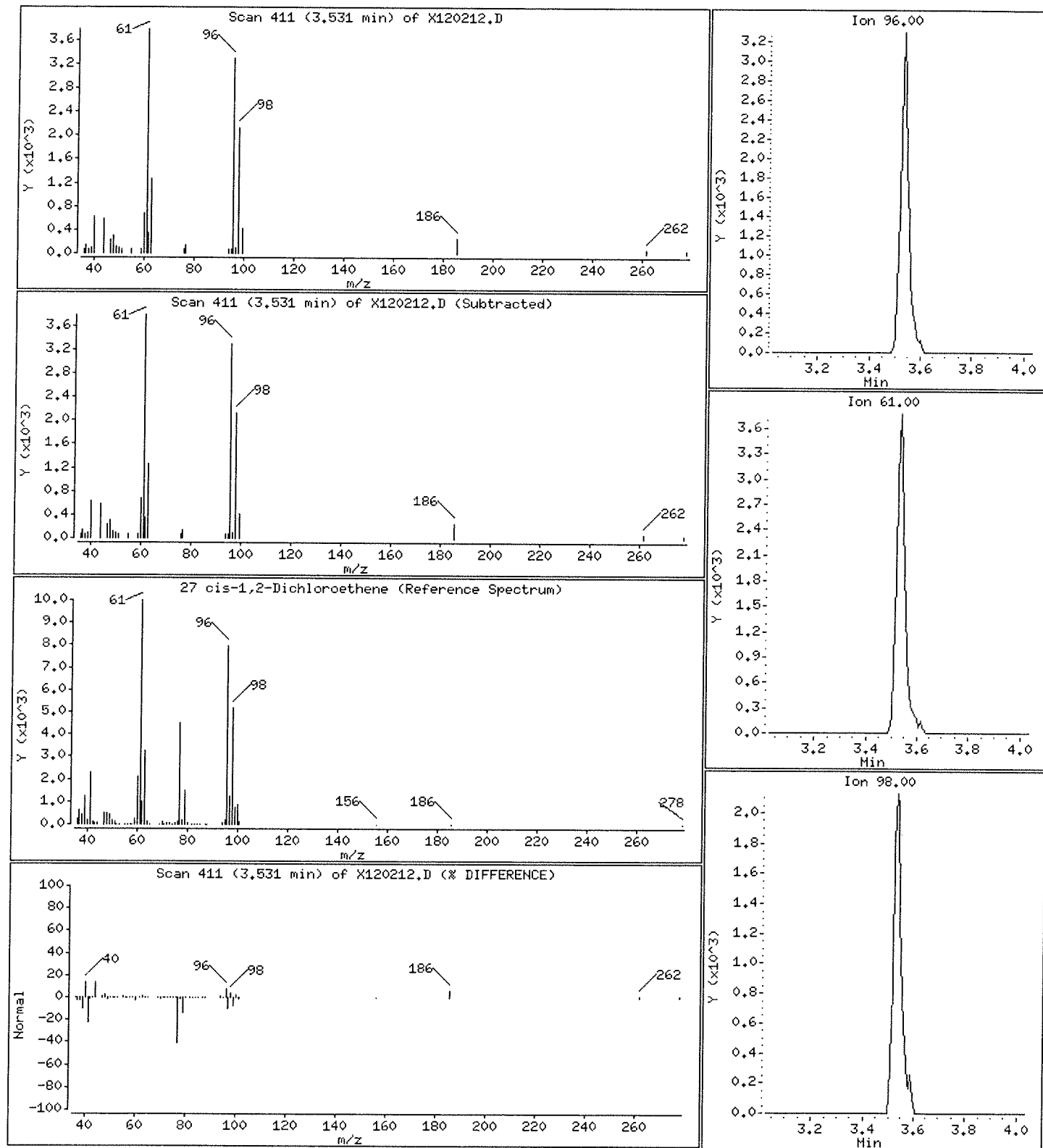
Operator: PC

Column phase: DB624

Column diameter: 0.18

27 cis-1,2-Dichloroethene

Concentration: 1.50 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X120212.D

Page 7

Date : 02-DEC-2019 15:06

Client ID: HS19111343-03

Instrument: voa6.i

Sample Info: HS19111343-03;HS19111343-03;;;

Purge Volume: 5.0

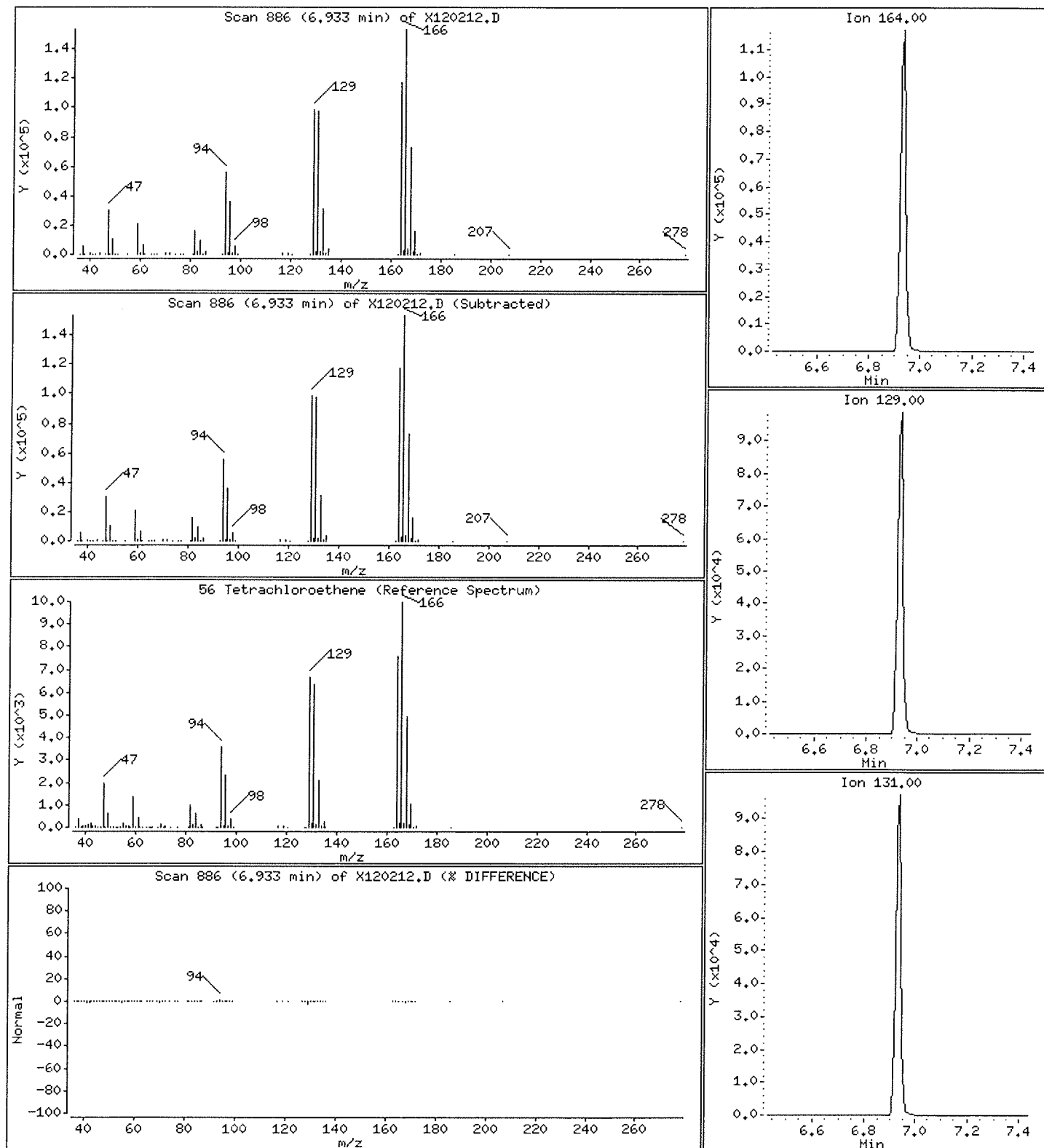
Operator: PC

Column phase: DB624

Column diameter: 0.18

56 Tetrachloroethene

Concentration: 38.12 ug/l



Data File: \\nahstus005\Target\chem\voa6.i\X191202.b\X120212.D

Page 8

Date : 02-DEC-2019 15:06

Client ID: HS19111343-03

Instrument: voa6.i

Sample Info: HS19111343-03;HS19111343-03;;;

Purge Volume: 5.0

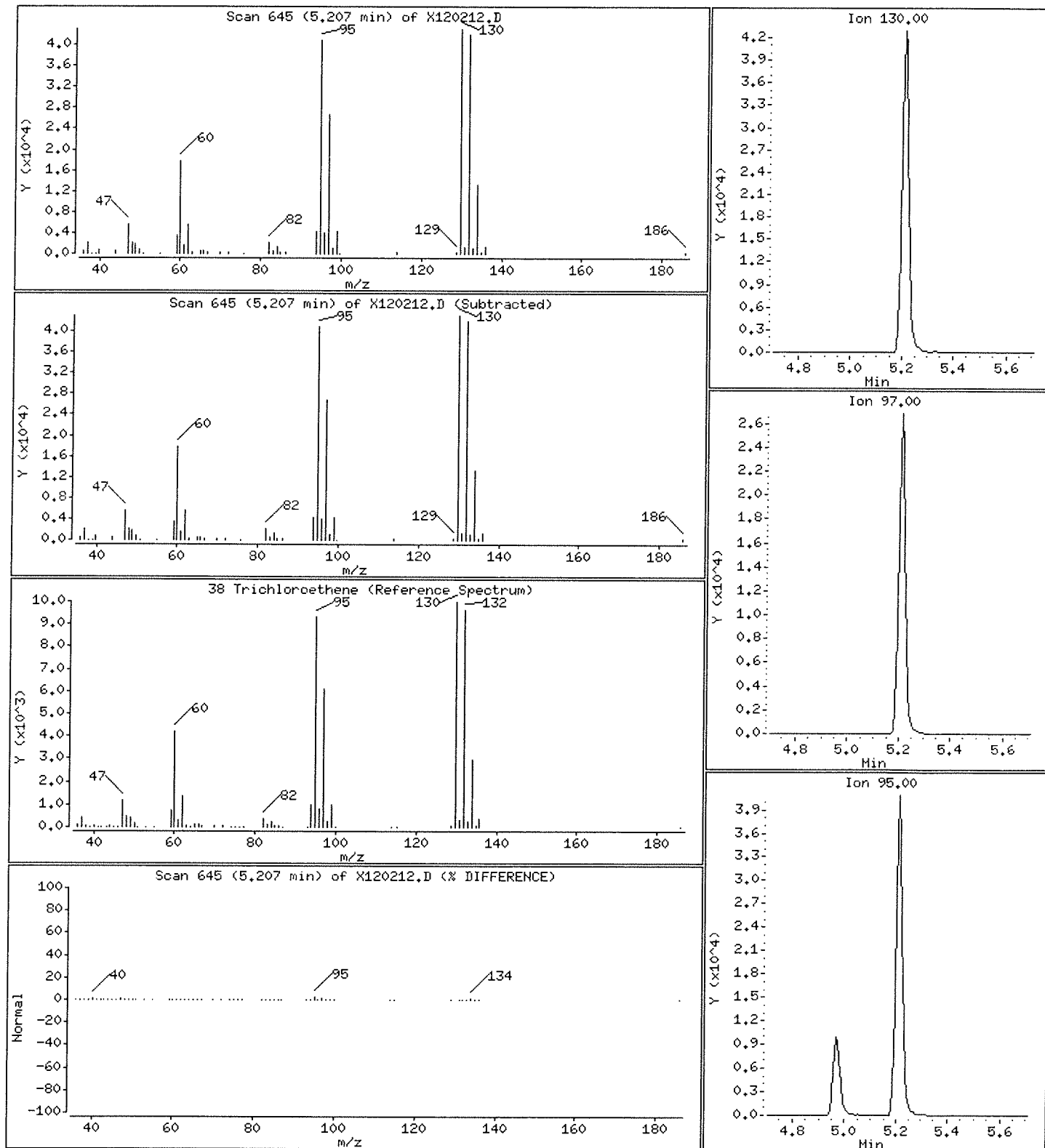
Operator: PC

Column phase: DB624

Column diameter: 0.18

38 Trichloroethene

Concentration: 16.30 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120213.D Page 1
 Report Date: 07-Dec-2019 09:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120213.D
 Lab Smp Id: HS19111343-04 Client Smp ID: HS19111343-04
 Inj Date : 02-DEC-2019 15:30
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111343-04;HS19111343-04;;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
 Meth Date : 07-Dec-2019 09:42 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 13
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

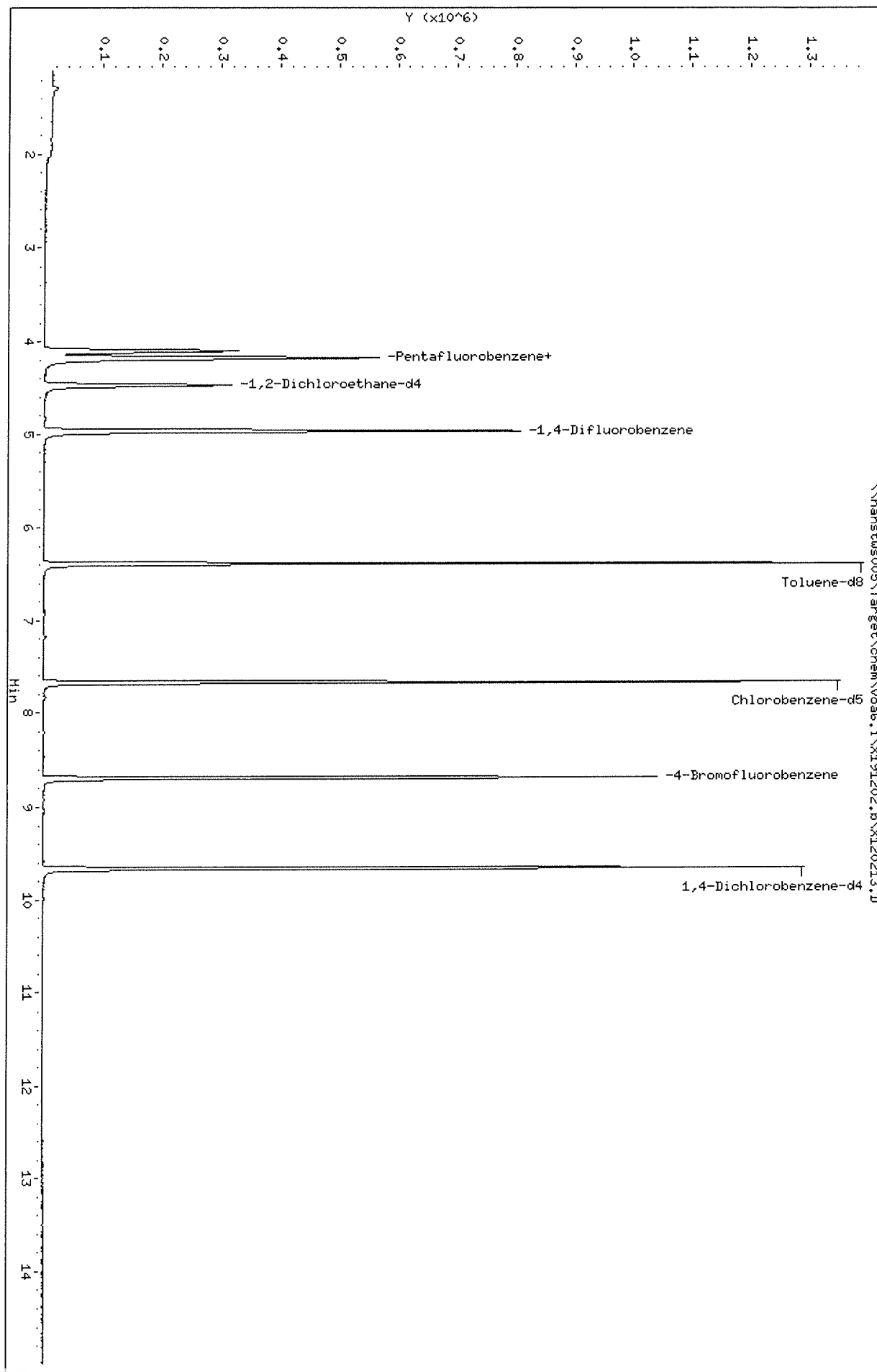
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene		168	4.182	4.182	(1.000)	504096	50.0000	
* 36 1,4-Difluorobenzene		114	4.970	4.970	(1.000)	710678	50.0000	
* 47 Chlorobenzene-d5		117	7.671	7.670	(1.000)	635397	50.0000	
* 70 1,4-Dichlorobenzene-d4		152	9.662	9.669	(1.000)	317004	50.0000	
\$ 35 1,2-Dichloroethane-d4		65	4.476	4.476	(1.070)	238103	50.2029	50.20
\$ 69 4-Bromofluorobenzene		95	8.688	8.688	(1.133)	284413	48.1271	48.12
\$ 30 Dibromofluoromethane		113	4.103	4.103	(0.981)	226976	49.5220	49.52
\$ 48 Toluene-d8		98	6.388	6.388	(0.833)	806256	48.1594	48.15



Data File: \\nahstus005\Target\chem\voa6.i\X191202.b\X120213.D
Date : 02-DEC-2019 15:30
Client ID: H51911343-04
Sample Info: H51911343-04;H51911343-04;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120214.D Page 1
 Report Date: 07-Dec-2019 09:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120214.D
 Lab Smp Id: HS19111343-05 Client Smp ID: HS19111343-05
 Inj Date : 02-DEC-2019 15:54
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111343-05;HS19111343-05;;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
 Meth Date : 07-Dec-2019 09:42 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 14
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG						CONCENTRATIONS	
			MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
								(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168		4.182	4.182	(1.000)	494828	50.0000		
* 36 1,4-Difluorobenzene	114		4.970	4.970	(1.000)	694092	50.0000		
* 47 Chlorobenzene-d5	117		7.670	7.670	(1.000)	605264	50.0000		
* 70 1,4-Dichlorobenzene-d4	152		9.662	9.669	(1.000)	303256	50.0000		
\$ 35 1,2-Dichloroethane-d4	65		4.476	4.476	(1.070)	238817	51.2805	51.28	
\$ 69 4-Bromofluorobenzene	95		8.688	8.688	(1.133)	268250	47.6560	47.65	
\$ 30 Dibromofluoromethane	113		4.103	4.103	(0.981)	223950	49.7750	49.77	
\$ 48 Toluene-d8	98		6.388	6.388	(0.833)	785601	49.2618	49.26	
138 Freon TF	101		1.919	1.919	(0.459)	31037	7.20450	7.20	
38 Trichloroethene	130		5.206	5.206	(1.048)	8877	1.82878	1.82(a)	

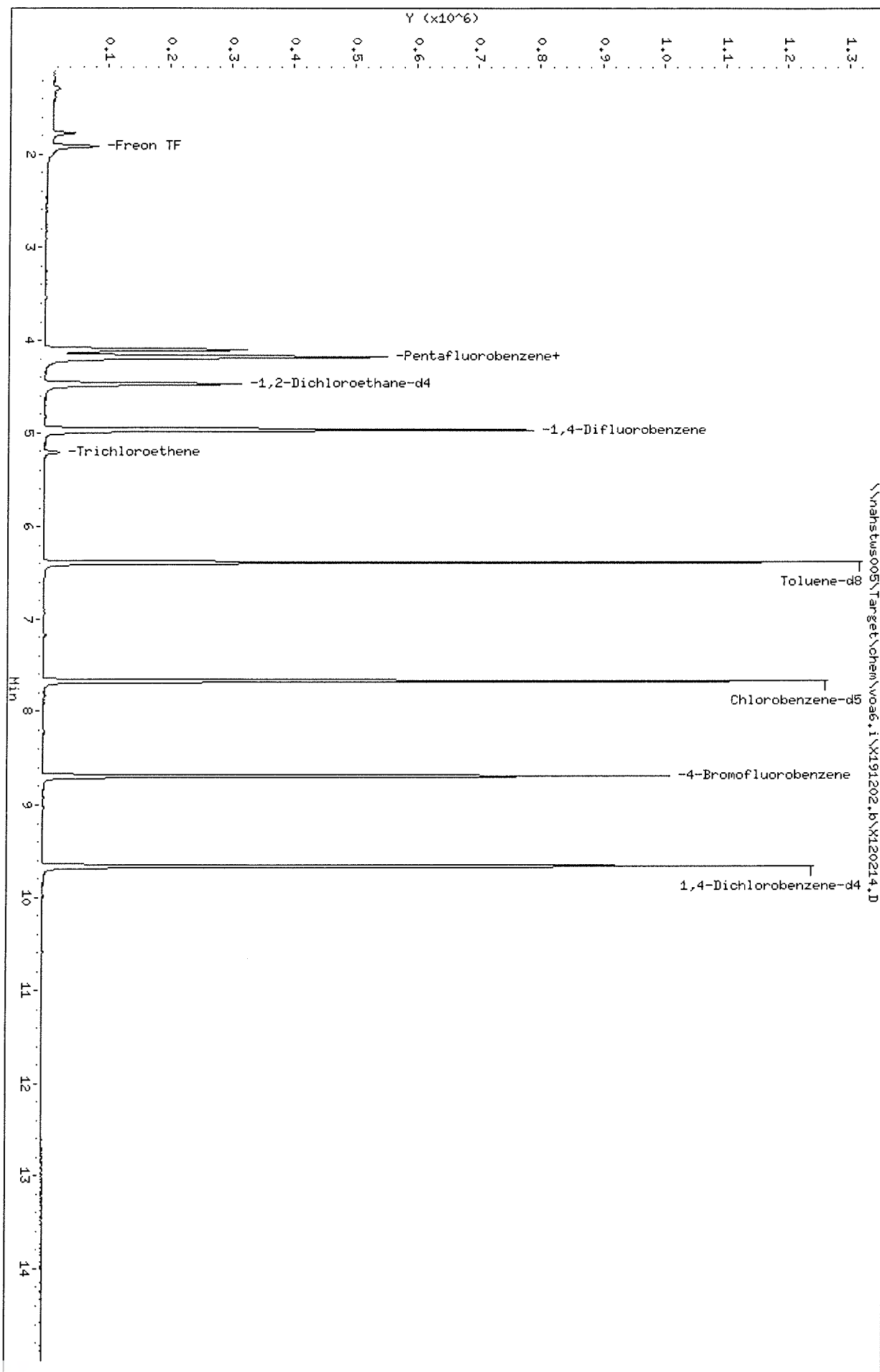
QC Flag Legend

a - Target compound detected but, quantitated amount
 Below Limit Of Quantitation(BLOQ).



Data File: \\nahstus005\\Target\\chem\\voa6.i\\X191202.b\\X120214.D
Date : 02-DEC-2019 15:54
Client ID: H51911343-05
Sample Info: H51911343-05;H51911343-05;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstus005\Target\chem\voa6.i\X191202.b\X120214.D

Page 3

Date : 02-DEC-2019 15:54

Client ID: HS19111343-05

Instrument: voa6.i

Sample Info: HS19111343-05;HS19111343-05;;;

Purge Volume: 5.0

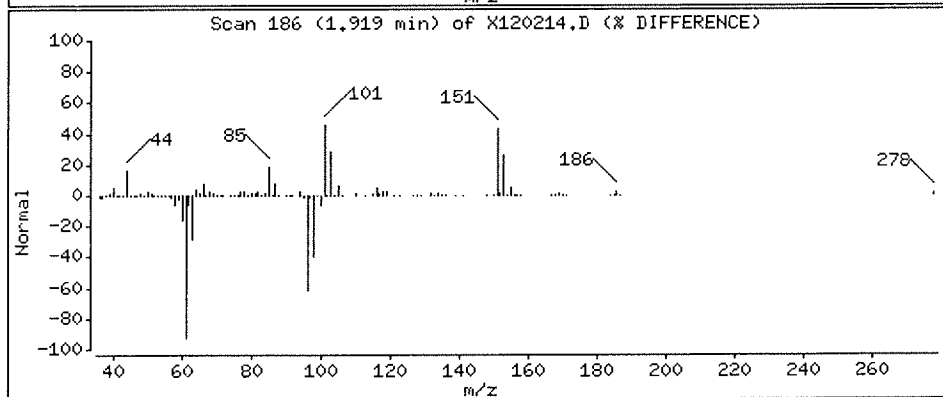
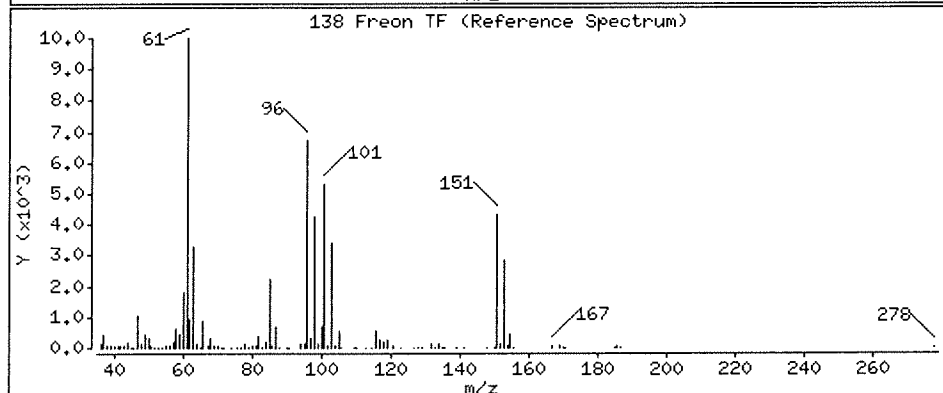
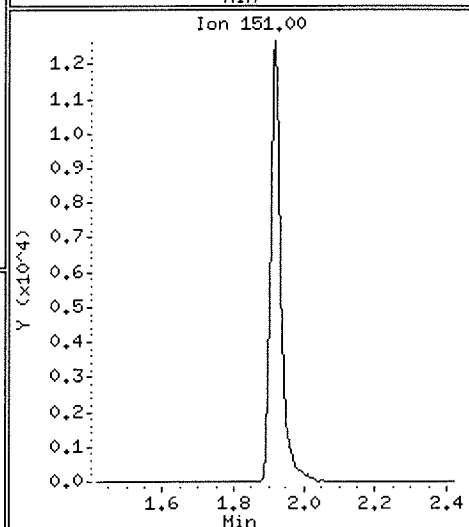
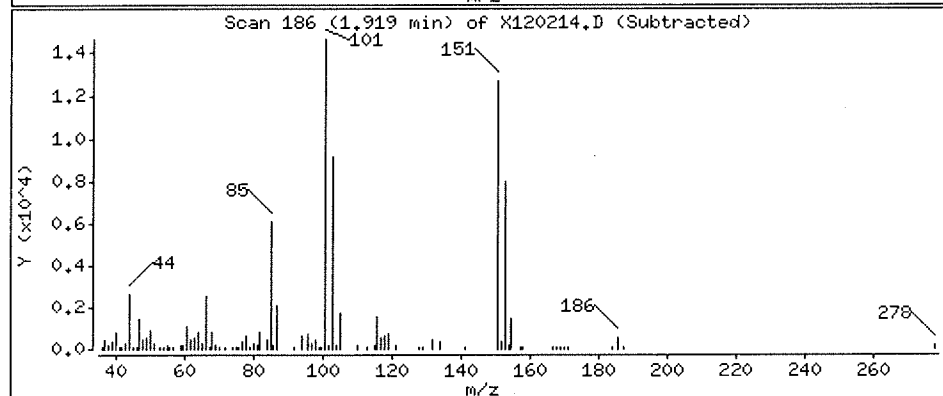
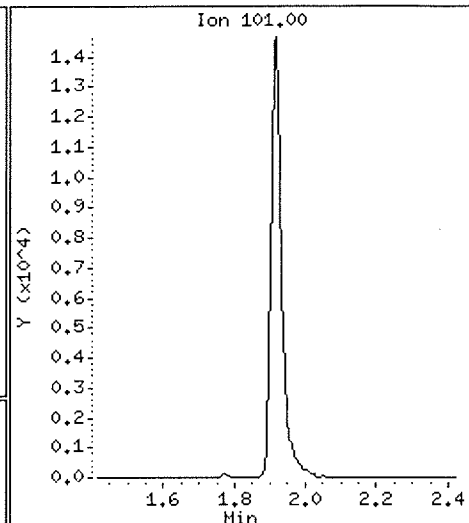
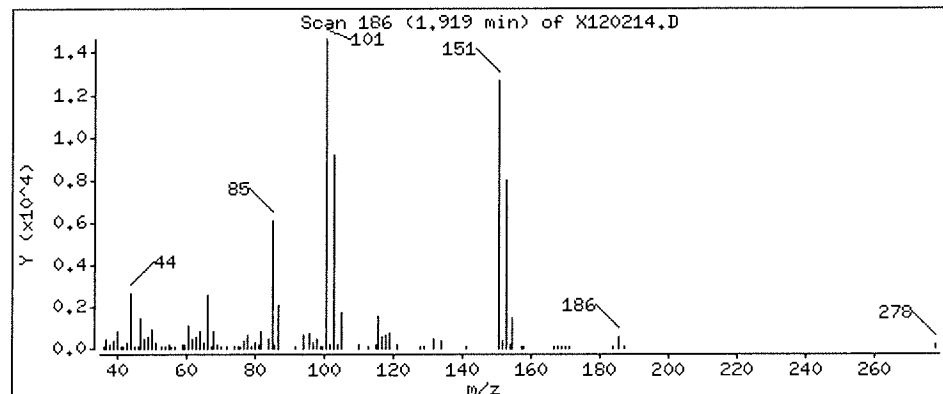
Operator: PC

Column phase: DB624

Column diameter: 0.18

138 Freon TF

Concentration: 7.20 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120214.D

Page 4

Date : 02-DEC-2019 15:54

Client ID: HS19111343-05

Instrument: voa6.i

Sample Info: HS19111343-05;HS19111343-05;;;

Purge Volume: 5.0

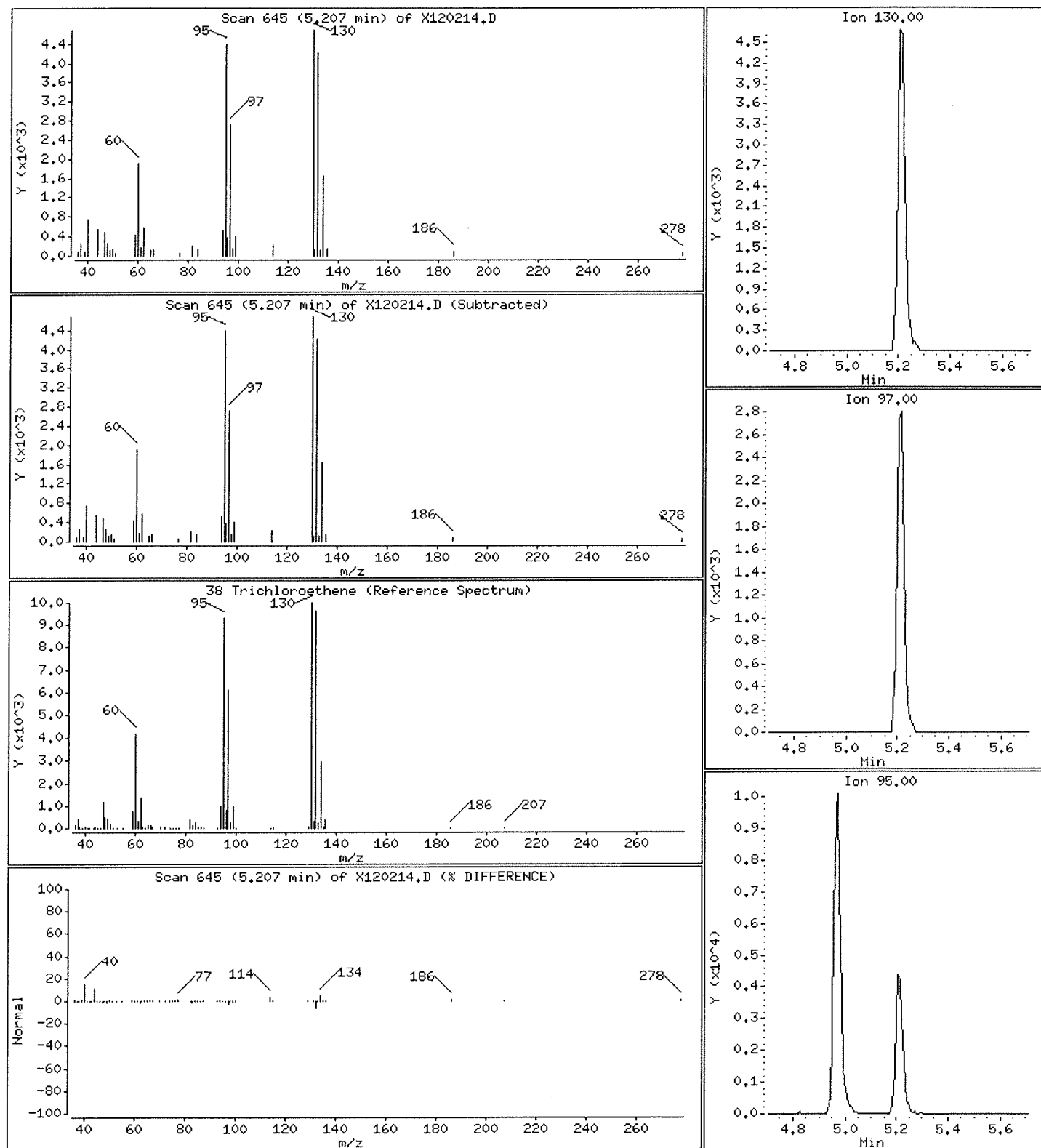
Operator: PC

Column phase: DB624

Column diameter: 0.18

38 Trichloroethene

Concentration: 1.82 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120215.D Page 1
 Report Date: 07-Dec-2019 09:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120215.D
 Lab Smp Id: HS19111343-07 Client Smp ID: HS19111343-07
 Inj Date : 02-DEC-2019 16:18
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111343-07;HS19111343-07;;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
 Meth Date : 07-Dec-2019 09:42 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 15
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
 Target Version: 4.14
 Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN (ug/l)	FINAL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182 (1.000)		502231	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970 (1.000)		709563	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670 (1.000)		637028	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669 (1.000)		331713	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476 (1.070)		236568	50.0666	50.06
\$ 69 4-Bromofluorobenzene	95	8.688	8.688 (1.133)		286120	48.2905	48.29
\$ 30 Dibromofluoromethane	113	4.103	4.103 (0.981)		228037	49.9351	49.93
\$ 48 Toluene-d8	98	6.388	6.388 (0.833)		803042	47.8446	47.84
56 Tetrachloroethene	164	6.933	6.933 (0.904)		6481	1.44797	1.44 (a)
38 Trichloroethene	130	5.206	5.206 (1.048)		29814	6.00817	6.00

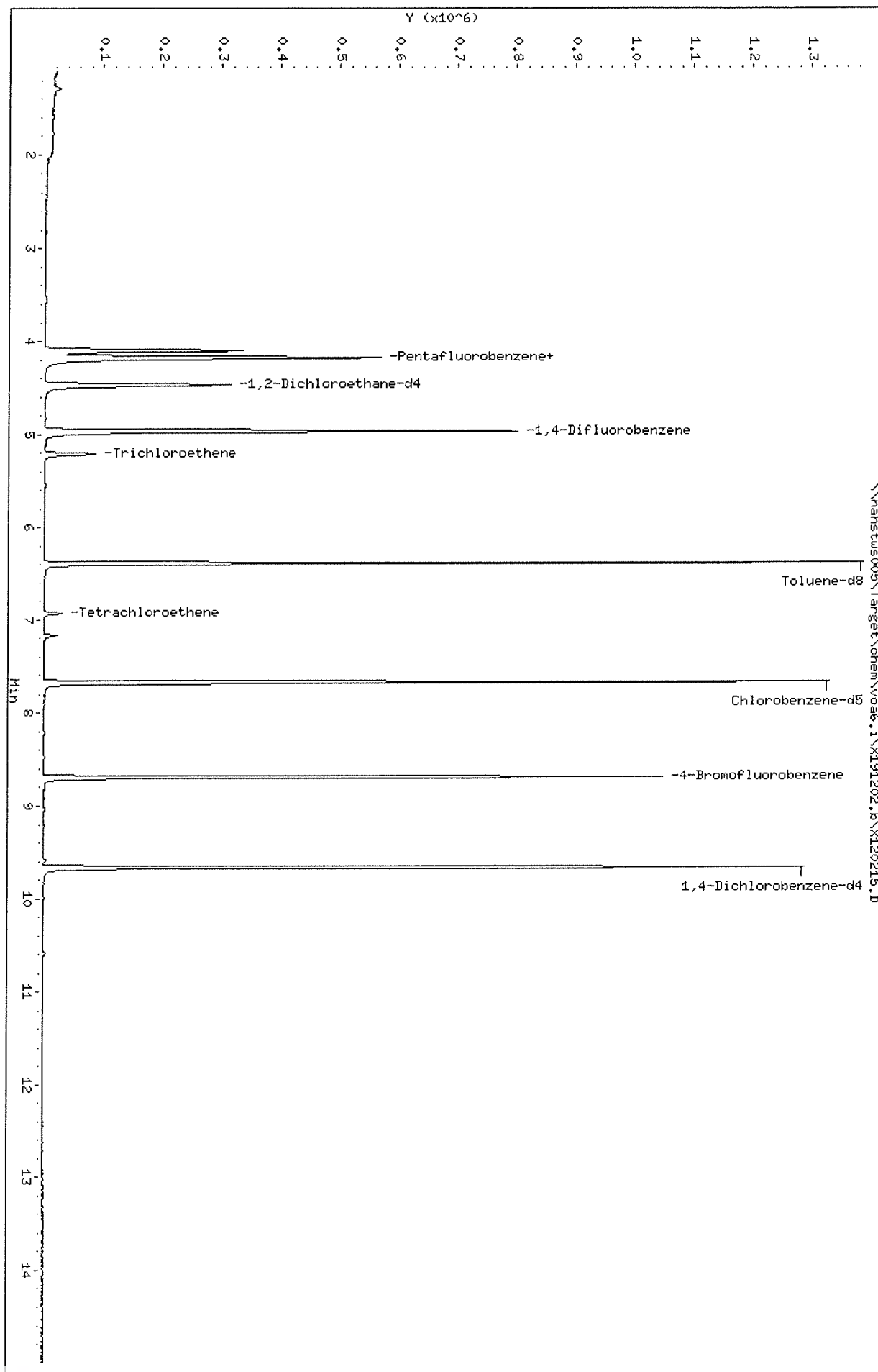
QC Flag Legend

a - Target compound detected but, quantitated amount
 Below Limit Of Quantitation(BLOQ).



Data File: \\nahstus005\Target\chem\voa6.i\X191202.b\X120215.D
Date : 02-DEC-2019 16:18
Client ID: HSI9111343-07
Sample Info: HSI9111343-07;HSI9111343-07;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120215.D

Page 3

Date : 02-DEC-2019 16:18

Client ID: HS19111343-07

Instrument: voa6.i

Sample Info: HS19111343-07;HS19111343-07;;;

Purge Volume: 5.0

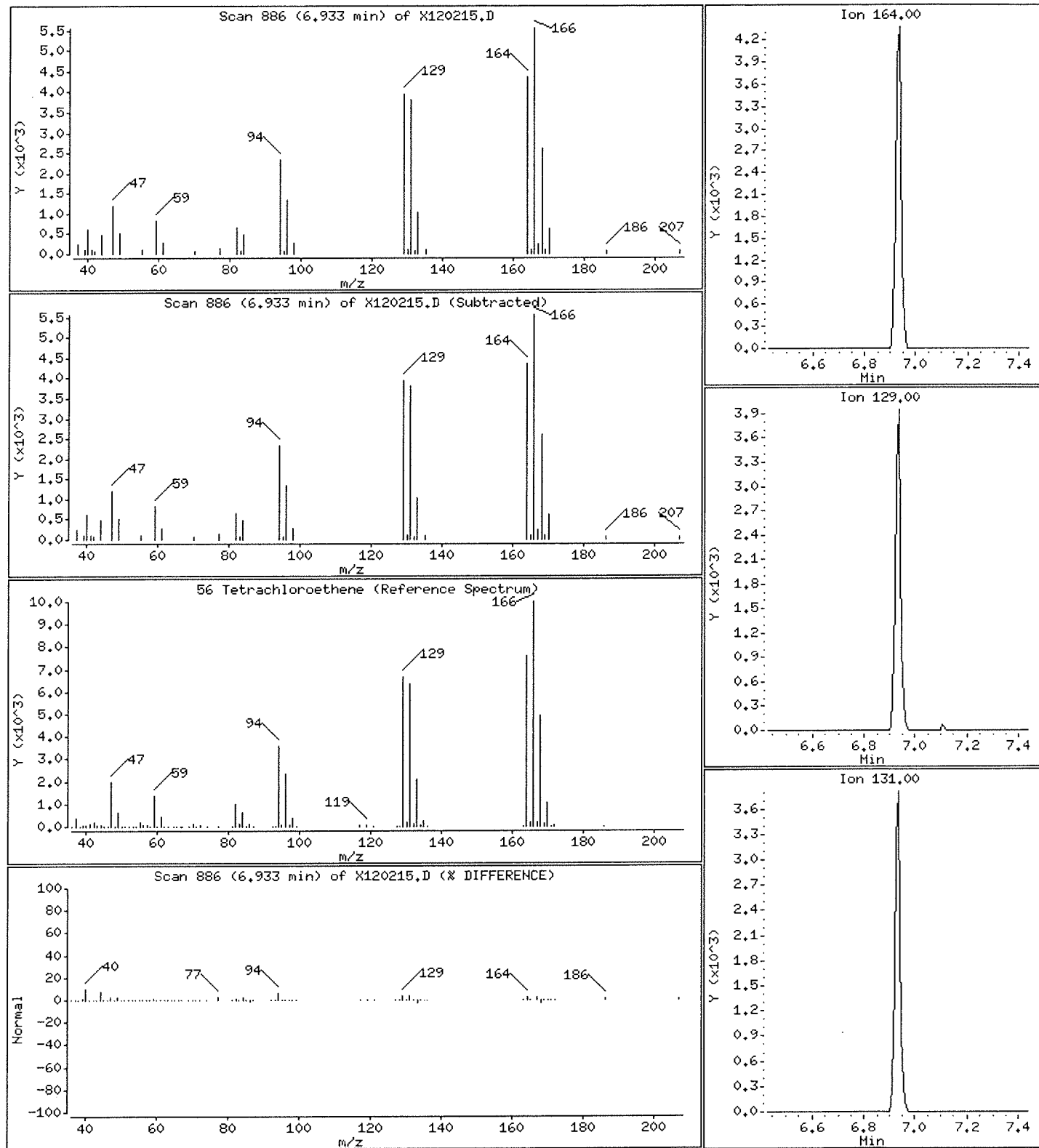
Operator: PC

Column phase: DB624

Column diameter: 0.18

56 Tetrachloroethene

Concentration: 1.44 ug/l



Data File: \\nahstus005\Target\chem\voa6.i\X191202.b\X120215.D

Page 4

Date : 02-DEC-2019 16:18

Client ID: HS19111343-07

Instrument: voa6.i

Sample Info: HS19111343-07;HS19111343-07;;;

Purge Volume: 5.0

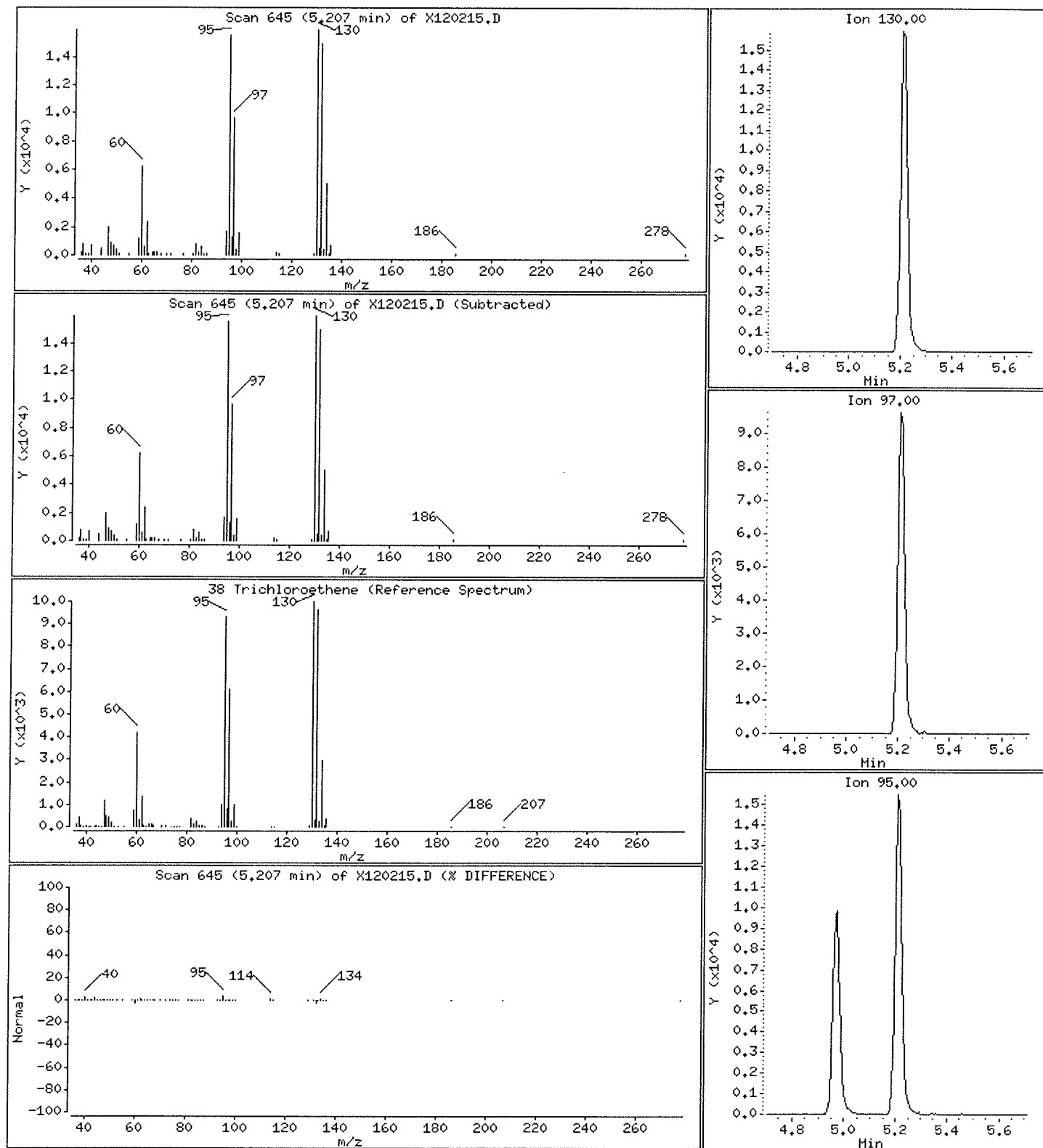
Operator: PC

Column phase: DB624

Column diameter: 0.18

38 Trichloroethene

Concentration: 6.00 ug/l



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120217.D Page 1
 Report Date: 07-Dec-2019 09:42

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120217.D
 Lab Smp Id: HS19111343-06MS Client Smp ID: HS19111343-06MS
 Inj Date : 02-DEC-2019 17:06
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111343-06MS;HS19111343-06MS;3;;MS
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
 Meth Date : 07-Dec-2019 09:41 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 17 QC Sample: MS
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.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					CONCENTRATIONS	
			RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168		4.182	4.182	(1.000)	476412	50.0000	
* 36 1,4-Difluorobenzene	114		4.970	4.970	(1.000)	671021	50.0000	
* 47 Chlorobenzene-d5	117		7.671	7.670	(1.000)	611250	50.0000	
* 70 1,4-Dichlorobenzene-d4	152		9.669	9.669	(1.000)	327412	50.0000	
\$ 35 1,2-Dichloroethane-d4	65		4.476	4.476	(1.070)	225156	50.2313	50.23
\$ 69 4-Bromofluorobenzene	95		8.688	8.688	(1.133)	283995	49.9389	49.93
\$ 30 Dibromofluoromethane	113		4.103	4.103	(0.981)	214455	49.5091	49.50
\$ 48 Toluene-d8	98		6.388	6.388	(0.833)	764918	47.4951	47.49
60 1,1,1,2-Tetrachloroethane	131		7.778	7.778	(1.014)	85493	19.2790	19.27
31 1,1,1-Trichloroethane	97		4.089	4.089	(0.978)	133080	20.7060	20.70
68 1,1,2,2-Tetrachloroethane	83		8.838	8.845	(0.914)	88383	19.1971	19.19
138 Freon TF	101		1.919	1.919	(0.459)	78450	18.9142	18.91
53 1,1,2-Trichloroethane	83		6.840	6.840	(0.892)	61776	19.3336	19.33
22 1,1-Dichloroethane	63		2.922	2.921	(0.699)	138702	20.0094	20.00
11 1,1-Dichloroethene	96		1.912	1.911	(0.457)	74660	18.4919	18.49
32 1,1-Dichloropropene	75		4.283	4.282	(0.862)	107753	19.9071	19.90
93 1,2,3-Trichlorobenzene	180		11.746	11.746	(1.215)	24280	19.4928	19.49
71 1,2,3-Trichloropropane	75		8.867	8.867	(0.917)	75255	19.2910	19.29 (M)
90 1,2,4-Trichlorobenzene	180		11.338	11.338	(1.173)	52263	18.9495	18.94
79 1,2,4-Trimethylbenzene	105		9.383	9.382	(0.970)	312798	20.1346	20.13
89 1,2-Dibromo-3-Chloropropane	155		10.658	10.657	(1.102)	10108	19.6827	19.68
57 1,2-Dibromoethane	107		7.262	7.262	(0.947)	84670	19.7503	19.75
88 1,2-Dichlorobenzene	146		9.999	9.998	(1.034)	171678	19.7567	19.75



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120217.D Page 2
 Report Date: 07-Dec-2019 09:42

Compounds	QUANT SIG MASS					CONCENTRATIONS	
		RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
33 1,2-Dichloroethane	62	4.555	4.562	(0.916)	108719	20.4100	20.41
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	77369	19.3017	19.30
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	305892	20.5201	20.52
83 1,3-Dichlorobenzene	146	9.605	9.612	(0.993)	186340	19.8455	19.84
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	123360	19.0161	19.01
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	187117	19.6111	19.61
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	119343	18.9691	18.96
24 2-Butanone	43	3.581	3.573	(0.856)	55628	38.0537	38.05
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	247341	20.9975	20.99
52 2-Hexanone	43	7.083	7.090	(0.923)	95289	37.9493	37.94
77 4-Chlorotoluene	91	9.075	9.074	(0.939)	289061	20.2452	20.24
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	325525	20.3194	20.31
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	136990	38.2497	38.24
10 Acetone	43	1.976	1.969	(0.473)	40704	30.4174	30.41
37 Benzene	78	4.512	4.512	(0.908)	314760	20.5057	20.50
74 Bromobenzene	156	8.810	8.809	(0.911)	112462	19.7640	19.76
29 Bromochloromethane	128	3.795	3.795	(0.908)	49425	19.1505	19.15
39 Bromodichloromethane	83	5.729	5.729	(1.153)	110053	19.8186	19.81
66 Bromoform	173	8.416	8.415	(1.097)	66270	18.8425	18.84
6 Bromomethane	94	1.338	1.338	(0.320)	87612	17.0097	17.00
19 Carbon Disulfide	76	2.069	2.069	(0.495)	457691	41.6701	41.67
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	118182	19.9316	19.93
59 Chlorobenzene	112	7.692	7.699	(1.003)	228281	19.1296	19.12
7 Chloroethane	64	1.403	1.403	(0.336)	51886	17.2979	17.29
28 Chloroform	83	3.910	3.910	(0.935)	148241	19.2134	19.21
3 Chloromethane	50	1.073	1.073	(0.257)	65581	12.8146	12.81
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	91488	20.2497	20.24
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	125264	19.1419	19.14
55 Dibromochloromethane	129	7.176	7.176	(0.936)	89684	19.3204	19.32
44 Dibromomethane	93	5.558	5.557	(1.118)	55719	19.6430	19.64
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	68233	16.3224	16.32
61 Ethylbenzene	106	7.800	7.799	(1.017)	124522	20.1956	20.19
91 Hexachlorobutadiene	225	11.481	11.488	(1.187)	44321	16.8442	16.84
67 Isopropylbenzene	105	8.566	8.566	(1.117)	364437	19.9550	19.95
62 m,p-Xylenes	106	7.907	7.907	(1.031)	293416	39.4358	39.43
17 Methylene Chloride	84	2.306	2.305	(0.551)	80956	18.7931	18.79
87 n-Butylbenzene	91	9.999	9.998	(1.034)	275811	20.6877	20.68
73 n-Propylbenzene	91	8.917	8.917	(0.922)	422439	20.8736	20.87
92 Naphthalene	128	11.546	11.546	(1.194)	72724	20.5587	20.55
63 o-Xylene	106	8.244	8.243	(1.075)	142285	19.3766	19.37
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	364807	20.7499	20.74
64 Styrene	104	8.258	8.258	(1.077)	248689	19.4757	19.47
78 tert-Butylbenzene	119	9.340	9.339	(0.966)	263160	20.6179	20.61
56 Tetrachloroethene	164	6.933	6.933	(0.904)	106520	24.8021	24.80
50 Toluene	91	6.446	6.446	(0.840)	342916	19.7832	19.78
20 trans-1,2-Dichloroethene	96	2.528	2.527	(0.604)	79714	20.3362	20.33
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	112104	18.7959	18.79
38 Trichloroethene	130	5.207	5.206	(1.048)	95569	20.3654	20.36
8 Trichlorofluoromethane	101	1.561	1.560	(0.373)	144088	19.4970	19.49
5 Vinyl Chloride	62	1.138	1.138	(0.272)	82120	16.9129	16.91



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120217.D Page 3
Report Date: 07-Dec-2019 09:42

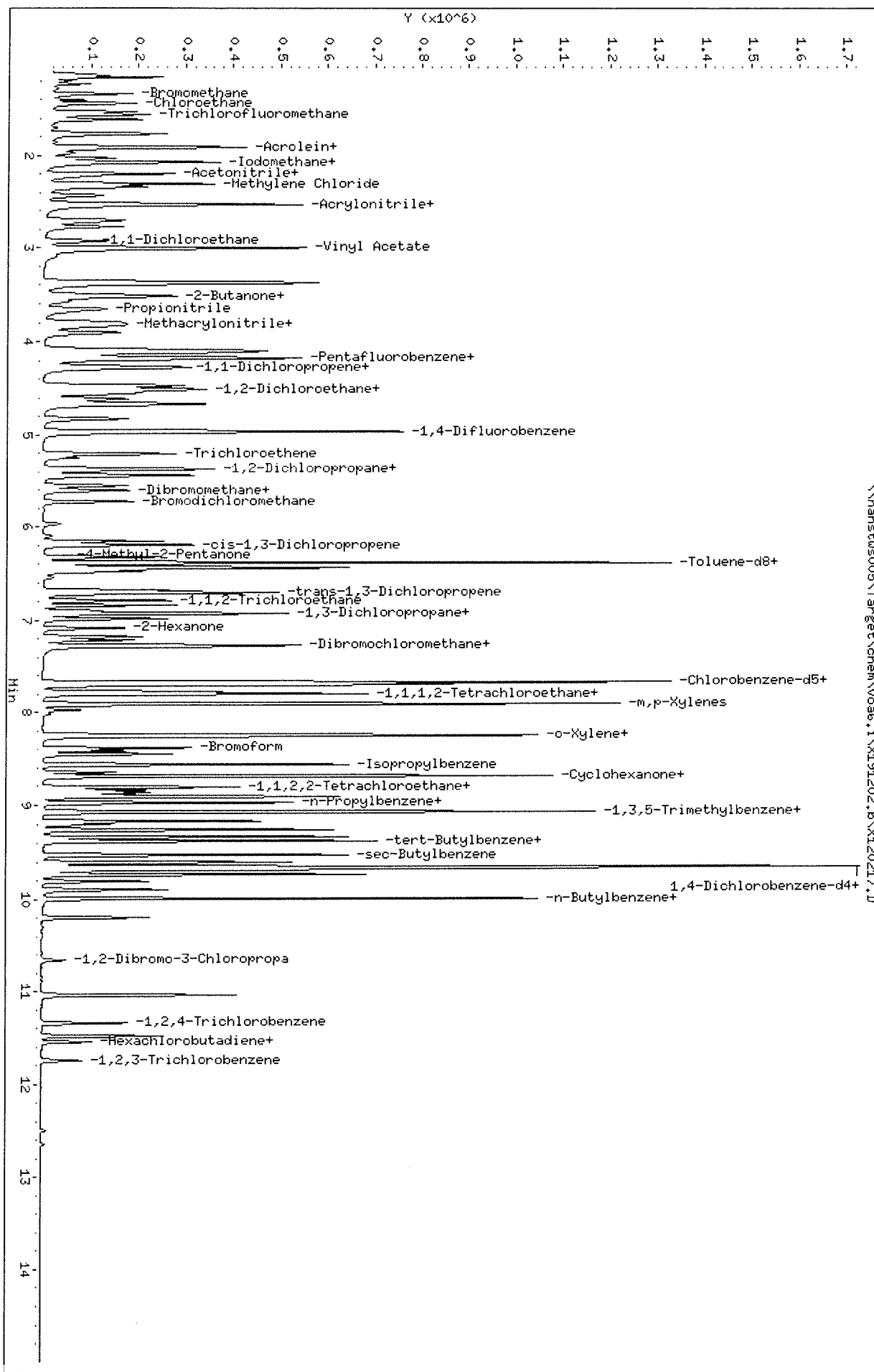
QC Flag Legend

M - Compound response manually integrated.



Data File: \\nahstus005\Target\chem\voa6.i\X191202.b\X120217.D
 Date : 02-DEC-2019 17:06
 Client ID: HS1911343-06MS
 Sample Info: HS1911343-06MS;HS1911343-06MS;3;MS
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\BEFORE\X120217.D

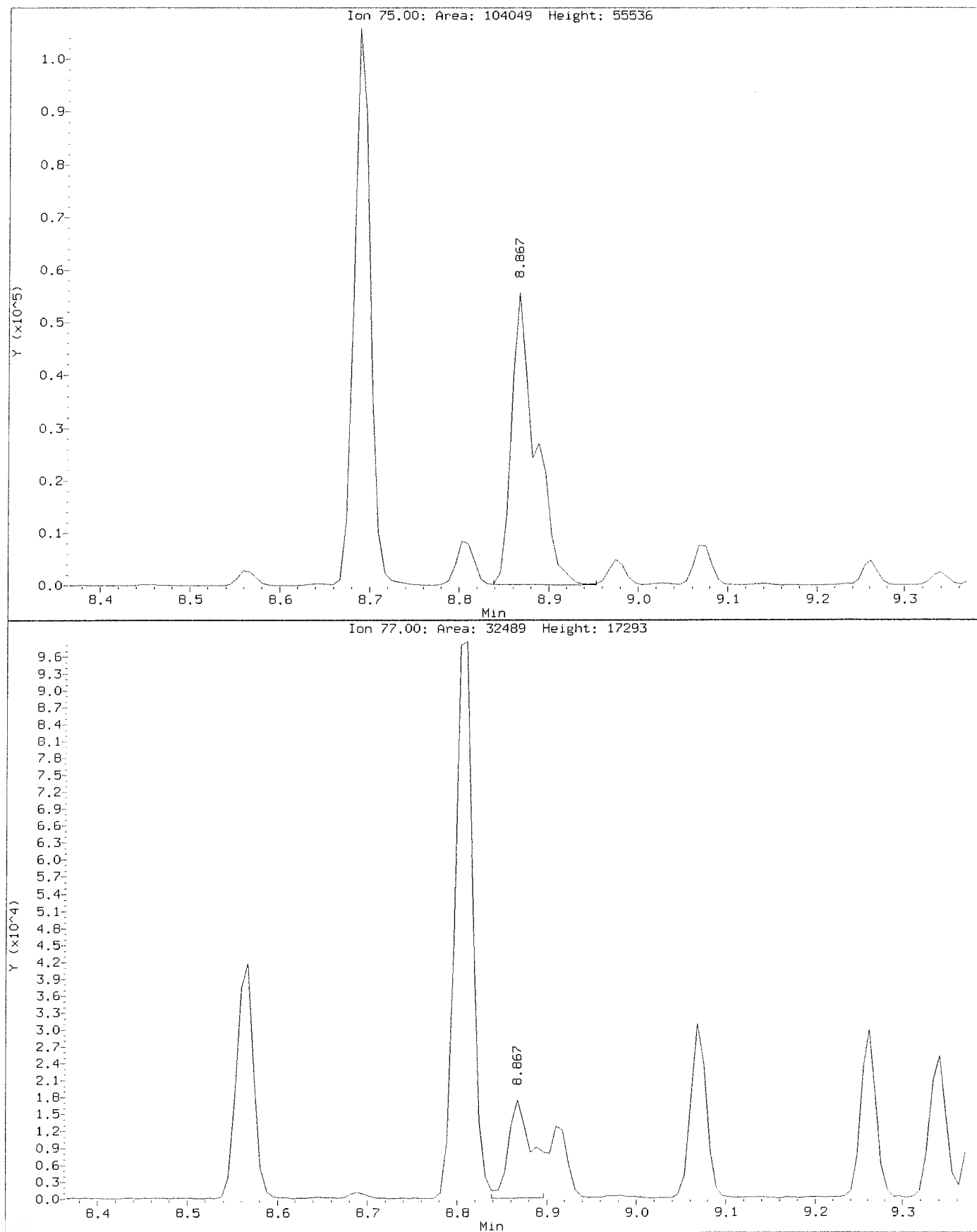
Injection Date: 02-DEC-2019 17:06

Instrument: voa6.i

Client Sample ID: HS19111343-06MS

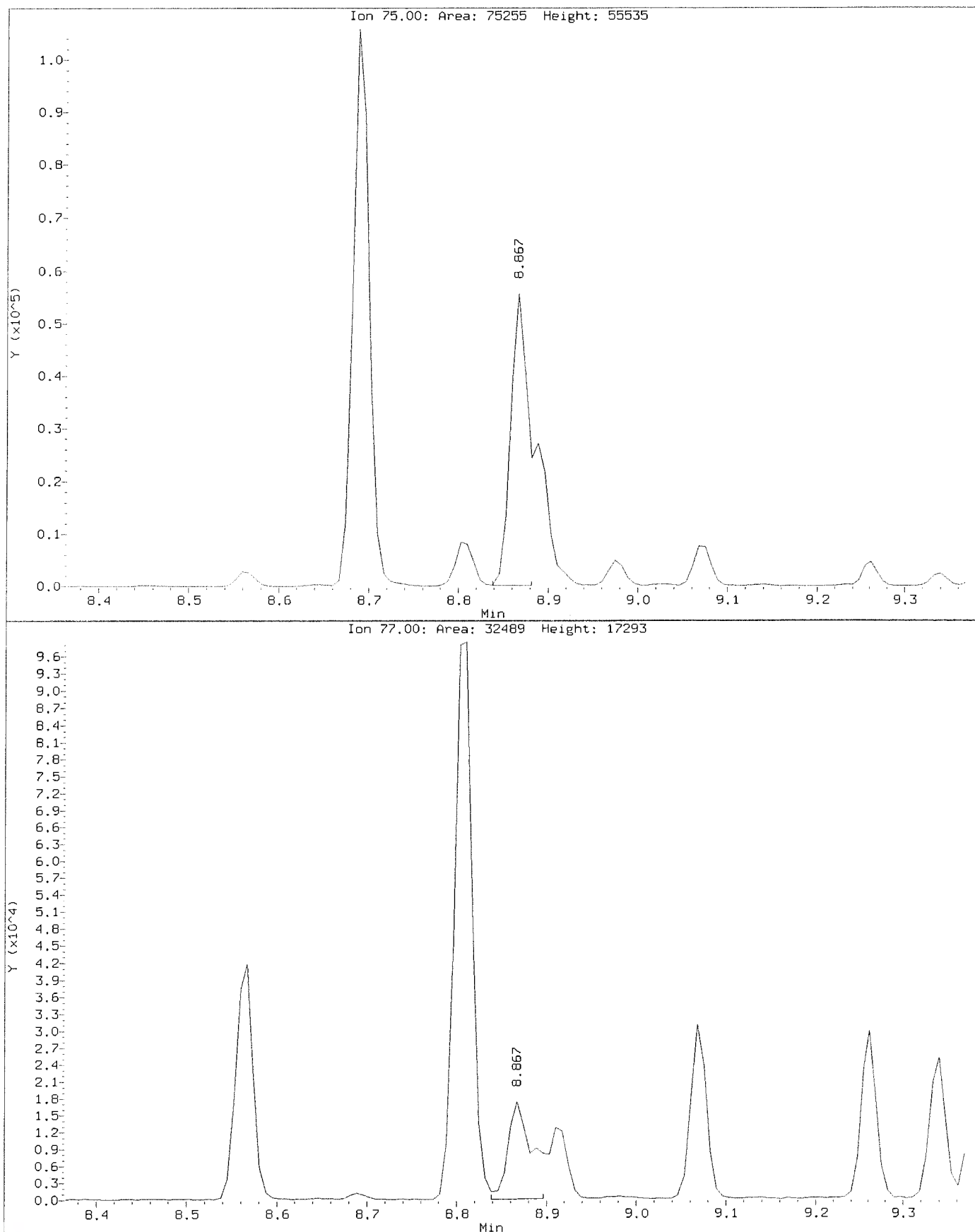
Compound: 1,2,3-Trichloropropane

CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120217.D
Injection Date: 02-DEC-2019 17:06
Instrument: voa6.i
Client Sample ID: HS19111343-06MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120218.D Page 1
 Report Date: 07-Dec-2019 09:42

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120218.D
 Lab Smp Id: HS19111343-06MSD Client Smp ID: HS19111343-06MSD
 Inj Date : 02-DEC-2019 17:30
 Operator : PC Inst ID: voa6.i
 Smp Info : HS19111343-06MSD;HS19111343-06MSD;3;;MSD
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
 Meth Date : 07-Dec-2019 09:41 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 17 QC Sample: MSD
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.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	CONCENTRATIONS					
		RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	474380	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	669718	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	599711	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	320825	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	226881	50.8242	50.82
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	277161	49.6771	49.67
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	214877	49.8168	49.81
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	763786	48.3373	48.33
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	85001	19.5368	19.53
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	129226	20.1925	20.19
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	88678	19.6566	19.65
138 Freon TF	101	1.912	1.919	(0.457)	77693	18.8119	18.81
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	62284	19.8676	19.86
22 1,1-Dichloroethane	63	2.922	2.921	(0.699)	134314	19.4593	19.45
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	72732	18.0916	18.09
32 1,1-Dichloropropene	75	4.283	4.282	(0.862)	105075	19.4501	19.45
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	27289	22.4774	22.47
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	75618	19.7821	19.78 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	55419	20.5064	20.50
79 1,2,4-Trimethylbenzene	105	9.383	9.382	(0.970)	310251	20.3806	20.38
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.657	(1.102)	9492	18.8485	18.84
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	82929	19.7164	19.71
88 1,2-Dichlorobenzene	146	9.999	9.998	(1.034)	171321	20.1204	20.12



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120218.D Page 2

Report Date: 07-Dec-2019 09:42

Compounds	QUANT SIG MASS						CONCENTRATIONS	
		RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)	
=====	=====	=====	=====	=====	=====	=====	=====	
33 1,2-Dichloroethane	62	4.555	4.562	(0.916)	106380	20.0098	20.00	
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	75458	18.8615	18.86	
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	300262	20.5560	20.55	
83 1,3-Dichlorobenzene	146	9.605	9.612	(0.993)	183754	19.9719	19.97	
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	123009	19.3268	19.32	
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	187319	20.0353	20.03	
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	115193	18.3879	18.38	
24 2-Butanone	43	3.581	3.573	(0.856)	55096	37.8512	37.85	
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	240719	20.8549	20.85	
52 2-Hexanone	43	7.083	7.090	(0.923)	95435	38.7388	38.73	
77 4-Chlorotoluene	91	9.075	9.074	(0.939)	285286	20.3911	20.39	
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	324464	20.6690	20.66	
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	136421	38.8237	38.82	
10 Acetone	43	1.976	1.969	(0.473)	40585	30.4636	30.46	
37 Benzene	78	4.512	4.512	(0.908)	302491	19.7447	19.74	
74 Bromobenzene	156	8.810	8.809	(0.911)	110654	19.8455	19.84	
29 Bromochloromethane	128	3.795	3.795	(0.908)	49617	19.3072	19.30	
39 Bromodichloromethane	83	5.729	5.729	(1.153)	108088	19.5026	19.50	
66 Bromoform	173	8.416	8.415	(1.097)	66373	19.2141	19.21	
6 Bromomethane	94	1.339	1.338	(0.320)	88591	17.3100	17.31	
19 Carbon Disulfide	76	2.069	2.069	(0.495)	440709	40.2958	40.29	
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	113849	19.2382	19.23	
59 Chlorobenzene	112	7.699	7.699	(1.004)	224294	19.1572	19.15	
7 Chloroethane	64	1.403	1.403	(0.336)	50988	17.0713	17.07	
28 Chloroform	83	3.910	3.910	(0.935)	144398	18.7955	18.79	
3 Chloromethane	50	1.073	1.073	(0.257)	61592	12.0973	12.09	
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	89584	19.9132	19.91	
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	122770	18.7973	18.79	
55 Dibromochloromethane	129	7.176	7.176	(0.936)	89613	19.6765	19.67	
44 Dibromomethane	93	5.558	5.557	(1.118)	55630	19.6498	19.64	
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	65700	15.8129	15.81	
61 Ethylbenzene	106	7.800	7.799	(1.017)	117288	19.3883	19.38	
91 Hexachlorobutadiene	225	11.481	11.488	(1.187)	45152	17.5123	17.51	
67 Isopropylbenzene	105	8.566	8.566	(1.117)	358807	20.0248	20.02	
62 m,p-Xylenes	106	7.907	7.907	(1.031)	285775	39.1479	39.14	
17 Methylene Chloride	84	2.306	2.305	(0.551)	79046	18.4283	18.42	
87 n-Butylbenzene	91	9.999	9.998	(1.034)	274560	21.0167	21.01	
73 n-Propylbenzene	91	8.917	8.917	(0.922)	410155	20.6827	20.68	
92 Naphthalene	128	11.546	11.546	(1.194)	70332	20.2907	20.29	
63 o-Xylene	106	8.244	8.243	(1.075)	138129	19.1725	19.17	
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	359898	20.8910	20.89	
64 Styrene	104	8.258	8.258	(1.077)	244815	19.5412	19.54	
78 tert-Butylbenzene	119	9.340	9.339	(0.966)	261570	20.9141	20.91	
56 Tetrachloroethene	164	6.933	6.933	(0.904)	103743	24.6202	24.62	
50 Toluene	91	6.446	6.446	(0.840)	333316	19.5994	19.59	
20 trans-1,2-Dichloroethene	96	2.528	2.527	(0.604)	75354	19.3062	19.30	
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	112858	18.9591	18.95	
38 Trichloroethene	130	5.207	5.206	(1.048)	94111	20.0938	20.09	
8 Trichlorofluoromethane	101	1.561	1.560	(0.373)	141750	19.2628	19.26	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	78768	16.2920	16.29	



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120218.D Page 3
Report Date: 07-Dec-2019 09:42

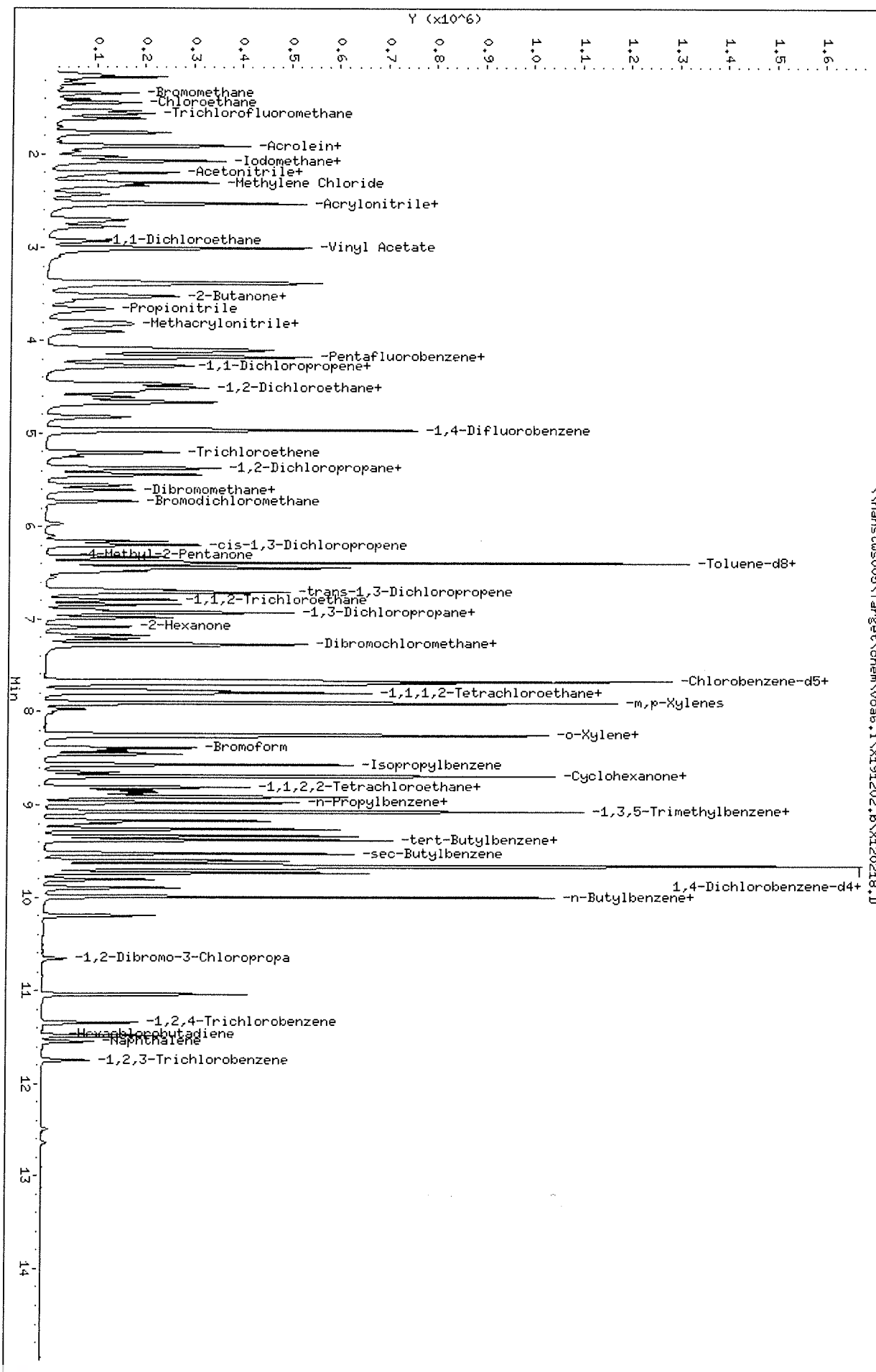
QC Flag Legend

M - Compound response manually integrated.



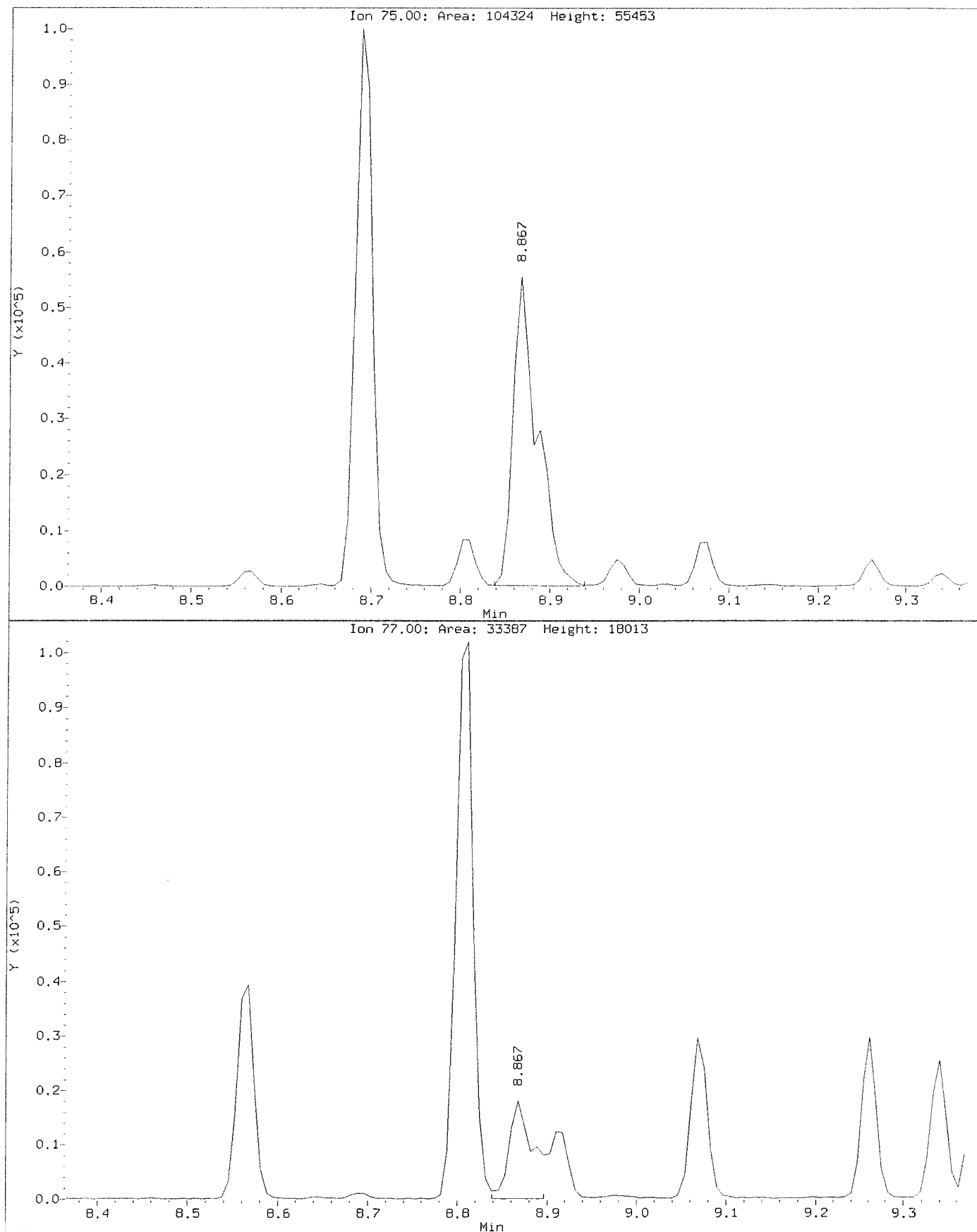
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 Date : 02-DEC-2019 17:30
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 Sample Info: HS19111343-06MSD;HS19111343-06MSD;3;MSD
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



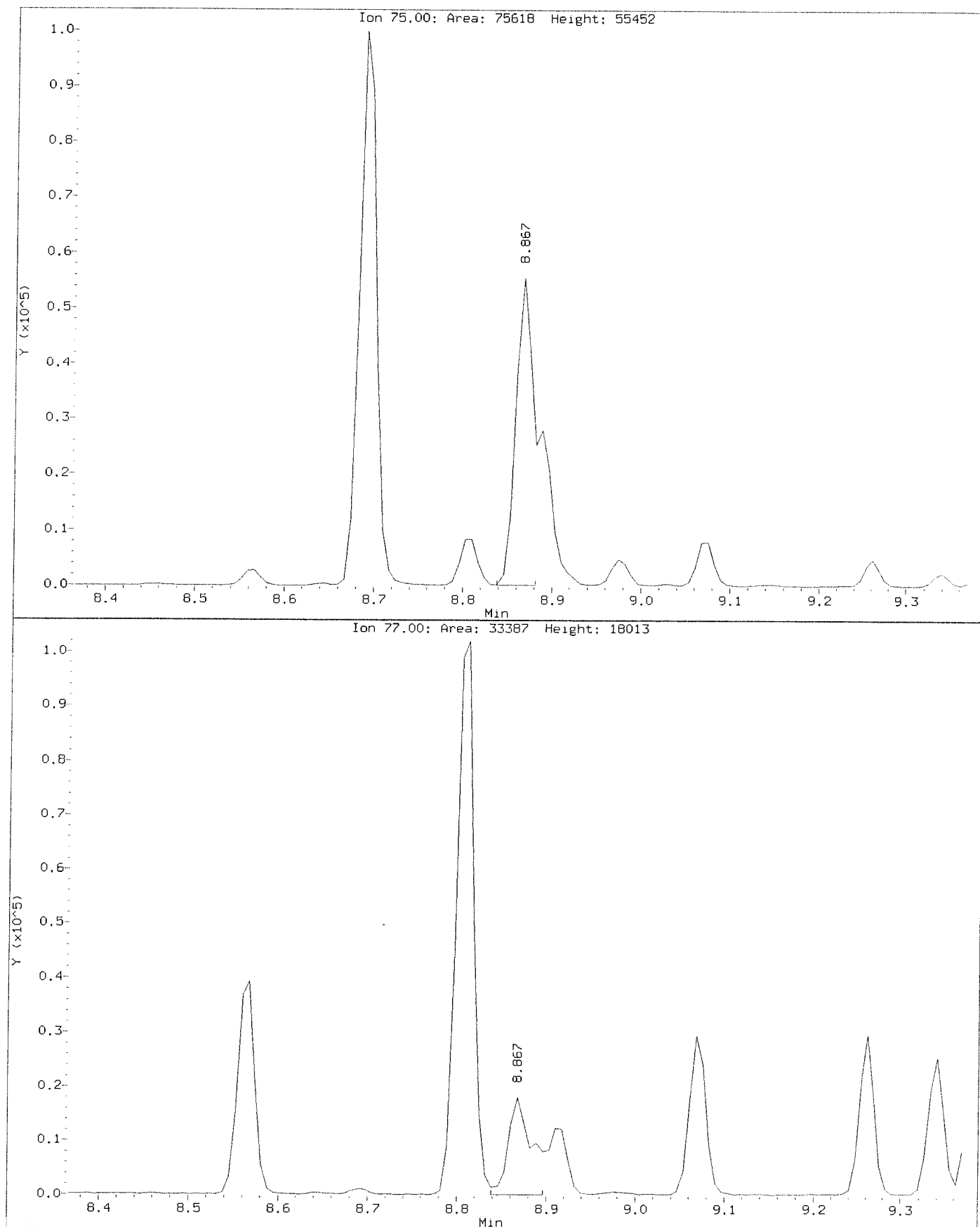
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Injection Date: 02-DEC-2019 17:30
Instrument: voa6.i
Client Sample ID: HS19111343-06MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.1\X191202.b\X120216.D
Injection Date: 02-DEC-2019 17:30
Instrument: voa6.1
Client Sample ID: HS19111343-06MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120219.D Page 1
 Report Date: 07-Dec-2019 09:42

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120219.D
 Lab Smp Id: CCV-END Client Smp ID: CCV-END
 Inj Date : 02-DEC-2019 17:54
 Operator : PC Inst ID: voa6.i
 Smp Info : CCV-END;CCV-END;2;;
 Misc Info : HS18090001;WATER;0;1;
 Comment :
 Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
 Meth Date : 07-Dec-2019 09:41 DevakG Quant Type: ISTD
 Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
 Als bottle: 18 Continuing Calibration Sample
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.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

						AMOUNTS	
QUANT SIG						CAL-AMT	ON-COL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	365835	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	553218	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	521716	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	288317	50.0000	
\$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	195757	50.0000	56.77
\$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	252260	50.0000	51.95
\$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	177966	50.0000	53.47
\$ 48 Toluene-d8	98	6.388	6.388	(0.833)	634347	50.0000	46.14
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	204928	50.0000	54.14
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	287431	50.0000	58.23
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	214265	50.0000	52.84
138 Freon TF	101	1.919	1.919	(0.459)	159307	50.0000	50.01
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	148500	50.0000	54.45
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	303871	50.0000	57.08
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	163446	50.0000	52.71
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	230818	50.0000	51.72
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	57320	50.0000	53.49
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	183980	50.0000	53.55 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	118808	50.0000	48.91
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	750355	50.0000	54.84
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	24312	50.0000	54.34
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	201013	50.0000	54.93
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	412298	50.0000	53.88



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120219.D Page 2
 Report Date: 07-Dec-2019 09:42

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT (ug/l)	ON-COL (ug/l)
=====	=====	=====	=====	=====	=====	=====	=====
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	249489	50.0000	56.81
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	173512	50.0000	52.50
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	718545	50.0000	54.73
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	450045	50.0000	54.42
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	296158	50.0000	53.48
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	453039	50.0000	53.91
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	256818	50.0000	53.15
24 2-Butanone	43	3.573	3.573	(0.854)	127645	100.000	113.71
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	594063	50.0000	57.27
52 2-Hexanone	43	7.090	7.090	(0.924)	222500	100.000	103.81
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	694014	50.0000	55.19
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	753661	50.0000	53.42
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	319187	100.000	104.41
10 Acetone	43	1.969	1.969	(0.471)	91932	100.000	96.95
37 Benzene	78	4.512	4.512	(0.908)	688455	50.0000	54.40
74 Bromobenzene	156	8.809	8.809	(0.911)	273221	50.0000	54.52
29 Bromochloromethane	128	3.795	3.795	(0.908)	113362	50.0000	57.20
39 Bromodichloromethane	83	5.729	5.729	(1.153)	255921	50.0000	55.90
66 Bromoform	173	8.415	8.415	(1.097)	167142	50.0000	53.72
6 Bromomethane	94	1.338	1.338	(0.320)	198029	50.0000	54.65
19 Carbon Disulfide	76	2.069	2.069	(0.495)	957676	100.000	113.54
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	253217	50.0000	51.79
59 Chlorobenzene	112	7.699	7.699	(1.004)	542864	50.0000	53.29
7 Chloroethane	64	1.403	1.403	(0.336)	120222	50.0000	52.19
28 Chloroform	83	3.910	3.910	(0.935)	333308	50.0000	56.25
3 Chloromethane	50	1.073	1.073	(0.257)	161440	50.0000	40.66
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	204500	50.0000	58.94
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	291349	50.0000	54.00
55 Dibromochloromethane	129	7.176	7.176	(0.936)	215745	50.0000	54.45
44 Dibromomethane	93	5.557	5.557	(1.118)	128495	50.0000	54.94
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	197446	50.0000	59.06
61 Ethylbenzene	106	7.799	7.799	(1.017)	284439	50.0000	54.04
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	95269	50.0000	41.11
67 Isopropylbenzene	105	8.566	8.566	(1.117)	853688	50.0000	54.76
62 m,p-Xylenes	106	7.907	7.907	(1.031)	692497	100.000	109.04
17 Methylene Chloride	84	2.305	2.305	(0.551)	181236	50.0000	54.78
87 n-Butylbenzene	91	9.998	9.998	(1.034)	623434	50.0000	53.10
73 n-Propylbenzene	91	8.917	8.917	(0.922)	982326	50.0000	55.12
92 Naphthalene	128	11.546	11.546	(1.194)	154935	50.0000	49.73
63 o-Xylene	106	8.243	8.243	(1.075)	335771	50.0000	53.57
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	839172	50.0000	54.20
64 Styrene	104	8.258	8.258	(1.077)	600794	50.0000	55.12
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	616697	50.0000	54.86
56 Tetrachloroethene	164	6.933	6.933	(0.904)	182830	50.0000	49.87
50 Toluene	91	6.446	6.446	(0.840)	792361	50.0000	53.55
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	173739	50.0000	57.72
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	272855	50.0000	55.48
38 Trichloroethene	130	5.206	5.206	(1.048)	206312	50.0000	53.32
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	315478	50.0000	55.59
5 Vinyl Chloride	62	1.138	1.138	(0.272)	191537	50.0000	51.37



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Report Date: 07-Dec-2019 09:42

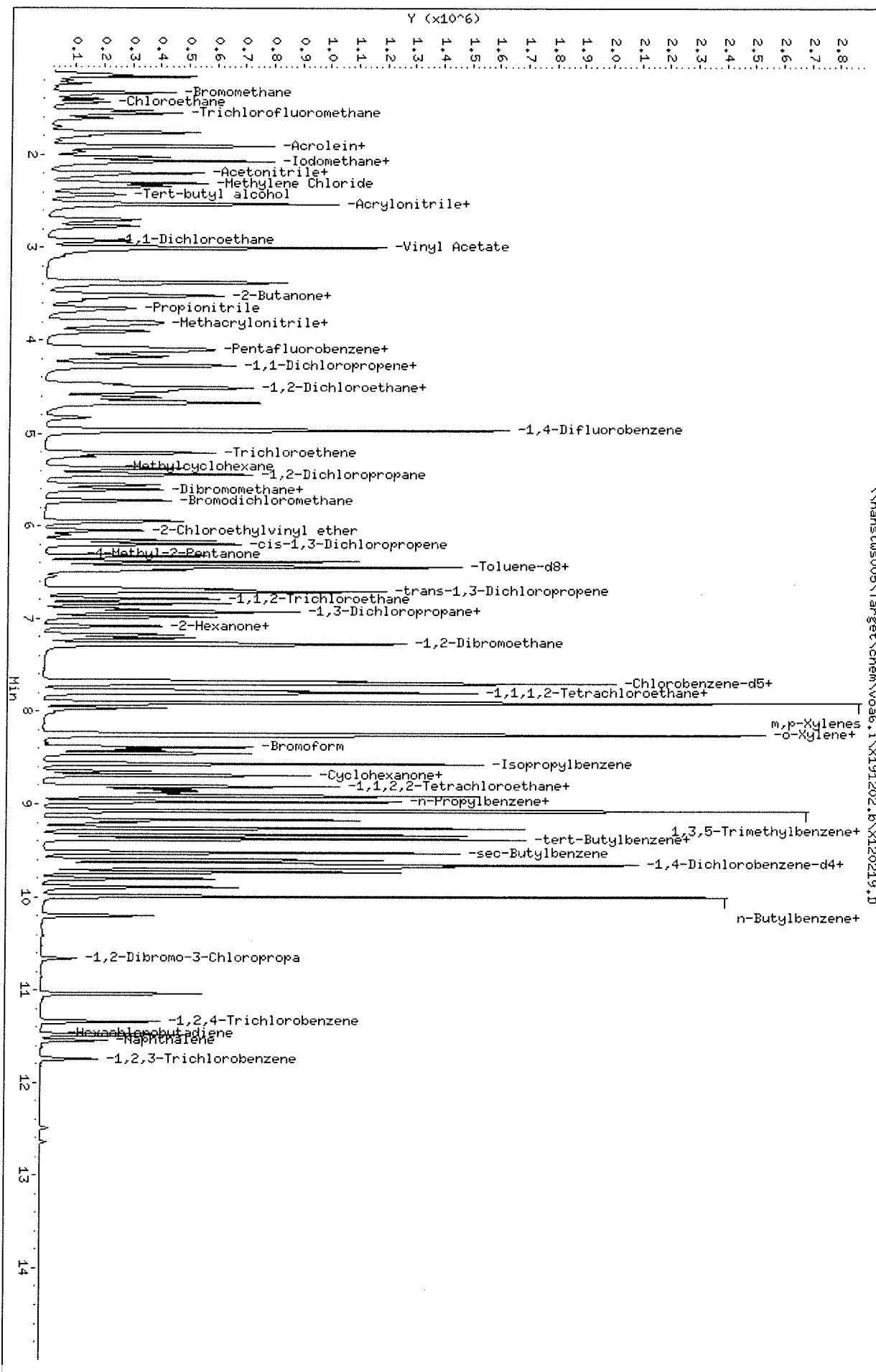
QC Flag Legend

M - Compound response manually integrated.



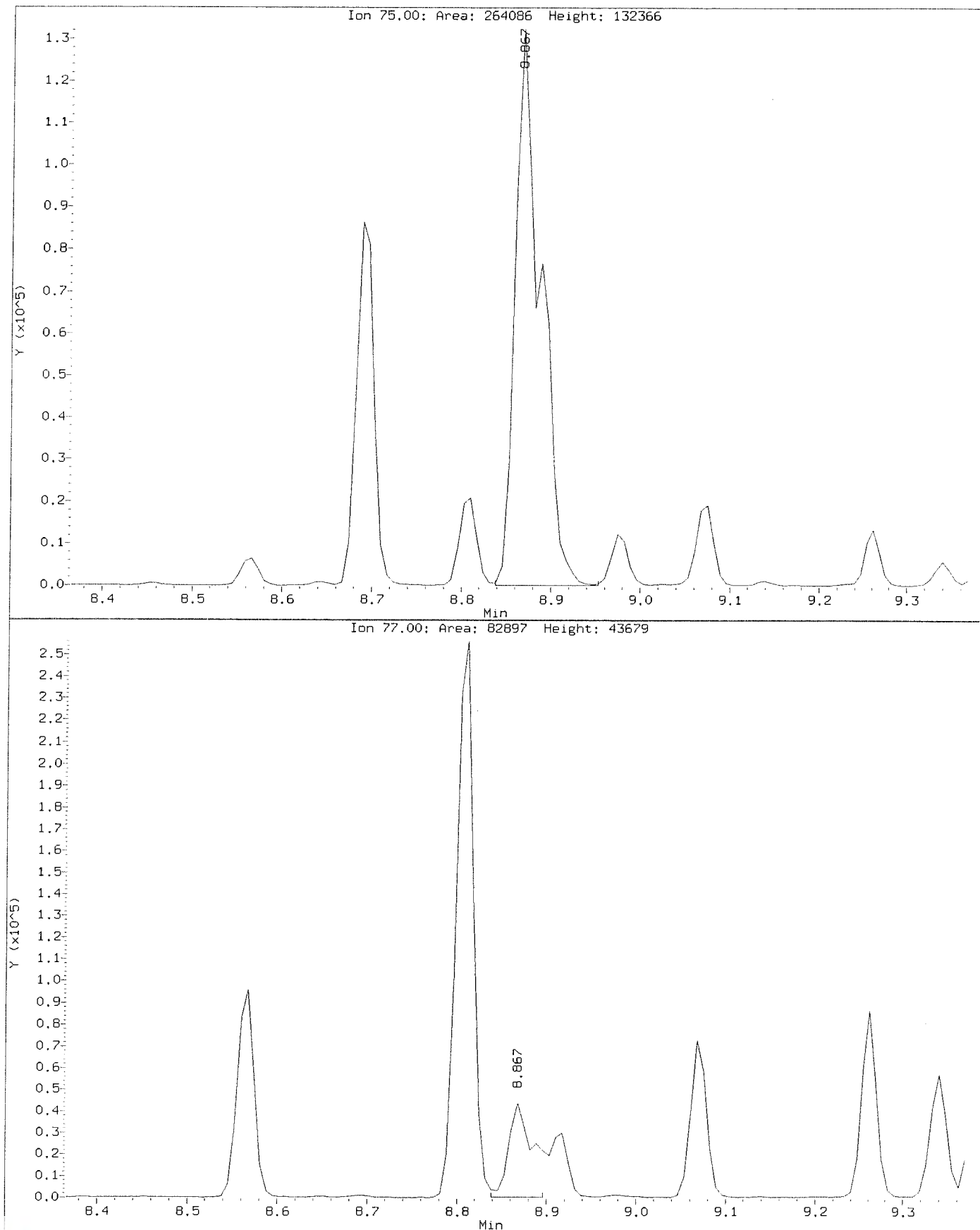
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 Sample Info: CCV-END;CCV-END;2;;
 Purge Volume: 5.0
 Column phase: DB624

Instrument: voa6.i
 Operator: PC
 Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\BEFORE\X120219.D
Injection Date: 02-DEC-2019 17:54
Instrument: voa6.i
Client Sample ID: CCV-END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



HS19111343 Wet Chem Raw Data

ALS WO# HS19111343



Sequence: 112619
Last Update Operator: alshs.nouser

HS19111343

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	mg	me	Status	Inject Time
	STD1	2970209205	Calibration	GA1	1.0000	1	Anions Pro	Anions Pro	5.0	Finished	8/12/2019 2:08:06 PM -05:00
	STD2		Calibration	GA2	1.0000	2	Anions Pro	Anions Pro	5.0	Finished	8/12/2019 2:24:42 PM -05:00
	STD3		Calibration	GA3	1.0000	3	Anions Pro	Anions Pro	5.0	Finished	8/12/2019 2:41:19 PM -05:00
	STD4		Calibration	GA4	1.0000	4	Anions Pro	Anions Pro	5.0	Finished	8/12/2019 2:57:54 PM -05:00
	STD5		Calibration	GA5	1.0000	5	Anions Pro	Anions Pro	5.0	Finished	8/12/2019 3:14:30 PM -05:00
	STD6		F, NO2 MAX 10PPM	Calibration	GB8	1.0000	6	Anions Pro	Anions Pro	5.0	Finished
	ICV	2970209123	Unknown	GA7	1.0000		Anions Pro	Anions Pro	5.0	Finished	8/12/2019 6:54:07 PM -05:00
	ICB		Unknown	GB8	1.0000		Anions Pro	Anions Pro	5.0	Finished	8/12/2019 7:29:52 PM -05:00
	CCV		Unknown	BA5	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 6:13:03 PM -06:00
	CCB		Unknown	BA6	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 6:29:40 PM -06:00
	WBLKW1-112619		Unknown	GA1	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 6:46:21 PM -06:00
	WLCSW1-112619		Unknown	GA2	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 7:02:58 PM -06:00
	WLCSDW1-112619		Unknown	GA3	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 7:19:33 PM -06:00
	HS19111330-01		Unknown	GA4	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 7:45:30 PM -06:00
	HS19111332-01		Unknown	GA5	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 8:02:06 PM -06:00
	HS19111343-03	9056_W	Unknown	GA7	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 8:18:45 PM -06:00
	HS19111343-04		Unknown	GA8	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 8:35:21 PM -06:00
	HS19111343-06		Unknown	GB1	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 8:51:57 PM -06:00
	HS19111343-06MS		Unknown	GB2	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 9:08:32 PM -06:00
	HS19111343-06MSD		Unknown	GB3	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 9:25:08 PM -06:00
	CCV1		Unknown	BA7	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 9:41:50 PM -06:00
	CCB		Unknown	BA8	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 9:58:25 PM -06:00
	HS19110320-07DF20	9056_W	Unknown	GA6	20.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 10:15:02 PM -06:00
	HS19111189-03		Unknown	GB4	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 10:31:37 PM -06:00
	HS19111189-03MS		Unknown	GB5	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 10:48:14 PM -06:00
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	HS19111189-04		Unknown	GB7	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 11:21:24 PM -06:00
	HS19111190-01		Unknown	BB1	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 11:37:59 PM -06:00
	HS19111357-01		Unknown	BB2	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/26/2019 11:54:37 PM -06:00
	HS19111357-02		Unknown	BB3	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/27/2019 12:11:12 AM -06:00
	HS19111357-03		Unknown	BB4	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/27/2019 12:27:47 AM -06:00
	HS19111357-04		Unknown	BB5	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/27/2019 12:44:22 AM -06:00
	CCV		Unknown	BA5	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/27/2019 1:00:59 AM -06:00
	CCB		Unknown	BA6	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/27/2019 1:17:35 AM -06:00
	HS19111357-05		Unknown	BB6	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/27/2019 1:34:10 AM -06:00
	HS19111324-01DF5		Unknown	BB7	5.0000		Anions Pro	Anions Pro	5.0	Finished	11/27/2019 1:50:46 AM -06:00
	HS19111324-02DF5		Unknown	BB8	5.0000		Anions Pro	Anions Pro	5.0	Finished	11/27/2019 2:07:23 AM -06:00
	HS19111324-03DF5		Unknown	BC1	5.0000		Anions Pro	Anions Pro	5.0	Finished	11/27/2019 2:23:58 AM -06:00
	CCV1		Unknown	BA7	1.0000		Anions Pro	Anions Pro	5.0	Finished	11/27/2019 2:57:10 AM -06:00



Sequence: 112619
Last Update Operator: alshts.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	ng	me	Status	Inject Time
	CCB		Unknown	BA8	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/27/2019 3:13:48 AM -06:00



Sequence: 112619
Injection #6: STD6

Calibration

Peak No.	Peak Name	Cal.Type	Eval.Type	Number of Points	Rel.Std.Dev. %	Coeff.of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)
1	Fluoride	Lin, WithOffset, 1//	Area	5	10.1532	0.99927	-0.0056	0.3716	0.0000
2	Chloride	Lin, WithOffset, 1//	Area	6	0.2804	1.00000	-0.0135	0.2355	0.0000
3	Nitrite,N	Lin, WithOffset, 1//	Area	5	15.1147	0.99824	0.0003	0.5120	0.0000
4	Bromide	Lin, WithOffset, 1//	Area	6	14.0217	0.99919	-0.0052	0.1009	0.0000
5	Sulfate	Lin, WithOffset, 1//	Area	6	1.1258	0.99999	-0.0022	0.1717	0.0000
6	Nitrate	Lin, WithOffset, 1//	Area	6	2.2249	0.99998	-0.0102	0.5876	0.0000
7	Chlorate	Lin, WithOffset, 1//	Area	6	10.0265	0.99953	-0.0024	0.0944	0.0000
8	Phosphate	Lin, WithOffset, 1//	Area	6	6.6198	0.99981	-0.0110	0.2321	0.0000
Maximum					15.1147	1.00000			
Minimum					0.2804	0.99824			



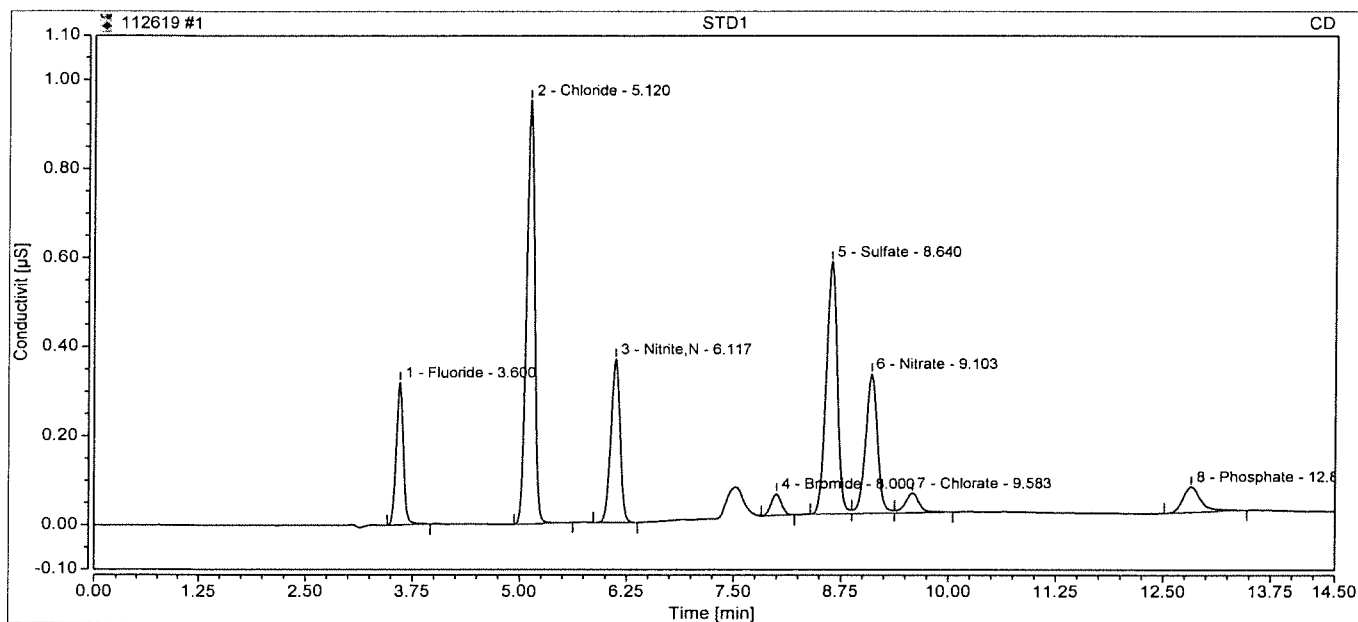
1 STD1

Sample Name: STD1
 Vial Number: GA1
 Sample Type: Calibration Standard
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000

Recording Time: 08/12/2019 14:08

Run Time:



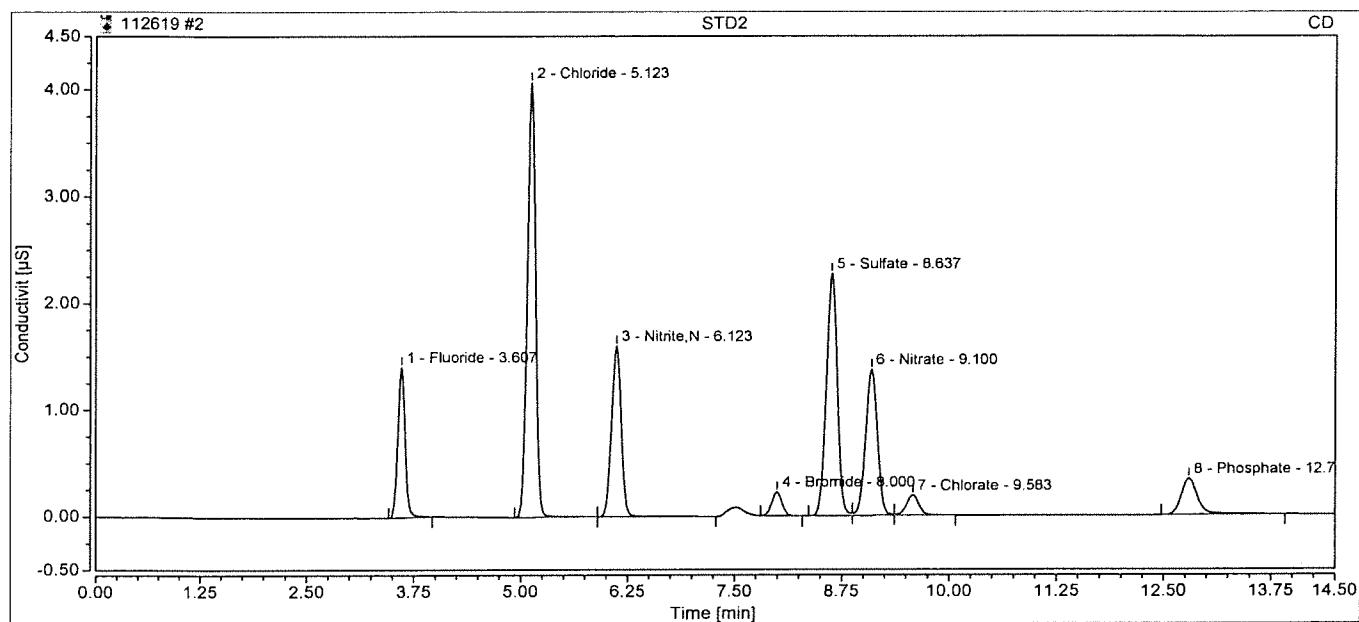
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.031	0.0973	0.0973	1.0000
2	5.12	Chloride	BMB	0.105	0.5026	0.5026	1.0000
3	6.12	Nitrite, N	BMB	0.046	0.0893	0.0893	1.0000
4	8.00	Bromide	BMB	0.007	0.1192	0.1192	1.0000
5	8.64	Sulfate	BM	0.084	0.5042	0.5042	1.0000
6	9.10	Nitrate	M	0.051	0.1034	0.1034	1.0000
7	9.58	Chlorate	MB	0.008	0.1143	0.1143	1.0000
8	12.83	Phosphate	BMB	0.014	0.1085	0.1085	1.0000
Total:			0.000	0.346	1.64		

2 STD2

Sample Name: STD2
 Vial Number: GA2
 Sample Type: Calibration Standard
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 08/12/2019 14:24
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



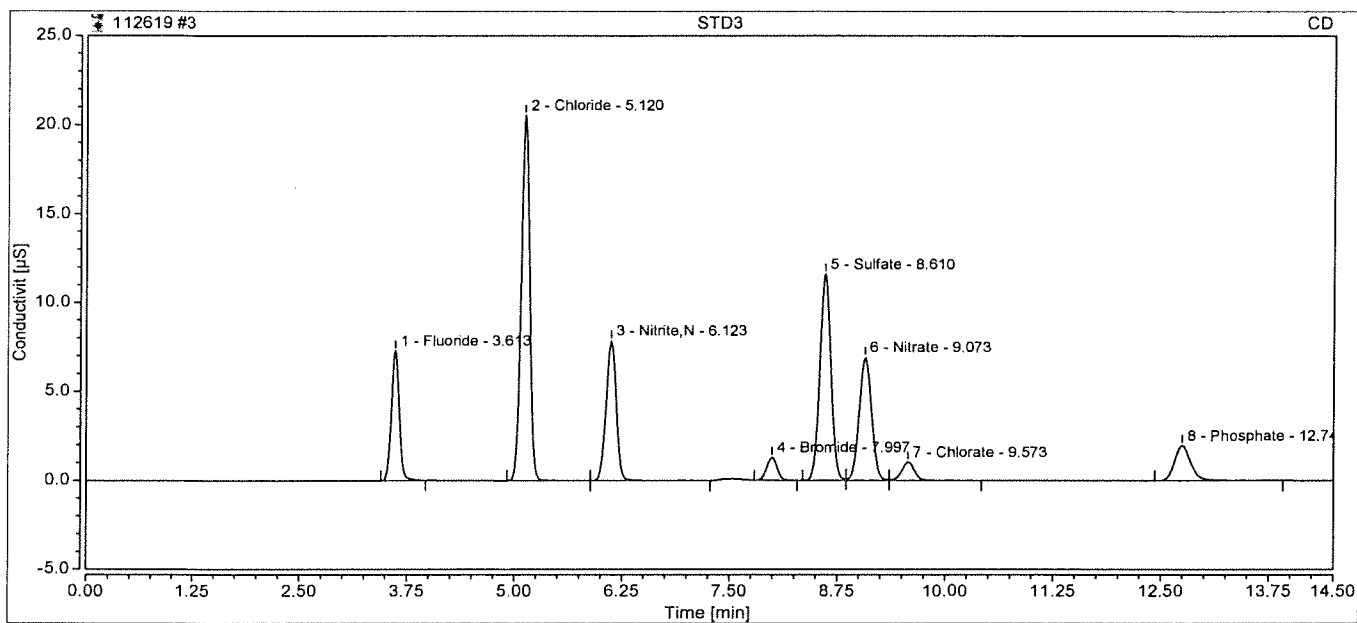
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.140	0.3929	0.3929	1.0000
2	5.12	Chloride	BMB	0.456	1.9918	1.9918	1.0000
3	6.12	Nitrite, N	BMB	0.211	0.4119	0.4119	1.0000
4	8.00	Bromide	BMB	0.031	0.3593	0.3593	1.0000
5	8.64	Sulfate	BM	0.337	1.9733	1.9733	1.0000
6	9.10	Nitrate	M	0.220	0.3917	0.3917	1.0000
7	9.58	Chlorate	MB	0.033	0.3704	0.3704	1.0000
8	12.80	Phosphate	BMB	0.078	0.3841	0.3841	1.0000
Total:			0.000	1.506	6.28		

3 STD3

Sample Name: STD3
 Vial Number: GA3
 Sample Type: Calibration Standard
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 08/12/2019 14:41
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



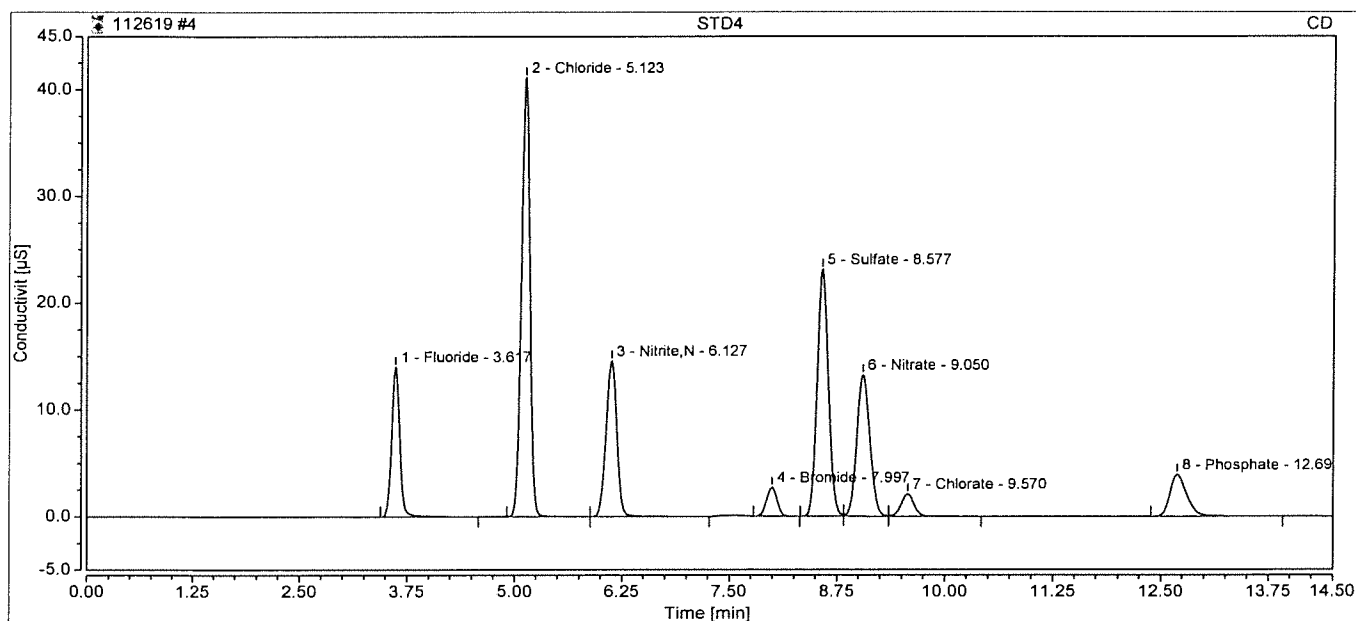
Integration Results

No.	Retention min	Peak Name	Peak Type	Area $\mu\text{S}\cdot\text{min}$	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.758	2.0551	2.0551	1.0000
2	5.12	Chloride	BMB	2.339	9.9888	9.9888	1.0000
3	6.12	Nitrite, N	BMB	1.091	2.1305	2.1305	1.0000
4	8.00	Bromide	BMB	0.182	1.8590	1.8590	1.0000
5	8.61	Sulfate	BM	1.715	10.0007	10.0007	1.0000
6	9.07	Nitrate	M	1.153	1.9792	1.9792	1.0000
7	9.57	Chlorate	MB	0.176	1.8940	1.8940	1.0000
8	12.75	Phosphate	BMB	0.436	1.9269	1.9269	1.0000
Total:			0.000	7.851		31.83	

4 STD4

Sample Name: STD4
 Vial Number: GA4
 Sample Type: Calibration Standard
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 08/12/2019 14:57
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



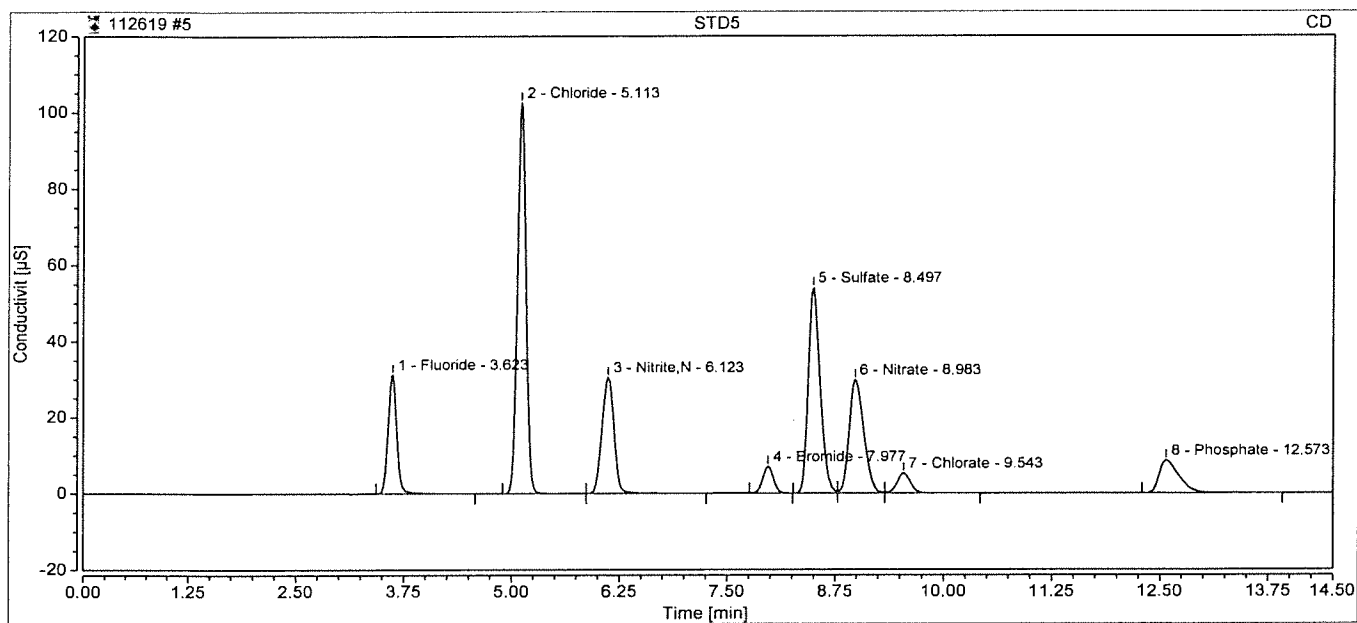
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	1.535	4.1457	4.1457	1.0000
2	5.12	Chloride	BMB	4.695	19.9948	19.9948	1.0000
3	6.13	Nitrite, N	BMB	2.133	4.1659	4.1659	1.0000
4	8.00	Bromide	BMB	0.385	3.8642	3.8642	1.0000
5	8.58	Sulfate	BM	3.451	20.1082	20.1082	1.0000
6	9.05	Nitrate	M	2.330	3.9823	3.9823	1.0000
7	9.57	Chlorate	MB	0.365	3.8956	3.8956	1.0000
8	12.69	Phosphate	BMB	0.903	3.9395	3.9395	1.0000
Total:			0.000	15.798	64.10		

5 STD5

Sample Name: STD5
 Vial Number: GA5
 Sample Type: Calibration Standard
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 08/12/2019 15:14
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



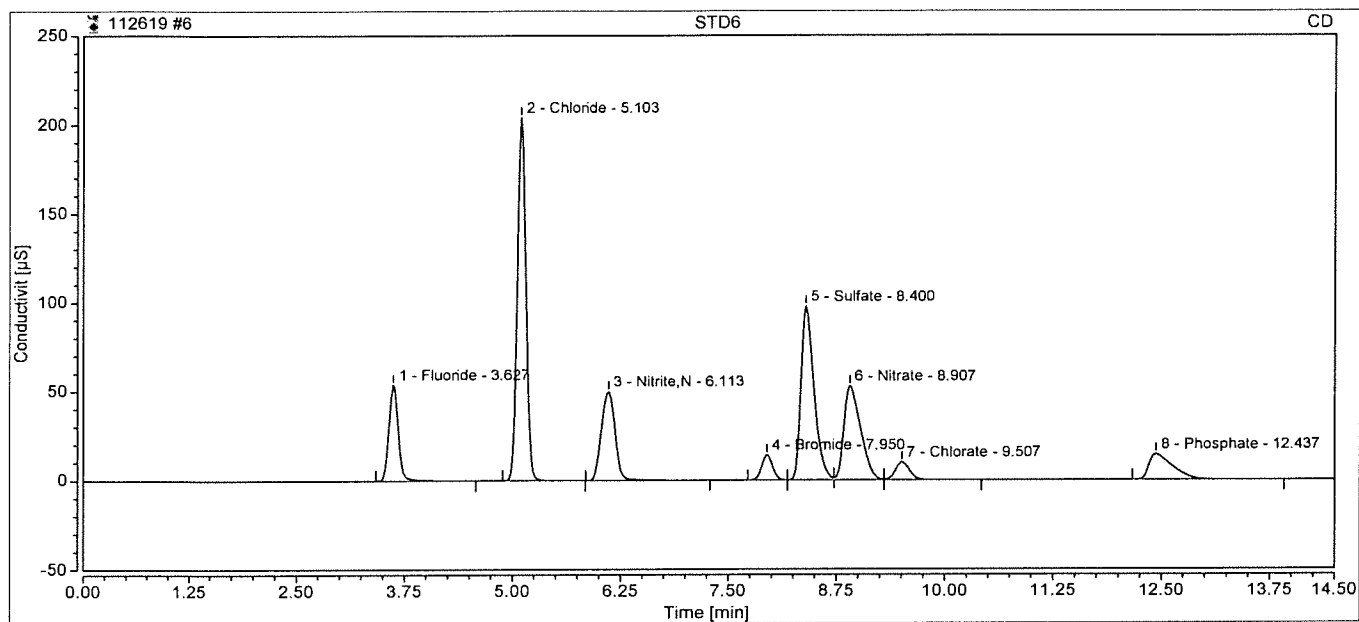
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	3.639	9.8090	9.8090	1.0000
2	5.11	Chloride	BMB	11.762	49.9996	49.9996	1.0000
3	6.12	Nitrite,N	BMB	4.968	9.7023	9.7023	1.0000
4	7.98	Bromide	BMB	1.001	9.9786	9.9786	1.0000
5	8.50	Sulfate	BM	8.590	50.0271	50.0271	1.0000
6	8.98	Nitrate	M	5.854	9.9805	9.9805	1.0000
7	9.54	Chlorate	MB	0.939	9.9670	9.9670	1.0000
8	12.57	Phosphate	BMB	2.305	9.9803	9.9803	1.0000
Total:			0.000	39.057	159.44		

6 STD6

Sample Name: STD6
 Vial Number: GB8
 Sample Type: Calibration Standard
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 08/12/2019 18:37
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



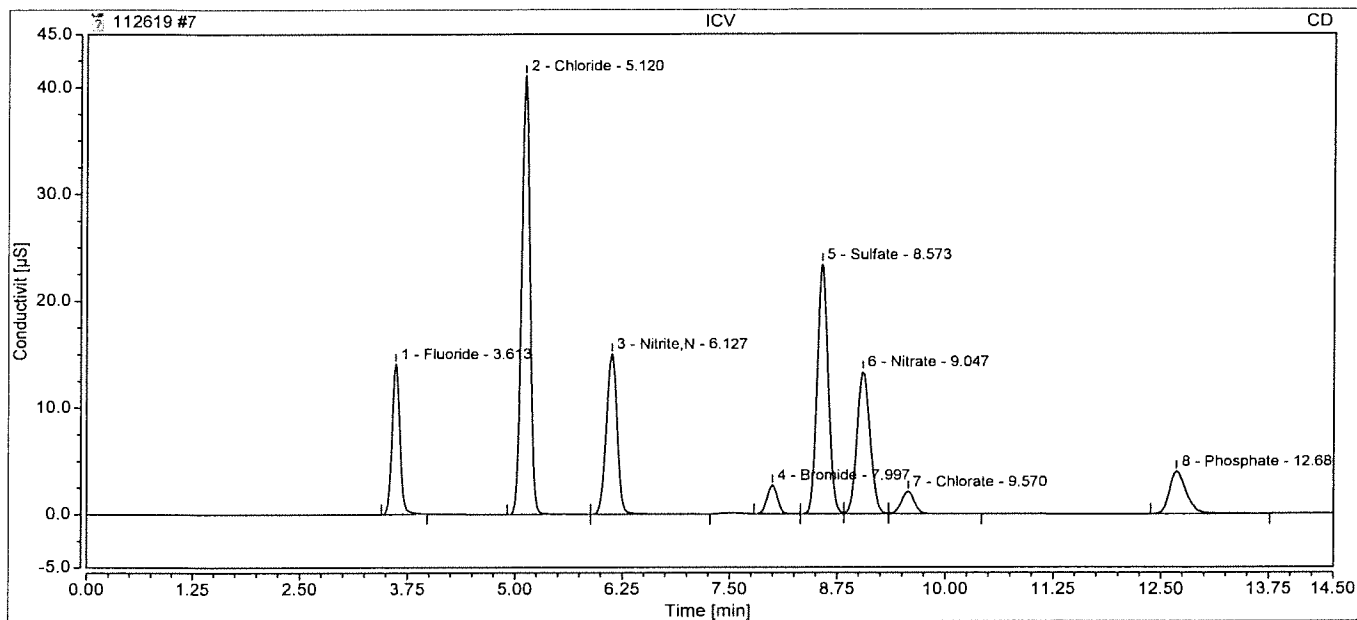
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.63	Fluoride	BMB	6.773	18.2418	18.2418	1.0000
2	5.10	Chloride	BMB	23.542	100.0224	100.0224	1.0000
3	6.11	Nitrite, N	BMB	9.157	17.8850	17.8850	1.0000
4	7.95	Bromide	BM	2.045	20.3197	20.3197	1.0000
5	8.40	Sulfate	M	17.153	99.8863	99.8863	1.0000
6	8.91	Nitrate	M	11.778	20.0629	20.0629	1.0000
7	9.51	Chlorate	MB	1.910	20.2586	20.2586	1.0000
8	12.44	Phosphate	BMB	4.668	20.1606	20.1606	1.0000
Total:			0.000	77.025	316.84		

7 ICV

Sample Name: ICV
 Vial Number: GA7
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 08/12/2019 18:54
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



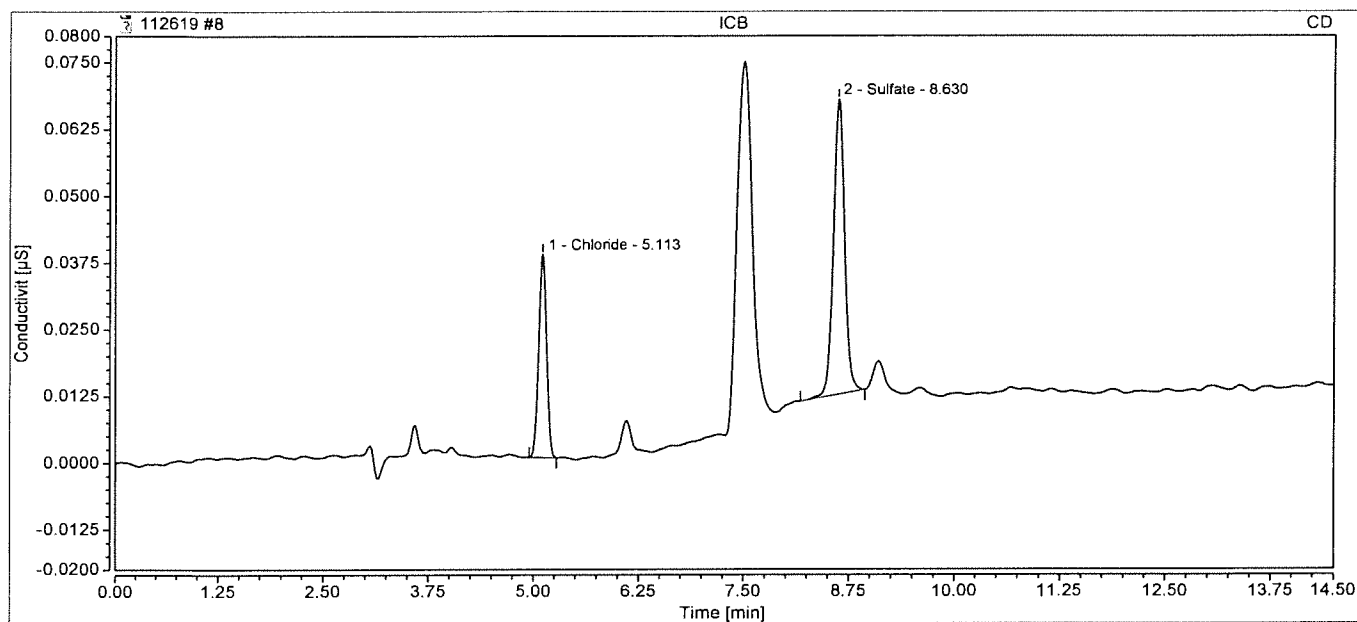
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	1.495	4.0374	4.0374	1.0000
2	5.12	Chloride	BMB	4.681	19.9333	19.9333	1.0000
3	6.13	Nitrite, N	BMB	2.195	4.2858	4.2858	1.0000
4	8.00	Bromide	BMB	0.384	3.8585	3.8585	1.0000
5	8.57	Sulfate	BM	3.469	20.2132	20.2132	1.0000
6	9.05	Nitrate	M	2.340	3.9993	3.9993	1.0000
7	9.57	Chlorate	MB	0.367	3.9104	3.9104	1.0000
8	12.68	Phosphate	BMB	0.911	3.9732	3.9732	1.0000
Total:			0.000	15.841	64.21		

8 ICB

Sample Name: ICB
 Vial Number: GB8
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 08/12/2019 19:29
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



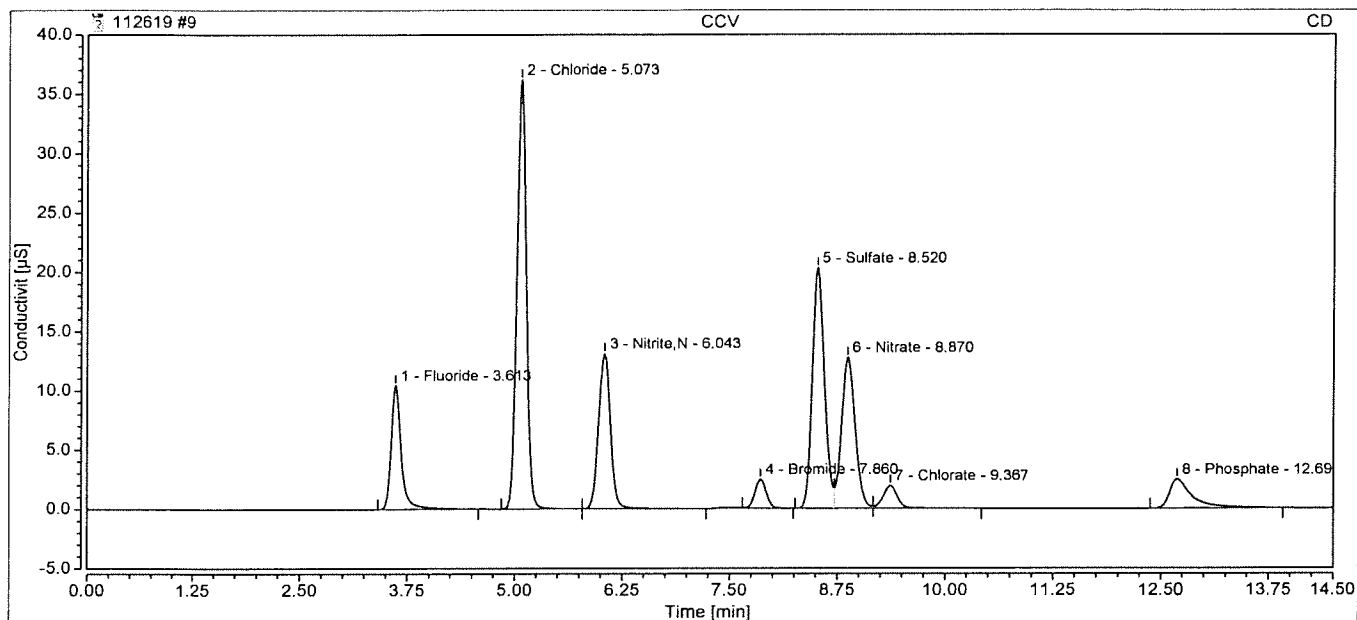
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.11	Chloride	BMB	0.004	0.0748	0.0748	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
2	8.63	Sulfate	BMB	0.008	0.0618	0.0618	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	0.013	0.14		

9 CCV

Sample Name: CCV
 Vial Number: BA5
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/26/2019 18:13
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



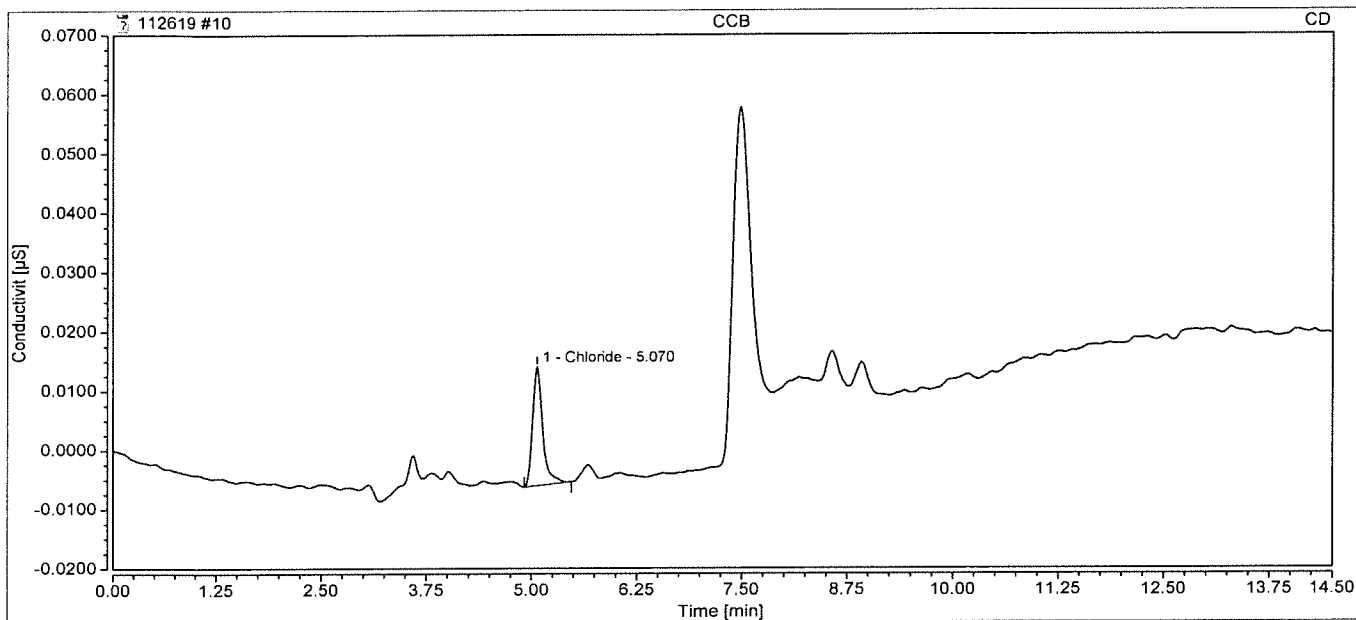
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	1.442	3.8969	3.8969	1.0000
2	5.07	Chloride	BMB	4.617	19.6606	19.6606	1.0000
3	6.04	Nitrite, N	BMB	2.097	4.0956	4.0956	1.0000
4	7.86	Bromide	BMB	0.365	3.6689	3.6689	1.0000
5	8.52	Sulfate	BM	3.309	19.2818	19.2818	1.0000
6	8.87	Nitrate	M	2.348	4.0139	4.0139	1.0000
7	9.37	Chlorate	MB	0.375	3.9966	3.9966	1.0000
8	12.69	Phosphate	BMB	0.765	3.3434	3.3434	1.0000
Total:			0.000	15.319	61.96		

10 CCB

Sample Name: CCB
 Vial Number: BA6
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/26/2019 18:29
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



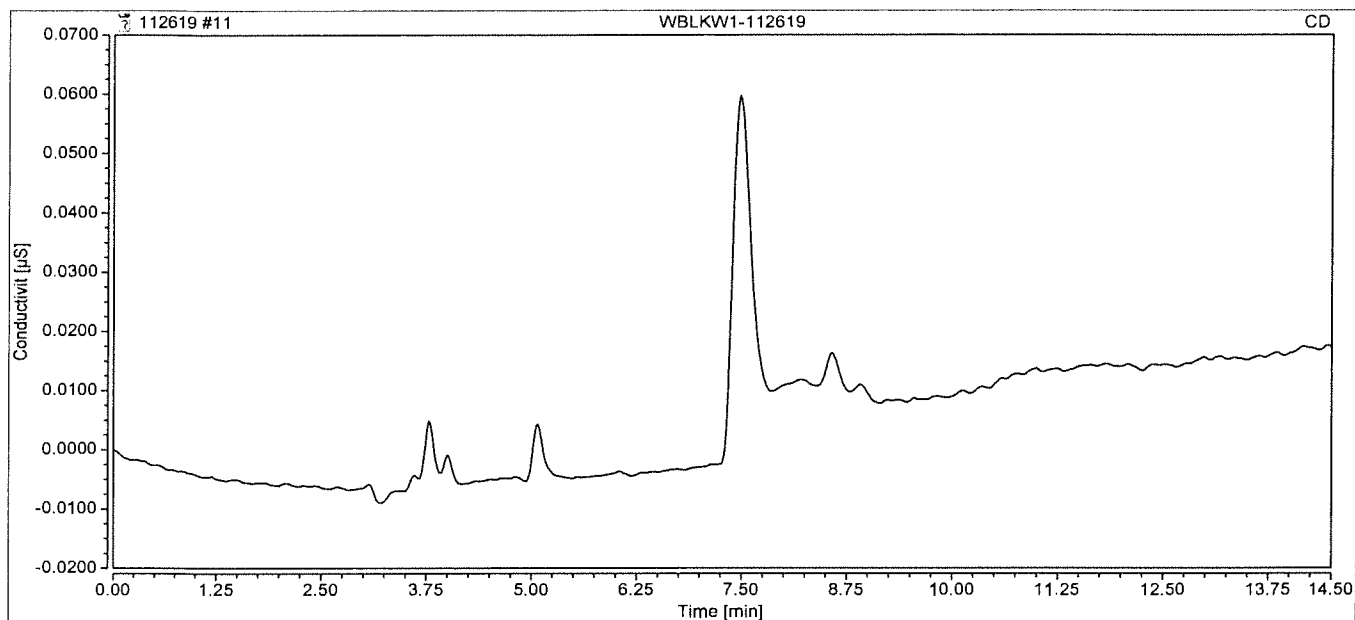
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.07	Chloride	BMB	0.003	0.0691	0.0691	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	0.003	0.07		

11 WBLKW1-112619

Sample Name: WBLKW1-112619
 Vial Number: GA1
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/26/2019 18:46
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



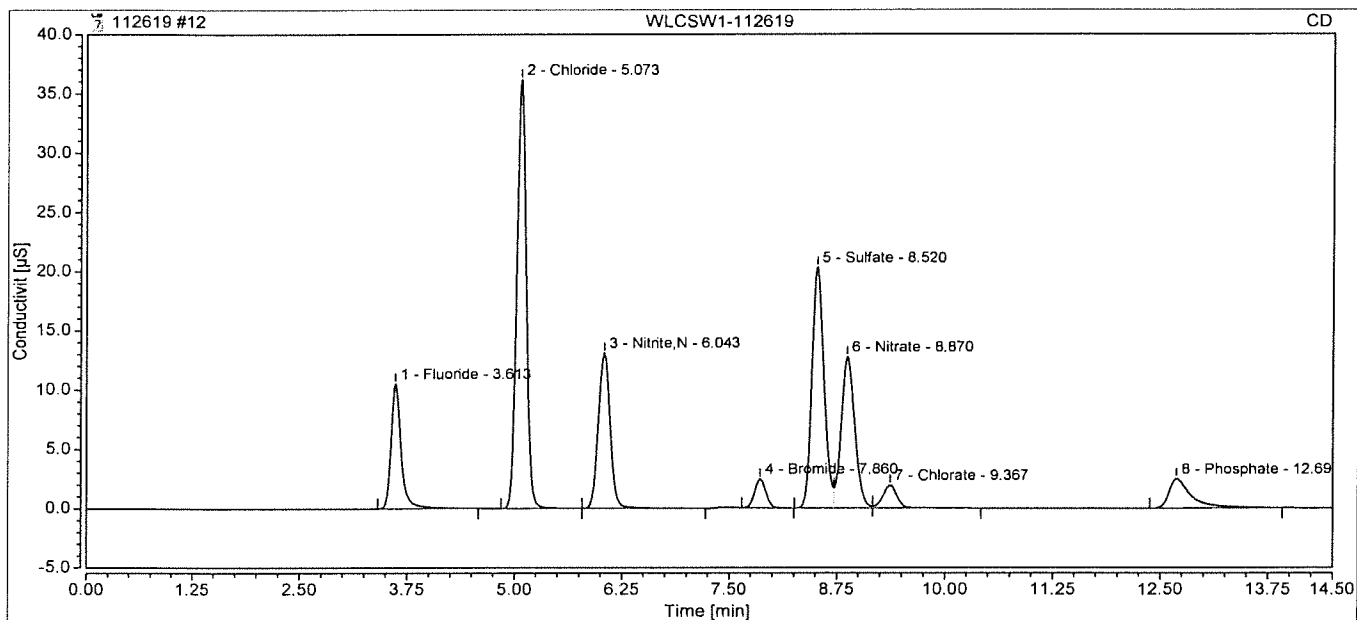
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	0.000	0.00		

12 WLCSW1-112619

Sample Name: WLCSW1-112619
 Vial Number: GA2
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/26/2019 19:02
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



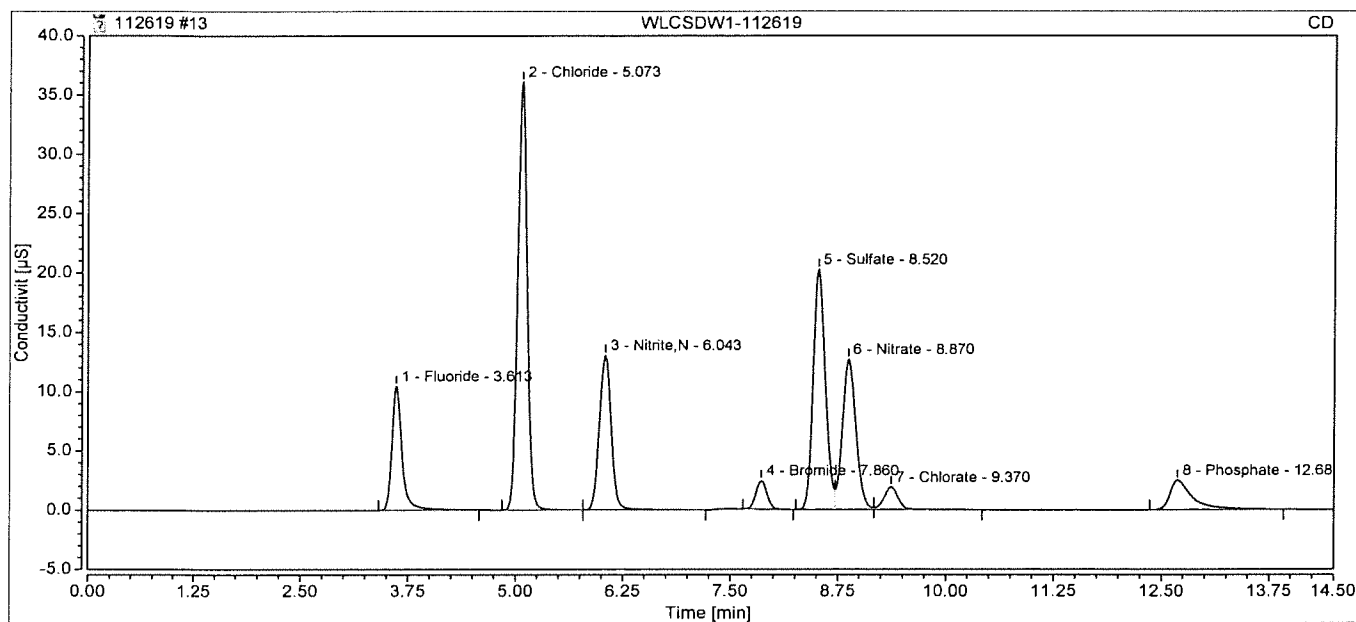
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	1.449	3.9149	3.9149	1.0000
2	5.07	Chloride	BMB	4.614	19.6496	19.6496	1.0000
3	6.04	Nitrite, N	BMB	2.098	4.0977	4.0977	1.0000
4	7.86	Bromide	BMB	0.366	3.6787	3.6787	1.0000
5	8.52	Sulfate	BM	3.313	19.3047	19.3047	1.0000
6	8.87	Nitrate	M	2.349	4.0157	4.0157	1.0000
7	9.37	Chlorate	MB	0.376	4.0035	4.0035	1.0000
8	12.69	Phosphate	BMB	0.766	3.3483	3.3483	1.0000
Total:			0.000	15.331	62.01		

13 WLCSDW1-112619

Sample Name: WLCSDW1-112619
 Vial Number: GA3
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/26/2019 19:19
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



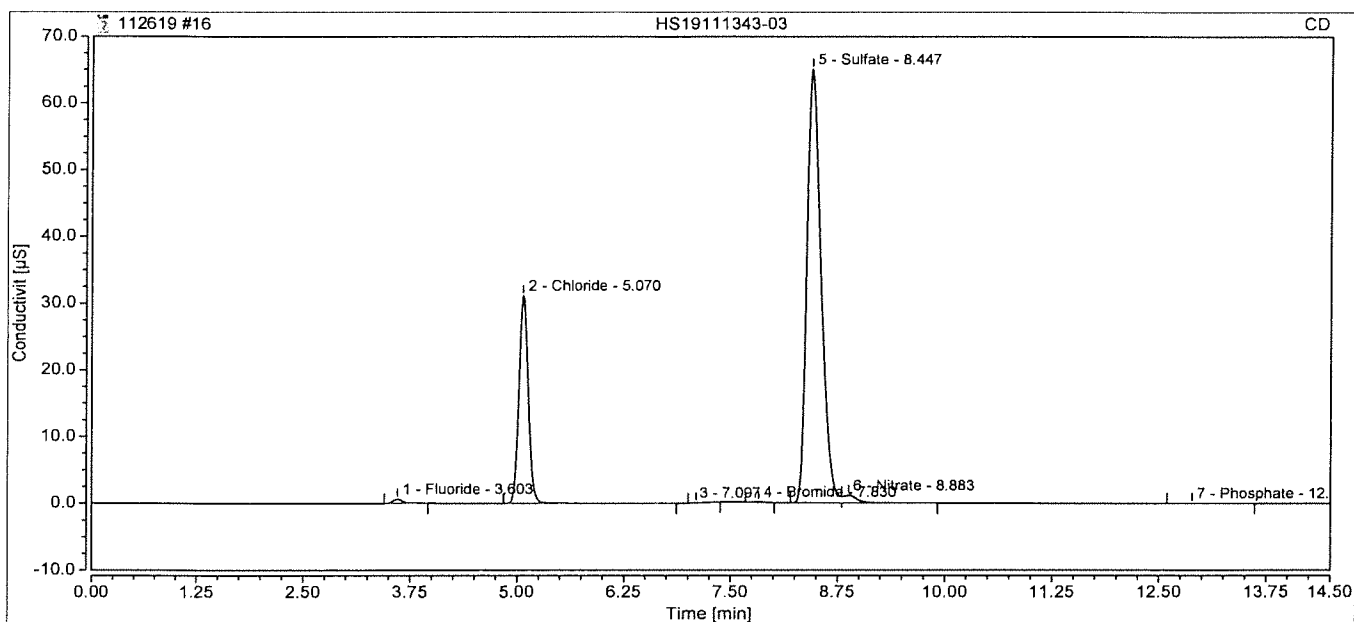
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	1.439	3.8890	3.8890	1.0000
2	5.07	Chloride	BMB	4.601	19.5959	19.5959	1.0000
3	6.04	Nitrite, N	BMB	2.091	4.0840	4.0840	1.0000
4	7.86	Bromide	BMB	0.362	3.6377	3.6377	1.0000
5	8.52	Sulfate	BM	3.303	19.2449	19.2449	1.0000
6	8.87	Nitrate	M	2.342	4.0036	4.0036	1.0000
7	9.37	Chlorate	MB	0.373	3.9765	3.9765	1.0000
8	12.69	Phosphate	BMB	0.772	3.3727	3.3727	1.0000
Total:			0.000	15.284	61.80		

16 HS19111343-03

Sample Name: HS19111343-03
 Vial Number: GA7
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/26/2019 20:18
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



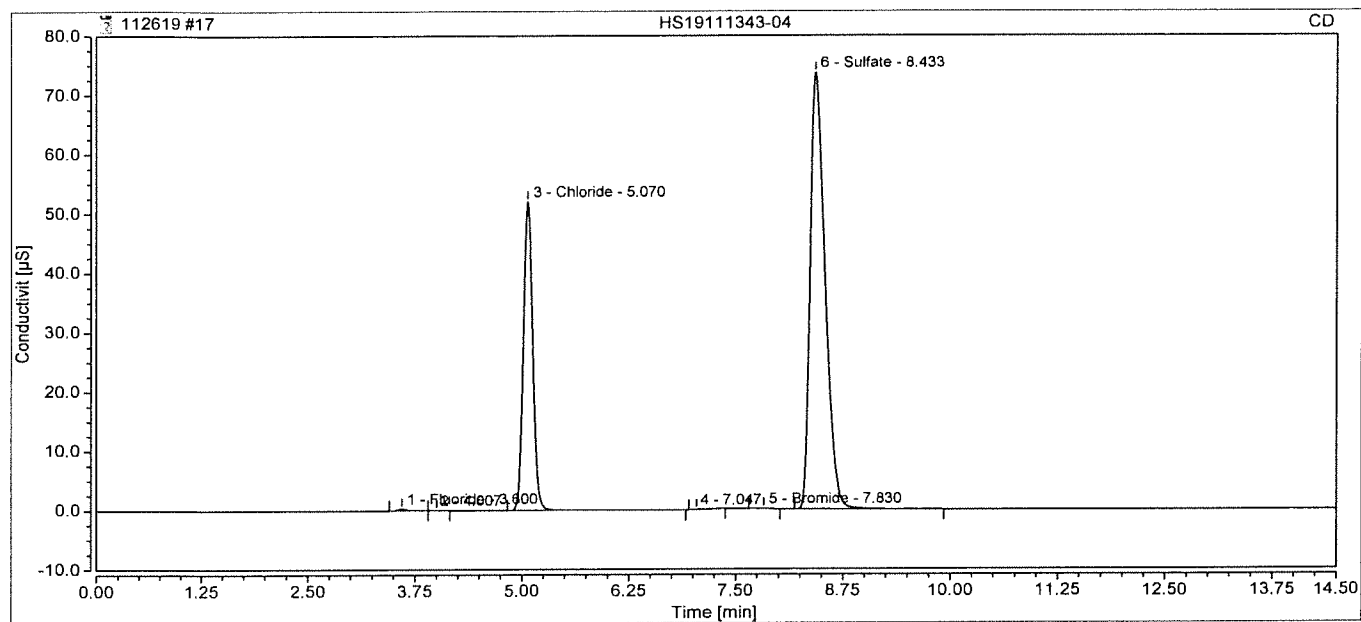
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.088	0.2512	0.2512	1.0000
2	5.07	Chloride	BMB	3.961	16.8777	16.8777	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	7.83	Bromide	BMB	0.009	0.1397	0.1397	1.0000
5	8.45	Sulfate	BM	12.481	72.6859	72.6859	1.0000
6	8.88	Nitrate	MB	0.221	0.3939	0.3939	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
7	12.88	Phosphate	BMB	0.003	0.0604	0.0604	1.0000
Total:			0.000	16.763	90.41		

17 HS19111343-04

Sample Name: HS19111343-04
 Vial Number: GA8
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/26/2019 20:35
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000

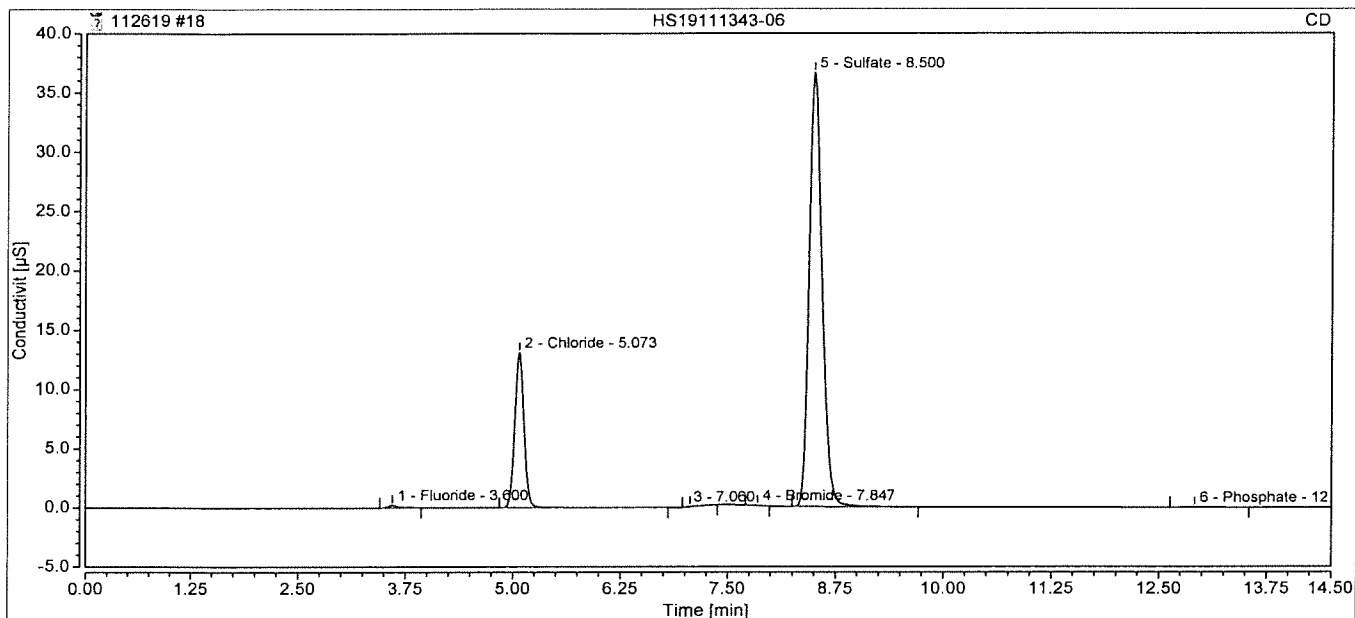


Integration Results							
No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.039	0.1210	0.1210	1.0000
3	5.07	Chloride	BMB	6.610	28.1255	28.1255	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	7.83	Bromide	BMB	0.011	0.1571	0.1571	1.0000
6	8.43	Sulfate	BMB	14.746	85.8727	85.8727	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	21.406	114.28		

18 HS19111343-06

Sample Name: HS19111343-06
 Vial Number: GB1
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/26/2019 20:51
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



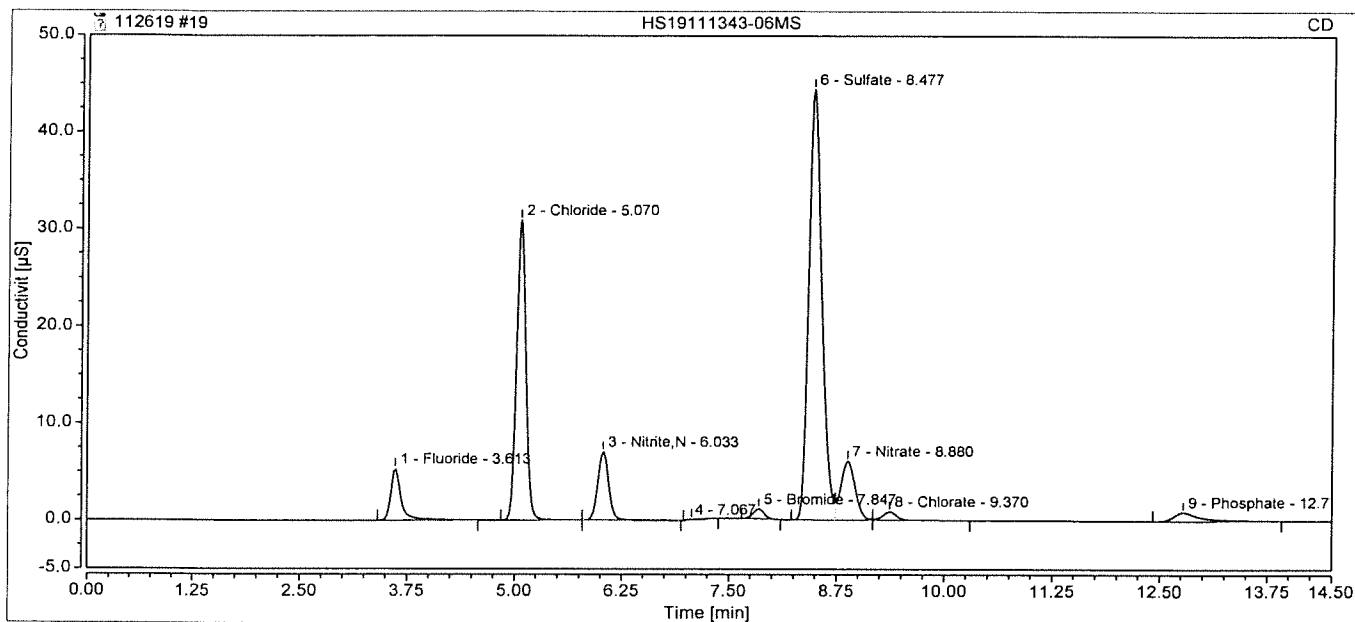
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.029	0.0941	0.0941	1.0000
2	5.07	Chloride	BMB	1.647	7.0488	7.0488	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	7.85	Bromide	BMB	0.002	0.0740	0.0740	1.0000
5	8.50	Sulfate	BMB	6.368	37.0928	37.0928	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
6	12.92	Phosphate	BMB	0.002	0.0576	0.0576	1.0000
Total:			0.000	8.049	44.37		

19 HS19111343-06MS

Sample Name: HS19111343-06MS
 Vial Number: GB2
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/26/2019 21:08
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



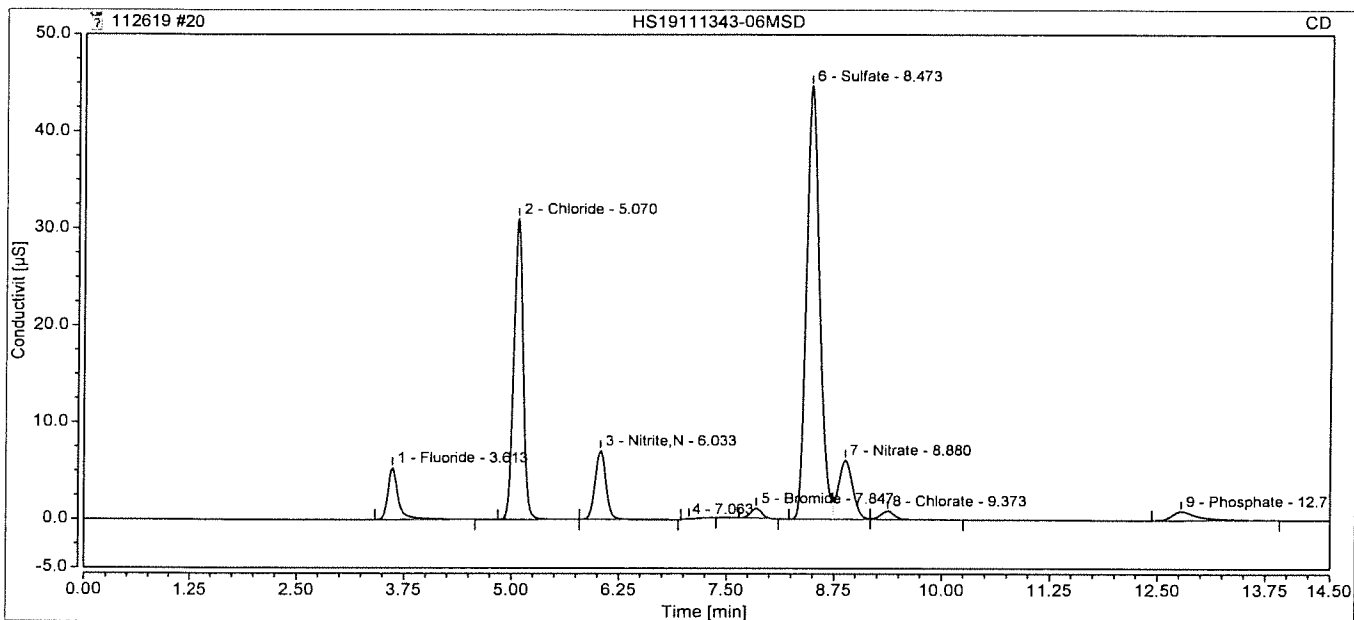
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.747	2.0259	2.0259	1.0000
2	5.07	Chloride	BMB	3.901	16.6200	16.6200	1.0000
3	6.03	Nitrite, N	BMB	1.045	2.0406	2.0406	1.0000
5	7.85	Bromide	BMB	0.155	1.5903	1.5903	1.0000
6	8.48	Sulfate	BM	7.811	45.4926	45.4926	1.0000
7	8.88	Nitrate	M	1.179	2.0243	2.0243	1.0000
8	9.37	Chlorate	MB	0.171	1.8416	1.8416	1.0000
9	12.77	Phosphate	BMB	0.325	1.4471	1.4471	1.0000
Total:			0.000	15.334		73.08	

20 HS19111343-06MSD

Sample Name: HS19111343-06MSD
 Vial Number: GB3
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/26/2019 21:25
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



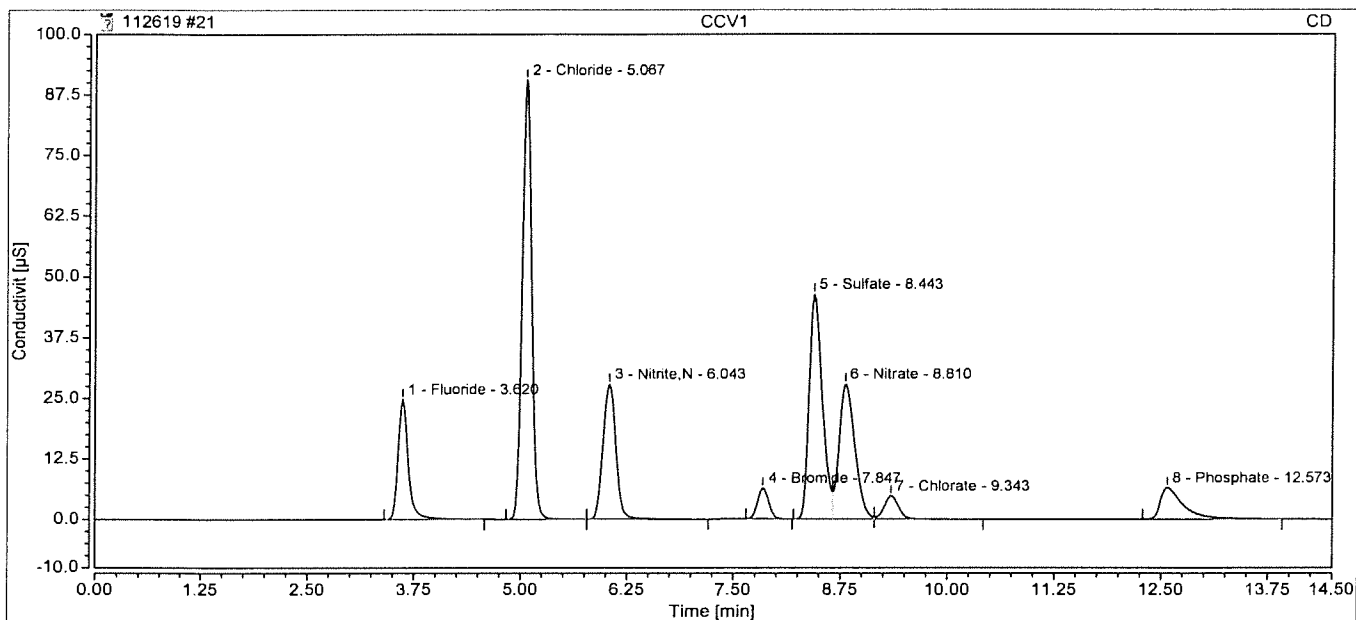
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.753	2.0418	2.0418	1.0000
2	5.07	Chloride	BMB	3.912	16.6691	16.6691	1.0000
3	6.03	Nitrite, N	BMB	1.052	2.0541	2.0541	1.0000
5	7.85	Bromide	BMB	0.156	1.6031	1.6031	1.0000
6	8.47	Sulfate	BM	7.877	45.8774	45.8774	1.0000
7	8.88	Nitrate	M	1.186	2.0363	2.0363	1.0000
8	9.37	Chlorate	MB	0.172	1.8524	1.8524	1.0000
9	12.77	Phosphate	BMB	0.337	1.4982	1.4982	1.0000
Total:			0.000	15.446		73.63	

21 CCV1

Sample Name: CCV1
 Vial Number: BA7
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/26/2019 21:41
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



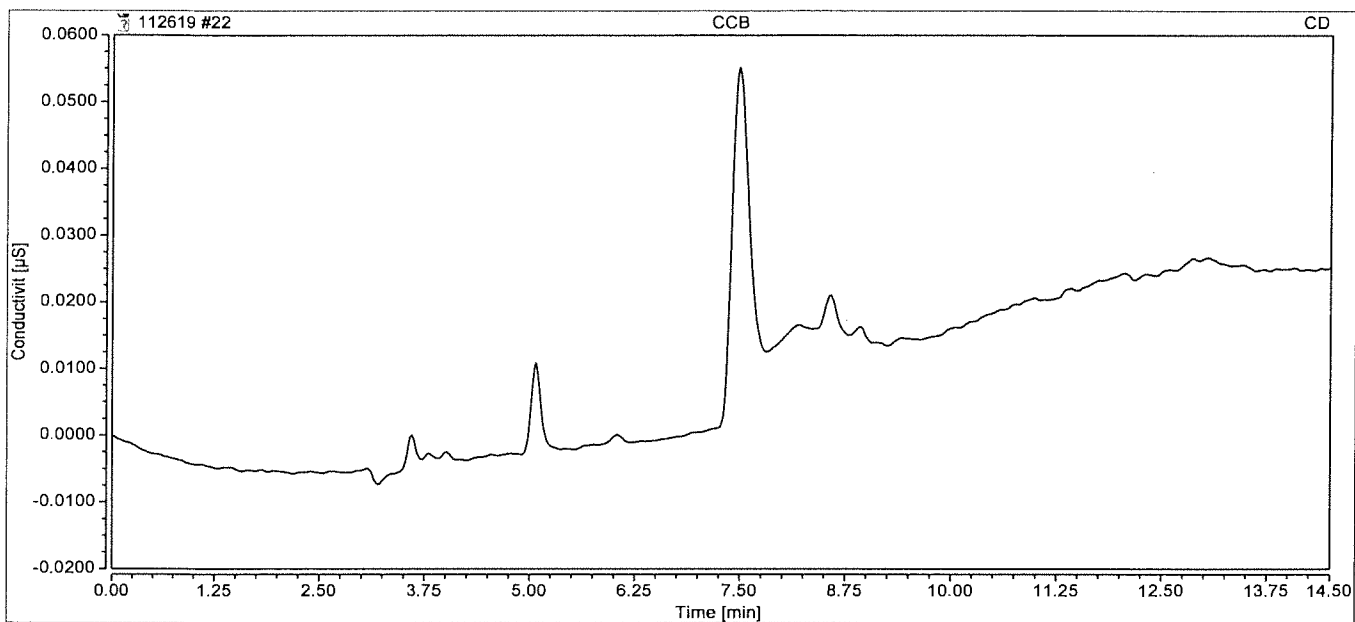
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	3.545	9.5551	9.5551	1.0000
2	5.07	Chloride	BMB	11.650	49.5262	49.5262	1.0000
3	6.04	Nitrite,N	BMB	4.931	9.6294	9.6294	1.0000
4	7.85	Bromide	BMB	0.969	9.6579	9.6579	1.0000
5	8.44	Sulfate	BM	8.297	48.3227	48.3227	1.0000
6	8.81	Nitrate	M	5.979	10.1934	10.1934	1.0000
7	9.34	Chlorate	MB	0.953	10.1178	10.1178	1.0000
8	12.57	Phosphate	BMB	2.082	9.0205	9.0205	1.0000
Total:			0.000	38.406		156.02	

22 CCB

Sample Name: CCB
 Vial Number: BA8
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/26/2019 21:58
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



Integration Results

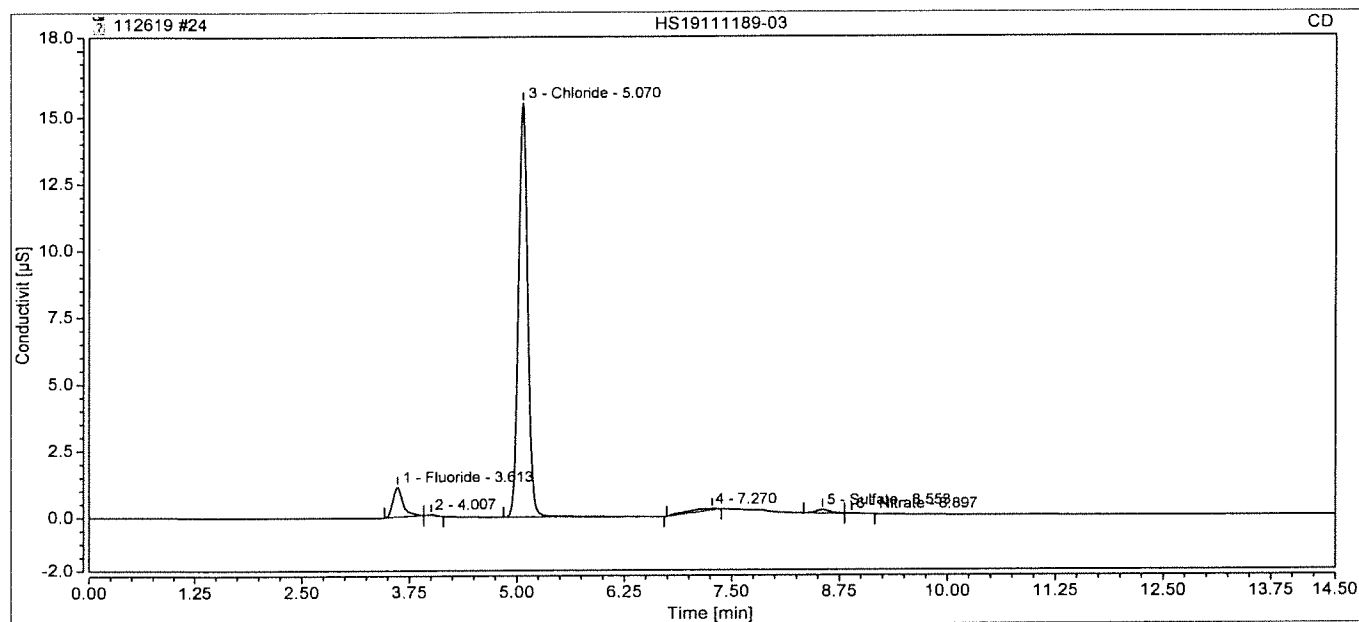
No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	0.000		0.00	

24 HS19111189-03

Sample Name: HS19111189-03
 Vial Number: GB4
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/26/2019 22:31

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000

Run Time:



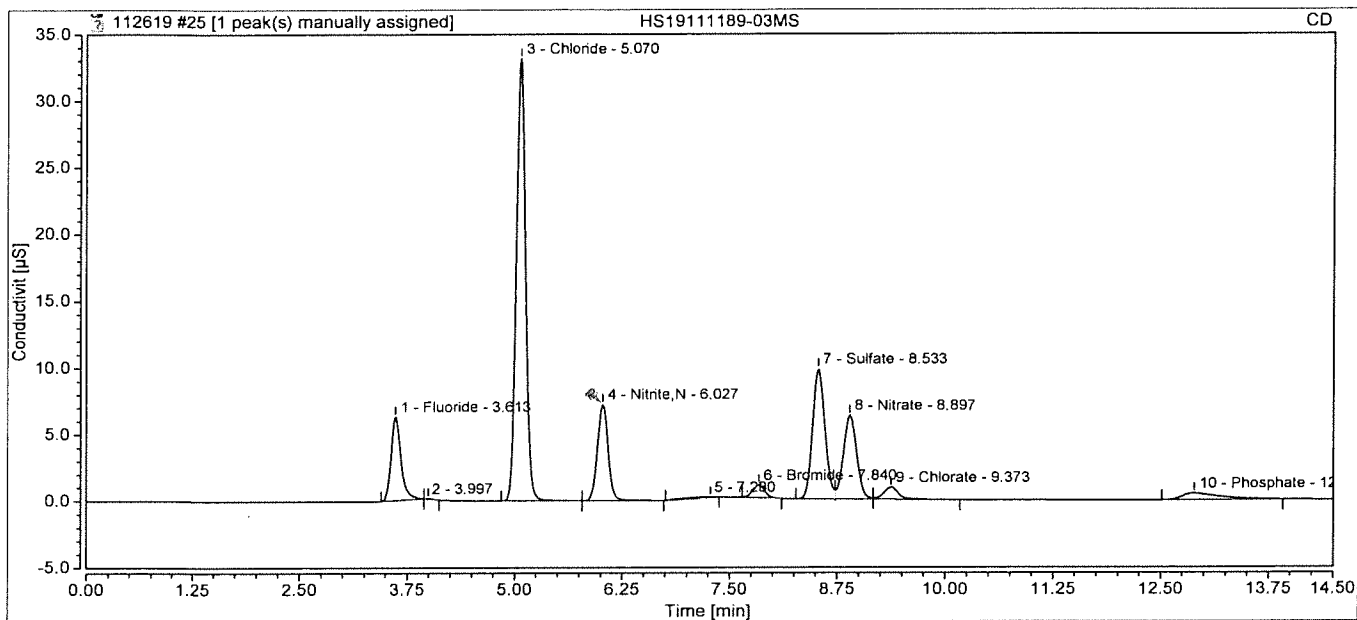
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.152	0.4251	0.4251	1.0000
3	5.07	Chloride	BMB	1.947	8.3264	8.3264	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
5	8.55	Sulfate	BM	0.025	0.1582	0.1582	1.0000
6	8.90	Nitrate	MB	0.003	0.0229	0.0229	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	2.128	8.93		

25 HS19111189-03MS

Sample Name: HS19111189-03MS
 Vial Number: GB5
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/26/2019 22:48
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



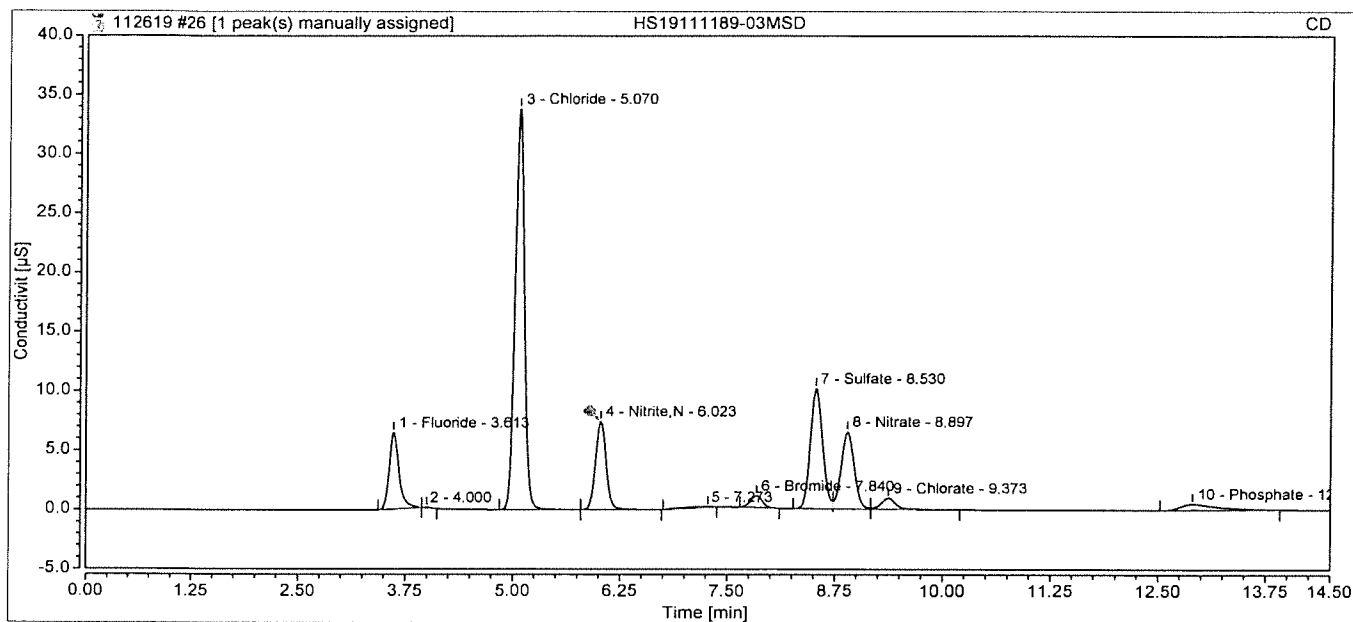
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.826	2.2378	2.2378	1.0000
3	5.07	Chloride	BMB	4.180	17.8083	17.8083	1.0000
4	6.03	Nitrite, N	BMB^	1.043	2.0356	2.0356	1.0000
6	7.84	Bromide	BMB	0.155	1.5853	1.5853	1.0000
7	8.53	Sulfate	BM	1.625	9.4739	9.4739	1.0000
8	8.90	Nitrate	M	1.127	1.9350	1.9350	1.0000
9	9.37	Chlorate	MB	0.189	2.0246	2.0246	1.0000
10	12.89	Phosphate	BMB	0.256	1.1512	1.1512	1.0000
Total:			0.000	9.400	38.25		

26 HS19111189-03MSD

Sample Name: HS19111189-03MSD
 Vial Number: GB6
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/26/2019 23:04
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.847	2.2955	2.2955	1.0000
3	5.07	Chloride	BMB	4.256	18.1279	18.1279	1.0000
4	6.02	Nitrite, N	BMB ^A	1.071	2.0902	2.0902	1.0000
6	7.84	Bromide	BMB	0.160	1.6343	1.6343	1.0000
7	8.53	Sulfate	BM	1.683	9.8122	9.8122	1.0000
8	8.90	Nitrate	M	1.158	1.9881	1.9881	1.0000
9	9.37	Chlorate	MB	0.193	2.0713	2.0713	1.0000
10	12.90	Phosphate	BMB	0.265	1.1900	1.1900	1.0000
Total:			0.000	9.632	39.21		

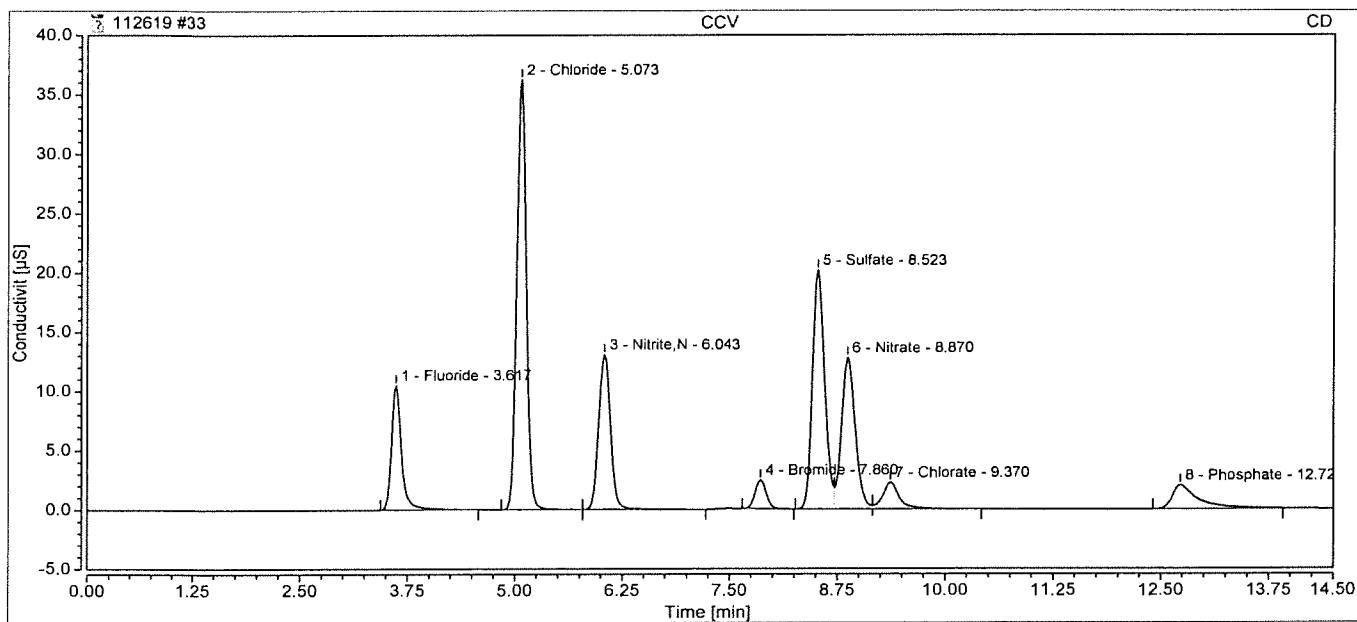
33 CCV

Sample Name: CCV
 Vial Number: BA5
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method

Recording Time: 11/27/2019 01:00

Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



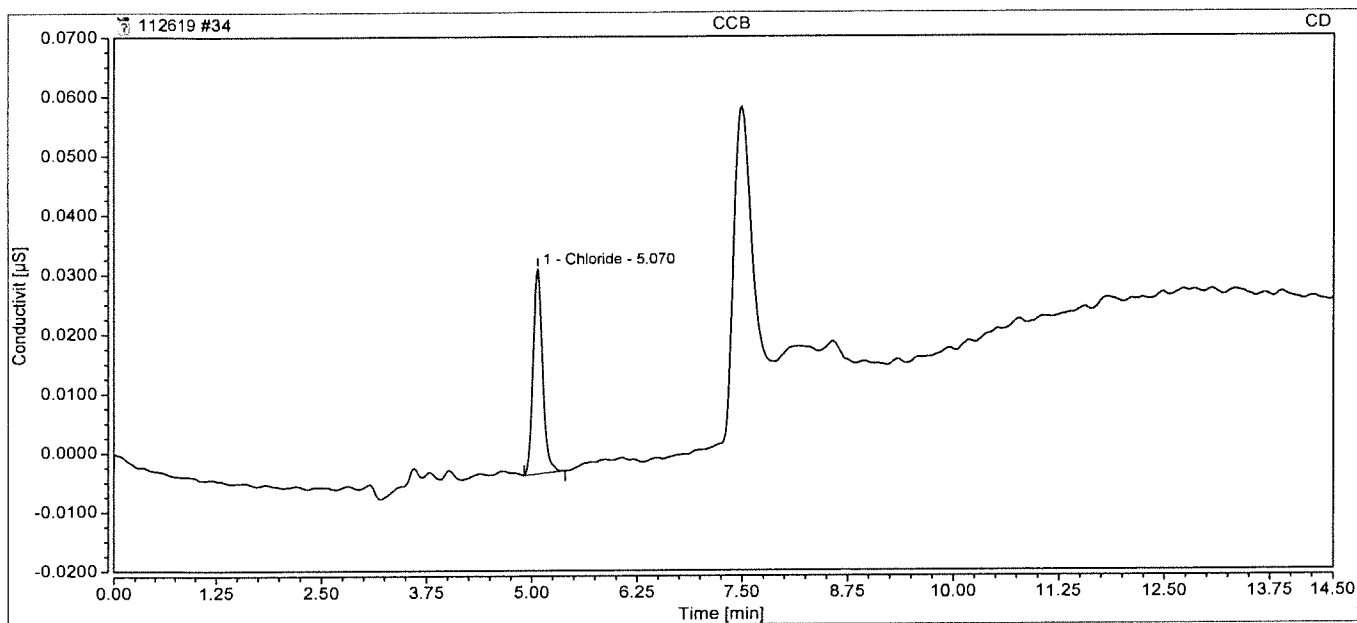
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	1.440	3.8916	3.8916	1.0000
2	5.07	Chloride	BMB	4.626	19.6986	19.6986	1.0000
3	6.04	Nitrite, N	BMB	2.094	4.0891	4.0891	1.0000
4	7.86	Bromide	BMB	0.364	3.6557	3.6557	1.0000
5	8.52	Sulfate	BM	3.295	19.1989	19.1989	1.0000
6	8.87	Nitrate	M	2.371	4.0531	4.0531	1.0000
7	9.37	Chlorate	MB	0.512	5.4495	5.4495	1.0000
8	12.73	Phosphate	BMB	0.709	3.1041	3.1041	1.0000
Total:			0.000	15.411	63.14		

34 CCB

Sample Name: CCB
 Vial Number: BA6
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/27/2019 01:17
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



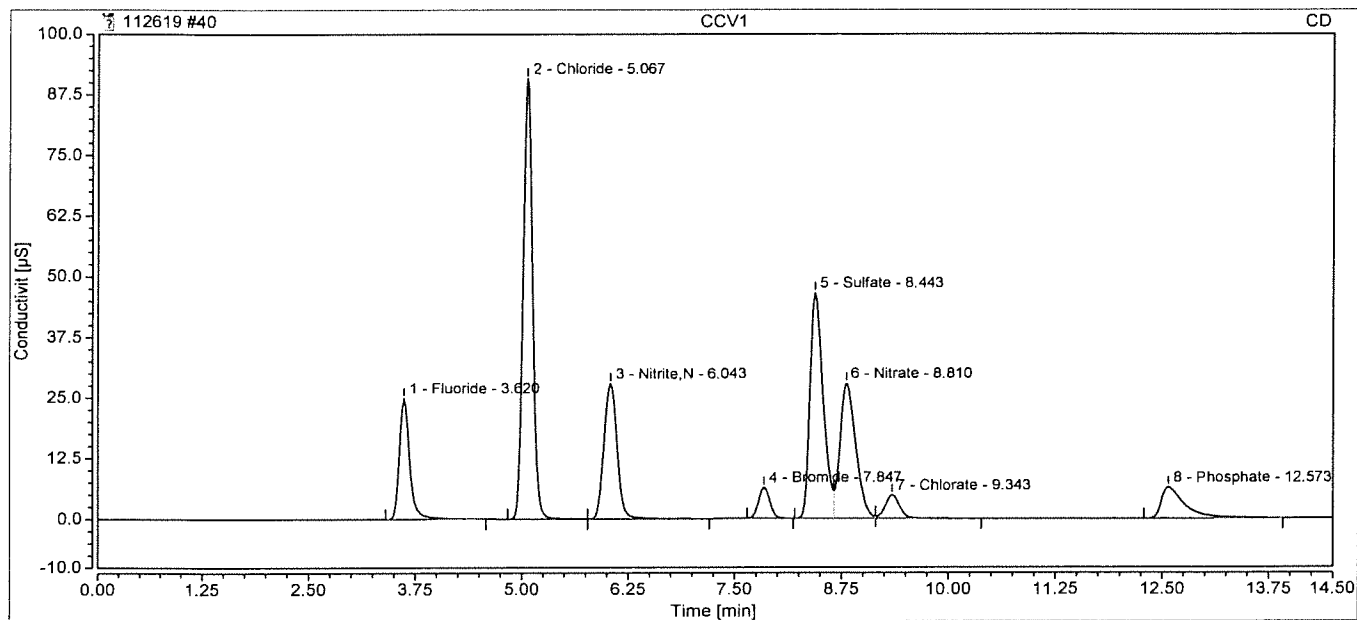
Integration Results

No.	Retention min	Peak Name	Peak Type	Area $\mu\text{S}\cdot\text{min}$	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.07	Chloride	BMB	0.004	0.0763	0.0763	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	0.004	0.08		

40 CCV1

Sample Name: CCV1
 Vial Number: BA7
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/27/2019 02:57
 Run Time:

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000



Integration Results

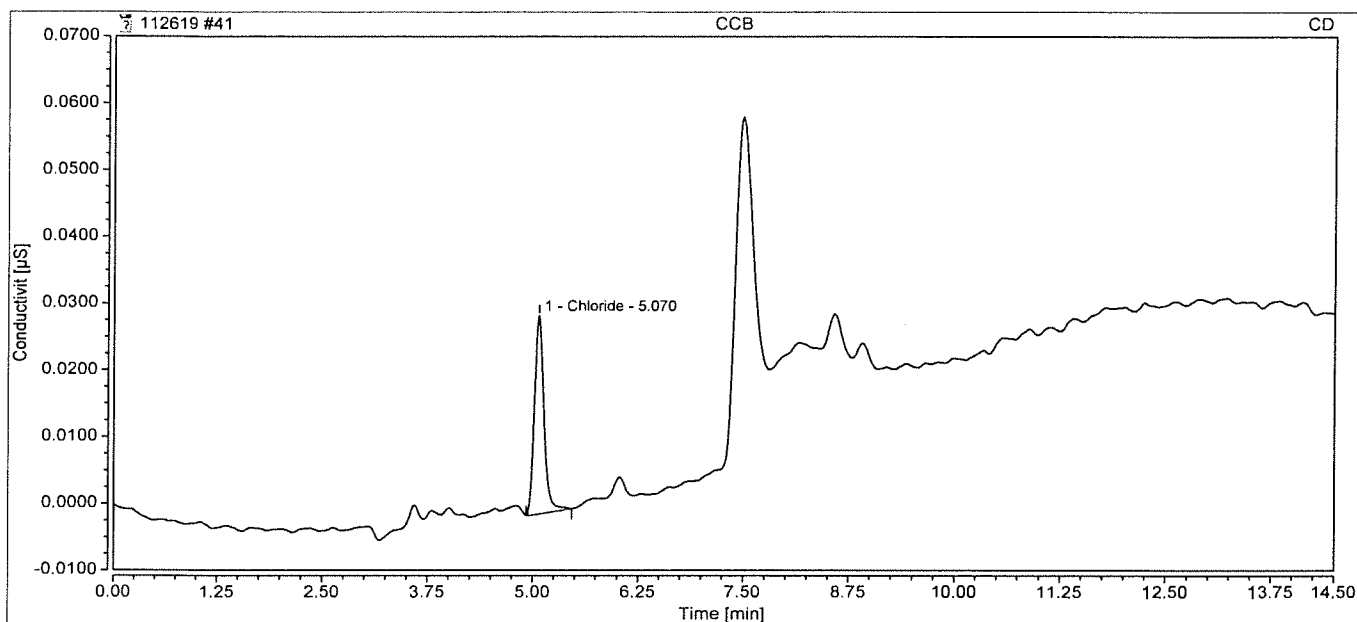
No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	3.563	9.6024	9.6024	1.0000
2	5.07	Chloride	BMB	11.704	49.7556	49.7556	1.0000
3	6.04	Nitrite, N	BMB	4.945	9.6583	9.6583	1.0000
4	7.85	Bromide	BMB	0.973	9.6989	9.6989	1.0000
5	8.44	Sulfate	BM	8.337	48.5550	48.5550	1.0000
6	8.81	Nitrate	M	5.997	10.2245	10.2245	1.0000
7	9.34	Chlorate	MB	0.956	10.1572	10.1572	1.0000
8	12.57	Phosphate	BMB	2.076	8.9921	8.9921	1.0000
Total:			0.000	38.552		156.64	

41 CCB

Sample Name: CCB
 Vial Number: BA8
 Sample Type: Unknown
 Control Program: Anions Program 08092019
 Quantif. Method: Anions Processing Method
 Recording Time: 11/27/2019 03:13

Injection Volume: 5.00
 Channel: CD
 Wavelength: 210
 Bandwidth: n.a.
 Dilution Factor: 1.0000
 Sample Weight: 1.0000

Run Time:



Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.07	Chloride	BMB	0.004	0.0739	0.0739	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			0.000	0.004	0.07		



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WorkOrder: HS19111443

Longhorn Army Ammunition Plant -37

Aptim Environmental & Infrastructure, Inc.

Susan Huang
2500 City West Blvd., Suite 1700
Houston TX 77042

09-Dec-2019





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HS19111443 Longhorn Army Ammunition Plant 37 Final

ALS WO# HS19111443





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December 04, 2019

Susan Huang
Aptim Environmental & Infrastructure, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS19111443**

Laboratory Results for: **Longhorn Army Ammunition Plant -37**

Dear Susan,

ALS Environmental received 5 sample(s) on Nov 27, 2019 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Raj. P. Modashia', enclosed in a circular stamp.

Generated By: DAYNA.FISHER

RJ Modashia
Project Manager



ALS Houston, US

Date: 04-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant -37
Work Order: HS19111443

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19111443-01	35BWW10-191126	Groundwater		26-Nov-2019 07:35	27-Nov-2019 10:00	☐
HS19111443-02	35BWW19-191126	Groundwater		26-Nov-2019 08:20	27-Nov-2019 10:00	☐
HS19111443-03	35BWW09-191126	Groundwater		26-Nov-2019 09:45	27-Nov-2019 10:00	☐
HS19111443-04	35BWW18-191126	Groundwater		26-Nov-2019 12:40	27-Nov-2019 10:00	☐
HS19111443-05	Trip Blank	Water		26-Nov-2019 00:00	27-Nov-2019 10:00	☐



ALS Houston, US

Date: 04-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: Longhorn Army Ammunition Plant -37
Work Order: HS19111443

CASE NARRATIVE

GCMS Volatiles by Method SW8260**Batch ID: R351682**

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



ALS Houston, US

Date: 04-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant -37
 Sample ID: 35BWW10-191126
 Collection Date: 26-Nov-2019 07:35

ANALYTICAL REPORT

WorkOrder:HS19111443
 Lab ID:HS19111443-01
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:05
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 16:05
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Dec-2019 16:05
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:05
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Dec-2019 16:05
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 16:05
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Dec-2019 16:05
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05

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



ALS Houston, US

Date: 04-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant -37
 Sample ID: 35BWW10-191126
 Collection Date: 26-Nov-2019 07:35

ANALYTICAL REPORT

WorkOrder:HS19111443
 Lab ID:HS19111443-01
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD			Method:SW8260					Analyst: PC
8260C								
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 16:05
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 16:05
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:05
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Tetrachloroethene	0.84	J	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Trichloroethene	0.90	J	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>101</i>			0	<i>81-118</i>	%REC	<i>1</i>	<i>03-Dec-2019 16:05</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>98.0</i>			0	<i>85-114</i>	%REC	<i>1</i>	<i>03-Dec-2019 16:05</i>
<i>Surr: Dibromofluoromethane</i>	<i>98.9</i>			0	<i>80-119</i>	%REC	<i>1</i>	<i>03-Dec-2019 16:05</i>
<i>Surr: Toluene-d8</i>	<i>96.4</i>			0	<i>89-112</i>	%REC	<i>1</i>	<i>03-Dec-2019 16:05</i>

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



ALS Houston, US

Date: 04-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant -37
 Sample ID: 35BWW19-191126
 Collection Date: 26-Nov-2019 08:20

ANALYTICAL REPORT

WorkOrder:HS19111443
 Lab ID:HS19111443-02
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:29
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 16:29
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Dec-2019 16:29
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:29
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Dec-2019 16:29
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 16:29
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Dec-2019 16:29
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29

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



ALS Houston, US

Date: 04-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant -37
 Sample ID: 35BWW19-191126
 Collection Date: 26-Nov-2019 08:20

ANALYTICAL REPORT

WorkOrder:HS19111443
 Lab ID:HS19111443-02
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 16:29
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 16:29
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:29
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Surr: 1,2-Dichloroethane-d4	101			0	81-118	%REC	1	03-Dec-2019 16:29
Surr: 4-Bromofluorobenzene	96.5			0	85-114	%REC	1	03-Dec-2019 16:29
Surr: Dibromofluoromethane	100			0	80-119	%REC	1	03-Dec-2019 16:29
Surr: Toluene-d8	95.1			0	89-112	%REC	1	03-Dec-2019 16:29

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



ALS Houston, US

Date: 04-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant -37
 Sample ID: 35BWW09-191126
 Collection Date: 26-Nov-2019 09:45

ANALYTICAL REPORT

WorkOrder:HS19111443
 Lab ID:HS19111443-03
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:54
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 16:54
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Dec-2019 16:54
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:54
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Dec-2019 16:54
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 16:54
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Dec-2019 16:54
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54

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



ALS Houston, US

Date: 04-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant -37
 Sample ID: 35BWW09-191126
 Collection Date: 26-Nov-2019 09:45

ANALYTICAL REPORT

WorkOrder:HS19111443
 Lab ID:HS19111443-03
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD		Method:SW8260						Analyst: PC
8260C								
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 16:54
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 16:54
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:54
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Trichloroethene	47		0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>101</i>			0	<i>81-118</i>	%REC	1	<i>03-Dec-2019 16:54</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>97.0</i>			0	<i>85-114</i>	%REC	1	<i>03-Dec-2019 16:54</i>
<i>Surr: Dibromofluoromethane</i>	<i>98.7</i>			0	<i>80-119</i>	%REC	1	<i>03-Dec-2019 16:54</i>
<i>Surr: Toluene-d8</i>	<i>97.2</i>			0	<i>89-112</i>	%REC	1	<i>03-Dec-2019 16:54</i>

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



ALS Houston, US

Date: 04-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant -37
 Sample ID: 35BWW18-191126
 Collection Date: 26-Nov-2019 12:40

ANALYTICAL REPORT

WorkOrder:HS19111443
 Lab ID:HS19111443-04
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		Method:SW8260						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 17:18
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 17:18
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Dec-2019 17:18
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 17:18
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Dec-2019 17:18
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 17:18
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Dec-2019 17:18
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18

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



ALS Houston, US

Date: 04-Dec-19

Client: Aptim Environmental & Infrastructure, Inc.
 Project: Longhorn Army Ammunition Plant -37
 Sample ID: 35BWW18-191126
 Collection Date: 26-Nov-2019 12:40

ANALYTICAL REPORT

WorkOrder:HS19111443
 Lab ID:HS19111443-04
 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD			Method:SW8260					Analyst: PC
8260C								
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 17:18
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 17:18
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 17:18
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>103</i>			0	<i>81-118</i>	%REC	<i>1</i>	<i>03-Dec-2019 17:18</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>98.0</i>			0	<i>85-114</i>	%REC	<i>1</i>	<i>03-Dec-2019 17:18</i>
<i>Surr: Dibromofluoromethane</i>	<i>99.3</i>			0	<i>80-119</i>	%REC	<i>1</i>	<i>03-Dec-2019 17:18</i>
<i>Surr: Toluene-d8</i>	<i>97.5</i>			0	<i>89-112</i>	%REC	<i>1</i>	<i>03-Dec-2019 17:18</i>

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

