FINAL Q4 2019 Data Summary Report Groundwater Sampling Event

CONTRACT NO.: W912DQ-18-D-3008
DELIVERY ORDER NO.: W912DQ19F3048

700 South 1600 East PCE Plume Site
Salt Lake City, Utah

U.S. Army Corps of Engineers
Kansas City District

Department of Veterans Affairs
Veterans Health Administration Salt Lake City Health Care System

July 2020

CDM Smith

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Table of Contents

List of Figures

List of Tables

Appendices

Acronyms and Abbreviations

CDM Smith	CDM Federal Programs Corporation
cis-1,2-DCE	cis-1,2-dichloroethene
DO	dissolved oxygen
DSR	data summary report
EPA	U.S. Environmental Protection Agency
ESS	East Side Springs
IDW	investigation-derived waste
Jacobs	Jacobs Engineering Group Inc.
µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
mg/L	milligrams per liter
mL/min	milliliters per minute
MCL	maximum contaminant level
ORP	oxidation-reduction potential
OU	operable unit
PCE	tetrachloroethene
Q4-2019	fourth quarter 2019
QAPP	quality assurance project plan
QCSR	quality control summary report
RI	remedial investigation
RSL	regional screening level
SOP	standard operating procedure
TCE	trichloroethene
TDS	total dissolved solids
TOC	total organic carbon
UDEQ	State of Utah Department of Environmental Quality
USACE	U.S. Army Corps of Engineers
VAMC	Veterans Affairs Medical Center
VHA	Veterans Health Administration
VOC	volatile organic compound
ZIST	Zone Isolation Sampling Technology

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Section 1
Introduction

Under the U.S. Army Corps of Engineers (USACE), Kansas City District, Contract No. W912DQ-18-D-3008, Task Order No. W912DQ19F3048, CDM Federal Programs Corporation (CDM Smith) was directed to perform a remedial investigation (RI) for Operable Unit (OU) 1 of the 700 South 1600 East Tetrachloroethene (PCE) Plume Superfund Site (Site) in Salt Lake City, Utah. This data summary report (DSR) was prepared by CDM Smith to present the results of the fourth quarter 2019 (Q4-2019) groundwater monitoring event as part of the RI field characterization activities.

1.1 Background

The Salt Lake City Healthcare System George E. Wahlen Veterans Affairs Medical Center (VAMC) is in Salt Lake City, Utah (**Figure 1**). The Veterans Health Administration (VHA) operated a part-time dry cleaning operation that used PCE over a 6-year period in the late 1970s and early 1980s. During this period, dry cleaning residuals were disposed in the sanitary sewer. The PCE plume is in an approximately 300-acre commercial and residential area. The U.S. Environmental Protection Agency (EPA) and State of Utah Department of Environmental Quality (UDEQ) detected PCE between 100 and 300 micrograms per liter (µg/L) during monitoring of the area of Salt Lake City known historically as Mt. Olivet Cemetery Plume. PCE levels below the maximum contaminant level of 5 µg/L also were reported in Salt Lake City's secondary drinking water well #18 (closed in 2004). In 2010, PCE was detected up to 40 µg/L in surface water in an area locally identified as the East Side Springs (ESS). In 2018, PCE was detected up to 96 µg/L in shallow groundwater along a transect of monitoring wells at 1400 East in addition to the ESS area. In 2018, elevated concentrations of PCE were detected in soil gas collected from approximately 5 to 8 feet below ground surface adjacent to VAMC Buildings 6 and 7. Concentrations of PCE in soil gas in this area ranged from 14.8 to 3,130 micrograms per cubic meter ($\mu g/m^3$).

1.2 Purpose and Scope

The purpose of this DSR is to discuss the field work conducted and data collected during the Q4-2019 groundwater monitoring event. Groundwater samples were collected from monitoring wells in Q4-2019 to assist in the ongoing RI at the site to further delineate the groundwater contamination plume. This report will summarize the field work conducted and present the analytical and field data collected during the event. Recommendations for future sampling events and improvements to the ongoing RI will be discussed.

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Section 2
Field Sampling Activities

The following sections outline the field sampling activities that were completed during the Q4-2019 sampling event.

2.1 Groundwater Sampling

During the Q4-2019 groundwater monitoring event, 26 wells were identified for sampling, with an anticipated 31 samples to be collected. All monitoring wells (including previously abandoned wells) are shown on **Figure 1,** and a summary of the well and sampling locations planned for the Q4-2019 groundwater monitoring event is presented in **Table 1**. The sampling activities were conducted per the Quality Assurance Project Plan (QAPP) (CDM Smith 2019a) and Modification #2 to OU-2 Remedial Investigation Work Plan and Sampling and Analysis Plan (CDM Smith 2019b). Several groundwater wells are in the public right-of-way, requiring traffic control and special work requirements to be implemented when those wells are accessed. The associated traffic control permit and location-specific plans acquired from Salt Lake City Division of Transportation are attached (**Appendix A**). Field forms associated with this event, including the field logbook pages, water level measurement recordings, and sample purge forms, are included in **Appendix B**.

2.1.1 Synoptic Water Level Measurement

Prior to beginning sampling activities, synoptic water levels were collected on December 4, 2019, from 29 wells following procedures outlined in SOP 1-6, Groundwater Level Measurement (CDM Smith 2019a). Manual water level measurements were recorded for the wells from the northern edge of the casing using electronic water level meters. Measurements were not collected from MW-14D and MW-17D because both were found to be freely flowing during this event. Water levels are presented in **Table 2**.

The following wells have dedicated Zone Isolation Sampling Technology (ZIST) pumps:

- MW-03R-A
- MW-03R-B
- MW-03R-C
- MW-03R-D
- MW-08C

Dedicated ZIST pumps provide isolation of the screen by creating a seal in the well casing when the pump is properly seated in the well screen dock. To take water level measurements at these wells, the pumps were pulled approximately 1 foot out of the seating in the well casing for approximately 3 hours to allow for the water level to equilibrate following pump removal. After verifying that water levels had stabilized, the manual water level measurement was recorded. Each pump was properly seated after a water level measurement was acquired. Groundwater

elevations for each well can be found in **Table 2,** and the potentiometric surface map is shown in **Figure 2**.

2.1.2 Groundwater Sampling Procedures

All wells were sampled per SOP 1-12, Low-Stress (Low-Flow) Groundwater Sampling (CDM Smith 2019a). All wells, except for MW-14D and MW-17D, were sampled using the previously installed dedicated pumps.

Low-flow groundwater sampling includes purging the well water at a rate that does not generally exceed 500 milliliters per minute (mL/min) with minimal drawdown to ensure that the water to be sampled was representative of the formation surrounding the screened interval and not of the stagnant water column. Each well was purged to meet a minimum purge volume calculated prior to the event—a representative value of the total amount of stagnant water in the dedicated pump prior to pumping. Once the minimum purge volume and water quality parameters were stabilized as described in SOP 1-12, samples were collected.

A permanent valve and gauge were previously installed at MW-14D to assist in controlling the artesian flow at this well. During sampling of this well, the team opened the valve to maximum capacity and noted the flow rate as grab samples were collected for field parameter analysis. The flow rate considerably decreased over the purging period, decreasing from an initial flow of approximately 780 mL/min to 300 mL/min.

MW-17D has been observed to be seasonally artesian. A threaded connection was previously permanently attached to the well head to plug the well. Therefore, the dedicated bladder pump no longer fits the well. A valve that would allow sampling when the well is free flowing has not been installed. Therefore, the team used a peristaltic pump with tubing placed in the screened interval to purge the well. The pump was set to maximum settings (approximately 550 mL/min) to gauge the flow rate of the well. The pump was not able to keep up with the flow, indicating that during this event, MW-17D had an artesian flow exceeding 550 mL/min. The well was purged until parameters were stabilized, and then samples were collected.

2.1.3 Sample Analysis

The water quality parameters were analyzed continuously while purging with the use of a flow through cell. The following parameters were noted and are detailed for each well:

- Dissolved oxygen (DO)
- Oxidation-reduction potential (ORP)
- pH
- Temperature
- Conductivity
- Turbidity

In addition to the field parameters, samples were collected from each well for the following analyses (**Table 3**):

- Volatile organic compounds (VOCs) by EPA Method SW8260C
- Total Metals (unfiltered) by EPA Method SW6020A/SW7470A
- Total Dissolved Solids (TDS) by EPA Method SM2540C
- Alkalinity by EPA Method SM2320B
- Anions (sulfate, chloride) by EPA Method E300.0
- Dissolved gases (methane, ethane, ethene) by RSK-175
- Total organic carbon (TOC) by EPA Method SW9060A
- Nitrate and Nitrite by EPA Method SM4500-NO3E
- 1,4-Dioxane by EPA Method 8270D
- Ferrous Iron (collected by field method using HACH 8146)

All samples were submitted to EMAX Laboratories in Torrance, California. The analytical results are further discussed in Section 3. Laboratory data are included in **Appendix C**. Field quality control samples were collected, including field duplicates, matrix spike/matrix duplicate, and trip blanks (for VOCs only), and are discussed in the Quality Control Summary Report (QCSR) in **Appendix C**. Sample results meet the data quality objectives presented in the QAPP (CDM Smith 2019a) and are useable for the intended purposes.

2.2 Transducer Data Collection

Transducer data were downloaded from 14 groundwater wells during the Q4-2019 groundwater monitoring event. The data from the December 2019 download date back to October 3, 2019. Previous data downloads and data processing were conducted by Jacobs Engineering Group Inc. (Jacobs). **Table 2** presents the date, time, and location of transducer data downloads during Q4-2019. The transducers were set to record 1-hour intervals during the December 2019 groundwater monitoring event. Hydrographs were prepared from the transducer downloads and are presented in **Appendix D**.

2.3 Decontamination and Investigation-Derived Waste

All nondedicated equipment used during the groundwater sampling event was decontaminated following the procedures outlined in SOP 4-5, Field Equipment Decontamination at Nonradioactive Sites (CDM Smith 2019a). Nondedicated equipment used during this event were electronic water level meters. Investigation-derived waste (IDW) was handled per SOP 2-2, Guide to Handling Investigation-Derived Waste (CDM Smith 2019a). All decontamination water and purge water were containerized at their source and transferred to the holding tanks on the VAMC. These tanks will be emptied on a need basis by a certified IDW disposal company.

2.4 Deviations from the QAPP

All wells have dedicated pumps that were previously installed. During the Q4-2019 event, CDM Smith identified multiple well locations where the pump tubing had become detached at the surface. The team reattached the tubing prior to sampling at locations where that was possible. The dedicated pump tubing was found to be detached at EPA-MW-01S, and the team was unable to retrieve the pump from the well during this event. A sample was not collected from this well during this event. Further, the dedicated pumps located in MW-21 and MW-22 were identified to have malfunctioning bladders and therefore were not sampled during this event.

Planned groundwater elevation measurements were not completed at MW-14D and MW-17D. Both wells were artesian during the sampling event, and it was planned that water level measurements would be completed by reading the pressure gauge at the well heads. MW-17D was not fitted with a gauge at the time of the synoptic water level event, so a groundwater elevation measurement was not made. MW-14D is fitted with a gauge, however, during the synoptic water level event the gauge displayed no pressure reading. As this well was artesian at the time of sampling, this measurement was considered erroneous and not recorded.

During groundwater sampling, samples at the following locations were collected prior to meeting the stabilization criteria for turbidity as described in SOP 1-12: MW-03R-B, MW-08C, MW-12S, MW-13S, MW-15D, MW-17D, and MW-20S.

Section 3
Groundwater Monitoring Results

Groundwater monitoring results, specifically groundwater elevations and analytical results, are presented below.

3.1 Groundwater Elevations

Measured groundwater elevations are presented in **Table 2** and on the potentiometric groundwater surface map (**Figure 2**). The potentiometric groundwater contours were developed from manual groundwater elevation measurements collected during the synoptic event on December 4, 2019. In nested shallow and deep wells, the groundwater elevation in the shallow well was used to develop the potentiometric contours. Groundwater elevations were not measured in the two artesian wells (MW-17D and MW-14D) during the monitoring event. The following sections discuss the groundwater elevation evaluations.

3.1.1 Groundwater Flow Direction

Groundwater flow at the site is generally to the southwest, except for the area east of the East Bench Fault Spur, where groundwater flows in a northwestern direction. This area of the site is proximal to Red Butte Creek, which is a losing stream. There is some uncertainty in groundwater flow in the vicinity of East High School due to the proximity to the ESS area to the south, where groundwater surfaces, and the lack of monitoring wells to the north. The horizontal gradient across the site from MW-06 to MW-15S is 0.05 ft/ft. Topography at the site slopes to the southwest, with a grade of approximately 4 percent. In the area near and to the west of the East Bench Segment of the Wasatch fault, the grade increases to approximately 10 percent (EA 2017).

3.1.2 Vertical Gradient Evaluation

Several sets of nested monitoring wells were included in the Q4-2019 synoptic water level survey (**Figure 2**). Water levels in nested wells (wells that are located closely together) can be used to calculate the vertical gradient to indicate upward or downward flow in aquifers or between adjacent geologic units (EPA 2016). The change in head (i.e., water levels) divided by the vertical distance between the midpoint of the well screens of nested wells determines the magnitude and direction of flow (EPA 2016), as presented below. A positive result indicates a downward direction of flow.

$$\frac{[(WL_s) - (WL_d)]}{[(Elevation_s) - (Elevation_d)]} = Gradient$$

Where WL_s = water level shallow interval; WL_d = water level deep interval;

$Elevation_s$ = midpoint screen elevation, shallow zone; $Elevation_d$ = midpoint screen elevation, deep zone

For wells where the shallow interval screen is not submerged, the midpoint of the water column in the well is used instead of the midpoint of the screen interval.

The direction and magnitude of the vertical gradients between the shallow and deep nested monitoring wells are presented in **Table 2**. Review of the groundwater elevations and calculated vertical gradients reveals:

- Wells east of the East Bench Fault Spur (MW-01S/D, MW-03R-A/B) have a moderate-to-steep downward gradient between nested shallow and deep wells. Because the groundwater elevations are similar at MW-03R-B, -C, and -D, the gradient at this location was calculated between MW-03R-A and -B.
- Wells between the East Bench Fault Spur and the East Bench Segment of the Wasatch Fault (MW-08A/B, MW-08B/C, MW-12S/D, MW-13S/D, MW-14S/D, MW-17S/D) have a moderate upward gradient.
- There is a moderate downward gradient at MW-15S/D, which is located west of the East Bench Segment of the Wasatch Fault.
- There is a negligible gradient between nested monitoring wells MW-20S/D.

3.2 Groundwater Analytical Results

Analytical results from the Q4-2019 groundwater monitoring event are presented below.

3.2.1 Volatile Organic Compounds

Detections of VOCs in all monitoring wells are presented in **Table 4**, screened against the EPA maximum contaminant levels (MCLs) or regional screening levels (RSLs) for tap water (for compounds without an established MCL). The approximate extent of PCE in groundwater and results for PCE and trichloroethene (TCE) are shown in **Figure 3**.

PCE exceeded the MCL (5 µg/L) in 13 samples, with exceedance concentrations ranging from 5.6 to 200 µg/L. The highest concentrations of PCE were in wells MW-03R-B (200 µg/L) and MW-02 (150 µg/L). PCE was detected at concentrations less than 5 µg/L in nine samples and was not detected (less than 1 µg/L) in eight samples. PCE was nondetect or below the MCL in monitoring wells MW-05R and MW-06, bounding the plume to the east. PCE and TCE were nondetect in MW-01D, MW-03R-D, and MW-08C, providing a possible vertical extent for the PCE plume in these locations. PCE was nondetect or below the MCL in monitoring wells MW-12S/D, MW-15S/D, and MW-17S/D, providing a southern plume boundary (**Figure 3**). Overall, PCE concentrations in groundwater remains relatively stable between 2018 (Jacobs 2019, Table 11) and Q4-2019 (**Table 4**).

TCE was detected at concentrations exceeding the MCL in one sample (6 µg/L in MW-14S) and less than 5 µg/L in 13 samples. Low level (less than 2 µg/L) detections of cis-1,2-dichloroethene (cis-1,2-DCE) were observed in 10 samples, with the highest detection at MW-14S (1.7 µg/L). There were no detections of vinyl chloride.

3.2.2 1,4-Dioxane

All analytical results for 1,4-dioxane are presented in **Table 5**. Because no MCL is established for 1,4-dioxane, results are screened against the RSL of 0.46 µg/L. No detections of 1,4-dioxane were in any sample.

3.2.3 Metals

All analytical results for total (unfiltered) metals are presented in **Table 6**. The following compounds were detected at concentrations greater than the MCL or RSL:

- Chromium exceeded the MCL (100 µg/L) in groundwater at MW-13D (115 µg/L)
- Cobalt exceeded the RSL (0.6 µg/L) in groundwater samples from MW-03R-A/D (0.68 J and 1.1 µg/L, respectively), MW-08C (1.04 µg/L), MW-12S (0.928 J µg/L), MW-13S/D (1.84 and 6.50 µg/L, respectively), MW-15S/D (0.769 and 0.618 J µg/L, respectively) and MW-17S (1.51 µg/L)
- Manganese exceeded the RSL (43 µg/L) in groundwater samples from MW-03R (intervals A [77.3 µg/L], B [115 µg/L], and D [418 µg/L]), MW-08C (465 µg/L), MW-13S (678 µg/L), MW-14S (383 µg/L), and MW-17S (62.3 µg/L)
- Nickel exceeded the RSL (39 µg/L) in groundwater at MW-13S/D (147 and 198 µg/L, respectively) and MW-17S (84.4 µg/L)

3.2.4 General Chemistry

DO, ORP, sulfate, nitrate, ferrous iron, and methane are geochemical parameters that can be used to evaluate redox conditions. Reductive dechlorination of PCE to TCE and cis-1,2-DCE generally occurs under iron-reducing to sulfate-reducing conditions. Complete dechlorination to ethene and ethane generally occurs under sulfate-reducing to methanogenic conditions. As presented in **Table 7**, positive ORP and high DO (greater than 2 milligrams per liter [mg/L]) suggest that groundwater conditions at the site are generally aerobic. Low ferrous iron (less than 0.6 mg/L), low methane (less than 2.5 µg/L), and high sulfate (87.2 to 212 mg/L) in all wells further support the observation that conditions are generally aerobic (**Table 8**). Low DO (less than 2 mg/L), low nitrate/nitrite (less than 1 mg/L), and elevated TCE (6 µg/L) suggest that conditions may be more reducing at MW-14S.

Chloride concentrations ranged from 54.6 mg/L (MW-08C) to 705 mg/L (MW-02). The elevated concentration of sodium (255 mg/L) and chloride at MW-02 are likely due to the proximity to road salt storage. TDS ranged from approximately 593 mg/L (MW-20D) to 1,560 mg/L (MW-02). Alkalinity ranged from 228 mg/L (MW-03R-C) to 393 mg/L (MW-15S). TOC was generally less than 2 mg/L; exceptions include MW-03R-C (7.22 mg/L), MW-03R-D (5.34 mg/L), and MW-08C (3.87 mg/L).

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Section 4
Summary

This report presents the results from the Q4-2019 groundwater monitoring event. The Q4-2019 sampling approach will be repeated during sampling events in 2020. Further analysis and evaluation of these results will be presented in the 2020 annual report.

On the VAMC campus, groundwater flow is downward and to the northwest (**Figure 2**). In the ESS area, groundwater flow is upward and to the southwest. The planned installation and monitoring of additional monitoring wells in 2020 (CDM Smith 2019c) will further improve the understanding of groundwater flow across the site. CDM Smith plans to use field observations to confirm the projected locations of localized faults.

PCE and TCE were nondetect or below the MCL in monitoring wells MW-05R and MW-06, bounding the plume to the east. PCE and TCE were nondetect in MW-01D, MW-03R-D, and MW-08C, providing a possible vertical extent for the PCE plume in these locations. PCE and TCE were nondetect or below the MCL in monitoring wells MW-12S/D, MW-15S/D, and MW-17S/D, providing a southern plume boundary. The highest concentration of PCE was in wells MW-03R-B (200 µg/L) and MW-02 (150 µg/L). The highest TCE concentration was observed in MW-14S (6 µg/L) (**Figure 3**). Wells that will be advanced in 2020 (CDM Smith 2019c) will further improve the delineation of PCE in groundwater.

Along with VOCs, samples were collected for the determination of general chemistry: ORP, DO, metals, sulfate, nitrate/nitrite, chloride, alkalinity, TOC, ferrous iron, and dissolved gases. These data can be used to determine redox conditions and assess the presence of degradation daughter products to evaluate the potential for biotic and abiotic attenuation. Because of seasonal variations, the same parameters will be analyzed at all wells during sampling events in 2020. These events are anticipated to cover seasonal high and low groundwater elevations to allow for further analysis to be completed and presented in the 2020 annual report. Additional data will be collected in 2020, including magnetic susceptibility and ferrous iron minerals (CDM Smith 2019c), and will be used to further evaluate biotic and abiotic attenuation.

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Section 5
References

CDM Smith. 2019a. Quality Assurance Project Plan, Operable Unit 2 Remedial Investigation, 700 South 1600 East PCE Plume, Salt Lake City, Utah. October.

CDM Smith. 2019b. Modification #2 to OU-2 Remedial Investigation Work Plan and Sampling and Analysis Plan, 700 South 1600 East PCE Plume, Salt Lake City, Utah. October 17.

CDM Smith. 2019c. Modification #3 to OU-2 Remedial Investigation Work Plan and Sampling and Analysis Plan, 700 South 1600 East PCE Plume, Salt Lake City, Utah. October 25.

Davis, F.D. 1983. Geologic Map of the Central Wasatch Front, Utah. Utah Geological and Mineral Survey. Map 54-A – Wasatch Front Series. May.

EA Engineering, Science, and Technology (EA). 2017. Technical Memorandum: Conceptual Site Model Update for the 700 South 1600 East PCE Plume AOU-1: East Side Springs, Salt Lake City, Utah. February 28.

Jacobs. 2019. 2018 OU-2 Data Summary Report, Operable Unit 2 Remedial Investigation 700 South 1600 East PCE Plume, Salt Lake City, Utah. June.

Personius, S.F. and W.E. Scott. 2009. Surficial Geologic Map of the Salt Lake City Segment and Parts of Adjacent Segments of the Wasatch Fault Zone, Davis, Salt Lake, and Utah Counties, Utah.

U.S. Environmental Protection Agency (EPA). 2016. EPA On-line Tools for Site Assessment Calculation. Available at: https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/vgradient.html. Accessed March 2, 2020.

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Figures

Legend

- Monitoring Well
- Abandoned Monitoring Well
- Drinking Water Supply Well
- Irrigation Well
- Landmark
- Red Butte Creek
- Fault Line

Notes:
(1) Location of University of Utah Well #1 is approximate; well is located less than 100 feet east of Fountain of Ute.

OU = operable unit
PCE = tetrachloroethene
VHA = Veterans Health Administration

[1] Davis, F.D. 1983. Geologic Map of the Central Wasatch Front, Utah. Utah Geological and Mineral Survey. Map 54-A – Wasatch Front Series. May.

[2] Personius, S.F. and Scott, W.E. 2009. Surficial Geologic Map of the Salt Lake City Segment and Parts of Adjacent Segments of the Wasatch Fault Zone, Davis, Salt Lake, and Utah Counties, Utah

N

0 500 1,000 Feet

FIGURE 1
SITE LOCATION MAP

Q4 2019 Data Summary Report
OU1 700 South 1600 East PCE Plume
Salt Lake City, Utah

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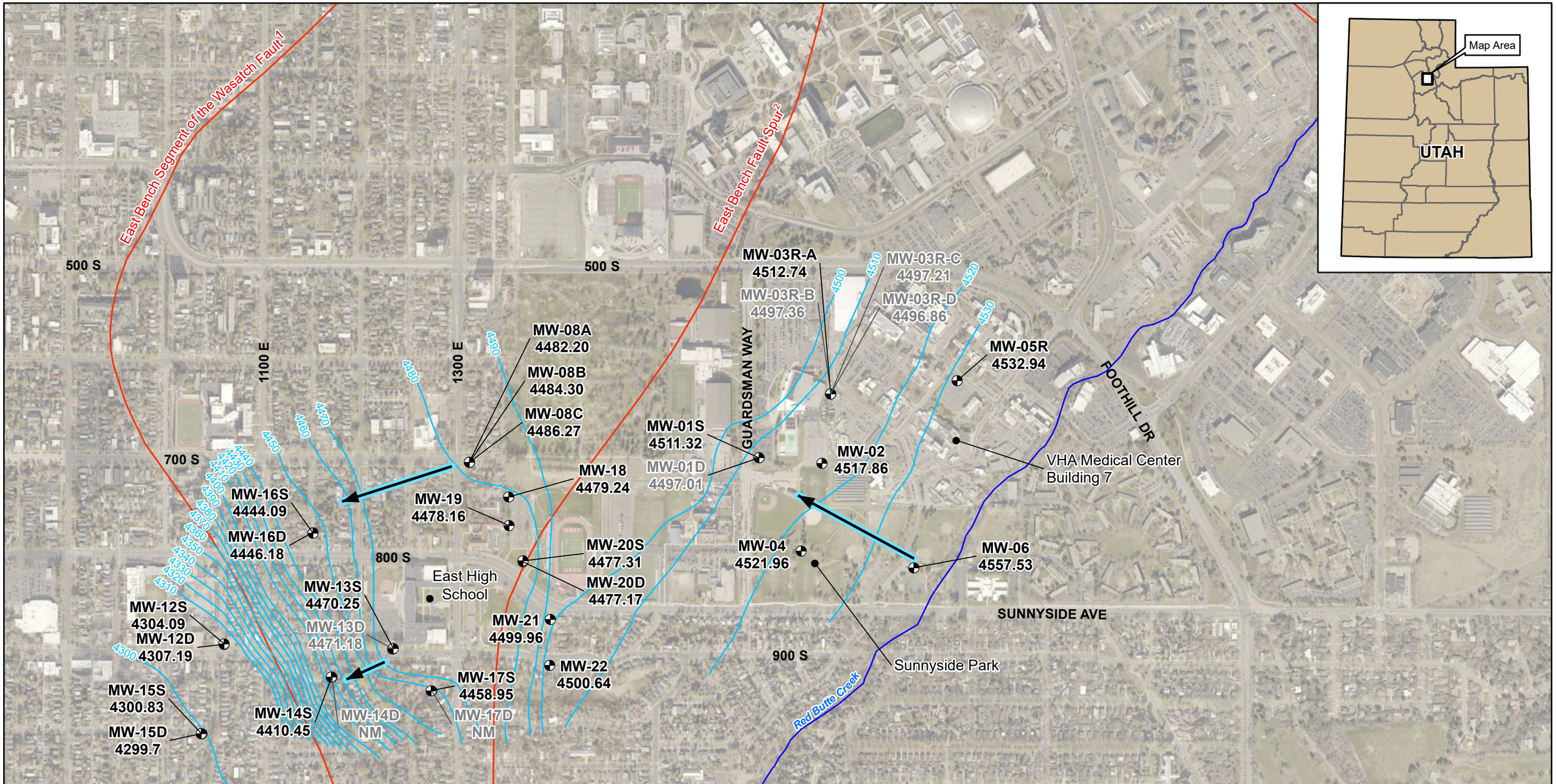

Legend

- Monitoring Well
- Landmark
- Red Butte Creek
- Fault Line
- Groundwater Contour
- Groundwater Flow Direction

Notes:
- All ground surface elevations in feet amsl
- Water levels shown in grey were not used for the generation of the potentiometric contours and are shown for information only

amsl = above mean sea level
NM = not measured due to artesian conditions
OU = operable unit
VHA = Veterans Health Administration

[1] Davis, F.D. 1983. Geologic Map of the Central Wasatch Front, Utah. Utah Geological and Mineral Survey. Map 54-A – Wasatch Front Series. May.

[2] Personius, S.F. and Scott, W.E. 2009. Surficial Geologic Map of the Salt Lake City Segment and Parts of Adjacent Segments of the Wasatch Fault Zone, Davis, Salt Lake, and Utah Counties, Utah

N

0 500 1,000 Feet

FIGURE 2
POTENTIOMETRIC GROUNDWATER SURFACE MAP

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Q4 2019 Data Summary Report
OU1 700 South 1600 East PCE Plume
Salt Lake City, Utah

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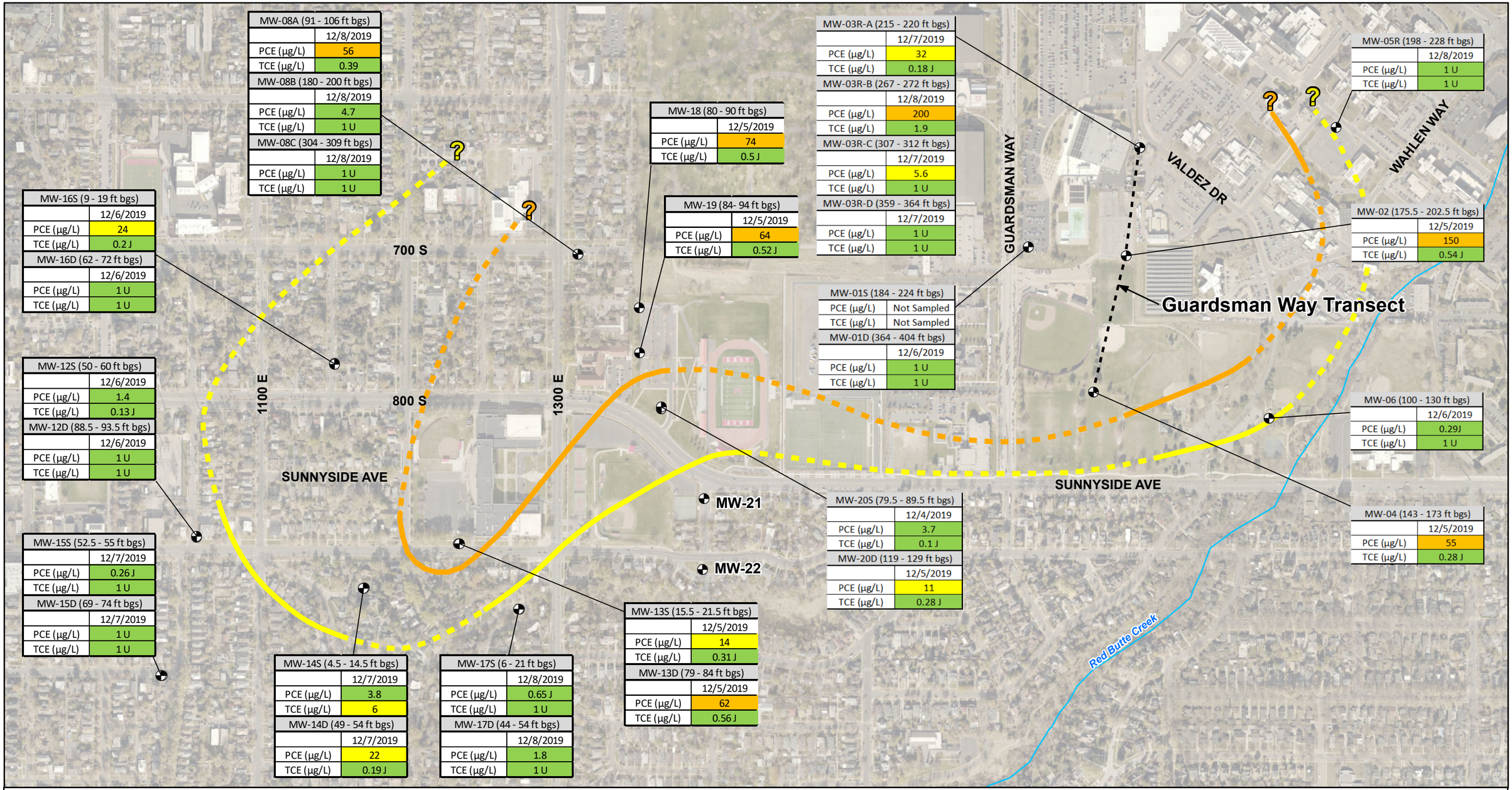

Legend

- Monitoring Well
- Monitoring Well Transect Line
- Red Butte Creek

PCE and TCE Concentrations (µg/L)

- = < 5 µg/L
- = 5 - 50 µg/L
- = > 50 µg/L

PCE Contours

- 5 µg/L
- 50 µg/L

Dashed Line - Inferred Extent
? - Extent not Defined

Notes
(1) PCE extent derived from December 2019 analytical results. For wells with multiple depth intervals the highest concentration was selected.

OU = operable unit
PCE = tetrachloroethene
TCE = trichloroethene
µg/L = micrograms per liter
ft bgs = feet below ground surface
J = Result is estimated
U = Analyte was not detected at the associated value

N

0 500 1,000 Feet

FIGURE 3
2019 Q4 GROUNDWATER PCE AND TCE RESULTS AND APPROXIMATE EXTENT OF PCE IN GROUNDWATER

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Q4 2019 Data Summary Report
OU1 700 South 1600 East PCE Plume
Salt Lake City, Utah

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Tables

Table 1 Monitoring Well Survey Data and Construction Details

Location	Sample Interval	Longitude (degrees)[1]	Latitude (degrees)[1]	Surface Elevation (ft amsl)[2]	Top of casing elevation (ft amsl)[2]	Total Well Depth (ft bgs)	Screen Start (ft bgs)	Screen End (ft bgs)	Pump Depth (ft bgs)	Pump Type
EPA-MW-01S	-	-111.844989	40.754219	4664.8	4664.6	224	184	224	204	Solinist bladder pump
EPA-MW-01D	-	-111.844990	40.754218	4664.9	4664.7	404	364	404	384	Solinist bladder pump
EPA-MW-02	-	-111.843134	40.754099	4685.6	4685.2	205.5	175.5	202.5	195	Solinist bladder pump
MW-03R	A	-111.842884	40.755655	4698.7	4697.9	223	215	220	215	ZIST
	B	-111.842883	40.755656	4698.7	4697.9	275	267	272	267	ZIST
	C	-111.842884	40.755656	4698.7	4697.9	315	307	312	307	ZIST
	D	-111.842883	40.755655	4698.7	4697.9	367	359	364	359	ZIST
EPA-MW-04	-	-111.843739	40.752133	4654.8	4654.4	173	143	173	160	Solinist bladder pump
EPA-MW-05R	-	-111.839160	40.755963	4744.4	4744.0	230	198	228	222	Solinist bladder pump
EPA-MW-06	-	-111.840411	40.751765	4679.0	4678.6	134	100	130	128	Solinist bladder pump
MW-08	A	-111.853527	40.754088	4540.6	4540.0	106	91	106	99	Solinist bladder pump
	B	-111.853527	40.754088	4540.6	4540.0	200	180	200	190	Solinist bladder pump
	C	-111.853527	40.754088	4540.6	4539.8	312	304	309	304	ZIST
MW-12S	-	-111.860735	40.750001	4360.5	4360.2	65	50	60	60	Solinist bladder pump
MW-12D	-	-111.860735	40.749987	4360.3	4360.1	95	88.5	93.5	90	Solinist bladder pump
MW-13S	-	-111.855751	40.749908	4483.3	4482.8	22	15.5	20.5	19	Solinist bladder pump
MW-13D	-	-111.855768	40.749907	4483.1	4482.8	90	79	84	82	Solinist bladder pump
MW-14S	-	-111.857570	40.749262	4415.9	4415.7	15	4.5	14.5	12	Solinist bladder pump
MW-14D	-	-111.857551	40.749269	4416.3	4415.5	65	49	54	NA	Artesian
MW-15S	-	-111.861401	40.747991	4347.5	4347.1	65	52.5	55	54	Solinist bladder pump
MW-15D	-	-111.861376	40.747991	4347.9	4347.5	95	69	74	72	Solinist bladder pump
MW-16S	-	-111.858133	40.752493	4455.1	4454.8	20	9	19	16.0	Solinist bladder pump
MW-16D	-	-111.858133	40.752503	4455.2	4454.6	73	62	72	67	Solinist bladder pump
MW-17S	-	-111.854623	40.748969	4465.6	4465.2	22	6	21	20	Solinist bladder pump
MW-17D	-	-111.854609	40.748971	4465.8	4465.4	70	44	54	NA	Artesian
MW-18	-	-111.852359	40.753321	4559.0	4558.7	110	80	90	88	Solinist bladder pump
MW-19	-	-111.852349	40.752677	4557.3	4557.0	110	84	94	89	Solinist bladder pump
MW-20S	-	-111.851932	40.751890	4558.7	4558.4	90.8	79.5	89.5	88	Solinist bladder pump
MW-20D	-	-111.851934	40.751864	4558.3	4558.0	150	119	129	124	Solinist bladder pump
MW-21	-	-111.851116	40.750576	4563.5	4563.1	80	62	72	70	Solinist bladder pump
MW-22	-	-111.851138	40.749549	4562.9	4562.7	120	64	74	72	Solinist bladder pump

[1] Latitude/Longitude measured using NAD 83 datum

[2] Elevations measured using NAVD 88 vertical datum

Notes:
ft = feet
bgs = below ground surface
amsl = above mean sea level
ZIST = Zone Isolation Sampling Interval

Table 2 Groundwater Elevations and Transducer Locations and Download Dates

Location	Sample Interval	Longitude (degrees)[1]	Latitude (degrees)[1]	Screen Start (ft bgs)	Screen End (ft bgs)	Surface Elevation (ft amsl)[2]	Top of Casing Elevation (ft amsl)[2]	Water Level Measurement Date and Time	Water Level Depth (ft btoc)	Water Level Elevation (ft amsl)[2]	Direction of Gradient	Gradient	Transducer Download Date	Transducer Download Time
MW-01S	-	-111.844989	40.754219	184	224	4664.8	4664.6	12/4/19 10:57	153.31	4511.32	down	0.08	12/6/2019	-
MW-01D	-	-111.844990	40.754218	364	404	4664.9	4664.7	12/4/19 0:00	167.72	4497.01			12/7/2019	17:00
MW-02	-	-111.843134	40.754099	175.5	202.5	4685.6	4685.2	12/4/19 12:04	167.31	4517.86	-	-	12/7/2019	16:40
MW-03R	A	-111.842884	40.755655	215	220	4698.7	4697.9	12/4/19 11:05	185.12	4512.74	down	0.30	-	-
	B	-111.842883	40.755656	267	272	4698.7	4697.9	12/4/19 12:47	200.51	4497.36			-	-
	C	-111.842884	40.755656	307	312	4698.7	4697.9	12/4/19 11:27	200.71	4497.21			-	-
	D	-111.842883	40.755655	359	364	4698.7	4697.9	12/4/19 11:10	201.05	4496.86			-	-
MW-04	-	-111.843739	40.752133	143	173	4654.8	4654.4	12/4/19 12:25	132.39	4521.96	-	-	12/8/2019	16:45
MW-05R	-	-111.839160	40.755963	198	228	4744.4	4744.0	12/4/19 11:55	211.06	4532.94	-	-	12/8/2019	14:19
MW-06	-	-111.840411	40.751765	100	130	4679.0	4678.6	12/4/19 12:52	121.10	4557.53	-	-	12/8/2019	16:08
MW-08	A	-111.853527	40.754088	91	106	4540.6	4540.0	12/4/19 9:26	57.77	4482.20	up	0.02	-	-
	B	-111.853527	40.754088	180	200	4540.6	4540.0	12/4/19 9:50	55.70	4484.30			-	-
	C	-111.853527	40.754088	304	309	4540.6	4539.8	12/4/19 9:59	53.53	4486.27			-	-
MW-12S	-	-111.860735	40.750001	50	60	4360.5	4360.2	12/4/19 9:47	56.10	4304.09	up	0.09	-	-
MW-12D	-	-111.860735	40.749987	88.5	93.5	4360.3	4360.1	12/4/19 9:56	52.90	4307.19			-	-
MW-13S	-	-111.855751	40.749908	15.5	20.5	4483.3	4482.8	12/4/19 10:43	12.57	4470.25	up	0.01	-	-
MW-13D	-	-111.855768	40.749907	79	84	4483.1	4482.8	12/4/19 10:36	11.63	4471.18			12/5/2019	17:00
MW-14S	-	-111.857570	40.749262	4.5	14.5	4415.9	4415.7	12/4/19 11:42	5.28	4410.45	up	-	12/7/2019	17:26
MW-14D	-	-111.857551	40.749269	49	54	4416.3	4415.5	12/1/19 12:00	NM	NM			-	-
MW-15S	-	-111.861401	40.747991	52.5	55	4347.5	4347.1	12/4/19 11:11	46.28	4300.83	down	0.06	-	-
MW-15D	-	-111.861376	40.747991	69	74	4347.9	4347.5	12/4/19 11:26	47.81	4299.7			12/7/2019	10:00
MW-16S	-	-111.858133	40.752493	9	19	4455.1	4454.8	12/4/19 10:55	10.74	4444.09	up	0.04	-	-
MW-16D	-	-111.858133	40.752503	62	72	4455.2	4454.6	12/4/19 11:00	8.42	4446.18			12/6/2019	10:33
MW-17S	-	-111.854623	40.748969	6	21	4465.6	4465.2	12/4/19 11:54	6.29	4458.95	up	-	-	-
MW-17D	-	-111.854609	40.748971	44	54	4465.8	4465.4	12/4/19 11:54	NM	NM			-	-
MW-18	-	-111.852359	40.753321	80	90	4559.0	4558.7	12/4/19 10:21	79.44	4479.24	-	-	-	-
MW-19	-	-111.852349	40.752677	84	94	4557.3	4557.0	12/4/19 10:28	78.82	4478.16	-	-	-	-
MW-20S	-	-111.851932	40.751890	79.5	89.5	4558.7	4558.4	12/4/19 10:37	81.05	4477.31	down	0.00	12/4/2019	14:20
MW-20D	-	-111.851934	40.751864	119	129	4558.3	4558.0	12/4/19 10:41	80.80	4477.17			12/5/2019	11:00
MW-21	-	-111.851116	40.750576	62	72	4563.5	4563.1	12/4/19 10:24	63.18	4499.96	-	-	12/8/2019	14:00
MW-22	-	-111.851138	40.749549	64	74	4562.9	4562.7	12/4/19 9:26	62.09	4500.64	-	-	12/6/2019	15:34

[1] Latitude/Longitude measured using NAD 83 datum

[2] Elevations measured using NAVD 88 vertical datum

[3] Direction and magnitude of vertical gradient is calculated between shallow and deep paired wells

Notes:
ft = feet
bgs = below ground surface
amsl = above mean sea level
btoc = below top of casing
NM = not measured, wells were artesian at the time of groundwater elevation measurements

Table 3 Groundwater Sampling Analytes

Analysis	Method	Sample Container	Number of Containers	Preservative
VOCs	EPA Method SW8260C	40 mL VOA	3	HCl to pH < 2, 4°C (±2°C)
1,4-Dioxane	EPA Method SW8270D	1 L amber glass	2	4°C (±2°C)
Dissolved Gasses	EPA Method RSK-175	40 mL VOA	3	HCl to pH < 2, 4°C (±2°C)
Total Metals (unfiltered)	EPA Method SW6020A/SW7470A	250 mL HDPE	1	HNO_3 to pH < 2, 4°C (±2°C)
TDS[1]	EPA Method SM2540C	1L HDPE	1	4°C (±2°C)
Alkalinity[1]	EPA Method SM2320B	1L HDPE	1	4°C (±2°C)
Anions (sulfate, chloride)	EPA Method E300.0	125 mL HDPE	1	4°C (±2°C)
TOC	EPA Method SW9060A	250 mL amber glass	1	H_2SO_4 to pH < 2, 4°C (±2°C)
Nitrate and Nitrite as Total Nitrogen	EPA Method SM4500-NO3E	125 mL HDPE	1	H_2SO_4 to pH < 2, 4°C (±2°C)

[1] TDS and Alkalinity are collected in the same container

Notes:
VOCs = volatile organic compounds
TOC = total organic carbon
TDS = total dissolved solids
Agency
VOA = volatile organic analysis vial
L = liter
mL = milliliter
HDPE = high density polyethylene
HCl = hydrochloric acid
HNO_3 = nitric acid
H_2SO_4 = sulfuric acid
°C = degrees Celcius

Table 4 Detected VOC Analytical Results

Location	Interval	Sample Name	Sample Date	1,1,1-Trichloroethane		1,1-Dichloroethene		Acetone		Benzene	
				µg/L	Q	µg/L	Q	µg/L	Q	µg/L	Q
Screening Level				200[a]		7[a]		1400[b]		5[a]	
MW-01D	-	OU2-MW01D-GW120619	12/6/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
MW-02	-	OU2-MW02-GW120519	12/5/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
MW-03R	A	OU2-MW03RA-GW120719	12/7/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
	B	OU2-MW03RB-GW120819	12/8/2019	**0.12**	**J**	**0.11**	**J**	*20*	*U*	*1*	*U*
	C	OU2-MW03RC-GW120719	12/7/2019	*1*	*U*	*1*	*U*	*20*	*U*	**0.14**	**J**
	D	OU2-MW03RD-GW120719	12/7/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
MW-04	-	OU2-MW04-GW120519	12/5/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
MW-05R	-	OU2-MW05R-GW120819	12/8/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
MW-06	-	OU2-MW06-GW120619	12/6/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
MW-08	A	OU2-MW08A-GW120819	12/8/2019	**0.57**	**J**	**0.15**	**J**	*20*	*U*	*1*	*U*
	B	OU2-MW08B-GW120819	12/8/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
		OU2-FD02-GW120819	12/8/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
	C	OU2-MW08C-GW120819	12/8/2019	*1*	*U*	*1*	*U*	**3.8**	**J**	*1*	*U*
MW-12S	-	OU2-MW12S-GW120619	12/6/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
MW-12D	-	OU2-MW12D-GW120619	12/6/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
MW-13S	-	OU2-MW13S-GW120519	12/5/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
MW-13D	-	OU2-MW13D-GW120519	12/5/2019	**0.53**	**J**	**0.17**	**J**	*20*	*U*	*1*	*U*
MW-14S	-	OU2-MW14S-GW120719	12/7/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
MW-14D	-	OU2-MW14D-GW120719	12/7/2019	**0.43**	**J**	**0.11**	**J**	*20*	*U*	*1*	*U*
MW-15D	-	OU2-MW15D-GW120719	12/7/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
		OU2-FD03-GW120719	12/7/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
MW-15S	-	OU2-MW15S-GW120719	12/7/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
MW-16S	-	OU2-MW16S-GW120619	12/6/2019	**0.33**	**J**	*1*	*U*	*20*	*U*	*1*	*U*
MW-16D	-	OU2-MW16D-GW120619	12/6/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
MW-17S	-	OU2-MW17S-GW120819	12/8/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
MW-17D	-	OU2-MW17D-GW120819	12/8/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
MW-18	-	OU2-MW18-GW120519	12/5/2019	**0.74**	**J**	**0.23**	**J**	*20*	*U*	*1*	*U*
MW-19	-	OU2-MW19-GW120519	12/5/2019	**0.6**	**J**	**0.18**	**J**	*20*	*U*	*1*	*U*
MW-20S	-	OU2-MW20S-GW120419	12/4/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
MW-20D	-	OU2-MW20D-GW120519	12/5/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*
		OU2-FD01-GW120519	12/5/2019	*1*	*U*	*1*	*U*	*20*	*U*	*1*	*U*

[a] Screening level is EPA MCL

[b] Screening level is EPA Tap Water RSL

Highlight indicates values greater than screening level

Bold indicates detected values

Notes:

VOC = volatile organic compound

µg/L = microgram per liter

EPA = U.S. Environmental Protection Agency

MCL = maximum contaminant level

RSL = regional screening level

Q = qualifier

J = Result is estimated

U = Analyte was not detected at the associated value

Table 4 Detected VOC Analytical Results

Location	Interval	Sample Name	Sample Date	Bromodichloro-methane		Chloroform		cis-1,2-Dichloroethene		Dichlorodifluoro-methane	
				µg/L	Q	µg/L	Q	µg/L	Q	µg/L	Q
Screening Level				80[a]		80[a]		70[a]		20[b]	
MW-01D	-	OU2-MW01D-GW120619	12/6/2019	*1*	*U*	**0.15**	**J**	*1*	*U*	*1*	*U*
MW-02	-	OU2-MW02-GW120519	12/5/2019	**0.4**	**J**	**4.9**		**0.36**	**J**	*1*	*U*
MW-03R	A	OU2-MW03RA-GW120719	12/7/2019	1	*U*	**5.1**		*1*	*U*	*1*	*U*
	B	OU2-MW03RB-GW120819	12/8/2019	**0.44**	**J**	**3.1**		**1.4**		*1*	*U*
	C	OU2-MW03RC-GW120719	12/7/2019	**0.13**	**J**	**1.3**		*1*	*U*	*1*	*U*
	D	OU2-MW03RD-GW120719	12/7/2019	*1*	*U*	*1*	*U*	*1*	*U*	*1*	*U*
MW-04	-	OU2-MW04-GW120519	12/5/2019	**0.36**	**J**	**4.1**		**0.1**	**J**	*1*	*U*
MW-05R	-	OU2-MW05R-GW120819	12/8/2019	**0.24**	**J**	**5.3**		*1*	*U*	*1*	*U*
MW-06	-	OU2-MW06-GW120619	12/6/2019	**0.37**	**J**	**3**		*1*	*U*	*1*	*U*
MW-08	A	OU2-MW08A-GW120819	12/8/2019	**0.55**	**J**	**4.4**		**0.17**	**J**	**0.25**	**J**
	B	OU2-MW08B-GW120819	12/8/2019	**0.14**	**J**	**1.4**		*1*	*U*	*1*	*U*
		OU2-FD02-GW120819	12/8/2019	**0.14**	**J**	**1.5**		*1*	*U*	*1*	*U*
	C	OU2-MW08C-GW120819	12/8/2019	1	*U*	**0.16**	**J**	*1*	*U*	*1*	*U*
MW-12S	-	OU2-MW12S-GW120619	12/6/2019	**0.21**	**J**	**1.5**		*1*	*U*	*1*	*U*
MW-12D	-	OU2-MW12D-GW120619	12/6/2019	**0.34**	**J**	**4.3**		*1*	*U*	*1*	*U*
MW-13S	-	OU2-MW13S-GW120519	12/5/2019	*1*	*U*	**0.49**	**J**	*1*	*U*	*1*	*U*
MW-13D	-	OU2-MW13D-GW120519	12/5/2019	**0.27**	**J**	**2.1**		**0.38**	**J**	*1*	*U*
MW-14S	-	OU2-MW14S-GW120719	12/7/2019	*1*	*U*	**0.17**	**J**	**1.7**		*1*	*U*
MW-14D	-	OU2-MW14D-GW120719	12/7/2019	**0.19**	**J**	**1.4**		**0.26**	**J**	*1*	*U*
MW-15D	-	OU2-MW15D-GW120719	12/7/2019	*1*	*U*	**2.5**		*1*	*U*	*1*	*U*
		OU2-FD03-GW120719	12/7/2019	*1*	*U*	**2.4**		*1*	*U*	*1*	*U*
MW-15S	-	OU2-MW15S-GW120719	12/7/2019	*1*	*U*	**1.6**		*1*	*U*	*1*	*U*
MW-16S	-	OU2-MW16S-GW120619	12/6/2019	**0.18**	**J**	**4.6**		*1*	*U*	*1*	*U*
MW-16D	-	OU2-MW16D-GW120619	12/6/2019	*1*	*U*	**1.8**		*1*	*U*	*1*	*U*
MW-17S	-	OU2-MW17S-GW120819	12/8/2019	1	*U*	**1.2**		*1*	*U*	*1*	*U*
MW-17D	-	OU2-MW17D-GW120819	12/8/2019	**0.18**	**J**	**2.2**		*1*	*U*	*1*	*U*
MW-18	-	OU2-MW18-GW120519	12/5/2019	**0.26**	**J**	**2.9**		**0.27**	**J**	*1*	*U*
MW-19	-	OU2-MW19-GW120519	12/5/2019	**0.2**	**J**	**2.3**		**0.27**	**J**	*1*	*U*
MW-20S	-	OU2-MW20S-GW120419	12/4/2019	**0.15**	**J**	**1.4**		*1*	*U*	*1*	*U*
MW-20D	-	OU2-MW20D-GW120519	12/5/2019	**0.21**	**J**	**1.9**		**0.12**	**J**	*1*	*U*
		OU2-FD01-GW120519	12/5/2019	**0.23**	**J**	**1.8**		**0.12**	**J**	*1*	*U*

[a] Screening level is EPA MCL

[b] Screening level is EPA Tap Water RSL

Highlight indicates values greater than screening level

Bold indicates detected values

Notes:

VOC = volatile organic compound

µg/L = microgram per liter

EPA = U.S. Environmental Protection Agency

MCL = maximum contaminant level

RSL = regional screening level

Q = qualifier

J = Result is estimated

U = Analyte was not detected at the associated value

Table 4 Detected VOC Analytical Results

Location	Interval	Sample Name	Sample Date	Tetrachloroethene		Trichloroethene	
				µg/L	Q	µg/L	Q
Screening Level				5[a]		5[a]	
MW-01D	-	OU2-MW01D-GW120619	12/6/2019	*1*	*U*	*1*	*U*
MW-02	-	OU2-MW02-GW120519	12/5/2019	**150**		**0.54**	**J**
MW-03R	A	OU2-MW03RA-GW120719	12/7/2019	**32**		**0.18**	**J**
	B	OU2-MW03RB-GW120819	12/8/2019	**200**		**1.9**	
	C	OU2-MW03RC-GW120719	12/7/2019	**5.6**		*1*	*U*
	D	OU2-MW03RD-GW120719	12/7/2019	*1*	*U*	*1*	*U*
MW-04	-	OU2-MW04-GW120519	12/5/2019	**55**		**0.28**	**J**
MW-05R	-	OU2-MW05R-GW120819	12/8/2019	*1*	*U*	*1*	*U*
MW-06	-	OU2-MW06-GW120619	12/6/2019	**0.29**	**J**	*1*	*U*
MW-08	A	OU2-MW08A-GW120819	12/8/2019	**56**		**0.39**	**J**
	B	OU2-MW08B-GW120819	12/8/2019	**4.7**		*1*	*U*
		OU2-FD02-GW120819	12/8/2019	**4.5**		*1*	*U*
	C	OU2-MW08C-GW120819	12/8/2019	*1*	*U*	*1*	*U*
MW-12S	-	OU2-MW12S-GW120619	12/6/2019	**1.4**		**0.13**	**J**
MW-12D	-	OU2-MW12D-GW120619	12/6/2019	*1*	*U*	*1*	*U*
MW-13S	-	OU2-MW13S-GW120519	12/5/2019	**14**		**0.31**	**J**
MW-13D	-	OU2-MW13D-GW120519	12/5/2019	**62**		**0.56**	**J**
MW-14S	-	OU2-MW14S-GW120719	12/7/2019	**3.8**		**6**	
MW-14D	-	OU2-MW14D-GW120719	12/7/2019	**22**		**0.19**	**J**
MW-15D	-	OU2-MW15D-GW120719	12/7/2019	*1*	*U*	*1*	*U*
		OU2-FD03-GW120719	12/7/2019	*1*	*U*	*1*	*U*
MW-15S	-	OU2-MW15S-GW120719	12/7/2019	**0.26**	**J**	*1*	*U*
MW-16S	-	OU2-MW16S-GW120619	12/6/2019	**24**		**0.2**	**J**
MW-16D	-	OU2-MW16D-GW120619	12/6/2019	*1*	*U*	*1*	*U*
MW-17S	-	OU2-MW17S-GW120819	12/8/2019	**0.65**	**J**	*1*	*U*
MW-17D	-	OU2-MW17D-GW120819	12/8/2019	**1.8**		*1*	*U*
MW-18	-	OU2-MW18-GW120519	12/5/2019	**74**		**0.5**	**J**
MW-19	-	OU2-MW19-GW120519	12/5/2019	**64**		**0.52**	**J**
MW-20S	-	OU2-MW20S-GW120419	12/4/2019	**3.7**		**0.1**	**J**
MW-20D	-	OU2-MW20D-GW120519	12/5/2019	**9.8**		**0.25**	**J**
		OU2-FD01-GW120519	12/5/2019	**11**		**0.28**	**J**

[a] Screening level is EPA MCL

[b] Screening level is EPA Tap Water RSL

Highlight indicates values greater than screening level

Bold indicates detected values

Notes:

VOC = volatile organic compound

µg/L = microgram per liter

EPA = U.S. Environmental Protection Agency

MCL = maximum contaminant level

RSL = regional screening level

Q = qualifier

J = Result is estimated

U = Analyte was not detected at the associated value

Table 5 1,4-Dioxane Analytical Results

Location	Interval	Sample Name	Sample Date	1,4-Dioxane	
				µg/L	Q
Screening Level				0.46[b]	
MW-01D	-	OU2-MW01D-GW120619	12/6/2019	*0.42*	*U*
MW-02	-	OU2-MW02-GW120519	12/5/2019	*0.46*	*U*
MW-03R	A	OU2-MW03RA-GW120719	12/7/2019	*0.43*	*U*
	B	OU2-MW03RB-GW120819	12/8/2019	*0.44*	*U*
	C	OU2-MW03RC-GW120719	12/7/2019	*0.46*	*U*
	D	OU2-MW03RD-GW120719	12/7/2019	*0.48*	*U*
MW-04	-	OU2-MW04-GW120519	12/5/2019	*0.44*	*U*
MW-05R	-	OU2-MW05R-GW120819	12/8/2019	*0.42*	*U*
MW-06	-	OU2-MW06-GW120619	12/6/2019	*0.43*	*U*
MW-08	A	OU2-MW08A-GW120819	12/8/2019	*0.4*	*U*
	B	OU2-MW08B-GW120819	12/8/2019	*0.42*	*U*
		OU2-FD02-GW120819	12/8/2019	*0.44*	*U*
	C	OU2-MW08C-GW120819	12/8/2019	*0.44*	*U*
MW-12S	-	OU2-MW12S-GW120619	12/6/2019	*0.44*	*U*
MW-12D	-	OU2-MW12D-GW120619	12/6/2019	*0.44*	*U*
MW-13S	-	OU2-MW13S-GW120519	12/5/2019	*0.39*	*U*
MW-13D	-	OU2-MW13D-GW120519	12/5/2019	*0.41*	*U*
MW-14S	-	OU2-MW14S-GW120719	12/7/2019	*0.39*	*U*
MW-14D	-	OU2-MW14D-GW120719	12/7/2019	*0.47*	*U*
MW-15D	-	OU2-MW15D-GW120719	12/7/2019	*0.46*	*U*
		OU2-FD03-GW120719	12/7/2019	*0.42*	*U*
MW-15S	-	OU2-MW15S-GW120719	12/7/2019	*0.44*	*U*
MW-16S	-	OU2-MW16S-GW120619	12/6/2019	*0.41*	*U*
MW-16D	-	OU2-MW16D-GW120619	12/6/2019	*0.47*	*U*
MW-17S	-	OU2-MW17S-GW120819	12/8/2019	*0.46*	*U*
MW-17D	-	OU2-MW17D-GW120819	12/8/2019	*0.42*	*U*
MW-18	-	OU2-MW18-GW120519	12/5/2019	*0.4*	*U*
MW-19	-	OU2-MW19-GW120519	12/5/2019	*0.48*	*U*
MW-20S	-	OU2-MW20S-GW120419	12/4/2019	*0.42*	*U*
MW-20D	-	OU2-MW20D-GW120519	12/5/2019	*0.44*	*U*
		OU2-FD01-GW120519	12/5/2019	*0.39*	*U*

[b] Screening level is EPA Tap Water RSL

Notes:

Highlight indicates values greater than screening level

Bold indicates detected values

µg/L = microgram per liter

EPA = U.S. Environmental Protection Agency

MCL = maximum contaminant level

RSL = regional screening level

Q = qualifier

J = Result is estimated

U = Analyte was not detected at the associated value

Table 6 Metals Analytical Results

Location	Interval	Sample Name	Sample Date	Aluminum		Antimony		Arsenic		Barium	
				µg/L	Q	µg/L	Q	µg/L	Q	µg/L	Q
Screening Level				2000[b]		6[a]		10[a]		2000[a]	
MW-01D	-	OU2-MW01D-GW120619	12/6/2019	*100*	*U*	*1*	*U*	**0.56**	**J**	**23.1**	
MW-02	-	OU2-MW02-GW120519	12/5/2019	*100*	*U*	*1*	*U*	**0.999**	**J**	**77.8**	
MW-03R	A	OU2-MW03RA-GW120719	12/7/2019	*100*	*U*	*1*	*U*	**0.955**	**J**	**75.8**	
	B	OU2-MW03RB-GW120819	12/8/2019	**39.6**	**J**	*1*	*U*	**0.641**	**J**	**40.1**	
	C	OU2-MW03RC-GW120719	12/7/2019	*100*	*U*	*1*	*U*	**0.675**	**J**	**25.2**	
	D	OU2-MW03RD-GW120719	12/7/2019	*100*	*U*	*1*	*U*	**0.603**	**J**	**29.9**	
MW-04	-	OU2-MW04-GW120519	12/5/2019	*100*	*U*	*1*	*U*	**1.02**		**45.6**	
MW-05R	-	OU2-MW05R-GW120819	12/8/2019	*100*	*U*	*1*	*U*	**1.12**		**75.6**	
MW-06	-	OU2-MW06-GW120619	12/6/2019	*100*	*U*	*1*	*U*	**1.4**		**50.7**	
MW-08	A	OU2-MW08A-GW120819	12/8/2019	**61.4**	**J**	*1*	*U*	**1.05**		**77**	
	B	OU2-MW08B-GW120819	12/8/2019	*100*	*U*	*1*	*U*	**0.72**	**J**	**31.5**	
		OU2-FD02-GW120819	12/8/2019	*100*	*U*	*1*	*U*	**0.728**	**J**	**31.9**	
	C	OU2-MW08C-GW120819	12/8/2019	*100*	*U*	*1*	*U*	**0.645**	**J**	**49.9**	
MW-12S	-	OU2-MW12S-GW120619	12/6/2019	*100*	*U*	*1*	*U*	**0.568**	**J**	**63.9**	
MW-12D	-	OU2-MW12D-GW120619	12/6/2019	*100*	*U*	*1*	*U*	**0.579**	**J**	**46**	
MW-13S	-	OU2-MW13S-GW120519	12/5/2019	*100*	*U*	*1*	*U*	**1.67**		**71.4**	
MW-13D	-	OU2-MW13D-GW120519	12/5/2019	*100*	*U*	*1*	*U*	**0.581**	**J**	**43.5**	
MW-14S	-	OU2-MW14S-GW120719	12/7/2019	**147**		*1*	*U*	**2.7**		**86.1**	
MW-14D	-	OU2-MW14D-GW120719	12/7/2019	**25.9**	**J**	**0.296**	**J**	**0.872**	**J**	**47.2**	
MW-15D	-	OU2-MW15D-GW120719	12/7/2019	**87.6**	**J**	*1*	*U*	**0.748**	**J**	**48.8**	
		OU2-FD03-GW120719	12/7/2019	**74.9**	**J**	*1*	*U*	**0.74**	**J**	**49.1**	
MW-15S	-	OU2-MW15S-GW120719	12/7/2019	*100*	*U*	*1*	*U*	**0.701**	**J**	**69.1**	
MW-16S	-	OU2-MW16S-GW120619	12/6/2019	*100*	*U*	*1*	*U*	**0.386**	**J**	**55.9**	
MW-16D	-	OU2-MW16D-GW120619	12/6/2019	*100*	*U*	*1*	*U*	**0.454**	**J**	**28**	
MW-17S	-	OU2-MW17S-GW120819	12/8/2019	**159**		*1*	*U*	**0.482**	**J**	**130**	
MW-17D	-	OU2-MW17D-GW120819	12/8/2019	*100*	*U*	*1*	*U*	**0.835**	**J**	**62.9**	
MW-18	-	OU2-MW18-GW120519	12/5/2019	*100*	*U*	*1*	*U*	**0.648**	**J**	**89.5**	
MW-19	-	OU2-MW19-GW120519	12/5/2019	*100*	*U*	*1*	*U*	**0.511**	**J**	**70.8**	
MW-20S	-	OU2-MW20S-GW120419	12/4/2019	*100*	*U*	*1*	*U*	**0.777**	**J**	**48**	
MW-20D	-	OU2-MW20D-GW120519	12/5/2019	*100*	*U*	*1*	*U*	**0.704**	**J**	**40**	
		OU2-FD01-GW120519	12/5/2019	*100*	*U*	*1*	*U*	**0.697**	**J**	**39.7**	

[a] Screening level is EPA MCL

[b] Screening level is EPA Tap Water RSL

Notes:

Highlight indicates values greater than screening level

Bold indicates detected values

µg/L = microgram per liter

mg/L = milligram per liter

MCL = maximum contaminant level

RSL = regional screening level

EPA = U.S. Environmental Protection Agency

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Table 6 Metals Analytical Results

Location	Interval	Sample Name	Sample Date	Beryllium		Cadmium		Calcium		Chromium	
				µg/L	Q	µg/L	Q	mg/L	Q	µg/L	Q
Screening Level				4[a]		5[a]		--		100[a]	
MW-01D	-	OU2-MW01D-GW120619	12/6/2019	*1*	*U*	*1*	*U*	**124**	**J**	**3.99**	
MW-02	-	OU2-MW02-GW120519	12/5/2019	*1*	*U*	*1*	*U*	**189**		**0.859**	**J**
MW-03R	A	OU2-MW03RA-GW120719	12/7/2019	*1*	*U*	*1*	*U*	**176**	**J**	**0.638**	**J**
	B	OU2-MW03RB-GW120819	12/8/2019	*1*	*U*	*1*	*U*	**122**	**J**	**0.513**	**J**
	C	OU2-MW03RC-GW120719	12/7/2019	*1*	*U*	*1*	*U*	**104**	**J**	**0.758**	**J**
	D	OU2-MW03RD-GW120719	12/7/2019	*1*	*U*	*1*	*U*	**114**	**J**	**0.373**	**J**
MW-04	-	OU2-MW04-GW120519	12/5/2019	*1*	*U*	*1*	*U*	**113**		**4**	
MW-05R	-	OU2-MW05R-GW120819	12/8/2019	*1*	*U*	*1*	*U*	**172**	**J**	**5.63**	
MW-06	-	OU2-MW06-GW120619	12/6/2019	*1*	*U*	*1*	*U*	**98.1**		**0.954**	**J**
MW-08	A	OU2-MW08A-GW120819	12/8/2019	*1*	*U*	*1*	*U*	**170**	**J**	**1.1**	
	B	OU2-MW08B-GW120819	12/8/2019	*1*	*U*	*1*	*U*	**112**	**J**	**1.19**	
		OU2-FD02-GW120819	12/8/2019	*1*	*U*	*1*	*U*	**114**	**J**	**1.12**	
	C	OU2-MW08C-GW120819	12/8/2019	*1*	*U*	*1*	*U*	**95.2**	**J**	**0.314**	**J**
MW-12S	-	OU2-MW12S-GW120619	12/6/2019	*1*	*U*	*1*	*U*	**140**		**14.2**	
MW-12D	-	OU2-MW12D-GW120619	12/6/2019	*1*	*U*	*1*	*U*	**118**		**2.04**	
MW-13S	-	OU2-MW13S-GW120519	12/5/2019	*1*	*U*	*1*	*U*	**168**		**4.98**	
MW-13D	-	OU2-MW13D-GW120519	12/5/2019	*1*	*U*	*1*	*U*	**143**		**115**	
MW-14S	-	OU2-MW14S-GW120719	12/7/2019	*1*	*U*	*1*	*U*	**139**	**J**	**3.82**	
MW-14D	-	OU2-MW14D-GW120719	12/7/2019	**0.222**	**J**	**0.139**	**J**	**114**	**J**	**1.05**	
MW-15D	-	OU2-MW15D-GW120719	12/7/2019	*1*	*U*	*1*	*U*	**168**	**J**	**2.82**	**J**
		OU2-FD03-GW120719	12/7/2019	*1*	*U*	*1*	*U*	**163**	**J**	**1.71**	**J**
MW-15S	-	OU2-MW15S-GW120719	12/7/2019	*1*	*U*	*1*	*U*	**153**	**J**	**11.4**	
MW-16S	-	OU2-MW16S-GW120619	12/6/2019	*1*	*U*	*1*	*U*	**133**		**3.18**	
MW-16D	-	OU2-MW16D-GW120619	12/6/2019	*1*	*U*	*1*	*U*	**104**		**1.46**	
MW-17S	-	OU2-MW17S-GW120819	12/8/2019	*1*	*U*	*1*	*U*	**129**	**J**	**3.28**	
MW-17D	-	OU2-MW17D-GW120819	12/8/2019	*1*	*U*	*1*	*U*	**132**	**J**	**0.893**	**J**
MW-18	-	OU2-MW18-GW120519	12/5/2019	*1*	*U*	*1*	*U*	**165**		**0.935**	**J**
MW-19	-	OU2-MW19-GW120519	12/5/2019	*1*	*U*	*1*	*U*	**148**		**2.41**	
MW-20S	-	OU2-MW20S-GW120419	12/4/2019	*1*	*U*	*1*	*U*	**96**		**1.47**	
MW-20D	-	OU2-MW20D-GW120519	12/5/2019	*1*	*U*	*1*	*U*	**94.6**		**2.19**	
		OU2-FD01-GW120519	12/5/2019	*1*	*U*	*1*	*U*	**93.8**		**2.05**	

[a] Screening level is EPA MCL

[b] Screening level is EPA Tap Water RSL

Notes:

Highlight indicates values greater than screening level

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mg/L = milligram per liter

MCL = maximum contaminant level

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Table 6 Metals Analytical Results

Location	Interval	Sample Name	Sample Date	Cobalt		Copper		Iron		Lead	
				µg/L	Q	µg/L	Q	µg/L	Q	µg/L	Q
Screening Level				0.6[b]		1300[a]		1400[b]		15[a]	
MW-01D	-	OU2-MW01D-GW120619	12/6/2019	**0.381**	**J**	*2*	*U*	*100*	*U*	*1*	*U*
MW-02	-	OU2-MW02-GW120519	12/5/2019	**0.168**	**J**	*2*	*U*	**25.6**	**J**	*1*	*U*
MW-03R	A	OU2-MW03RA-GW120719	12/7/2019	**0.684**	**J**	*2*	*U*	**42**	**J**	**0.0621**	**J**
	B	OU2-MW03RB-GW120819	12/8/2019	**0.567**	**J**	*2*	*U*	**46.8**	**J**	**0.0835**	**J**
	C	OU2-MW03RC-GW120719	12/7/2019	**0.265**	**J**	*2*	*U*	*100*	U	**0.0517**	**J**
	D	OU2-MW03RD-GW120719	12/7/2019	**1.1**		**4.24**		**134**		**0.0706**	**J**
MW-04	-	OU2-MW04-GW120519	12/5/2019	**0.141**	**J**	**1.54**	**J**	**28.1**	**J**	**0.419**	**J**
MW-05R	-	OU2-MW05R-GW120819	12/8/2019	**0.561**	**J**	**0.575**	**J**	**28.8**	**J**	*1*	*U*
MW-06	-	OU2-MW06-GW120619	12/6/2019	*1*	*U*	**0.728**	**J**	*100*	*U*	*1*	*U*
MW-08	A	OU2-MW08A-GW120819	12/8/2019	**0.552**	**J**	*2*	*U*	**119**		**0.09**	**J**
	B	OU2-MW08B-GW120819	12/8/2019	**0.351**	**J**	*2*	*U*	*100*	*U*	*1*	*U*
		OU2-FD02-GW120819	12/8/2019	**0.348**	**J**	**2.9**		*100*	*U*	*1*	*U*
	C	OU2-MW08C-GW120819	12/8/2019	**1.04**		*2*	*U*	**173**		*1*	*U*
MW-12S	-	OU2-MW12S-GW120619	12/6/2019	**0.928**	**J**	**0.784**	**J**	**360**		*1*	*U*
MW-12D	-	OU2-MW12D-GW120619	12/6/2019	**0.133**	**J**	*2*	*U*	*100*	*U*	*1*	*U*
MW-13S	-	OU2-MW13S-GW120519	12/5/2019	**1.84**		**0.525**	**J**	**325**		*1*	*U*
MW-13D	-	OU2-MW13D-GW120519	12/5/2019	**6.50**		**5.74**		**640**		*1*	*U*
MW-14S	-	OU2-MW14S-GW120719	12/7/2019	**5**		*2*	*U*	**876**		**0.201**	**J**
MW-14D	-	OU2-MW14D-GW120719	12/7/2019	**0.543**	**J**	**1.61**	**J**	**51.3**	**J**	**1.13**	
MW-15D	-	OU2-MW15D-GW120719	12/7/2019	**0.618**	**J**	**0.702**	**J**	**164**		**0.169**	**J**
		OU2-FD03-GW120719	12/7/2019	**0.534**	**J**	**0.681**	**J**	**112**		**0.12**	**J**
MW-15S	-	OU2-MW15S-GW120719	12/7/2019	**0.769**	**J**	**1.2**	**J**	**127**		**0.0542**	**J**
MW-16S	-	OU2-MW16S-GW120619	12/6/2019	**0.233**	**J**	*2*	*U*	**47.3**	**J**	*1*	*U*
MW-16D	-	OU2-MW16D-GW120619	12/6/2019	**0.18**	**J**	*2*	*U*	**38.2**	**J**	*1*	*U*
MW-17S	-	OU2-MW17S-GW120819	12/8/2019	**1.51**		**0.9**	**J**	**312**		**0.272**	**J**
MW-17D	-	OU2-MW17D-GW120819	12/8/2019	**0.386**	**J**	*2*	*U*	*100*	*U*	*1*	*U*
MW-18	-	OU2-MW18-GW120519	12/5/2019	**0.202**	**J**	*2*	*U*	**27.5**	**J**	*1*	*U*
MW-19	-	OU2-MW19-GW120519	12/5/2019	**0.378**	**J**	*2*	*U*	**31.2**	**J**	*1*	*U*
MW-20S	-	OU2-MW20S-GW120419	12/4/2019	**0.13**	**J**	*2*	*U*	*100*	*U*	*1*	*U*
MW-20D	-	OU2-MW20D-GW120519	12/5/2019	**0.109**	**J**	*2*	*U*	*100*	*U*	*1*	*U*
		OU2-FD01-GW120519	12/5/2019	**0.118**	**J**	*2*	*U*	*100*	*U*	*1*	*U*

[a] Screening level is EPA MCL

[b] Screening level is EPA Tap Water RSL

Notes:

Highlight indicates values greater than screening level

Bold indicates detected values

µg/L = microgram per liter

mg/L = milligram per liter

MCL = maximum contaminant level

RSL = regional screening level

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Q = qualifier

J = Result is estimated

U = Analyte was not detected at the associated value

Table 6 Metals Analytical Results

Location	Interval	Sample Name	Sample Date	Magnesium		Manganese		Mercury		Nickel	
				mg/L	Q	µg/L	Q	µg/L	Q	µg/L	Q
Screening Level				--		43[b]		2[a]		39[b]	
MW-01D	-	OU2-MW01D-GW120619	12/6/2019	**34.6**		**0.895**		*0.5*		**3.96**	
MW-02	-	OU2-MW02-GW120519	12/5/2019	**72.1**		*1*		*0.5*		**0.781**	J
MW-03R	A	OU2-MW03RA-GW120719	12/7/2019	**64.5**		**77.3**		*0.5*		**1.14**	
	B	OU2-MW03RB-GW120819	12/8/2019	**43.1**		**115**		*0.5*		**1.10**	
	C	OU2-MW03RC-GW120719	12/7/2019	**34.9**		**4.51**		*0.5*		**1.41**	
	D	OU2-MW03RD-GW120719	12/7/2019	**34.9**		**418**		*0.5*		**3.72**	
MW-04	-	OU2-MW04-GW120519	12/5/2019	**44.3**		*1*		*0.5*		**2.32**	
MW-05R	-	OU2-MW05R-GW120819	12/8/2019	**65.1**		**1.1**		*0.5*		**3.75**	
MW-06	-	OU2-MW06-GW120619	12/6/2019	**36.3**		*1*		*0.5*		**0.310**	J
MW-08	A	OU2-MW08A-GW120819	12/8/2019	**62.4**		**24.7**		*0.5*		*1*	*U*
	B	OU2-MW08B-GW120819	12/8/2019	**39.9**		**7.15**		*0.5*		*1*	*U*
		OU2-FD02-GW120819	12/8/2019	**40.4**		**7.29**		*0.5*		*1*	*U*
	C	OU2-MW08C-GW120819	12/8/2019	**35**		**465**		*0.5*		**2.55**	
MW-12S	-	OU2-MW12S-GW120619	12/6/2019	**69.4**		**12.5**		*0.5*		**15.6**	
MW-12D	-	OU2-MW12D-GW120619	12/6/2019	**47.3**		**4.09**		*0.5*		**0.273**	J
MW-13S	-	OU2-MW13S-GW120519	12/5/2019	**73.2**		**678**		*0.5*		**147**	
MW-13D	-	OU2-MW13D-GW120519	12/5/2019	**49.9**		**35.8**		*0.5*		**198**	
MW-14S	-	OU2-MW14S-GW120719	12/7/2019	**48.6**		**383**		*0.5*		**6.48**	
MW-14D	-	OU2-MW14D-GW120719	12/7/2019	**43.6**		**3.49**		*0.5*		**1.42**	
MW-15D	-	OU2-MW15D-GW120719	12/7/2019	**65.6**		**7.96**		*0.5*		**6.12**	
		OU2-FD03-GW120719	12/7/2019	**71.1**		**6.87**		*0.5*		**4.91**	
MW-15S	-	OU2-MW15S-GW120719	12/7/2019	**76.1**		**2.94**		*0.5*		**14.7**	
MW-16S	-	OU2-MW16S-GW120619	12/6/2019	**52.1**		**1.86**		*0.5*		**3.67**	
MW-16D	-	OU2-MW16D-GW120619	12/6/2019	**40.9**		**10.8**		*0.5*		**1.89**	
MW-17S	-	OU2-MW17S-GW120819	12/8/2019	**49.8**		**62.3**		*0.5*		**84.4**	
MW-17D	-	OU2-MW17D-GW120819	12/8/2019	**46.1**		**5.6**		*0.5*		*1*	*U*
MW-18	-	OU2-MW18-GW120519	12/5/2019	**68.7**		**12**		**0.234**		**1.17**	
MW-19	-	OU2-MW19-GW120519	12/5/2019	**56.3**		**13.5**		*0.5*		**7.35**	
MW-20S	-	OU2-MW20S-GW120419	12/4/2019	**33.2**		**2.04**		*0.5*		**1.4**	
MW-20D	-	OU2-MW20D-GW120519	12/5/2019	**35.8**		**2.21**		*0.5*		**0.495**	J
		OU2-FD01-GW120519	12/5/2019	**36.3**		**2.73**		*0.5*		**0.45**	J

[a] Screening level is EPA MCL

[b] Screening level is EPA Tap Water RSL

Notes:

Highlight indicates values greater than screening level

Bold indicates detected values

µg/L = microgram per liter

mg/L = milligram per liter

MCL = maximum contaminant level

RSL = regional screening level

EPA = U.S. Environmental Protection Agency

Q = qualifier

J = Result is estimated

U = Analyte was not detected at the associated value

Table 6 Metals Analytical Results

Location	Interval	Sample Name	Sample Date	Potassium		Selenium		Silver		Sodium	
				µg/L	Q	µg/L	Q	µg/L	Q	mg/L	Q
Screening Level				--		50[a]		9.4[b]		--	
MW-01D	-	OU2-MW01D-GW120619	12/6/2019	**2110**		**1.18**		*1*	*U*	**37.5**	
MW-02	-	OU2-MW02-GW120519	12/5/2019	**3040**	**J**	**0.704**	**J**	*1*	*U*	**255**	
MW-03R	A	OU2-MW03RA-GW120719	12/7/2019	**2560**		**0.769**	**J**	*1*	*U*	**89.4**	
	B	OU2-MW03RB-GW120819	12/8/2019	**1950**		**0.942**	**J**	*1*	*U*	**33.1**	
	C	OU2-MW03RC-GW120719	12/7/2019	**1800**		**1.1**		*1*	*U*	**24.6**	
	D	OU2-MW03RD-GW120719	12/7/2019	**2150**		**0.891**	**J**	*1*	*U*	**50**	
MW-04	-	OU2-MW04-GW120519	12/5/2019	**2310**		**0.596**	**J**	*1*	*U*	**96.4**	
MW-05R	-	OU2-MW05R-GW120819	12/8/2019	**2810**		**0.816**	**J**	*1*	*U*	**64.7**	
MW-06	-	OU2-MW06-GW120619	12/6/2019	**1970**		**0.637**	**J**	*1*	*U*	**59.7**	
MW-08	A	OU2-MW08A-GW120819	12/8/2019	**2740**		**0.92**	**J**	*1*	*U*	**79.5**	
	B	OU2-MW08B-GW120819	12/8/2019	**1990**		**0.921**	**J**	*1*	*U*	**32.3**	
		OU2-FD02-GW120819	12/8/2019	**2010**		**0.969**	**J**	*1*	*U*	**32.7**	
	C	OU2-MW08C-GW120819	12/8/2019	**2310**		**0.93**	**J**	*1*	*U*	**31.2**	
MW-12S	-	OU2-MW12S-GW120619	12/6/2019	**3940**		**1.85**		*1*	*U*	**74.6**	
MW-12D	-	OU2-MW12D-GW120619	12/6/2019	**2910**		**1.71**		*1*	*U*	**64.1**	
MW-13S	-	OU2-MW13S-GW120519	12/5/2019	**4620**		**0.251**	**J**	*1*	*U*	**121**	
MW-13D	-	OU2-MW13D-GW120519	12/5/2019	**2550**		**0.828**	**J**	*1*	*U*	**52.9**	
MW-14S	-	OU2-MW14S-GW120719	12/7/2019	**2990**		**0.923**	**J**	*1*	*U*	**74.3**	
MW-14D	-	OU2-MW14D-GW120719	12/7/2019	**2380**		**1.07**		**0.211**	**J**	**48.8**	
MW-15D	-	OU2-MW15D-GW120719	12/7/2019	**3980**		**2.73**		*1*	*U*	**136**	
		OU2-FD03-GW120719	12/7/2019	**4070**		**2.69**		*1*	*U*	**135**	
MW-15S	-	OU2-MW15S-GW120719	12/7/2019	**4870**		**2.37**		*1*	*U*	**194**	
MW-16S	-	OU2-MW16S-GW120619	12/6/2019	**2690**		**0.79**	**J**	*1*	*U*	**66**	
MW-16D	-	OU2-MW16D-GW120619	12/6/2019	**2060**		**0.872**	**J**	*1*	*U*	**30.5**	
MW-17S	-	OU2-MW17S-GW120819	12/8/2019	**3830**		**0.391**	J	**0.169**	**J**	**138**	
MW-17D	-	OU2-MW17D-GW120819	12/8/2019	**2440**		**0.797**	**J**	*1*	*U*	**89.9**	
MW-18	-	OU2-MW18-GW120519	12/5/2019	**3200**	**J**	**0.963**	**J**	*1*	*U*	**89.2**	
MW-19	-	OU2-MW19-GW120519	12/5/2019	**3040**	**J**	**0.89**	**J**	*1*	*U*	**79**	
MW-20S	-	OU2-MW20S-GW120419	12/4/2019	**2450**	**J**	**0.803**	**J**	*1*	*U*	**96.2**	
MW-20D	-	OU2-MW20D-GW120519	12/5/2019	**2190**	**J**	**0.723**	**J**	*1*	*U*	**41.6**	
		OU2-FD01-GW120519	12/5/2019	**2300**		**0.772**	**J**	*1*	*U*	**43.2**	

[a] Screening level is EPA MCL

[b] Screening level is EPA Tap Water RSL

Notes:

Highlight indicates values greater than screening level

Bold indicates detected values

µg/L = microgram per liter

mg/L = milligram per liter

MCL = maximum contaminant level

RSL = regional screening level

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U = Analyte was not detected at the associated value

Table 6 Metals Analytical Results

Location	Interval	Sample Name	Sample Date	Thallium		Vanadium		Zinc	
				µg/L	Q	µg/L	Q	µg/L	Q
Screening Level				2[a]		8.6[b]		600[b]	
MW-01D	-	OU2-MW01D-GW120619	12/6/2019	*1*	*U*	**1.16**		*20*	*U*
MW-02	-	OU2-MW02-GW120519	12/5/2019	*1*	*U*	**1.96**		*20*	*U*
MW-03R	A	OU2-MW03RA-GW120719	12/7/2019	*1*	*U*	**1.4**		*20*	*U*
	B	OU2-MW03RB-GW120819	12/8/2019	*1*	*U*	**1.13**		**5.8**	**J**
	C	OU2-MW03RC-GW120719	12/7/2019	*1*	*U*	**1.57**		**5.4**	**J**
	D	OU2-MW03RD-GW120719	12/7/2019	*1*	*U*	**0.353**	**J**	**7.74**	**J**
MW-04	-	OU2-MW04-GW120519	12/5/2019	*1*	*U*	**2.2**		*20*	*U*
MW-05R	-	OU2-MW05R-GW120819	12/8/2019	*1*	*U*	**1.9**		*20*	*U*
MW-06	-	OU2-MW06-GW120619	12/6/2019	*1*	*U*	**2.16**		*20*	*U*
MW-08	A	OU2-MW08A-GW120819	12/8/2019	*1*	*U*	**1.66**		**8.81**	**J**
	B	OU2-MW08B-GW120819	12/8/2019	*1*	*U*	**1.53**		**33.1**	
		OU2-FD02-GW120819	12/8/2019	*1*	*U*	**1.54**		*20*	*U*
	C	OU2-MW08C-GW120819	12/8/2019	*1*	*U*	**0.323**	**J**	**7.31**	**J**
MW-12S	-	OU2-MW12S-GW120619	12/6/2019	*1*	*U*	**1.38**		*20*	*U*
MW-12D	-	OU2-MW12D-GW120619	12/6/2019	*1*	*U*	**1.38**		*20*	*U*
MW-13S	-	OU2-MW13S-GW120519	12/5/2019	*1*	*U*	*1*	*U*	*20*	*U*
MW-13D	-	OU2-MW13D-GW120519	12/5/2019	*1*	*U*	**2.12**		*20*	*U*
MW-14S	-	OU2-MW14S-GW120719	12/7/2019	*1*	*U*	**0.428**	**J**	*20*	*U*
MW-14D	-	OU2-MW14D-GW120719	12/7/2019	**0.249**	**J**	**1.43**		**133**	
MW-15D	-	OU2-MW15D-GW120719	12/7/2019	*1*	*U*	**1.18**		*20*	*U*
		OU2-FD03-GW120719	12/7/2019	*1*	*U*	**1.16**		*20*	*U*
MW-15S	-	OU2-MW15S-GW120719	12/7/2019	*1*	*U*	**1.31**		*20*	*U*
MW-16S	-	OU2-MW16S-GW120619	12/6/2019	*1*	*U*	**1.01**		*20*	*U*
MW-16D	-	OU2-MW16D-GW120619	12/6/2019	*1*	*U*	**1.19**		*20*	*U*
MW-17S	-	OU2-MW17S-GW120819	12/8/2019	*1*	*U*	**0.479**	**J**	**11.2**	**J**
MW-17D	-	OU2-MW17D-GW120819	12/8/2019	*1*	*U*	**1.5**		*20*	*U*
MW-18	-	OU2-MW18-GW120519	12/5/2019	*1*	*U*	**1.38**		*20*	*U*
MW-19	-	OU2-MW19-GW120519	12/5/2019	*1*	*U*	**1.31**		*20*	*U*
MW-20S	-	OU2-MW20S-GW120419	12/4/2019	*1*	*U*	**1.61**		*20*	*U*
MW-20D	-	OU2-MW20D-GW120519	12/5/2019	*1*	*U*	**1.53**		*20*	*U*
		OU2-FD01-GW120519	12/5/2019	*1*	*U*	**1.62**		*20*	*U*

[a] Screening level is EPA MCL

[b] Screening level is EPA Tap Water RSL

Notes:

Highlight indicates values greater than screening level

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mg/L = milligram per liter

MCL = maximum contaminant level

RSL = regional screening level

EPA = U.S. Environmental Protection Agency

Q = qualifier

J = Result is estimated

U = Analyte was not detected at the associated value

Table 7 Groundwater Field Parameters

Location	Interval	Sample Name	Sample Date	Dissolved Oxygen	ORP	pH	Specific Conductance	Temperature	Turbidity
				mg/L	mV	su	mS/cm	deg C	NTU
MW-01D	-	OU2-MW01D-GW120619	12/6/2019	7.21	118	6.97	1.097	12.38	0.2
MW-02	-	OU2-MW02-GW120519	12/5/2019	8.41	110.2	6.97	2.917	12.27	0.0
MW-03R	A	OU2-MW03RA-GW120719	12/7/2019	7.20	155.9	6.89	1.989	11.32	8.8
	B	OU2-MW03RB-GW120819	12/8/2019	5.56	113.5	7.14	1.192	11.59	9.2
	C	OU2-MW03RC-GW120719	12/7/2019	8.53	101.3	7.20	0.982	12.16	0.0
	D	OU2-MW03RD-GW120719	12/7/2019	4.19	-22.7	7.13	1.186	12.08	6.5
MW-04	-	OU2-MW04-GW120519	12/5/2019	9.19	50.4	7.12	1.470	10.92	0.7
MW-05R	-	OU2-MW05R-GW120819	12/8/2019	7.80	136.9	6.97	1.724	12.74	35.6
MW-06	-	OU2-MW06-GW120619	12/6/2019	5.16	91.5	7.10	1.122	10.63	0.4
MW-08	A	OU2-MW08A-GW120819	12/8/2019	8.04	89.8	6.99	1.835	12.12	4.8
	B	OU2-MW08B-GW120819	12/8/2019	7.90	69.4	7.12	1.097	12.17	1.2
	C	OU2-MW08C-GW120819	12/8/2019	4.40	-16.4	7.22	0.930	11.79	0.0
MW-12S	-	OU2-MW12S-GW120619	12/6/2019	6.37	32.7	6.98	1.668	15.34	8.7
MW-12D	-	OU2-MW12D-GW120619	12/6/2019	6.75	91.7	7.07	1.396	14.10	1.9
MW-13S	-	OU2-MW13S-GW120519	12/5/2019	1.83	18.8	6.96	2.007	12.70	15.4
MW-13D	-	OU2-MW13D-GW120519	12/5/2019	7.58	20.3	6.99	1.347	12.86	5.1
MW-14S	-	OU2-MW14S-GW120719	12/7/2019	1.69	21.5	7.10	1.724	11.46	4.2
MW-14D	-	OU2-MW14D-GW120719	12/7/2019	3.26	80.5	7.14	1.305	12.16	0.0
MW-15S	-	OU2-MW15S-GW120719	12/7/2019	6.40	58	6.89	2.390	13.76	1.9
MW-15D	-	OU2-MW15D-GW120719	12/7/2019	5.48	172.2	6.89	1.988	13.58	8.6
MW-16S	-	OU2-MW16S-GW120619	12/6/2019	5.79	85	6.99	1.476	13.20	1.1
MW-16D	-	OU2-MW16D-GW120619	12/6/2019	8.54	111.4	7.18	1.044	12.39	2.8
MW-17S	-	OU2-MW17S-GW120819	12/8/2019	3.53	12.2	7.02	2.045	8.32	11.7
MW-17D	-	OU2-MW17D-GW120819	12/8/2019	6.99	122.9	7.00	1.732	12.16	0.7
MW-18	-	OU2-MW18-GW120519	12/5/2019	8.53	193.9	6.93	1.831	11.62	1.7
MW-19	-	OU2-MW19-GW120519	12/5/2019	8.36	47.5	7.02	1.615	12.38	1.0
MW-20S	-	OU2-MW20S-GW120419	12/4/2019	4.13	97.3	7.01	1.182	13.01	1.5
MW-20D	-	OU2-MW20D-GW120519	12/5/2019	7.54	179.7	7.08	1.000	12.30	1.5

Notes:
ORP = oxidation reduction potential
mg/L = milligram per liter
mV = millivolts
su = standard units
mS/cm = millisiemens per centimeter
deg C = degrees Celsius
NTU = nephelometric turbidity unit

Table 8 General Chemistry Analytical Results

Location	Interval	Sample Name	Sample Date	Alkalinity[1]		Chloride		Ethane		Ethene	
				mg/L	Q	mg/L	Q	µg/L	Q	µg/L	Q
Screening Level				--		--		--		--	
MW-01D	-	OU2-MW01D-GW120619	12/6/2019	**261**		**106**		*2*	*U*	*2*	*U*
MW-02	-	OU2-MW02-GW120519	12/5/2019	**295**		**705**		*2*	*U*	*2*	*U*
MW-03R	A	OU2-MW03RA-GW120719	12/7/2019	**274**		**440**		*2*	*U*	*2*	*U*
	B	OU2-MW03RB-GW120819	12/8/2019	**231**		**194**		*2*	*U*	*2*	*U*
	C	OU2-MW03RC-GW120719	12/7/2019	**228**		**90.1**		*2*	*U*	*2*	*U*
	D	OU2-MW03RD-GW120719	12/7/2019	**253**		**86.5**		*2*	*U*	*2*	*U*
MW-04	-	OU2-MW04-GW120519	12/5/2019	**293**		**246**	**J**	*2*	*U*	*2*	*U*
MW-05R	-	OU2-MW05R-GW120819	12/8/2019	**306**		**319**		*2*	*U*	*2*	*U*
MW-06	-	OU2-MW06-GW120619	12/6/2019	**278**		**170**	**J**	*2*	*U*	*2*	*U*
MW-08	A	OU2-MW08A-GW120819	12/8/2019	**261**		**385**		*2*	*U*	*2*	*U*
	B	OU2-MW08B-GW120819	12/8/2019	**249**		**114**		*2*	*U*	*2*	*U*
		OU2-FD02-GW120819	12/8/2019	**242**		**116**		*2*	*U*	*2*	*U*
	C	OU2-MW08C-GW120819	12/8/2019	**242**		**54.6**		**0.44**	**J**	*2*	*U*
MW-12S	-	OU2-MW12S-GW120619	12/6/2019	**352**		**259**	**J**	*2*	*U*	*2*	*U*
MW-12D	-	OU2-MW12D-GW120619	12/6/2019	**282**		**189**	**J**	*2*	*U*	*2*	*U*
MW-13S	-	OU2-MW13S-GW120519	12/5/2019	**348**		**426**	**J**	*2*	*U*	*2*	*U*
MW-13D	-	OU2-MW13D-GW120519	12/5/2019	**241**		**218**	**J**	*2*	*U*	*2*	*U*
MW-14S	-	OU2-MW14S-GW120719	12/7/2019	**257**		**303**		*2*	*U*	*2*	*U*
MW-14D	-	OU2-MW14D-GW120719	12/7/2019	**246**		**213**		*2*	*U*	*2*	*U*
MW-15D	-	OU2-MW15D-GW120719	12/7/2019	**357**		**316**		*2*	*U*	*2*	*U*
		OU2-FD03-GW120719	12/7/2019	**357**		**308**		*2*	*U*	*2*	*U*
MW-15S	-	OU2-MW15S-GW120719	12/7/2019	**393**		**451**		*2*	*U*	*2*	*U*
MW-16S	-	OU2-MW16S-GW120619	12/6/2019	**284**		**263**	**J**	*2*	*U*	*2*	*U*
MW-16D	-	OU2-MW16D-GW120619	12/6/2019	**233**		**143**	**J**	*2*	*U*	*2*	*U*
MW-17S	-	OU2-MW17S-GW120819	12/8/2019	**331**		**357**		*2*	*U*	*2*	*U*
MW-17D	-	OU2-MW17D-GW120819	12/8/2019	**298**		**292**		*2*	*U*	*2*	*U*
MW-18	-	OU2-MW18-GW120519	12/5/2019	**276**		**342**		*2*	*U*	*2*	*U*
MW-19	-	OU2-MW19-GW120519	12/5/2019	**263**		**302**		*2*	*U*	*2*	*U*
MW-20S	-	OU2-MW20S-GW120419	12/4/2019	**351**		**111**		*2*	*U*	*2*	*U*
MW-20D	-	OU2-MW20D-GW120519	12/5/2019	**248**		**137**		*2*	*U*	*2*	*U*
		OU2-FD01-GW120519	12/5/2019	**241**		**156**	**J**	*2*	*U*	*2*	*U*

[a] Screening level is EPA MCL

Bold indicates detected values

[1] Total Alkalinity as calcium carbonate ($CaCO_3$)

[2] Nitrate and Nitrite as total Nitrogen

Notes:

mg/L = milligram per liter

µg/L = microgram per liter

EPA = U.S. Environmental Protection Agency

MCL = maximum contaminant level

Q = qualifier

J = Result is estimated

U = Analyte was not detected at the associated value

TDS = Total Dissolved Solids

TOC = Total Organic Carbon

Table 8 General Chemistry Analytical Results

Location	Interval	Sample Name	Sample Date	Ferrous Iron		Methane		Sulfate		TOC	
				mg/L	Q	µg/L	Q	mg/L	Q	mg/L	Q
Screening Level				--		--		--		--	
MW-01D	-	OU2-MW01D-GW120619	12/6/2019	**0.02**		*2*	*U*	**151**		**0.383**	**J**
MW-02	-	OU2-MW02-GW120519	12/5/2019	**0.4**		**0.18**	**J**	**112**		**0.576**	**J**
MW-03R	A	OU2-MW03RA-GW120719	12/7/2019	**0.02**		**0.19**	**J**	**100**		**1.68**	
	B	OU2-MW03RB-GW120819	12/8/2019	*0.02*	*U*	**0.32**	**J**	**111**		**1.02**	
	C	OU2-MW03RC-GW120719	12/7/2019	**0.03**		**0.31**	**J**	**168**		**7.22**	
	D	OU2-MW03RD-GW120719	12/7/2019	**0.17**		**0.43**	**J**	**212**		**5.34**	
MW-04	-	OU2-MW04-GW120519	12/5/2019	*0.02*	*U*	*2*	*U*	**103**		**0.472**	**J**
MW-05R	-	OU2-MW05R-GW120819	12/8/2019	**0.31**		*2*	*U*	**94.4**		**0.351**	**J**
MW-06	-	OU2-MW06-GW120619	12/6/2019	*0.02*	*U*	*2*	*U*	**104**		**0.498**	**J**
MW-08	A	OU2-MW08A-GW120819	12/8/2019	*0.02*	*U*	**0.69**	**J**	**105**		**0.385**	**J**
	B	OU2-MW08B-GW120819	12/8/2019	**0.01**		**0.28**	**J**	**139**		**0.4**	**J**
		OU2-FD02-GW120819	12/8/2019	*0.02*	*U*	*2*	*U*	**137**		**0.507**	**J**
	C	OU2-MW08C-GW120819	12/8/2019	**0.37**		**1**	**J**	**163**		**3.87**	
MW-12S	-	OU2-MW12S-GW120619	12/6/2019	**0.18**		**0.2**	**J**	**110**		**0.673**	**J**
MW-12D	-	OU2-MW12D-GW120619	12/6/2019	*0.02*	*U*	**0.22**	**J**	**163**		**0.531**	**J**
MW-13S	-	OU2-MW13S-GW120519	12/5/2019	**0.31**		**0.65**	**J**	**102**		**1.13**	
MW-13D	-	OU2-MW13D-GW120519	12/5/2019	*0.02*	*U*	*2*	*U*	**118**		**0.382**	**J**
MW-14S	-	OU2-MW14S-GW120719	12/7/2019	**0.06**		**0.22**	**J**	**109**		**0.869**	**J**
MW-14D	-	OU2-MW14D-GW120719	12/7/2019	**0.02**		**0.38**	**J**	**104**		**0.344**	**J**
MW-15D	-	OU2-MW15D-GW120719	12/7/2019	**0.58**		*2*	*U*	**150**		**0.665**	**J**
		OU2-FD03-GW120719	12/7/2019	**0.50**		*2*	*U*	**161**		**0.573**	**J**
MW-15S	-	OU2-MW15S-GW120719	12/7/2019	**0.04**		*2*	*U*	**152**		**0.682**	**J**
MW-16S	-	OU2-MW16S-GW120619	12/6/2019	**0.08**		*2*	*U*	**94.7**		**0.561**	**J**
MW-16D	-	OU2-MW16D-GW120619	12/6/2019	*0.02*	*U*	**2.3**		**146**		**0.71**	**J**
MW-17S	-	OU2-MW17S-GW120819	12/8/2019	*0.02*	*U*	**0.25**	**J**	**122**		**1.35**	
MW-17D	-	OU2-MW17D-GW120819	12/8/2019	**0.02**		*2*	*U*	**111**		**0.606**	**J**
MW-18	-	OU2-MW18-GW120519	12/5/2019	**0.07**		*2*	*U*	**110**		**0.478**	**J**
MW-19	-	OU2-MW19-GW120519	12/5/2019	**0.32**		*2*	*U*	**99.3**		**0.539**	**J**
MW-20S	-	OU2-MW20S-GW120419	12/4/2019	**0.02**		**0.19**	**J**	**101**		**0.643**	**J**
MW-20D	-	OU2-MW20D-GW120519	12/5/2019	*0.02*	*U*	**0.22**	**J**	**87.2**		**0.406**	**J**
		OU2-FD01-GW120519	12/5/2019	*0.02*	*U*	**0.2**	**J**	**94.0**		**0.488**	**J**

[a] Screening level is EPA MCL

Bold indicates detected values

[1] Total Alkalinity as calcium carbonate ($CaCO_3$)

[2] Nitrate and Nitrite as total Nitrogen

Notes:

mg/L = milligram per liter

µg/L = microgram per liter

EPA = U.S. Environmental Protection Agency

MCL = maximum contaminant level

Q = qualifier

J = Result is estimated

U = Analyte was not detected at the associated value

TDS = Total Dissolved Solids

TOC = Total Organic Carbon

Table 8 General Chemistry Analytical Results

Location	Interval	Sample Name	Sample Date	Nitrate/Nitrite[2]		TDS	
				mg/L	Q	mg/L	Q
Screening Level				10[a]		--	
MW-01D	-	OU2-MW01D-GW120619	12/6/2019	**2.89**		**708**	
MW-02	-	OU2-MW02-GW120519	12/5/2019	**3.13**	J	**1560**	
MW-03R	A	OU2-MW03RA-GW120719	12/7/2019	**2.31**		**1200**	
	B	OU2-MW03RB-GW120819	12/8/2019	**2.36**		**812**	
	C	OU2-MW03RC-GW120719	12/7/2019	**2.03**		**650**	
	D	OU2-MW03RD-GW120719	12/7/2019	**2.43**		**706**	
MW-04	-	OU2-MW04-GW120519	12/5/2019	**1.45**		**919**	
MW-05R	-	OU2-MW05R-GW120819	12/8/2019	**3.31**		**1060**	
MW-06	-	OU2-MW06-GW120619	12/6/2019	**0.849**		**656**	
MW-08	A	OU2-MW08A-GW120819	12/8/2019	**4.23**		**1100**	
	B	OU2-MW08B-GW120819	12/8/2019	**2.67**		**695**	
		OU2-FD02-GW120819	12/8/2019	**2.57**		**679**	
	C	OU2-MW08C-GW120819	12/8/2019	**1.88**		**611**	
MW-12S	-	OU2-MW12S-GW120619	12/6/2019	**2.34**		**1000**	
MW-12D	-	OU2-MW12D-GW120619	12/6/2019	**2.27**		**915**	
MW-13S	-	OU2-MW13S-GW120519	12/5/2019	**0.678**		**1270**	
MW-13D	-	OU2-MW13D-GW120519	12/5/2019	**3.18**		**917**	
MW-14S	-	OU2-MW14S-GW120719	12/7/2019	**0.197**		**930**	
MW-14D	-	OU2-MW14D-GW120719	12/7/2019	**3.41**		**827**	
MW-15D	-	OU2-MW15D-GW120719	12/7/2019	**7.94**		**1220**	
		OU2-FD03-GW120719	12/7/2019	**6.41**		**1190**	
MW-15S	-	OU2-MW15S-GW120719	12/7/2019	**6.97**		**1430**	
MW-16S	-	OU2-MW16S-GW120619	12/6/2019	**2.97**		**862**	
MW-16D	-	OU2-MW16D-GW120619	12/6/2019	**3.25**		**641**	
MW-17S	-	OU2-MW17S-GW120819	12/8/2019	**1.32**		**1190**	
MW-17D	-	OU2-MW17D-GW120819	12/8/2019	**4.63**		**1020**	
MW-18	-	OU2-MW18-GW120519	12/5/2019	**3.64**		**1170**	
MW-19	-	OU2-MW19-GW120519	12/5/2019	**3.21**		**962**	
MW-20S	-	OU2-MW20S-GW120419	12/4/2019	**4.65**		**713**	
MW-20D	-	OU2-MW20D-GW120519	12/5/2019	**3.1**		**593**	
		OU2-FD01-GW120519	12/5/2019	**3.75**		**596**	

[a] Screening level is EPA MCL

Bold indicates detected values

[1] Total Alkalinity as calcium carbonate ($CaCO_3$)

[2] Nitrate and Nitrite as total Nitrogen

Notes:

mg/L = milligram per liter

µg/L = microgram per liter

EPA = U.S. Environmental Protection Agency

MCL = maximum contaminant level

Q = qualifier

J = Result is estimated

U = Analyte was not detected at the associated value

TDS = Total Dissolved Solids

TOC = Total Organic Carbon

Appendix A

Salt Lake City Division of Transportation Traffic Control Permit

Traffic Control Permit

Salt Lake City Community and Neighborhoods
Division of Transportation
349 South 200 East #150
Salt Lake City, Utah 84111
Telephone (801) 535-6630
E-Mail TechPermit@slcgov.com

Permit # TRN2019-03813

Organization Name: Wasatch Environmental
Address: 2410 W California Ave SALT LAKE CITY, UT 84104
Contact Person: Kevin Murphy Phone: Cell: 315-254-9949
Barricade Company: Barricade Phone:

All work conducted in the public right of way shall conform to the current edition of the M.U.T.C.D. part 6. The Organization issued the Traffic Control Permit shall be responsible for all barricade placement and maintenance.

Project Name / Description: Sampling ground water wells for the VA at various locations.
Genreal Work Type: Staging Specific Work Type: Barricade
City Project # Public Way Permit #
Special Event Permit # Block Party Permit #

Closure Type	*On Street Name*	*From Number*	*To Number*	*Side of Street*
Street	**Elizabeth St.**	**785 S**	**785 S**	**E**

Full Road Closure?	*Start Date*	*End Date*	*Barricade Manual Fig #*	*Description*	*Special Requirements*
No	12/03/2019	12/08/2019	TA-6	TESTING GROUND WATER NOT DRILLING OR TRENCHING	SHALL MAINTAIN ACCESS TO ALL PROPERTIES AND COORDINATE WITH RESIDENTS AND BUSINESSES AFFECTED. WORK HOURS SHALL BE BETWEEN 9AM & 4PM. MAY WORK FROM 6PM TO 6AM.

Closure Type	*On Street Name*	*From Number*	*To Number*	*Side of Street*
Street	**McClelland St.**	**900 S**	**900 S**	**E**

Full Road Closure?	*Start Date*	*End Date*	*Barricade Manual Fig #*	*Description*	*Special Requirements*
No	12/03/2019	12/08/2019	TA-6	TESTING GROUND WATER NOT DRILLING OR TRENCHING	SHALL MAINTAIN ACCESS TO ALL PROPERTIES AND COORDINATE WITH RESIDENTS AND BUSINESSES AFFECTED. WORK HOURS SHALL BE BETWEEN 9AM & 4PM. MAY WORK FROM 6PM TO 6AM.

Closure Type	*On Street Name*	*From Number*	*To Number*	*Side of Street*
Street	**Alpine Place**	**1150 E**	**1150 E**	**E**

Full Road Closure?	*Start Date*	*End Date*	*Barricade Manual Fig #*	*Description*	*Special Requirements*
No	12/03/2019	12/08/2019	TA-6	TESTING GROUND WATER NOT DRILLING OR TRENCHING	SHALL MAINTAIN ACCESS TO ALL PROPERTIES AND COORDINATE WITH RESIDENTS AND BUSINESSES AFFECTED. WORK HOURS SHALL BE BETWEEN 9AM & 4PM. MAY WORK FROM 6PM TO 6AM.

Approved By: Dave Pratt Issue Date: 11/27/2019

Closure Type	*On Street Name*	*From Number*	*To Number*	*Side of Street*
Street	**Gilmer Dr**	**1280 E**	**1280 E**	**S**

Full Road Closure?	*Start Date*	*End Date*	*Barricade Manual Fig #*	*Description*	*Special Requirements*
No	12/03/2019	12/08/2019	TA-6	TESTING GROUND WATER NOT DRILLING OR TRENCHING	SHALL MAINTAIN ACCESS TO ALL PROPERTIES AND COORDINATE WITH RESIDENTS AND BUSINESSES AFFECTED. WORK HOURS SHALL BE BETWEEN 9AM & 4PM. MAY WORK FROM 6PM TO 6AM.

Closure Type	*On Street Name*	*From Number*	*To Number*	*Side of Street*
Street	**14th E**	**Sunnyside Ave**	**Sunnyside Ave**	**W**

Full Road Closure?	*Start Date*	*End Date*	*Barricade Manual Fig #*	*Description*	*Special Requirements*
No	12/03/2019	12/08/2019	TA-6	TESTING GROUND WATER NOT DRILLING OR TRENCHING	SHALL MAINTAIN ACCESS TO ALL PROPERTIES AND COORDINATE WITH RESIDENTS AND BUSINESSES AFFECTED. WORK HOURS SHALL BE BETWEEN 9AM & 4PM. MAY WORK FROM 6PM TO 6AM.

Closure Type	*On Street Name*	*From Number*	*To Number*	*Side of Street*
Street	**Belmont Ave**	**McClelland St.**	**McClelland St.**	**S**

Full Road Closure?	*Start Date*	*End Date*	*Barricade Manual Fig #*	*Description*	*Special Requirements*
No	12/03/2019	12/08/2019	TA-6	TESTING GROUND WATER NOT DRILLING OR TRENCHING	SHALL MAINTAIN ACCESS TO ALL PROPERTIES AND COORDINATE WITH RESIDENTS AND BUSINESSES AFFECTED. WORK HOURS SHALL BE BETWEEN 9AM & 4PM. MAY WORK FROM 6PM TO 6AM.

Closure Type	*On Street Name*	*From Number*	*To Number*	*Side of Street*
Street	**University St.**	**700 S**	**700 S**	**S**

Full Road Closure?	*Start Date*	*End Date*	*Barricade Manual Fig #*	*Description*	*Special Requirements*
No	12/03/2019	12/08/2019	TA-6	TESTING GROUND WATER NOT DRILLING OR TRENCHING	SHALL MAINTAIN ACCESS TO ALL PROPERTIES AND COORDINATE WITH RESIDENTS AND BUSINESSES AFFECTED. WORK HOURS SHALL BE BETWEEN 9AM & 4PM. MAY WORK FROM 6PM TO 6AM.

Approved By: Dave Pratt

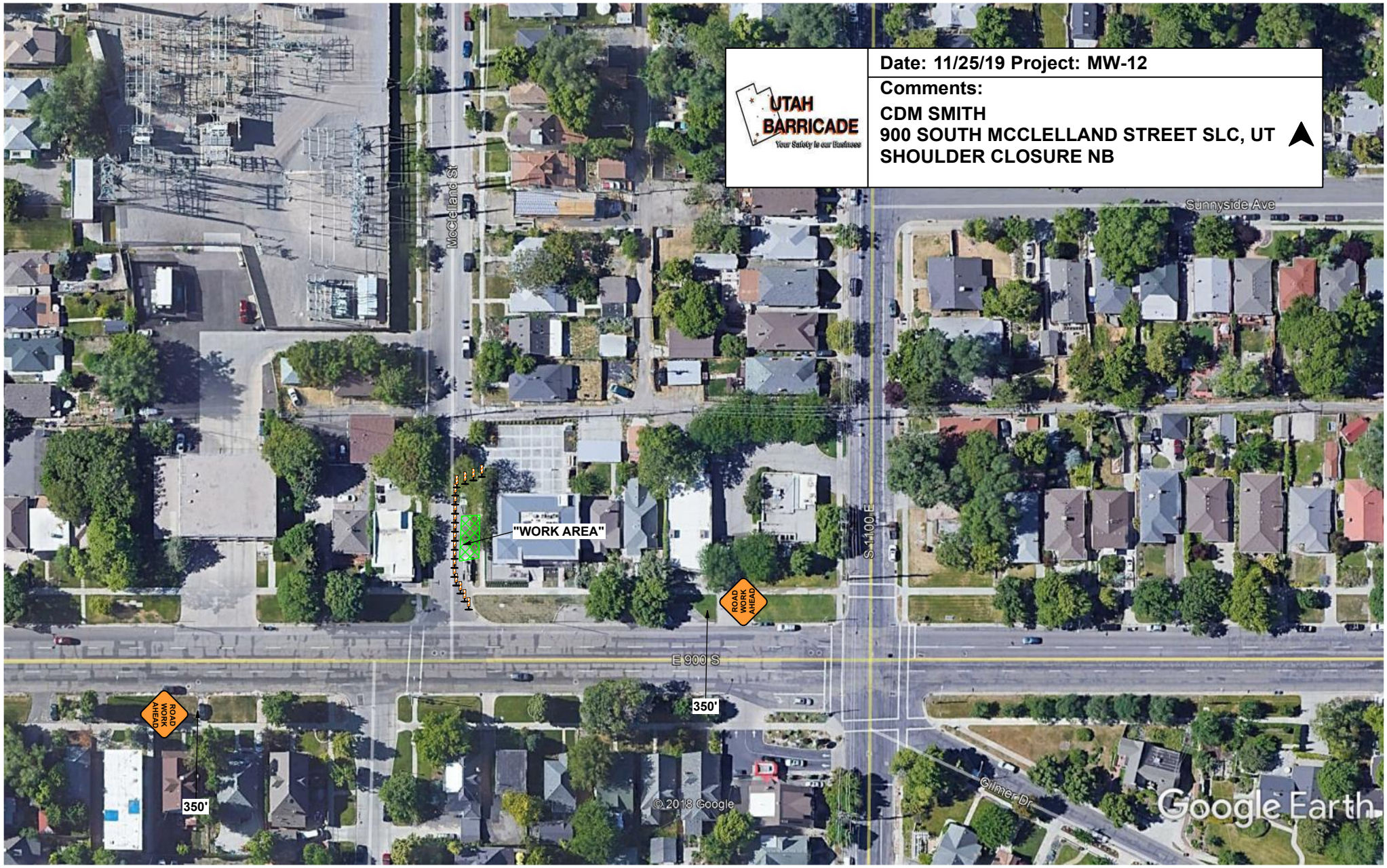
Issue Date: 11/27/2019

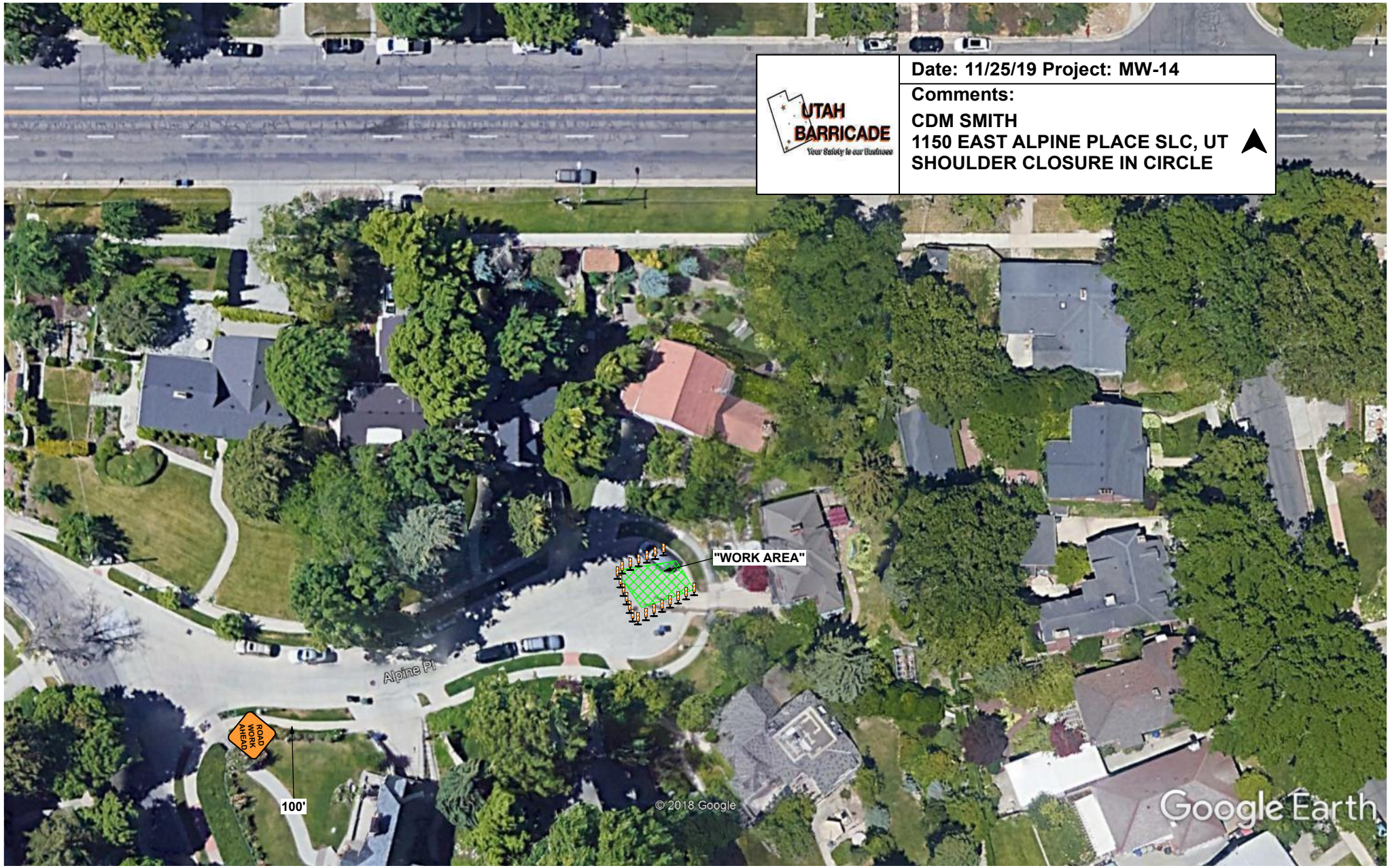
UTAH BARRICADE
Your Safety is our Business

Date: 11/2/18 Project: MW-08

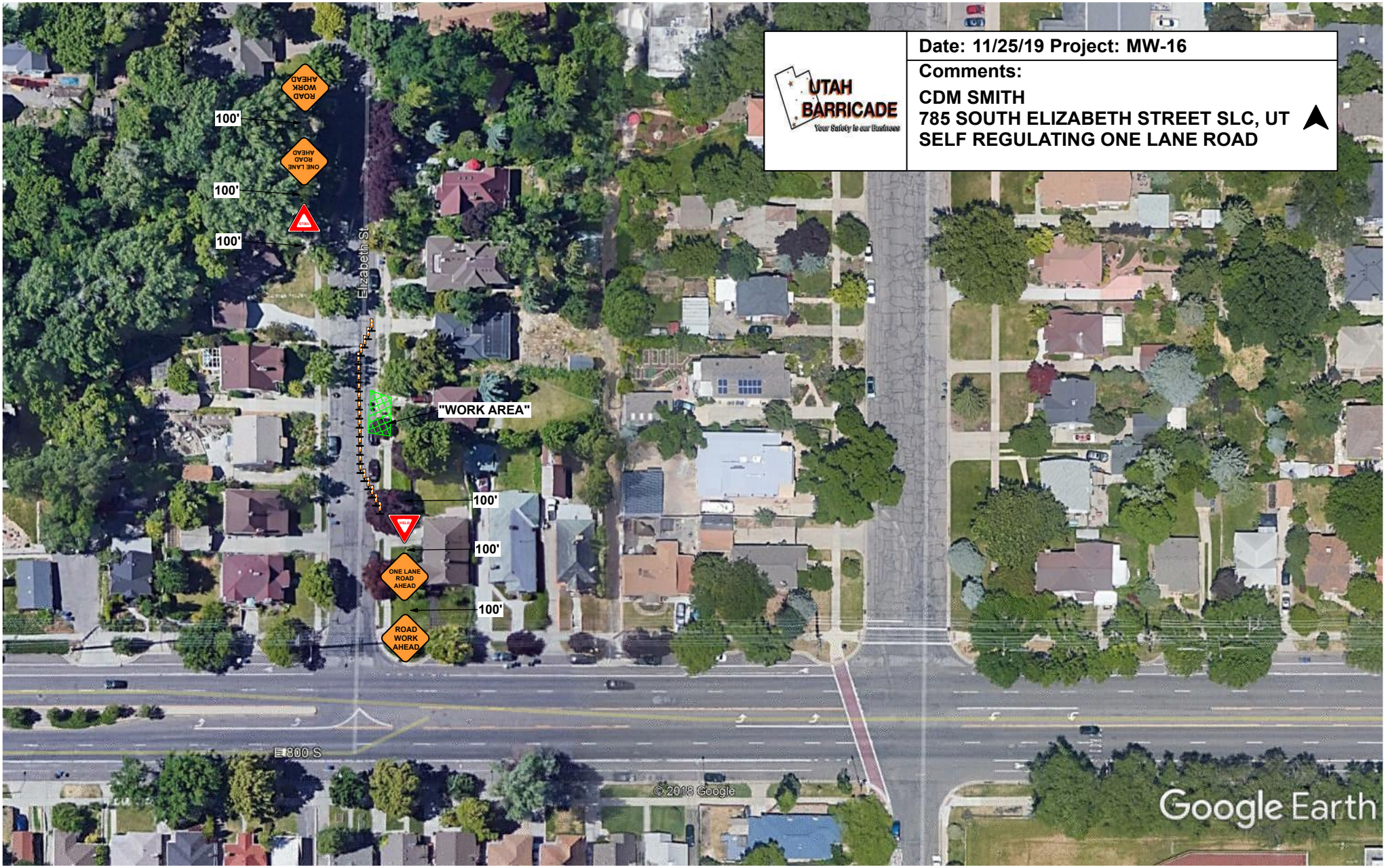
Comments:

CDM SMITH
700 SOUTH UNIVERSITY STREET SLC, UT
SHOULDER CLOSURE EB


UTAH BARRICADE
Your Safety is our Business
Date: 11/25/19 Project: MW-12
Comments:
CDM SMITH
900 SOUTH MCCLELLAND STREET SLC, UT
SHOULDER CLOSURE NB
McClelland St
Sunnyside Ave
S 1100 E
"WORK AREA"
ROAD WORK AHEAD
ROAD WORK AHEAD
E 900 S
350'
350'
Gilmer Dr
© 2018 Google
Google Earth


UTAH BARRICADE
Your Safety is our Business
Date: 11/25/19 Project: MW-14
Comments:
CDM SMITH
1150 EAST ALPINE PLACE SLC, UT
SHOULDER CLOSURE IN CIRCLE
"WORK AREA"
Alpine Pl
ROAD WORK AHEAD
100'
© 2018 Google
Google Earth


UTAH BARRICADE
Your Safety is our Business
Date: 11/25/19 Project: MW-17
Comments:
CDM-SMITH
1280 EAST GILMER DRIVE SLC, UT
SHOULDER CLOSURE EB
"WORK AREA"
SHOULDER WORK AHEAD
ROAD WORK AHEAD
100'
100'
© 2018 Google
Google Earth


UTAH BARRICADE
Your Safety Is our Business
Date: 11/25/19 Project: MW-16
Comments:
CDM SMITH
785 SOUTH ELIZABETH STREET SLC, UT
SELF REGULATING ONE LANE ROAD
ROAD WORK AHEAD
ONE LANE ROAD AHEAD
100'
100'
100'
Elizabeth St
"WORK AREA"
100'
YIELD
100'
ONE LANE ROAD AHEAD
100'
ROAD WORK AHEAD
E 800 S
© 2018 Google
Google Earth


UTAH BARRICADE
Your Safety Is our Business
Date: 6/12/18 Project: MW-15
Comments:
CDM SMITH
BELMONT AVE MCCLELLAND STREET SLC, UT
SHOULDER CLOSURE EB
Belmont Ave
E Belmont Ave & E McClelland St
ROAD WORK AHEAD
SHOULDER WORK AHEAD
100'
100'
WORK AREA
© 2018 Google
Google Earth


UTAH BARRICADE
Your Safety is our Business
Date: 6/12/18 Project: MW-21
Comments:
CDM SMITH
1400 EAST 850 SOUTH SLC, UT
SHOULDER CLOSURE SB
Sunnyside Ave
ROAD WORK AHEAD
SHOULDER WORK AHEAD
100'
100'
"WORK AREA"
S 14th E
© 2018 Google
Google Earth

Appendix B
Field Forms

Appendix B-1

Daily Quality Control Reports

Daily Quality Control Report
700 South 1600 East PCE Plume
Salt Lake City, Utah

DATE: 12/3/2019	**Prepared by:** Karla Leslie

Personnel Onsite, including Contractors:	CDM Smith Inc. – Karla Leslie, Joe Miller, Emma Rott, Kimberly Yauk (Groundwater sampling), Todd Burgesser (HAPSITE sampling), Neil Smith Wasatch Environmental – Kevin Murphy (Groundwater Sampling)
Visitors/Others:	

Weather	**Sunny**	Partly Cloudy	Overcast	Rain	Snow
Temperature	85+ º F	70 to 85º F	50 to 70 º F	**32 to 50 º F**	To 32 º F
Wind	Still	**Moderate**	High		
Humidity	Dry	**Moderate**	Humid		

Equipment in Use (field instruments, subcontractor equip, etc.)	• No equipment in use • Groundwater sampling and HAPSITE equipment tested

Description of Field Activities – including borings completed/started (include footages), samples/data collected, etc.:

- Field teams mobilized to site.
- Equipment testing and calibration.
- All field site received FLASH badges from VA.
- Site tour.

Issues/Problems Encountered/Deficiencies/Deviations from QAPP (and resolutions):

- None.

Projected Work – Near Term:

- Complete synoptic water level measurement.
- Begin groundwater sampling.
- Collect indoor air samples at high school.

Other Activities/Remarks:

Daily Quality Control Report
700 South 1600 East PCE Plume
Salt Lake City, Utah

DATE: 12/4/2019	**Prepared by:** Karla Leslie

Personnel Onsite, including Contractors:	CDM Smith Inc. – Karla Leslie, Joe Miller, Emma Rott, Kimberly Yauk (Groundwater sampling), Todd Burgesser, David Sembrot (HAPSITE sampling), Neil Smith Wasatch Environmental – Kevin Murphy (Groundwater Sampling)
Visitors/Others:	Marc Yalom, Shannon Smith (VA)

Weather	**Sunny**	Partly Cloudy	Overcast	Rain	Snow
Temperature	85+ º F	70 to 85º F	50 to 70 º F	**32 to 50 º F**	To 32 º F
Wind	Still	**Moderate**	High		
Humidity	Dry	**Moderate**	Humid		

Equipment in Use (field instruments, subcontractor equip, etc.)	• Water level meters • Water quality meters • Controllers, compressors, compressed gas • PIDs and ppbRAE PIDs • Peristaltic pump • HAPSITE

Description of Field Activities – including borings completed/started (include footages), samples/data collected, etc.:

- **Synoptic Water Levels**
  - Collected water levels at all monitoring wells
- **Groundwater Sampling**
  - Collected groundwater sample at MW-20S (OU2-MW20S-GW120419):
    - VOCs
    - 1,4-dioxane
    - Metals
    - Dissolved gases
    - Sulfate, chloride
    - Nitrate + nitrite (total N)
    - TOC
    - Alkalinity
    - TDS
- **Vapor Sampling at High School**
  - Screened 4th and 3rd floor with ppbRAE
  - Collected air samples in tedlar bag for HAPSITE analysis:
    - C-1: level C ceramics room
    - C-2: level C chemistry lab
    - B-1: level B freight elevator shaft
    - B-2: level B electronics room
    - B-3: level B daycare
    - A-1: level A boiler pit
    - A-2: level A HVAC sump area
    - A-3 and A-4: level A auto shop
    - A-5, A-6, and A-7: level A stage prop construction and storage area

Issues/Problems Encountered/Deficiencies/Deviations from QAPP (and resolutions):

- The air line at MW-20D was disconnected and wedged between the pump and casing wall.
  - Pulled the pump and un-tangled the air line
  - Re-installed the pump and confirmed no damage to air line
- One of the MP50 compressor/controllers rented from Pine was received damaged.

  - No replacement available from Pine
  - Field Environmental is providing a replacement.
- Both ppbRAEs used for the VI survey of the high school malfunctioned shortly after use during the survey. One location (C-1 ceramics lab) received a positive detection on the ppbRAE of approximately 10 ppb.
  - The ppbRAES will be recalibrated and evaluated prior to possible use on 12/5/2019
  - A backup ppbRAE has been procured through Wasatch Environmental.
  - Visual inspection was used to select locations for HAPSITE sample collection.

Projected Work – Near Term:

- **Groundwater Sampling**
  - Teams will sample MW-20D, MW-19, MW-18, and MW-02.
- **Vapor Sampling**
  - Analyze collected vapor samples with the HAPSITE
  - Complete screening and sampling at high school.

Other Activities/Remarks:

Please see email attachments for photos of synoptic water level collection, groundwater sampling, and vapor sampling/screening.

Daily Quality Control Report
700 South 1600 East PCE Plume
Salt Lake City, Utah

DATE: 12/5/2019	**Prepared by:** Karla Leslie

Personnel Onsite, including Contractors:	CDM Smith Inc. – Karla Leslie, Joe Miller, Emma Rott, Kimberly Yauk (Groundwater sampling), Todd Burgesser, David Sembrot (HAPSITE sampling), Neil Smith Wasatch Environmental – Kevin Murphy (Groundwater Sampling)
Visitors/Others:	Marc Yalom, Tony Jarmusz, Shannon Smith (VA)

Weather	Sunny	Partly Cloudy	**Overcast**	**Rain**	**Snow**
Temperature	85+ º F	70 to 85º F	50 to 70 º F	**32 to 50 º F**	To 32 º F
Wind	Still	**Moderate**	High		
Humidity	Dry	**Moderate**	Humid		

Equipment in Use (field instruments, subcontractor equip, etc.)	• Water level meters • Water quality meters • Controllers, compressors, compressed gas • PIDs and ppbRAE PIDs • Peristaltic pump • HAPSITE

Description of Field Activities – including borings completed/started (include footages), samples/data collected, etc.:

- **Groundwater Sampling**
  - Collected groundwater samples:
    - MW-20D (OU2-MW20D-GW120519) (collected field dup)
    - MW-18 (OU2-MW18-GW120519)
    - MW-19 (OU2-MW19-GW120519)
    - MW-2 (OU2-MW02-GW120519) (collected MS/MSD)
    - MW-4 (OU2-MW04-GW120519)
    - MW-13D (OU2-MW13D-GW120519)
    - MW-13S (OU2-MW13S-GW120519)
  - For the following parameters:
    - VOCs
    - 1,4-dioxane
    - Metals
    - Dissolved gases
    - Sulfate, chloride
    - Nitrate + nitrite (total N)
    - TOC
    - Alkalinity
    - TDS
  - Shipped the following samples:
    - MW-20D (OU2-MW20D-GW120519)
    - MW-20S (OU2-MW20S-GW120419)
    - MW-18 (OU2-MW18-GW120519)
    - MW-19 (OU2-MW19-GW120519)
    - MW-02 (OU2-MW02-GW120519) (MS/MSD)
- **Vapor Sampling at High School**
  - Collected air samples in tedlar bags for HAPSITE analysis:
    - A-1b: resample of boiler room
    - A-9: general air space 4” high in boiler room
    - A-2b: boiler room
    - A-10: women’s locker room shower floor drain

  - A-11: women's locker room office space
  - A-12: girl's coaches office
  - A-13: biology lab
  - A-14: auto shop classroom
  - A-5b: resample elevator shaft
  - A-15: electrical closet
  - B-4: southwest main stairwell
  - B-5: north main stairwell
- **Hapsite vapor sample analysis**
  - Analyzed 12 sample collected on 12/4/19 from East High school
    - PCE detected in 7 of the 12 samples ranging from 11.2 µg/m^3 (room A305 - boiler room sump pit 1) to 0.91 µg/m^3 (room B104 - Receiving Room - Upper Elevator Shaft)
    - Other detections in samples included phenol, toluene, xylenes and various hydrocarbons

Issues/Problems Encountered/Deficiencies/Deviations from QAPP (and resolutions):

- None

Projected Work – Near Term:

- **Groundwater Sampling**
  - Teams will sample MW-06, MW-05R, MW-21, and MW-16S/D.
- **Vapor Sampling**
  - Analyze collected vapor samples with the HAPSITE.

Other Activities/Remarks:

Please see email attachments for photos of groundwater sampling.

Daily Quality Control Report
700 South 1600 East PCE Plume
Salt Lake City, Utah

DATE: 12/6/2019	**Prepared by:** Karla Leslie

Personnel Onsite, including Contractors:	CDM Smith Inc. – Karla Leslie, Joe Miller, Emma Rott, Kimberly Yauk (Groundwater sampling), Todd Burgesser (HAPSITE sampling) Wasatch Environmental – Kevin Murphy (Groundwater Sampling)
Visitors/Others:	

Weather	**Sunny**	Partly Cloudy	Overcast	Rain	Snow
Temperature	85+ º F	70 to 85º F	50 to 70 º F	**32 to 50 º F**	To 32 º F
Wind	Still	**Moderate**	High		
Humidity	Dry	**Moderate**	Humid		

Equipment in Use (field instruments, subcontractor equip, etc.)	• Water level meters • Water quality meters • Controllers, compressors, compressed gas • PIDs

Description of Field Activities – including borings completed/started (include footages), samples/data collected, etc.:

- **Groundwater Sampling**
  - Collected groundwater samples:
    - MW-01D (OU2-MW01D-GW120619)
    - MW-06 (OU2-MW06-GW120619)
    - MW-12D (OU2-MW12D-GW120619)
    - MW-12S (OU2-MW12S-GW120619)
    - MW-16S (OU2-MW16S-GW120619)
    - MW-16D (OU2-MW16D-GW120619)
  - For the following parameters:
    - VOCs
    - 1,4-dioxane
    - Metals
    - Dissolved gases
    - Sulfate, chloride
    - Nitrate + nitrite (total N)
    - TOC
    - Alkalinity
    - TDS
  - Shipped the following samples:
    - MW-06 (OU2-MW06-GW120619)
    - MW-12D (OU2-MW12D-GW120619)
    - MW-12S (OU2-MW12S-GW120619)
    - MW-16S (OU2-MW16S-GW120619)
    - MW-16D (OU2-MW16D-GW120619)
    - Field duplicate of MW-20D (OU2-FD01-GW120519)
    - MW-13S (OU2-MW13S-GW120519)
    - MW-13D (OU2-MW13D-GW120519)
    - MW-04 (OU2-MW04-GW120519)
- **Hapsite vapor sample analysis**
  - Analyzed 13 samples collected on 12/5/19 from East High school
    - PCE detected in 8 of the 13 samples ranging from 5.4 µg/m^3 (repeat of room A305 - boiler room sump pit 1) to 0.41 J µg/m^3 (girl's coaches office bathroom floor drain)
    - Other detections in samples included various hydrocarbons

Daily Quality Control Report
700 South 1600 East PCE Plume
Salt Lake City, Utah

Issues/Problems Encountered/Deficiencies/Deviations from QAPP (and resolutions):

- All pumps on site are currently installed using nylon line, rather than steel cable (however, transducers are deployed with steel cable – see attached photo). Due to the stretching of the nylon line and use of bite fittings to secure pump tubing to the well cap, the water and/or air line have been found disconnected in several wells (e.g. MW-20D as reported from 12/4/2019 – see attached photo of tangled tubing that was retrieved). At MW-01S, both the air and water line are disconnected, and wedged between the casing and pump (which is installed at 200 ft bgs). All attempts to retrieve the pump or tubing have been unsuccessful.
    - Time permitting, further attempts to retrieve the pump and tubing will be made, possibly with cable and/or winch. If the pump is unable to be retrieved during this event, CDM Smith will research and suggest potential options for pump recovery.
- The pump installed in MW-22was not functioning properly. Upon retrieval from the well, the pump was found to be covered in iron precipitates, and the bladder was not operating as designed (see attached photos).
    - The field team will troubleshoot the pump function, including check valves. Spare bladders are not on-hand. If the pump cannot be used, a portable bladder pump or peristaltic pump provided by Wasatch Environmental may be used to collect samples.

Projected Work – Near Term:

Teams will sample groundwater at monitoring wells MW-03a, MW-03b, MW-03c, MW-03d, and MW-15S/D.

Other Activities/Remarks:

Please see email attachments for photos of groundwater sampling.

Daily Quality Control Report
700 South 1600 East PCE Plume
Salt Lake City, Utah

DATE: 12/7/2019	**Prepared by:** Karla Leslie

Personnel Onsite, including Contractors:	CDM Smith Inc. – Karla Leslie, Joe Miller, Emma Rott, Kimberly Yauk Wasatch Environmental – Kevin Murphy
Visitors/Others:	

Weather	**Sunny**	Partly Cloudy	Overcast	Rain	Snow
Temperature	85+ º F	70 to 85º F	50 to 70 º F	**32 to 50 º F**	To 32 º F
Wind	Still	**Moderate**	High		
Humidity	Dry	**Moderate**	Humid		

Equipment in Use (field instruments, subcontractor equip, etc.)	• Water level meters • Water quality meters • Controllers, compressors, compressed gas • PIDs

Description of Field Activities – including borings completed/started (include footages), samples/data collected, etc.:

- **Groundwater Sampling**
  - Collected groundwater samples:
    - MW-03Ra (OU2-MW03Ra-GW120719)
    - MW-03Rc (OU2-MW03Rc-GW120719)
    - MW-03Rd (OU2-MW03Rd-GW120719)
    - MW-15S (OU2-MW15S-GW120719)
    - MW-15D (OU2-MW15D-GW120719)
    - MW-14D (OU2-MW14D-GW120719)
    - MW-14S (OU2-MW14S-GW120719)
  - For the following parameters:
    - VOCs
    - 1,4-dioxane
    - Metals
    - Dissolved gases
    - Sulfate, chloride
    - Nitrate + nitrite (total N)
    - TOC
    - Alkalinity
    - TDS
- Transducer data has been downloaded from the following monitoring wells:
  - MW-13D, MW-14S, MW-15D, MW-16D, MW-20S/D, and MW-22

Issues/Problems Encountered/Deficiencies/Deviations from QAPP (and resolutions):

- Difficulties were encountered while purging MW-3Rb. Problems experienced included: sample flowing back into the pump after pump cycle, gas return in sample tubing, and sporadic jumps in turbidity. The cap installation of the ZIST in MW-3Rb is not completed according to specifications (see attached photos): the cap does not sit flush with the riser, the sample tubing connection is installed below the cap, and the steel wire has been cut.
  - The pump was disassembled to test the function of the sample return spring and poppet, and the condition of the docking O-ring (see photos). No deficiencies were observed.
  - As the pump was removed from the well and turbidity issues were experienced, to allow for re-equilibration the team will attempt to sample again tomorrow.
- The second MP-50 controller/compressor supplied by Pine has stopped functioning.
  - Pine has been notified; a replacement is not needed.

Daily Quality Control Report
700 South 1600 East PCE Plume
Salt Lake City, Utah

Projected Work – Near Term:

Teams will sample groundwater at monitoring wells MW-08a, MW-08b, MW-08c, MW-17S/D, MW-21, and MW-05R.

Other Activities/Remarks:

Please see email attachments for photos of groundwater sampling.

A field team was approached by a member of the community, requesting more information from the VA regarding the site. Contact information below:

Julie Terry and Aharon Shuliman
1036 E. Belmont
801-792-3967 or 801-671-4048
julieter@xmission.com

Daily Quality Control Report
700 South 1600 East PCE Plume
Salt Lake City, Utah

DATE: 12/8/2019	**Prepared by:** Karla Leslie

Personnel Onsite, including Contractors:	CDM Smith Inc. – Karla Leslie, Joe Miller, Emma Rott, Kimberly Yauk Wasatch Environmental – Kevin Murphy
Visitors/Others:	

Weather	Sunny	Partly Cloudy	**Overcast**	**Rain**	**Snow**
Temperature	85+ º F	70 to 85º F	50 to 70 º F	**32 to 50 º F**	To 32 º F
Wind	Still	**Moderate**	High		
Humidity	Dry	**Moderate**	Humid		

Equipment in Use (field instruments, subcontractor equip, etc.)	• Water level meters • Water quality meters • Controllers, compressors, compressed gas • PIDs

Description of Field Activities – including borings completed/started (include footages), samples/data collected, etc.:

- **Groundwater Sampling**
  - Collected groundwater samples:
    - MW-03Rb (OU2-MW03Rb-GW120819)
    - MW-05R (OU2-MW05R-GW120819)
    - MW-08a (OU2-MW08a-GW120819)
    - MW-08b (OU2-MW08b-GW120819)
    - MW-08c (OU2-MW08c-GW120819)
    - MW-17D (OU2-MW17D-GW120819)
    - MW-17S (OU2-MW17S-GW120819)
  - For the following parameters:
    - VOCs
    - 1,4-dioxane
    - Metals
    - Dissolved gases
    - Sulfate, chloride
    - Nitrate + nitrite (total N)
    - TOC
    - Alkalinity
    - TDS
- Transducer data was downloaded from the following monitoring wells:
  - MW-21, MW-01S/D, MW-02, MW04, MW-05R, and MW-06

Issues/Problems Encountered/Deficiencies/Deviations from QAPP (and resolutions):

- The difficulties with sample flow and gas return at MW-03b were resolved after the troubleshooting completed yesterday. The jump in turbidity was still observed, however, during previous sample events long purging times (approximately 3 hours) was required due to high turbidity. A sample was collected today after an extended purge time.
- Groundwater could not be collected from MW-22, presenting similar issues as MW-21 (as reported on 12/6/19). Both pumps were pulled for troubleshooting.
  - Check valves appeared to be functioning normally, however, they were also cleaned (see attached photo).
  - The screen was tested for clogging.
  - The bladder was inspected. The bladders in both pumps in MW-21 and MW-22 were folded down the center (see attached photo). The bladders should be replaced. There were no replacements on site, and replacements could not be acquired during the field event.

Daily Quality Control Report
700 South 1600 East PCE Plume
Salt Lake City, Utah

- Artesian flow is observed seasonally at MW-17D. The pump had previously been removed, and a threaded cap was installed. With the threaded cap and artesian flow, it was not feasible to collect a sample from MW-17D with the dedicated solinst pump.
    - Using the dedicated pump tubing, a sample was collected with a peristaltic pump. Collection of the VOC samples was completed without the peristaltic pump (after purging was complete, the sample tubing was disconnected from the pump and bottles were filled by gravity i.e. the dip tube method).

Projected Work – Near Term:

Ship all samples and demobilize.

Other Activities/Remarks:

Please see email attachments for photos of groundwater sampling.

Appendix B-2

Groundwater Monitoring Well Low-Flow Sampling Data Sheet

CDM Smith

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: S2CVA **Date:** 12/6/19 **OVM:** FID ☐ PID ■ **In Casing (ppm): (Initial)** 0.0 **(Vented to)** 0

Well ID: MW-01S **Purging/Sampling Device:** Compressed gas / MP-10H

Initial Static Water Level (feet btoc): _____ **Analytical Parameters:** _____

Final Water Level (feet btoc): _____ **QC Samples Collected:** _____

Purge Start Time: _____ **Sample Number:** No Sample

Sample Time: _____ **Controller Settings: Recharge:** _____ secs **Discharge:** _____ secs **Pressure:** _____ psi

Samplers' Signatures: _____ **Cycles Per Minute:** _____

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Predicted noticed air - water line as discovered.
Tried to fish for tubing and/or pump. Not successful.

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

6

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: VA Plume Date: 12/6/19

Well ID: MW-01D

Initial Static Water Level (feet btoc): 167.71 (after pump install)

Final Water Level (feet btoc): 16[illegible].73

Purge Start Time: 1330

Sample Time: 1605

Samplers' Signatures: [signature]

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0.0 (Vented to) ∅

Purging/Sampling Device: Compressed gas / MP-10H

Analytical Parameters: Metals, VOCs, MEE, TOC, TDS, ~~ALKALINITY~~, 1,4-D, NWOMS, N+N

QC Samples Collected: n/a

Sample Number: OU2-MW01D-GW120619

Controller Settings: Recharge: 8 secs Discharge: 22 secs Pressure: 220 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (us/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1525	167.73	12.54	6.99	1.102	7.25	113.5	0.0	200	
1535	167.73	12.52	6.98	1.101	7.24	114.5	0.0	200	
1545	167.73	12.39	6.98	1.098	7.25	116.7	0.27	200	
1555	167.73	12.38	6.99	1.098	7.23	117.6	0.00	200	
1600	167.73	12.38	6.97	1.097	7.21	118.0	0.07	200	
1605	SAMPLE								

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Notes:
Went through 2+ nitrogen tanks purging ("m" size tanks)

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.02

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: VA Plume **Date:** 12/5/19 **OVM:** FID ☐ PID ■ **In Casing (ppm): (Initial)** 0.0 **(Vented to)** N/A

Well ID: MW-02 **Purging/Sampling Device:** Gas cylinder w/ MP-10H

Initial Static Water Level (feet btoc): 167.43 (after pump install) **Analytical Parameters:** 1,4-D, MEE, anions, VOCs, TDS/ALK, TOC, N+N, metals

Final Water Level (feet btoc): 167.44 **QC Samples Collected:** MS/MSD

Purge Start Time: 1155 **Sample Number:** DU2-MW02-GW120519

Sample Time: 1215 **Controller Settings: Recharge:** 10 secs **Discharge:** 20 secs **Pressure:** 100 psi

Samplers' Signatures: [signature] **Cycles Per Minute:** 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (ms/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1105	167.43	12.05	7.02	2.854	7.77	65.4	1.95	200	100 psi 11R/19D
1110	167.43	12.37	7.00	2.902	8.39	68.3	0.30	200	10R/20D
1120	167.44	12.38	7.00	2.905	8.39	70.9	0.05	200	
1125	167.44	12.35	6.99	2.904	8.44	74.4	0.00	200	
1130	167.44	12.33	6.99	2.907	8.43	78.9	0.00	200	
1135	167.44	12.40	6.98	2.900	8.42	81.8	0.00	200	
1140	167.44	12.40	6.98	2.908	8.46	86.1	0.06	200	
1145	167.44	12.38	6.98	2.908	8.39	91.7	0.00	200	
1150	167.44	12.39	6.98	2.912	8.44	93.8	0.00	200	
1155	167.44	12.40	6.98	2.911	8.45	97.4	0.00	200	
1200	167.44	12.36	6.98	2.926	8.40	101.4	0.00	200	
1205	167.44	12.32	6.98	2.918	8.39	104.6	0.00	200	
1210	167.44	12.27	6.97	2.917	8.41	110.2	0.00	200	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.40

Notes:
Transducer on cable
Well on string, zip tied to air + water line
Electrical tape on screws on transducer line

Located near gravel/salt pit with loaders working

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: VAPEPine Date: Dec 7 2019 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) not recorded - ZIST system sealed at surface (Vented to) _____

Well ID: MW-03a Purging/Sampling Device: ZIST Controller / Compressed gas

Initial Static Water Level (feet btoc): NA (after pump install) Analytical Parameters: VOCs, Dissolved Gas, 1,4-Dioxane, TOC, Alkalinity, TDS, chloride, Sulfate, Metals, N's, N

Final Water Level (feet btoc): NA QC Samples Collected: NA

Purge Start Time: 900 Sample Number: DU2-MW03a-GW120719

Sample Time: 1000 Controller Settings: Recharge: 80 secs Discharge: 40 secs Pressure: 130 psi

Samplers' Signatures: Kelly Hanks Cycles Per Minute: NA

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. m(µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0915	-	10.92	7.06	1.990	5.98	152.1	237.5	160	
0920	-	11.30	6.98	1.991	6.56	148.5	176.0		
0925	-	11.42	6.95	1.996	5.98	148.7	81.4		
0930		11.35	6.96	1.995	6.11	148.9	47.2		
0935		11.46	6.93	1.996	6.55	150.6	23.5		
0940		11.44	6.94	1.995	6.75	152.3	13.5		
0945		11.47	6.91	1.993	7.05	153.9	8.07		
0950		11.32	6.89	1.989	7.20	155.9	5.8		

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.02

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: VA PCE Pme Date: Dec 7 2019 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) NA (Vented to) NA (not recorded - 21ST serial)

Well ID: MW-03D Purging/Sampling Device: 21ST Controller / compressed gas

Initial Static Water Level (feet btoc): NA (after pump install) Analytical Parameters: VOCs, 1,4-dioxane, MEE, TOC, Alkalinity, Anions, NH3, Metals

Final Water Level (feet btoc): NA QC Samples Collected: —

Purge Start Time: 0900 / 1330 / 1525 Sample Number: —

Sample Time: — Controller Settings: Recharge: 90 secs Discharge: 40 secs Pressure: ~~130~~ 150 KM psi

Samplers' Signatures: Cycles Per Minute: NA

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0920	NA	11.23	7.12	0.646	2.77	129.7	5.38	150	
0927	NA	11.28	7.19	1.197	5.27	119.1	16.3	150	
0932	NA	11.39	7.18	0.683	7.66	112.6	6.0	150	
0937	NA	11.32	7.17	1.194	9.43	108.8	104	150	
0944	NA	11.35	7.18	1.117	9.41	107.4	877 AU	150	
0950	NA	11.38	7.18	0.014	8.46	105.9	1430 AU	150	*stopped to switch to setup used on A
1338	NA	12.59	7.24	1.392	5.59	-0.7	42.9	125	
1343	NA	12.43	7.25	1.400	4.80	-29.9	34.9	125	
1348	NA	12.47	7.22	1.362	4.48	-36.4	80.7	125	
1353	NA	12.44	7.17	1.306	4.80	-34.3	720 AU	125	* stopped due to high turbidity
1535	NA	11.78	7.18	1.237	5.63	9.3			
1556	NA	11.36	7.30	1.211	2.05	16.5	921 AU	75	
1603	NA	11.17	7.18	1.214	4.76	21.1	759 AU	75	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

* No sample collected due to pump/well issue (turbid)

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): _____

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: SLCVA **Date:** 12/8/19 **OVM:** FID ☐ PID ■ **In Casing (ppm): (Initial)** 0.0 **(Vented to)** N/A

Well ID: MW-03b **Purging/Sampling Device:** 2 1st YSI compressed N_2

Initial Static Water Level (feet btoc): ~~13.00~~ JM (after pump install) **Analytical Parameters:** VOC, MEE, 1,4 Dioxane, ~~Metals, Anions, Alkalinity,~~ NTN, D, TD

Final Water Level (feet btoc): ~~13.04~~ JM **QC Samples Collected:** —

Purge Start Time: 1300 **Sample Number:** 042-MW03b-GW120819

Sample Time: 1450 **Controller Settings: Recharge:** 40 secs **Discharge:** 15 secs **Pressure:** 150 psi

Samplers' Signatures: **Cycles Per Minute:** ~.9

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. ~~µS~~ mS/cm	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1313	—	11.60	7.20	1.200	10.22	94.2	32.3	150	
1320	—	11.69	7.16	1.205	6.12	96.0	992 AU	150	*1325 drain/Rinse Flowthrough
1330	—	11.54	7.31	1.195	6.47	104.2	148 AU	150	
1335	—	11.65	7.17	1.205	5.24	103.4	1137 AU	150	
1340	—	11.69	7.14	1.206	5.15	103.7	822 AU	150	*stop YSI readings, monitor turbidity
—	—	—	—	—	—	—	—	—	*see turbidity readings below
1435	—	11.34	7.17	1.182	5.91	114.3	11.53	150	*resume full readings
1440	—	11.56	7.15	1.190	5.67	113.6	10.37	150	
1445	~~1450~~ JM	—	11.59	7.14	1.192	5.56	113.5	9.23	150

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Time	Turbidity
1400	677 AU
1410	35.4 NTU
1415	27.3 NTU
1420	17.1 NTU
1425	14.0 NTU
1430	11.2 NTU

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.0

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: WARM Date: Dec 7, 2019 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) NA (Vented to) NA

Well ID: MW-03C Purging/Sampling Device: 2151

Initial Static Water Level (feet btoc): NA (after pump install) Analytical Parameters: VOCs, 1,4-dioxane, gases, TOC, NH4, chlorides, Alkalinity, TPS, metals

Final Water Level (feet btoc): NA QC Samples Collected: n/a

Purge Start Time: 11:00 Sample Number: OU2-MW03RC-GW120719

Sample Time: 1140 Controller Settings: Recharge: 60 secs Discharge: 40 secs Pressure: _____ psi

Samplers' Signatures: Cycles Per Minute: _____

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1110	NA	12.14	7.36	0.956	4.50	100.0	0.0	150	
1115	NA	12.17	7.26	0.970	7.59	99.3	0.0	150	
1120	NA	12.45	7.24	0.977	8.31	98.9	0.0	150	
1125	NA	12.33	7.21	0.980	8.50	100.3	0.0	150	
1130	NA	12.16	7.20	0.982	8.53	101.3	0.0	150	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Flow rate started dropping while sampling

Ferrous Iron (mg/L): 0.03 mg/L

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: VAPins Date: Dec 2019 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) NA (Vented to) NA

Well ID: MW-03d Purging/Sampling Device: 21ST

Initial Static Water Level (feet btoc): NA (after pump install) Analytical Parameters: VOCs, Dissolved Gas, 1,4-Dioxane, TDS, Alkalinity, TOC, Metals Chloride, Sulfate, N&N

Final Water Level (feet btoc): NA QC Samples Collected: —

Purge Start Time: 1400 Sample Number: DH2-MW3d-GW120719

Sample Time: 1450 Controller Settings: Recharge: 0.0 secs Discharge: 40 secs Pressure: 200 psi

Samplers' Signatures: Cycles Per Minute:

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1415	NA	12.47	7.24	1.186	2.73	-75.4	7.1	200	
1420	NA	12.14	7.12	1.239	2.24	-61.2	7.3	200	
1425	NA	12.07	7.07	1.217	2.95	-39.6	4.7	200	
1430	NA	12.07	7.14	1.203	3.48	-34.5	4.4	200	
1435	NA	12.05	7.08	1.193	3.96	-27.8	6.0	200	
1440	NA	12.10	7.13	1.190	4.12	-25.2	7.2	200	
1445	NA	12.08	7.13	1.186	4.19	-22.7	6.5	200	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.17

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: VA Plume Date: 12/5/2019 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0.0 (Vented to) n/a

Well ID: MW-04 Purging/Sampling Device: MP-10H, compressed gas.

Initial Static Water Level (feet btoc): 132.52 (after pump install) Analytical Parameters: VOCs, MEE, 1,4-D, anions, metals, N+N, TOC, TDS/alk

Final Water Level (feet btoc): 132.52 QC Samples Collected: n/a

Purge Start Time: 1520 Sample Number: 002-MW04-GW120519

Sample Time: 1605 Controller Settings: Recharge: 8 secs Discharge: 22 secs Pressure: 100 psi

Samplers' Signatures: [signature] Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1525	132.52	10.78	6.88	1,508	8.37	-11.3	47.2	250	
1530	132.52	10.84	7.03	1.477	8.87	-6.8	8.92	250	
1535	132.52	10.95	7.12	1,470	9.09	13.4	1.44	250	
1540	132.52	10.94	7.13	1.469	9.14	25.6	1.04	250	
1545	132.52	10.92	7.13	1.468	9.12	33.2	0.75	250	
1550	132.53	10.90	7.13	1.470	9.18	41.2	0.56	250	
1555	132.52	10.93	7.12	1.472	9.21	47.2	0.66	250	
1600	132.52	10.92	7.12	1.470	9.19	50.4	0.70	250	
1605	SAMPLE								

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Notes:
½-inch nut to open well
in field, secured N tank with 2x4s

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.0

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: VA Plume **Date:** 12/8/19 **OVM:** FID ☐ PID ■ **In Casing (ppm): (Initial)** 0.0 **(Vented to)** n/a

Well ID: MW-05R **Purging/Sampling Device:** Compressed gas, MP-10H

Initial Static Water Level (feet btoc): 211.16 (after pump install) **Analytical Parameters:** 1,4-D, VOCs, MEE, anions, metals/manc, N+N, TOC, TDS/ALK

Final Water Level (feet btoc): 211.16 **QC Samples Collected:** n/a

Purge Start Time: 0900 **Sample Number:** OU2-MW05R-GW120819

Sample Time: 1015 **Controller Settings: Recharge:** 12 secs **Discharge:** 18 secs **Pressure:** 140 psi

Samplers' Signatures: Emma Pratt **Cycles Per Minute:** 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (ms/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0925	211.16	12.12	6.95	1.713	7.92	145.5	43.5	275	
0935	211.16	12.40	6.98	1.717	7.89	138.7	38.7	300	
0945	211.16	12.42	6.98	1.723	7.86	138.0	37.3	300	
0955	211.16	12.65	6.98	1.721	7.84	137.9	36.4	300	
1000	211.16	12.70	6.97	1.717	7.77	137.2	35.5	300	
1005	211.16	12.74	6.97	1.721	7.78	137.1	35.5	300	
1010	211.16	12.74	6.97	1.724	7.80	136.9	35.6		
1015	SAMPLE								

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.31

Notes:
3/8" outlet tubing required
air connection from tubing to outlet loose on arrival

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: VA Pluvue **Date:** 12/6/19

Well ID: MW-06

Initial Static Water Level (feet btoc): 121.29 (after pump install)

Final Water Level (feet btoc): 121.31

Purge Start Time: 0830

Sample Time: 0930

Samplers' Signatures:

OVM: FID ☐ PID ■ **In Casing (ppm): (Initial)** 0 **(Vented to)** n/a

Purging/Sampling Device: Compressed gas, MP-10H

Analytical Parameters: VOCs, MEE, 1,4-D, TOC, TDS/ALK, anions, metals, N+N

QC Samples Collected: n/a

Sample Number: OUZ-MW06-GW120619

Controller Settings: Recharge: 8 secs **Discharge:** 22 secs **Pressure:** 80 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (ms/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0842	121.31	10.29	7.10	1.101	7.89	-23.7	—	200	
0847	121.31	10.55	7.07	1.115	6.55	9.9	2.40	200	
0852	121.31	10.60	7.09	1.119	6.02	38.5	0.85	200	
0857	121.31	10.62	7.09	1.120	5.82	52.1	0.66	200	
0902	121.31	10.64	7.09	1.121	5.69	61.7	0.55	200	
0907	121.31	10.68	7.10	1.122	5.54	72.1	0.64	200	
0912	121.31	10.65	7.10	1.121	5.38	80.2	0.43	200	
0920	121.31	10.68	7.10	1.121	5.26	86.5	0.28	200	
0924	121.31	10.67	7.10	1.122	5.22	89.0	0.57	200	
0927	121.31	10.63	7.10	1.122	5.16	91.5	0.35	200	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.0

Notes:
Air + water lines connected to cap with actual fittings, not quick connect

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: SLCVA Date: 12/8/19

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0.0 ppm (Vented to) 0.0 ppm

Well ID: MW-08a

Purging/Sampling Device: Sl.ist Controls

Initial Static Water Level (feet btoc): 57.63 @ 1133 (after pump install)

Analytical Parameters: VOC, MEE, 1,4-Dioxane, Metals, N+N, TOC, TDS, Alkalinity

Final Water Level (feet btoc): 57.63 @ 1234

QC Samples Collected:

Purge Start Time: 1137

Sample Number: 042-MW08a-GW120819

Sample Time: 1215

Controller Settings: Recharge: 8 secs Discharge: 10 secs Pressure: 50 psi

Samplers' Signatures:

Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1143	57.63	11.96	7.29	1.744	7.23	50.0	6.33	150	
1148	57.63	12.17	7.11	1.829	7.59	52.9	4.18	220	
1153	57.63	12.10	7.02	1.843	7.91	65.5	8.05	220	
1158	57.63	12.08	7.00	1.838	7.98	75.5	5.80	220	
1203	57.62	12.11	6.99	1.837	8.03	81.2	5.07	220	
1208	57.63	12.08	6.99	1.836	8.05	86.5	5.28	220	
1213	57.63	12.12	6.99	1.835	8.04	89.8	4.83	220	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.00 mg/L

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: SLCVA Date: 12/8/19

Well ID: MW-8B

Initial Static Water Level (feet btoc): 55.59 (after pump install)

Final Water Level (feet btoc): 55.63

Purge Start Time: 10.21

Sample Time: 1105 (1220-Dup)

Samplers' Signatures:

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0.0 (Vented to) 0.0

Purging/Sampling Device: Solinst controller

Analytical Parameters: VOC, 1,4-D, Styrene, MEE, Metals, NH3N, TOC, TDS, Alkalinity Anion

QC Samples Collected: ~~OU2-MW08~~ FD02-GW120819

Sample Number: OU2-MW08B-GW120819

Controller Settings: ~~Recharge~~ (vent): 10 secs ~~Discharge~~ (Drive): 10 secs Pressure: 90 psi (Med. setting) Tank 200

Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1027	55.60	12.14	7.10	1.096	7.01	18.9	0.0	450	
1032	55.60	12.08	7.10	1.097	7.63	27.8	0.0	450	
1037	55.60	12.07	7.12	1.097	7.12	45.2	0.0	450	
1045	55.62	12.13	7.12	1.097	7.86	55.4	1.94	450	
1050	55.64	12.12	7.12	1.097	7.89	60.5	1.07	450	
1055	55.64	12.13	7.12	1.097	7.90	65.8	1.38	450	*Minimum Purge Vol 3.5gal
1100	55.64	12.17	7.12	1.097	7.90	69.4	1.17	450	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.01 mg/L

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: SLCVA **Date:** 12/8/19 **OVM:** FID ☐ PID ■ **In Casing (ppm): (Initial)** 0.0 **(Vented to)** 0.0

Well ID: MW-08c **Purging/Sampling Device:** Zist + YSI

Initial Static Water Level (feet btoc): NA (after pump install) **Analytical Parameters:** VOC, 1,4D:oxane, Metals, Anions, MEE, TOC, TDS, N+V

Final Water Level (feet btoc): NA **QC Samples Collected:** —

Purge Start Time: 0834 **Sample Number:** 042-MW08c-GW120819

Sample Time: 0955 **Controller Settings: Recharge:** 20 secs **Discharge:** 10 secs **Pressure:** 150 psi

Samplers' Signatures: [signature] **Cycles Per Minute:** 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0845	NA	11.40	7.39	0.901	4.44	-62.8	0.0	300	
0855	NA	11.50	7.31	0.907	2.70	-67.5	4.84	300	
0900	NA	11.55	7.28	0.917	2.54	-64.7	3.42	300	
0905	NA	11.60	7.26	0.925	2.66	-59.7	3.30	300	* continue to purge, will resume readings closer to min purge vol
0938	NA	11.72	7.23	0.931	4.15	-22.9	0.0	300	
0943	NA	11.74	7.23	0.930	4.28	-20.3	2.22	300	
0948	NA	11.79	7.22	0.930	4.40	-16.4	0.0	~~30~~ 300	JM 5/28/20

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.37

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: SLCVA **Date:** 12/6/19

Well ID: MW-12D

Initial Static Water Level (feet btoc): 53.03 @ 1209 (after pump install)

Final Water Level (feet btoc): 53.03 @ 1305

Purge Start Time: 1214

Sample Time: 1250

Samplers' Signatures:

OVM: FID ☐ PID ■ **In Casing (ppm):** (Initial) 0.2ppm (Vented to) 0.0ppm

Purging/Sampling Device: MP50, YSI 650, LaMotte 2020

Analytical Parameters: VOC, TDS, TOC, Dissolved Gas, Metals, Sulfate, Chloride, Alkalinity, 1,4-Dioxane

QC Samples Collected: —

Sample Number: OU2-MW12D-GW120619

Controller Settings: Recharge: 16 secs Discharge: 14 secs Pressure: 55 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1220	53.03	14.13	6.95	1.396	6.61	64.6	3.21	260	
1225	53.03	14.13	7.06	1.397	6.73	70.3	3.41	300	
1230	53.03	14.11	7.06	1.396	6.74	77.5	3.43	300	
1235	53.03	14.11	7.07	1.396	6.74	83.0	2.55	300	
1240	53.02	14.10	7.06	1.396	6.75	87.9	2.34	300	*Min Purgevol+
1245	53.03	14.10	7.07	1.396	6.75	91.7	1.87	300	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

min purge 1.6gal Initial Pump setting 55psi. cpm 2 Recharge 20s Discharge 10s

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.0 mg/L

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: SLCVA Date: 12/6/14 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0.1 (Vented to) 0.0

Well ID: MW-12S Purging/Sampling Device: MP50 (then MP10 + compressor)

Initial Static Water Level (feet btoc): 56.20' @ 1314 (after pump install) Analytical Parameters: VOCs, Dissolved Gas, TDS/Alkalinity, Sulfate/chloride, Metals NH4, 1,4 Dioxane, TOC

Final Water Level (feet btoc): ~~56.35~~ 56.56 QC Samples Collected: —

Purge Start Time: 1319 Sample Number: 042-MW12S-GW120614

Sample Time: 1415 Controller Settings: Recharge: 49 secs Discharge: 11 secs Pressure: 35 psi

Samplers' Signatures: [signature] Cycles Per Minute: 1

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. M (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1330	56.35	15.88	7.07	1.638	6.60	58.8	47.4	80	
1335	56.41	15.82	7.02	1.752	6.44	86.7	53.9	80	
1340	56.40	15.69	7.00	1.765	6.36	76.4	35.1	80	
1345	56.38	15.60	6.99	1.746	6.34	62.9	21.1	80	Orangish tint to GW
1350	56.46	15.64	6.99	1.722	6.34	50.4	15.3	80	
1355	56.48	15.65	6.98	1.699	6.37	37.1	15.8	80	Min purge met
1400	56.40	15.69	6.99	1.684	6.41	32.4	10.98	80	
1405	56.46	15.34	6.98	1.668	6.37	32.7	8.68	80	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Initial Purge 47sec Recharge 13 discharge 35psi CPM 1
Min Purge 1 gal
Possible to pump @ higher Rate

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.18 mg/L

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: SLCIA Date: 12/5/19

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0.0ppm (Vented to) 0.0ppm

Well ID: MW-13S

Purging/Sampling Device: MP50, YSI 650 Lamotte 2020

Initial Static Water Level (feet btoc): 12.56 @ 1400 (after pump install)

Analytical Parameters: VOC, 1,4-Dioxane, Metals, NH4, Alkalinity, Chloride, Sulfate, TDS, TOC

Final Water Level (feet btoc): 14.93

QC Samples Collected:

Purge Start Time: 1408

Sample Number: OUZ-MW13S-GW120519

Sample Time: 1440

Controller Settings: Recharge: 54 secs Discharge: 6 secs Pressure: 18 psi

Samplers' Signatures:

Cycles Per Minute: 1

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1417	13.82	12.62	7.10	1982	2.38	-12.4	33.3	~~50~~ 50	
1422	13.98	12.42	7.04	2,004	1.72	-10.3	31.6	50	
1427	14.12	12.60	7.01	2,012	1.50	-1.8	23.0	50	
1432	14.30	12.64	~~8~~ 6.98	2,008	1.70	+11.8	17.0	50	
1437	14.42	12.70	6.96	2,007	1.83	+15.5	15.4	50	min purge sample Due to Drawdown call FTL

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Initial Pump Settings 20psi, 5s Recharge 8s discharge 1cpm 80mL/min
~~15psi~~ 15psi 5s Rech 6s discharge 1cpm 50mL/min

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.31 mg/L

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: SLCVA **Date:** 12/5/19 **OVM:** FID ☐ PID ■ **In Casing (ppm): (Initial)** 0.1 ppm **(Vented to)** 0.0 ppm

Well ID: MW-13D **Purging/Sampling Device:** MP50, YSI EXO, LaMotte 2020

Initial Static Water Level (feet btoc): ~~11.67~~ 11.66 @ 1557 (after pump install) **Analytical Parameters:** VOC, 1,4-Dioxane, TOC, TDS, Alkalinity, Sulfate, Chloride, Metals, NH4N

Final Water Level (feet btoc): 12.44 **QC Samples Collected:** —

Purge Start Time: 1604 **Sample Number:** DU2-MW13D-GW120519

Sample Time: 1655 **Controller Settings: Recharge:** 20 secs **Discharge:** 10 secs **Pressure:** 40 psi

Samplers' Signatures: [signature] **Cycles Per Minute:** 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1610	12.44	12.65	7.02	1,341	6.01	5.9	16.7	250	WL Holding after initial Drawdown
1615	12.43	12.53	7.01	1339	6.19	16.1	11.0	250	
1620	12.45	12.57	7.00	1,343	6.92	25.3	5.28	250	
1625	12.34	12.83	~~7~~ 6.99	1,342	7.42	28.0	6.90	250	
1630	12.44	12.89	6.98	1,345	7.40	26.1	5.84	250	
1635	12.38	12.88	6.99	1,346	7.51	21.3	5.48	250	
1640	12.42	12.88	6.98	1,349	7.56	20.1	5.32	250	
1645	12.38	12.86	6.99	1,347	7.58	20.3	5.09	250	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

1.45 Min. Purge
* WL fluctuates w/pump cycle ~0.3'

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.06 mg/L

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: LOVA **Date:** 12/7/19 **OVM:** FID ☐ PID ■ **In Casing (ppm): (Initial)** 0.0 **(Vented to)** 0.0ppm

Well ID: MW-14D **Purging/Sampling Device:** Valve w/dedicated tubing

Initial Static Water Level (feet btoc): — (after pump install) **Analytical Parameters:** VOC, 1,4-Dioxane, Metals, TOC, TDS, Alkalinity, NH4, Anions, MEE

Final Water Level (feet btoc): — **QC Samples Collected:** —

Purge Start Time: 1234 **Sample Number:** OU2-MW14D-GW120719

Sample Time: 1305 **Controller Settings: Recharge:** — secs **Discharge:** — secs **Pressure:** — psi

Samplers' Signatures: [signature] **Cycles Per Minute:** —

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. m(µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1237	—	9.15	7.25	1,303	3.34	74.1	0.27	780	Artesian
1242	—	10.50	7.19	1,302	2.78	74.5	0.28	~~780~~ 400	Va
1247	—	11.68	7.16	1,302	2.67	76.0	0.29	400ml	
1252	—	12.05	7.15	1,303	3.03	77.7	0.20	350	
1257	—	12.09	7.15	1,304	3.13	78.6	0.26	300	
1302	—	12.16	7.14	1,305	3.26	80.5	0.03	300	Purge ~ 4gal

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

*Artesian

End purge 1318

Trace Red/Brown Floc

Well vault needs 3/4" socket to open

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.02

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: VAPLUME Date: 12/7/19

Well ID: MW-145

Initial Static Water Level (feet btoc): 5.27 (after pump install)

Final Water Level (feet btoc): 9.21

Purge Start Time: 1315

Sample Time: 1410

Samplers' Signatures:

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0.1 (Vented to) n/a

Purging/Sampling Device: QED controller/compressor w/dedicated submst pump

Analytical Parameters: VOCs, MEE, metals, anions, TDS, TOC, 1,4-D

QC Samples Collected: n/a

Sample Number: DU2-MW145-GW120719

Controller Settings: Recharge: 54 secs Discharge: 6 secs Pressure: 10 psi

Cycles Per Minute: 2 GR 1

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1325	6.00	11.35	7.18	1.619	2.60	-56.4	7.11	50	
1330	6.18	11.15	7.15	1.609	2.35	-47.8	6.88	50	
1335	6.35	11.19	7.14	1.622	2.01	-35.0	5.07	50	
1340	6.60	11.23	7.12	1.640	1.87	-18.2	4.07	50	
1345	6.76	11.29	7.11	1.656	1.84	-10.4	3.87	50	
1350	6.81	11.30	7.11	1.673	1.77	-0.2	3.43	50	
1355	6.98	11.41	7.10	1.693	1.74	8.2	4.48	50	
1400	7.11	11.46	7.10	1.712	1.69	15.6	3.86	50	
1405	7.22	11.46	7.10	1.724	1.69	21.5	4.15	50	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

1518 End purge

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.06

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: VA Plume Date: 12/7/19

Well ID: MW-155

Initial Static Water Level (feet btoc): 46.37 (after pump install)

Final Water Level (feet btoc): 46.37

Purge Start Time: 1105

Sample Time: 1145

Samplers' Signatures:

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0.0 (Vented to) N/A

Purging/Sampling Device: MP10 + Compressor, YSI 650, Lamotte 2020

Analytical Parameters: VOC, MEE, 1,4-dioxane, Metals, TOC, TDS, Anions, Alkalinity, NH4

QC Samples Collected:

Sample Number: OW2-~~MW155~~ MW155 JM - GW120719

Controller Settings: Recharge: 8 secs Discharge: 12 secs Pressure: 30 psi

Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1110	46.38	13.44	6.89	2.367	6.49	0.3	15.1	275	
1115	46.38	13.60	6.90	2.377	6.43	13.9	10.55	275	
1120	46.38	13.68	6.90	2.355	6.38	26.8	5.03	275	
1125	46.38	13.68	6.90	2.386	6.38	35.4	3.22	275	
1130	46.38	13.72	6.90	2.390	6.39	42.2	2.32	275	
1135	46.38	13.72	6.90	2.389	6.40	50.2	1.89	275	
1140	46.38	13.74	6.90	2.389	6.39	54.2	2.24	275	
1145	46.37	13.76	6.89	2.390	6.40	58.6	1.57	275	

* met minimum purge @ 0.9 gallons
Orange tint to water

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.04 mg/L

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: SICVA Date: 12/7/19 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0.0 (Vented to) 0.0 ppm

Well ID: MW-15D Purging/Sampling Device: MP10 + Compressor

Initial Static Water Level (feet btoc): 47.83 @ 0905 (after pump install) Analytical Parameters: VOC, 1,4 Dioxane, Metals, Diss. Gas, Chloride, Sulfate,

Final Water Level (feet btoc): 47.83 QC Samples Collected: MS/MSD + Duplicate JH2-FD03-GW120719

Purge Start Time: 0917 Sample Number: JH2-MW15D-GW120719

Sample Time: 1000 (1100 - Dup) Controller Settings: Recharge: 11 secs Discharge: 9 secs Pressure: 45 psi

Samplers' Signatures: Cruz Mena Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. m(µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0925	47.92	13.23	6.89	1,945	5.15	180.5	30.2	275	
0930	47.96	13.50	6.88	1,960	5.16	179.3	20.1	325	
0935	47.97	13.49	6.89	1,970	5.20	175.8	15.3	325	
0940	47.96	13.49	6.89	1,980	5.34	174.1	11.6	325	*Min Purge Met
0945	47.80	13.45	6.89	1,982	5.44	173.1	11.05	325	
0950	47.98	13.58	6.89	1,985	5.48	172.2	8.60	325	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

1.3 gal min purge
Initial 40 psi 3 cpm 11 Recharge 9 discharge 4 gal Total Purge

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.58

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: SCLVA Date: 12/6/19

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0.0ppm (Vented to) 0.0ppm

Well ID: MW-16D

Purging/Sampling Device:

Initial Static Water Level (feet btoc): 8.42 @0408 (after pump install)

Analytical Parameters: VOC, Dissolved Gas, 1,4-Dioxane, Metals, TOC, TDS, NH4N, Alkalinity, Chloride, Sulfate

Final Water Level (feet btoc): 8.48 @1033

QC Samples Collected: —

Purge Start Time: 0928

Sample Number: DU2-MW16D-GW120619

Sample Time: 1010

Controller Settings: Recharge: 20 secs Discharge: 10 secs Pressure: 40 psi

Samplers' Signatures:

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. m(µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0935	8.58	12.34	7.23	1.047	8.50	123.2	1.11	290	
0940	8.52	12.37	7.20	1.046	8.58	120.5	1.07	290	
0945	8.51	12.38	7.20	1.044	8.59	118.8	1.54	290	
0950	8.57	12.40	7.19	1.043	8.55	116.5	2.31	290	
0955	8.59	12.40	7.19	1.043	8.50	113.7	3.04	290	
1000	8.50	12.39	7.18	1.044	8.54	111.4	2.75	290	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Purge ~ 4gal

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.0

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: SLC VA **Date:** 12/6/19 **OVM:** FID ☐ PID ■ **In Casing (ppm): (Initial)** 0.0 **(Vented to)** 0.0

Well ID: MW-16S **Purging/Sampling Device:** MP10 + Compressor

Initial Static Water Level (feet btoc): 10.76 @ 0917 (after pump install) **Analytical Parameters:** VOCs, Dissolved Gas, 1-4 Dioxane, Metals, TOC, TDS, Alkalinity, N+N, Chloride / Sulfate

Final Water Level (feet btoc): 10.85 @ 1116 **QC Samples Collected:** —

Purge Start Time: 0944 **Sample Number:** 042-MW16S-GW120619

Sample Time: 1055 **Controller Settings: Recharge:** 24 secs **Discharge:** 6 secs **Pressure:** 18 psi

Samplers' Signatures: [signature] **Cycles Per Minute:** 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1024	10.81	12.44	7.19	1.485	6.63	67.9	1.93	160	already purged 0.5 gal before ~~sw~~
1029	10.82	13.02	7.04	1.476	5.95	71.9	1.16	160	Swapping Flow through cell
1034	10.83	13.11	7.03	1.476	5.87	76.5	1.22	160	
1039	10.83	13.08	7.00	1.477	5.83	80.5	1.20	160	
1044	10.84	13.17	6.99	1.477	5.81	83.5	1.49	160	
1049	10.84	13.20	6.99	1.476	5.79	85.0	1.09	160	* Total purge 2 gal

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

0.3 gal/min purge Note: Purge Paused @1001 due to Flow through cell leak. Resumed 1020 DTW 10.76

* initial 18 psi 2 cpm 23 Recharge 7 discharg

i, Flow through cell leak at top Pump cell, Reset gasket 0950

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.08

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: SLC VA Date: 12/8/19

Well ID: MW-17D

Initial Static Water Level (feet btoc): 0.00 (after pump install)

Final Water Level (feet btoc): —

Purge Start Time: 1030

Sample Time: 1105

Samplers' Signatures:

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Purging/Sampling Device: Peristaltic Geo Pump

Analytical Parameters: VOCs, metals (mn), 1,4-dioxane, TOC, cyanide, TDS, alkalinity, MTBE

QC Samples Collected: —

Sample Number: —

Controller Settings: Recharge: — secs Discharge: — secs Pressure: — psi

Cycles Per Minute: —

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1035	0.00	11.55	7.16	1.718	7.20	77.9	1.5	550	Peristaltic Pump at max
1040	0.00	11.89	7.07	1.727	6.96	90.6	0.8	550	well still overflowing
1045	0.00	11.98	7.05	1.730	6.96	97.2	0.9	550	
1050	0.00	12.07	7.03	1.730	6.96	104.2	1.5	550	
1055	0.00	12.11	7.00	1.731	7.02	112.7	2.1	550	
1100	0.00	12.12	7.00	1.732	6.98	119.3	1.0	550	
1105	0.00	12.16	7.00	1.732	6.99	122.9	0.7	550	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): _____

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: ~~MW-17S~~ SLC VA Date: 12/8/19

Well ID: MW-17S

Initial Static Water Level (feet btoc): 6.28 (after pump install)

Final Water Level (feet btoc): 9.54

Purge Start Time: 0900

Sample Time: 1000

Samplers' Signatures: Kelly Yank

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) — (Vented to) —

Purging/Sampling Device: QED MP 10

Analytical Parameters: VOCs, 1,4-dioxane, metals (arsenic, TDS, alkalinity, anions, MEE, TOC

QC Samples Collected: none

Sample Number: DU2-MW17S-GW120819

Controller Settings: Recharge: 48 secs Discharge: 12 secs Pressure: 18 psi

Cycles Per Minute: 1

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
920	6.81	8.12	6.72	2.066	5.82	-33.7	28.9	50mL	
925	6.93	8.01	6.83	2.059	4.87	-29.4	25.3	50mL	
930	6.98	8.07	6.88	2.053	4.92	-25.2	24.1	50mL	
935	7.05	8.18	6.94	2.047	4.17	-15.5	19.2	50mL	
940	7.15	8.16	6.97	2.046	4.06	-10.6	18.1	50mL	
945	7.23	8.21	6.99	2.043	3.81	-3.5	15.1	50mL	
950	7.36	8.27	7.01	2.043	3.68	2.2	13.6	50mL	
955	7.40	8.15	7.03	2.046	3.67	9.4	12.9	50mL	
1000	7.50	8.32	7.02	2.045	3.53	12.2	12.7	50mL	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.0

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: SLCVA Date: 12/5/19

Well ID: MW-18

Initial Static Water Level (feet btoc): 79.30 (after pump install)

Final Water Level (feet btoc): 79.30

Purge Start Time: ~~0900~~ ~~0857~~ 0907

Sample Time: 0955

Samplers' Signatures:

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0.0ppm (Vented to) 0.0ppm

Purging/Sampling Device: MP50, YSI650, LaMotte 2020

Analytical Parameters: VOC, 1,4-Dioxane, Dissolved gases, TOC, TDS, Alkalinity, NH4, Metals, chloride, sulfide

QC Samples Collected:

Sample Number: DU2-MW18-GW120519

Controller Settings: Recharge: ~~15~~ secs Discharge: 12 secs Pressure: 50 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0920	79.33	11.60	6.92	1.836	8.40	143.2	1.43	300	
0925	79.29	11.62	6.92	1.83	8.28	161.4	2.57	300	
0930	79.32	11.55	6.92	1.829	8.29	169.4	1.37	300	
0935	79.31	11.57	6.92	1.830	8.30	173.5	1.59	300	
0940	79.30	11.60	6.93	1.828	8.36	186.4	1.49	300	
0945	7930	11.62	6.93	1.831	8.53	193.9	1.69	300	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

* Buried Vault, Rain/Snow Mix
water 2" Below well lid

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.07

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: VA Plume Date: 12/5/2019 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0.0 (Vented to) n/a

Well ID: MW-19 Purging/Sampling Device: Compressed gas, MP-10H

Initial Static Water Level (feet btoc): 78.81 (after pump install) Analytical Parameters: VOCs, MEE, 1,4D, anions, metals, N+N, TOC, Alkalinity, TDS

Final Water Level (feet btoc): 78.81 QC Samples Collected: n/a

Purge Start Time: 0905 Sample Number: ~~EA-MW-19-GW120519~~ OU2-MW19-GW120519

Sample Time: 1000 Controller Settings: Recharge: 12 secs Discharge: 18 secs Pressure: 55 psi

Samplers' Signatures: [signature] Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0925	78.81	12.33	6.99	1.613	8.40	36.9	2.21	250	55 psi @ 12R / 18D
0930	78.81	12.31	7.01	1.615	8.42	40.7	1.49	250	
0935	78.81	12.35	7.01	1.613	8.36	44.6	1.15	250	
0940	78.81	12.35	7.02	1.614	8.34	45.6	1.15	250	
0950	78.81	12.38	7.02	1.615	8.36	47.5	0.97	250	
1000	SAMPLE								

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.32

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: SLCVA Date: 12/4/19

OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0.0 ppm (Vented to) 2.0 ppm

Well ID: MW-205

Purging/Sampling Device: MP50 VSI 650 #5725

Initial Static Water Level (feet btoc): 80.98 (after pump install)

Analytical Parameters: VOC, 14-D, TOC, Metals, TDS, Alkalinity, Chlorides, Sulfate, NH4, MEE

Final Water Level (feet btoc): 80.95

QC Samples Collected: —

Purge Start Time: 1512

Sample Number: DUP-MW205-GW20141204 (~~12~~)

Sample Time: 1610

Controller Settings: Recharge: 11 secs Discharge: 9 secs Pressure: 50 psi CID82

Samplers' Signatures:

Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (ms/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1530	7.97	13.08	7.01	1.165	4.09	91.2	5.47	280	
1535	8.02	12.99	7.00	1.173	4.04	90.1	5.27	280	~1.5 gallons purged so far
1540	8.01	12.97	7.00	1.176	4.06	90.8	4.45	280	
1545	8.01	12.96	7.00	1.179	4.09	92.7	3.07	280	
1550	7.93	12.96	7.01	1.181	4.08	94.9	2.35	280	
1555	7.95	13.01	7.01	1.182	4.13	97.3	1.51	280	

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.02 mg/L

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: SLCVA **Date:** 12/5/19

Well ID: MW-20D

Initial Static Water Level (feet btoc): 80.61 (after pump install)

Final Water Level (feet btoc): _____

Purge Start Time: 1057

Sample Time: 1150

Samplers' Signatures: _____

OVM: FID ☐ PID ■ **In Casing (ppm):** (Initial) 0.0 ppm (Vented to) 0.0 ppm

Purging/Sampling Device: MP50, YSI 650 LaMotte 2020

Analytical Parameters: VOC, Dissolved gas, 1,4-Dioxane, Alkalinity, metals, TDS, TOC, NH4, Chloride, Silica

QC Samples Collected: Duplicate OU2-FD01-GW120519

Sample Number: OU2-MW20D-GW120519 (1300)

Controller Settings: Recharge: 20 secs **Discharge:** 10 secs **Pressure:** 70 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1105	80.59	12.04	7.17	0.992	7.23	177.2	2.55	200	
1110	80.58	12.12	7.15	0.994	7.43	179.2	2.39	200	
1115	80.61	12.21	7.12	0.999	7.54	181.8	2.33	200	
1120	80.61	12.21	7.10	0.998	7.54	184.1	1.60	200	
1125	80.61	12.19	7.09	0.998	7.51	186.0	0.84	250	Recharge 17s Discharge 13s
1130	80.61	12.32	7.09	1.002	7.56	188.3	1.45	250	
1135	80.61	12.30	7.09	1.002	7.54	184.7	1.42	250	
1140	80.61	12.30	7.08	1.000	7.54	179.7	1.54	250	~2.5 Gal Purge Minimum Vol met

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): 0.00 mg/L

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: SLC VA Date: 12/8/19 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) _____ (Vented to) _____

Well ID: MW-21 Purging/Sampling Device: MP10 ✓ & compressed gas

Initial Static Water Level (feet btoc): ~~62.3~~ 63.29 (after pump install) Analytical Parameters: _____

Final Water Level (feet btoc): _____ QC Samples Collected: _____

Purge Start Time: _____ Sample Number: _____

Sample Time: _____ Controller Settings: Recharge: _____ secs Discharge: _____ secs Pressure: _____ psi

Samplers' Signatures: _____ Cycles Per Minute: _____

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Getting air while pumping, pulled pump and inspected bladder - Bladder has crease down length of it - cleaned check valve balls.

No sample collected

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): _____

GROUNDWATER MONITORING WELL
LOW-FLOW SAMPLING DATA SHEET

Site Name: SLCVA Date: 12/6/19 OVM: FID ☐ PID ■ In Casing (ppm): (Initial) 0.0 (Vented to) _____

Well ID: MW-22 Purging/Sampling Device: _____

Initial Static Water Level (feet btoc): 6.26 @ 1534 (after pump install) Analytical Parameters: _____

Final Water Level (feet btoc): _____ QC Samples Collected: _____

Purge Start Time: 1538 Sample Number: No Sample

Sample Time: _____ Controller Settings: Recharge: _____ secs Discharge: _____ secs Pressure: _____ psi

Samplers' Signatures: _____ Cycles Per Minute: _____

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (µs/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments

Casing Volume Calculations:
Water Col. X Casing Factor = Gallons per Casing Volume
Casing Factors: 2" diameter well: 0.16 / 4" diameter well: 0.65 / 6" diameter well: 1.47

Initial Value 45 psi 3 cpm 11 Recharge 9 discharge (too Fast)
2 cpm 20 Recharge 10 discharge
1544 No Return

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO	± 10 %
pH	± 0.1 pH unit	ORP	± 10mV
Conductivity	± 10 %	Water Level	± 0.1 foot
		Turbidity	< 50 NTU

Ferrous Iron (mg/L): _____

Appendix B-3

Water Level Measurements

CDM Smith

WATER LEVEL MEASUREMENTS

Project 700 S 1600 E PCE Plume
Project No. 238824
Weather Conditions 29°F Hazy
Date 12/4/19
Site Conditions Urban Neighborhood
Measured By JM/KY
Measurement Device PID-500'
Calculations By
Elevation Datum

Well	Time	Depth to Water	Reference	Reference Elevation	Water Elevation	Comments
MW-22	0926	62.09				PID 0.0 No discharge
MW-12S	0947	56.10	Top well lip			PID 0.0 ppm
MW-12D	0956	52.96	TOW Lip			PID 0.1 ppm
MW-21	1024	63.18	TOW Lip North			PID 0.0 ppm Xtra locking in well
MW-13D	1036	11.63	TOW Lip North			PID 0.0 ppm
MW-13S	1043	12.57	TOW Lip North			PID 0.0 ppm
MW-16S	1055	10.74	TOW Lip North			PID 0.0 ppm
MW-16D	1100	8.42	TOW Lip North			PID 0.0 ppm
MW-15S	1111	46.28	TOW Lip North			PID ~~0.0 ppm~~ JM 0.1 ppm
MW-15D	1126	47.81	TOW Lip North			PID ~~0.0 ppm~~ JM 0.1 ppm
MW-14S	1142	5.28	TOW Lip North			PID 0.0 ppm smaller Vault 6"
MW-17D	1154	0 - Artesian				No pump / Screw cap / Artesian
MW-17S	1159	6.29	TOW Lip North			PID 0.0 ppm
MW-06	1252	~~46.0~~ 12.10	TOW Lip North			PID 0.0 ppm Bolts Stripped

North
South
West
East
South
North
West
East

Additional Comments MW-14D Not Measured artesian / Needs Larger Socket / 12" Vault
MW-17D PID 0.0 ppm

CDM Smith

WATER LEVEL MEASUREMENTS

Project VA Plume SLC — Project No. _____

Weather Conditions Cold, Sunny ~ 30°F — Date _____

Site Conditions _____ — Measured By _____

Measurement Device Solinst WLM Model 101 — Calculations By _____

Elevation Datum _____

Well	Time	Depth to Water	Reference	Reference Elevation	Water Elevation	Comments
MW-08-A	0946	57.77				WEST IN HOLE
MW-08-B	0950	55.70				EAST IN HOLE
MW-08-C	0959	53.53				Measured with skinny dipper. Difficult to put downhole.
MW-18	1021	79.44				
MW-19	1028	78.82				
MW-20S	1037	81.05				
MW-20D	1041	80.80				
MW-1D	1055	167.72				
MW-1S	1057	153.31				
MW-3A	1105	185.12				
MW-3B	1247	200.51				
MW-3C	1127	200.71				
MW-3D	1110	201.05				
MW-5R	1155	211.06				
MW-2	1204	167.31				
MW-04	1225	132.39				

Additional Comments _____

Appendix B-4

Equipment Calibration Log

EQUIPMENT CALIBRATION LOG

SITE NAME: VA Plume

Instrument (Name/Model No./Serial No.): MiniRAE 3000 SN: 592-908610

Manufacturer: RAE SYSTEMS

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
12/4/19	99.9	100 ppm isobutylene	BB-1-248-100-7 1/22/2022	No	99.9	pass	ER
↓	0.0	zero calibration FRESH AIR	N/A	No	0.0	pass	ER
12/5/19	100.1	↓	↓	No	100.1	pass	ER
↓	0.0	zero Fresh Air	n/a	No	0.0	pass	ER
12/6/19	100.0	↓	↓	No	100.0	pass	ER
↓	0.0	↓	↓	No	0.0	pass	ER
12/7/19	100.0	↓	↓	No	100.0	pass	ER
↓	0.0	↓	↓	No	0.0	pass	ER
12/8/19	100.0	↓	↓	No	100.0	pass	ER
↓	0.0	↓	↓	No	0.0	pass	ER

EQUIPMENT CALIBRATION LOG

SITE NAME: VA Plume

Instrument (Name/Model No./Serial No.): MiniRAE 3000 SN: 592-001012

Manufacturer: RAE Systems

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
12/4/19	99.9	100 PPM Isobutylene	BBI-248-100-7 1/22/2022	No	99.9	pass	ER
↓	0.0	zero calibration FRESH AIR	N/A	No	0.0	pass	ER
12/5/19	100.1	↓	↓	No	100.1	pass	ER
↓	0.0	↓	n/a	No	0.0	pass	ER
12/6/19	100.1	↓	↓	No	100.1	pass	ER
↓	Ø	↓	↓	No	Ø	pass	ER
12/7/19	100.0	↓	↓	No	100.0	pass	ER
↓	0.0	↓	↓	No	0.0	pass	ER
12/8/19	100.0	↓	↓	No	100.0	pass	ER
↓	0.0	↓	↓	No	0.0	pass	ER

EQUIPMENT CALIBRATION LOG

SITE NAME: VA Plume

Instrument (Name/Model No./Serial No.): YSI 6920 SN: 11G100388

Manufacturer: YSI INC

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
12/3/19	4.00	pH 4.0	May 2021 89GE1020	No	4.00	pass	ER
↓	10.04	pH 10.0	June 2021 9GF270	No	10.0	pass	ER
↓	7.01	pH 7.0	May 2021 9GE1325	No	7.00	pass	ER
↓	1.412	1.413 ms/cm	May 2020 9GE1013	No	1.413	pass	ER
↓	239.8	240.0 mV	May 2020 9GH881	No	240.0	pass	ER
12/4/19	4.04	↓	↓	No	4.00	pass	ER
↓	10.05	↓	↓	No	10.00	pass	ER
↓	7.08	↓	↓	No	7.00	pass	ER
↓	1.376	↓	↓	No	1.413	pass	ER
↓	226.0	↓	↓	No	240.0	pass	ER
↓	87.3% / 9.24 mg/l	100% D.O.	762 mm Hg	NO	99.3 % / 10.45 mg/l	pass	ER

EQUIPMENT CALIBRATION LOG

SITE NAME: SLC VA Plume

Instrument (Name/Model No./Serial No.): YSI 6920 SN: 11G100388

Manufacturer: YSI

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
12/5/19	6.87	pH 7	5/2021 9GE1325	No	7.00	Pass	
	4.10	pH 4	5/2021 9GE1325	No	4.00	Pass	
	10.18	pH 10	1/2020 8GA1073	No	10.03	Pass	
	250.7	ORP 240mV	2/2020 9GE1369	No	240.0mV	Pass	
	1.480	Spec Cond 1.413	5/2020 9GE10B	No	1.413mS/cm	Pass	
	~~100~~ 101.9	DO 100%	762mmHg	No	100.2%/4.38mg/L	Pass	

EQUIPMENT CALIBRATION LOG

SITE NAME: VA Plume

Instrument (Name/Model No./Serial No.): YSI 6920 SN: 11G100388

Manufacturer: YSI Inc

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
12/6/19	3.98	pH 4.0	May 2021 9GE1020	No	4.00	Pass	ER
↓	10.04	pH 10.0	~~May~~ June 2021 9GF270	No	10.00	pass	ER
↓	7.02	pH 7.0	May 2021 9GE1325	No	7.00	pass	ER
↓	1.368	1.413 mS/cm	May 2020 9GE1013	No	1.413	pass	ER
↓	232.8	240.0 mV	May 2020 9G #881	No	240.0	pass	ER
↓	102.1% / 10.71 mg/l	100% D.O.	762 mm Hg	No	100.1 % / 9.93 mg/l	pass	ER
12/7/19	3.96	↓	↓	No	4.01	pass	QR
↓	10.01	↓	↓	No	10.01	pass	QR
↓	7.02	↓	↓	No	7.00	pass	QR
↓	1.377	↓	↓	No	1.413	pass	QR
↓	230.0	↓	↓	No	240.0	pass	QR
↓	99.7 % / 9.48 mg/l	↓	↓	No	100.1 % / 9.74 mg/l	pass	QR

EQUIPMENT CALIBRATION LOG

SITE NAME: VA Plume

Instrument (Name/Model No./Serial No.): YSI 6920 SN: 07F100580

Manufacturer: YSI Inc

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
12/3/19	4.01	pH 4.0	May 2021 89GE1020	No	4.00	pass	ER
↓	10.01	pH 10.0	June 2021 9GF270	No	10.0	pass	ER
↓	7.01	pH 7.0	May 2021 9GE1325	No	7.00	pass	ER
↓	1.413	1.413 ms/cm	May 2020 9GE1013	No	1.412	pass	ER
↓	248.7	240.0 mV	May 2020 9GH881	No	240.0	pass	ER

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EQUIPMENT CALIBRATION LOG

SITE NAME: VA Plume

Instrument (Name/Model No./Serial No.): YSI 6920 SN: 07F100580

Manufacturer: YSI Inc

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
12/4/19	4.06	pH 4.0	May 2021 89GE1020	No	4.00	pass	ER
↓	10.01	pH 10.0	June 2021 9GFZ70	No	10.01	pass	ER
	7.00	pH 7.0	May 2021 9GE1325	No	7.00	pass	ER
	87.6%	D.O.	n/a fresh air	No	100.3%	762 mm Hg Pass	ER
		D.O.	n/a fresh air	No	10.02 mg/L	762 mm Hg pass	ER
	1.413 ms/cm →	1.411 ms/cm ←	May 2020 9GE1013	No	1.413	pass	ER
↓	230.0	240.0 mV	May 2020 9GH881	No	240.0	pass	ER
12/5/19	6.97	pH 7.0	May 2021 9GE1325	No	7.00	Pass	JM
↓	4.07	pH 4.0	May 2021 9GE1020	No	4.00	~~pass~~	JM
	10.06	pH 10.0	Jan 2020 8GA1073	No	10.02	Pass	JM
	1.393	cond 1.413 mS/cm	May 2020 9GE108	No	1.413 mS/cm	Pass	JM
	249.0	240.0 mV	Feb 2020 9GE1369	No	240.0	Pass	JM
	100.4	DO 100%	762 mm Hg	No	100.0%	Pass	JM
↓	—	—	—	—	9.47 mg/L	—	—

EQUIPMENT CALIBRATION LOG

SITE NAME: VA Plume

Instrument (Name/Model No./Serial No.): YSI 6920 SN: 07F100580

Manufacturer: YSI Inc

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
12/6/19	4.00	pH 4.0	May 2021 9GE1020	No	4.00	pass	ER
↓	9.99	pH 10.0	June 2021 9GF270	No	10.0	pass	ER
	7.01	pH 7.0	May 2021 9GE1325	No	7.00	pass	ER
	1.375	1.413 ms/cm	May 2020 9GE1013	No	1.413	pass	ER
	236.6	240.0 mV	May 2020 9GH881	No	240.0	pass	ER
↓	100.8 % / 9.85 ~~mm Hg~~ mg/L	100% 0.0	n/a mm Hg 762	No	100.2 % / 9.78 ~~mm Hg~~ mg/L	pass	ER
12/7/19	4.15	↓	↓	No	4.00	pass	ER
↓	9.90			No	10.01	pass	ER
	6.92			No	7.00	pass	ER
	1.370			No	1.413	pass	ER
	233.3			No	240.0	pass	ER
	101.0 % / 9.93 ~~mm Hg~~ mg/L		↓	No	100.1 % / 9.83 mg/L	pass	ER
↓	100.0	126.0 NTU	June 2020 19F1923001	No	126.0	pass	ER
		↓					

EQUIPMENT CALIBRATION LOG

SITE NAME: VA Plume

Instrument (Name/Model No./Serial No.): YSI 6920 SN: 10H101448

Manufacturer: YSI Inc

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
12/3/19	3.99	pH 4.0	May 2021 89GE1020	No	4.00	pass	ER
↓	10.0	pH 10.0	June 2021 9GF270	No	10.0	pass	ER
↓	7.00	pH 7.0	May 2021 9GE1325	No	7.00	pass	ER
↓	1.412	1.413 ms/cm	May 2020 9GE1013	No	1.412	pass	ER
↓	250.0	240.0 mV	May 2020 9GH881	No	240.0	pass	ER

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EQUIPMENT CALIBRATION LOG

NAME: VA Plume

ıment (Name/Model No./Serial No.): YSI 6920 10H101448

ıfacturer: YSI Inc

ration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signatur
12/4/19	4.08	pH 4.0	May 2021 8 9GE1620	No	4.00	pass	ER
	9.92	pH 10.0	June 2021 9GF270	No	10.0	pass	ER
	7.03	pH 7.0	May 2021 9GE1325	No	7.00	pass	ER
	1.398	1.413 ms/cm	May 2020 9GE1013	No	1.413	pass	ER
	241.8	240.0 mV	May 2020 9GH881	No	240.0	pass	ER
↓	84.1% / 8.57 mg/L	D.O.	n/a Fresh air @ 762 mmHg	100.2% / 10.20 mg/L ← →	No	pass	ER
12/5/19	6.85	pH 7	5/2021 9GE1325	No	7.00	pass	JM
	4.10	pH 4	5/2021 9GE1020	No	4.00	pass	JM
	10.11	pH 10	1/2020 8GA1073	No	10.03	pass	JM
	247.7	ORP 240 mV	2/2020 9GE1369	No	240.0 mV	pass	JM
	1.438	Cond 1.413 mS/cm	5/2020 9GE1013	No	1.413 mS/cm	pass	JM
	100.0%	100% DO	762 mm Hg	No	100.0%	pass	JM
↓	—	—	—	—	9.56 mg/L	—	—
12/6/19	4.01	pH 4.0	May 2021 9GE1020	No	4.00	pass	ER
	10.03	pH 10.0	June 2021 9GF270	No	10.00	pass	ER
	7.05	pH 7.0	May 2021 9GE1325	No	7.01	pass	ER
	1.333	1.413 ms/cm	May 2020 9GE1013	No	1.413	pass	ER
	233.8	240.0 mV	May 2020 9GH881	No	240.0	pass	ER
↓	100.8% / 10.96 mg/L	D.O	762 mm Hg	No	100.2% / 9.98 mg/L	pass	ER
12/7/19	4.09	pH 4.0		No	4.00	pass	ER
	6.91	pH 7.0		No	7.00	pass	ER
	10.02	pH 10.0		No	10.00	pass	ER
	1.3660	1.413 ms/cm		No	1.414	pass	ER
	229.4	240.0 mV		No	240.0	pass	ER
	98.5% / 9.35 mg/L	100% DO	↓	No	100.3% / 9.50 mg/L	pass	ER

EQUIPMENT CALIBRATION LOG

SITE NAME: VA Plume

Instrument (Name/Model No./Serial No.): YSI 6920 15E100150

Manufacturer: YSI Inc

Calibration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signature
12/3/19	4.04	pH 4.0	May 2021 89GE1026	No	4.00	pass	ER
↓	10.02	pH 10.0	June 2021 9GE270	No	10.0	pass	ER
↓	6.99	pH 7.0	May 2021 9GE1325	No	7.00	pass	ER
↓	1.411	1.413 ms/cm	May 2020 9GE1013	No	1.413	pass	ER
↓	249.0	240.0 mV	May 2020 9GH881	No	240.1	pass	ER

EQUIPMENT CALIBRATION LOG

NAME: VA Plume

ıment (Name/Model No./Serial No.): YSI 6920 SN 15E100150

ıfacturer: YSI Inc.

ration Date	Initial Setting	Standard/ Gas Used (Concentration)	Lot Control No. Expiration Date	Adjustments Made	Final Reading	Comments Pass/Fail	Signatur
12/4/19	4.02	pH 4.0	May 2021 89GE1020	No	4.00	pass	ER
	10.02	pH 10.0	June 2021 9GFZ70	No	10.00	pass	ER
	7.01	pH 7.0	May 2021 9GE1325	No	7.00	pass	ER
	87.5% / 9.55 mg/L	D.O.	n/A Fresh Air @ ~~760~~ mm Hg	No	99.1% / 10.39 mg/L	pass	ER
	1.386	1.413 ms/cm	May 2020 9GE1013	No	1.413	pass	ER
	230.0	240.0 mV	May 2020 9GH881	No	240.0	pass	ER

Appendix B-5

Field Logbook

CONTENTS

PAGE	REFERENCE	DATE

KC 12/4/19

Location VA/Campus 200South 1600East Date Dec 4, 2019

Project / Client Salt Lake City PCE Rune KC

7:30	Personnel onsite: Kara Cesie (author), Todd Burgess, David Seabot, Emma Roth, Neil Smith, Joe Miller, Kimberly Houk (Constr.), Kevin Murphy (Wasatch)
7:30	Health and safety meeting.
	PID calibrations. (YSI calibrated Dec 3, 2019)
9:30	Kim / Joe and Emma / Kevin / Kara start collecting vate levels.
	Neil offsite to purchase roof flashing tape + David and Todd offsite for NAPSITE calibrations. Too cold in storage area to successfully operate in field.
10:15	Mark Yalom (WA) onsite.
11:00	Mark Yalom (WA) offsite
12:15	Team finished vate levels. Organize groundwater sampling equipment. Neil onsite.
13:05	Team setting up equipment at MW-20S/D. One MP-50 controller (compressor) not functioning.
	MW-20D air line disconnected at surface, tubing stuck under pump. Pulled out pump, tubing, and transducer. Untangled and reinstalled.
13:15	Started purging MW-20S

Rite in the Rain

Location Salt Lake City Date Dec 4, 2019

Project / Client UA 1700 South 1600 East PCE Plume KC

16.00	Todd Burgess, David Seibert, Kate and Shannon (UA) meet at High School. Begin ppbRAE on top floor
1610	Sampled MW-205 [002-MW205-GW120419]
1730	Groundwater teams offsite.
1730	Shannon offsite. Make onsite (high school) more detailed notes regarding building use and AD results in David Seibert notes.
KC Dec 4/19 1741 ~~1252~~	HAPSITE Sample C-1. collected in Ceramics room on level C near chemical cabinet.
1752	Sample C-2 collected in chemistry lab on level C in fume hood containing chemicals
1800	Kate Leslie offsite
1819	Sample B-1 Collected in the upper area of the light elevator
1843	Sample B-2 Collected in the electronics room on level B near chemicals
1851	Sample B-3 collected in daycare
1903	Sample A-1 collected in boiler pit level
1910	Sample A-2 Collected in Sub area of Theatre
1919	Sample A-3 } auto body
1928	Sample A-4 } auto body
1937	Sample A-5 } prop storage
1940	Sample A-6 } prop storage
1944	Sample A-7 } prop storage
1955	Todd, David offsite

KC Dec 5/19

Location Salt Lake City Date Dec 5, 2019

Project / Client UA 1700 South 1600 East PCE Plume KC

7:30	Weather conditions: rain and snow, overcast temperature 32°F to 40°F
	CDM Smith groundwater sampling team: Kate Leslie (contractor), Neil Smith, Kimberly Faust, Jennifer Emma Foth
	Weston Environmental: Kevin Murphy
	CDM Smith vapor sampling team: Todd Burgess, David Seibert
	Planned activities: groundwater sampling monitoring wells and vapor sampling of High School / HAPSITE analysis of vapor samples and water samples)
	Modified Level D PPE
8:00	Health and Safety meeting
8:05	Todd Burgess onsite
8:15	PIDs calibrated (45's calibrated last night)
8:30	Groundwater team setting up on MW-19 MW-19. Todd Burgess working on HAPSITE
9:30	Mark Yelton (UA) onsite
0955	[002-MW18-GW120519]
1000	[002-MW19-GW120519]
1015	Mark Yelton offsite. Joel / Kim setting up on MW-20D. Emma / Kevin setting up at MW-02.
	Hard hats, cones, flaglers used at MW-02

Rite in the Rain

Location Salt Lake City Date Dec 5 2019

Project / Client VA / 700 South 1600 East PCE Amd KL

KL 12/5/19

~~1315 Mac Yalon and Tay Jamusz onsite at MW-02~~

1400 Two pilots

1450 Joe / Kim sampled MW-20D collected field duplicate

002-MW-20D-GW120519

1300 002-FD01-GW120519

1215 Emma / Kevin sampled MW-03 collected MS/MSD

002-MW02-GW120519 MS/MSD

1315 Mac Yalon and Tay Jamusz onsite at MW-02

1400 Two pilots of Sapling activity at MW-02

1415 Mac Yalon, Tay Jamusz offsite

1430 Joe / Kim setting up on MW-13S/D

1445 Neil, Kala, Emma, Kevin carried Sapling

equipment to MW-04

1440 002-MW-13-GW120519

1500 Shannon Smith (VA), Todd Burgess, David

Sandoval at Hyland School collecting NAPSITE Sapling

1530 Neil at Kala pick, cooler at camex

1605 Emma / Kevin sapling MW-04

002-MW04-GW120519

1655 Joe / Kim sampled MW-13D

002-MW13D-GW120519

1700 Kevin (Vesteck) offsite

KL 12/5/19

~~1230 Neil offsite to ship coolers~~

~~1800 Kala, Joe, Kim, Emma, Todd, David offsite~~

Location Salt Lake City Date Dec 5 2019

Project / Client VA / 700 South 1600 East PCE Amd KL

1205 002-TB01-GW120519

1210 002-TB02-GW120519

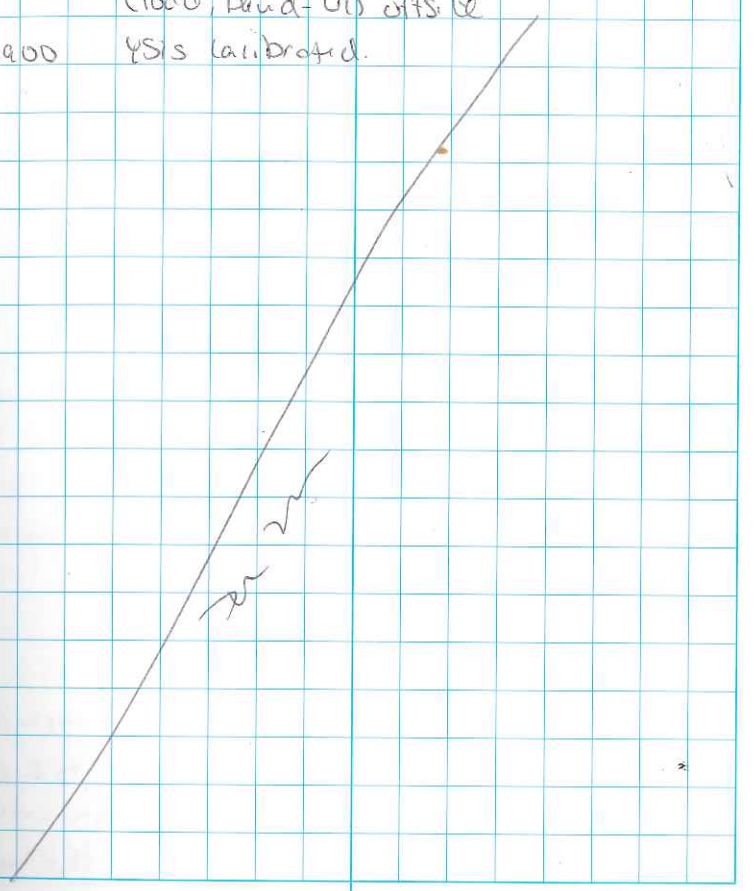
1215 002-TB03-GW120519

1730 Neil offsite to ship coolers

1900 All team (Kala Joe, Kim, Emma - graduated)

(Todd, David - UU) offsite

1900 YSIs calibrated.



Location Salt Lake City Date Dec 6 2019

Project / Client VA / 700 South 1600 East PCE Area 1C

Weather: Fog, overcast. in morn, Sun in afternoon 35-45°F

PPE: modified level D. Hardhats in Needed

Personel onsite: Kora Cosie (author), Joe Bile Kimberly Hauk, Emma Roth, Todd Burgesser (Cedar Smith) Kevin Murphy (Wasatch)

Planed activities: Groundwater sapling, shoring sapes and equipment. HASSITE sapes only JS

730 Health and safety meety. Calibrate PDS (CC Dec 6 19

900 Joe/Kim setting up on MW-125TD 16S1D

Emma/Kevin setting up on MW-06

Kora Packing coolers and shipping Sapples

0930 Emma/Kevin started sapling MW-06

OU2-MW6-GW120619 Shipped UI equipment

1000 Emma/Kevin drive to airgas

1019 Joe/Kim stat sapling MW-16D

OU2-MW16D-GW120619

1055 Joe/Kim stat sapling MW-16S

OU2-MW16S-GW120619

1130 Emma/Kevin setup at MW-01S1D

Discover air and water hose are disconnected

Pump (at 200ft bgs) is connected to surface by nylon rope only. Attempted to fish with tools onhand, line not strong enough to dislodge

Location Salt Lake City Date Dec 6 2019

Project / Client VA / 700 South 1600 East PCE Area 1C

11:45 Purging MW-01D

12:00 Joe/Kim setting up on MW-123D

1250 Started sampling MW-12D

OU2-MW12D-GW120619

1415 Started sapling MW-12S

OU2-MW12S-GW120619

1430 Todd Burgesser offsite

1600 Kora packing coolers OU2-TB05-GW120619

1605 Emma/Kevin Started sampling MW-01D

OU2-MW01D-GW120619

1610 Joe/Kim likely having difficulties setting up on MW-22. water stopped flowing Pulled pump and checked bladder, which seemed damaged. Pump very dirty. Photos taken.

530 Kevin and Emma offsite.

600 Joe, Kimberly, Kora offsite

630 4S1S calibrated at hotel

MW-12D/19

Rite in the Rain

Location Salt Lake City Date Dec 7 2019

Project / Client VA / 700 South 1600 East PCE Plume KC

Weather: Fog in morning, sunny. 35-45°F

PPE: modified level D. Hard hats if needed.

Personnel onsite: Kora Leslie (author), Kimberly Yauk, Joe Miller, Emma Foti, Kevin Murphy (Wasatch)

Planned activities: Groundwater sampling.

7:30 Heath and Safety meeting
Calibrated PIDs

0800 Joe / Emma setting up on MW-15S/D
Kora / Kim / Kevin setting up on MW-32

1000 [002-MW15D-GW120719] -MS/MSD

1000 [002-MW32a-GW120719]

1100 Collected duplicate of MW-15D
[002-FD02-GW120719]
Started purging MW-32b. Water is draining back down the tubing after pump cycle. Sudden spike in turbidity. Switched to purging MW-32c and pulled pump

1140 [002-MW032Bc-GW120719]

1145 [002-MW15S-GW-120719]
Kora / Kevin started purging MW-032b again. After turbidity spike. Purging MW-032d
Joe / Emma setting up on MW-14S/D
Approached by a home owner requesting more information. Team recorded contact info

Location Salt Lake City Date Dec 7 2019

Project / Client VA / 700 South 1600 East PCE Plume KC

1305 [002-MW14D-GW120719]
MD-50 controller compressor malfunction

1410 [002-MW14S-GW120719]

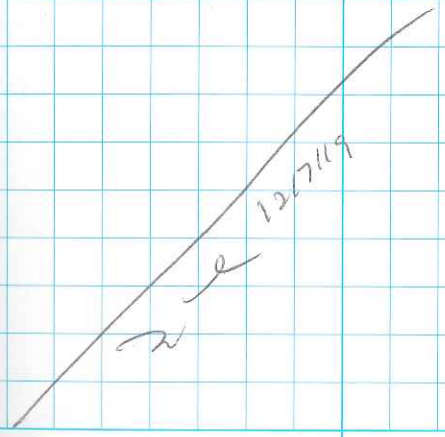
1450 [002-MW032d-GW120719]
Switched to purging MW-032b.
Still turbid, also gas breakthrough during purging.

1600 Pulled pump and disassembled. Photos taken of all parts. No obvious issues found.

1700 Kora, Emma, Kevin, ~~Joe~~ Kim offsite
Joe collecting water levels and downloading transducers

1900 Joe offsite.

1830 YSIs calibrated at hotel.



Rite in the Rain

Location Salt Lake City Date Dec 8 2019

Project / Client VA 1700 South 1600 East PCE Plume RI

Weather: Rain and snow. 35-40°F. Overcast

PPE: modified Level D. Hot shots if needed. safety vest, steel toe boots, safety glasses, nitrile gloves KC Dec 9/19

Personel onsite: Kona Leslie (CDM Smith author), Joe Miller, Kimberly Tauk, Emma Rott (CDM Smith), Kevin Murphy (Wasatch)

Planned activity: Groundwater Sampling.

0730 Health and Safety meeting

0900 Calibrated PIDs

0815 Emma setting up on MW-05R, Joe/Kevin setting up on MW-08, Kona/Kim on MW-17D

0955 [002-MW08C-GW120819]

1000 [002-MW17S-GW120819]

1015 [002-MW05R-GW120819]

Per discussion with Neil Smith, MW-17D will be sampled with a peristaltic pump The water line from the dedicated pump was removed for use. When pumping at 550 mL/min, water was still overflowing the well.

1105 [002-MW17D-GW120819]

1105 [002-MW08B-GW120819]

Emma Rott joined Kona + Kimberly.

1220 Collected duplicate of MW-08B [002-FD02-GW120819]

Location Salt Lake City Date Dec 8 2019

Project / Client VA 1700 South 1600 East PCE Plume ICC

1215 [002-MW08A-GW120819]

Kimberly, Kona, Emma setting up on MW-21.

Joe/Kevin setting up on MW-03B

No water at MW-21. Pulled the pump to check and clean check valves. Screen not clogged. Photos taken. Removed bladder It crimped/folded down the bath (photos) Reinstalled the pump. No water.

1245 Joe downloading transducers.

Jacobs purge form for MW-03B stated that due to high turbidity, well was purged 3 hours No water/air flow problems, will also purge for a extended period to lower turbidity.

1450 [002-MW03B-GW120819]

Collecting field blank at MW03B while sampling well.

1505 [002-FB01-GW120819]

1530 Teams return to Corey to pack supplies

1600 Kevin (Wasatch) offsite

1730 All personel offsite. Event completed.

12/9/19

Location Salt Lake City Date Dec 9 2019

Project / Client VA/ 700 South 1000 East PCE Plume RC

0730	Karla Leslie, Jack Miller, Erna Roth packing coolers at hotel.
0900	OU2-TB06-GW120918
0805	OU2-TB07-GW120918
0810	OU2-TB08-GW120918
0815	OU2-TB09-GW120918
1000	Team offsite to Fedex

12/9/19

Location Date

Project / Client

Appendix B-6

Field Checklists

WATER LEVEL AND MONITORING WELL SAMPLING CHECKLIST

Activity: Groundwate Sampig **Date:** Dec 8 2019

Answer each question by checking the appropriate column (yes, no, or not applicable [N/A]). If "no" or "N/A" are checked, provide an explanation in the comments section.

Synoptic Water Level Measurements	**Yes**	**No**	**N/A**
1. Were synoptic water level measurements collected prior to each groundwater sampling event, with all measurements for the event collected within the required 24-hour period?	✓		
Monitoring Well Sampling Procedures			
2. Was sampling equipment appropriate for the purpose and site conditions?	✓		
3. Were new protective gloves worn between sampling locations and/or intervals?	✓		
4. Was sampling equipment decontaminated between each location and/or sampling intervals, or dedicated/disposable equipment used?	✓		
5. Was the correct technique/method used to purge each well prior to sample collection?	✓		
6. If using a submersible pump, was the depth to which the pump was lowered recorded in the logbook or field form?			✓
7. Was low-flow sampling conducted in accordance with the approved UFP-QAPP and SOP?	✓		
8. Were field water quality monitoring instruments (e.g., YSI) calibrated per the UFP-QAPP?	✓		
9. Was a steady pumping rate reached and maintained so that total drawdown in the well was < 0.3 feet; or was the pump kept at a flow rate between 200 to 500 mL per minute?	✓		
10. Were wells purged until parameters stabilized before collecting samples?	✓		
11. Were purge parameters recorded in the logbook or on the well sampling form?	✓		
12. Was the purge line disconnected from the flow-through cell prior to sample collection and the flow rate < 250 mL per minute?	✓		
13. Were the bottles pre-preserved as required in the UFP-QAPP?	✓		
14. Were bottles adequately protected prior to sample collection to prevent cross-contamination?	✓		
15. Was headspace in sample containers for volatiles eliminated?	✓		
16. Were the appropriate QA/QC samples collected (duplicates, rinsate blanks, MS/MSD)?	✓		
17. Were sample containers filled in the correct order – VOCs, hydrocarbons, metals, geochemical parameters?	✓		
18. Was purge water properly containerized as IDW?	✓		
Sample Shipment			
19. Was the following information recorded on each sample label and in the logbook and/or field form – sample ID (including sample depth interval), location, analysis, date, time, preservative, sampler initials, and any other relevant information?	✓		
20. Were adhesive labels placed on each sample using indelible ink, or covered with clear tape?	✓		
21. Were duplicate samples labeled such that they would be "blind" to the laboratory?	✓		

Sample Shipment (continued)	Yes	No	N/A
22. Were MS/MSD samples noted in the logbook/field form and on the COC?	✓		
23. Were the COCs properly filled out, readable, and signed?	✓		
24. Were the sample coolers properly packed, including ice, trip blank (if appropriate), temperature blank, and a COC unique to the cooler?	✓		
25. Were copies of the COCs retained by field personnel?	✓		
26. Were custody seals signed, dated, and placed on each cooler prior to shipment?	✓		
27. Were the coolers shipped priority overnight for next day delivery to the laboratory?	✓		

Comments and Corrective Actions

List all corrective actions. Initial and date when corrective actions have been implemented.

The Field Team Leader and Project Manager shall sign this checklist upon completion of all items on the checklist.

Field Team Leader: _____ Date DEC 8/19

Project Manager: _____ Date _____

PREPARATORY INSPECTION/MOBILIZATION CHECKLIST

Activity: Groundwater Sapling IM Sapling **Date:** Dec 2, 2019

Answer each question by checking the appropriate column (yes, no, not observed [N/O] or not applicable [N/A]). If "no" is checked, provide an explanation on the form.

Activity	Yes	No	N/O	N/A	Remarks
1. Have copies of all work plans, including the health and safety plan, been printed for availability onsite? Have appropriate copies of all forms in the plans been prepared for site use?	✓				
2. Have pertinent work plans and requirements been explained to project personnel, including project documentation and recordkeeping requirements?	✓				FPM 11/21/19
3. Have all personnel working onsite read over the health and safety plan provided by CDM Smith (acknowledgement is by signing the health and safety plan signature form from the SSHP)?	✓				
4. Are the required materials, supplies, and equipment available, on-hand, in working order, and in accordance with plans and technical specifications?				✓	will check equipment once onsite
5. Have all applicable Safety Data Sheets been made available at the site?	✓				
6. Has all equipment been properly calibrated per manufacturer's requirements?				✓	will check once onsite
7. Have sample locations been marked out using a GPS unit or by a surveyor, as appropriate?	✓				
8. Have all applicable permits, licenses, and certificates been identified and/or obtained?	✓				
9. Have all utilities been marked out prior to the start of activities?				✓	
10. Does the subcontractor need to clear heavy underbrush or any overhead obstructions to access any locations?		✓			
11. Was all subcontractor equipment thoroughly checked, including inspection and testing of the emergency shutdown button on the drilling rig, generators, etc.?				✓	
12. Have the necessary laboratories been contracted to perform the requested analyses?	✓				
13. Has a designated staging area been established to store IDW and hold the decontamination pad?	✓				
14. For sample locations not in public right-of-way, have all appropriate access agreements ben obtained?	✓				
15. For existing wells, have keys been obtained?	✓				

FIELD DOCUMENTATION CHECKLIST

Activity: Groundwater Sampling **Date:** Dec 8 2019

Answer each question by checking the appropriate column (yes, no, or not applicable [N/A]). If "no" or "N/A" are checked, provide an explanation in the comments section.

Field Documentation	Yes	No	N/A
1. Was all original field data recorded in indelible ink?	✓		
2. Were log books and field forms (including DQCRs) filled out properly, accurately recounting the day's events? This includes documenting activities performed, weather conditions, personal protective equipment used, problems encountered, details of samples collected, site visitors, descriptions of photos taken, notes of conversations with Project Manager/Field Team Leader/Project Geologist, decontamination procedures used, etc.	✓		
3. Were deficiencies reported to the Project Manager?	✓		
4. Were the equipment arrival date, equipment type, onsite storage location, and serial number recorded on the log for each field instrument?	✓		
5. Were factory calibration certificates received with the field instruments and recorded on the log?	✓		
6. Are instruments being calibrated before and after use when necessary, and against know standards and/or per manufacturer specifications? (Passing calibration is within 10% of the standard.)	✓		
7. Are all instrument calibrations being accurately documented on the appropriate logs, including frequency of calibration checks, calibration acceptance criteria, and corrective actions for calibration failures?	✓		
8. Was the date that the field instrument left the site recorded in the logbook or on the instrument's log?	✓		
9. Was all IDW segregated by matrix/type to facilitate analysis and disposal? Were all IDW containers properly labeled as required in the QAPP?	✓		

Comments and Corrective Actions

List all corrective actions. Initial and date when corrective actions have been implemented.

The Field Team Leader and Project Manager shall sign this checklist upon completion of all items on the checklist.

Field Team Leader: _____ Date Dec 8/19

Project Manager: _____ Date _____

DECONTAMINATION CHECKLIST

Activity: Groundwater Sampling **Date:** Dec 7, 2019

Answer each question by checking the appropriate column (yes, no, not observed [N/O] or not applicable [N/A]). If "no" is checked, provide an explanation on the form.

Equipment	Yes	No	N/O	N/A
1. Was the decontamination pad constructed onsite per the UFP-QAPP?	✓			
2. Was all sampling equipment decontaminated properly prior to use and between sample intervals?				✓
3. Was each decontamination event recorded in the log book?				✓
4. Was clean equipment stored separately from non-decontaminated equipment?				✓
5. Was phosphate-free detergent and/or steam cleaning used?				✓
6. Was IDW handled in accordance with the approved work plan?	✓			

No non-dedicated Sampling equipment issued onsite.

Comments and Corrective Actions

Initial and date when corrective actions have been implemented.

The Field Team Leader and Project Manager shall sign this checklist upon completion of all items on the checklist.

Field Team Leader: [signature] Date Dec 7, 2019

Project Manager: _____ Date _____

Appendix B-7

Chain of Custody Forms

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. *

PROJECT CODE:

CLIENT CDM Smith

PROJECT 700 South 1400 East PCE Plume

COORDINATOR Cherie Zakowski

TEL 720-2604-1109 FAX EMAIL zakowskic@cdmsmith.com

SEND REPORT TO

COMPANY

ADDRESS

EMAX PM Rasan Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs 8260B/8260D SIM; 1,4-Dioxane 8270D SIM; mEE 125X 125; Metals (Mn, Fe) 6010B/6020B; Chloride, Sulfate 300.0; Nitrate + Nitrite 353.2; Alkalinity 310.2; TDS 160.1; TOC 9060

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	PRESERVATIVE CODE	COMMENTS
* 1	OU2-MW205-GW120419		12/4/19	1610	13			GW		HC IC HC HN IC HS IC HS	
* 2	OU2-MW200-GW120519		12/5/19	1150	13			GW		HC IC HC HN IC HS IC HS	
* 3	OU2-TB2-GW120519		12/5/19	1710	2			GW		HC	
* 4											
* 5											
* 6											
* 7											
* 8											
* 9											
* 0											

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Kyle Wilde 303-722-0127

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
[signature]	12/5/19	1800	

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. *

PROJECT CODE:

CLIENT CDM Smith
PROJECT 700 South 1600 East PCE Plume
COORDINATOR Chris Zakowski zakowskic@cdmsmith.com
TEL 720-264-1109 FAX EMAIL
SEND REPORT TO
COMPANY CDM Smith
ADDRESS 555 17th St Suite 500
Denver, CO 80201
EMAX PM Ramon Sinjo

MATRIX CODE		PRESERVATIVE CODE	
DW=Drinking Water		IC = Ice	
GW=Ground Water		HC = HCl	
WW=Waste Water		HN=HNO3	
SD=Solid Waste SL=Sludge		SH=NaOH	
SS=Soil/ Sediment		ST=Na2S2O3	
WP=Wipes PP=Pure Products		ZA=Zinc Acetate	
AR=Air		HS=H_2SO_4	
O=			

ANALYSIS REQUIRED: VOCs 8260C; 1,4-Dioxane 8270D SIM; Gases (MEE) MEE-175; Metals-Perchlorate 6020A 7470; Chloride-Sulfate 300; Nitrate-Nitrite ISA 4500; Alkalinity 2320; TDS 160.1

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

SAMPLE ID		SAMPLING			CONTAINER			MATRIX CODE	QC	PRESERVATIVE CODE								COMMENTS
LAB	CLIENT	LOCATION	DATE	TIME	NO.	SIZE	TYPE			HC	IC	HC	HN	IC	HS	IC	HS	
1	OU2-MW02-GW120519		12/5/19	12:15	13			GW	MS/MSD	X	X	X	X	X	X	X	X	MS/MSD in other cooler
2	OU2-FD01-GW120519		12/5/19	1300	13			GW		X	X	X	X	X	X	X	X	
3	OU2-MW135-GW120519		12/5/19	1440	6			GW		X		X						
4	OU2-MW13D-GW120519		12/5/19	1455	6			GW		X		X						
5	OU2-MW04-GW120519		12/5/19	1605	6			GW		X		X						
6	OU2-TB04-GW120619		12/6/19	915	3			GW		X								
7																		
8																		
9																		
0																		

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Kayla Leslie 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/6/19	1000	

NOTICE: Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:
SAMPLE STORAGE

EMAX CONTROL NO. *
PROJECT CODE:

CLIENT CDM Smith
PROJECT 700 South 11600 East PCE Plume
COORDINATOR Cherie Zakowski
TEL 720-264-1109 FAX EMAIL zakowskica@cdmsmith.com
SEND REPORT TO
COMPANY
ADDRESS
EMAX PM Rona Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs 8260C; Chlorinated Hydrocarbons 8270D SIM; MEE 18SK 175; Metals/meq 6020A; Chloride buffer 300.0; Nitrate Nitrite 353.2 4500; Alkalinity 2320B; TDS 160.1; TOC 9060

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☒ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	SAMPLING DATE	SAMPLING TIME	CONTAINER NO.	CONTAINER SIZE	CONTAINER TYPE	MATRIX CODE	QC	PRESERVATIVE CODE	COMMENTS
1	OU2-MW18-GW120519		12/5/19	0955	13			GW		HC IC HC HN IC HS IC HS	
2	OU2-MW19-GW120519		12/5/19	1000	13			GW		HC IC HC HN IC HS IC HS	
3	OU2-TB1-GW120519		12/5/19	1705	2			GW		HC	
4											
5											
6											
7											
8											
9											
0											

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Kara Leshe 785-727-0107
COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
[signature]	12/5/19	1600	

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:
SAMPLE STORAGE
EMAX CONTROL NO. *
PROJECT CODE:

CLIENT CDM Smith
PROJECT 700 South 1600 East PCE Plume
COORDINATOR [illegible] Kowalski
TEL 720-264-1109 FAX EMAIL kowalskicm@cdmsmith.com
SEND REPORT TO
COMPANY
ADDRESS
EMAX PM

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

ANALYSIS REQUIRED / PRESERVATIVE CODE

LAB	CLIENT SAMPLE ID	LOCATION	DATE	TIME	NO.	SIZE	TYPE	MATRIX CODE	QC	VOCs	1,4-dioxane	MEE (RSK175)	metals/mercury	Chloride/Sulfate	Nitrate/Nitrite	Alkalinity/TDS	TOC	COMMENTS
1	OU2-MW02-GW120519		12/5/19	1215	26			GW	X	HC	IC	HC	HN	IC	HS	IC	HS	MS/MSD
2	OU2-TB3-GW120519		12/5/19	12:15	3			GW	X	HC	~~IC~~	~~HC~~						
3											KL 12/5/19							
4																		
5																		
6																		
7																		
8																		
9																		
0																		

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Kowalski 785-727-0107
COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
[illegible signature]	12/5/19	1800	

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. *

PROJECT CODE:

CLIENT CDM Smith

PROJECT 700 South 1600 East PCE Plume

COORDINATOR Cherie Zakoski

TEL 720-264-1109 FAX EMAIL zakoskica@cdmsmith.com

SEND REPORT TO

COMPANY CDM Smith

ADDRESS 555 17th St Suite 500
Denver, CO 80201

EMAX PM Rama Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs/8260C; 1,4-Dioxane/8270DSIM; Gases (CAE)/RSK-175; Metals (Mercury)/6020A/7470; Chloride/SM4500 Cl B; Nitrate + Nitrite/SM4500 NO3 F; Alkalinity/TDS/TOC/9060

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	PRESERVATIVE CODE	COMMENTS
1	OU2-MW16S-GW120619		12/6/19	1055	7					IC, HN, IC, HS, IC, HS	
2	OU2-MW16D-GW120619		12/6/19	1019	7					IC, HN, IC, HS, IC, HS	
3	OU2-MW06-GW120619		12/6/19	930	7					IC, HN, IC, HS, IC, HS	
4											
5											
6											
7											
8											
9											
0											

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Rama Losile 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/6/19	1700	

NOTICE: Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepancies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associated with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:
SAMPLE STORAGE

EMAX CONTROL NO. *

PROJECT CODE:

CLIENT CDM Smith
PROJECT 700 South 1600 East PCE Plume
COORDINATOR Cherie Zakowski
TEL 720-264-1109 FAX EMAIL zakowskica@cdmsmith.com
SEND REPORT TO
COMPANY CDM Smith
ADDRESS 555 17th St Suite 500
Denver, CO 80201
EMAX PM Rama Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

ANALYSIS REQUIRED / PRESERVATIVE CODE

LAB	SAMPLE ID CLIENT	LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	VOCs/8260C (HC)	1,4-Dioxane 8270D SIM (IC)	Gases (MEE) RSK-175 (HC)	Metals Mercury 6020A/7470 (HN)	Chloride/Sulfate 300 (IC)	Nitrate + Nitrite SM 4500 (HS)	Alkalinity/TDS (IC)	TOC/9060 (HS)	COMMENTS
1	OU2-MW12S-GW120619		12/6/19	1415	13					X	X	X	X	X	X	X	X	
2	OU2-MW12D-GW120619		12/6/19	1250	13					X	X	X	X	X	X	X	X	
3	OU2-MW16S-GW120619		12/6/19	1055	7					X		X						
4	OU2-MW16D-GW120619		12/6/19	1019	7					X		X						
5	OU2-MW06-GW120619		12/6/19	930	7					X		X						
6	OU2-TB05-GW120619		12/6/19	1600	3					X								
7																		
8																		
9																		
0																		

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Karla Leslie 785-727-0107
COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
[signature]	12/6/19	1700	

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. *

PROJECT CODE:

CLIENT CDM Smith
PROJECT 700 South 1600 East PCE Plume
COORDINATOR Chase Zakarski
TEL 720-2104-1109 FAX EMAIL zakarskica@cdmsmith.com
SEND REPORT TO
COMPANY CDM Smith
ADDRESS 555 17th St Suite 500
Denver, CO 80201
EMAX PM Rama Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs 8260C; 1,4-Dioxane 8270D SIM; Gases (MEE) (RSK 175); Metals (Arsenic, Mercury) 6020A 7470; Chloride, Sulfate 300; Nitrate & Nitrite 353.2 4500; Alkalinity 310.1; TDS 160.1

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	PRESERVATIVE CODE	COMMENTS
1	OU2-FD02-GW120819		12/8/19	1220	13			GW		HC, IC, HC, HN, IC, HS, IC, HS	
2	OU2-MW08C-GW120819		12/8/19	955	13			GW		HC, IC, HC, HN, IC, HS, IC, HS	
3	OU2-MW17D-GW120819		12/8/19	1105	6			GW		HC, HC	
4	OU2-MW17S-GW120819		12/8/19	1000	6			GW		HC, HC	
5	OU2-FB01-GW120819		12/8/19	1505	3			GW		HC, HC, HN, IC 12/9/19	
6	OU2-TB09-GW120919		12/9/19	815	3			GW		HC	
7											
8											
9											
0											

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Karla Lesle 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/9/19	1020	

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. *

PROJECT CODE:

CLIENT COM Smith

PROJECT 700 South 1600 East PCE Plume

COORDINATOR Cheryl Zakowski

TEL 720-264-1109 FAX EMAIL zakowskic@comsmith.com

SEND REPORT TO

COMPANY COM Smith

ADDRESS 555 17th St Suite 500
Denver CO 80201

EMAX PM Rana Sigh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs 8260C; 1,4-Dioxane 8270C SIM; Gases (AEE) RSK-175; Metals-Mercury 6020A 7470A; Chloride, Sulfate 300; Nitrate 353.2; Alkalinity; TDS; TDC 9060

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	PRESERVATIVE CODE	COMMENTS
1	OU2-MW17D-GW120819		12/9/19	1105	7			GW		HC IC HC HN IC HS IC HS	
2	OU2-MW17S-GW120819		12/9/19	1000	7			GW		HC IC HC HN IC HS IC HS	
3	OU2-FB01-GW120819		12/8/19	1505	2			GW		HC IC HC HN IC HS IC HS	
4											
5											
6											
7											
8											
9											
0											

Instructions	Cooler #	Temp. (°C)	Sample #s

SAMPLER Kate Leslie 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/9/19	1000	

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. *

PROJECT CODE:

CLIENT CDM Smith
PROJECT 700 South 1600 East ACE Plume
COORDINATOR Cherie Zakowski
TEL 720-264-1109 FAX EMAIL zakowskica@cdmsmith.com
SEND REPORT TO
COMPANY CDM Smith
ADDRESS 555 17th St Suite 500
Denver, CO 80201
EMAX PM Rama Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs/8260C; 1,4-Dioxane/8270DSIM; Gases (CAE) EPA RSK-175; Metals (Recov.)/6020A 7470; Chloride, Sulfate 300; Nitrate + Nitrite EPA 4500; Alkalinity; TDS; TOC 9060

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	SAMPLING DATE	SAMPLING TIME	CONTAINER NO.	CONTAINER SIZE	CONTAINER TYPE	MATRIX CODE	QC	PRESERVATIVE CODE HC	IC	HC	HN	IC	HS	IC	HS	COMMENTS
1	OU2-MW15D-GW120719		12/7/19	1000	21			GW			X		X	X	X	X	X	MS/MSD
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Karla Losile 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time
	12/9/19	1000

RECEIVED BY

Samples shall not begin until all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of ... report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at th...

CHAIN OF CUSTODY

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1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. *

PROJECT CODE:

CLIENT CDM Smith

PROJECT 700 South 1600 East ACE Plume

COORDINATOR Cherie Zakrzewski

TEL 720-264-1109 FAX EMAIL zakrzewskica@cdmsmith.com

SEND REPORT TO

COMPANY CDM Smith

ADDRESS 555 17th St Suite 500

Denver, CO 80201

EMAX PM Rama Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO_3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=$Na_2S_2O_3$
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs/8260C; 1,4-Dioxane 8270DSIM; Gases (ME/E)/RSK-175; Metals-Mercury/6020A/7470; Chloride, Sulfate 300; Nitrate + Nitrite SM 4500; Alkalinity/TDS; TOC 9060

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	CONTAINER SIZE	CONTAINER TYPE	MATRIX CODE	QC	PRESERVATIVE CODE	COMMENTS
1	OU2-MW15D-GW120719 (MW15D-GW120719)		12/7/19	1000	18			GW		HC	MS/MSD
2	OU2-MW08a-GW120819		12/8/19	1215	13			GW		IC HC HN IC HS IC HS	
3	OU2-MW14S-GW120719		12/7/19	1410	13			GW		IC HC HN IC HS IC HS	
4	OU2-TB07-GW120918		12/9/18	805	3				X	HC	
5											
6											
7											
8											
9											
0											

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Kamia Leslie 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/9/19	1000	

NOTICE: Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:
SAMPLE STORAGE

EMAX CONTROL NO. *
PROJECT CODE:

CLIENT CDM Smith
PROJECT 700 South 1600 East PCE Plume
COORDINATOR Cherie Zakowski
TEL 720-264-1109 FAX EMAIL zakowskica@cdmsmith.com
SEND REPORT TO
COMPANY CDM Smith
ADDRESS 555 17th St Suite 500
Denver CO 80201
EMAX PM Rana Sigh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs 8260C; 1,4-Dioxane 8270C SIM; Gases RSK-175; Metals-Mercury 6020A 7470; Chloride, Sulfate 300; Nitrate, Nitrite 353.2 4500; Alkalinity, TDS; TOC 9060

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	CONTAINER SIZE	CONTAINER TYPE	MATRIX CODE	QC	PRESERVATIVE CODE	COMMENTS
1	OU2-MW17D-GW120819		12/18/19	1105	7			GW		HC IC HC HN IC HS IC HS: X X X X X X	
2	OU2-MW17S-GW120819		12/18/19	1000	7			GW		HC IC HC HN IC HS IC HS: X X X X X X	
3	OU2-FB01-GW120819		12/18/19	1505	2			GW		HC IC HC HN IC HS IC HS: X	
4											
5											
6											
7											
8											
9											
0											

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Kala Leshé 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/19/19	1000	

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of a
[illegible] but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. *

PROJECT CODE:

CLIENT CDM Smith

PROJECT 700 South 1600 East PCE Plume

COORDINATOR Cherie Zakowski

TEL 720-264-1109 FAX EMAIL zakowskica@cdmsmith.com

SEND REPORT TO

COMPANY CDM Smith

ADDRESS 555 17th St Suite 500
Denver, CO 80201

EMAX PM Rama Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs 8260C; 1,4-Dioxane 8270DSH; Gases (RSK-175); Metals: Mercury 7470A, 6020A; Chloride, Sulfate 300; Nitrate + Nitrite SM 4500; Alkalinity; TDS; TOC 9060

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	PRESERVATIVE CODE HC	IC	HC	HN	IC	HS	IC	HS
1	OU2-MW03Ra-GW120719		12/7/19	1000							X		X	X	X	X	X
2	OU2-MW03RD-GW120719		12/8/19	1450							X		X	X	X	X	X
3	OU2-MW03Rd-GW120719		12/7/19	1450							X		X	X	X	X	X
4																	
5																	
6																	
7																	
8																	
9																	
0																	

COMMENTS

Cooler #	Temp. (°C)	Sample #s

Instructions

SAMPLER Rama Lasile 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/9/19	1000	

NOTICE: Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. *

PROJECT CODE:

CLIENT CDM Smith

PROJECT 700 South 1600 East PCE Plume

COORDINATOR Cherie Zakowski

TEL 720-264-1109 FAX EMAIL zakowskica@cdmsmith.com

SEND REPORT TO

COMPANY CDM Smith

ADDRESS 555 17th St Suite 500
Denver, CO 80201

EMAX PM Rama Singh

MATRIX CODE	PRESERVATIVE CODE
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SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs/8260C; 1,4-Dioxane/8270DSIM; Gases (ME)/RSK-175; Metals: Mercury/6020A/7470; Chloride/Sulfate/300; Nitrate + Nitrite/SM4500; Alkalinity/TDS; TOC/9060

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	PRESERVATIVE CODE HC	IC	HC	HN	IC	HS	IC	HS	COMMENTS
1	OU2-MW01D-GW120619		12/6/19	1605	6			GW		X		X						
2	OU2-FD03-GW120719		12/7/19	1100	13			GW		X	X	X	X	X	X	X	X	
3	~~OU2-135-MW125-GW~~ KC Dec 9 19		—	—				—										
4	OU2-MW14D-GW120719		12/7/19	1305	6			GW		X		X						
5	OU2-TB06-GW120918		12/9/19	0800	3			GW		X		X	KC 12/9/19					
6	OU2-MW03RC-GW120719		12/7/19	1140	6			GW		X		X						
7	OU2-MW15S-GW120719		12/7/19	1145	13			GW		X	X	X	X	X	X	X	X	
8																		
9																		
10																		

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Karla Losile 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/9/19	1000	

NOTICE: Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepancies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. *

PROJECT CODE:

CLIENT CDM Smith
PROJECT 700 South 1600 East ACE Plume
COORDINATOR Cherie Zakowski
TEL 720-264-1109 FAX EMAIL zakowskica@cdmsmith.com
SEND REPORT TO
COMPANY CDM Smith
ADDRESS 555 17th St Suite 500
Denver, CO 80201
EMAX PM Rama Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
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SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs 8260C; 1,4-Dioxane 8270DSIM; Gases (RSK-175/EPA 3810); Metals: Mercury 6020A, 7470; Chloride, Sulfate 300; Nitrate & Nitrite SM 4500; Alkalinity; TDS; TOC 9060

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

LAB	SAMPLE ID / CLIENT	SAMPLING: LOCATION	DATE	TIME	CONTAINER: NO.	SIZE	TYPE	MATRIX CODE	QC	PRESERVATIVE CODE: HC	IC	HC	HN	IC	HS	IC	HS	COMMENTS
1	OU2-MW01D-GW120619		12/6/19	1605	7			GW			X		X	X	X	X	X	
2	OU2-MW14D-GW120719		12/7/19	1305	7			GW			X		X	X	X	X	X	
3	OU2-MW03Rc-GW120719		12/7/19	1140	7			GW										
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Kayla Losik 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/9/19	1000	

NOTICE: Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of a
after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

EMAX CONTROL NO. *

SAMPLE STORAGE

PROJECT CODE:

CLIENT CDM Smith

PROJECT 700 South 1600 East ACE Plume

COORDINATOR Cherie Zakowski

TEL 720-264-1109 FAX EMAIL zakowskica@cdmsmith.com

SEND REPORT TO

COMPANY CDM Smith

ADDRESS 555 17th St Suite 500
Denver, CO 80201

EMAX PM Rama Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
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SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs 8260C; 1,4-Dioxane 8270DSIM; Gases (RSK-175); Methane, Ethane, Ethene/GODA 3760; Chloride, Sulfate 300; Nitrate + Nitrite SM 4500; Alkalinity; TDS; TOC 9060

TAT
- ☐ Rush ____ hrs.
- ☐ Rush ____ days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____ days
- ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	PRESERVATIVE CODE								COMMENTS
										HC	IC	HC	HN	IC	HS	IC	HS	
1	OU2-MW03Ra-GW120719		12/7/19	1000						X		X						
2	OU2-MW03Rb-GW120819		12/8/19	1450						X		X						
3	OU2-MW03Rd-GW120819		12/7/19	1450						X		X						
4	OU2-MW05R-GW120819		12/8/19	1015						X	X	X	X	X	X	X	X	
5	OU2-MW08b-GW120819		12/8/19	1105						X	X	X	X	X	X	X	X	
6	OU2-TB08-GW120919		12/9/19	810	3					X								
7																		
8																		
9																		
10																		

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Karla Losile 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/9/19	1000	

CHAIN OF CUSTODY

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1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. *

PROJECT CODE:

CLIENT: CDM Smith
PROJECT: 700 South 1600 East PCE Plume
COORDINATOR: Cherie Zakowski
TEL: 720-264-1109 FAX: EMAIL: zakowskica@cdmsmith.com

SEND REPORT TO
COMPANY: CDM Smith
ADDRESS: 555 17th St Suite 500
Denver, CO 80001
EMAX PM: Raman Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
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TAT
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- ☐ Rush ____days
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- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

ANALYSIS REQUIRED

LAB	SAMPLE ID CLIENT	LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	VOCs/8260C (HC)	1,4-Dioxane 8270DSIM (IC)	Gases (MEE) RSK-175 (HC)	Metals: Mercury/6020A: 7470 (HN)	Chloride, Sulfate 1300 (IC)	Nitrate + Nitrite SM 4500 (HS)	Alkalinity/TDS (IC)	TOC 9060 (HS)	COMMENTS
1	OU2-FD02-GW120819		12/8/19	12:20	13			GW		X	X	X	X	X	X	X	X	
2	OU2-MW08C-GW120819		12/8/19	955	13			GW		X	X	X	X	X	X	X	X	
3	OU2-MW17D-GW120819		12/8/19	1105	6			GW		X		X						
4	OU2-MW17S-GW120819		12/8/19	1000	6			GW		X		X						
5	OU2-FB01-GW120819		12/8/19	1505	3			GW ~~8~~		X		~~X~~	KL 12/9/19					
6	OU2-TB09-GW120919		12/9/19	815	3			GW ~~8~~	X	X								
7																		
8																		
9																		
0																		

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER: Karla Leslie 785-727-0107

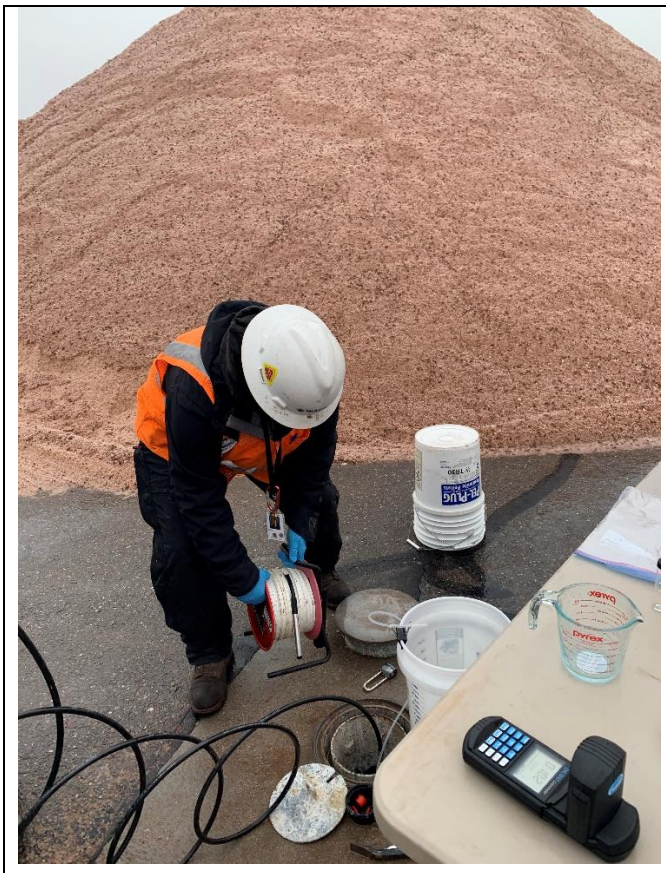
COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
[signature]	12/9/19	1000	

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as ... of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the ...

Appendix B-8

Photolog

	Date: 12/5/2019 **Location:** MW-02 **Description:** Groundwater monitoring setup with Salt/Sand pile in the background
	Date: 12/4/2019 **Location:** MW-22 **Description:** View looking north as team prepares to gauge depth to water.

Date: 12/4/2019

Location: MW-20D

Description: Air hose was disconnected upon arrival and slipped down the well. The hose was successfully fished from the well, but it resulted in a knot with the strings holding the transducer and pump. The pump was pulled, untangled, and redeployed. Sampling was conducted the next day to allow any turbidity to settle.

	Date: 12/4/2019 **Location:** MW-08 **Description:** View looking east as team prepares to gauge depth to water. Cones were placed out the night before to prevent a vehicle from parking over the well.
	Date: 12/6/2019 **Location:** MW-22 **Description:** Pump pulled from MW-22 due to lack of discharge. Pump fittings and screen had visible buildup.

	Date: 12/6/2019 **Location:** MW-22 **Description:** Bladder removed from interior of pump. Note crease in bladder preventing full expansion (Red Arrow). Bladder reinstalled and check valves cleaned. No sample discharge was achieved.
	Date: 12/8/2019 **Location:** MW-08 **Description:** Field team monitoring groundwater at MW-08. View to the south.

	Date: 12/8/2019 **Location:** MW-21 **Description:** Similar to MW-21, bladder removed from interior of pump. Note crease in bladder preventing full expansion. Bladder reinstalled and check valves cleaned. No sample discharge was achieved.
	Date: 12/7/2019 **Location:** MW-14D **Description:** MW-14D is an artesian well. The well is capped with pressure gauge and valve that allows flow of water from discharge line.

Date: 12/5/2019

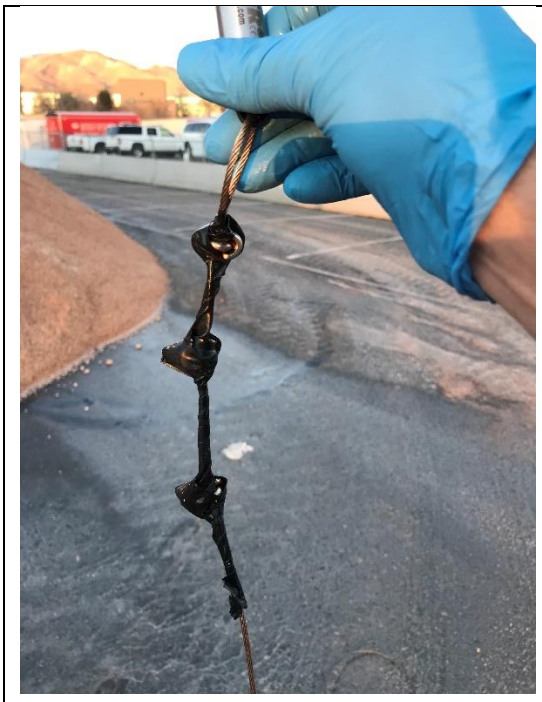
Location: MW-12D

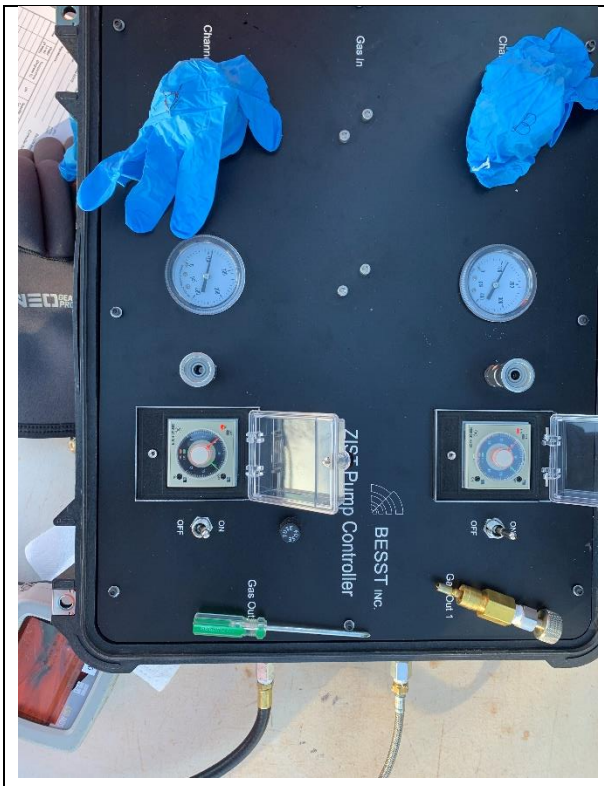
Description: Team set up for groundwater monitoring at MW-12D.

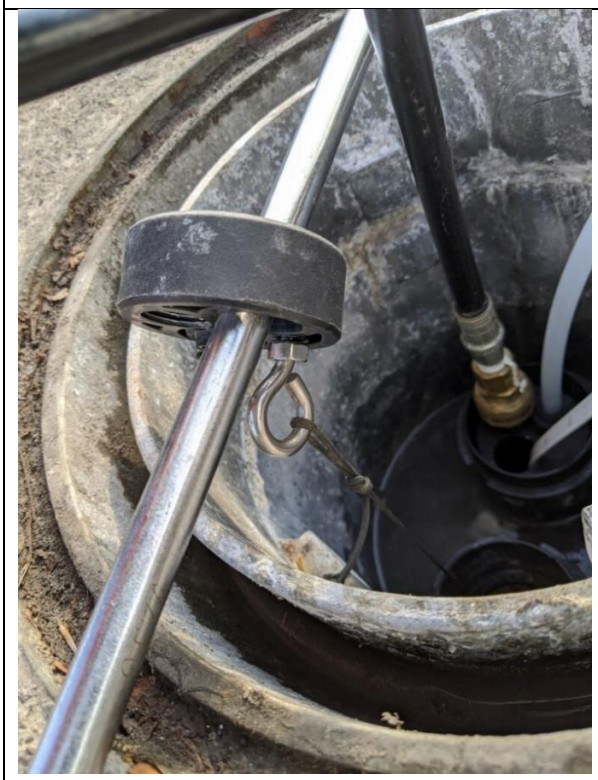
Date: 12/5/2019

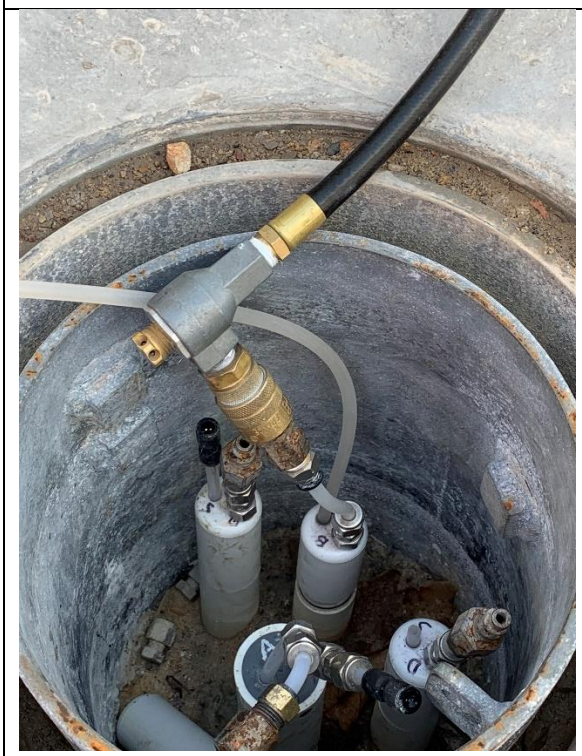
Location: MW-16 S/D

Description: Groundwater Monitoring team set up at MW-16 S/D. View to the east across Elizabeth street.

	Date: 12/7/2019 **Location:** MW-02 **Description:** Steel cable with fasteners covered in electrical tape which hold the transducer.
	Date: 12/7/2019 **Location:** MW-03 **Description:** ZIST pump from MW-03Rb. High turbidity water was purged, pump was pulled to check operations. Pump redeployed and sampled the next day.

	Date: 12/7/2019 **Location:** MW-03R **Description:** Dual channel ZIST pump controller set up at MW-03R
	Date: 12/8/2019 **Location:** MW-04 **Description:** View to the north in Sunnyside Park. MW-04 (red arrow) has a small well pad and may be hard to locate.

	Date: 12/8/2019 **Location:** MW-03R **Description:** Groundwater monitoring setup at MW-03Rb with ZIST pump controller.
	Date: 12/6/2019 **Location:** MW-01S **Description:** String holding MW-01S as none of the sample tubing is a connected to the well cap

	Date: 12/6/2019 **Location:** MW-01S **Description:** Tangled transducer and barometric sensor retrieved from MW-01S.
	Date: 12/7/2019 **Location:** MW-03R **Description:** MW-03R has multilevel well completions.

Appendix C

Quality Control Summary Report

Quality Control Summary Report
Q4 2019 Groundwater Sampling Event

CONTRACT NO.: W912DQ-18-D-3008
DELIVERY ORDER NO.: W912DQ19F3048

700 South 1600 East PCE Plume Site
Salt Lake City, Utah

U.S. Army Corps of Engineers
Kansas City District

Department of Veterans Affairs
Veterans Health Administration Salt Lake City
Health Care System

June 2020

CDM Smith

Table of Contents

List of Tables

Attachments

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Acronyms

%D	percent difference
%R	percent recovery
CDM Smith	CDM Federal Programs Corporation
COC	chain-of-custody
DQI	data quality indicator
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
ICP	inductively coupled plasma
ICP-MS	inductively coupled plasma mass spectrometry
LCS	laboratory control sample
LCS/LCSD	laboratory control sample/laboratory control sample duplicate
MDL	method detection limit
MRL	method reporting limit
MS/MSD	matrix spike/matrix spike duplicate
OU	Operable Unit
PARCCS	precision, accuracy, representativeness, comparability, completeness, and sensitivity
PCE	Tetrachloroethene
PQL	practical quantitation limit
QA	quality assurance
QAPP	quality assurance project plan
QC	quality control
QCSR	quality control summary report
RI	remedial investigation
RL	reporting limit
RPD	relative percent difference
RSD	relative standard deviation
SDG	sample delivery group
SIM	selective ion monitoring
Site	Plume Superfund Site
SVOCs	Semivolatile Organic Compounds
USACE	U.S. Army Corps of Engineers
VOCs	Volatile Organic Compounds

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Section 1
Data Usability and Assessment Review

Under the U.S. Army Corps of Engineers (USACE), Kansas City District, Contract No. W912DQ-18-D-3008, Task Order No. W912DQ19F3048, CDM Federal Programs Corporation (CDM Smith) was directed to perform a remedial investigation (RI) for Operable Unit (OU) 1 of the 700 South 1600 East Tetrachloroethene (PCE) Plume Superfund Site (Site) in Salt Lake City, Utah. To assist in the ongoing RI at the Site, groundwater samples were collected from December 4 through 10, 2019 and shipped to EMAX Laboratories, Inc. in Torrance, California for sample analysis.

The purpose of this quality control summary report (QCSR) is to summarize the data validation and determine whether the sample results meet the data quality objective (DQO) of data usability outlined in the *Quality Assurance Project Plan, 700 South 1600 East PCE Plume Site, Operable Unit 2, Salt Lake City, Utah, U.S. Army Corps of Engineers Kansas City District, Department of Veterans Affairs Veterans Health Administration Salt Lake City Health Care System, November 2019 (QAPP)* (CDM Smith 2019).

1.1 Usability Summary

Data collected during this field investigation and validated for this QCSR are usable as reported. Applicable data validation qualifiers were added if required. No sample results were rejected. Specific details are provided in the validation reports presented in Section 5 and **Attachment 1** of this report. A summary of the validation is presented in the following sections.

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Section 2
Quality Assurance Objectives

Quality assurance (QA) objectives for measurement data are expressed in terms of precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS). The QA objectives provide a mechanism for ongoing quality control (QC) and evaluating and measuring data quality throughout the project.

A review of the collected data is necessary to determine if data measurement objectives established in the QAPP (CDM Smith 2019) have been met. In general, the following data measurement objectives were considered:

- Achievement of analytical method and reporting limit (RL) requirements
- Adherence to and achievement of appropriate laboratory analytical QC requirements
- Achievement of required measurement performance criteria for data quality indicators (DQIs) PARCCS
- Adherence to sampling and sample handling procedures
- Adherence to the sampling design and deviations documented on field change notifications if required

The data validation review of the QA objectives verifies that the collected data are of sufficient quality to support their intended use.

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Section 3
Field and Laboratory Quality Assurance Activities

CDM Smith completed field sampling activities between December 4 and 10, 2019. A summary of the number of samples collected and the date on which the sampling event occurred follows:

EMAX SDG 19L043 – Groundwater
5 samples
3 trip blank samples
EMAX SDG 19L057 – Groundwater
8 samples
1 field duplicate sample
EMAX SDG 19L064 – Groundwater
15 samples
2 field duplicate samples
4 trip blank samples

SDG – sample delivery group

All samples were received intact with proper chain-of-custody (COC) documentation at EMAX Laboratories, Inc. Sample identification was accurately documented by the laboratories. **Table 3-1** presents a list of the samples collected and the analyses performed. **Attachment 2** presents the completeness check review of the data packages. **Attachment 3** includes the analytical data packages.

Sample preparation and analyses were conducted within the method-specified holding times.

The QAPP (CDM Smith 2019) defined the procedures to be followed and the data quality requirements for the field sampling events.

3.1 Deviations from Field Procedures

Field deviations are discussed in the data summary report. DQOs were met for samples that were collected. Some samples could not be collected due to malfunctioning pumps. The wells that were not sampled do not reduce the completeness of the data set. The pumps in the wells that could not be sampled will be fixed and re-sampled during the next quarter.

3.2 Field Quality Assurance/Quality Control

Three field duplicate pairs were collected for the groundwater samples. The QC sample collection frequency requirement in the QAPP (CDM Smith 2018) (10 percent) has been met.

One field blank sample was collected. No equipment blanks were collected as dedicated sampling equipment was used. One trip blank was submitted with each cooler sent to the laboratory for a total of 9 trip blank samples.

Field QA/QC objectives were accomplished through the use of appropriate sampling techniques and collection of the required QC samples at the required frequencies.

3.3 Laboratory Quality Assurance/Quality Control

Analytical QA/QC was assessed by laboratory QC checks, method blanks, sample custody tracking, sample preservation, adherence to holding times, laboratory control sample (LCS), matrix spike samples, calibration recoveries, inductively coupled plasma (ICP) interference checks, and other applicable QC parameters. As presented in the data validation reports in **Attachment 1** of this report, the laboratory QC sample criteria met project requirements with the appropriate qualifiers applied. All data are considered usable.

3.3.1 Laboratory Methods

Samples were analyzed using the following United States Environmental Protection Agency (EPA) or Standard Methods (SM):

Groundwater

- EPA Method SW8260C – Volatile Organic Compounds (VOCs)
- EPA Method SW8270D SIM – Semivolatile Organic Compounds - Selective Ion Monitoring (SVOCs – 1,4-Dioxane)
- EPA Method SW6020A – Metals
- EPA Method SW7470A - Mercury
- RSK-175 – Dissolved Gases (Ethane, Ethene, Methane)
- EPA Method 300.0 – Chloride, Sulfate
- Method SM2320B – Total Alkalinity
- Method SM2540C – Total Dissolved Solids
- Method SM4500-NO3E – Nitrogen, Nitrate-Nitrite
- EPA Method SW9060 – Total Organic Carbon

The methods used met project objectives.

Table 3-1
Sample List and Analysis

Field Sample ID	Matrix	Date Sampled	Laboratory SDG	Method
OU2-FB01-GW120819	WG	12/8/2019	19L064	8260C, SW8270DSIM
OU2-FD01-GW120519	WG	12/5/2019	19L057	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-FD02-GW120819	WG	12/8/2019	19L064	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-FD03-GW120719	WG	12/7/2019	19L064	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW01D-GW120619	WG	12/6/2019	19L064	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW02-GW120519	WG	12/5/2019	19L043	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW03RA-GW120719	WG	12/7/2019	19L064	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW03RB-GW120819	WG	12/8/2019	19L064	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW03RC-GW120719	WG	12/7/2019	19L064	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW03RD-GW120719	WG	12/7/2019	19L064	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW04-GW120519	WG	12/5/2019	19L057	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW05R-GW120819	WG	12/8/2019	19L064	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW06-GW120619	WG	12/6/2019	19L057	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW08A-GW120819	WG	12/8/2019	19L064	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060

Table 3-1
Sample List and Analysis

Field Sample ID	Matrix	Date Sampled	Laboratory SDG	Method
OU2-MW08B-GW120819	WG	12/8/2019	19L064	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW08C-GW120819	WG	12/8/2019	19L064	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW12D-GW120619	WG	12/6/2019	19L057	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW12S-GW120619	WG	12/6/2019	19L057	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW13D-GW120519	WG	12/5/2019	19L057	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW13S-GW120519	WG	12/5/2019	19L057	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW14D-GW120719	WG	12/7/2019	19L064	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW14S-GW120719	WG	12/7/2019	19L064	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW15D-GW120719	WG	12/7/2019	19L064	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW15S-GW120719	WG	12/7/2019	19L064	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW16D-GW120619	WG	12/6/2019	19L057	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW16S-GW120619	WG	12/6/2019	19L057	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW17D-GW120819	WG	12/8/2019	19L064	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW17S-GW120819	WG	12/8/2019	19L064	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060

Table 3-1
Sample List and Analysis

Field Sample ID	Matrix	Date Sampled	Laboratory SDG	Method
OU2-MW18-GW120519	WG	12/5/2019	19L043	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW19-GW120519	WG	12/5/2019	19L043	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW20D-GW120519	WG	12/5/2019	19L043	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-MW20S-GW120419	WG	12/4/2019	19L043	6020A, 7470A, 8260C, A4500NE, E300.0, RSK-175, SM2320B, SM2540C, SW8270DSIM, SW9060
OU2-TB04-GW120619	WG	12/6/2019	19L057	8260C
OU2-TB05-GW120619	WG	12/6/2019	19L057	8260C
OU2-TB06-GW120918	WG	12/9/2019	19L064	8260C
OU2-TB07-GW120919	WG	12/9/2019	19L064	8260C
OU2-TB08-GW120919	WG	12/9/2019	19L064	8260C
OU2-TB09-GW120919	WG	12/9/2019	19L064	8260C
OU2-TB1-GW120519	WG	12/5/2019	19L043	8260C
OU2-TB2-GW120519	WG	12/5/2019	19L043	8260C
OU2-TB3-GW120519	WG	12/5/2019	19L043	8260C

Acronyms:
ID - identificaton
SDG - sample delivery group
WG - groundwater
8260C - volatile organic compounds
8270D SIM - semivolatile organic compounds - selective ion monitoring
6020A - metals
7470A - mercury
RSK-175 - dissolved gases
E300.0 - chloride, sulfate
SM2320B - total alkalinity
SM2540C - total dissolved solids
A4500NE - nitrogen, nitrate-nitrite
9060 - total organic carbon

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Section 4
Data Validation Procedures

For this QCSR, there were three laboratory data packages. Data reported in the three sample delivery groups (SDGs) were validated and reviewed by qualified CDM Smith data validators not associated with project sampling activities. Data validation was performed in accordance with specified analytical methods and performance criteria outlined in the QAPP (CDM Smith 2019) and in the EPA *National Functional Guidelines for Inorganic Superfund Methods Data Review* (2017) and EPA *National Functional Guidelines for Organic Superfund Methods Data Review* (2017). Validation reports were prepared and are presented in **Attachment 1**. The following SDG data packages were validated:

- EMAX – SDG 19L043
- EMAX – SDG 19L057
- EMAX – SDG 19L064

Table 4-1 presents the results that were qualified and the reason for qualification. Qualifiers applied are defined as follows:

- J – The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- U – The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

Table 4-1
Qualification Summary

Field Sample ID	Method	Analyte	CAS #	Final Result	Unit	Validation Qualifier	Interpreted Qualfier	Qualifier Reason
OU2-FD01-GW120519	E300.0	Chloride	16887-00-6	156	mg/L	J	J	CAL
OU2-FD02-GW120819	6020A	Calcium	7440-70-2	114,000	µg/L	J	J	ICP SD
OU2-FD02-GW120819	6020A	Nickel	7440-02-0	1	µg/L	U-RL	U	BLANK
OU2-FD03-GW120719	6020A	Calcium	7440-70-2	163,000	µg/L	J	J	ICP SD
OU2-FD03-GW120719	6020A	Chromium	7440-47-3	1.71	µg/L	J	J	FD
OU2-FD03-GW120719	6020A	Copper	7440-50-8	0.681	µg/L	J	J	FD
OU2-MW01D-GW120619	6020A	Calcium	7440-70-2	124,000	µg/L	J	J	ICP SD
OU2-MW02-GW120519	6020A	Lead	7439-92-1	1	µg/L	U-RL	U	BLANK
OU2-MW02-GW120519	6020A	Manganese	7439-96-5	1	µg/L	U-RL	U	BLANK
OU2-MW02-GW120519	6020A	Potassium	7440-09-7	3040	µg/L	J	J	ICP SD
OU2-MW02-GW120519	6020A	Zinc	7440-66-6	20	µg/L	U-RL	U	BLANK
OU2-MW02-GW120519	A4500NE	Nitrate [as N]	14797-55-8	3.13	mg/L	J	J	MS
OU2-MW03RA-GW120719	6020A	Calcium	7440-70-2	176,000	µg/L	J	J	ICP SD
OU2-MW03RB-GW120819	6020A	Calcium	7440-70-2	122,000	µg/L	J	J	ICP SD
OU2-MW03RC-GW120719	6020A	Calcium	7440-70-2	104,000	µg/L	J	J	ICP SD
OU2-MW03RD-GW120719	6020A	Calcium	7440-70-2	114,000	µg/L	J	J	ICP SD
OU2-MW04-GW120519	6020A	Manganese	7439-96-5	1	µg/L	U-RL	U	BLANK
OU2-MW04-GW120519	6020A	Zinc	7440-66-6	20	µg/L	U-RL	U	BLANK
OU2-MW04-GW120519	E300.0	Chloride	16887-00-6	246	mg/L	J	J	CAL
OU2-MW05R-GW120819	6020A	Calcium	7440-70-2	172,000	µg/L	J	J	ICP SD
OU2-MW06-GW120619	6020A	Lead	7439-92-1	1	µg/L	U-RL	U	BLANK
OU2-MW06-GW120619	6020A	Zinc	7440-66-6	20	µg/L	U-RL	U	BLANK
OU2-MW06-GW120619	E300.0	Chloride	16887-00-6	170	mg/L	J	J	CAL
OU2-MW08A-GW120819	6020A	Calcium	7440-70-2	170,000	µg/L	J	J	ICP SD
OU2-MW08A-GW120819	6020A	Nickel	7440-02-0	1	µg/L	U-RL	U	BLANK
OU2-MW08B-GW120819	6020A	Calcium	7440-70-2	112,000	µg/L	J	J	ICP SD
OU2-MW08B-GW120819	6020A	Nickel	7440-02-0	1	µg/L	U-RL	U	BLANK
OU2-MW08C-GW120819	6020A	Calcium	7440-70-2	95,200	µg/L	J	J	ICP SD
OU2-MW12D-GW120619	6020A	Lead	7439-92-1	1	µg/L	U-RL	U	BLANK
OU2-MW12D-GW120619	E300.0	Chloride	16887-00-6	189	mg/L	J	J	CAL
OU2-MW12S-GW120619	6020A	Lead	7439-92-1	1	µg/L	U-RL	U	BLANK
OU2-MW12S-GW120619	E300.0	Chloride	16887-00-6	259	mg/L	J	J	CAL
OU2-MW13D-GW120519	6020A	Lead	7439-92-1	1	µg/L	U-RL	U	BLANK
OU2-MW13D-GW120519	6020A	Zinc	7440-66-6	20	µg/L	U-RL	U	BLANK
OU2-MW13D-GW120519	E300.0	Chloride	16887-00-6	218	mg/L	J	J	CAL
OU2-MW13S-GW120519	6020A	Lead	7439-92-1	1	µg/L	U-RL	U	BLANK
OU2-MW13S-GW120519	6020A	Zinc	7440-66-6	20	µg/L	U-RL	U	BLANK
OU2-MW13S-GW120519	E300.0	Chloride	16887-00-6	426	mg/L	J	J	CAL
OU2-MW14D-GW120719	6020A	Calcium	7440-70-2	114,000	µg/L	J	J	ICP SD
OU2-MW14S-GW120719	6020A	Calcium	7440-70-2	139,000	µg/L	J	J	ICP SD
OU2-MW15D-GW120719	6020A	Calcium	7440-70-2	168,000	µg/L	J	J	ICP SD
OU2-MW15D-GW120719	6020A	Chromium	7440-47-3	2.82	µg/L	J	J	FD
OU2-MW15D-GW120719	6020A	Copper	7440-50-8	0.702	µg/L	J	J	FD
OU2-MW15S-GW120719	6020A	Calcium	7440-70-2	153,000	µg/L	J	J	ICP SD
OU2-MW16D-GW120619	6020A	Lead	7439-92-1	1	µg/L	U-RL	U	BLANK
OU2-MW16D-GW120619	6020A	Zinc	7440-66-6	20	µg/L	U-RL	U	BLANK
OU2-MW16D-GW120619	E300.0	Chloride	16887-00-6	143	mg/L	J	J	CAL
OU2-MW16S-GW120619	6020A	Lead	7439-92-1	1	µg/L	U-RL	U	BLANK
OU2-MW16S-GW120619	6020A	Zinc	7440-66-6	20	µg/L	U-RL	U	BLANK
OU2-MW16S-GW120619	E300.0	Chloride	16887-00-6	263	mg/L	J	J	CAL
OU2-MW17D-GW120819	6020A	Calcium	7440-70-2	132,000	µg/L	J	J	ICP SD
OU2-MW17D-GW120819	6020A	Nickel	7440-02-0	1	µg/L	U-RL	U	BLANK
OU2-MW17S-GW120819	6020A	Calcium	7440-70-2	129,000	µg/L	J	J	ICP SD

Table 4-1
Qualification Summary

Field Sample ID	Method	Analyte	CAS #	Final Result	Unit	Validation Qualifier	Interpreted Qualfier	Qualifier Reason
OU2-MW18-GW120519	6020A	Lead	7439-92-1	1	µg/L	U-RL	U	BLANK
OU2-MW18-GW120519	6020A	Potassium	7440-09-7	3,200	µg/L	J	J	ICP SD
OU2-MW18-GW120519	6020A	Zinc	7440-66-6	20	µg/L	U-RL	U	BLANK
OU2-MW19-GW120519	6020A	Lead	7439-92-1	1	µg/L	U-RL	U	BLANK
OU2-MW19-GW120519	6020A	Potassium	7440-09-7	3,040	µg/L	J	J	ICP SD
OU2-MW19-GW120519	6020A	Zinc	7440-66-6	20	µg/L	U-RL	U	BLANK
OU2-MW20D-GW120519	6020A	Potassium	7440-09-7	2,190	µg/L	J	J	ICP SD
OU2-MW20D-GW120519	6020A	Zinc	7440-66-6	20	µg/L	U-RL	U	BLANK
OU2-MW20S-GW120419	6020A	Potassium	7440-09-7	2,450	µg/L	J	J	ICP SD
OU2-MW20S-GW120419	6020A	Zinc	7440-66-6	20	µg/L	U-RL	U	BLANK

Acronyms:

µg/L - micrograms per liter
6020A - metals
A4500NE - nitrogen, nitrate-nitrite
BLANK - blank criteria
CAL - calibration criteria
CAS - Chemical Abstract Service
E300.0 - chloride, sulfate
FD - field duplicate criteria
ICP SD - inductively coupled plasma serial dilution criteria
ID - identification
J - estimated
mg/L - milligrams per liter
MS - matrix spike criteria
RL - reporting limit
U - not detected
U-RL - result is qualified as nondetect at the reporting limit value

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Section 5
Data Quality Indicators

This section summarizes the validation performed and the overall quality of the data based on the PARCCS parameters. The validation reports are provided in **Attachment 1**.

Achievement of the DQO regarding data usability was determined by the use of DQIs. These DQIs for measurement data are expressed in terms of PARCCS. The DQIs provide a mechanism for ongoing control to evaluate and measure data quality throughout the project. These criteria are defined in **Table 5-1** and in the subsections below.

5.1 Precision

Precision is a quantitative term that estimates the reproducibility of a set of replicate measurements under a given set of conditions. It is defined as a measurement of mutual agreement between measurements of the same property and is expressed in terms of relative percent difference (RPD) between duplicate determinations.

RPD is calculated as follows:

$$\mathbf{RPD = absolute\ value\ [(C1 - C2)/\{(C1 + C2)/2)\}] \times 100\%}$$

Where:

C1 = concentration of primary sample
C2 = concentration of duplicate sample

Field and analytical precision were determined from review of the field duplicate results, matrix spike/matrix spike duplicates (MS/MSDs), LCS/laboratory control sample duplicate (LCSDs) and laboratory duplicates. The duplicate sample results were compared after calculating their RPDs. Field duplicate samples were collected in the same manner as the original samples but collected in separate, individual containers; given separate sample identifiers; and treated as unique samples by the laboratory.

Table 5-2 presents the field duplicate sample results. A control limit of 30% RPD was used for the groundwater field duplicate samples. Laboratory RPDs are specific to the QC parameter. RPD results are summarized below:

- Field duplicate RPDs were within control limits except for chromium in field duplicate pair OU2-MS15D-GW120719/OU2-FD03-GW120719 which had an RPD of 49%. The chromium and results for these two samples were qualified as estimated "J."
- Laboratory duplicate sample RPDs were within the control limits.
- LCS/LCSD RPDs were within control limits.

- MS/MSD RPD results were within control limits except for 2-butanone and acetone in SDG 19L064 with RPDs of 22% and 22% respectively. Sample results were nondetect so no qualification was required.

No field or laboratory issues were identified from the RPD results that were outside of criteria, and the exceedances are reasonable for this type of sampling activity.

5.2 Accuracy

Accuracy is the degree of agreement of a measurement with an accepted reference or true value and is a measure of the bias in a system. Two different metrics are evaluated to assess result accuracy—calculation of percent recovery (%R) for spiked analytes with known concentrations and review of blank results for cross-contamination.

5.2.1 Percent Recovery

Accuracy of the data was assessed by comparing LCS and MS recovery, calibration recovery, surrogate recovery, internal standard recovery and by performing ICP interference checks and serial dilutions during metals analyses. Accuracy is expressed as %R, which was calculated by:

$$\textbf{Percent Recovery} = \frac{\textbf{(Total Analyte Found – Analyte Originally Present)} \times \textbf{100}}{\textbf{Analyte Added}}$$

Analytical accuracy for the entire data collection activity is difficult to measure because several sources of error exist. Errors can be introduced by any of the following:

- Sampling procedure and duration of sampling
- Field contamination
- Sample preservation and handling
- Sample matrix
- Sample preparation
- Analytical techniques

Accuracy is maintained by adhering to the laboratory method and approved field and analytical standard operating procedures.

A summary of the accuracy parameters reviewed and the resulting qualifications for the data collected follows:

SDG 19L043

- LCS/LCSD %Rs were within criteria.
- MS/MSD %Rs were within criteria except for 1,1,2-trichloroethane (116/124%); PCE (390/480%); and trans-1,3-dichloropropene (128/132%). No qualifiers were required for 1,1,2-trichloroethane and trans-1,3-dichloropropene results as they were nondetect. The

initial analyses for tetrachloroethene in the MS parent sample was associated with this recovery but the sample was reanalyzed with acceptable results so no qualification of the reportable result was required.

- The nitrate-nitrite-N MS result was below criteria at 60% recovery. This result was qualified as estimated "J" in the MS parent sample OU2-MW02-GW120519.
- The initial and continuing calibration verifications were within criteria.
- Surrogate results were within criteria.
- ICP interference checks were within criteria.
- inductively coupled plasma mass spectrometry (ICP-MS) tune results were within criteria.
- Internal standard results were within criteria.
- ICP serial dilution results were within criteria except for potassium at 18%D. Associated sample results were qualified as estimated "J/UJ."

SDG 19L057

- LCS/LCSD %Rs were within criteria.
- MS/MSD %Rs were within criteria.
- The initial and continuing calibration verifications were within criteria except for chloride with a %R of 88.8. Chloride sample results were qualified as estimated "J/UJ."
- Surrogate results were within criteria.
- ICP interference checks were within criteria.
- ICP-MS tune results were within criteria.
- Internal standard results were within criteria.
- ICP serial dilution results were within criteria.

SDG 19L064

- LCS/LCSD %Rs were within criteria.
- MS/MSD %Rs were within criteria.
- The initial and continuing calibration verifications were within criteria.
- Surrogate results were within criteria.
- ICP interference checks were within criteria.
- ICP-MS tune results were within criteria.

- Internal standard results were within criteria.
- ICP serial dilution results were within criteria except for calcium which had a %D of 11. Associated sample results were qualified as estimated "J/UJ."

Sample preservation, handling, and holding times are additional measures of accuracy of the data. Samples were analyzed within the appropriate holding times. Cooler temperatures were within criteria and sample handling information was acceptable.

5.2.2 Blank Contamination

Blanks are used to determine the level of laboratory and field contamination introduced into the samples, independent of the level of target analytes found in the sample source. Sources of sample contamination can include the containers and equipment used to collect the sample, preservatives added to the sample, other samples in transport coolers and laboratory sample storage refrigerators, standards and solutions used to calibrate instruments, glassware and reagents used to process samples, airborne contamination in the laboratory preparation area, and the analytical instrument sample introduction equipment. Each analyte group has its own particular suite of common laboratory contaminants. Active measures must be performed to continually measure the ambient contamination level and steps taken to discover the source of the contamination to eliminate or minimize the levels. Random spot contamination can also occur from analytes that are not common laboratory problems but can arise as a problem for a specific project or over a short period. Field blanks, equipment blanks, trip blanks, and laboratory method blanks are analyzed to identify possible sources of contamination.

For this project, one field blank sample was collected to assess potential ambient background cross-contamination of sampled media. No equipment blank samples were required as dedicated sampling equipment was used. Nine trip blank samples were sent with the coolers. Results for the field blank sample and all trip blank samples were nondetect. The following discusses blank contamination validation actions.

SDG 19L043

- Calcium, lead, manganese, sodium, thallium and zinc were detected in some of the laboratory blank samples. Calcium, thallium and sodium results required no qualification as sample results were either nondetect or greater than the RL. Applicable sample results for lead, manganese and zinc were qualified as nondetect "U" at the RL.

SDG 19L057

- Calcium, lead, manganese, sodium, thallium and zinc were detected in the some of the laboratory blank samples. Calcium, thallium and sodium results required no qualification as sample results were either nondetect or greater than the RL. Applicable sample results for lead, manganese and zinc were qualified as nondetect "U" at the RL.

SDG 19L064

- Barium, calcium, nickel, sodium, cadmium, lead, manganese, thallium and copper were detected in some of the laboratory blank samples. Applicable sample results for nickel were qualified as nondetect "U" at the RL. All other detected analytes did not require

qualification as sample results were greater than the RL or there were no associated results with those samples.

Ideally, no contaminants should be found in the blank samples. Blank samples are used to determine the validity of the analytical results by determining the existence and magnitude of contamination resulting from laboratory (or field) activities or baseline drift during analysis. As discussed above, analytes were detected in some of the laboratory blank samples. Concentrations were below the RLs for all detected blank results. Analytes detected in laboratory blanks are common with laboratory analyses and almost unavoidable with all the potential areas of possible contamination in a laboratory.

Associated sample results for the laboratory blanks and or field blank samples were qualified following the appropriate guidelines. Detected blank concentrations were below the RLs and the resulting sample qualifications as nondetect or "U" does not falsely diminish identification of site-related contaminants.

5.3 Representativeness

Representativeness is a qualitative term that expresses the degree to which the sample data accurately and precisely represent the environmental conditions corresponding to the location and/or depth interval of sample collection. Requirements and procedures for sample collection were designed to maximize sample representativeness.

Representativeness can be monitored by reviewing field documentation and/or performing field audits. For this report, a detailed review was performed on the COC and field data collection forms. Appropriate laboratory QA/QC requirements were described in the QAPP (CDM Smith 2019) and laboratory statement of work to confirm that the laboratory analytical results were representative of true field conditions.

Field sampling representativeness was attained through strict adherence to the sampling design and the approved QAPP (CDM Smith 2019) procedures and by using EPA-approved analytical methods for sample analyses. As a result, the data represent as near as possible the actual field conditions at the time of sampling.

Representativeness, as defined above, was met for the fieldwork and laboratory analyses. The data collected are suitable for project use.

5.4 Comparability

Comparability is a qualitative term that expresses the confidence with which a data set can be compared with another. Strict adherence to standard sample collection procedures, analytical detection limits, and analytical methods is necessary so that data from like samples and sample conditions are comparable. This comparability is independent of laboratory personnel, data reviewers, or sampling personnel. Comparability criteria are met for the project if, based on data review, the sample collection and analytical procedures are determined to have been followed or defined to show that variations did not affect the values reported.

To achieve comparability of data generated for the Site, CDM Smith followed standard sample collection procedures and EPA-approved analytical methods during sampling activities. The sample analyses were performed by EMAX Laboratories Inc. using approved standard operating procedures. Utilizing such procedures and methods enables the current data to be comparable to future data sets generated with similar methods and units.

5.5 Completeness

Completeness of the field program is defined as the percentage of samples planned for collection as listed in the QAPP (CDM Smith 2019) versus the actual number of samples collected during the field program (see equation A).

Completeness for acceptable data is defined as the percentage of acceptable data obtained judged to be valid versus the total quantity of data generated (see equation B). Acceptable data include both data that pass all the QC criteria (unqualified data) and data that may not pass all the QC criteria but had appropriate corrective actions taken (qualified but usable data).

A. $$\%Completeness = Cx\frac{100}{n}$$

Where:

C = actual number of samples collected
n = total number of samples planned

B. $$\%Completeness = Vx\frac{100}{n'}$$

Where:

V = number of measurements judged valid
n' = total number of measurements made

The overall completeness goal for this sampling event was 90% for all project data.

Field deviations are discussed in the data summary report. DQOs were met for samples that were collected.

Some samples could not be collected due to malfunctioning pumps. The wells that were not sampled do not reduce the completeness of the data set. The pumps in the wells that could not be sampled will be fixed and re-sampled during the next quarter. The completeness for the number of samples planned to be collected versus the number of samples collected was over 90% for all analyses.

Analyses for the sampling event met the 90% completeness goal of acceptable data for the number of measurements judged to be valid versus the total number of measurements made.

One hundred percent of the data validated and reported are suitable for their intended use for Site characterization. No results were rejected, and all data collected met the overall project objective for data usability. The completeness goals for both the number of samples collected for all sampling events and the number of measurements judged to be valid were met.

The data usability DQO was achieved; the data reported are suitable for their intended use as stated in the QAPP (CDM Smith 2019). The achievement of the completeness goals for the data provides sufficient data for project decisions.

5.6 Sensitivity

Sensitivity is related to the ability to compare analytical results with project-specific levels of interest such as delineation levels or action levels. Analytical quantitation limits for the various sample analytes should be below the level of interest to allow an effective comparison.

The method detection limit (MDL) study attempts to answer the question, "What is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero?" The study is based upon repetitive analysis of an interference-free sample spiked with a known amount of the target analyte. The MDL is a measure of the ability of the test procedure to generate a positive response for the target analyte in the absence of any other interferences from the sample.

The method reporting limit (MRL) is generally defined as the lowest concentration at which an analyte can be confidently reported in a sample and its concentration reported with a reasonable degree of accuracy and precision. For samples that do not pose a particular matrix problem, the MRL is typically about three to five times higher than the MDL.

Laboratory results are reported according to rules that provide established certainty of detection. The result for an analyte is flagged with a "U" if that analyte was not detected and reported at the MRL value or qualified with a "J" flag if associated QC results fall outside the appropriate QC criteria. Additionally, if an analyte is present at a concentration between the MDL and the MRL, the analytical result is flagged with a "J," indicating an estimated quantity. Qualifying the result as an estimated concentration reflects uncertainty in the reported value.

When required, dilutions were performed and accounted for in the reporting of MRLs. For each analyte, laboratory MRLs were low enough to compare to the project criteria stated in the laboratory statement of work and the QAPP (CDM Smith 2019).

Table 5-1 DQIs and Corresponding QC Parameters

Data Quality Indicators	QC Parameters Evaluation in Data Review/Validation
Precision	RPD values of: 1) Laboratory duplicates 2) Field duplicates 3) MS/MSD 4) LCS/LCSD Relative standard deviation (RSD) values of: 1) Initial calibration verifications
Accuracy/Bias	%R or percent difference (%D) values of: 1) LCS/LCSD 2) Matrix spike %R 3) Initial calibration verification/continuing calibration verification %R 4) Serial dilution (ICP metals) 5) ICP interference check standards 6) ICP-MS tune percent RSD 7) ICP-MS internal standard %R intensity 8) Low level check standard 9) Surrogates 10) Internal standards Results of: 1) Instrument and calibration blanks 2) Method (preparation) blanks 3) Field blanks 4) Trip blanks
Representativeness	Results of all blanks Sample integrity (COC and sample receipt forms) Holding times
Comparability	Sample-specific reporting limits Sample collection methods Laboratory analytical methods
Completeness	Data qualifiers Laboratory deliverables Requested/Reported valid results Field sample collection (primary and QC samples) Contract compliance (i.e., method and instrument QC within limits)
Sensitivity	Method reporting limits Low level standards Adequacy of sample dilution

Table 5-2
Summary of Field Duplicate Sampling Results

			Well	MW-08B		MW-08B			MW-15D		MW-15D			MW-20D		MW-20D		
			Sample Name	OU2-MW08B-GW120819		OU2-FD02-GW120819			OU2-MW15D-GW120719		OU2-FD03-GW120719			OU2-MW20D-GW120519		OU2-FD01-GW120519		
			Sample Date	12/8/2019		12/8/2019			12/7/2019		12/7/2019			12/5/2019		12/5/2019		
			Sample Type	N		FD			N		FD			N		FD		
Method	Analyte	Fraction	Unit	Result	Q	Result	Q	RPD (%)	Result	Q	Result	Q	RPD (%)	Result	Q	Result	Q	RPD (%)
6020A	Aluminium	T	µg/L	100	U	100	U	NC	87.6	J	74.9	J	15.63	100	U	100	U	NC
6020A	Antimony	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
6020A	Arsenic	T	µg/L	0.72	J	0.728	J	1.10	0.748	J	0.74	J	1.08	0.704	J	0.697	J	1.00
6020A	Barium	T	µg/L	31.5		31.9		1.26	48.8		49.1		0.61	40		39.7		0.75
6020A	Beryllium	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
6020A	Cadmium	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
6020A	Calcium	T	µg/L	112000	J	114000	J	1.77	168000	J	163000	J	3.02	94600		93800		0.85
6020A	Chromium	T	µg/L	1.19		1.12		6.06	2.82	J	1.71	J	49.01	2.19		2.05		6.60
6020A	Cobalt	T	µg/L	0.351	J	0.348	J	0.86	0.618	J	0.534	J	14.58	0.109	J	0.118	J	7.93
6020A	Copper	T	µg/L	2	U	2.9		ABS Criteria	0.702	J	0.681	J	3.04	2	U	2	U	NC
6020A	Iron	T	µg/L	100	U	100	U	NC	164		112		ABS Criteria	100	U	100	U	NC
6020A	Lead	T	µg/L	1	U	1	U	NC	0.169	J	0.12	J	ABS Criteria	1	U	1	U	NC
6020A	Magnesium	T	µg/L	39900		40400		1.25	65600		71100		8.05	35800		36300		1.39
6020A	Manganese	T	µg/L	7.15		7.29		1.94	7.96		6.87		14.70	2.21		2.73		21.05
6020A	Nickel	T	µg/L	1	U	1	U	NC	6.12		4.91		21.94	0.495	J	0.45	J	9.52
6020A	Potassium	T	µg/L	1990		2010		1.00	3980		4070		2.24	2190	J	2300		4.90
6020A	Selenium	T	µg/L	0.921	J	0.969	J	5.08	2.73		2.69		1.48	0.723	J	0.772	J	6.56
6020A	Silver	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
6020A	Sodium	T	µg/L	32300		32700		1.23	136000		135000		0.74	41600		43200		3.77
6020A	Thallium	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
6020A	Vanadium	T	µg/L	1.53		1.54		0.65	1.18		1.16		1.71	1.53		1.62		5.71
6020A	Zinc	T	µg/L	33.1		20	U	ABS Criteria	20	U	20	U	NC	20	U	20	U	NC
7470A	Mercury	T	µg/L	0.5	U	0.5	U	NC	0.5	U	0.5	U	NC	0.5	U	0.5	U	NC
8260C	1,1,1-Trichloroethane	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	1,1,2,2-Tetrachloroethane	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	1,1,2-Trichloroethane	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	1,1,2-Trichlorotrifluoroethane	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	1,1-Dichloroethane	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	1,1-Dichloroethene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	1,2,3-Trichlorobenzene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	1,2,4-Trichlorobenzene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	1,2,4-Trimethylbenzene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	1,2-Dibromo-3-chloropropane	T	µg/L	2	U	2	U	NC	2	U	2	U	NC	2	U	2	U	NC
8260C	1,2-Dibromoethane	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	1,2-Dichlorobenzene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	1,2-Dichloroethane	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	1,2-Dichloropropane	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	1,3,5-Trimethylbenzene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	1,3-Dichlorobenzene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	1,4-Dichlorobenzene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	2-Butanone (MEK)	T	µg/L	20	U	20	U	NC	20	U	20	U	NC	20	U	20	U	NC
8260C	2-Hexanone	T	µg/L	20	U	20	U	NC	20	U	20	U	NC	20	U	20	U	NC
8260C	4-Methyl-2-pentanone (MIBK)	T	µg/L	20	U	20	U	NC	20	U	20	U	NC	20	U	20	U	NC
8260C	Acetone	T	µg/L	20	U	20	U	NC	20	U	20	U	NC	20	U	20	U	NC
8260C	Benzene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Bromochloromethane	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Bromodichloromethane	T	µg/L	0.14	J	0.14	J	NC	1	U	1	U	NC	0.21	J	0.23	J	9.09
8260C	Bromoform	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Bromomethane	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Carbon Disulfide	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Carbon Tetrachloride	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Chlorobenzene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Chloroethane	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Chloroform	T	µg/L	1.4		1.5		6.90	2.5		2.4		4.08	1.9		1.8		5.41
8260C	Chloromethane	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Cis-1,2-Dichloroethene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	0.12	J	0.12	J	NC
8260C	Cis-1,3-Dichloropropene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Dibromochloromethane	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Dichlorodifluoromethane	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Ethylbenzene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC

Table 5-2
Summary of Field Duplicate Sampling Results

			Well	MW-08B		MW-08B			MW-15D		MW-15D			MW-20D		MW-20D		
			Sample Name	OU2-MW08B-GW120819		OU2-FD02-GW120819			OU2-MW15D-GW120719		OU2-FD03-GW120719			OU2-MW20D-GW120519		OU2-FD01-GW120519		
			Sample Date	12/8/2019		12/8/2019			12/7/2019		12/7/2019			12/5/2019		12/5/2019		
			Sample Type	N		FD			N		FD			N		FD		
Method	Analyte	Fraction	Unit	Result	Q	Result	Q	RPD (%)	Result	Q	Result	Q	RPD (%)	Result	Q	Result	Q	RPD (%)
8260C	Isopropylbenzene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	M,P-Xylene	T	µg/L	2	U	2	U	NC	2	U	2	U	NC	2	U	2	U	NC
8260C	Methyl Acetate	T	µg/L	2	U	2	U	NC	2	U	2	U	NC	2	U	2	U	NC
8260C	Methyl Tert-Butyl Ether	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Methylene Chloride	T	µg/L	2	U	2	U	NC	2	U	2	U	NC	2	U	2	U	NC
8260C	O-Xylene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Styrene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Tetrachloroethene	T	µg/L	4.7		4.5		4.35	1	U	1	U	NC	9.8		11		11.54
8260C	Toluene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Trans-1,2-Dichloroethene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Trans-1,3-Dichloropropene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Trichloroethene	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	0.25	J	0.28	J	11.32
8260C	Trichlorofluoromethane	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
8260C	Vinyl Acetate	T	µg/L	2	U	2	U	NC	2	U	2	U	NC	2	U	2	U	NC
8260C	Vinyl Chloride	T	µg/L	1	U	1	U	NC	1	U	1	U	NC	1	U	1	U	NC
A4500NE	Nitrate [as N]		mg/L					N/A					N/A	3.1		3.75		18.98
A4500NE	Nitrate [as N]	T	mg/L	2.67		2.57		3.82	7.94		6.41		21.32					N/A
E300.0	Chloride		mg/L					N/A					N/A	137		156	J	12.97
E300.0	Chloride	T	mg/L	114		116		1.74	316		308		2.56					N/A
E300.0	Sulfate		mg/L					N/A					N/A	87.2		94		7.51
E300.0	Sulfate	T	mg/L	139		137		1.45	150		161		7.07					N/A
FIELD MEASURE	Dissolved Oxygen	N	mg/L	7.9				N/A	5.48				N/A	7.54				N/A
FIELD MEASURE	Ferrous Iron	N	mg/L	0.01				N/A	0.58				N/A	0				N/A
FIELD MEASURE	Oxidation-Reduction Potential	N	millivolts	69.4				N/A	172.2				N/A	179.7				N/A
FIELD MEASURE	pH	N	SU	7.12				N/A	6.89				N/A	7.08				N/A
FIELD MEASURE	Specific Conductance	N	mS/cm	1.097				N/A	1.988				N/A	1				N/A
FIELD MEASURE	Temperature	N	deg C	12.17				N/A	13.58				N/A	12.3				N/A
FIELD MEASURE	Turbidity	N	NTU	1.17				N/A	8.6				N/A	1.54				N/A
RSK-175	Ethane	T	µg/L	2	U	2	U	NC	2	U	2	U	NC	2	U	2	U	NC
RSK-175	Ethene	T	µg/L	2	U	2	U	NC	2	U	2	U	NC	2	U	2	U	NC
RSK-175	Methane	T	µg/L	0.28	J	2	U	ABS Criteria	2	U	2	U	NC	0.2	J	0.22	J	9.52
SM2320B	Alkalinity, Total (As CaCO3)	T	mg/L	249		242		2.85	357		357		NC	248		241		2.86
SM2540C	Total Dissolved Solids	T	mg/L	695		679		2.33	1220		1190		2.49	593		596		0.50
SW8270DSIM	1,4-Dioxane	T	µg/L	0.42	U	0.44	U	4.65	0.46	U	0.42	U	9.09	0.44	U	0.39	U	12.05
SW9060	Total Organic Carbon	T	mg/L	0.4	J	0.507	J	23.59	0.665	J	0.573	J	14.86	0.406	J	0.488	J	18.34

Acronyms
µg/L - microgram per liter
deg C - degrees Celsius
FD - field duplicate
J - estimated
mg/L - milligram per liter
mS/cm - millisiemens per centimeter
N - normal sample
N/A - not applicable
NC - not calculated
NTU - nephelometric turbidity unit
Q - qualifier
RPD - relative percent difference
SU - Standard pH unit
U - not detected
Yellow Highlighting - RPD outside of 30% criteria - field duplicate sample and parent sample result qualified as estimated J
ABS Criteria - Sample concentrations less than 5x the reporting limit - absolute difference between the two results less than the reporting limit

Section 6

Data Usability Assessment

One hundred percent of the data reported and validated in this QCSR are suitable for their intended use as stated in the QAPP (CDM Smith 2019). No sample results were rejected.

The achievement of the completeness goals for the number of samples collected and the number of sample results acceptable for use provides sufficient quality data to support project decisions. Sample results that were qualified as estimated are usable for project decisions.

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Section 7
References

CDM Smith. 2019. *Quality Assurance Project Plan, 700 south 1600 East PCE Plume Site, Operable Unit 2, Salt Lake City, Utah, U.S. Army Corps of Engineers, Kansas City District, Department of Veterans Affairs, Veterans Health Administration Salt Lake City, Health Care System.* November 2019.

EPA. 2017. *National Functional Guidelines for Inorganic Superfund Methods Data Review*, EPA-540-R-2017-001, January 2017.

EPA. 2017. *National Functional Guidelines for Organic Superfund Methods Data Review*, EPA-540-R-2017-002, January 2017.

EPA 2004. EPA's *Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods* (SW-846 2nd edition 1982, revised 1984; 3rd edition 1986; and Updates I, II, IIA, III, IIIA, and IIIB, 1996, 1998, and 2004

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Attachment 1

Data Validation Reports

VA Salt Lake City OU1
Salt Lake City, Utah
Groundwater Validation Report

Sample Delivery Group (SDG) Number: 19L043
Laboratory: EMAX Laboratories, Inc.

Matrix: Groundwater
Collection date: 12/04/2019 & 12/05/2019
Analysis/Methods:

Volatile Organic Compounds SW8260C
Semivolatile Organic Compounds SW8270D (1,4-Dioxane)
Metals SW6020 A
Dissolved Gases - RSK-175
Metals SW6020 A
Mercury SW7470 A
Wet Chemistry Parameters:
Chloride EPA 300.0
Sulfate EPA 300.0
Total Alkalinity SM2320B
Total Dissolved Solids (TDS) SM2540C
Nitrate / Nitrite - SM4500-NO3E
Total Organic Carbon (TOC) SW9060

Samples in SDG:

Lab ID	Sample Number	Lab ID	Sample Number
L043-01	OU2-MW20S-GW120419	L043-05	OU2-MW19-GW120519
L043-02	OU2-MW20D-GW120519	L043-06	OU2-TB1-GW120519
L043-03	OU2-TB2-GW120519	L043-07	OU2-MW02-GW120519
L043-04	OU2-MW18-GW120519	L043-08	OU2-TB3-GW120519

Data validation was performed in accordance with the specific analytical methods, National Functional Guidelines for Organic Superfund Methods Data Review (EPA January 2017), and the National Functional Guidelines for Inorganic Superfund Methods Data Review (EPA January 2017).

Volatile Organic Compounds 8260C

Precision:	Yes	No	N/A
Are the field duplicate relative percent differences (RPD) ≤50% (soils), <30% (water) or within CRQL criteria?			**Yes**
Were the Matrix Spike Duplicate RPDs ≤ 20%? (Or lab defined limits)			**Yes**
Laboratory Control Spike Duplicates RPD within limits?			**Yes**

Comments (note deviations):

Field Duplicates	8260C	Sample	Duplicate	%RPD	Qualifiers	Associated Samples
		OU2-MW20D-GW120519 L043-02	OU2-FD01-GW120519** L057-07	Acceptable		

** Results reported in SDG 19L057

MS/MSD	8260C	%RPD	Limit	Qualifiers	Associated Samples
L043-07M/L043-07S OU2-MW02-GW120519		Acceptable			

LCS/LCSD	8260C	%RPD	Limits	Qualifiers	Associated Samples
LCS1W/LCD1W		Acceptable			

Accuracy:	Yes	No	N/A
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)			**No**
Laboratory Control Sample criteria met?			**Yes**
Were the Laboratory Method Blank results all < RL?			**Yes**
Were the Field Blanks results all < RL?			**N/A**
Was the ICAL criteria met?			**Yes**
Was the CCV criteria met?			**Yes**
Was the Tuning criteria met?			**Yes**
Were the Surrogate % recoveries within laboratory determined control limits?			**Yes**
Were the Internal Standard areas within ± 50 - 150%?			**Yes**

Comments (note deviations):

Blanks	8260C	Concentration	MDL /PQL	Qualifiers	Associated Samples
MBLK1W		Nondetect			
MBLK2W		Nondetect			

Field Blank	8260C	Concentration	MDL / PQL (ug/L)	Qualifiers	Associated Samples
N/A					

Surrogates	8260C	%R	Limit	Qualifiers	Associated Samples
		Acceptable			

MS/MSD	8260C	%R	Limits (%)	Qualifiers	Associated Samples
L043-07M/L043-07S					
OU2-MW02-GW120519					
	1,1,2-trichloroethane	116/124	80-119	**J***	**L043-07**
	Tetrachloroethene	390/480	74-129	**J****	**L043-07**
	trans-1,3-dichloropropene	128/132	73-127	**J***	**L043-07**

* Result is nondetect - no qualifiers required.

** Result was detect in the initial run and was qualified as estimated J. But this result was not considered reportable and the diluted result was chosen as the most defensible result and did not require qualification.

LCS/LCSD	8260C	%R	Limits	Qualifiers	Associated Samples
LCS1W/LCD1W		Acceptable			

ICAL	8260C	RRF	%RSD	Qualifiers	Associated Samples
		Acceptable	Acceptable		

CCV	8260C	RRF	%D	Limits	Qualifiers	Associated Samples
		Acceptable	Acceptable			

Tune	8260C
	Acceptable

Internal Standards	8260C	Area	Area Lower / Upper Limit	Qualifiers	Associated Samples
	Acceptable				

Semivolatile Organic Compounds 8270D (1,4-Dioxane SIM)

Precision:

	Yes	No	N/A
Are the field duplicate relative percent differences (RPD) ≤50% (soils), <30% (water) or within CRQL criteria?	Yes		
Were the Matrix Spike Duplicate RPDs ≤ 20%? (Or lab defined limits)	Yes		
Laboratory Control Spike Duplicates RPD within limits?	Yes		

Comments (note deviations):

Field Duplicates	8270D	Sample	Duplicate	%RPD	Qualifiers	Associated Samples
		OU2-MW20D-GW120519	OU2-FD01-GW120519**			
		ND	ND			

** Results reported in SDG 19L057 — %RPD: Acceptable

MS/MSD	8270D	%RPD	Limit	Qualifiers	Associated Samples
19L043-07M / 19L043-07S		Acceptable			

LCS/LCSD	8270D	%RPD	Limit	Qualifiers	Associated Samples
LCS1W / LCSD1W		Acceptable			

Accuracy:

	Yes	No	N/A
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)	Yes		
Laboratory Control Sample criteria met?	Yes		
Were the Laboratory Method Blank results all < RL?	Yes		
Were the Field Blanks results all < RL?	N/A		
Was the ICAL criteria met?	Yes		
Was the CCV criteria met?	Yes		
Was the Tuning criteria met?	Yes		
Were the Surrogate % recoveries within laboratory determined control limits?	Yes		
Were the Internal Standard areas within ± 50 - 150%?	Yes		

Comments (note deviations):

Blanks	8270D	Concentration (ug/L)	MDL / RL	Qualifiers	Associated Samples
MBLK1W		Nondetect			

Field Blank	8260B	Concentration	MDL / RL	Qualifiers	Associated Samples
N/A					

Surrogates	8270D	%R	Limit	Qualifiers	Associated Samples
		Acceptable			

MS/MSD	8270D	%R	Limits (%)	Qualifiers	Associated Samples
19L043-07M / 19L043-07S		Acceptable			

LCS/LCSD	8270D	%R	Limits	Qualifiers	Associated Samples
LCS1W / LCSD1W		Acceptable			

ICAL	8270D	RRF	%RSD	Qualifiers	Associated Samples
11/15/2019		Acceptable	Acceptable		

CCV	8270D	RRF	%D	Qualifiers	Associated Samples
12/11/19 10:19 AM		Acceptable	Acceptable		

Tune	8270D
	Acceptable

Internal Standards	8270D	Area	Area Lower / Upper Limit	Qualifiers	Associated Samples
		Acceptable			

Dissolved Gases RSK-175

Precision:	Yes	No	N/A
Are the field duplicate relative percent differences (RPD) ≤50% (soils), <30% (water) or within CRQL criteria?	**Yes**		
Were the Matrix Spike Duplicate RPDs ≤ 20%? (Or lab defined limits)	**Yes**		
Laboratory Control Spike Duplicates RPD within limits?	**Yes**		
Are the laboratory duplicate RPDs ≤ 20% for water ≤35% for soils or within CRQL criteria?			**N/A**

Comments (note deviations):

Field Duplicates	**RSK-175**	**Sample**	**Duplicate**	**%RPD**	**Qualifiers**	**Associated Samples**
		OU2-MW20D-GW120519	**OU2-FD01-GW120519****			
** Results reported in SDG 19L057				Acceptable		

MS/MSD	**RSK-175**	**%RPD**	**Limit**	**Qualifiers**	**Associated Samples**
L043-07M / L043-07S		Acceptable			

LCS/LCSD	**RSK-175**	**%RPD**	**Limits**	**Qualifiers**	**Associated Samples**
LCS1W / LCD1W		Acceptable			

Laboratory Duplicates	**RSK-175**	**Sample (ug/L)**	**Duplicate (ug/L)**	**%RPD**	**Qualifiers**	**Associated Samples**
N/A						

Accuracy:	Yes	No	N/A
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)	**Yes**		
Laboratory Control Sample criteria met?	**Yes**		
Were the Laboratory Method Blank results all < RL?	**Yes**		
Were the Field Blanks results all < RL?			**N/A**
Was the ICAL criteria met?	**Yes**		
Was the CCV criteria met?	**Yes**		
Was the Tuning criteria met?			**N/A**
Were the Surrogate % recoveries within laboratory determined control limits?			**N/A**
Were the Internal Standard areas within ± 50 - 150%?			**N/A**

Comments (note deviations):

Blanks	**RSK-175**	**Concentration (ug/L)**	**MDL / RL**	**Qualifiers**	**Associated Samples**
MBLK1W		Nondetect			

Field Blank	**RSK-175**	**Concentration**	**MDL / RL**	**Qualifiers**	**Associated Samples**
N/A					

Surrogates	**RSK-175**	**%R**	**Limit**	**Qualifiers**	**Associated Samples**
N/A					

MS/MSD	**RSK-175**	**%R**	**Limits (%)**	**Qualifiers**	**Associated Samples**
L043-07M / L043-07S		Acceptable			

LCS/LCSD	**RSK-175**	**%R**	**Limits**	**Qualifiers**	**Associated Samples**
LCS1W / LCD1W		Acceptable			

ICAL	**RSK-175**	**RRF**	**%RSD**	**Qualifiers**	**Associated Samples**
3/20/2019		Acceptable	Acceptable		

CCV	**RSK-175**	**RRF**	**%D**	**Limits**	**Qualifiers**	**Associated Samples**
3/20/2019 '10:56		Acceptable	Acceptable			

Tune	RSK-175
N/A	

Internal Standards	RSK-175	Area	Area Lower / Upper Limit	Qualifiers	Associated Samples
N/A					

Metals SW 6020A / Mercury 7470A

Precision:

	Yes	No	N/A
Are the field duplicate relative percent differences (RPD) ≤50%/30% (soils / water) or within CRQL criteria?		**No**	
Are the laboratory duplicate RPDs ≤ 20% for (water / soil) or within CRQL criteria?			**N/A**
Are the matrix spike duplicates RPD ≤ 20%?	**Yes**		
Are the laboratory control sample duplicates RPDs ≤ 20%?			**N/A**

Comments (note deviations):

Field Duplicates	Sample (ug/L) OU2-MW20D-GW120519	Duplicate (ug/L) OU2-FD01-GW120519**	%RPD	Qualifiers	Associated Samples
			Acceptable		

** Results reported in SDG 19L057

MS/MSD	RPD %	Qualifiers	Associated Samples
	Acceptable		

LCS / LCSD	RPD %	Qualifiers	Associated Samples
	Acceptable		

Laboratory Duplicate	Sample	Duplicate	RPD %	Qualifier	Associated Samples
N/A					

Accuracy:

	Yes	No	N/A
Were serial dilutions analyzed and within control limits of ±10% for waters (± for 15% for soils) or initial sample result less than 50x MDL?		**No**	
Was matrix spike criteria met (frequency 20% and % recovery 75-125%)?		**No**	
Was post digestion spike criteria met (if applicable)?	**Yes**		
Was laboratory control sample criteria met?	**Yes**		
Was laboratory blank criteria met (within control limits)?		**No**	
Were ICV/CCV % recoveries within 90-110%?	**Yes**		
Were the Detection Limit PQL Standards within 70-130?			**N/A**
Was the %D on form 16-IN for the initial calibration instrument response and concentration data <30%?			**N/A**
Were ICSA/ICSAB % recoveries acceptable or within CRQL criteria?	**Yes**		
Was the tune %RPD <5% (Peak width < 0.75)?			**N/A**
Was internal standard criteria met?			**N/A**

Comments (note deviations):

Serial Dilution	Analyte	Initial Sample Result	%D	50 x MDL	Qualifiers	Associated Samples
	Potassium	3040	18.0%	1250	**J / UJ**	**All samples***

** Applies to initial results only

MS/MSD	Analyte	%R	Limits	Post Digestion	Qualifiers	Associated Samples
	Calcium	433 / 367	75-125	100	None	ISR > 4xs the spike added
	Magnesium	253 / 210	75-125	110	None	ISR > 4xs the spike added
	Sodium	567 / 367	75-125	100	None	ISR > 4xs the spike added

**Applies to reanalyzed samples - MS/MSD %R within acceptable criteria for initial analysis

LCS/LCSD	Analyte	%R	Limits	Qualifiers	Associated Samples
		Acceptable			

ICV/CCV	Analyte	%R	Limits	Qualifiers	Associated Samples
		Acceptable			

Blanks

Prep Blank		Result (ug/L)	MDL/RL (ug/L)	Qualifiers	Associated Samples
MBLK1W	Calcium	51.87 J	25 / 100	None	Sample results > RL
	Lead	0.0572 J	0.05 / 1	**U-RL**	**L043-04, L043-05, L043-07****
	Sodium	41.4 J	25 / 100	None	Sample results > RL
	Zinc	5.13 J	5 / 20	**U-RL**	**L043-01, L043-02, L043-04, L043-05, L043-07****

** Applies to initial result only

ICBs	Analyte	Result (ug/L)	MDL/RL (ug/L)	Qualifiers	Associated Samples
	Thallium	0.2	0.1	None	Sample results nondetect

** Remaining analytes previously evaluated / qualified based on prep blank detection

CCBs	Analyte	Result (ug/L)	MDL/RL (ug/L)	Qualifiers	Associated Samples
CCB4 / CCB5	Manganese	0.4 / 0.4	0.25	**U-RL**	**L043-07****

Remaining analytes previously evaluated / qualified based on prep blank detection
** Applies to initial result only

Field Blank	6020A	Concentration (ug/L)	MDL/RL (ug/L)	Qualifiers	Associated Samples
N/A					

ICSA/AB	Analyte - Solution A	%R	Found Sol. A / True A	RL	Qualifiers	Associated Samples
		Acceptable				

PQL Standard Check	%R	Qualifiers	Associated Samples
N/A			

Tune	%R	Qualifiers	Associated Samples
Acceptable			

Internal Standards	Qualifiers	Associated Samples
Acceptable		

Wet Chemistry Parameters

Precision:	Yes	No	N/A
Are the field duplicate relative percent differences (RPD) ≤50%/30% (soils / water) or within CRQL criteria?	**Yes**		
Are the laboratory duplicate RPDs ≤ 20% for water ≤35% for soils or within CRQL criteria?	**Yes**		
Are the matrix spike duplicates RPD ≤ 20%?	**Yes**		
Are the laboratory control spike duplicates RPD ≤ 20%?	**Yes**		

Comments (note deviations):

Field Duplicates	**Sample (mg/L)**	**Duplicate (mg/L)**	**%RPD**	**Qualifiers**	**Associated Samples**
	OU2-MW20D-GW120519	**OU2-FD01-GW120519****			
** Results reported in SDG 19L057			Acceptable		

MS/MSD	**%R**	**Limits**	**RPD %**	**Qualifiers**	**Associated Samples**
			Acceptable		

LCS/ LCSD	**Limits**	**RPD %**	**Qualifiers**	**Associated Samples**
		Acceptable		

Laboratory Duplicate	**Sample**	**Duplicate**	**RPD %**	**Qualifiers**	**Associated Samples**
			Acceptable		

Accuracy:	Yes	No	N/A
Was matrix spike criteria met (frequency 20% and % recovery 75-125%)?	**Yes**		
Was post digestion spike criteria met (if applicable)?	**N/A**		
Was laboratory control sample criteria met?	**Yes**		
Was laboratory blank criteria met (within control limits)?	**Yes**		
Were the Field Blanks results all < RL?	**N/A**		
Were ICV/CCV % recoveries within 90-110%?	**Yes**		
Was the tune %RSD <5% ?	**N/A**		
Was internal standard criteria met?	**N/A**		

Comments (note deviations):

MS /MSD	**Analyte**	**%R**	**Limits**	**Qualifiers**	**Associated Samples**
	Nitrate-Nitrite	60	75-125	**J / UJ**	**L043-07**

LCS / LCSD	**Analyte**	**%R**	**Limits**	**Qualifiers**	**Associated Samples**
		Acceptable			

ICV/CCV	**%R**	**Limits**	**Qualifiers**	**Associated Samples**
	Acceptable			

Blanks	**Analyte**	**Result (mg/L)**	**MDL/PQL**	**Qualifiers**	**Associated Samples**
		Nondetect			

Field Blank	**Analyte**	**Result (mg/L)**	**MDL/RL**	**Qualifiers**	**Associated Samples**
N/A					

Tune	**Analyte**	**%RSD**	**Limits**	**Qualifiers**	**Associated Samples**
N/A					

Representativeness:	Yes	No	N/A
Were sampling procedures and design criteria met?	**Yes**		
Were holding times met?	**Yes**		
Was preservation criteria met? (0° C - 6° C)	**Yes**		
Were Chain-of-Custody records complete and provided in data package?	**Yes**		

Comments (note

The cooler temperatures were 1.8 & 2.4 °C

Preservation	**Cooler Temperature (Degrees C)**	**Preservation Criteria**	**Qualifiers**	**Associated Samples**
	Acceptable			

Holding Times	**Analyte**	**Days to Extraction**	**HT Criteria**	**Qualifiers**	**Associated Samples**
		Acceptable			

Comparability:	Yes	No	N/A
Were analytical procedures and methods followed as defined in the QAPP or field change documentation?	**Yes**		

Comments (note deviations):

Completeness (90%):	Yes	No	N/A
Are all data in this SDG usable?	**Yes**		

Comments (note deviations):

Sensitivity:	Yes	No	N/A
Are MDLs present and reported?	**Yes**		
Do the reporting limits meet project requirements?	**Yes**		

Comments (note deviations):

Comment:

Data is usable with appropriate qualifiers applied.

Data Validator: *Kristine Molloy* Date: *2/16/2020*

Data Reviewer: Cherie Zakowski Date: 2/18/2020

VA Salt Lake City OU1
Salt Lake City, Utah
Groundwater Validation Report

Sample Delivery Group (SDG) Number: 19L057
Laboratory: EMAX Laboratories, Inc.

Matrix: Groundwater
Collection date: 12/05/2019 & 12/06/2019
Analysis/Methods:

Volatile Organic Compounds SW8260C
Semivolatile Organic Compounds SW8270D (1,4-Dioxane)
Metals SW6020 A
Dissolved Gases - RSK-175
Metals SW6020 A
Mercury SW7470 A
Wet Chemistry Parameters:
Chloride EPA 300.0
Sulfate EPA 300.0
Total Alkalinity SM2320B
Total Dissolved Solids (TDS) SM2540C
Nitrate / Nitrite - SM4500-NO3E
Total Organic Carbon (TOC) SW9060

Samples in SDG:

Lab ID	Sample Number	Lab ID	Sample Number
L057-01	OU2-MW12S-GW120619	L057-07	OU2-FD01-GW120519
L057-02	OU2-MW12D-GW120619	L057-08	OU2-MW13S-GW120519
L057-03	OU2-MW16S-GW120619	L057-09	OU2-MW13D-GW120519
L057-04	OU2-MW16D-GW120619	L057-10	OU2-MW04-GW120519
L057-05	OU2-MW06-GW120619		

Data validation was performed in accordance with the specific analytical methods, National Functional Guidelines for Organic Superfund Methods Data Review (EPA January 2017), and the National Functional Guidelines for Inorganic Superfund Methods Data Review (EPA January 2017).

Volatile Organic Compounds 8260C

Precision:

	Yes	No	N/A
Are the field duplicate relative percent differences (RPD) ≤50% (soils), <30% (water) or within CRQL criteria?			Yes
Were the Matrix Spike Duplicate RPDs ≤ 20%? (Or lab defined limits)			N/A
Laboratory Control Spike Duplicates RPD within limits?			Yes

Comments (note deviations):

Field Duplicates	8260C	Sample	Duplicate	%RPD	Qualifiers	Associated Samples
		OU2-MW20D-GW120519**	OU2-FD01-GW120519			
** Results reported in SDG 19L043				Acceptable		

MS/MSD	8260C	%RPD	Limit	Qualifiers	Associated Samples
N/A					

LCS/LCSD	8260C	%RPD	Limits	Qualifiers	Associated Samples
LCS1W/LCD1W		Accetpable			

Accuracy:

	Yes	No	N/A
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)			N/A
Laboratory Control Sample criteria met?			Yes
Were the Laboratory Method Blank results all < RL?			Yes
Were the Field Blanks results all < RL?			N/A
Was the ICAL criteria met?			Yes
Was the CCV criteria met?			Yes
Was the Tuning criteria met?			Yes
Were the Surrogate % recoveries within laboratory determined control limits?			Yes
Were the Internal Standard areas within ± 50 - 150%?			Yes

Comments (note deviations):

Blanks MBLK1W	**8260C** Nondetect	**Concentration**	**MDL /PQL**		**Qualifiers**	**Associated Samples**
Field Blank N/A	**8260C**	**Concentration**	**MDL / PQL (ug/L)**		**Qualifiers**	**Associated Samples**
Surrogates	**8260C**	**%R** Acceptable	**Limit**		**Qualifiers**	**Associated Samples**
MS/MSD N/A	**8260C**	**%R**	**Limits (%)**		**Qualifiers**	**Associated Samples**
LCS/LCSD	**8260C**	**%R** Acceptable	**Limits**		**Qualifiers**	**Associated Samples**
ICAL	**8260C**	**RRF** Acceptable	**%RSD** Acceptable		**Qualifiers**	**Associated Samples**
CCV	**8260C**	**RRF** Acceptable	**%D** Acceptable	**Limits**	**Qualifiers**	**Associated Samples**
Tune	**8260C** Acceptable					
Internal Standards	**8260C** Acceptable	**Area**	**Area Lower / Upper Limit**		**Qualifiers**	**Associated Samples**

Semivolatile Organic Compounds 8270D (1,4-Dioxane SIM)

Precision:

	Yes	No	N/A
Are the field duplicate relative percent differences (RPD) ≤50% (soils), <30% (water) or within CRQL criteria?	Yes		
Were the Matrix Spike Duplicate RPDs ≤ 20%? (Or lab defined limits)			N/A
Laboratory Control Spike Duplicates RPD within limits?	Yes		

Comments (note deviations):

Field Duplicates	8270D	Sample	Duplicate	%RPD	Qualifiers	Associated Samples
		OU2-MW20D-GW120519**	OU2-FD01-GW120519			
** Results reported in SDG 19L043		ND	ND	Acceptable		

MS/MSD	8270D	%RPD	Limit	Qualifiers	Associated Samples
N/A					

LCS/LCSD	8270D	%RPD	Limit	Qualifiers	Associated Samples
LCS1W / LCSD1W		Acceptable			

Accuracy:

	Yes	No	N/A
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)			N/A
Laboratory Control Sample criteria met?	Yes		
Were the Laboratory Method Blank results all < RL?	Yes		
Were the Field Blanks results all < RL?			N/A
Was the ICAL criteria met?	Yes		
Was the CCV criteria met?	Yes		
Was the Tuning criteria met?	Yes		
Were the Surrogate % recoveries within laboratory determined control limits?	Yes		
Were the Internal Standard areas within ± 50 - 150%?	Yes		

Comments (note deviations):

Blanks	8270D	Concentration (ug/L)	MDL / RL	Qualifiers	Associated Samples
MBLK1W		Nondetect			

Field Blank	8270D	Concentration	MDL / RL	Qualifiers	Associated Samples
N/A					

Surrogates	8270D	%R	Limit	Qualifiers	Associated Samples
		Acceptable			

MS/MSD	8270D	%R	Limits (%)	Qualifiers	Associated Samples
N/A					

LCS/LCSD	8270D	%R	Limits	Qualifiers	Associated Samples
LCS1W / LCSD1W		Acceptable			

ICAL	8270D	RRF	%RSD	Qualifiers	Associated Samples
11/15/2019		Acceptable	Acceptable		

CCV	8270D	RRF	%D	Qualifiers	Associated Samples
12/11/19 10:19 AM		Acceptable	Acceptable		

Tune	8270D
	Acceptable

Internal Standards	8270D	Area	Area Lower / Upper Limit	Qualifiers	Associated Samples
		Acceptable			

Dissolved Gases RSK-175

Precision:	**Yes**	**No**	**N/A**
Are the field duplicate relative percent differences (RPD) ≤50% (soils), <30% (water) or within CRQL criteria?	**Yes**		
Were the Matrix Spike Duplicate RPDs ≤ 20%? (Or lab defined limits)			**N/A**
Laboratory Control Spike Duplicates RPD within limits?	**Yes**		
Are the laboratory duplicate RPDs ≤ 20% for water ≤35% for soils or within CRQL criteria?			**N/A**

Comments (note deviations):

Field Duplicates	**RSK-175**	**Sample**	**Duplicate**	**%RPD**	**Qualifiers**	**Associated Samples**
		OU2-MW20D-GW120519**	**OU2-FD01-GW120519**			
** Results reported in SDG 19L043				Acceptable		

MS/MSD	**RSK-175**	**%RPD**	**Limit**	**Qualifiers**	**Associated Samples**
N/A					

LCS/LCSD	**RSK-175**	**%RPD**	**Limits**	**Qualifiers**	**Associated Samples**
LCS1W / LCD1W		Acceptable			

Laboratory Duplicates	**RSK-175**	**Sample (ug/L)**	**Duplicate (ug/L)**	**%RPD**	**Qualifiers**	**Associated Samples**
N/A						

Accuracy:	**Yes**	**No**	**N/A**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)			**N/A**
Laboratory Control Sample criteria met?	**Yes**		
Were the Laboratory Method Blank results all < RL?	**Yes**		
Were the Field Blanks results all < RL?			**N/A**
Was the ICAL criteria met?	**Yes**		
Was the CCV criteria met?	**Yes**		
Was the Tuning criteria met?			**N/A**
Were the Surrogate % recoveries within laboratory determined control limits?			**N/A**
Were the Internal Standard areas within ± 50 - 150%?			**N/A**

Comments (note deviations):

Blanks	**RSK-175**	**Concentration (ug/L)**	**MDL / RL**	**Qualifiers**	**Associated Samples**
MBLK1W		Nondetect			

Field Blank	**RSK-175**	**Concentration**	**MDL / RL**	**Qualifiers**	**Associated Samples**
N/A					

Surrogates	**RSK-175**	**%R**	**Limit**	**Qualifiers**	**Associated Samples**
N/A					

MS/MSD	**RSK-175**	**%R**	**Limits (%)**	**Qualifiers**	**Associated Samples**
N/A		Acceptable			

LCS/LCSD	**RSK-175**	**%R**	**Limits**	**Qualifiers**	**Associated Samples**
LCS1W / LCD1W		Acceptable			

ICAL	**RSK-175**	**RRF**	**%RSD**	**Qualifiers**	**Associated Samples**
3/20/2019		Acceptable	Acceptable		

CCV 3/20/2019 '10:56	**RSK-175**	**RRF** Acceptable	**%D** Acceptable	**Limits**	**Qualifiers**	**Associated Samples**

Tune N/A	**RSK-175**

Internal Standards N/A	**RSK-175**	**Area**	**Area Lower / Upper Limit**	**Qualifiers**	**Associated Samples**

Metals SW 6020A

Precision:

	Yes	No	N/A
Are the field duplicate relative percent differences (RPD) ≤50%/30% (soils / water) or within CRQL criteria?		**No**	
Are the laboratory duplicate RPDs ≤ 20% for (water / soil) or within CRQL criteria?			**N/A**
Are the matrix spike duplicates RPD ≤ 20%?			**N/A**
Are the laboratory control sample duplicates RPDs ≤ 20%?	**Yes**		

Comments (note deviations):

Field Duplicates	Sample (ug/L)	Duplicate (ug/L)	%RPD	Qualifiers	Associated Samples
	OU2-MW20D-GW120519**	OU2-FD01-GW120519			
** Results reported in SDG 19L043			Acceptable		

MS/MSD	RPD %	Qualifiers	Associated Samples
N/A			

LCS / LCSD	RPD %	Qualifiers	Associated Samples
	Acceptable		

Laboratory Duplicate	Sample	Duplicate	RPD %	Qualifiers	Associated Samples
N/A					

Accuracy:

	Yes	No	N/A
Were serial dilutions analyzed and within control limits of ±10% for waters (± for 15% for soils) or initial sample result less than 50x MDL?			**N/A**
Was matrix spike criteria met (frequency 20% and % recovery 75-125%)?			**N/A**
Was post digestion spike criteria met (if applicable)?			**N/A**
Was laboratory control sample criteria met?	**Yes**		
Was laboratory blank criteria met (within control limits)?		**No**	
Were ICV/CCV % recoveries within 90-110%?	**Yes**		
Were the Detection Limit PQL Standards within 70-130?			**N/A**
Was the %D on form 16-IN for the initial calibration instrument response and concentration data <30%?			**N/A**
Were ICSA/ICSAB % recoveries acceptable or within CRQL criteria?	**Yes**		
Was the tune %RPD <5% (Peak width < 0.75)?			**N/A**
Was internal standard criteria met?			**N/A**

Comments (note deviations):

Serial Dilution	Analyte	Initial Sample Result	%D	50 x MDL	Qualifiers	Associated Samples
N/A						

MS/MSD	Analyte	%R	Limits	Post Digestion	Qualifiers	Associated Samples
N/A						

LCS/LCSD	Analyte	%R	Limits	Qualifiers	Associated Samples
		Acceptable			

ICV/CCV	Analyte	%R	Limits	Qualifiers	Associated Samples
		Acceptable			

Blanks

Prep Blank		Result (ug/L)	MDL/RL (ug/L)	Qualifiers	Associated Samples
MBLK1W	Calcium	51.87 J	25 / 100	None	Sample results > RL
	Lead	0.0572 J	0.05 / 1	**U-RL**	**L057-01 through L057-05, L057-08 through L057-9****
	Sodium	41.4 J	25 / 100	None	Sample results > RL
	Zinc	5.13 J	5 / 20	**U-RL**	**L057-03, L057-04, L057-05, L057-08 through L057-10****

** Applies to initial result only

ICBs	Analyte	Result (ug/L)	MDL/RL (ug/L)	Qualifiers	Associated Samples
	Thallium	0.20	0.1/1	None	Sample results nondetect

** Detected analytes previously evaluated / qualified based on prep blank detection

CCBs	Analyte	Result (ug/L)	MDL/RL (ug/L)	Qualifiers	Associated Samples
CCB4/CCB5/CCB6	Manganese	0.4 / 0.4 / 0.6	0.25	**U-CRQL**	**L057-10****
	Sodium	60/50	25/100	None	Samples results > RL
	Cadmium	0.1	0.1/1	None	Sample results nondetect

Remaining analytes previously evaluated / qualified based on prep blank detection

** Applies to initial result only

Field Blank	Concentration (ug/L)	MDL/RL (ug/L)	Qualifiers	Associated Samples
N/A				

ICSA/AB	Analyte - Solution A	%R	Found Sol. A / True A	RL	Qualifiers	Associated Samples
		Acceptable				

PQL Standard Check	%R	Qualifiers	Associated Samples
N/A			

Tune	%R	Qualifiers	Associated Samples
Acceptable			

Internal Standards	Qualifiers	Associated Samples
Acceptable		

Wet Chemistry Parameters

Precision:	**Yes**	**No**	**N/A**
Are the field duplicate relative percent differences (RPD) ≤50%/30% (soils / water) or within CRQL criteria?	**Yes**		
Are the laboratory duplicate RPDs ≤ 20% for water ≤35% for soils or within CRQL criteria?	**Yes**		
Are the matrix spike duplicates RPD ≤ 20%?	**Yes**		
Are the laboratory control spike duplicates RPD ≤ 20%?	**Yes**		

Comments (note deviations):

Field Duplicates	**Sample (mg/L) OU2-MW20D-GW120519****	**Duplicate (mg/L) OU2-FD01-GW120519**	**%RPD**	**Qualifiers**	**Associated Samples**
			Acceptable		

** Results reported in SDG 19L043

MS/MSD	**Limits**	**RPD %**	**Qualifiers**	**Associated Samples**
		Acceptable		

LCS/ LCSD	**Limits**	**RPD %**	**Qualifiers**	**Associated Samples**
		Acceptable		

Laboratory Duplicate	**Sample**	**Duplicate**	**RPD %**	**Qualifiers**	**Associated Samples**
			Acceptable		

Accuracy:	**Yes**	**No**	**N/A**
Was matrix spike criteria met (frequency 20% and % recovery 75-125%)?	**Yes**		
Was post digestion spike criteria met (if applicable)?			**N/A**
Was laboratory control sample criteria met?	**Yes**		
Was laboratory blank criteria met (within control limits)?	**Yes**		
Were the Field Blanks results all < RL?			**N/A**
Were ICV/CCV % recoveries within 90-110%?		**No**	
Was the tune %RSD <5% ?			**N/A**
Was internal standard criteria met?			**N/A**

Comments (note deviations):

MS /MSD	**Analyte**	**%R**	**Limits**	**Qualifiers**	**Associated Samples**
		Acceptable			

LCS / LCSD	**Analyte**	**%R**	**Limits**	**Qualifiers**	**Associated Samples**
		Acceptable			

ICV/CCV		**%R**	**Limits**	**Qualifiers**	**Associated Samples**
ICV	Chloride	88.8	90-110	**J / UJ**	**All samples**

Blanks	**Analyte**	**Result (mg/L)**	**MDL/PQL**	**Qualifiers**	**Associated Samples**
		Nondetect			

Field Blank	**Analyte**	**Result (mg/L)**	**MDL/RL**	**Qualifiers**	**Associated Samples**
N/A					

Tune	**Analyte**	**%RSD**	**Limits**	**Qualifiers**	**Associated Samples**
N/A					

Representativeness:	Yes	No	N/A
Were sampling procedures and design criteria met?	Yes		
Were holding times met?	Yes		
Was preservation criteria met? (0° C - 6° C)	Yes		
Were Chain-of-Custody records complete and provided in data package?	Yes		

Comments (note

The cooler temperatures were 3.6, 3.8, and 5.6 °C

`

Preservation	**Cooler Temperature (Degrees C)**	**Preservation Criteria**	**Qualifiers**	**Associated Samples**
	Acceptable			

Holding Times	**Analyte**	**Days to Extraction**	**HT Criteria**	**Qualifiers**	**Associated Samples**
		Acceptable			

Comparability:	Yes	No	N/A
Were analytical procedures and methods followed as defined in the QAPP or field change documentation?	Yes		

Comments (note deviations):

Completeness (90%):	Yes	No	N/A
Are all data in this SDG usable?	Yes		

Comments (note deviations):

Sensitivity:	Yes	No	N/A
Are MDLs present and reported?	Yes		
Do the reporting limits meet project requirements?	Yes		

Comments (note deviations):

Comment:

Data is usable with appropriate qualifiers applied.

Data Validator: Kristine Molloy Date: 2/16/2020

Data Reviewer: Cherie Zakowski Date: 2/17/2020

VA Salt Lake City OU1
Salt Lake City, Utah
Groundwater Validation Report

Sample Delivery Group (SDG) Number: 19L064
Laboratory: EMAX Laboratories, Inc.

Matrix: Groundwater
Collection date: 12/06/2019 through 12/10/2019
Analysis/Methods:

Volatile Organic Compounds SW8260C
Semivolatile Organic Compounds SW8270D (1,4-Dioxane)
Metals SW6020 A
Dissolved Gases - RSK-175
Metals SW6020 A
Mercury SW7470 A
Wet Chemistry Parameters:
- Chloride EPA 300.0
- Sulfate EPA 300.0
- Total Alkalinity SM2320B
- Total Dissolved Solids (TDS) SM2540C
- Nitrate / Nitrite - SM4500-NO3E
- Total Organic Carbon (TOC) SW9060

Samples in SDG:

Lab ID	Sample Number	Lab ID	Sample Number
L064-01	OU2-MW01D-GW120619	L064-12	OU2-MW17S-GW120819
L064-02	OU2-MW14D-GW120719	L064-13	OU2-FB01-GW120819
L064-03	OU2-MW03RC-GW120719	L064-14	OU2-FD02-GW120819
L064-04	OU2-FD03-GW120719	L064-15	OU2-MW08C-GW120819
L064-05	OU2-TB06-GW120918	L064-16	OU2-TB09-GW120919
L064-06	OU2-MW15S-GW120719	L064-17	OU2-MW08A-GW120819
L064-07	OU2-MW15D-GW120719	L064-18	OU2-MW14S-GW120719
L064-08	OU2-MW03RA-GW120719	L064-19	OU2-TB07-GW120919
L064-09	OU2-MW03RB-GW120819	L064-20	OU2-MW05R-GW120819
L064-10	OU2-MW03RD-GW120719	L064-21	OU2-MW08B-GW120819
L064-11	OU2-MW17D-GW120819	L064-22	OU2-TB08-GW120919

Data validation was performed in accordance with the specific analytical methods, National Functional Guidelines for Organic Superfund Methods Data Review (EPA January 2017), and the National Functional Guidelines for Inorganic Superfund Methods Data Review (EPA January 2017).

Volatile Organic Compounds 8260C

Precision:

	Yes	No	N/A
Are the field duplicate relative percent differences (RPD) ≤50% (soils), <30% (water) or within CRQL criteria?	**Yes**		
Were the Matrix Spike Duplicate RPDs ≤ 20%? (Or lab defined limits)		**No**	
Laboratory Control Spike Duplicates RPD within limits?	**Yes**		

Comments (note deviations):

Field	8260C	Sample	Duplicate	%RPD	Qualifiers	Associated Samples
Duplicates		**OU2-MW08B-GW120819**	**OU2-FD02-GW120819**	Acceptable		
		OU2-MW15D-GW120719	**OU2-FD03-GW120719**	Acceptable		

MS/MSD	8260C	%RPD	Limit	Qualifiers	Associated Samples
L064-07					
OU2-MW14D-GW120719					
	2-butanone	22%	20%	**J***	**L064-07**
	Acetone	22%	20%	**J***	**L064-07**

* Sample results nondetect. No qualifiers required.

LCS/LCSD	8260C	%RPD	Limits	Qualifiers	Associated Samples
LCS1W/LCD1W		Acceptable			
LCS2W/LCD2W		Acceptable			
LCS3W/LCD3W		Acceptable			

Accuracy:

	Yes	No	N/A
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)		**No**	
Laboratory Control Sample criteria met?		**Yes**	
Were the Laboratory Method Blank results all < RL?		**No**	
Were the Field Blanks results all < RL?		**Yes**	
Was the ICAL criteria met?		**Yes**	
Was the CCV criteria met?		**Yes**	
Was the Tuning criteria met?		**Yes**	
Were the Surrogate % recoveries within laboratory determined control limits?		**No**	
Were the Internal Standard areas within ± 50 - 150%?		**No**	

Comments (note deviations):

Blanks	8260C	Concentration	MDL /PQL	Qualifiers	Associated Samples
MBLK1W	Nondetect				
MBLK2W	Nondetect				
MBLK3W	Nondetect				

Field Blank	8260C	Concentration	MDL / PQL (ug/L)	Qualifiers	Associated Samples
L064-13	Nondetect				

Surrogates	8260C	%R	Limit	Qualifiers	Associated Samples
		Acceptable			

MS/MSD	8260C	%R	Limits (%)	Qualifiers	Associated Samples
L064-07		Acceptable			
OU2-MW14D-GW120719					

LCS/LCSD	8260C	%R	Limits	Qualifiers	Associated Samples
		Acceptable			

ICAL	8260C	RRF	%RSD	Qualifiers	Associated Samples
	Acceptable				

CCV	8260C	RRF	%D	Limits	Qualifiers	Associated Samples
	Acceptable					

Tune	8260C
	Acceptable

Internal Standards	8260C	Area	Area Lower / Upper Limit	Qualifiers	Associated Samples
	Acceptable				

Semivolatile Organic Compounds 8270D (1,4-Dioxane SIM)

Precision:	**Yes**	**No**	**N/A**
Are the field duplicate relative percent differences (RPD) ≤50% (soils), <30% (water) or within CRQL criteria?	**Yes**		
Were the Matrix Spike Duplicate RPDs ≤ 20%? (Or lab defined limits)	**Yes**		
Laboratory Control Spike Duplicates RPD within limits?	**Yes**		

Comments (note deviations):

Field Duplicates	**8270D**	**Sample**	**Duplicate**	**%RPD**	**Qualifiers**	**Associated Samples**
		OU2-MW08B-GW120819	**OU2-FD02-GW120819**			
		ND	ND			
				Acceptable		
		OU2-MW15D-GW120719	**OU2-FD03-GW120719**			
		ND	ND			
				Acceptable		

MS/MSD	**8270D**	**%RPD**	**Limit**	**Qualifiers**	**Associated Samples**
L064-07 OU2-MW14D-GW120719		Acceptable			

LCS/LCSD	**8270D**	**%RPD**	**Limit**	**Qualifiers**	**Associated Samples**
LCS1W / LCSD1W		Acceptable			

Accuracy:	**Yes**	**No**	**N/A**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)	**Yes**		
Laboratory Control Sample criteria met?	**Yes**		
Were the Laboratory Method Blank results all < RL?	**Yes**		
Were the Field Blanks results all < RL?	**N/A**		
Was the ICAL criteria met?	**Yes**		
Was the CCV criteria met?	**Yes**		
Was the Tuning criteria met?	**Yes**		
Were the Surrogate % recoveries within laboratory determined control limits?	**Yes**		
Were the Internal Standard areas within ± 50 - 150%?	**Yes**		

Comments (note deviations):

Blanks	**8270D**	**Concentration (ug/L)**	**MDL / RL**	**Qualifiers**	**Associated Samples**
MBLK1W		Nondetect			

Field Blank	**8270D**	**Concentration**	**MDL / RL**	**Qualifiers**	**Associated Samples**
L064-13	Nondetect				

Surrogates	**8270D**	**%R**	**Limit**	**Qualifiers**	**Associated Samples**
		Acceptable			

MS/MSD	**8270D**	**%R**	**Limits (%)**	**Qualifiers**	**Associated Samples**
L064-07 OU2-MW14D-GW120719		Acceptable			

LCS/LCSD	**8270D**	**%R**	**Limits**	**Qualifiers**	**Associated Samples**
LCS1W / LCSD1W		Acceptable			

ICAL	**8270D**	**RRF**	**%RSD**	**Qualifiers**	**Associated Samples**
11/15/2019		Acceptable	Acceptable		

CCV 12/11/19 10:19 AM	**8270D**	**RRF** Acceptable	**%D** Acceptable	**Qualifiers**	**Associated Samples**

Tune	**8270D** Acceptable

Internal Standards	**8270D**	**Area** Acceptable	**Area Lower / Upper Limit**	**Qualifiers**	**Associated Samples**

Dissolved Gases RSK-175

Precision:	**Yes**	**No**	**N/A**
Are the field duplicate relative percent differences (RPD) ≤50% (soils), <30% (water) or within CRQL criteria?	**Yes**		
Were the Matrix Spike Duplicate RPDs ≤ 20%? (Or lab defined limits)	**Yes**		
Laboratory Control Spike Duplicates RPD within limits?	**Yes**		
Are the laboratory duplicate RPDs ≤ 20% for water ≤35% for soils or within CRQL criteria?			**N/A**

Comments (note deviations):

Field Duplicates	**RSK-175**	**Sample**	**Duplicate**	**%RPD**	**Qualifiers**	**Associated Samples**
		OU2-MW08B-GW120819	**OU2-FD02-GW120819**			
	Methane	0.28 J	2 U	150%	None	Sample result < 5xs RL; ABS Diff. < RL
		OU2-MW15D-GW120719	**OU2-FD03-GW120719**			
		ND	ND			
				Acceptable		

MS/MSD	**RSK-175**	**%RPD**	**Limit**	**Qualifiers**	**Associated Samples**
L064-07M / L064-07S		Acceptable			

LCS/LCSD	**RSK-175**	**%RPD**	**Limits**	**Qualifiers**	**Associated Samples**
LCS1W / LCD1W		Acceptable			

Laboratory Duplicates	**RSK-175**	**Sample (ug/L)**	**Duplicate (ug/L)**	**%RPD**	**Qualifiers**	**Associated Samples**
N/A						

Accuracy:	**Yes**	**No**	**N/A**
Was the Matrix Spike/Matrix Spike Duplicate criteria met? (frequency ≥ 5% and laboratory determined control limits)	**Yes**		
Laboratory Control Sample criteria met?	**Yes**		
Were the Laboratory Method Blank results all < RL?	**Yes**		
Were the Field Blanks results all < RL?			**N/A**
Was the ICAL criteria met?	**Yes**		
Was the CCV criteria met?	**Yes**		
Was the Tuning criteria met?			**N/A**
Were the Surrogate % recoveries within laboratory determined control limits?			**N/A**
Were the Internal Standard areas within ± 50 - 150%?			**N/A**

Comments (note deviations):

Blanks	**RSK-175**	**Concentration (ug/L)**	**MDL / RL**	**Qualifiers**	**Associated Samples**
MBLK1W		Nondetect			

Field Blank	**RSK-175**	**Concentration**	**MDL / RL**	**Qualifiers**	**Associated Samples**
N/A					

Surrogates	**RSK-175**	**%R**	**Limit**	**Qualifiers**	**Associated Samples**
N/A					

MS/MSD	**RSK-175**	**%R**	**Limits (%)**	**Qualifiers**	**Associated Samples**
L064-07M / L064-07S		Acceptable			

LCS/LCSD	**RSK-175**	**%R**	**Limits**	**Qualifiers**	**Associated Samples**
LCS1W / LCD1W		Acceptable			

ICAL 3/20/2019	**RSK-175**	**RRF** Acceptable	**%RSD** Acceptable		**Qualifiers**	**Associated Samples**

CCV 3/20/2019 '10:56	**RSK-175**	**RRF** Acceptable	**%D** Acceptable	**Limits**	**Qualifiers**	**Associated Samples**

Tune N/A	**RSK-175**

Internal Standards N/A	**RSK-175**	**Area**	**Area Lower / Upper Limit**	**Qualifiers**	**Associated Samples**

Metals SW 6020A / Mercury 7470A

Precision:

	Yes	No	N/A
Are the field duplicate relative percent differences (RPD) ≤50%/30% (soils / water) or within CRQL criteria?		**No**	
Are the laboratory duplicate RPDs ≤ 20% for (water / soil) or within CRQL criteria?			**N/A**
Are the matrix spike duplicates RPD ≤ 20%?	**Yes**		
Are the laboratory control sample duplicates RPDs ≤ 20%?	**Yes**		

Comments (note deviations):

Field Duplicates		Sample (ug/L) OU2-MW08B-GW120819	Duplicate (ug/L) OU2-FD02-GW120819	%RPD	Qualifiers	Associated Samples
	Zinc	33.1	20 U	49%	None	Sample result < 5xs RL; ABS Diff. < RL
	Copper	2 U	2.9	36%	None	Sample result < 5xs RL; ABS Diff. < RL
	Iron	164	112	37%	None	Sample result < 5xs RL; ABS Diff. < RL
	Lead	0.169	0.12	34%	None	Sample result < 5xs RL; ABS Diff. < RL
		OU2-MW15D-GW120719	**OU2-FD03-GW120719**			
	Chromium	2.82 J	1.71 J	49%	**J**	**L064-04 & L064-07**

MS/MSD	RPD %	Qualifiers	Associated Samples
	Acceptable		

LCS / LCSD	RPD %	Qualifiers	Associated Samples
	Acceptable		

Laboratory Duplicate	Sample	Duplicate	RPD %	Qualifiers	Associated Samples
N/A					

Accuracy:

	Yes	No	N/A
Were serial dilutions analyzed and within control limits of ±10% for waters (± for 15% for soils) or initial sample result less than 50x MDL?		**No**	
Was matrix spike criteria met (frequency 20% and % recovery 75-125%)?		**No**	
Was post digestion spike criteria met (if applicable)?		**No**	
Was laboratory control sample criteria met?	**Yes**		
Was laboratory blank criteria met (within control limits)?		**No**	
Were ICV/CCV % recoveries within 90-110%?	**Yes**		
Were the Detection Limit PQL Standards within 70-130?			**N/A**
Was the %D on form 16-IN for the initial calibration instrument response and concentration data <30%?			**N/A**
Were ICSA/ICSAB % recoveries acceptable or within CRQL criteria?	**Yes**		
Was the tune %RPD <5% (Peak width < 0.75)?			**N/A**
Was internal standard criteria met?	**Yes**		

Comments (note deviations):

Serial Dilution	Analyte	Initial Sample Result	%D	50 x MDL	Qualifiers	Associated Samples
	Calcium	168000	11.0%	1250	**J / UJ**	**All samples***

** Applies to diluted results only

MS/MSD	Analyte	%R	Limits	Post Digestion	Qualifiers	Associated Samples
	Calcium	-300 / -333	75-125	120	None	ISR > 4xs the spike added
	Magnesium	153 / 50	75-125	121	None	ISR > 4xs the spike added
	Sodium	33 / -100	75-125	113	None	ISR > 4xs the spike added

**Applies to reanalyzed samples - MS/MSD %R within acceptable criteria for initial analysis

LCS/LCSD	Analyte	%R	Limits	Qualifiers	Associated Samples
		Acceptable			

ICV/CCV	Analyte	%R	Limits	Qualifiers	Associated Samples
		Acceptable			

Blanks

Prep Blank		Result (ug/L)	MDL/RL (ug/L)	Qualifiers	Associated Samples
MBLK1W	Barium	0.362 J	0.25 / 1	None	Sample results > RL
	Calcium	68.3 J	25 / 100	None	Sample results > RL
	Nickel	0.44 J	0.25 / 1	**U-RL**	**L064-11, L064-14, L064-17, L064-21****
	Sodium	98.6 J	25 / 100	None	Sample results > RL

** Applies to initial result only

ICBs++	Analyte	Result (ug/L)	MDL/RL (ug/L)	Qualifiers	Associated Samples
		Nondetect			

ICBs**	Analyte	Result (ug/L)	MDL/RL (ug/L)	Qualifiers	Associated Samples
	Cadmium	0.1	0.1	None	No Associated results
	Lead	0.07	0.05	None	No Associated results
	Manganese	0.3	0.25	None	No Associated results
	Thallium	0.2	0.1	None	No Associated results

++ Applies to initial result only
** Applies to diluted result only
** Remaining analytes previously evaluated / qualified based on prep blank detection

CCBs++	Analyte	Result (ug/L)	MDL/RL (ug/L)	Qualifiers	Associated Samples
		Nondetect			

CCBs**	Analyte	Result (ug/L)	MDL/RL (ug/L)	Qualifiers	Associated Samples
CCB4/CCB5 / CCB6 **	Sodium	30	25	None	No Associated results
	Copper	0.5	0.5	None	No Associated results

Remaining analytes previously evaluated / qualified based on prep blank or ICB detection
++ Applies to initial result only
** Applies to diluted result only

Field Blank	6020A	Concentration (ug/L)	MDL/RL (ug/L)	Qualifiers	Associated Samples
N/A					

ICSA/AB	Analyte - Solution A	%R	Found Sol. A / True A	RL	Qualifiers	Associated Samples
		Acceptable				

PQL Standard Check	%R	Qualifiers	Associated Samples
N/A			

Tune	%R	Qualifiers	Associated Samples
Acceptable			

Internal Standards	Qualifiers	Associated Samples
Acceptable		

Wet Chemistry Parameters

Precision:	**Yes**	**No**	**N/A**
Are the field duplicate relative percent differences (RPD) ≤50%/30% (soils / water) or within CRQL criteria?	**Yes**		
Are the laboratory duplicate RPDs ≤ 20% for water ≤35% for soils or within CRQL criteria?	**Yes**		
Are the matrix spike duplicates RPD ≤ 20%?	**Yes**		
Are the laboratory control spike duplicates RPD ≤ 20%?	**Yes**		

Comments (note deviations):

Field Duplicates	**Sample (mg/L)**	**Duplicate (mg/L)**	**%RPD**	**Qualifiers**	**Associated Samples**
	OU2-MW08B-GW120819	**OU2-FD02-GW120819**	Acceptable		
	OU2-MW15D-GW120719	**OU2-FD03-GW120719**	Acceptable		

MS/MSD	**%R**	**Limits**	**RPD %**	**Qualifiers**	**Associated Samples**
			Acceptable		

LCS/ LCSD	**Limits**	**RPD %**	**Qualifiers**	**Associated Samples**
		Acceptable		

Laboratory Duplicate	**Sample**	**Duplicate**	**RPD %**	**Qualifiers**	**Associated Samples**
			Acceptable		

Accuracy:	**Yes**	**No**	**N/A**
Was matrix spike criteria met (frequency 20% and % recovery 75-125%)?	**Yes**		
Was post digestion spike criteria met (if applicable)?			**N/A**
Was laboratory control sample criteria met?	**Yes**		
Was laboratory blank criteria met (within control limits)?	**Yes**		
Were the Field Blanks results all < RL?			**N/A**
Were ICV/CCV % recoveries within 90-110%?	**Yes**		
Was the tune %RSD <5% ?			**N/A**
Was internal standard criteria met?			**N/A**

Comments (note deviations):

MS /MSD	**Analyte**	**%R**	**Limits**	**Qualifiers**	**Associated Samples**
L064-07M / L064-07S		Acceptable			

LCS / LCSD	**Analyte**	**%R**	**Limits**	**Qualifiers**	**Associated Samples**
		Acceptable			

ICV/CCV	**%R**	**Limits**	**Qualifiers**	**Associated Samples**
	Acceptable			

Blanks	**Analyte**	**Result (mg/L)**	**MDL/PQL**	**Qualifiers**	**Associated Samples**
		Nondetect			

Field Blank	**Analyte**	**Result (mg/L)**	**MDL/RL**	**Qualifiers**	**Associated Samples**
N/A					

Tune	**Analyte**	**%RSD**	**Limits**	**Qualifiers**	**Associated Samples**
N/A					

Representativeness:	Yes	No	N/A
Were sampling procedures and design criteria met?	**Yes**		
Were holding times met?	**Yes**		
Was preservation criteria met? (0° C - 6° C)	**Yes**		
Were Chain-of-Custody records complete and provided in data package?	**Yes**		

Comments (note

The cooler temperatures were 2.2 2.4 & 4.8 °C

Preservation	**Cooler Temperature (Degrees C)**	**Preservation Criteria**	**Qualifiers**	**Associated Samples**
	Acceptable			

Holding Times	**Analyte**	**Days to Extraction**	**HT Criteria**	**Qualifiers**	**Associated Samples**
		Acceptable			

Comparability:	Yes	No	N/A
Were analytical procedures and methods followed as defined in the QAPP or field change documentation?	**Yes**		

Comments (note deviations):

Completeness (90%):	Yes	No	N/A
Are all data in this SDG usable?	**Yes**		

Comments (note deviations):

Sensitivity:	Yes	No	N/A
Are MDLs present and reported?	**Yes**		
Do the reporting limits meet project requirements?	**Yes**		

Comments (note deviations):

Comment:

As noted in the case narrative, for the metals analysis, sample L064-04 was run at a diltuion due to internal standard deficiency, all other diluted results were due to over calibration range results.

Data is usable with appropriate qualifiers applied.

Data Validator: Kristine Molloy Date: 2/17/2020

Data Reviewer: Cherie Zakowski Date: 2/19/2020

Attachment 2

Data Package Completeness Review Checklist

VA SLC OU-1
Data Package Completeness Review Checklist

SDG: 19L043

Required Documentation	Yes	No	Comments
1. Cover letter complete with the following information:	X		
▪ Title of report and laboratory unique report identification (sample delivery group number)	X		
▪ Project name, site location	X		
▪ Name and location of laboratory and second-site or subcontracted laboratory	X		
▪ Client name and address	X		
▪ Statement of authenticity and official signature and title of person authorizing report release	X		
2. Summary of samples received that correlates field sample IDs with the laboratory IDs	X		
3. Laboratory qualifier flags and definitions	X		
4. Preparation and/or analytical methods	X		
5. Sample results for each analyte (dry weight basis for soils)			
▪ Date received	X		
▪ Date analyzed (and time of analysis if the holding time is less than or equal to 48 hours)	X		
▪ Percent solids results for soil samples			Not Applicable
▪ Dilution factor (provide both diluted and undiluted results when available)	X		
▪ Sample-specific reporting limit adjusted for sample size, dilution/concentration	X		
▪ Sample-specific MDL adjusted for sample size, dilution/concentration	X		
▪ Units	X		
6. Case Narrative that addresses the following information at a minimum:	X		
▪ Sample receipt discrepancies	X		
▪ Descriptions of all nonconformances in the sample receipt, handling, preparation, analytical and reporting processes and the corrective action taken in each occurrence	X		
▪ Identification and justification for sample dilution	X		
▪ Sample cooler temperature at time of receipt	X		1.8C, 2.4C, 1.8C
▪ Final residual vacuum of each sample canister immediately prior to analysis, or upon receipt (Air analyses only)			Not Applicable
7. Surrogate percent recoveries (surrogate result, target concentration, percent recovery)	X		

Required Documentation	Yes	No	Comments
8. MS/MSD and LCS spike concentrations, native sample results, spiked sample results, percent recoveries, and RPDs between the MS and MSD results (associated QC limits must also be provided)	X		
9. Method blank results	X		
10. Analytical batch reference number that cross references samples to QC sample analyses	X		
11. Executed COC and sample receipt checklist	X		
12. Analytical sequence or laboratory run log that contains sufficient information to correlate samples reported in the summary results to the associated method QC information, such as initial and continuing calibration analyses	X		
13. Calibration blank results for inorganic analyses (required in hardcopy format only)	X		
14. Inductively coupled plasma (ICP) interference check sample for inorganic analyses, true and measured concentrations and percent recoveries (required in hardcopy format only)	X		
15. Reporting Limit Check Standard for metals analyses, true and measured concentrations and percent recoveries (if applicable, required in hardcopy format only)	X		
16. Post-digestion spike recoveries for metals analyses, (if applicable; required in hardcopy format only)	X		
17. Internal Standard recovery and retention time information, as applicable	X		
18. Initial calibration summary, including standard concentrations, response factors, average response factors, RSDs or correlation coefficients, and calibration plots or equations, if applicable (required in hardcopy format only)	X		
19. Continuing calibration verification summary, including expected and recovered concentrations and percent differences (required in hardcopy format only)	X		
20. Instrument tuning and mass calibration information for ICP /mass spectrometry analyses	X		
21. All associated instrument printouts for all samples, standards, and QC samples (e.g., raw data) necessary to re-calculate results as well as all manual integrations (if performed)	X		
22. Sample preparation logs that include the following information	X		
▪ Preparation start and end times (as applicable)	X		
▪ Beginning and ending temperatures of water baths and digestion blocks	X		

Data package complete and ready for Validation Cherie Zakowski Date: 01/18/2020

Signature

VA SLC OU-1
Data Package Completeness Review Checklist

SDG: 19L057

Required Documentation	Yes	No	Comments
1. Cover letter complete with the following information:	X		
▪ Title of report and laboratory unique report identification (sample delivery group number)	X		
▪ Project name, site location	X		
▪ Name and location of laboratory and second-site or subcontracted laboratory	X		
▪ Client name and address	X		
▪ Statement of authenticity and official signature and title of person authorizing report release	X		
2. Summary of samples received that correlates field sample IDs with the laboratory IDs	X		
3. Laboratory qualifier flags and definitions	X		
4. Preparation and/or analytical methods	X		
5. Sample results for each analyte (dry weight basis for soils)			
▪ Date received	X		
▪ Date analyzed (and time of analysis if the holding time is less than or equal to 48 hours)	X		
▪ Percent solids results for soil samples			Not Applicable
▪ Dilution factor (provide both diluted and undiluted results when available)	X		
▪ Sample-specific reporting limit adjusted for sample size, dilution/concentration	X		
▪ Sample-specific MDL adjusted for sample size, dilution/concentration	X		
▪ Units	X		
6. Case Narrative that addresses the following information at a minimum:	X		
▪ Sample receipt discrepancies	X		
▪ Descriptions of all nonconformances in the sample receipt, handling, preparation, analytical and reporting processes and the corrective action taken in each occurrence	X		
▪ Identification and justification for sample dilution	X		
▪ Sample cooler temperature at time of receipt	X		1.8C, 2.4C, 1.8C
▪ Final residual vacuum of each sample canister immediately prior to analysis, or upon receipt (Air analyses only)			Not Applicable
7. Surrogate percent recoveries (surrogate result, target concentration, percent recovery)	X		

Required Documentation	Yes	No	Comments
8. MS/MSD and LCS spike concentrations, native sample results, spiked sample results, percent recoveries, and RPDs between the MS and MSD results (associated QC limits must also be provided)	X		
9. Method blank results	X		
10. Analytical batch reference number that cross references samples to QC sample analyses	X		
11. Executed COC and sample receipt checklist	X		
12. Analytical sequence or laboratory run log that contains sufficient information to correlate samples reported in the summary results to the associated method QC information, such as initial and continuing calibration analyses	X		
13. Calibration blank results for inorganic analyses (required in hardcopy format only)	X		
14. Inductively coupled plasma (ICP) interference check sample for inorganic analyses, true and measured concentrations and percent recoveries (required in hardcopy format only)	X		
15. Reporting Limit Check Standard for metals analyses, true and measured concentrations and percent recoveries (if applicable, required in hardcopy format only)	X		
16. Post-digestion spike recoveries for metals analyses, (if applicable; required in hardcopy format only)	X		
17. Internal Standard recovery and retention time information, as applicable	X		
18. Initial calibration summary, including standard concentrations, response factors, average response factors, RSDs or correlation coefficients, and calibration plots or equations, if applicable (required in hardcopy format only)	X		
19. Continuing calibration verification summary, including expected and recovered concentrations and percent differences (required in hardcopy format only)	X		
20. Instrument tuning and mass calibration information for ICP /mass spectrometry analyses	X		
21. All associated instrument printouts for all samples, standards, and QC samples (e.g., raw data) necessary to re-calculate results as well as all manual integrations (if performed)	X		
22. Sample preparation logs that include the following information	X		
▪ Preparation start and end times (as applicable)	X		
▪ Beginning and ending temperatures of water baths and digestion blocks	X		

Data package complete and ready for Validation Cherie Zakowski Date: 01/18/2020

Signature

VA SLC OU-1
Data Package Completeness Review Checklist

SDG: 19L064

Required Documentation	Yes	No	Comments
1. Cover letter complete with the following information:	X		
▪ Title of report and laboratory unique report identification (sample delivery group number)	X		
▪ Project name, site location	X		
▪ Name and location of laboratory and second-site or subcontracted laboratory	X		
▪ Client name and address	X		
▪ Statement of authenticity and official signature and title of person authorizing report release	X		
2. Summary of samples received that correlates field sample IDs with the laboratory IDs	X		
3. Laboratory qualifier flags and definitions	X		
4. Preparation and/or analytical methods	X		
5. Sample results for each analyte (dry weight basis for soils)			
▪ Date received	X		
▪ Date analyzed (and time of analysis if the holding time is less than or equal to 48 hours)	X		
▪ Percent solids results for soil samples			Not Applicable
▪ Dilution factor (provide both diluted and undiluted results when available)	X		
▪ Sample-specific reporting limit adjusted for sample size, dilution/concentration	X		
▪ Sample-specific MDL adjusted for sample size, dilution/concentration	X		
▪ Units	X		
6. Case Narrative that addresses the following information at a minimum:	X		
▪ Sample receipt discrepancies	X		
▪ Descriptions of all nonconformances in the sample receipt, handling, preparation, analytical and reporting processes and the corrective action taken in each occurrence	X		
▪ Identification and justification for sample dilution	X		
▪ Sample cooler temperature at time of receipt	X		1.8C, 2.4C, 1.8C
▪ Final residual vacuum of each sample canister immediately prior to analysis, or upon receipt (Air analyses only)			Not Applicable
7. Surrogate percent recoveries (surrogate result, target concentration, percent recovery)	X		

Required Documentation	Yes	No	Comments
8. MS/MSD and LCS spike concentrations, native sample results, spiked sample results, percent recoveries, and RPDs between the MS and MSD results (associated QC limits must also be provided)	X		
9. Method blank results	X		
10. Analytical batch reference number that cross references samples to QC sample analyses	X		
11. Executed COC and sample receipt checklist	X		
12. Analytical sequence or laboratory run log that contains sufficient information to correlate samples reported in the summary results to the associated method QC information, such as initial and continuing calibration analyses	X		
13. Calibration blank results for inorganic analyses (required in hardcopy format only)	X		
14. Inductively coupled plasma (ICP) interference check sample for inorganic analyses, true and measured concentrations and percent recoveries (required in hardcopy format only)	X		
15. Reporting Limit Check Standard for metals analyses, true and measured concentrations and percent recoveries (if applicable, required in hardcopy format only)	X		
16. Post-digestion spike recoveries for metals analyses, (if applicable; required in hardcopy format only)	X		
17. Internal Standard recovery and retention time information, as applicable	X		
18. Initial calibration summary, including standard concentrations, response factors, average response factors, RSDs or correlation coefficients, and calibration plots or equations, if applicable (required in hardcopy format only)	X		
19. Continuing calibration verification summary, including expected and recovered concentrations and percent differences (required in hardcopy format only)	X		
20. Instrument tuning and mass calibration information for ICP /mass spectrometry analyses	X		
21. All associated instrument printouts for all samples, standards, and QC samples (e.g., raw data) necessary to re-calculate results as well as all manual integrations (if performed)	X		
22. Sample preparation logs that include the following information	X		
▪ Preparation start and end times (as applicable)	X		
▪ Beginning and ending temperatures of water baths and digestion blocks	X		

Data package complete and ready for Validation Cherie Zakowski Date: 01/18/2020

Signature

Attachment 3

Analytical Data Packages

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889

Date: 01-13-2020
EMAX Batch No.: 19L043

Attn: Cherie Zakowski

CDM Smith
555 17th Street, Suite 500
Denver, CO 80202

Subject: Laboratory Report
Project: VA SALT LAKE CITY

Enclosed is the Laboratory report for samples received on 12/06/19.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
OU2-MW20S-GW120419	L043-01	12/04/19	WATER	TOTAL ORGANIC CARBON 1,4-DIOXANE BY 8270D SIM TOTAL ALKALINITY ANIONS BY IC DISSOLVED GAS MERCURY TOTAL DISSOLVED SOLIDS VOCS BY 8260C TOTAL METALS BY ICP-MS NITRATE/NITRITE AS N
OU2-MW20D-GW120519	L043-02	12/05/19	WATER	VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM TOTAL ALKALINITY ANIONS BY IC DISSOLVED GAS MERCURY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON TOTAL METALS BY ICP-MS NITRATE/NITRITE AS N
OU2-TB2-GW120519	L043-03	12/05/19	WATER	VOCS BY 8260C
OU2-MW18-GW120519	L043-04	12/05/19	WATER	VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM TOTAL ALKALINITY ANIONS BY IC DISSOLVED GAS MERCURY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON TOTAL METALS BY ICP-MS NITRATE/NITRITE AS N
OU2-MW19-GW120519	L043-05	12/05/19	WATER	VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM TOTAL ALKALINITY ANIONS BY IC DISSOLVED GAS MERCURY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON TOTAL METALS BY ICP-MS NITRATE/NITRITE AS N

EMAX LABORATORIES, INC.®
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889

Sample ID	Control #	Col Date	Matrix	Analysis
OU2-TB1-GW120519	L043-06	12/05/19	WATER	VOCS BY 8260C
OU2-MW02-GW120519	L043-07	12/05/19	WATER	VOCS BY 8260C
				1,4-DIOXANE BY 8270D SIM
				TOTAL ALKALINITY
				ANIONS BY IC
				DISSOLVED GAS
				MERCURY
				TOTAL DISSOLVED SOLIDS
				TOTAL ORGANIC CARBON
				TOTAL METALS BY ICP-MS
				NITRATE/NITRITE AS N
OU2-TB3-GW120519	L043-08	12/05/19	WATER	VOCS BY 8260C
OU2-MW02-GW120519DUP	L043-07D	12/05/19	WATER	TOTAL ALKALINITY
				TOTAL DISSOLVED SOLIDS
				NITRATE/NITRITE AS N
OU2-MW02-GW120519MS	L043-07M	12/05/19	WATER	VOCS BY 8260C
				1,4-DIOXANE BY 8270D SIM
				ANIONS BY IC
				DISSOLVED GAS
				MERCURY
				TOTAL ORGANIC CARBON
				TOTAL METALS BY ICP-MS
				NITRATE/NITRITE AS N
OU2-MW02-GW120519MSD	L043-07S	12/05/19	WATER	VOCS BY 8260C
				ANIONS BY IC
				DISSOLVED GAS
				MERCURY
				TOTAL ORGANIC CARBON
				TOTAL METALS BY ICP-MS
				1,4-DIOXANE BY 8270D SIM

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Caspar J. Pang
Laboratory Director

EMAX certifies that results included in this report meets all TNI & DOD requirements unless noted in the Case Narrative.

NELAP Accredited Certificate Number CA002912018-15
ANAB Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing
California ELAP Accredited Certificate Number 2672

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. * 19L043

PROJECT CODE:

CLIENT CDM Smith

PROJECT 700 South 1600 East PCE Plume

COORDINATOR Cherie Zakarski

TEL 720-264-1109 FAX EMAIL zakowskic@cdmsmith.com

SEND REPORT TO

COMPANY

ADDRESS

EMAX PM Rana Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs 8260C; 1,4-dioxane 8270D SIM; mEE 1RSK 175; metals (mercury) 6020A/7470A; Chloride, Sulfate 300.0; Nitrate-nitrite SM4500; Alkalinity; TDS; TOC 9060

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

	LAB	CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	CONTAINER SIZE	CONTAINER TYPE	MATRIX CODE	QC	PRESERVATIVE CODE	COMMENTS
1	1	OU2-MW20S-GW120419		12/4/19	1610	13			GW		HC IC HC HN IC HS IC HS	
2	2	OU2-MW20D-GW120519		12/5/19	1150	13			GW		HC IC HC HN IC HS IC HS	
3	3	OU2-TB2-GW120519		12/5/19	1710	3			GW		HC	
	4											
	5											
	6											
	7											
	8											
	9											
	0											

Instructions

Cooler #	Temp. (°C)	Sample #s
1	1.8	
2	2.4	
3	1.8	

SAMPLER Kara Wiswe 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/5/19	1800	12/06/19 9:05

NOTICE: Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. * 19L043

PROJECT CODE:

CLIENT CDM Smith

PROJECT 700 South 1600 East ACE Phase

COORDINATOR Cherie Zakowski

TEL 720-264-1109 FAX EMAIL zakowskica@cdmsmith.com

SEND REPORT TO

COMPANY

ADDRESS

EMAX PM Rona Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs 8260C; 1,4-Dioxane 8270D SIM; MEE 1RSK-175; Metals (Energy 1) 6020A; Chloride, Sulfate 300.0; Nitrate, Nitrite as N 4500; Alkalinity; TDS; TOC 9060

TAT: ☐ Rush ____hrs. ☐ Rush ____days ☐ 7 days ☒ 14 days ☐ 21 days ☐ 30 days ☐ ____days ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	PRESERVATIVE CODE	COMMENTS
1	OU2-MW18-GW120519		121519	0955	13			GW		HC IC HC HN IC HS IC HS	
2	OU2-MW19-GW120519		121519	1000	13			GW		HC IC HC HN IC HS IC HS	
3	OU2-TB1-GW120519		121519	1705	2			GW		HC	
4											
5											
6											
7											
8											
9											
10											

Instructions

Cooler #	Temp. (°C)	Sample #s
1	1.8	
2	2.4	
3	1.8	

SAMPLER Kara Lesné 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	121519	1800	12/06/19 9:05

NOTICE: Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. * 19L043

PROJECT CODE:

CLIENT CDM Smith
PROJECT 700 South 1600 East PCE Plume
COORDINATOR Cherie Zakowski
TEL 720-264-1109 FAX EMAIL zakowskica@cdmsmith.com
SEND REPORT TO
COMPANY
ADDRESS
EMAX PM

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs; 1,4-dioxane; MEE (RSK175); metals/mercury; Chloride/Sulfate; Nitrate/Nitrite; Alkalinity/TDS; TOC

TAT:
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

	SAMPLE ID CLIENT	LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	VOCs	1,4-dioxane	MEE	metals	Cl/SO4	NO3/NO2	Alk/TDS	TOC	COMMENTS
7 LAB 1	OU2-MW02-GW120519		12/5/19	12:15	26			GW	X	HC	IC	HC	HN	IC	HS	IC	HS	MS/MSD
8 LAB 2	OU2-TB3-GW120519		12/5/19	17:15	3			GW	X	HC	~~IC~~ HC							
3											CZ 12/5/19							
4																		
5																		
6																		
7																		
8																		
9																		
0																		

Instructions

Cooler #	Temp. (°C)	Sample #s
1	1.8	
2	2.4	
3	1.8	

SAMPLER Kowalski 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
[signature]	12/5/19	1800	[signature] 12/06/19 9:05

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

SAMPLE RECEIPT FORM 1

Type of Delivery	Airbill / Tracking Number	ECN 19L043
☒ Fedex ☐ UPS ☐ GSO ☐ Others	778643301412 / 778643301401	Recipient Rosie Carrillo
☐ EMAX Courier ☐ Client Delivery	7786 4330 1397	Date 12/04/19 Time 9:05

COC INSPECTION

☑ Client Name	☑ Client PM/FC	☑ Sampler Name	☑ Sampling Date/Time	☑ Sample ID	☑ Matrix
☑ Address N/A	☑ Tel # / Fax # N/A	☑ Courier Signature	☑ Analysis Required	☑ Preservative (if any)	☑ TAT
Safety Issues (if any)	☐ High concentrations expected	☐ From Superfund Site	☐ Rad screening required		

Note:

PACKAGING INSPECTION

Container	☑ Cooler	☐ Box	☐ Other		
Condition	☑ Custody Seal	☐ Intact	☐ Damaged		
Packaging	☑ Bubble Pack	☐ Styrofoam	☐ Popcorn	☐ Sufficient	☐ _____
Temperatures (Cool, ≤6 °C but not frozen)	☑ Cooler 1 1.8 °C	☑ Cooler 2 2.4 °C	☑ Cooler 3 1.8 °C	☐ Cooler 4 _____ °C	☐ Cooler 5 _____ °C
	☐ Cooler 6 _____ °C	☐ Cooler 7 _____ °C	☐ Cooler 8 _____ °C	☐ Cooler 9 _____ °C	☐ Cooler 10 _____ °C
Thermometer:	*A - S/N* 192361464	*B - S/N* _____	*C - S/N* 192361462	*D - S/N* _____	

Comments: ☐ **Temperature is out of range. PM was informed IMMEDIATELY.**

Note:

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
1	11	D17	Label Reads HCL	R1
6	56	D10		R1
7	63, 64	D10		R1
3, 6	29, 58	D22	TB-005-01-15	R1-WL
7	62	D3	Label-002-MW-GW120519	R1
7	81-84	D23	Limited volume FOR MS, MSD Containers. Received in SDG 19L057	
7	95	D2	Label reads 'Anions / 300'	R1

WL 12/9/15 RS 12/9/19

☐ pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.

NOTES/OBSERVATIONS: Extra volume for MS/MSD received on 12/7/19 @ 10:57 Temp - 5.6°

☐ **Continue to next page.**

LEGEND:

Code	Description- Sample Management
D1	Analysis is not indicated in _____
D2	Analysis mismatch COC vs label
D3	Sample ID mismatch COC vs label
D4	Sample ID is not indicated in _____
D5	Container -[improper] [leaking] [broken]
D6	Date/Time is not indicated in _____
D7	Date/Time mismatch COC vs label
D8	Sample listed in COC is not received
D9	Sample received is not listed in COC
D10	No initial/date on corrections in COC/label
D11	Container count mismatch COC vs received
D12	Container size mismatch COC vs received

Code	Description-Sample Management
D13	Out of Holding Time
D14	Bubble is >6mm
D15	No trip blank in cooler
D16	Preservation not indicated in _____
D17	Preservation mismatch COC vs label
D18	Insufficient chemical preservative
D19	Insufficient Sample
D20	No filtration info for dissolved analysis
D21	No sample for moisture determination
D22	No Label
D23	Limited Volume
D24	

Code	Description-Sample Management
R1	Proceed as indicated in ☐ COC ☐ Label
R2	Refer to attached instruction
R3	Cancel the analysis
R4	Use vial with smallest bubble first
R5	Log-in with latest sampling date and time+1 min
R6	Adjust pH as necessary
R7	Filter and preserved as necessary
R8	
R9	
R10	
R11	
R12	

REVIEWS:

Sample Labeling Rosie Carrillo — Date 12/04/19 12/6/19

SRF — Date 12/9/19

PM RS — Date 12/9/19

ORIGIN ID:BTFA (303) 870-5600

CDM
555 17TH ST STE 1100

DENVER, CO 80202
UNITED STATES US

SHIP DATE: 05DEC19
ACTWGT: 45.80 LB
CAD: 6998840/SSFE2021
DIMS: 24x14x15 IN

BILL THIRD PARTY

TO

EMAX LAB
1835 W 205TH ST

TORRANCE CA 90501

(310) 618-8889 REF:

INV:
PO: DEPT:

FedEx Express

3 of 3

MPS# 0263 7786 4330 1412

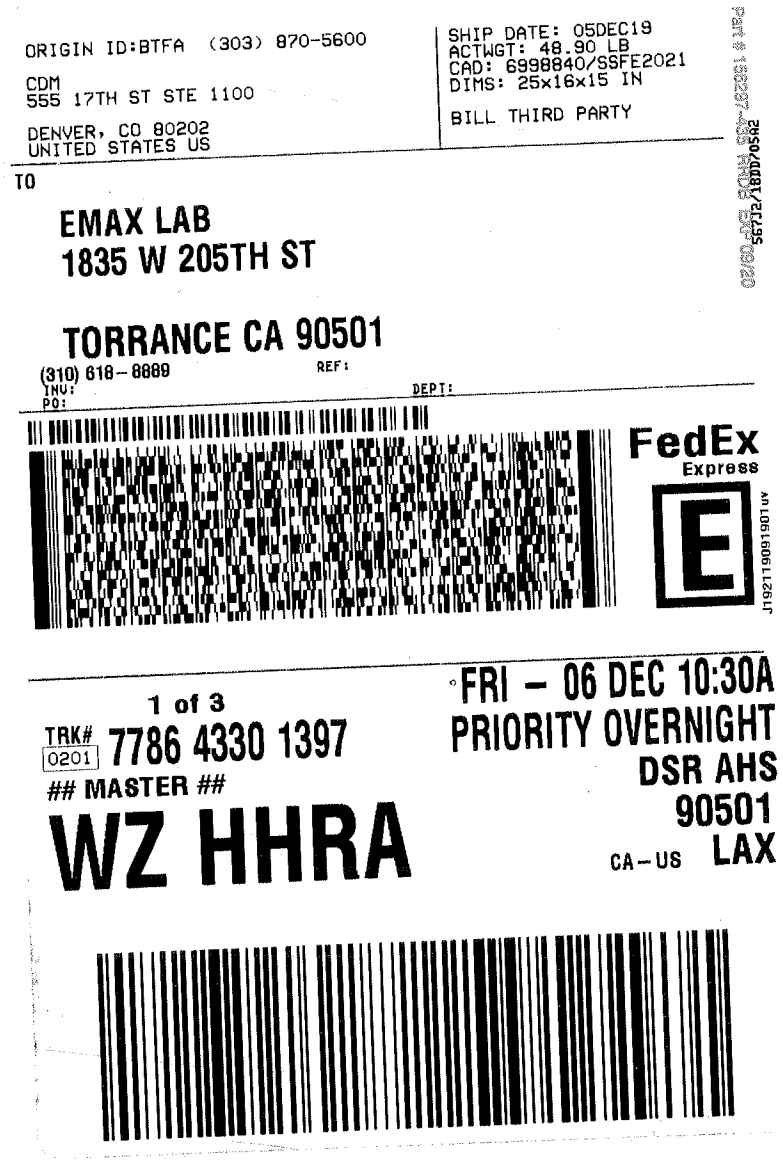
Mstr# 7786 4330 1397 0201

WZ HHRA

FRI - 06 DEC 10:30A
PRIORITY OVERNIGHT
DSR AHS
90501
CA-US LAX

Cooler #1
Temp. 1.8
Therm. C

Cooler #2
Temp 2.4
THam. C.



ORIGIN ID:BTFA (303) 870-5600

CDM
555 17TH ST STE 1100

DENVER, CO 80202
UNITED STATES US

SHIP DATE: 05DEC19
ACTWGT: 48.90 LB
CAD: 6998840/SSFE2021
DIMS: 25x16x15 IN

BILL THIRD PARTY

TO

EMAX LAB
1835 W 205TH ST

TORRANCE CA 90501

(310) 618-8889 REF:
INV:
PO: DEPT:

FedEx
Express

1 of 3

TRK# 0201 7786 4330 1397

MASTER

WZ HHRA

FRI - 06 DEC 10:30A
PRIORITY OVERNIGHT
DSR AHS
90501
CA-US LAX

COOLER #3
TEMP. 1.8
THERM C

12/07/19

19L043

ORIGIN ID:NPHA (785) 727-0107
CDM SMITH
555 17TH ST STE 1100
DENVER, CO 80202
UNITED STATES US

SHIP DATE: 06DEC19
ACTWGT: 46.80 LB
CAD: 6998083/SSFO2021
DIMS: 26x14x14 IN
BILL THIRD PARTY

Part # 158267-450-FEDEX EXP 09/20

TO ATTN: SAMPLE RECEVING
EMAX LABORATORIES
1835 W 205TH ST
REF: 238824 – 6495 – F3048 – 05.SOMPL
TORRANCE CA 90501
(310) [illegible] 9889 REF:
DEPT:

FedEx Express

1 of 2
TRK# 0201 7786 6585 3430
MASTER
WO HHRA

SATURDAY 12:00P
PRIORITY OVERNIGHT
AHS
90501
CA-US LAX

12/07/19 19L043

#2

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range or estimated value.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

CDM SMITH

VA SALT LAKE CITY

METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

SDG#: 19L043

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L043

METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

A total of eight(8) water samples were received on 12/06/19 to be analyzed for Volatile Organics by GC/MS in accordance with Method SW5030B/8260C and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Instrument Performance and Calibration
Instrument tune check was performed prior to calibration. Result was within acceptance criteria. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried out at a frequency required by the project. There were two(2) CCVs (Data file IDs: RLD079 and RLD101) associated with this SDG. All calibration requirements were satisfied. Note that "Average Response Factor" for all analytes were within method recommended response factor with the exception of Acetone and 2-Butanone. However, percent recoveries for all target analytes were within 70-130% on all calibration points. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, two(2) method blanks were analyzed. VO94L04B and VO94L05B were compliant to project requirement. Refer to sample result summary forms for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, two(2) sets of LCS/LCD were analyzed. VO94L04L/VO94L04C and VO94L05L/VO94L05C were within LCS limits. Refer to LCS summary forms for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed and the following were noted: L043-07M/L043-07S - Percent recoveries for Tetrachloroethene and trans-1,3-Dichloropropene were not within MS/MSD QC limits. Percent recoveries for 1,1,2-Trichloroethane and Benzene were not within MSD QC limit. Presence of matrix interference was suspected. The rest of the analytes were in control. Refer to Matrix QC summary form for details.

Surrogate
Surrogates were added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met with the exception of those that were discussed within the associated QC parameter.

LAB CHRONICLE
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH
Project : VA SALT LAKE CITY

SDG NO. : 19L043
Instrument ID : 94

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	VO94L04B	1	NA	12/13/1912:42	12/13/1912:42	RLD083	RJD110	VO94L04	Method Blank
LCS1W	VO94L04L	1	NA	12/13/1911:08	12/13/1911:08	RLD080	RJD110	VO94L04	Lab Control Sample (LCS)
LCD1W	VO94L04C	1	NA	12/13/1911:40	12/13/1911:40	RLD081	RJD110	VO94L04	LCS Duplicate
OU2-TB2-GW120519	L043-03	1	NA	12/13/1913:13	12/13/1913:13	RLD084	RJD110	VO94L04	Field Sample
OU2-TB1-GW120519	L043-06	1	NA	12/13/1913:45	12/13/1913:45	RLD085	RJD110	VO94L04	Field Sample
OU2-TB3-GW120519	L043-08	1	NA	12/13/1914:16	12/13/1914:16	RLD086	RJD110	VO94L04	Field Sample
OU2-MW02-GW120519	L043-07	1	NA	12/13/1914:47	12/13/1914:47	RLD087	RJD110	VO94L04	Field Sample
OU2-MW02-GW120519MS	L043-07M	1	NA	12/13/1915:18	12/13/1915:18	RLD088	RJD110	VO94L04	Matrix Spike Sample (MS)
OU2-MW02-GW120519MSD	L043-07S	1	NA	12/13/1915:50	12/13/1915:50	RLD089	RJD110	VO94L04	MS Duplicate (MSD)
OU2-MW20S-GW120419	L043-01	1	NA	12/13/1916:52	12/13/1916:52	RLD091	RJD110	VO94L04	Field Sample
OU2-MW20D-GW120519	L043-02	1	NA	12/13/1917:23	12/13/1917:23	RLD092	RJD110	VO94L04	Field Sample
OU2-MW18-GW120519	L043-04	1	NA	12/13/1917:54	12/13/1917:54	RLD093	RJD110	VO94L04	Field Sample
OU2-MW19-GW120519	L043-05	1	NA	12/13/1918:26	12/13/1918:26	RLD094	RJD110	VO94L04	Field Sample
MBLK2W	VO94L05B	1	NA	12/16/1914:10	12/16/1914:10	RLD105	RJD110	VO94L05	Method Blank
LCS2W	VO94L05L	1	NA	12/16/1912:36	12/16/1912:36	RLD102	RJD110	VO94L05	Lab Control Sample (LCS)
LCD2W	VO94L05C	1	NA	12/16/1913:08	12/16/1913:08	RLD103	RJD110	VO94L05	LCS Duplicate
OU2-MW02-GW120519DL	L043-07I	10	NA	12/16/1915:12	12/16/1915:12	RLD107	RJD110	VO94L05	Diluted Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/04/19
Project : VA SALT LAKE CITY	Date Received: 12/06/19
Batch No. : 19L043	Date Extracted: 12/13/19 16:52
Sample ID: OU2-MW20S-GW120419	Date Analyzed: 12/13/19 16:52
Lab Samp ID: L043-01	Dilution Factor: 1
Lab File ID: RLD091	Matrix : WATER
Ext Btch ID: VO94L04	% Moisture : NA
Calib. Ref.: RJD110	Instrument ID : T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.15J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	1.4	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	3.7	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	0.10J	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	10.4	10.00	104	70-130
BROMOFLUOROBENZENE	9.97	10.00	99.7	70-130
TOLUENE-D8	10.7	10.00	107	70-130
DIBROMOFLUOROMETHANE	9.95	10.00	99.5	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLD091.D Vial: 14
Acq On : 13 Dec 2019 4:52 pm Operator: VLu
Sample : 19L043-01 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:57 2019 Quant Results File: VO94J09.RES

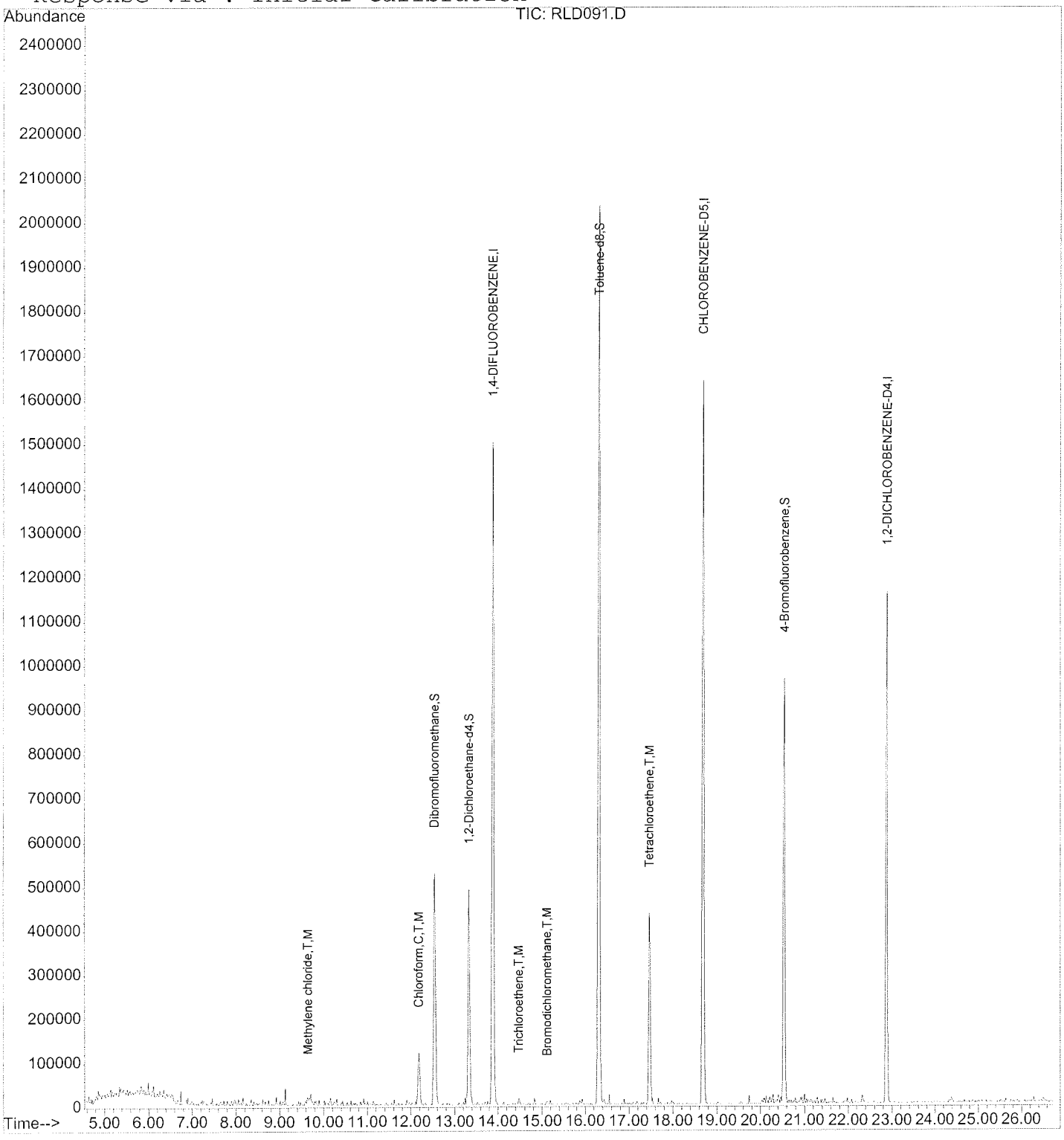
Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

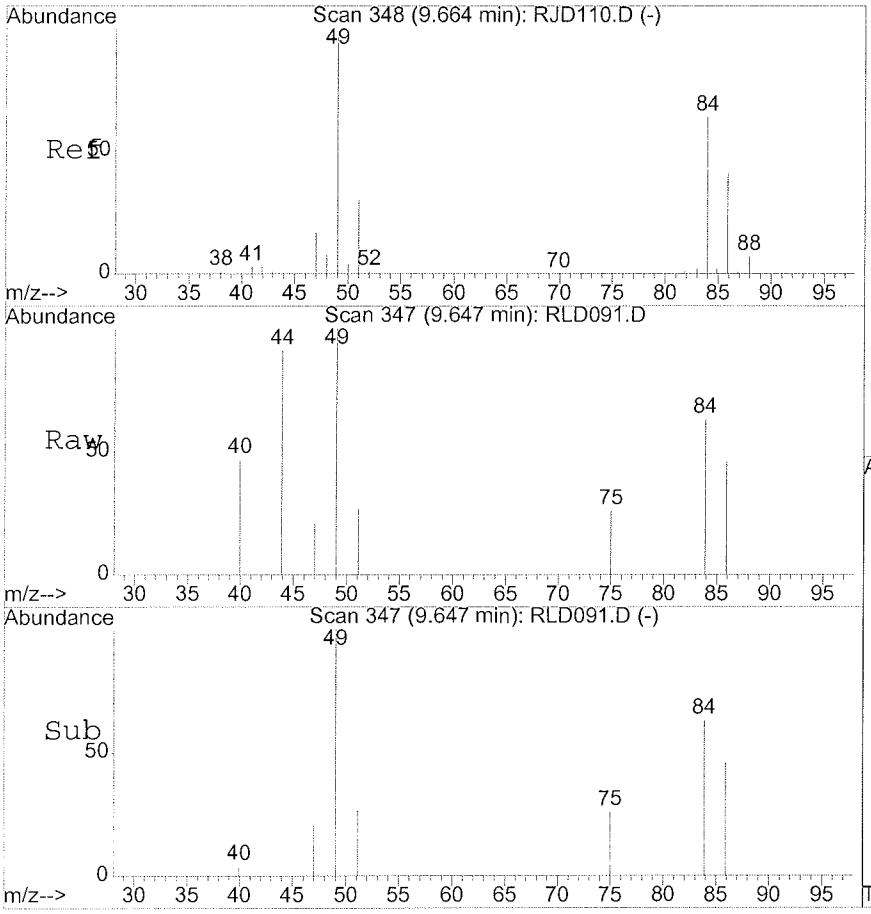
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.88	114	1703716	10.00	ug/l	-0.02
55) CHLOROBENZENE-D5	18.69	117	1341836	10.00	ug/l	-0.02
74) 1,2-DICHLOROBENZENE-D4	22.88	152	384061	10.00	ug/l	-0.02
System Monitoring Compounds						
36) Dibromofluoromethane	12.54	111	504646	9.95	ug/l	-0.03
Spiked Amount 10.000			Recovery = 99.50%			
43) 1,2-Dichloroethane-d4	13.33	65	451401	10.38	ug/l	-0.02
Spiked Amount 10.000			Recovery = 103.80%			
56) Toluene-d8	16.31	98	1897758	10.67	ug/l	-0.02
Spiked Amount 10.000			Recovery = 106.70%			
77) 4-Bromofluorobenzene	20.54	95	526828	9.97	ug/l	-0.02
Spiked Amount 10.000			Recovery = 99.70%			
Target Compounds						Qvalue
18) Methylene chloride	9.65	49	19216	0.18	ug/l	97
32) Chloroform	12.18	83	144336	1.36	ug/l	100
46) Trichloroethene	14.47	130	6453	0.10	ug/l	92
50) Bromodichloromethane	15.12	83	8974	0.15	ug/l	87
63) Tetrachloroethene	17.46	164	148857	3.73	ug/l	96

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

Data File : D:\HPCHEM\1\DATA\19L13\RLD091.D Vial: 14
Acq On : 13 Dec 2019 4:52 pm Operator: VLu
Sample : 19L043-01 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:57 2019 Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration

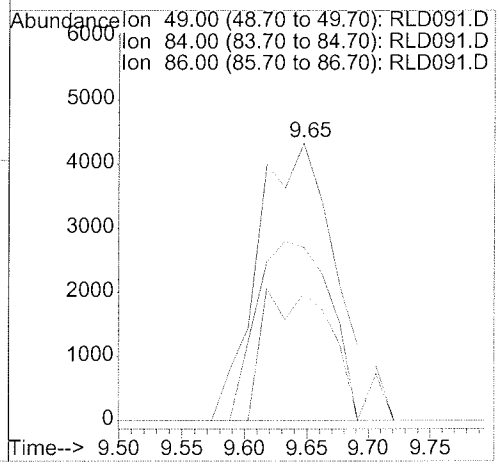


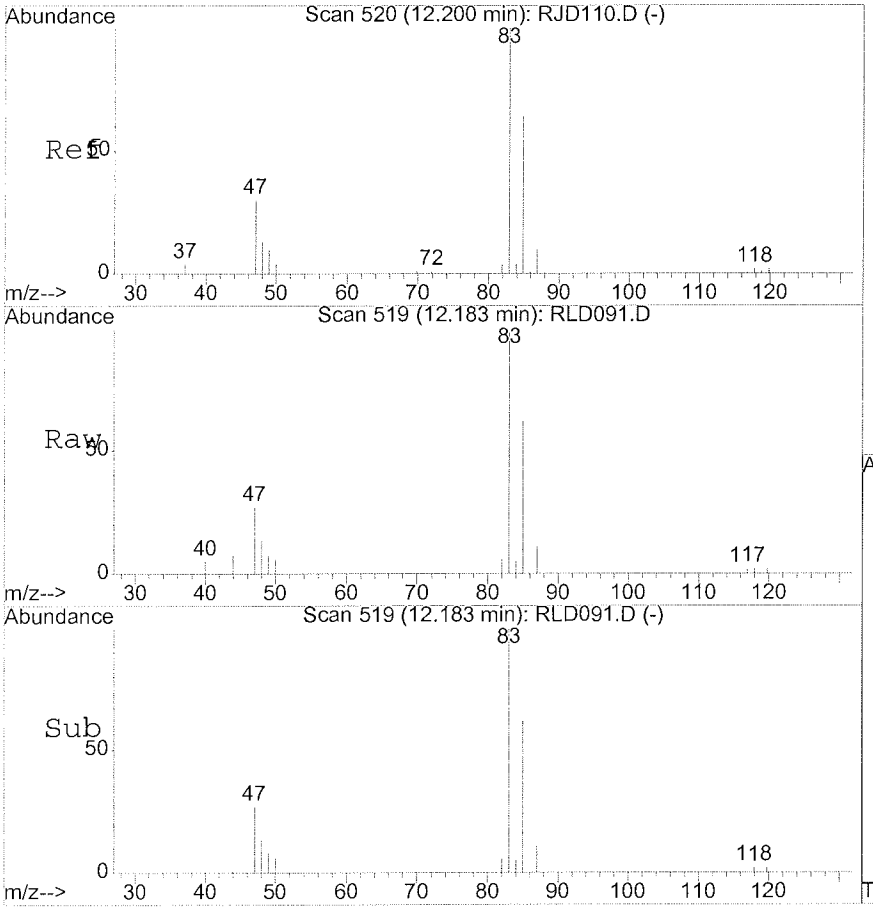


#18
Methylene chloride
Concen: 0.18 ug/l
RT: 9.65 min Scan# 347
Delta R.T. -0.02 min
Lab File: RLD091.D
Acq: 13 Dec 2019 4:52 pm

Tgt Ion: 49 Resp: 19216

Ion	Ratio	Lower	Upper
49	100		
84	59.9	33.0	93.0
86	39.3	10.1	70.1

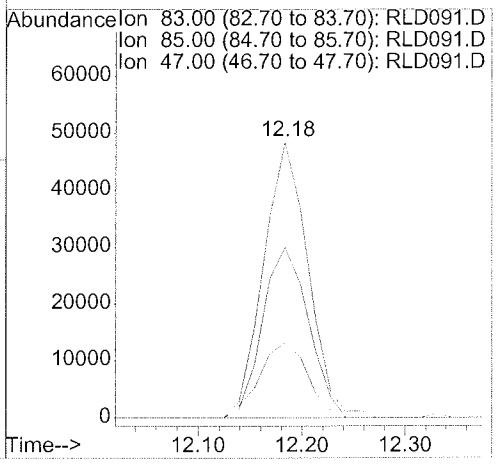


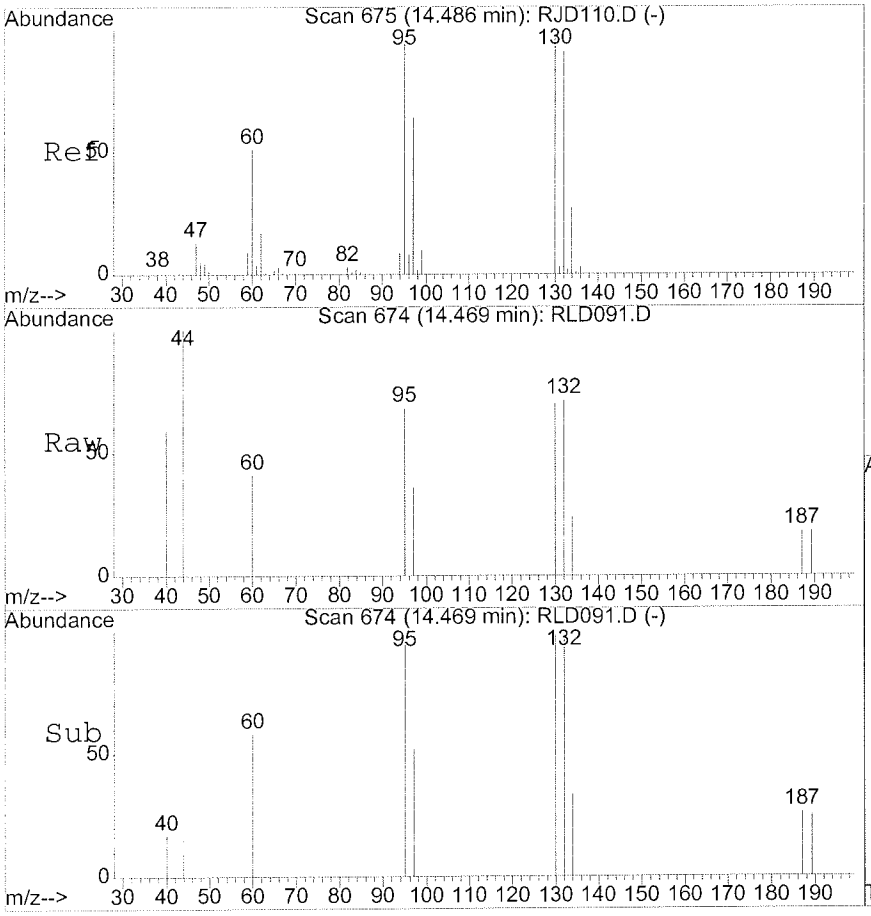


#32
Chloroform
Concen: 1.36 ug/l
RT: 12.18 min Scan# 519
Delta R.T. -0.02 min
Lab File: RLD091.D
Acq: 13 Dec 2019 4:52 pm

Tgt Ion: 83 Resp: 144336

Ion	Ratio	Lower	Upper
83	100		
85	63.7	33.8	93.8
47	29.4	0.0	59.6

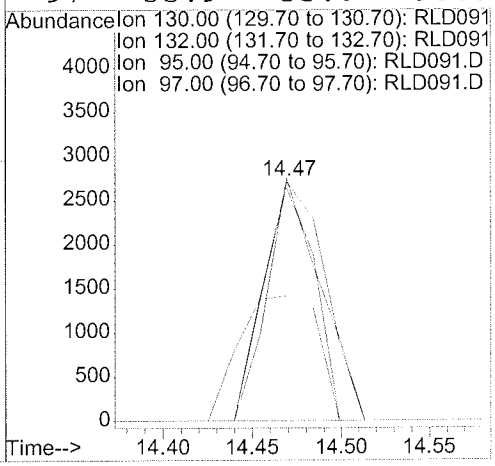


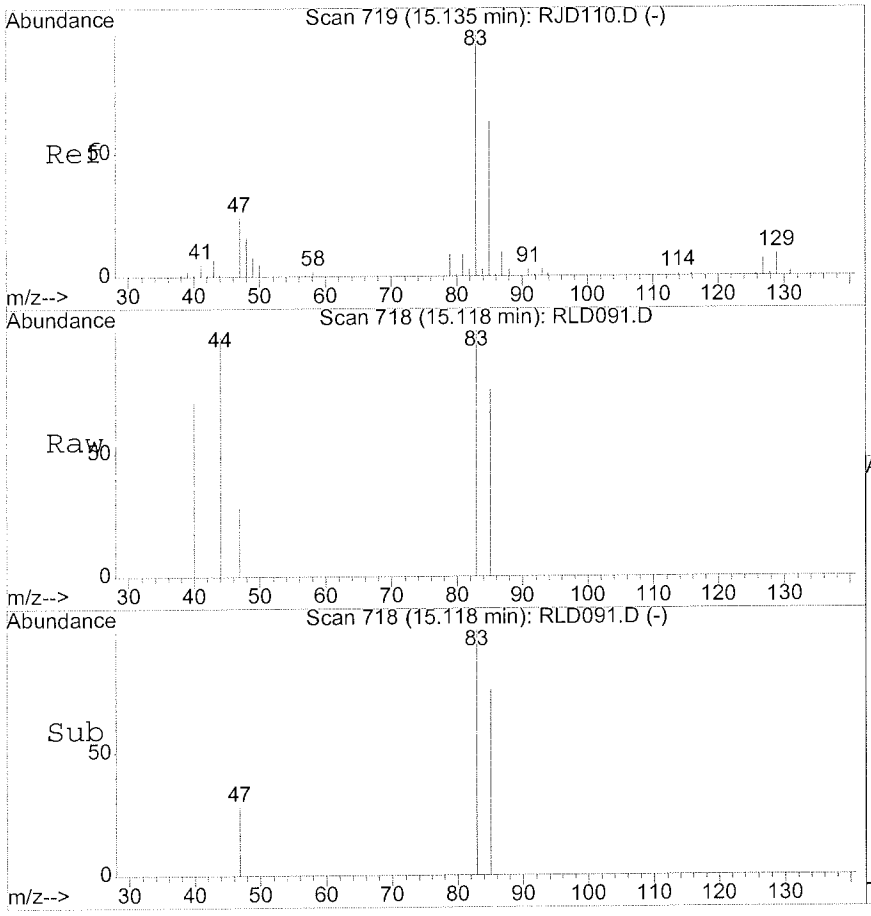


#46
Trichloroethene
Concen: 0.10 ug/l
RT: 14.47 min Scan# 674
Delta R.T. -0.02 min
Lab File: RLD091.D
Acq: 13 Dec 2019 4:52 pm

Tgt Ion:130 Resp: 6453

Ion	Ratio	Lower	Upper
130	100		
132	88.3	63.4	123.4
95	92.0	69.8	129.8
97	55.9	35.0	95.0

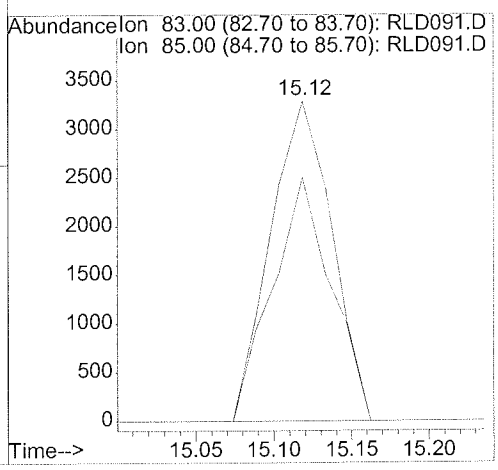


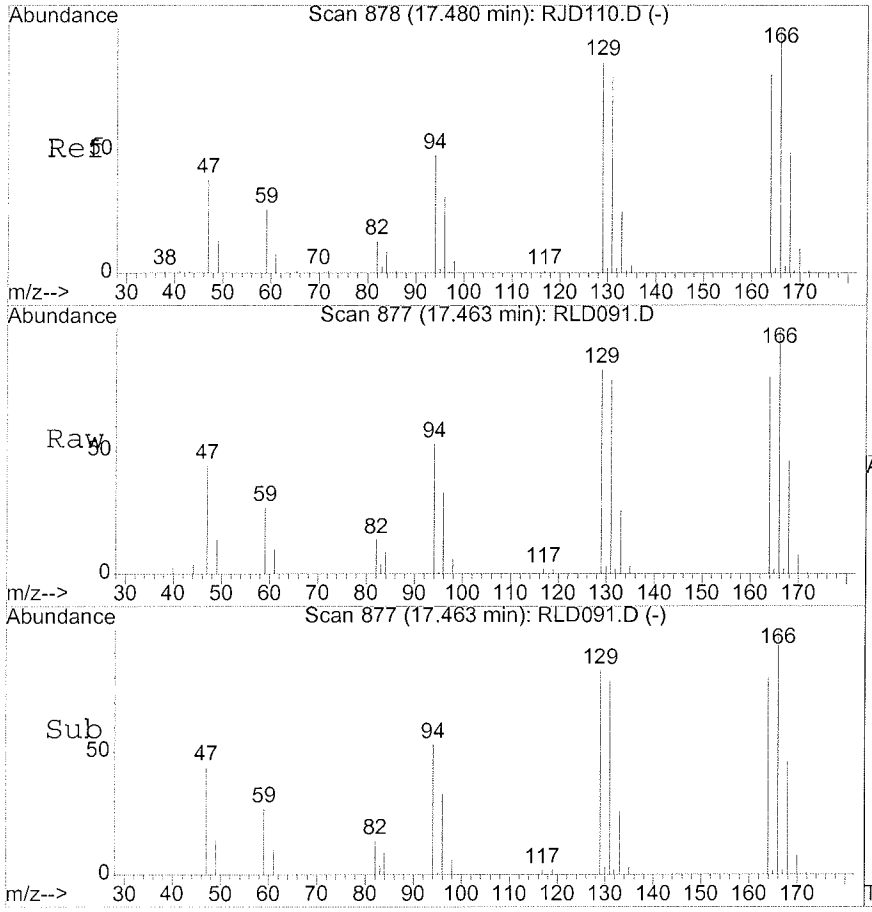


#50
Bromodichloromethane
Concen: 0.15 ug/l
RT: 15.12 min Scan# 718
Delta R.T. -0.02 min
Lab File: RLD091.D
Acq: 13 Dec 2019 4:52 pm

Tgt Ion: 83 Resp: 8974

Ion	Ratio	Lower	Upper
83	100		
85	73.4	33.2	93.2

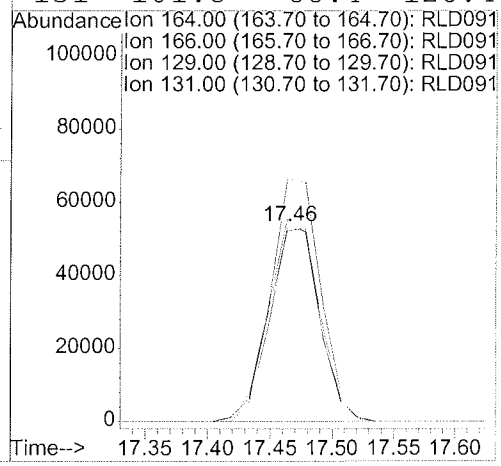




#63
Tetrachloroethene
Concen: 3.73 ug/l
RT: 17.46 min Scan# 877
Delta R.T. -0.02 min
Lab File: RLD091.D
Acq: 13 Dec 2019 4:52 pm

Tgt Ion:164 Resp: 148857

Ion	Ratio	Lower	Upper
164	100		
166	125.2	98.4	158.4
129	104.3	70.6	130.6
131	101.8	66.4	126.4



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/05/19
Project : VA SALT LAKE CITY	Date Received: 12/06/19
Batch No. : 19L043	Date Extracted: 12/13/19 17:23
Sample ID: OU2-MW20D-GW120519	Date Analyzed: 12/13/19 17:23
Lab Samp ID: L043-02	Dilution Factor: 1
Lab File ID: RLD092	Matrix : WATER
Ext Btch ID: VO94L04	% Moisture : NA
Calib. Ref.: RJD110	Instrument ID : T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.21J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	1.9	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	0.12J	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	9.8	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	0.25J	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	10.1	10.00	101	70-130
BROMOFLUOROBENZENE	9.97	10.00	99.7	70-130
TOLUENE-D8	10.8	10.00	108	70-130
DIBROMOFLUOROMETHANE	9.84	10.00	98.4	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLD092.D Vial: 15
Acq On : 13 Dec 2019 5:23 pm Operator: VLu
Sample : 19L043-02 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:58 2019 Quant Results File: VO94J09.RES

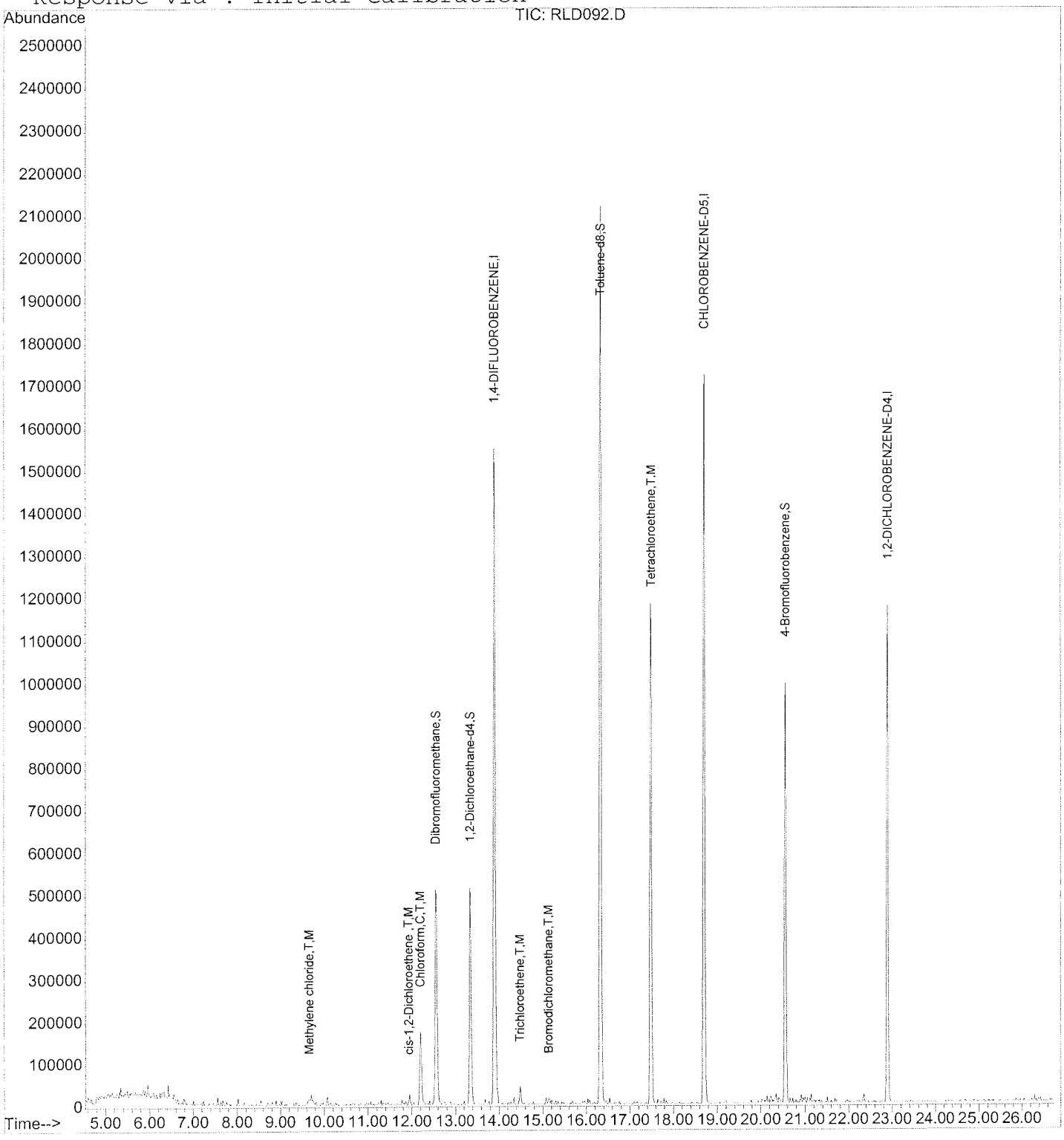
Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

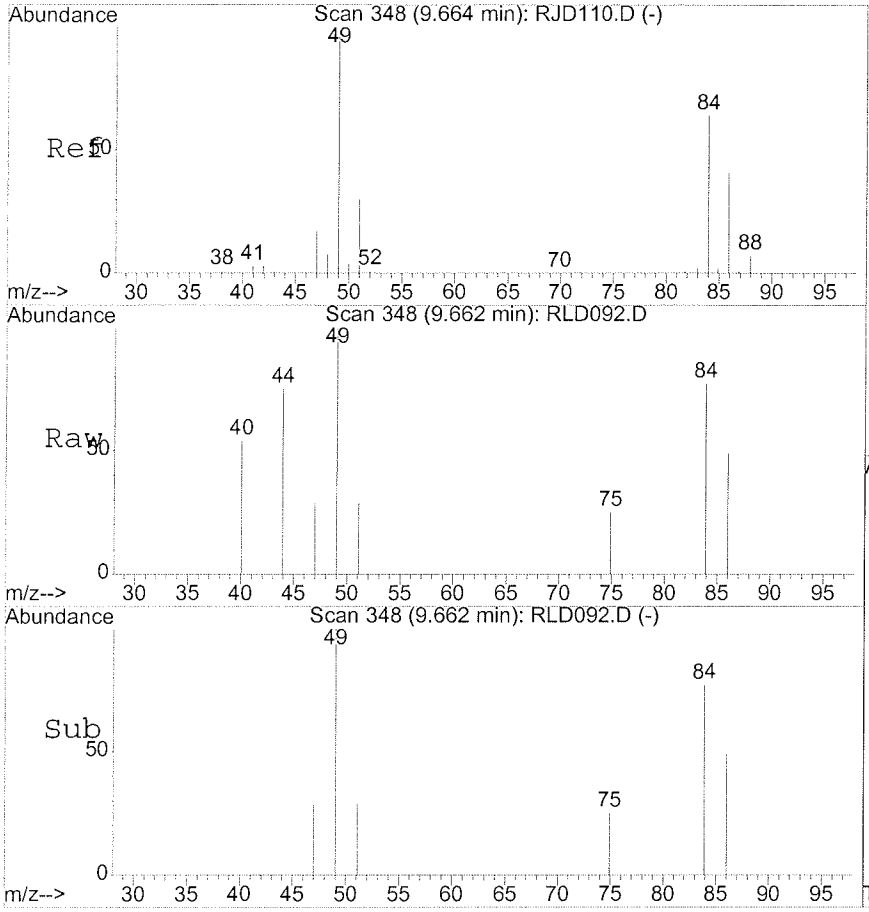
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.89	114	1800882	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	18.70	117	1378272	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	22.89	152	385352	10.00	ug/l	0.00
System Monitoring Compounds						
36) Dibromofluoromethane	12.55	111	527189	9.84	ug/l	-0.02
Spiked Amount 10.000			Recovery = 98.40%			
43) 1,2-Dichloroethane-d4	13.35	65	465059	10.12	ug/l	0.00
Spiked Amount 10.000			Recovery = 101.20%			
56) Toluene-d8	16.33	98	1969288	10.78	ug/l	0.00
Spiked Amount 10.000			Recovery = 107.80%			
77) 4-Bromofluorobenzene	20.56	95	528914	9.97	ug/l	0.00
Spiked Amount 10.000			Recovery = 99.70%			
Target Compounds						Qvalue
18) Methylene chloride	9.66	49	17984	0.16	ug/l	88
31) cis-1,2-Dichloroethene	11.93	96	8710	0.12	ug/l	88
32) Chloroform	12.20	83	208164	1.86	ug/l	98
46) Trichloroethene	14.48	130	17015	0.25	ug/l	98
50) Bromodichloromethane	15.13	83	13345	0.21	ug/l	96
63) Tetrachloroethene	17.49	164	403309	9.84	ug/l	96

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

Data File : D:\HPCHEM\1\DATA\19L13\RLD092.D Vial: 15
Acq On : 13 Dec 2019 5:23 pm Operator: VLu
Sample : 19L043-02 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:58 2019 Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration

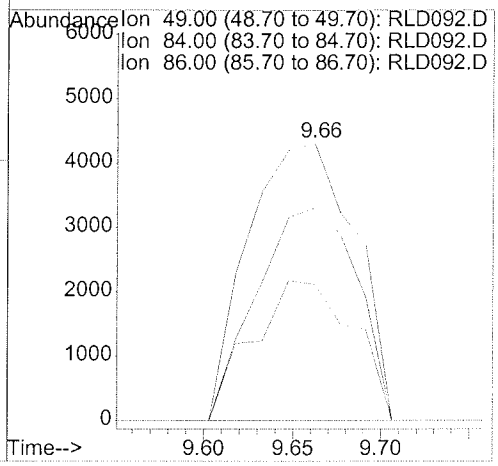


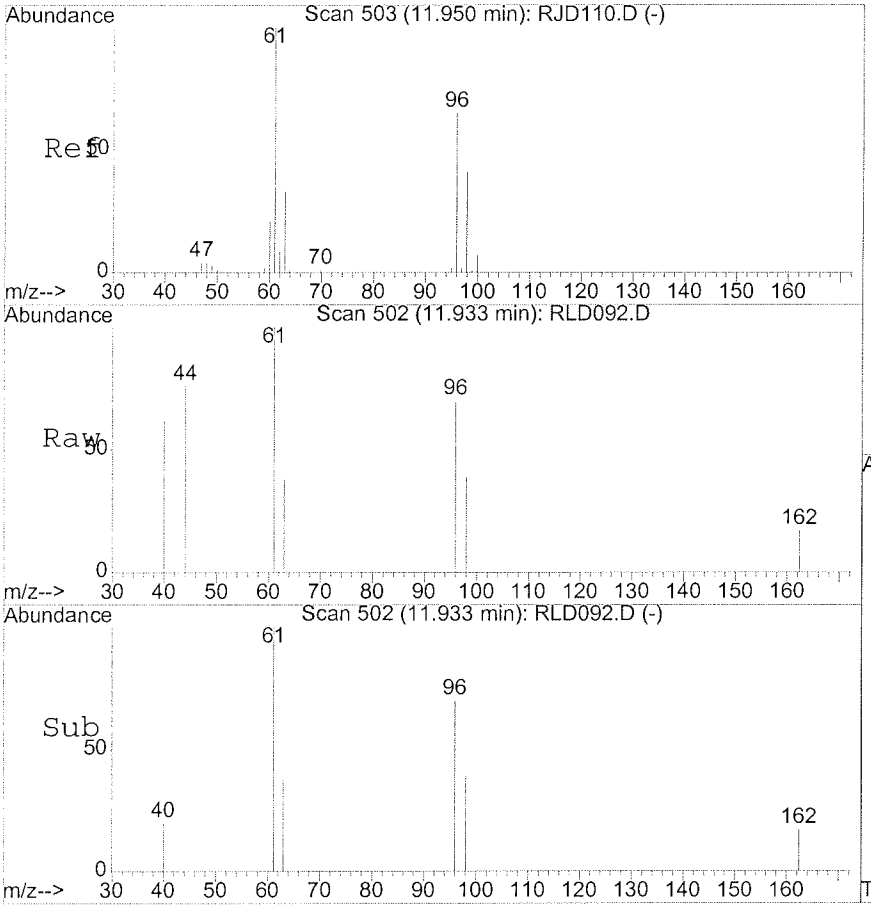


#18
Methylene chloride
Concen: 0.16 ug/l
RT: 9.66 min Scan# 348
Delta R.T. -0.00 min
Lab File: RLD092.D
Acq: 13 Dec 2019 5:23 pm

Tgt Ion: 49 Resp: 17984

Ion	Ratio	Lower	Upper
49	100		
84	72.2	33.0	93.0
86	47.4	10.1	70.1

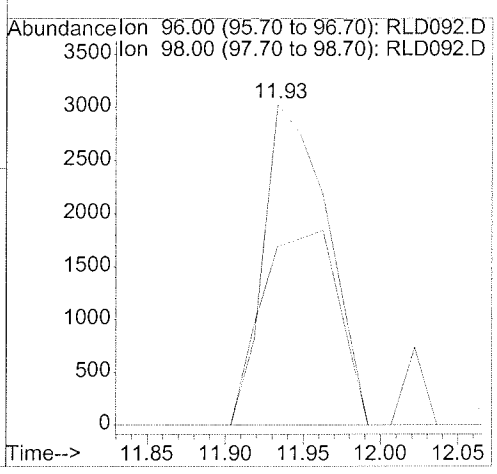


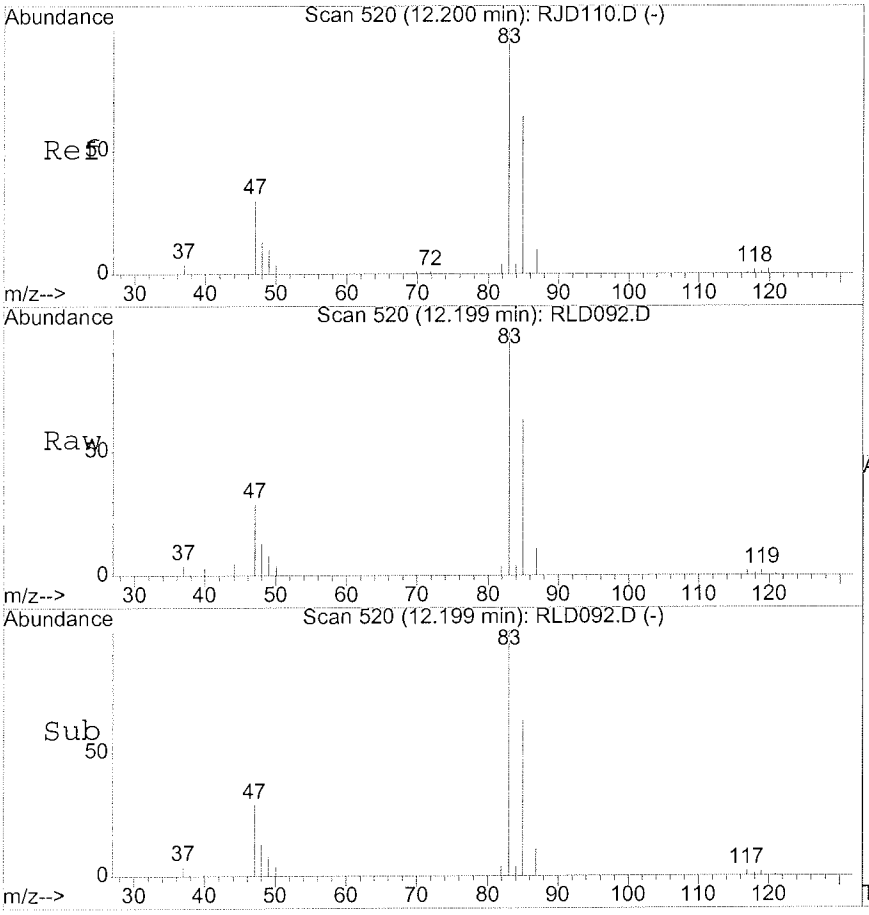


#31
cis-1,2-Dichloroethene
Concen: 0.12 ug/l
RT: 11.93 min Scan# 502
Delta R.T. -0.02 min
Lab File: RLD092.D
Acq: 13 Dec 2019 5:23 pm

Tgt Ion: 96 Resp: 8710

Ion	Ratio	Lower	Upper
96	100		
98	72.8	33.8	93.8

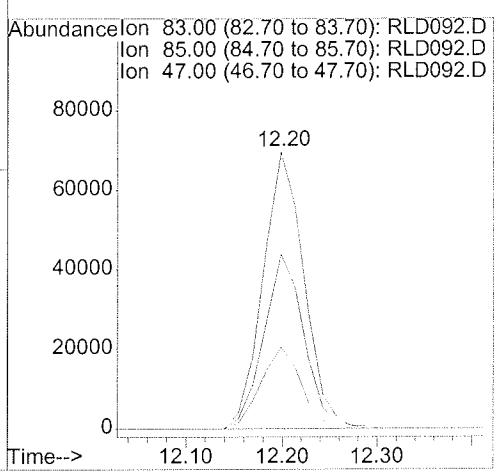


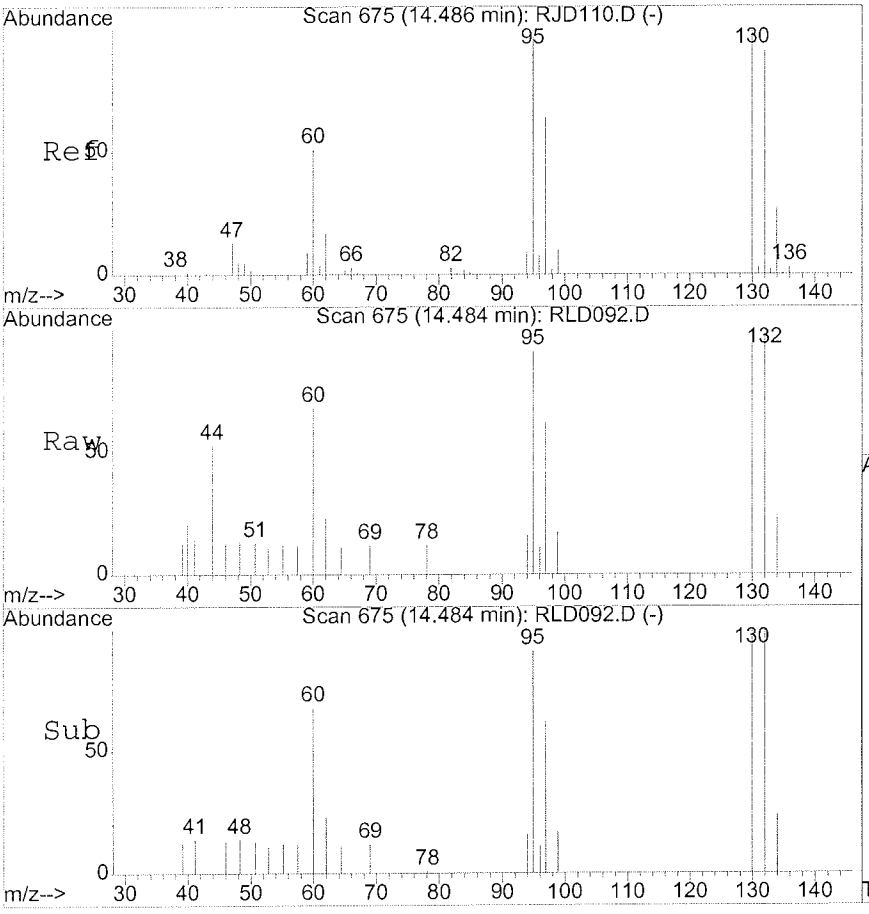


#32
Chloroform
Concen: 1.86 ug/l
RT: 12.20 min Scan# 520
Delta R.T. -0.00 min
Lab File: RLD092.D
Acq: 13 Dec 2019 5:23 pm

Tgt Ion: 83 Resp: 208164

Ion	Ratio	Lower	Upper
83	100		
85	61.8	33.8	93.8
47	29.1	0.0	59.6

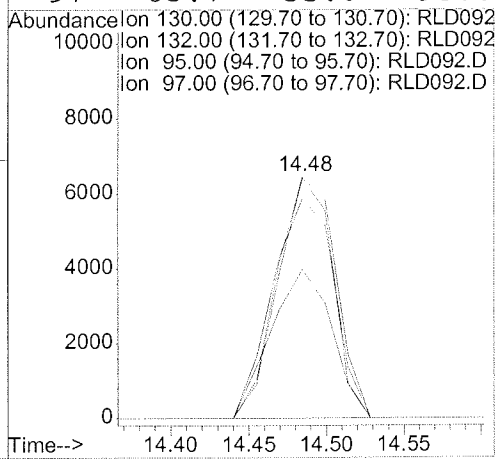


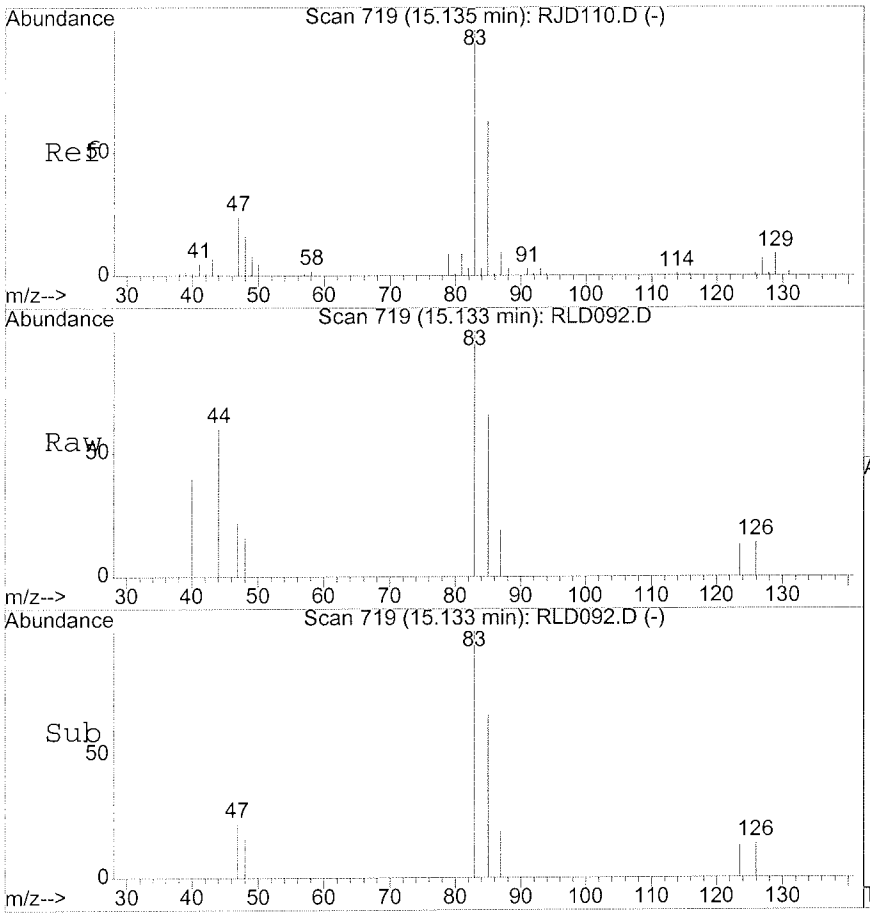


#46
Trichloroethene
Concen: 0.25 ug/l
RT: 14.48 min Scan# 675
Delta R.T. -0.00 min
Lab File: RLD092.D
Acq: 13 Dec 2019 5:23 pm

Tgt Ion:130 Resp: 17015

Ion	Ratio	Lower	Upper
130	100		
132	92.4	63.4	123.4
95	95.6	69.8	129.8
97	63.7	35.0	95.0

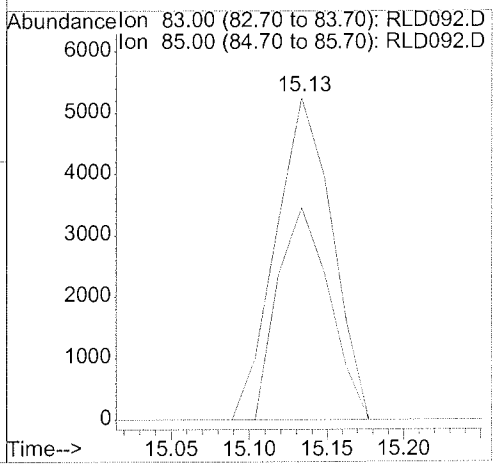


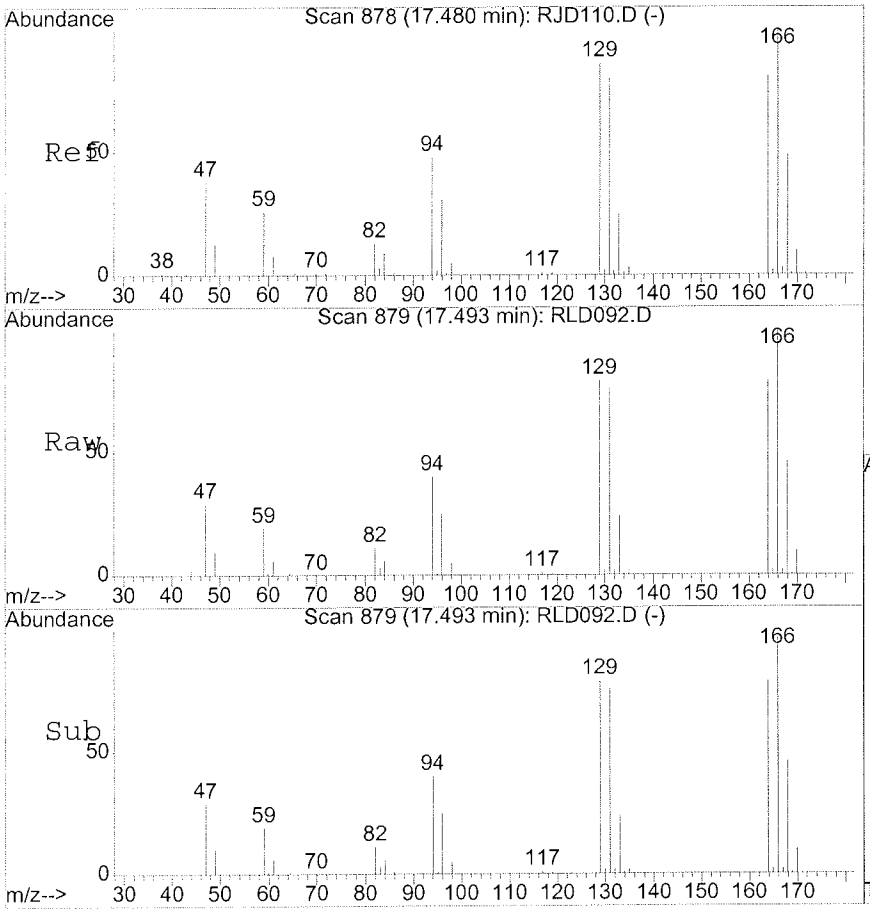


#50
Bromodichloromethane
Concen: 0.21 ug/l
RT: 15.13 min Scan# 719
Delta R.T. -0.00 min
Lab File: RLD092.D
Acq: 13 Dec 2019 5:23 pm

Tgt Ion: 83 Resp: 13345

Ion	Ratio	Lower	Upper
83	100		
85	60.2	33.2	93.2

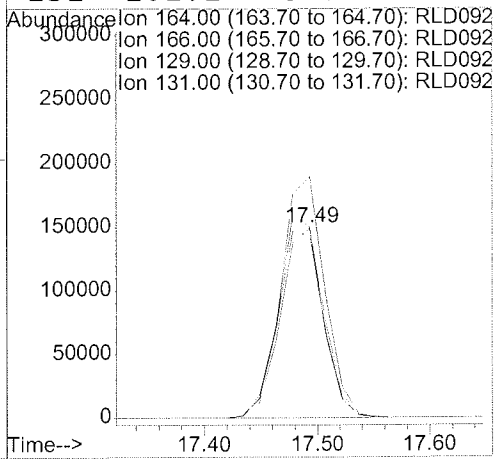




#63
Tetrachloroethene
Concen: 9.84 ug/l
RT: 17.49 min Scan# 879
Delta R.T. 0.01 min
Lab File: RLD092.D
Acq: 13 Dec 2019 5:23 pm

Tgt Ion:164 Resp: 403309

Ion	Ratio	Lower	Upper
164	100		
166	126.7	98.4	158.4
129	105.7	70.6	130.6
131	101.1	66.4	126.4



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/05/19
Project : VA SALT LAKE CITY	Date Received: 12/06/19
Batch No. : 19L043	Date Extracted: 12/13/19 13:13
Sample ID: OU2-TB2-GW120519	Date Analyzed: 12/13/19 13:13
Lab Samp ID: L043-03	Dilution Factor: 1
Lab File ID: RLD084	Matrix : WATER
Ext Btch ID: VO94L04	% Moisture : NA
Calib. Ref.: RJD110	Instrument ID : T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	ND	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	10.1	10.00	101	70-130
BROMOFLUOROBENZENE	9.75	10.00	97.5	70-130
TOLUENE-D8	10.6	10.00	106	70-130
DIBROMOFLUOROMETHANE	9.65	10.00	96.5	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLD084.D Vial: 7
Acq On : 13 Dec 2019 1:13 pm Operator: VLu
Sample : 19L043-03 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:54 2019 Quant Results File: VO94J09.RES

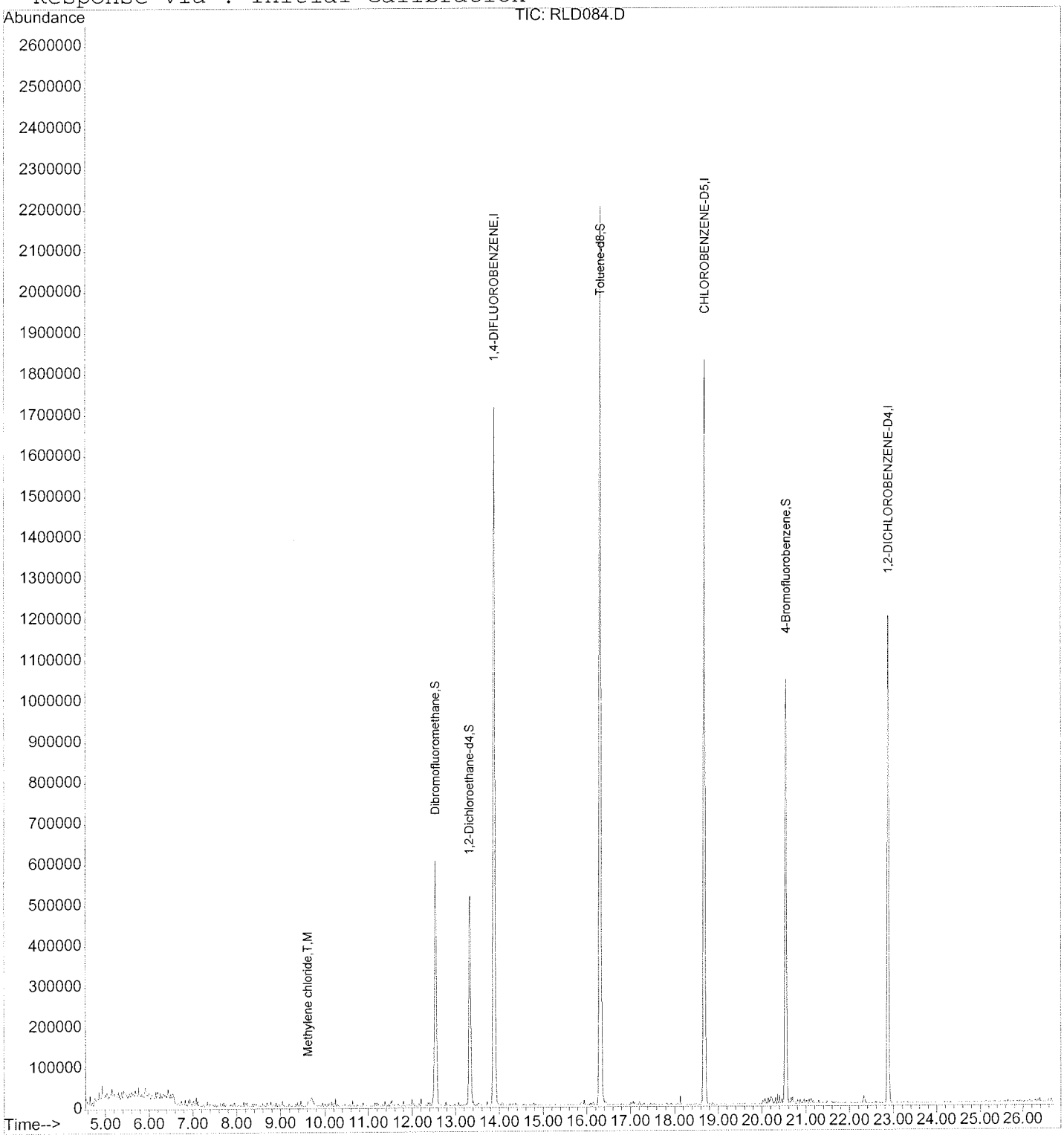
Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

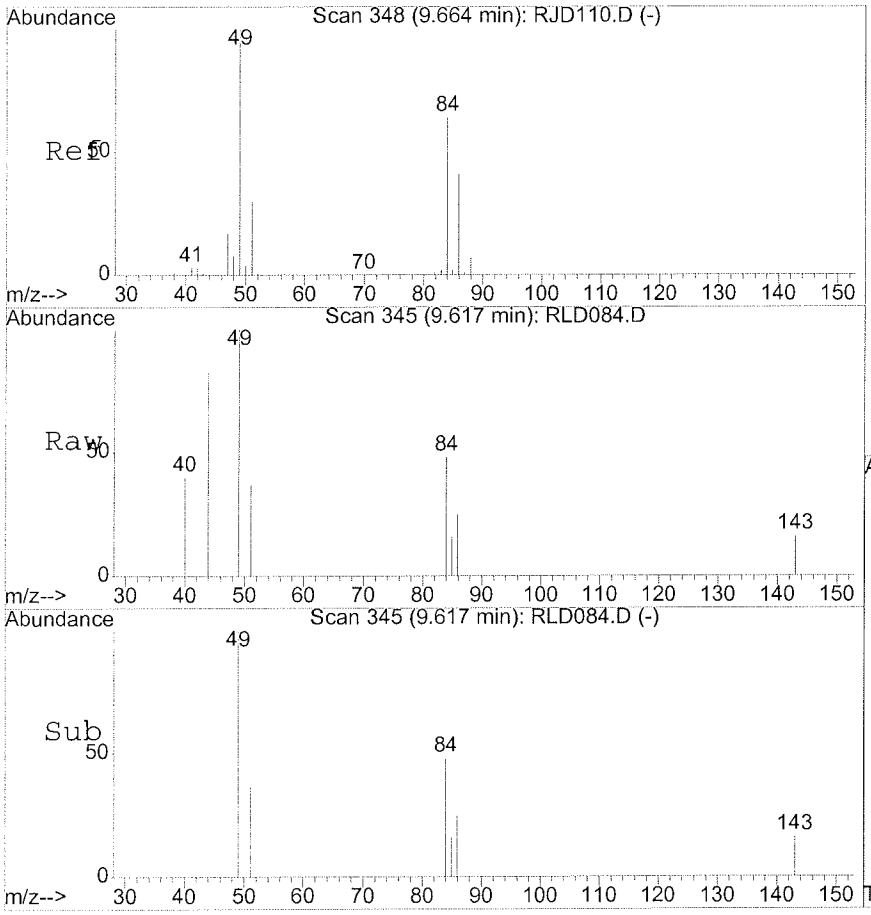
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.88	114	1963053	10.00	ug/l	-0.02
55) CHLOROBENZENE-D5	18.69	117	1531211	10.00	ug/l	-0.02
74) 1,2-DICHLOROBENZENE-D4	22.88	152	439319	10.00	ug/l	-0.01
System Monitoring Compounds						
36) Dibromofluoromethane	12.54	111	563928	9.65	ug/l	-0.03
Spiked Amount 10.000			Recovery = 96.50%			
43) 1,2-Dichloroethane-d4	13.32	65	506726	10.12	ug/l	-0.03
Spiked Amount 10.000			Recovery = 101.20%			
56) Toluene-d8	16.31	98	2149833	10.59	ug/l	-0.02
Spiked Amount 10.000			Recovery = 105.90%			
77) 4-Bromofluorobenzene	20.54	95	589519	9.75	ug/l	-0.01
Spiked Amount 10.000			Recovery = 97.50%			
Target Compounds						Qvalue
18) Methylene chloride	9.62	49	21030	0.17	ug/l	97

(#) = qualifier out of range (m) = manual integration
RLD084.D VO94J09.M Mon Dec 16 09:55:03 2019 Page 1

Data File : D:\HPCHEM\1\DATA\19L13\RLD084.D Vial: 7
Acq On : 13 Dec 2019 1:13 pm Operator: VLu
Sample : 19L043-03 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:54 2019 Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration

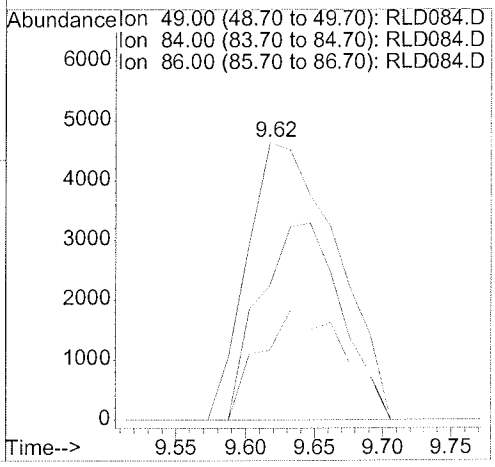




#18
Methylene chloride
Concen: 0.17 ug/l
RT: 9.62 min Scan# 345
Delta R.T. -0.05 min
Lab File: RLD084.D
Acq: 13 Dec 2019 1:13 pm

Tgt Ion: 49 Resp: 21030

Ion	Ratio	Lower	Upper
49	100		
84	63.9	33.0	93.0
86	37.3	10.1	70.1



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/05/19
Project : VA SALT LAKE CITY	Date Received: 12/06/19
Batch No. : 19L043	Date Extracted: 12/13/19 17:54
Sample ID: OU2-MW18-GW120519	Date Analyzed: 12/13/19 17:54
Lab Samp ID: L043-04	Dilution Factor: 1
Lab File ID: RLD093	Matrix : WATER
Ext Btch ID: VO94L04	% Moisture : NA
Calib. Ref.: RJD110	Instrument ID : T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	0.74J	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	0.23J	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.26J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	2.9	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	0.27J	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	74	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	0.50J	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	10.3	10.00	103	70-130
BROMOFLUOROBENZENE	9.91	10.00	99.1	70-130
TOLUENE-D8	11.2	10.00	112	70-130
DIBROMOFLUOROMETHANE	9.85	10.00	98.5	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLD093.D Vial: 16
Acq On : 13 Dec 2019 5:54 pm Operator: VLu
Sample : 19L043-04 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:59 2019 Quant Results File: VO94J09.RES

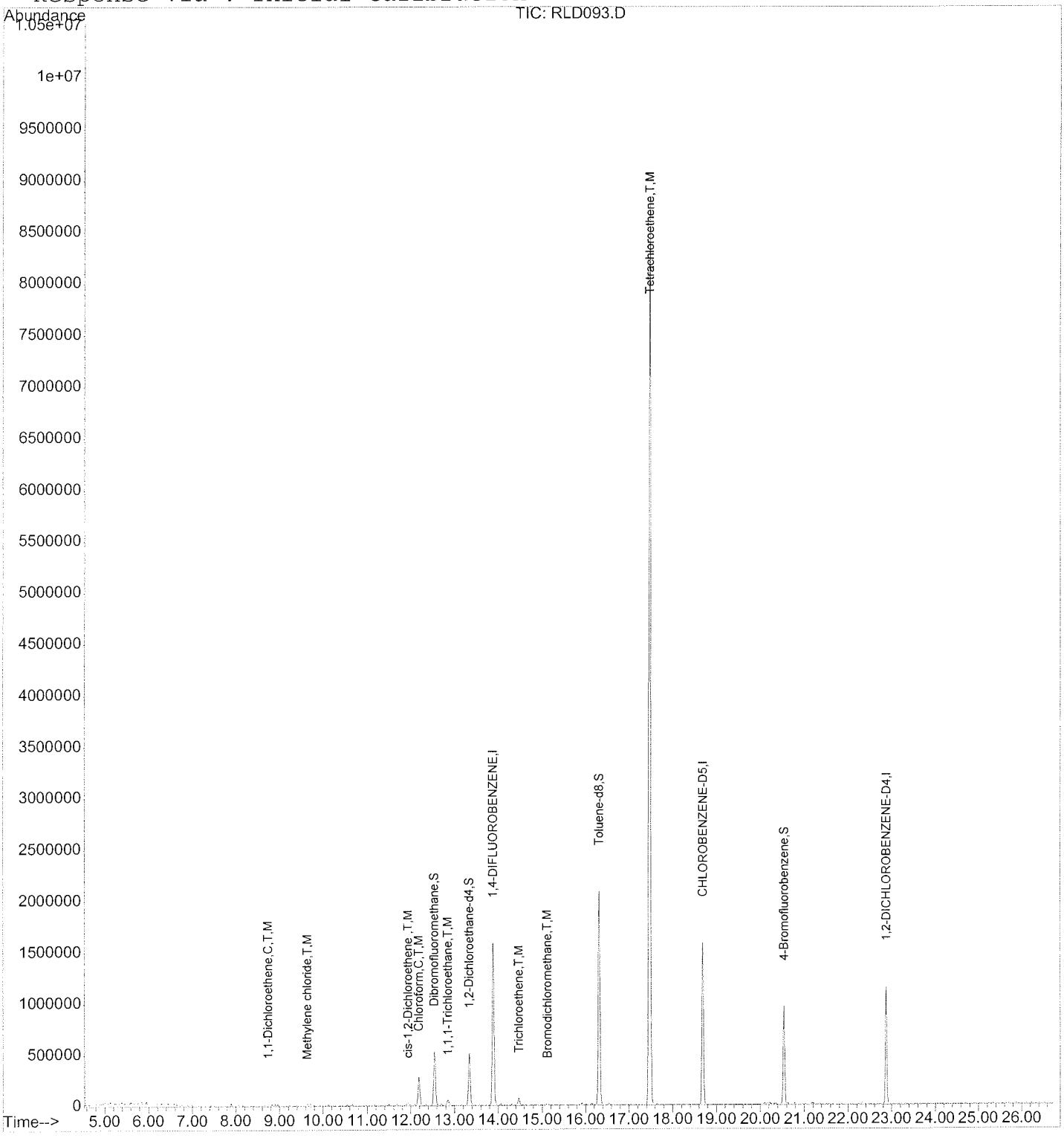
Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

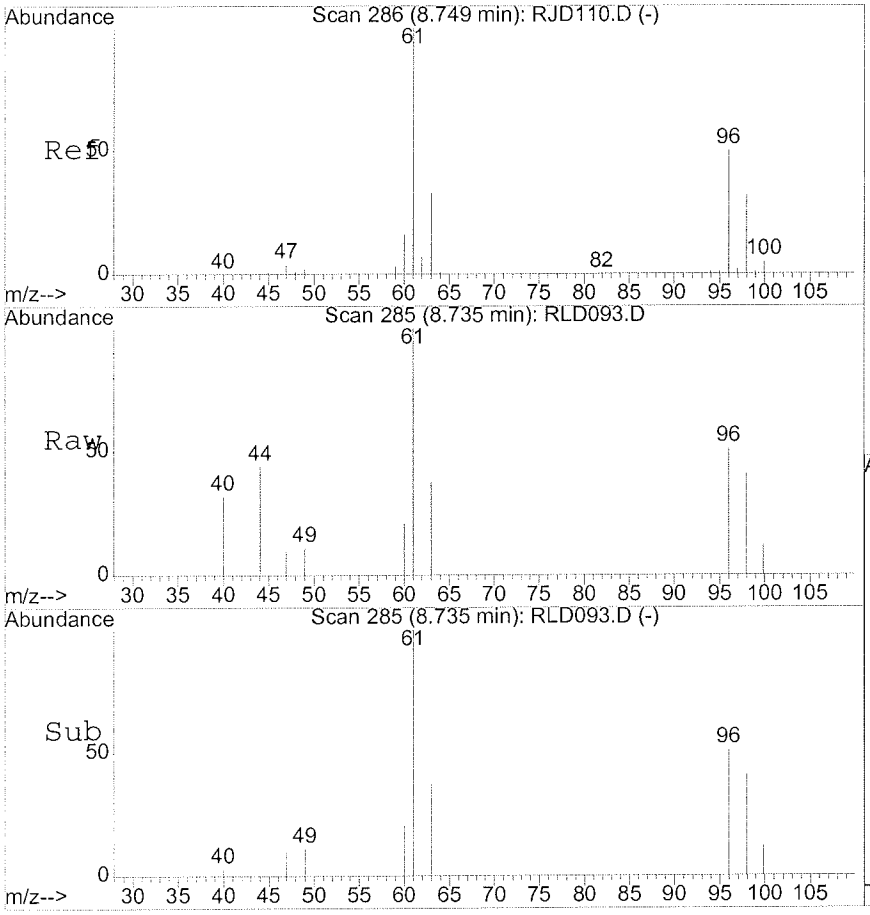
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.88	114	1795714	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	18.69	117	1316856	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	22.88	152	384871	10.00	ug/l	-0.02
System Monitoring Compounds						
36) Dibromofluoromethane	12.54	111	526576	9.85	ug/l	-0.03
Spiked Amount 10.000			Recovery = 98.50%			
43) 1,2-Dichloroethane-d4	13.34	65	472624	10.31	ug/l	-0.01
Spiked Amount 10.000			Recovery = 103.10%			
56) Toluene-d8	16.32	98	1953003	11.19	ug/l	-0.01
Spiked Amount 10.000			Recovery = 111.90%			
77) 4-Bromofluorobenzene	20.54	95	524823	9.91	ug/l	-0.02
Spiked Amount 10.000			Recovery = 99.10%			
Target Compounds						Qvalue
13) 1,1-Dichloroethene	8.74	61	34717	0.23	ug/l	94
18) Methylene chloride	9.63	49	21629	0.19	ug/l	92
31) cis-1,2-Dichloroethene	11.94	96	19504	0.27	ug/l	94
32) Chloroform	12.19	83	327043	2.92	ug/l	99
37) 1,1,1-Trichloroethane	12.85	97	55072	0.74	ug/l	88
46) Trichloroethene	14.47	130	34124	0.50	ug/l	98
50) Bromodichloromethane	15.12	83	16322	0.26	ug/l	95
63) Tetrachloroethene	17.47	164	2892373	73.85	ug/l	96

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

Data File : D:\HPCHEM\1\DATA\19L13\RLD093.D Vial: 16
Acq On : 13 Dec 2019 5:54 pm Operator: VLu
Sample : 19L043-04 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:59 2019 Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration

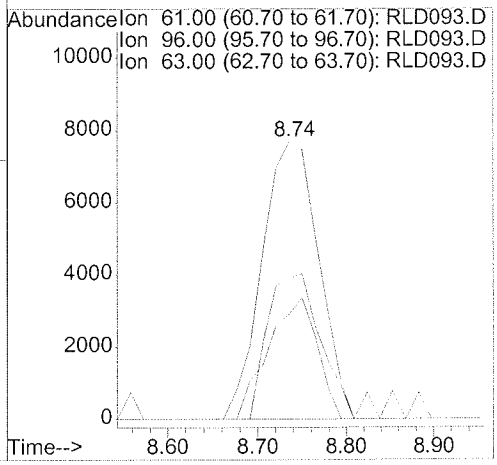


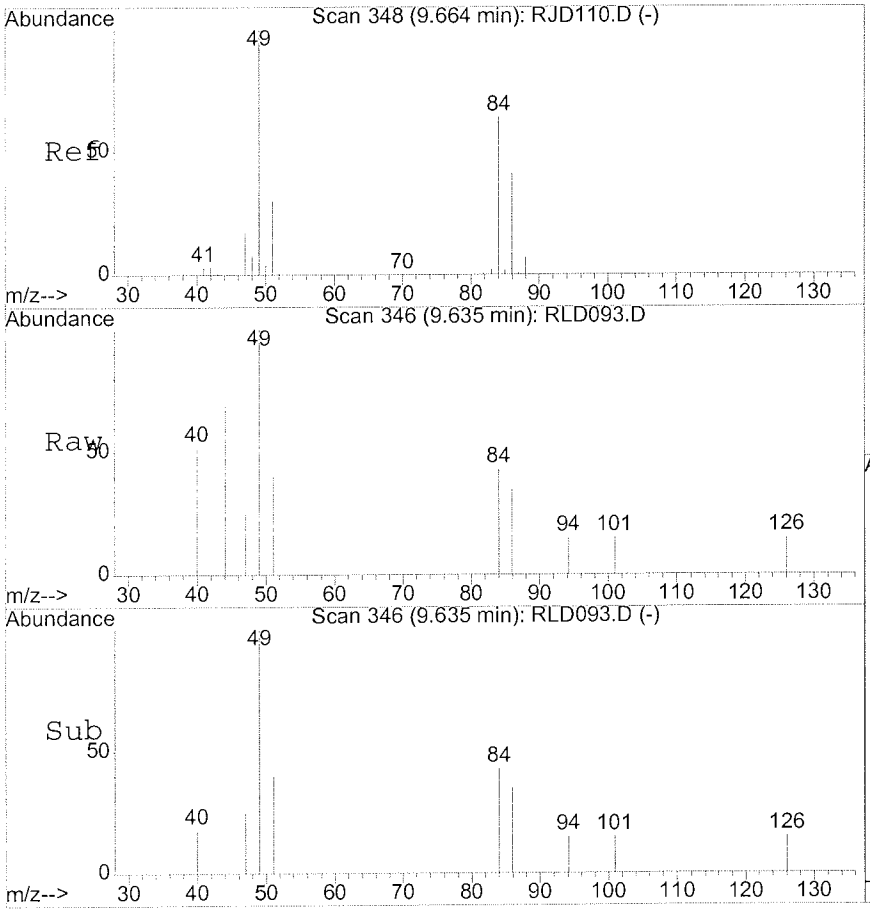


#13
1,1-Dichloroethene
Concen: 0.23 ug/l
RT: 8.74 min Scan# 285
Delta R.T. -0.01 min
Lab File: RLD093.D
Acq: 13 Dec 2019 5:54 pm

Tgt Ion: 61 Resp: 34717

Ion	Ratio	Lower	Upper
61	100		
96	47.8	20.7	80.7
63	37.0	2.3	62.3

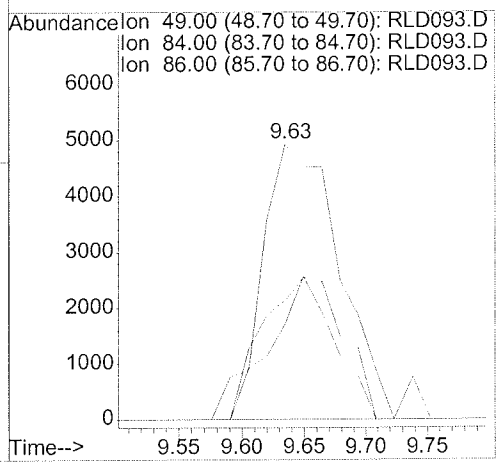


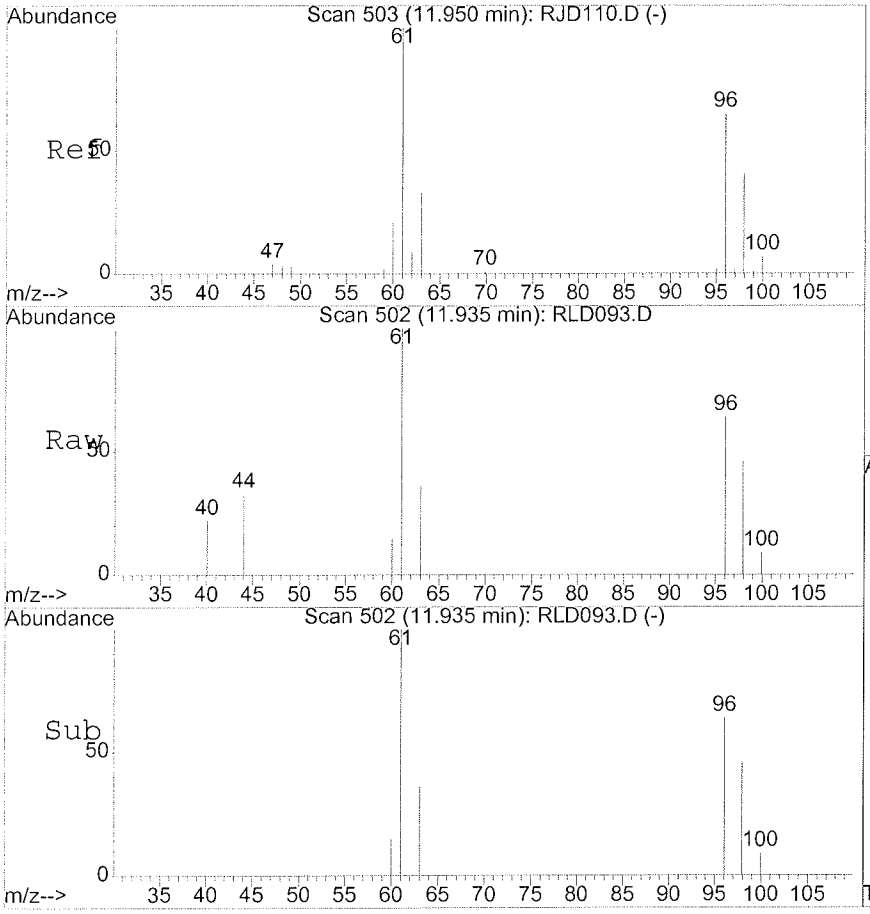


#18
Methylene chloride
Concen: 0.19 ug/l
RT: 9.63 min Scan# 346
Delta R.T. -0.03 min
Lab File: RLD093.D
Acq: 13 Dec 2019 5:54 pm

Tgt Ion: 49 Resp: 21629

Ion	Ratio	Lower	Upper
49	100		
84	53.4	33.0	93.0
86	41.6	10.1	70.1

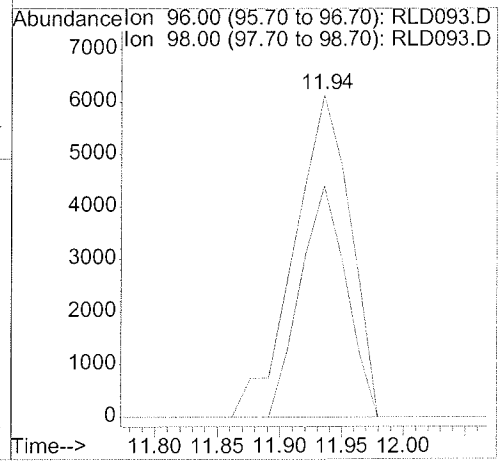


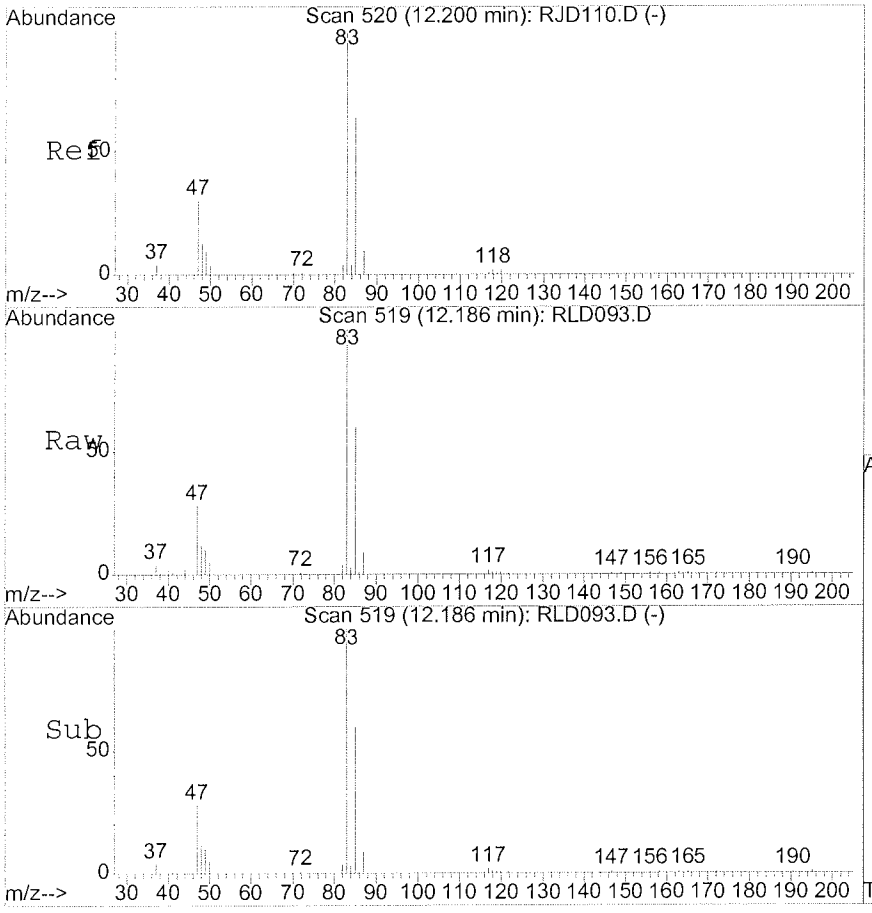


#31
cis-1,2-Dichloroethene
Concen: 0.27 ug/l
RT: 11.94 min Scan# 502
Delta R.T. -0.01 min
Lab File: RLD093.D
Acq: 13 Dec 2019 5:54 pm

Tgt Ion: 96 Resp: 19504

Ion	Ratio	Lower	Upper
96	100		
98	59.0	33.8	93.8

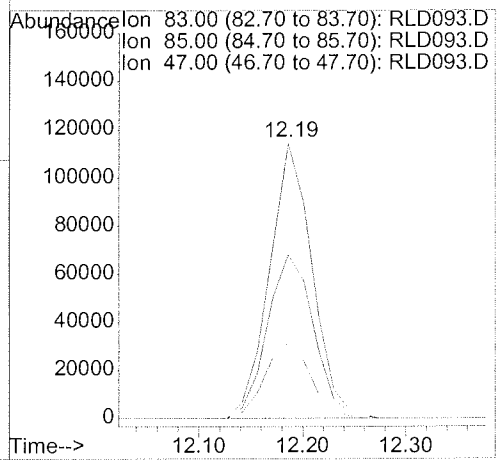


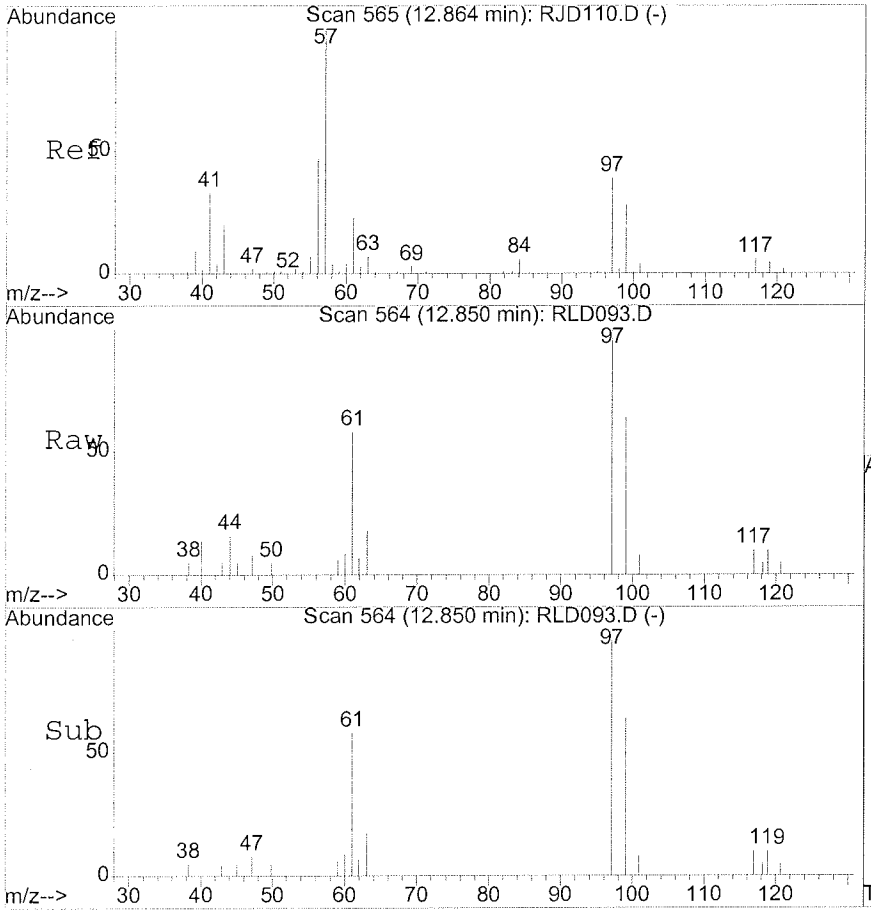


#32
Chloroform
Concen: 2.92 ug/l
RT: 12.19 min Scan# 519
Delta R.T. -0.01 min
Lab File: RLD093.D
Acq: 13 Dec 2019 5:54 pm

Tgt Ion: 83 Resp: 327043

Ion	Ratio	Lower	Upper
83	100		
85	64.5	33.8	93.8
47	29.2	0.0	59.6

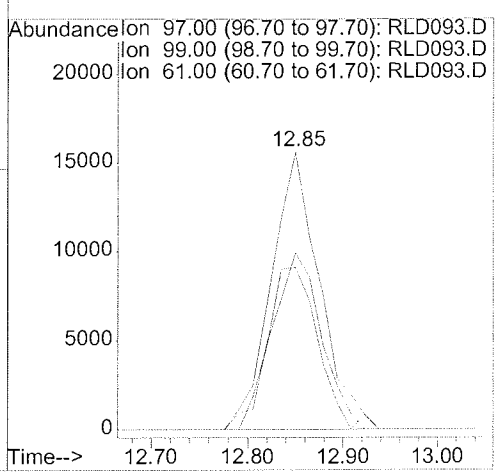


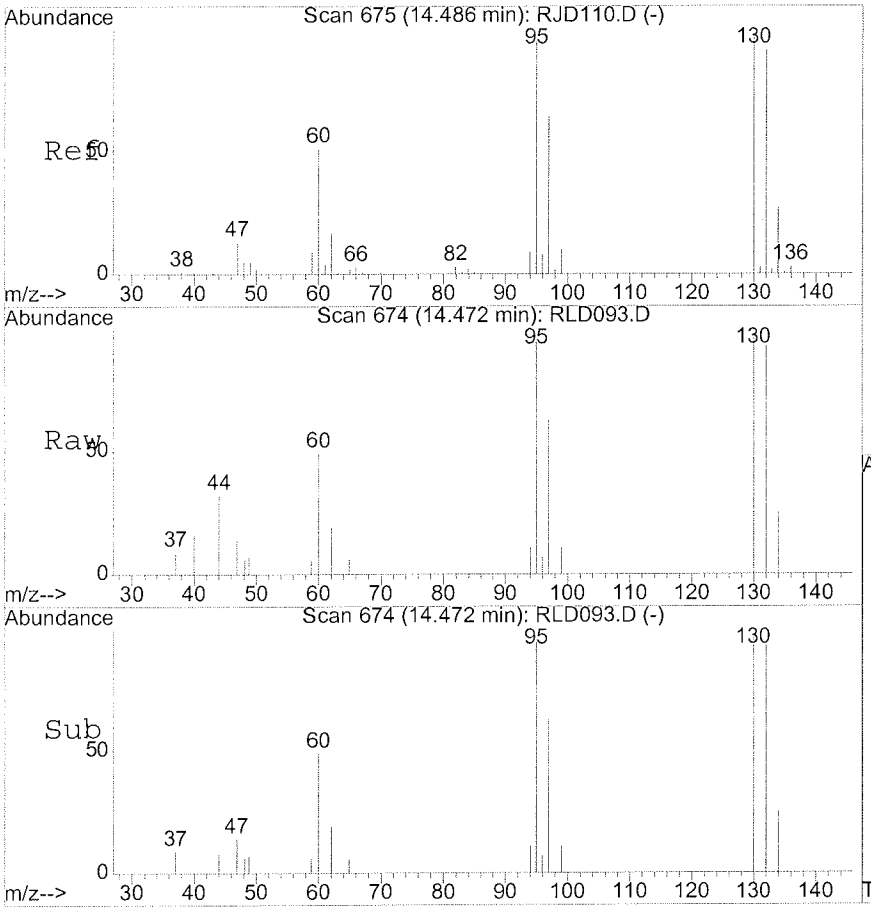


#37
1,1,1-Trichloroethane
Concen: 0.74 ug/l
RT: 12.85 min Scan# 564
Delta R.T. -0.01 min
Lab File: RLD093.D
Acq: 13 Dec 2019 5:54 pm

Tgt Ion: 97 Resp: 55072

Ion	Ratio	Lower	Upper
97	100		
99	65.6	52.6	112.6
61	61.0	28.5	88.5

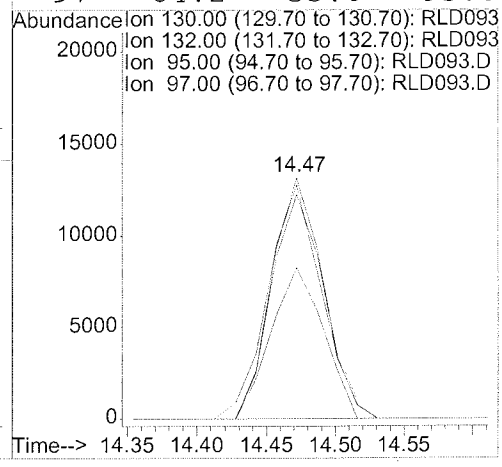


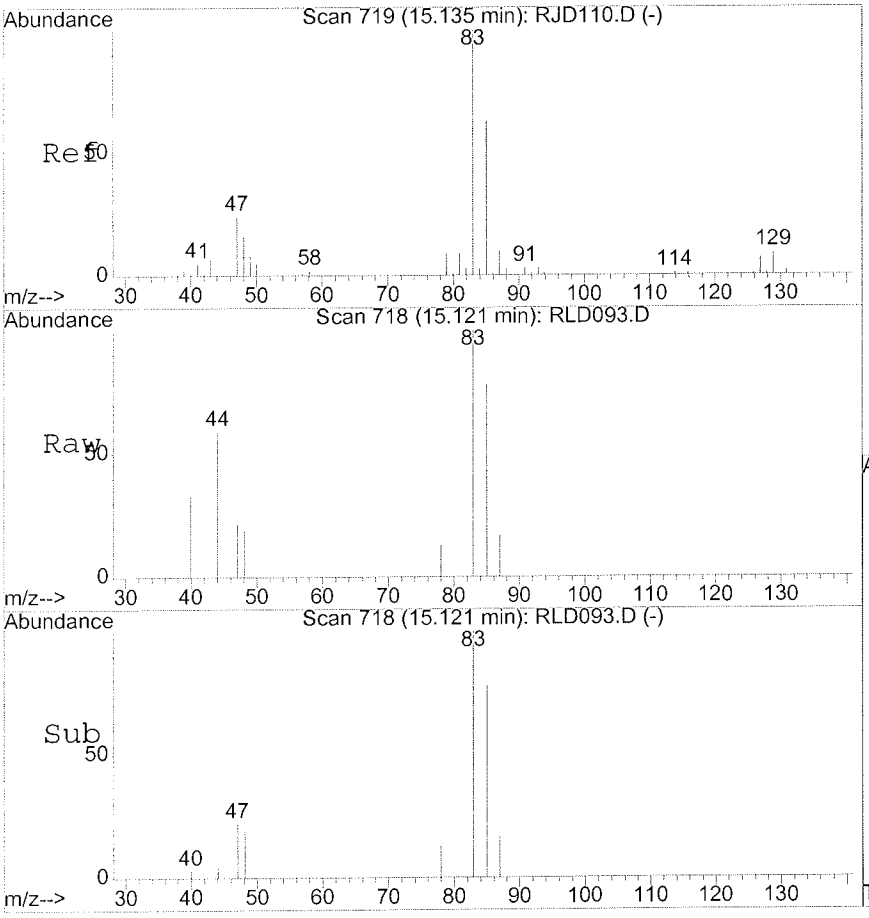


#46
Trichloroethene
Concen: 0.50 ug/l
RT: 14.47 min Scan# 674
Delta R.T. -0.01 min
Lab File: RLD093.D
Acq: 13 Dec 2019 5:54 pm

Tgt Ion:130 Resp: 34124

Ion	Ratio	Lower	Upper
130	100		
132	96.7	63.4	123.4
95	101.1	69.8	129.8
97	64.2	35.0	95.0

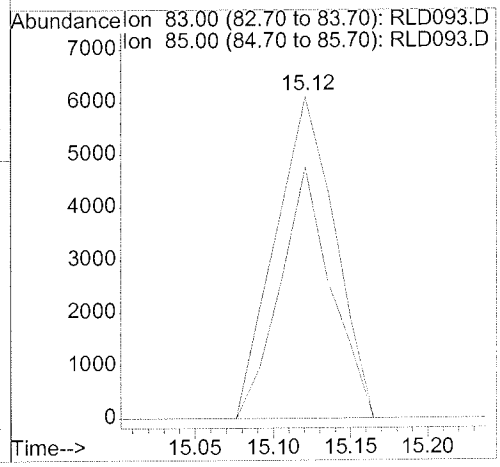


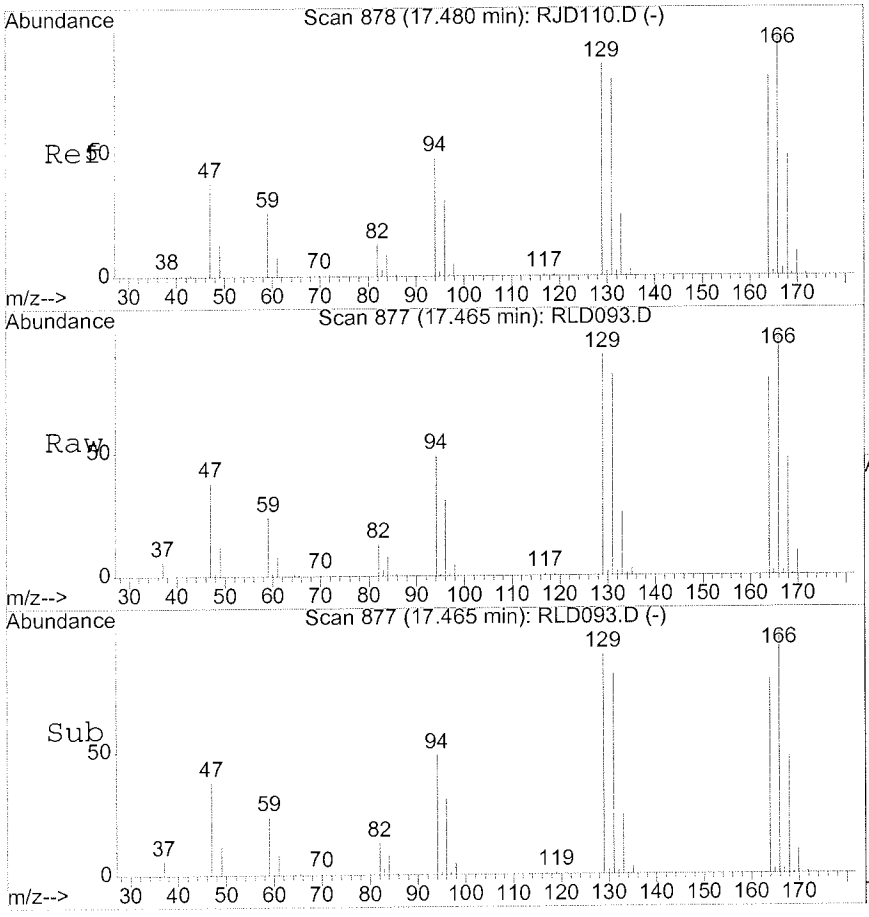


#50
Bromodichloromethane
Concen: 0.26 ug/l
RT: 15.12 min Scan# 718
Delta R.T. -0.01 min
Lab File: RLD093.D
Acq: 13 Dec 2019 5:54 pm

Tgt Ion: 83 Resp: 16322

Ion	Ratio	Lower	Upper
83	100		
85	67.1	33.2	93.2

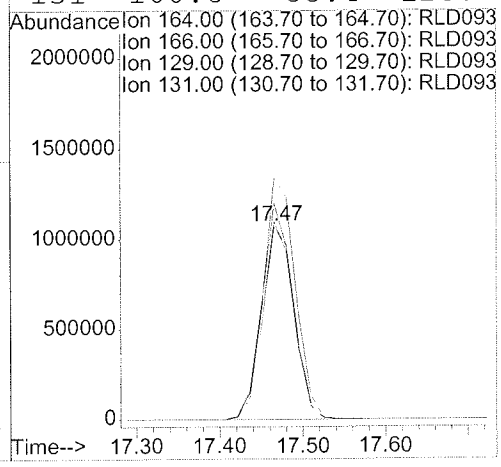




#63
Tetrachloroethene
Concen: 73.85 ug/l
RT: 17.47 min Scan# 877
Delta R.T. -0.01 min
Lab File: RLD093.D
Acq: 13 Dec 2019 5:54 pm

Tgt Ion:164 Resp: 2892373

Ion	Ratio	Lower	Upper
164	100		
166	126.4	98.4	158.4
129	107.3	70.6	130.6
131	100.6	66.4	126.4



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected	: 12/05/19
Project	: VA SALT LAKE CITY	Date Received	: 12/06/19
Batch No.	: 19L043	Date Extracted	: 12/13/19 18:26
Sample ID	: OU2-MW19-GW120519	Date Analyzed	: 12/13/19 18:26
Lab Samp ID	: L043-05	Dilution Factor	: 1
Lab File ID	: RLD094	Matrix	: WATER
Ext Btch ID	: VO94L04	% Moisture	: NA
Calib. Ref.	: RJD110	Instrument ID	: T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	0.60J	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	0.18J	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.20J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	2.3	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	0.27J	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	64	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	0.52J	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	10.2	10.00	102	70-130
BROMOFLUOROBENZENE	9.91	10.00	99.1	70-130
TOLUENE-D8	11.1	10.00	111	70-130
DIBROMOFLUOROMETHANE	9.70	10.00	97.0	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLD094.D Vial: 17
Acq On : 13 Dec 2019 6:26 pm Operator: VLu
Sample : 19L043-05 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 10:00 2019 Quant Results File: VO94J09.RES

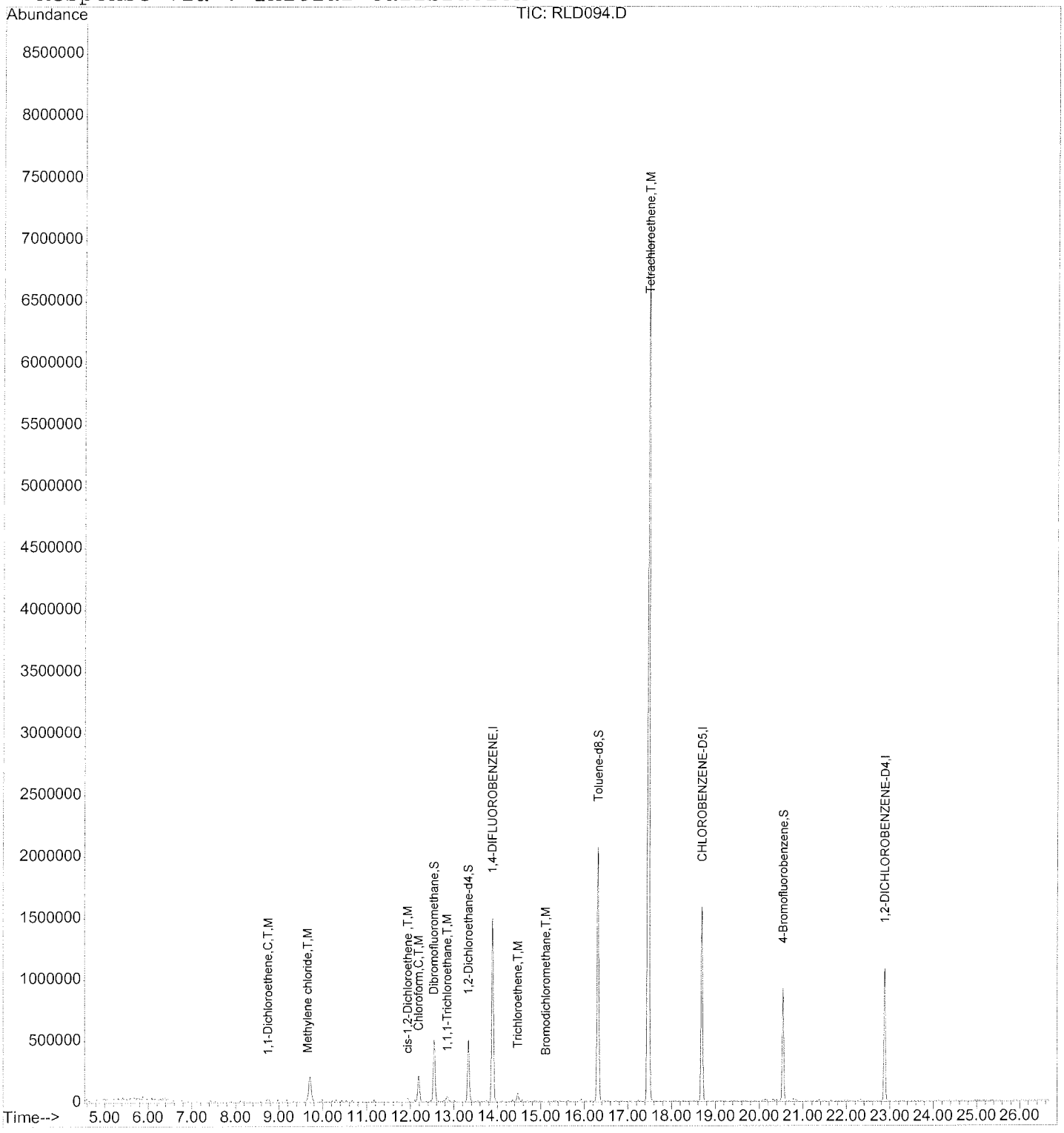
Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

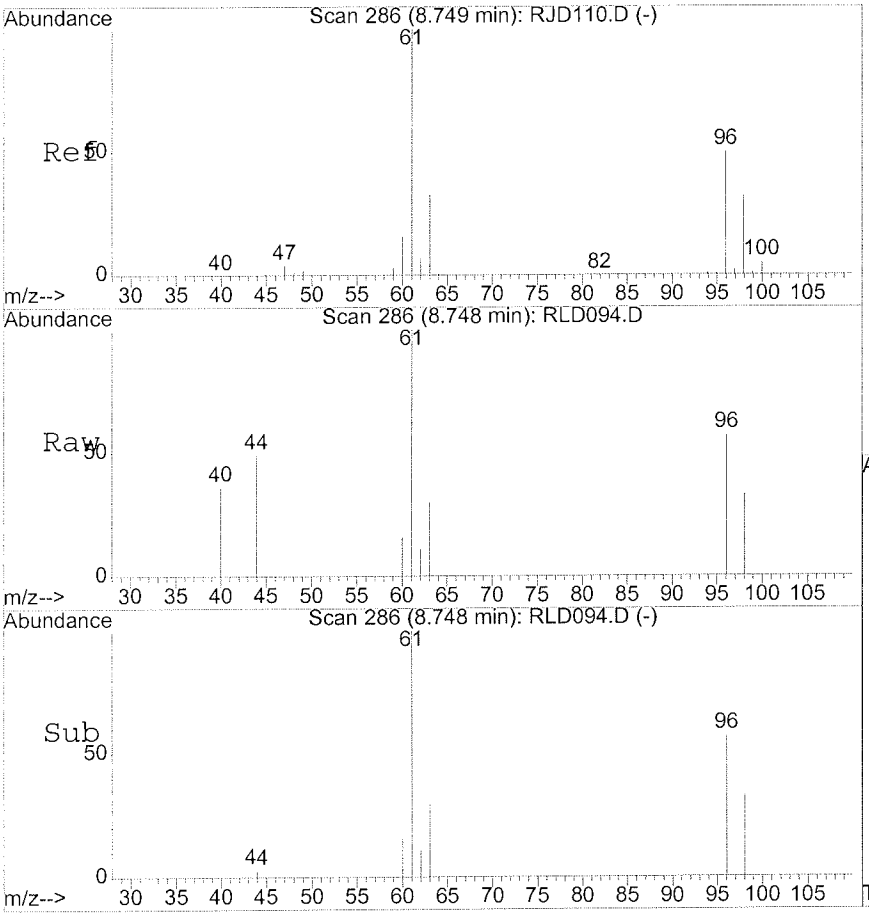
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.88	114	1758904	10.00	ug/l	-0.02
55) CHLOROBENZENE-D5	18.69	117	1297491	10.00	ug/l	-0.02
74) 1,2-DICHLOROBENZENE-D4	22.88	152	366448	10.00	ug/l	-0.02
System Monitoring Compounds						
36) Dibromofluoromethane	12.54	111	507692	9.70	ug/l	-0.03
Spiked Amount 10.000			Recovery = 97.00%			
43) 1,2-Dichloroethane-d4	13.33	65	459643	10.24	ug/l	-0.02
Spiked Amount 10.000			Recovery = 102.40%			
56) Toluene-d8	16.31	98	1906930	11.09	ug/l	-0.02
Spiked Amount 10.000			Recovery = 110.90%			
77) 4-Bromofluorobenzene	20.54	95	499941	9.91	ug/l	-0.02
Spiked Amount 10.000			Recovery = 99.10%			
Target Compounds						Qvalue
13) 1,1-Dichloroethene	8.75	61	26852	0.18	ug/l	96
18) Methylene chloride	9.65	49	22221	0.20	ug/l	99
31) cis-1,2-Dichloroethene	11.93	96	19377	0.27	ug/l	96
32) Chloroform	12.18	83	253510	2.31	ug/l	99
37) 1,1,1-Trichloroethane	12.85	97	43804	0.60	ug/l	88
46) Trichloroethene	14.47	130	34402	0.52	ug/l	97
50) Bromodichloromethane	15.12	83	12252	0.20	ug/l	95
63) Tetrachloroethene	17.46	164	2455064	63.62	ug/l	96

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

Data File : D:\HPCHEM\1\DATA\19L13\RLD094.D Vial: 17
Acq On : 13 Dec 2019 6:26 pm Operator: VLu
Sample : 19L043-05 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 10:00 2019 Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration

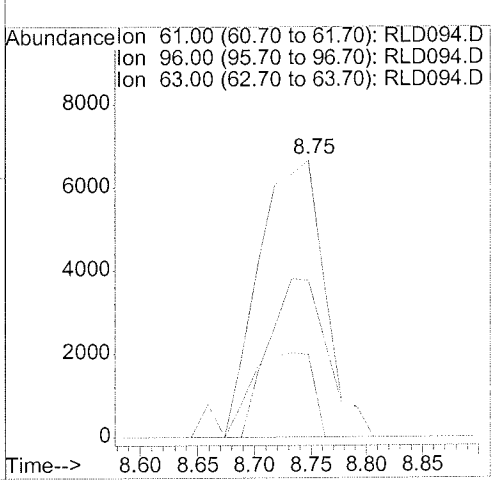


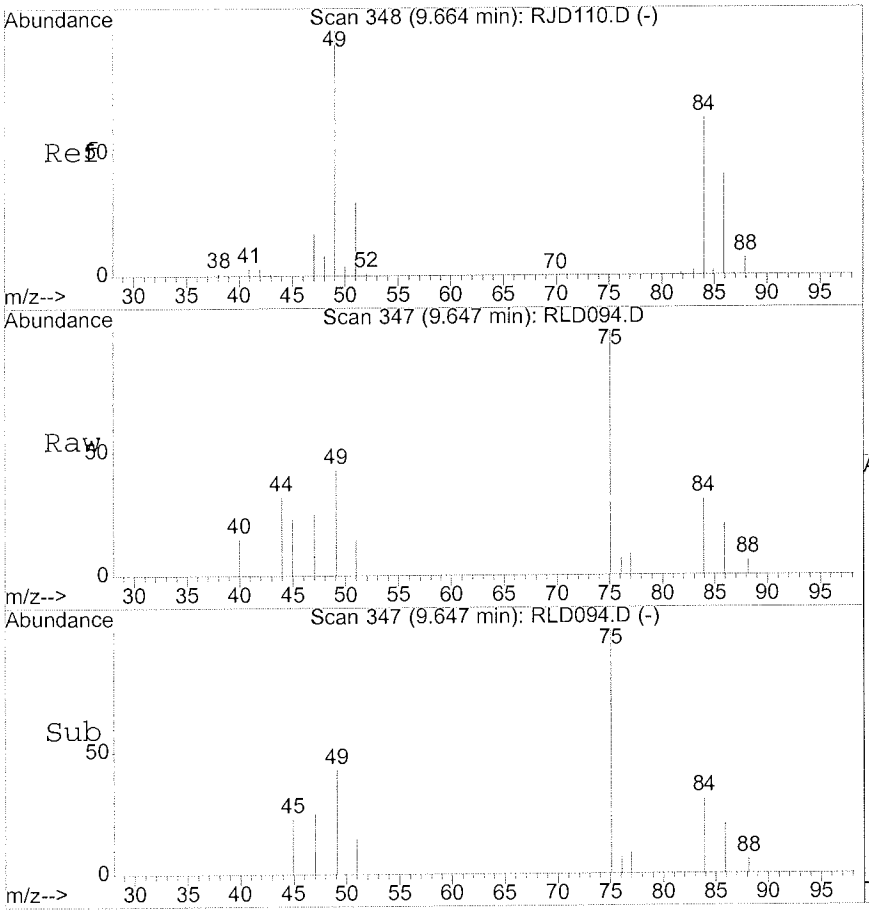


#13
1,1-Dichloroethene
Concen: 0.18 ug/l
RT: 8.75 min Scan# 286
Delta R.T. -0.00 min
Lab File: RLD094.D
Acq: 13 Dec 2019 6:26 pm

Tgt Ion: 61 Resp: 26852

Ion	Ratio	Lower	Upper
61	100		
96	51.6	20.7	80.7
63	27.8	2.3	62.3

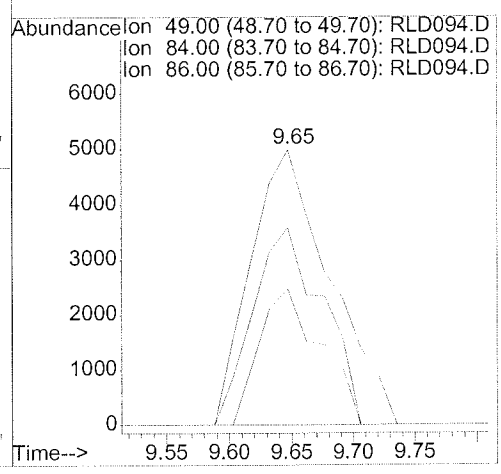


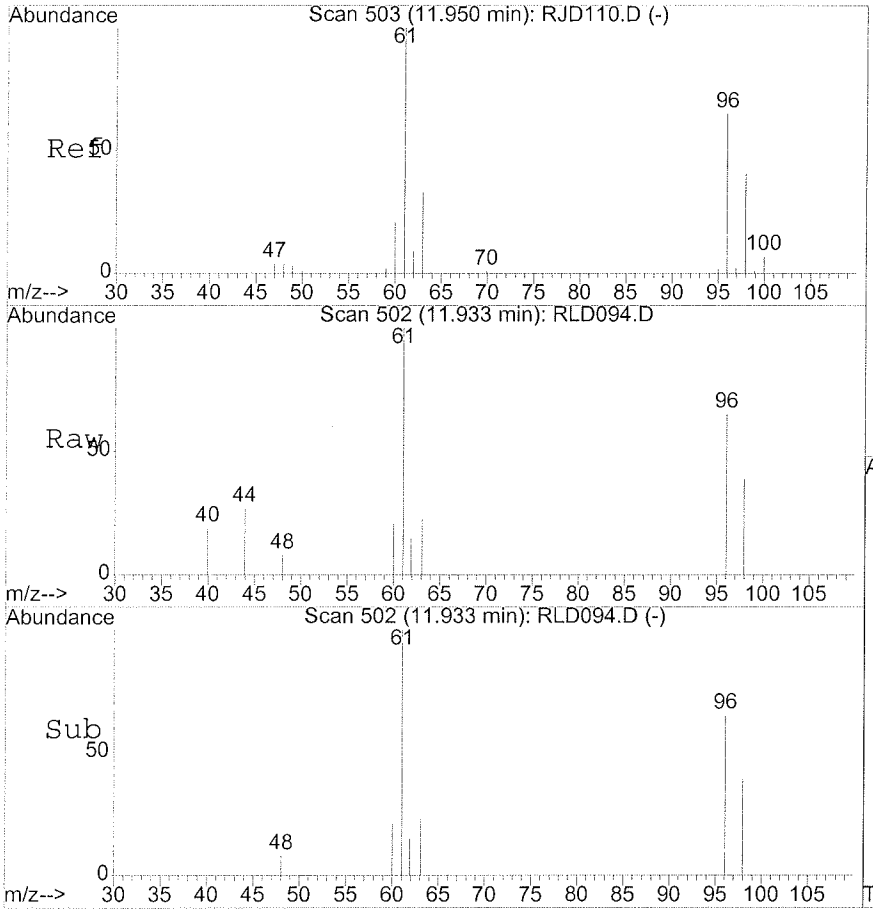


#18
Methylene chloride
Concen: 0.20 ug/l
RT: 9.65 min Scan# 347
Delta R.T. -0.02 min
Lab File: RLD094.D
Acq: 13 Dec 2019 6:26 pm

Tgt Ion: 49 Resp: 22221

Ion	Ratio	Lower	Upper
49	100		
84	63.1	33.0	93.0
86	38.4	10.1	70.1

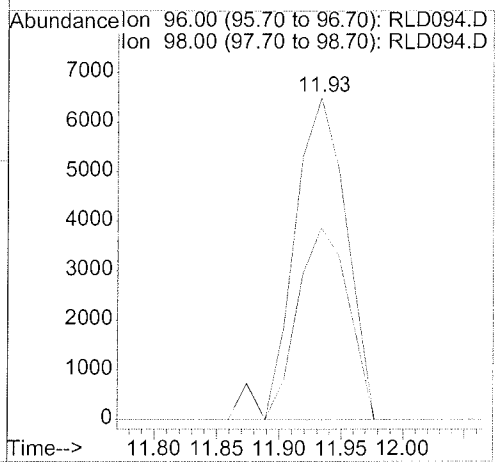


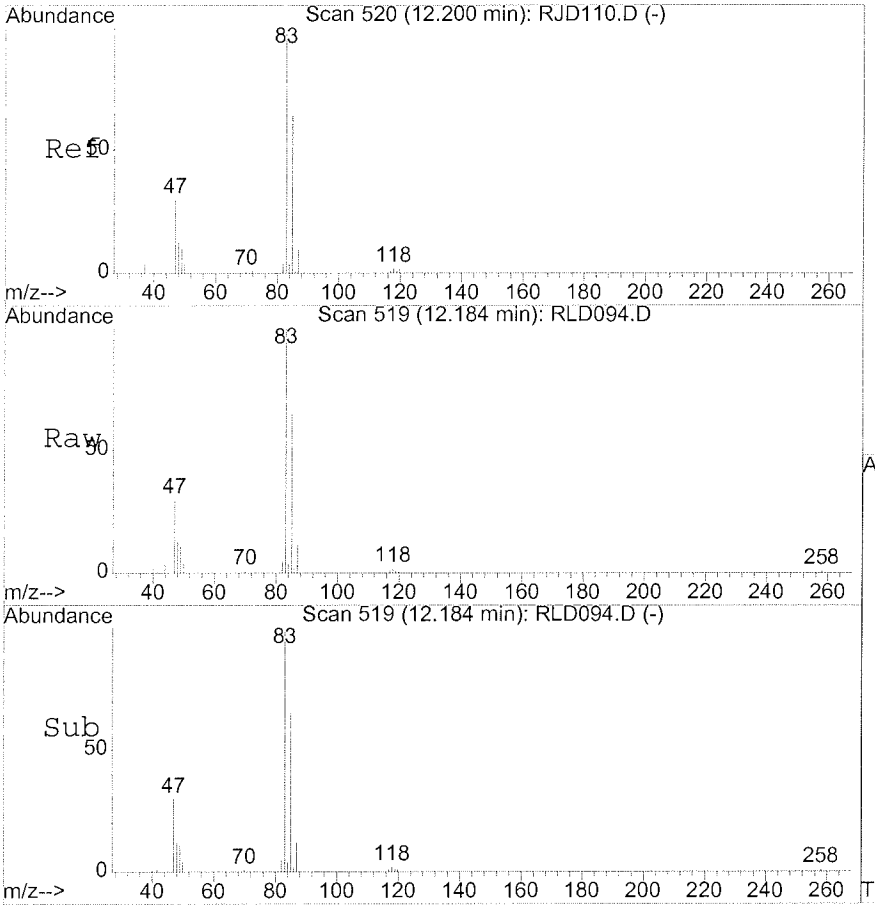


#31
cis-1,2-Dichloroethene
Concen: 0.27 ug/l
RT: 11.93 min Scan# 502
Delta R.T. -0.02 min
Lab File: RLD094.D
Acq: 13 Dec 2019 6:26 pm

Tgt Ion: 96 Resp: 19377

Ion	Ratio	Lower	Upper
96	100		
98	60.9	33.8	93.8

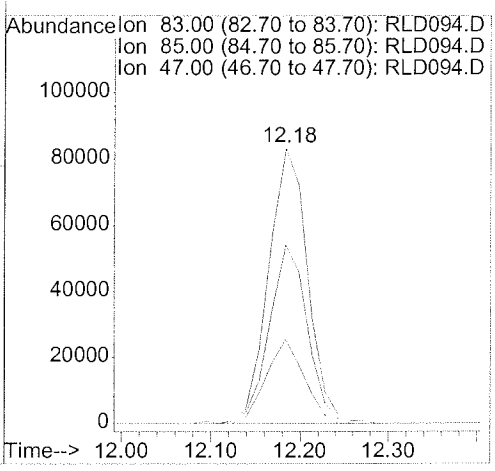


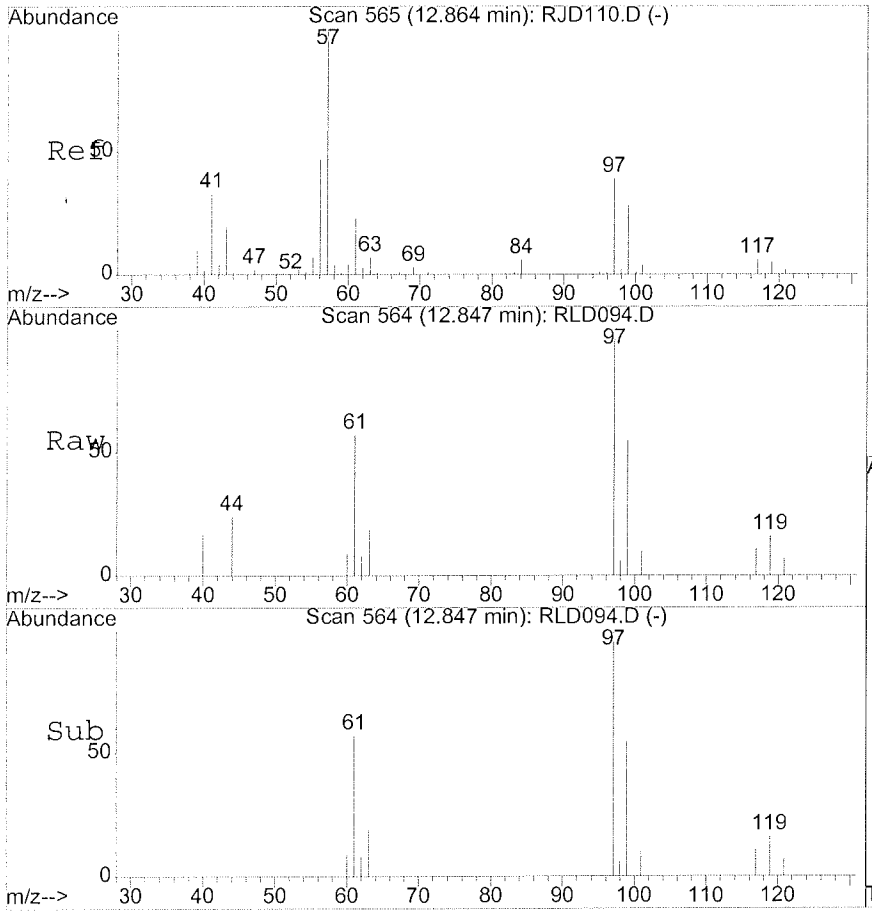


#32
Chloroform
Concen: 2.31 ug/l
RT: 12.18 min Scan# 519
Delta R.T. -0.02 min
Lab File: RLD094.D
Acq: 13 Dec 2019 6:26 pm

Tgt Ion: 83 Resp: 253510

Ion	Ratio	Lower	Upper
83	100		
85	63.2	33.8	93.8
47	29.4	0.0	59.6

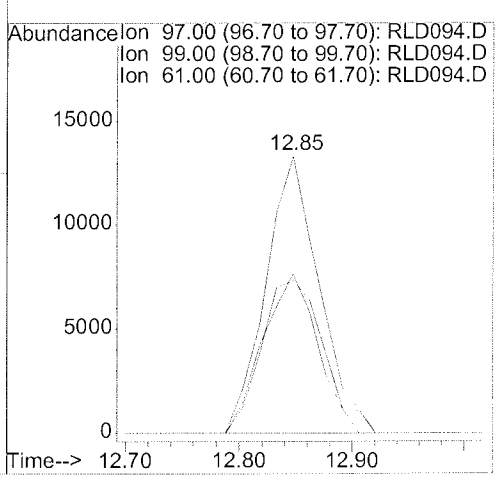


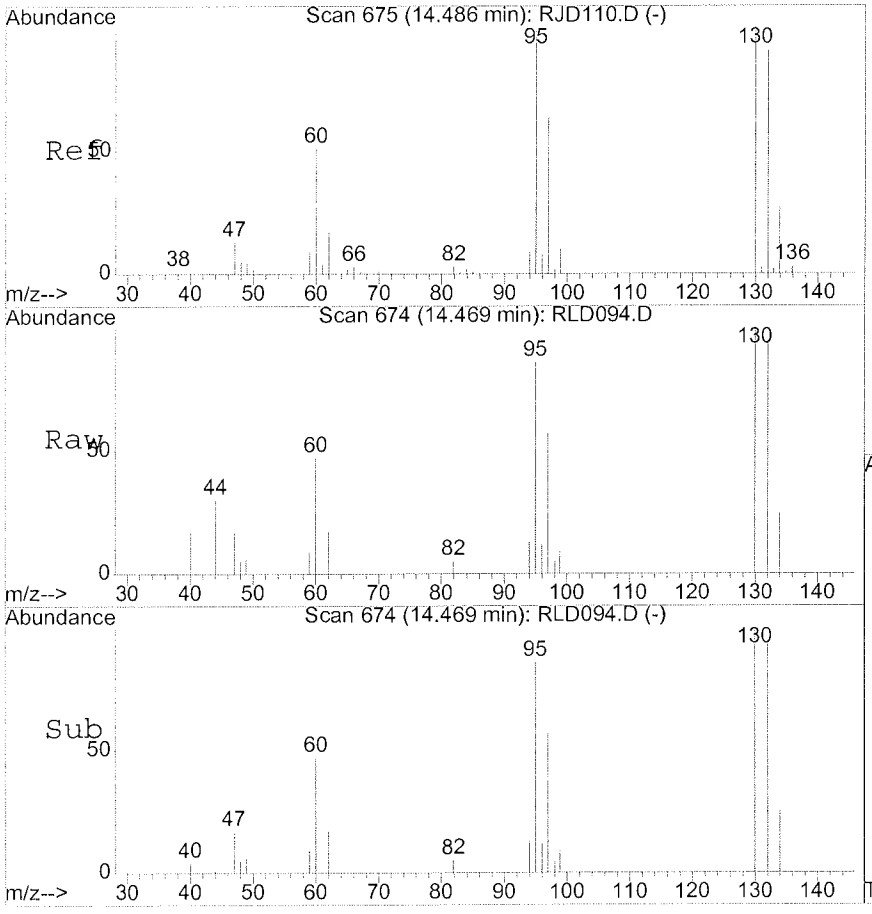


#37
1,1,1-Trichloroethane
Concen: 0.60 ug/l
RT: 12.85 min Scan# 564
Delta R.T. -0.02 min
Lab File: RLD094.D
Acq: 13 Dec 2019 6:26 pm

Tgt Ion: 97 Resp: 43804

Ion	Ratio	Lower	Upper
97	100		
99	64.2	52.6	112.6
61	58.8	28.5	88.5

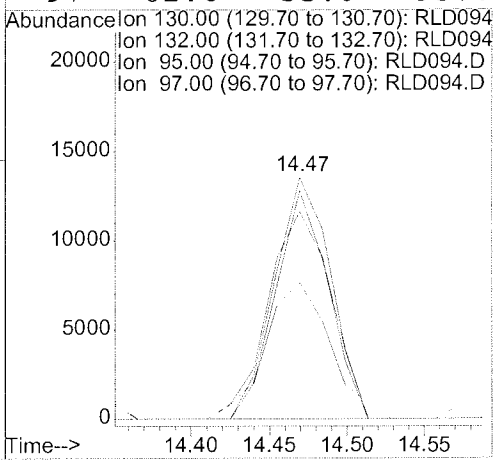


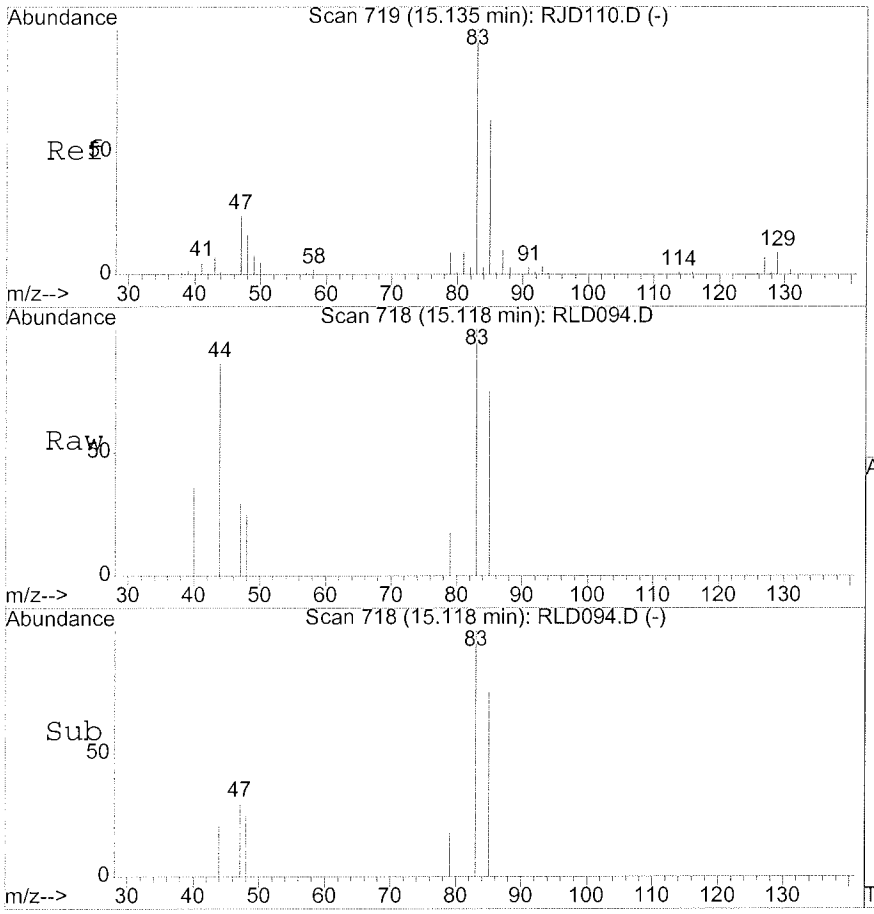


#46
Trichloroethene
Concen: 0.52 ug/l
RT: 14.47 min Scan# 674
Delta R.T. -0.02 min
Lab File: RLD094.D
Acq: 13 Dec 2019 6:26 pm

Tgt Ion:130 Resp: 34402

Ion	Ratio	Lower	Upper
130	100		
132	92.7	63.4	123.4
95	94.3	69.8	129.8
97	62.6	35.0	95.0

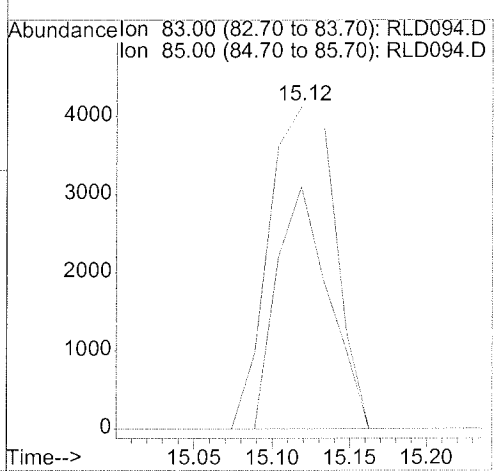


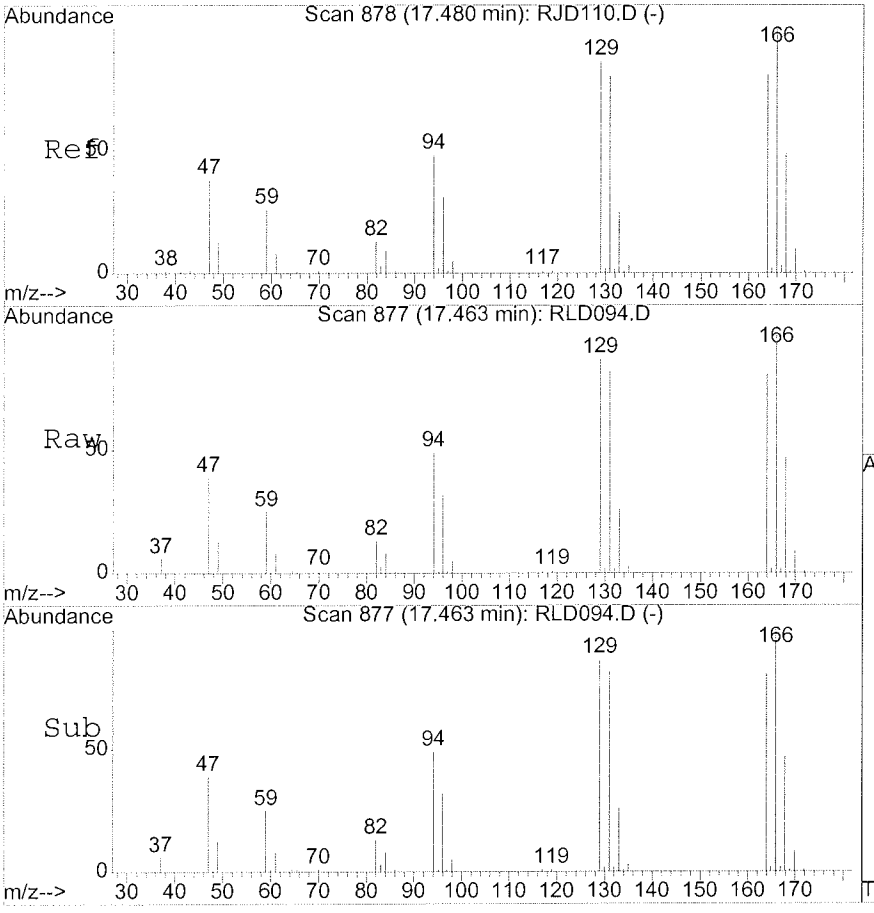


#50
Bromodichloromethane
Concen: 0.20 ug/l
RT: 15.12 min Scan# 718
Delta R.T. -0.02 min
Lab File: RLD094.D
Acq: 13 Dec 2019 6:26 pm

Tgt Ion: 83 Resp: 12252

Ion	Ratio	Lower	Upper
83	100		
85	59.1	33.2	93.2

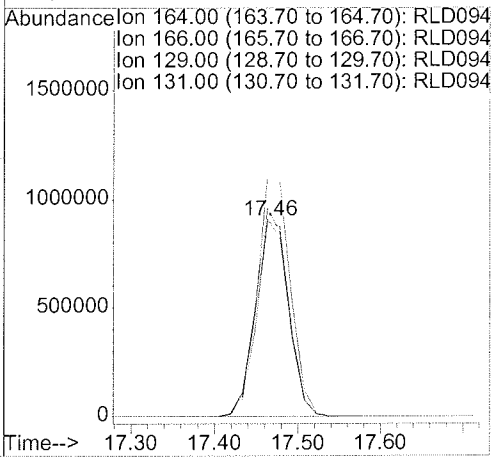




#63
Tetrachloroethene
Concen: 63.62 ug/l
RT: 17.46 min Scan# 877
Delta R.T. -0.02 min
Lab File: RLD094.D
Acq: 13 Dec 2019 6:26 pm

Tgt Ion:164 Resp: 2455064

Ion	Ratio	Lower	Upper
164	100		
166	124.7	98.4	158.4
129	104.6	70.6	130.6
131	100.0	66.4	126.4



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected	: 12/05/19
Project	: VA SALT LAKE CITY	Date Received	: 12/06/19
Batch No.	: 19L043	Date Extracted	: 12/13/19 13:45
Sample ID	: OU2-TB1-GW120519	Date Analyzed	: 12/13/19 13:45
Lab Samp ID	: L043-06	Dilution Factor	: 1
Lab File ID	: RLD085	Matrix	: WATER
Ext Btch ID	: VO94L04	% Moisture	: NA
Calib. Ref.	: RJD110	Instrument ID	: T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	ND	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	10.4	10.00	104	70-130
BROMOFLUOROBENZENE	10.1	10.00	101	70-130
TOLUENE-D8	10.6	10.00	106	70-130
DIBROMOFLUOROMETHANE	9.90	10.00	99.0	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLD085.D Vial: 8
Acq On : 13 Dec 2019 1:45 pm Operator: VLu
Sample : 19L043-06 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:55 2019 Quant Results File: VO94J09.RES

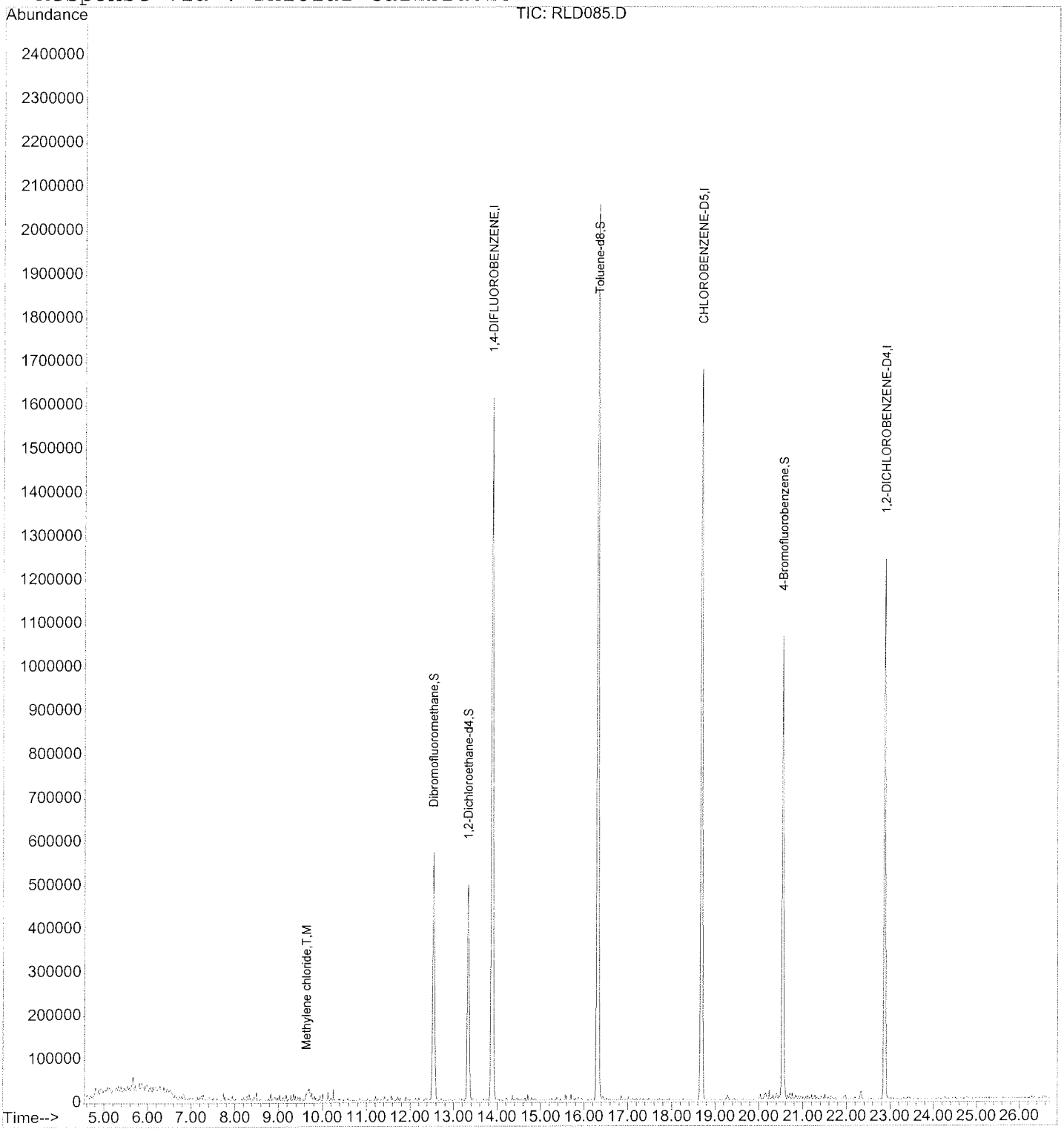
Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

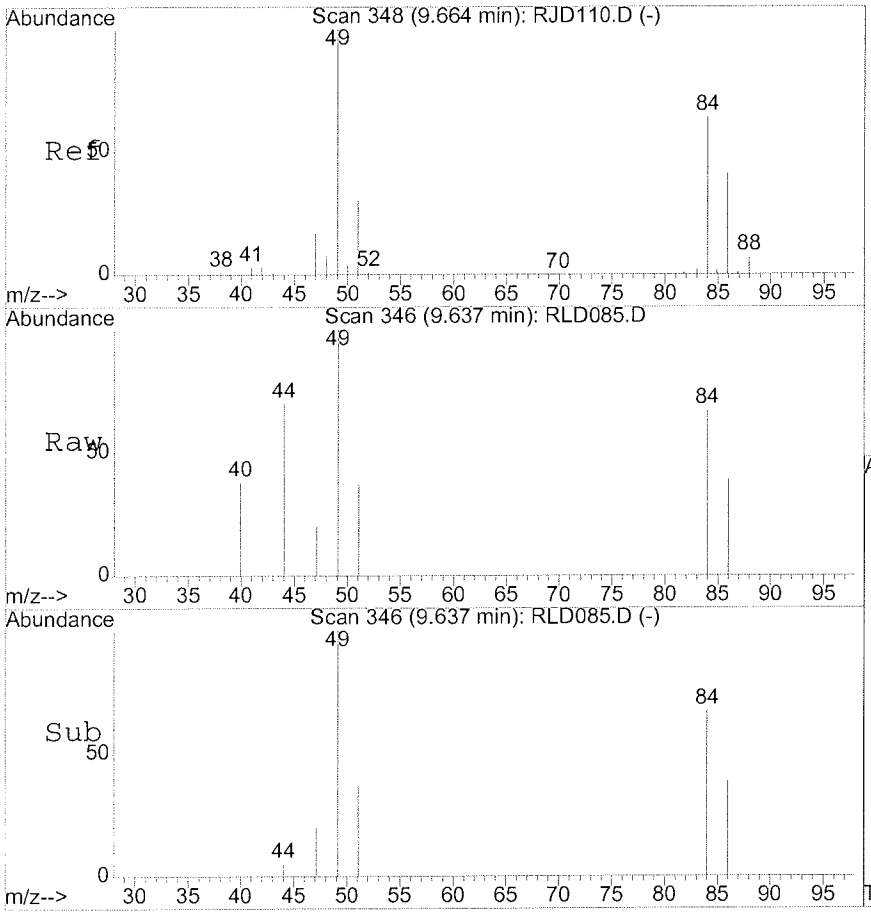
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.88	114	1835682	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	18.69	117	1462394	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	22.87	152	415169	10.00	ug/l	-0.02
System Monitoring Compounds						
36) Dibromofluoromethane	12.54	111	541039	9.90	ug/l	-0.03
Spiked Amount 10.000			Recovery = 99.00%			
43) 1,2-Dichloroethane-d4	13.34	65	486374	10.38	ug/l	-0.01
Spiked Amount 10.000			Recovery = 103.80%			
56) Toluene-d8	16.32	98	2051698	10.58	ug/l	-0.01
Spiked Amount 10.000			Recovery = 105.80%			
77) 4-Bromofluorobenzene	20.54	95	579341	10.14	ug/l	-0.02
Spiked Amount 10.000			Recovery = 101.40%			
Target Compounds						Qvalue
18) Methylene chloride	9.64	49	20816	0.18	ug/l	96

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

Data File : D:\HPCHEM\1\DATA\19L13\RLD085.D Vial: 8
Acq On : 13 Dec 2019 1:45 pm Operator: VLu
Sample : 19L043-06 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:55 2019 Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration

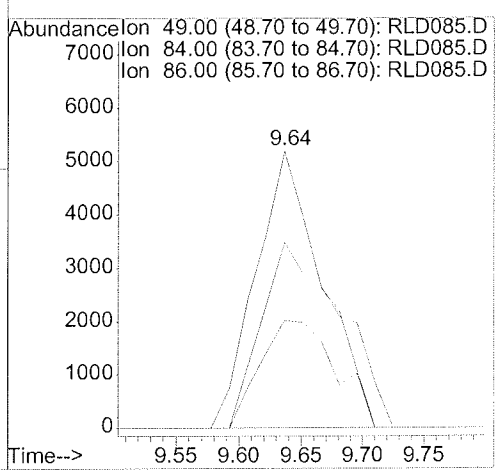




#18
Methylene chloride
Concen: 0.18 ug/l
RT: 9.64 min Scan# 346
Delta R.T. -0.03 min
Lab File: RLD085.D
Acq: 13 Dec 2019 1:45 pm

Tgt Ion: 49 Resp: 20816

Ion	Ratio	Lower	Upper
49	100		
84	67.0	33.0	93.0
86	40.9	10.1	70.1



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected	: 12/05/19
Project	: VA SALT LAKE CITY	Date Received	: 12/06/19
Batch No.	: 19L043	Date Extracted	: 12/13/19 14:47 # 12/16/19 15:12
Sample ID	: OU2-MW02-GW120519	Date Analyzed	: 12/13/19 14:47 # 12/16/19 15:12
Lab Samp ID	: L043-07 #L043-07I	Dilution Factor	: 1 # 10
Lab File ID	: RLD087 #RLD107	Matrix	: WATER
Ext Btch ID	: V094L04 #V094L05	% Moisture	: NA
Calib. Ref.	: RJD110 #RJD110	Instrument ID	: T-094

	PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
	1,1,1-TRICHLOROETHANE	ND	1.0	0.10
	1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
	1,1,2-TRICHLOROETHANE	ND	1.0	0.10
	1,1-DICHLOROETHANE	ND	1.0	0.10
	1,1-DICHLOROETHENE	ND	1.0	0.10
	1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
	1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
	1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
	1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
	1,2-DICHLOROBENZENE	ND	1.0	0.10
	1,2-DICHLOROETHANE	ND	1.0	0.10
	1,2-DICHLOROPROPANE	ND	1.0	0.10
	1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
	1,3-DICHLOROBENZENE	ND	1.0	0.11
	1,4-DICHLOROBENZENE	ND	1.0	0.10
	2-BUTANONE	ND	20	2.5
	2-HEXANONE	ND	20	2.5
	ACETONE	ND	20	2.5
	BENZENE	ND	1.0	0.10
	BROMOCHLOROMETHANE	ND	1.0	0.11
	BROMODICHLOROMETHANE	0.40J	1.0	0.10
	BROMOFORM	ND	1.0	0.15
	BROMOMETHANE	ND	1.0	0.16
	CARBON DISULFIDE	ND	1.0	0.25
	CARBON TETRACHLORIDE	ND	1.0	0.10
	CHLOROBENZENE	ND	1.0	0.10
	CHLOROETHANE	ND	1.0	0.27
	CHLOROFORM	4.9	1.0	0.10
	CHLOROMETHANE	ND	1.0	0.15
	CIS-1,2-DICHLOROETHYLENE	0.36J	1.0	0.10
	DIBROMOCHLOROMETHANE	ND	1.0	0.10
	DICHLORODIFLUOROMETHANE	ND	1.0	0.15
	ETHYLBENZENE	ND	1.0	0.10
	ISOPROPYLBENZENE	ND	1.0	0.10
	M,P-XYLENE	ND	2.0	0.21
	4-METHYL-2-PENTANONE	ND	20	2.5
	METHYLENE CHLORIDE	ND	2.0	0.50
	TERT-BUTYL METHYL ETHER	ND	1.0	0.13
	O-XYLENE	ND	1.0	0.10
	STYRENE	ND	1.0	0.25
#	TETRACHLOROETHENE	150	10	1.5
	TOLUENE	ND	1.0	0.10
	TRANS-1,2-DCE	ND	1.0	0.10
	CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
	TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
	TCE	0.54J	1.0	0.10
	TRICHLOROFLUOROMETHANE	ND	1.0	0.15
	VINYL CHLORIDE	ND	1.0	0.12
	1,2-DIBROMOETHANE	ND	1.0	0.10
	VINYL ACETATE	ND	2.0	0.25
	TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
	METHYL ACETATE	ND	2.0	0.25

	SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
	1,2-DICHLOROETHANE-D4	10.4	10.00	104	70-130
	BROMOFLUOROBENZENE	9.65	10.00	96.5	70-130
	TOLUENE-D8	11.7	10.00	117	70-130
	DIBROMOFLUOROMETHANE	10.0	10.00	100	70-130
#	1,2-DICHLOROETHANE-D4	106	100.0	106	70-130
#	BROMOFLUOROBENZENE	101	100.0	101	70-130
#	TOLUENE-D8	108	100.0	108	70-130
#	DIBROMOFLUOROMETHANE	100	100.0	100	70-130

Members of the Associated File

METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/05/19
Project : VA SALT LAKE CITY	Date Received: 12/06/19
Batch No. : 19L043	Date Extracted: 12/13/19 14:47
Sample ID: OU2-MW02-GW120519	Date Analyzed: 12/13/19 14:47
Lab Samp ID: L043-07	Dilution Factor: 1
Lab File ID: RLD087	Matrix : WATER
Ext Btch ID: V094L04	% Moisture : NA
Calib. Ref.: RJD110	Instrument ID : T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.40J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	4.9	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	0.36J	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	190E	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	0.54J	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	10.4	10.00	104	70-130
BROMOFLUOROBENZENE	9.65	10.00	96.5	70-130
TOLUENE-D8	11.7	10.00	117	70-130
DIBROMOFLUOROMETHANE	10.0	10.00	100	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLD087.D Vial: 10
Acq On : 13 Dec 2019 2:47 pm Operator: VLu
Sample : 19L043-07 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:53 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

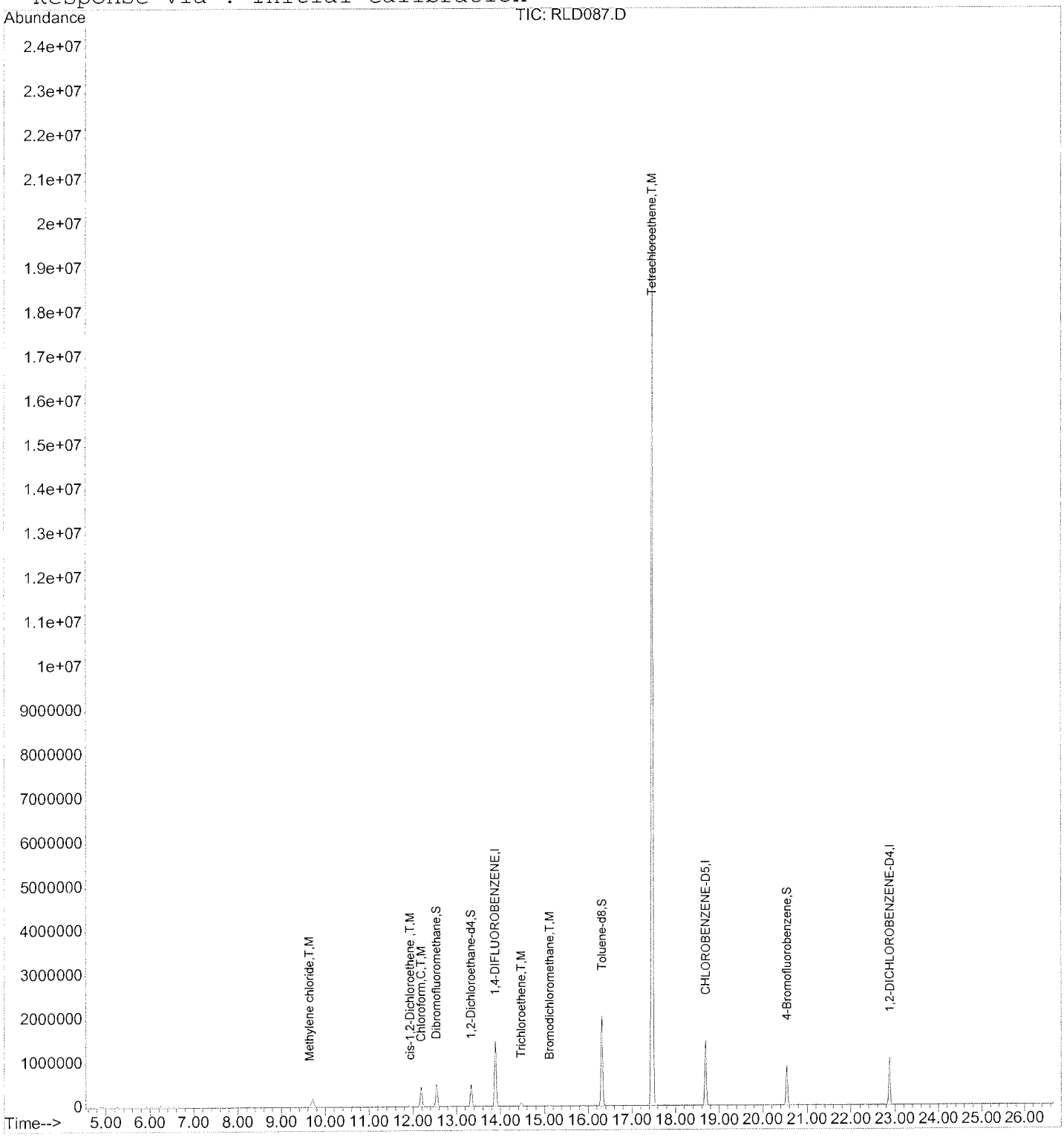
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.88	114	1721974	10.00	ug/l		-0.01
55) CHLOROBENZENE-D5	18.69	117	1239042	10.00	ug/l		-0.01
74) 1,2-DICHLOROBENZENE-D4	22.88	152	370238	10.00	ug/l		-0.01
System Monitoring Compounds							
36) Dibromofluoromethane	12.54	111	514375	10.04	ug/l		-0.03
Spiked Amount 10.000			Recovery = 100.40%				
43) 1,2-Dichloroethane-d4	13.34	65	456821	10.40	ug/l		-0.01
Spiked Amount 10.000			Recovery = 104.00%				
56) Toluene-d8	16.31	98	1914356	11.66	ug/l		-0.01
Spiked Amount 10.000			Recovery = 116.60%				
77) 4-Bromofluorobenzene	20.54	95	491549	9.65	ug/l		-0.01
Spiked Amount 10.000			Recovery = 96.50%				
Target Compounds							Qvalue
18) Methylene chloride	9.63	49	24843	0.23	ug/l		91
31) cis-1,2-Dichloroethene	11.93	96	25094	0.36	ug/l	✓	100
32) Chloroform	12.19	83	527397	4.92	ug/l	✓	99
46) Trichloroethene	14.47	130	34986	0.54	ug/l	✓	96
50) Bromodichloromethane	15.12	83	24306	0.40	ug/l	✓	97
63) Tetrachloroethene	17.46	164	7144826	193.89	ug/l	E ✓	98

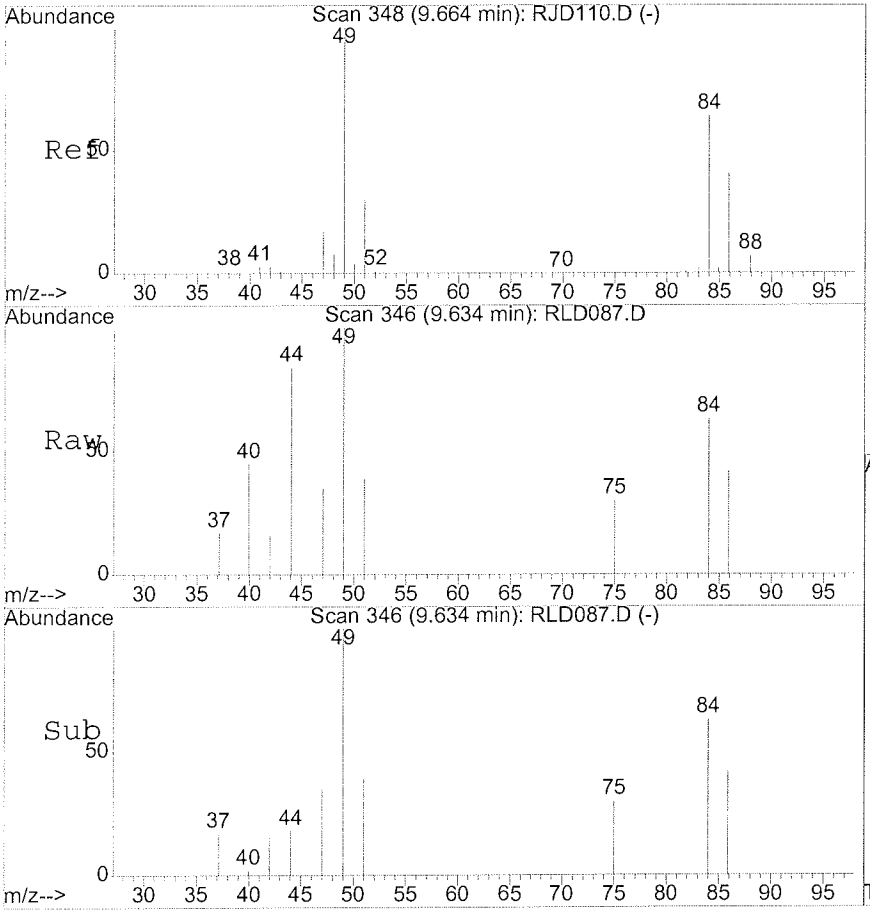
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLD087.D Vial: 10
Acq On : 13 Dec 2019 2:47 pm Operator: VLu
Sample : 19L043-07 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:53 2019 Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration

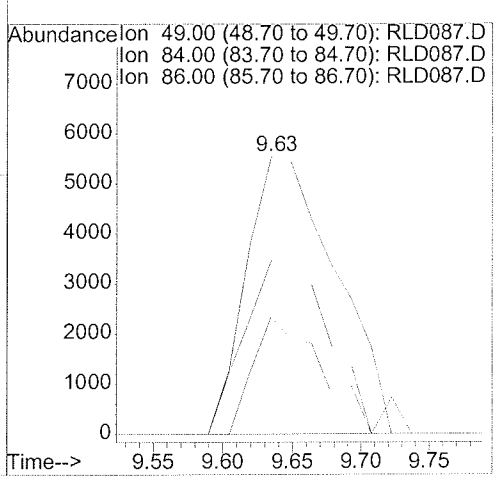


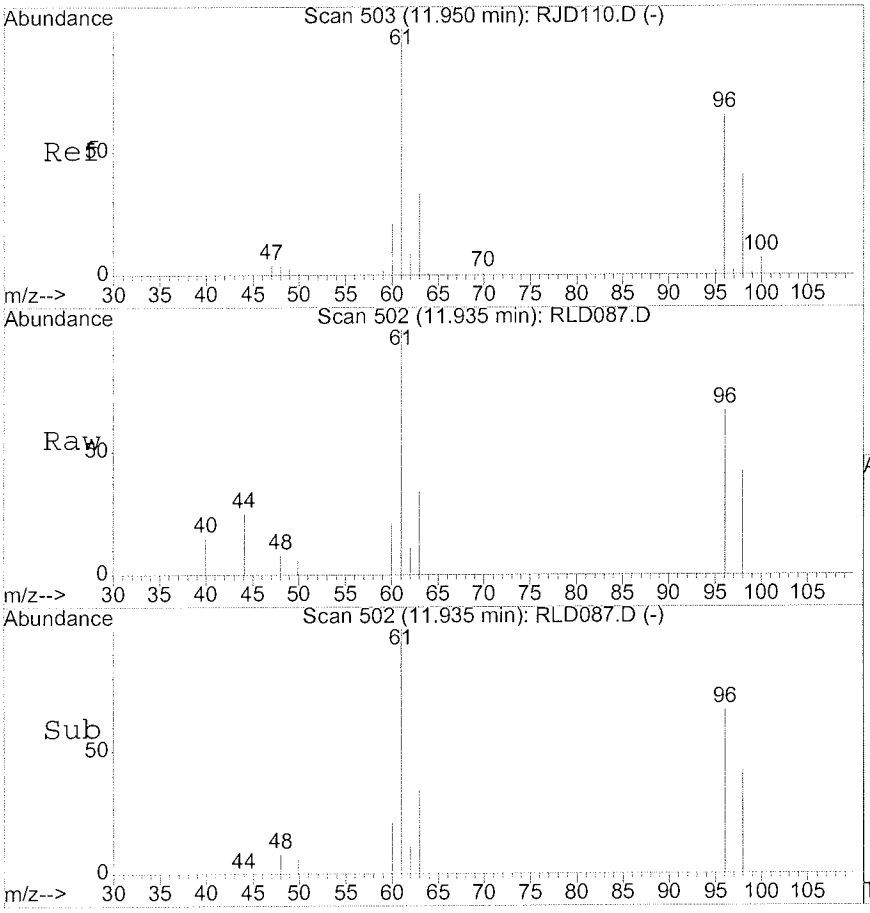


#18
Methylene chloride
Concen: 0.23 ug/l
RT: 9.63 min Scan# 346
Delta R.T. -0.03 min
Lab File: RLD087.D
Acq: 13 Dec 2019 2:47 pm

Tgt Ion: 49 Resp: 24843

Ion	Ratio	Lower	Upper
49	100		
84	57.9	33.0	93.0
86	32.0	10.1	70.1

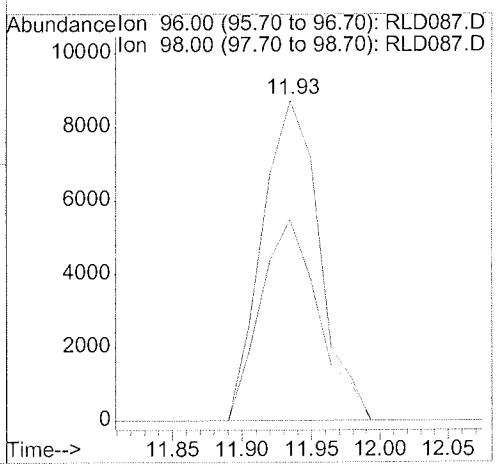


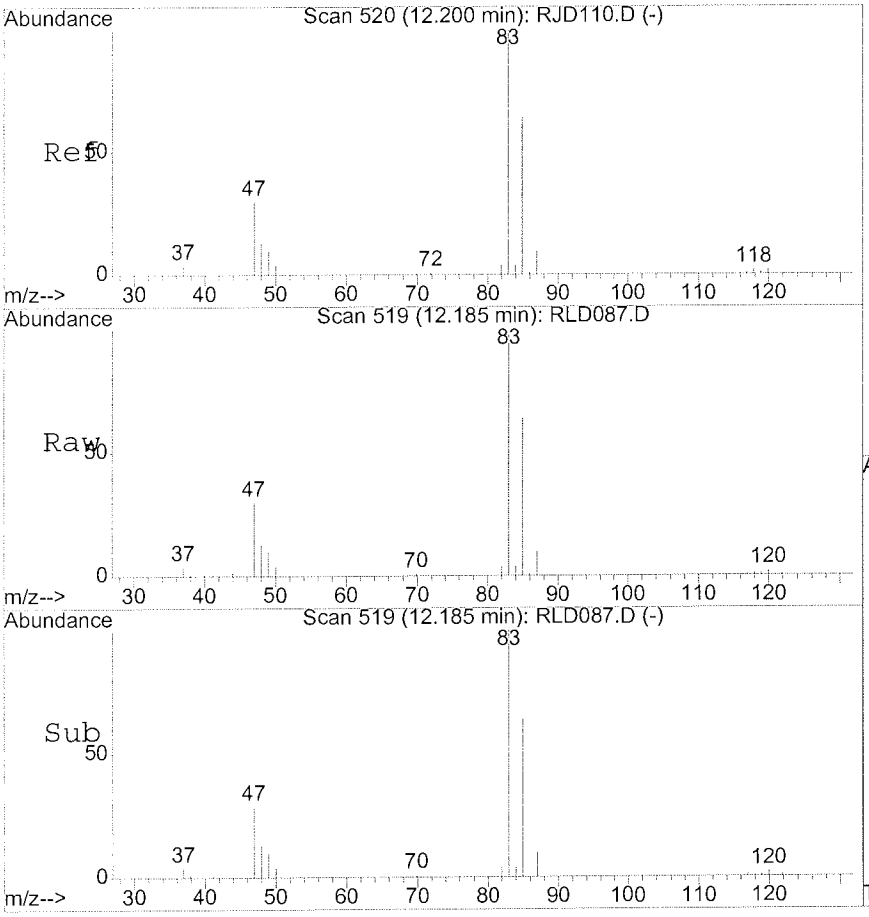


#31
cis-1,2-Dichloroethene
Concen: 0.36 ug/l
RT: 11.93 min Scan# 502
Delta R.T. -0.01 min
Lab File: RLD087.D
Acq: 13 Dec 2019 2:47 pm

Tgt Ion: 96 Resp: 25094

Ion	Ratio	Lower	Upper
96	100		
98	63.8	33.8	93.8

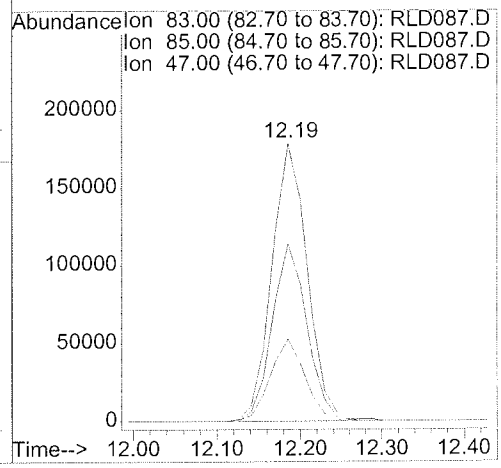


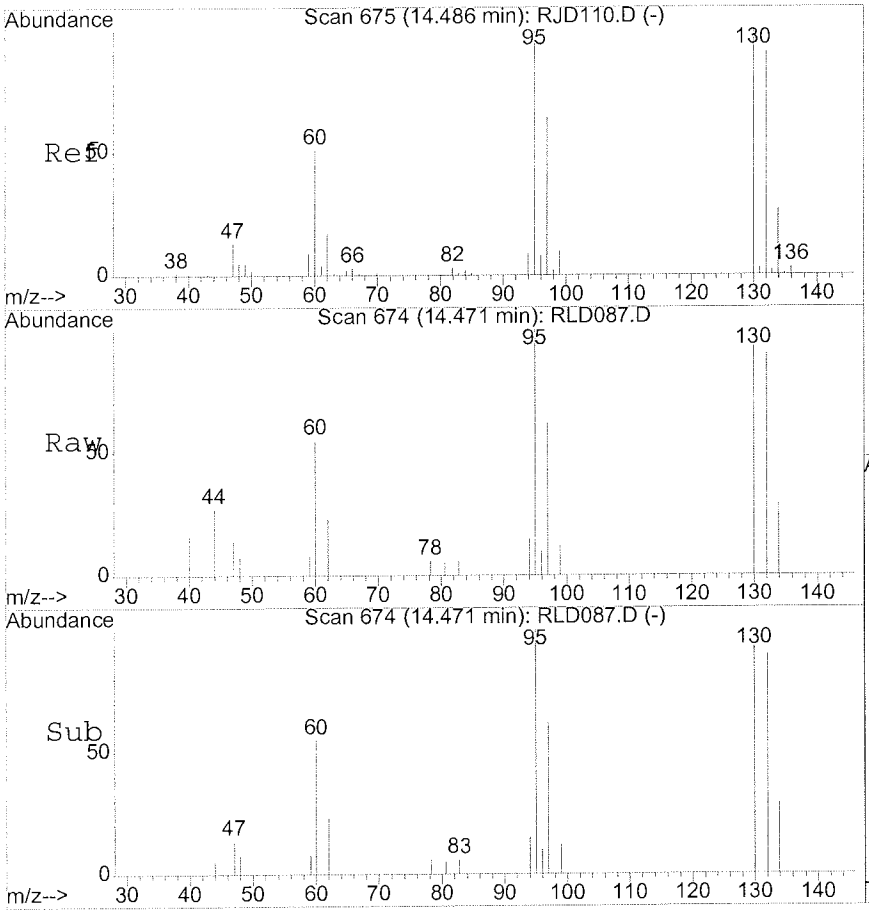


#32
Chloroform
Concen: 4.92 ug/l
RT: 12.19 min Scan# 519
Delta R.T. -0.01 min
Lab File: RLD087.D
Acq: 13 Dec 2019 2:47 pm

Tgt Ion: 83 Resp: 527397

Ion	Ratio	Lower	Upper
83	100		
85	62.8	33.8	93.8
47	29.0	0.0	59.6

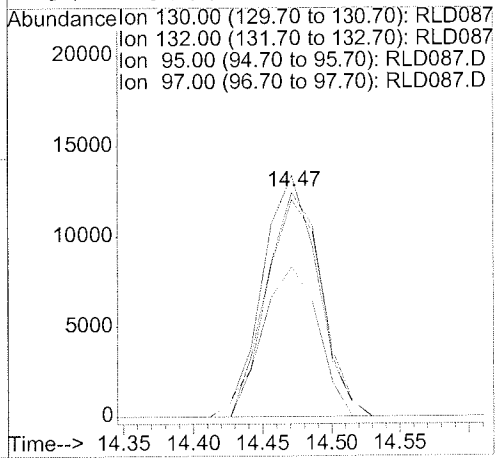


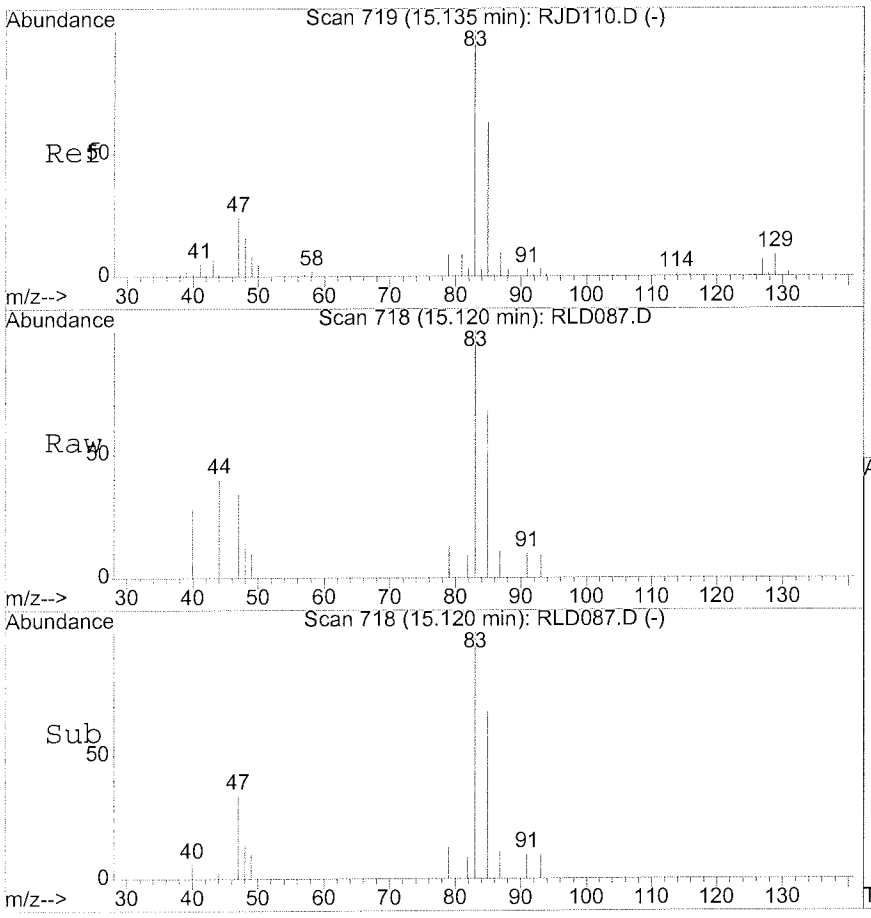


#46
Trichloroethene
Concen: 0.54 ug/l
RT: 14.47 min Scan# 674
Delta R.T. -0.01 min
Lab File: RLD087.D
Acq: 13 Dec 2019 2:47 pm

Tgt Ion:130 Resp: 34986

Ion	Ratio	Lower	Upper
130	100		
132	94.7	63.4	123.4
95	106.2	69.8	129.8
97	67.8	35.0	95.0

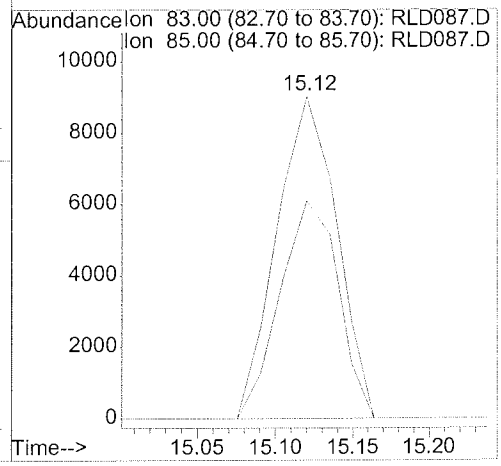


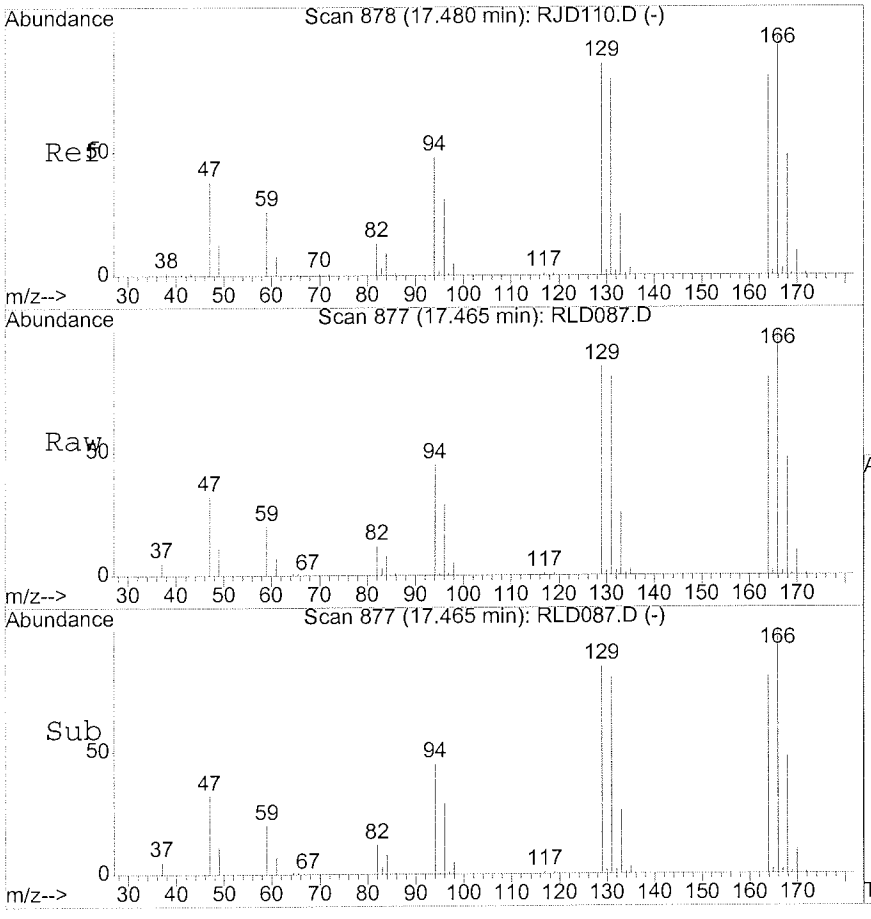


#50
Bromodichloromethane
Concen: 0.40 ug/l
RT: 15.12 min Scan# 718
Delta R.T. -0.01 min
Lab File: RLD087.D
Acq: 13 Dec 2019 2:47 pm

Tgt Ion: 83 Resp: 24306

Ion	Ratio	Lower	Upper
83	100		
85	65.5	33.2	93.2

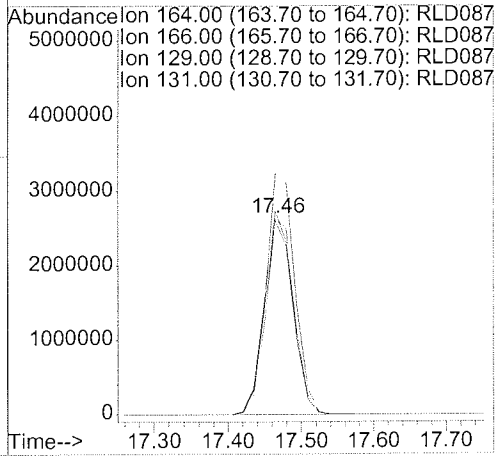




#63
Tetrachloroethene
Concen: 193.89 ug/l
RT: 17.46 min Scan# 877
Delta R.T. -0.01 min
Lab File: RLD087.D
Acq: 13 Dec 2019 2:47 pm

Tgt Ion:164 Resp: 7144826

Ion	Ratio	Lower	Upper
164	100		
166	124.5	98.4	158.4
129	102.7	70.6	130.6
131	98.1	66.4	126.4



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/05/19
Project : VA SALT LAKE CITY	Date Received: 12/06/19
Batch No. : 19L043	Date Extracted: 12/16/19 15:12
Sample ID: OU2-MW02-GW120519DL	Date Analyzed: 12/16/19 15:12
Lab Samp ID: L043-07I	Dilution Factor: 10
Lab File ID: RLD107	Matrix : WATER
Ext Btch ID: VO94L05	% Moisture : NA
Calib. Ref.: RJD110	Instrument ID : T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	10	1.0
1,1,2,2-TETRACHLOROETHANE	ND	10	1.1
1,1,2-TRICHLOROETHANE	ND	10	1.0
1,1-DICHLOROETHANE	ND	10	1.0
1,1-DICHLOROETHENE	ND	10	1.0
1,2,3-TRICHLOROBENZENE	ND	10	1.5
1,2,4-TRICHLOROBENZENE	ND	10	1.5
1,2,4-TRIMETHYLBENZENE	ND	10	1.1
1,2-DIBROMO-3-CHLOROPROPANE	ND	20	2.5
1,2-DICHLOROBENZENE	ND	10	1.0
1,2-DICHLOROETHANE	ND	10	1.0
1,2-DICHLOROPROPANE	ND	10	1.0
1,3,5-TRIMETHYLBENZENE	ND	10	1.2
1,3-DICHLOROBENZENE	ND	10	1.1
1,4-DICHLOROBENZENE	ND	10	1.0
2-BUTANONE	ND	200	25
2-HEXANONE	ND	200	25
ACETONE	ND	200	25
BENZENE	ND	10	1.0
BROMOCHLOROMETHANE	ND	10	1.1
BROMODICHLOROMETHANE	ND	10	1.0
BROMOFORM	ND	10	1.5
BROMOMETHANE	ND	10	1.6
CARBON DISULFIDE	ND	10	2.5
CARBON TETRACHLORIDE	ND	10	1.0
CHLOROBENZENE	ND	10	1.0
CHLOROETHANE	ND	10	2.7
CHLOROFORM	4.7J	10	1.0
CHLOROMETHANE	ND	10	1.5
CIS-1,2-DICHLOROETHYLENE	ND	10	1.0
DIBROMOCHLOROMETHANE	ND	10	1.0
DICHLORODIFLUOROMETHANE	ND	10	1.5
ETHYLBENZENE	ND	10	1.0
ISOPROPYLBENZENE	ND	10	1.0
M,P-XYLENE	ND	20	2.1
4-METHYL-2-PENTANONE	ND	200	25
METHYLENE CHLORIDE	ND	20	5.0
TERT-BUTYL METHYL ETHER	ND	10	1.3
O-XYLENE	ND	10	1.0
STYRENE	ND	10	2.5
TETRACHLOROETHENE	150	10	1.5
TOLUENE	ND	10	1.0
TRANS-1,2-DCE	ND	10	1.0
CIS-1,3-DICHLOROPROPENE	ND	10	1.0
TRANS-1,3-DICHLOROPROPENE	ND	10	1.1
TCE	ND	10	1.0
TRICHLOROFLUOROMETHANE	ND	10	1.5
VINYL CHLORIDE	ND	10	1.2
1,2-DIBROMOETHANE	ND	10	1.0
VINYL ACETATE	ND	20	2.5
TRICHLOROTRIFLUOROETHANE	ND	10	1.5
METHYL ACETATE	ND	20	2.5

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	106	100.0	106	70-130
BROMOFLUOROBENZENE	101	100.0	101	70-130
TOLUENE-D8	108	100.0	108	70-130
DIBROMOFLUOROMETHANE	100	100.0	100	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLD107.D Vial: 8
Acq On : 16 Dec 2019 3:12 pm Operator: VLu
Sample : 19L043-07I 2.5mL Inst : 94
Misc : DF=10 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 17 10:18 2019 Quant Results File: VO94J09.RES

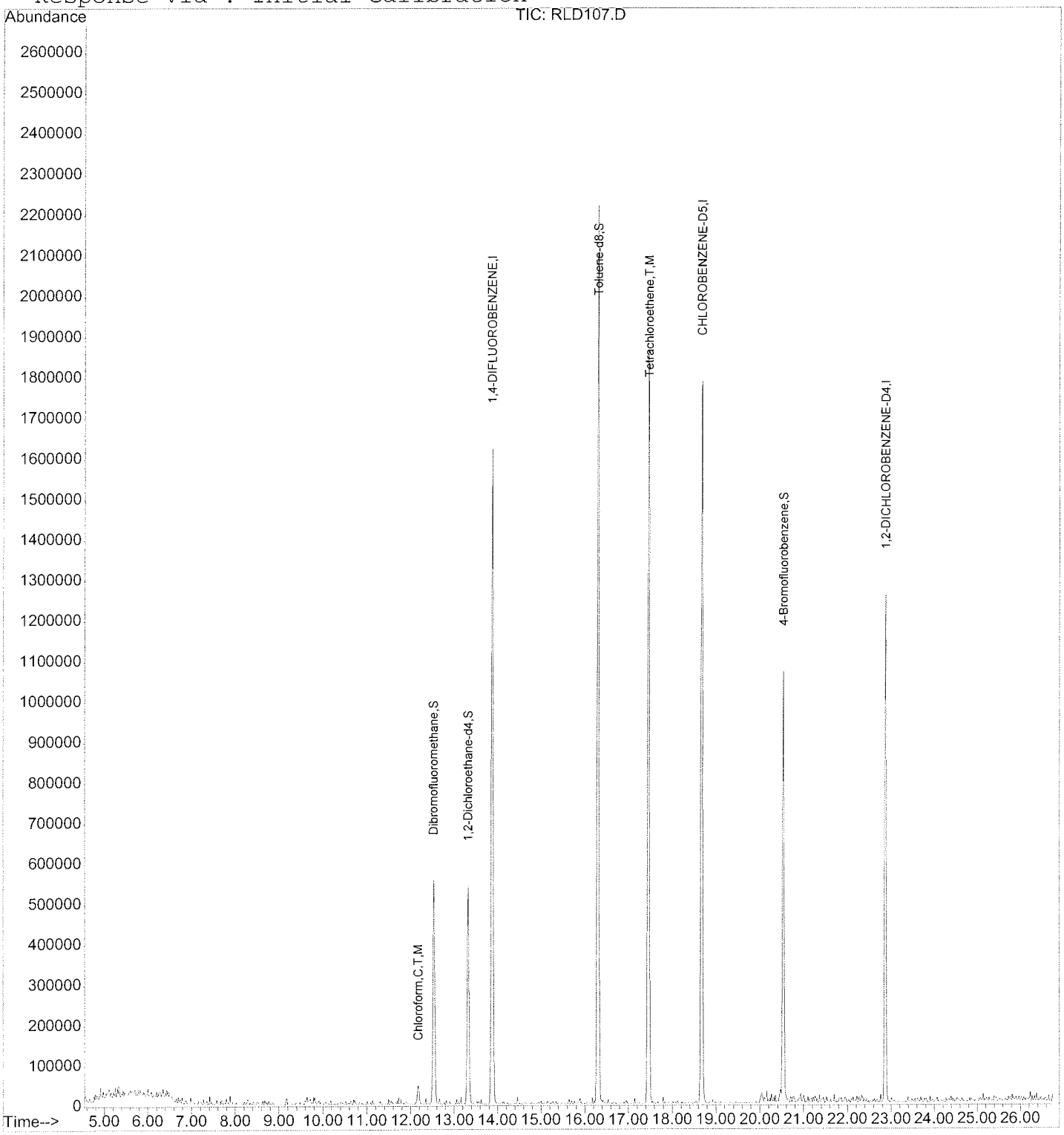
Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

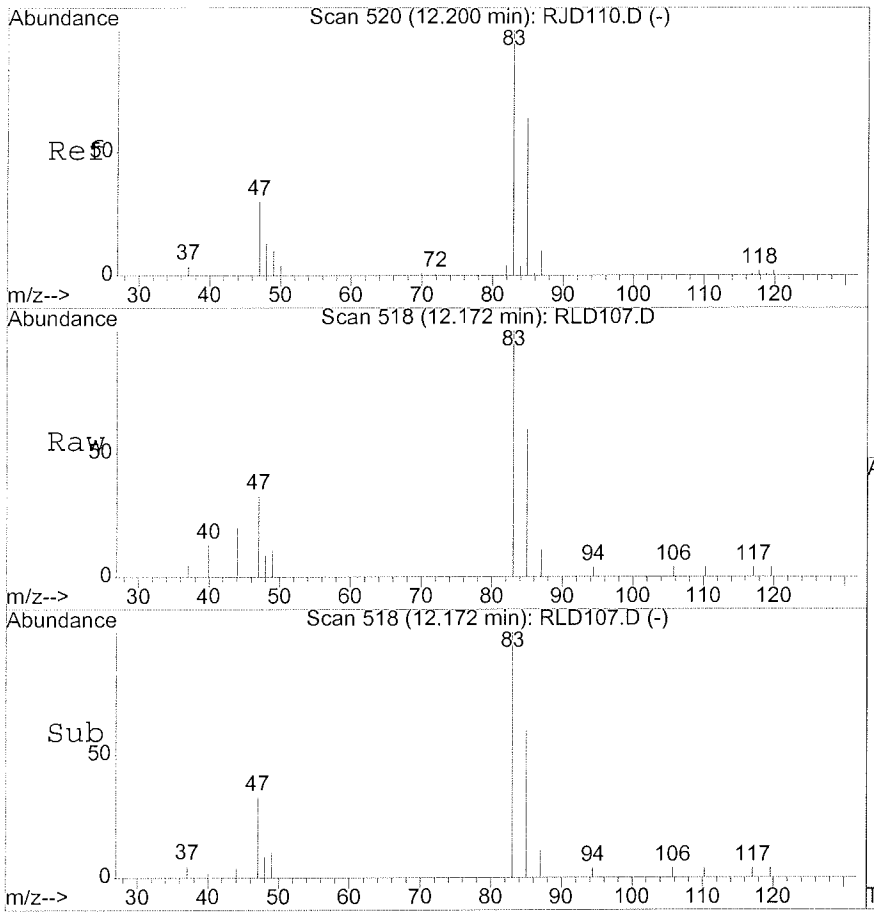
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.87	114	1827240	10.00	ug/l	-0.03
55) CHLOROBENZENE-D5	18.68	117	1415933	10.00	ug/l	-0.03
74) 1,2-DICHLOROBENZENE-D4	22.86	152	399305	10.00	ug/l	-0.03
System Monitoring Compounds						
36) Dibromofluoromethane	12.53	111	544302	10.01	ug/l	-0.04
Spiked Amount 10.000			Recovery = 100.10%			
43) 1,2-Dichloroethane-d4	13.32	65	492978	10.57	ug/l	-0.03
Spiked Amount 10.000			Recovery = 105.70%			
56) Toluene-d8	16.30	98	2033322	10.83	ug/l	-0.03
Spiked Amount 10.000			Recovery = 108.30%			
77) 4-Bromofluorobenzene	20.53	95	557677	10.15	ug/l	-0.03
Spiked Amount 10.000			Recovery = 101.50%			
Target Compounds						Qvalue
32) Chloroform	12.17	83	53892	0.47	ug/l	98
63) Tetrachloroethene	17.47	164	625237	14.85	ug/l	95

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

Data File : D:\HPCHEM\1\DATA\19L16\RLD107.D Vial: 8
Acq On : 16 Dec 2019 3:12 pm Operator: VLu
Sample : 19L043-07I 2.5mL Inst : 94
Misc : DF=10 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 17 10:18 2019 Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration

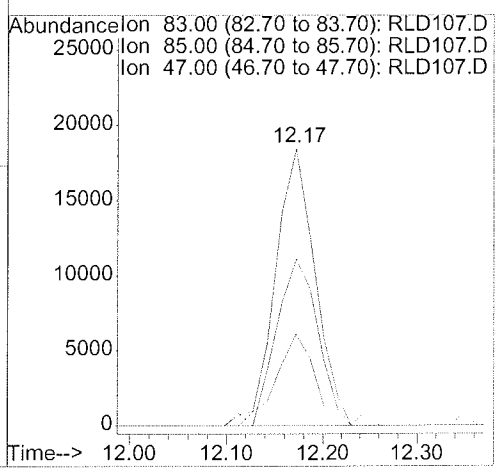


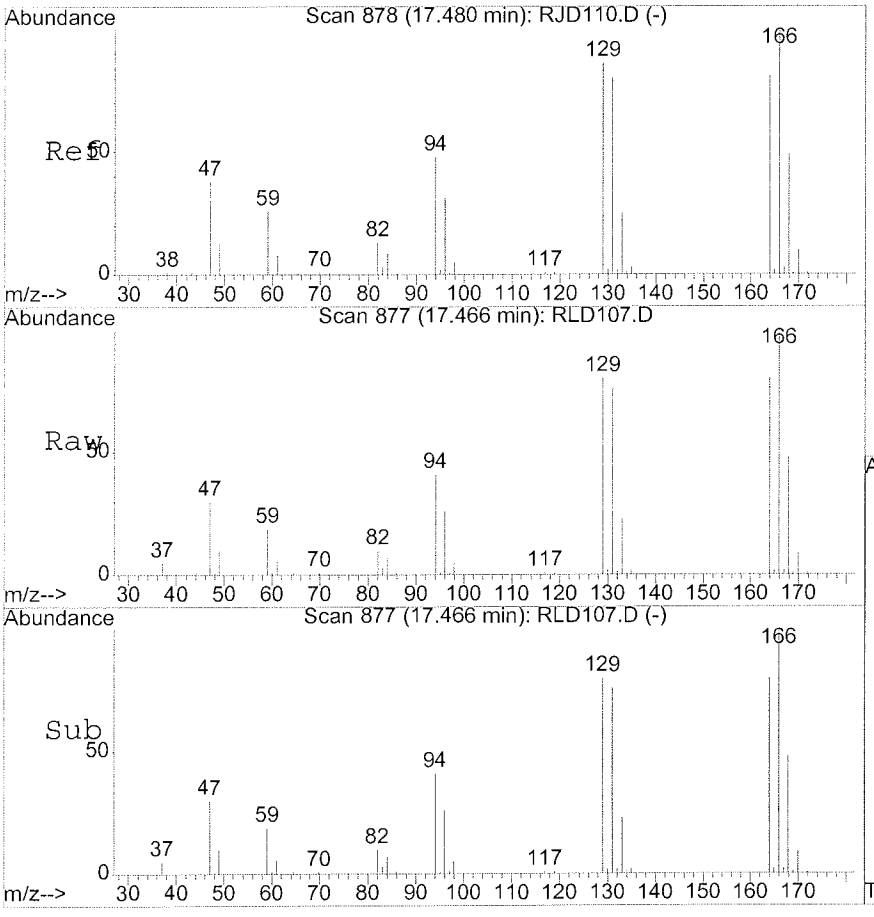


#32
Chloroform
Concen: 0.47 ug/l
RT: 12.17 min Scan# 518
Delta R.T. -0.03 min
Lab File: RLD107.D
Acq: 16 Dec 2019 3:12 pm

Tgt Ion: 83 Resp: 53892

Ion	Ratio	Lower	Upper
83	100		
85	62.8	33.8	93.8
47	31.6	0.0	59.6

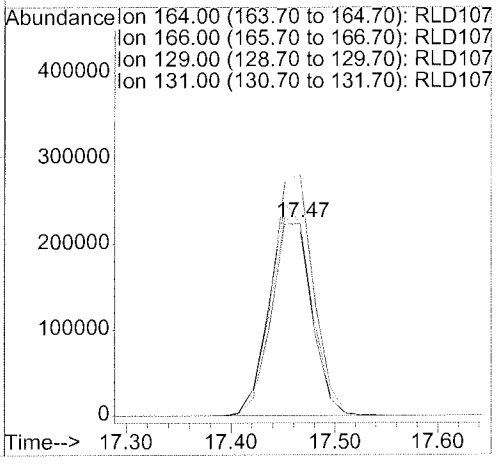




#63
Tetrachloroethene
Concen: 14.85 ug/l
RT: 17.47 min Scan# 877
Delta R.T. -0.01 min
Lab File: RLD107.D
Acq: 16 Dec 2019 3:12 pm

Tgt Ion:164 Resp: 625237

Ion	Ratio	Lower	Upper
164	100		
166	124.4	98.4	158.4
129	107.2	70.6	130.6
131	101.5	66.4	126.4



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/05/19
Project : VA SALT LAKE CITY	Date Received: 12/06/19
Batch No. : 19L043	Date Extracted: 12/13/19 14:16
Sample ID: OU2-TB3-GW120519	Date Analyzed: 12/13/19 14:16
Lab Samp ID: L043-08	Dilution Factor: 1
Lab File ID: RLD086	Matrix : WATER
Ext Btch ID: VO94L04	% Moisture : NA
Calib. Ref.: RJD110	Instrument ID : T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	ND	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	10.2	10.00	102	70-130
BROMOFLUOROBENZENE	10.2	10.00	102	70-130
TOLUENE-D8	10.6	10.00	106	70-130
DIBROMOFLUOROMETHANE	9.69	10.00	96.9	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLD086.D Vial: 9
Acq On : 13 Dec 2019 2:16 pm Operator: VLu
Sample : 19L043-08 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:56 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.88	114	1798667	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	18.69	117	1405512	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	22.88	152	381361	10.00	ug/l	-0.02
System Monitoring Compounds						
36) Dibromofluoromethane	12.54	111	518746	9.69	ug/l	-0.03
Spiked Amount 10.000			Recovery =	96.90%		
43) 1,2-Dichloroethane-d4	13.34	65	467962	10.20	ug/l	-0.01
Spiked Amount 10.000			Recovery =	102.00%		
56) Toluene-d8	16.31	98	1969642	10.57	ug/l	-0.01
Spiked Amount 10.000			Recovery =	105.70%		
77) 4-Bromofluorobenzene	20.54	95	535763	10.21	ug/l	-0.02
Spiked Amount 10.000			Recovery =	102.10%		
Target Compounds						Qvalue
18) Methylene chloride	9.63	49	30857	0.27	ug/l	94

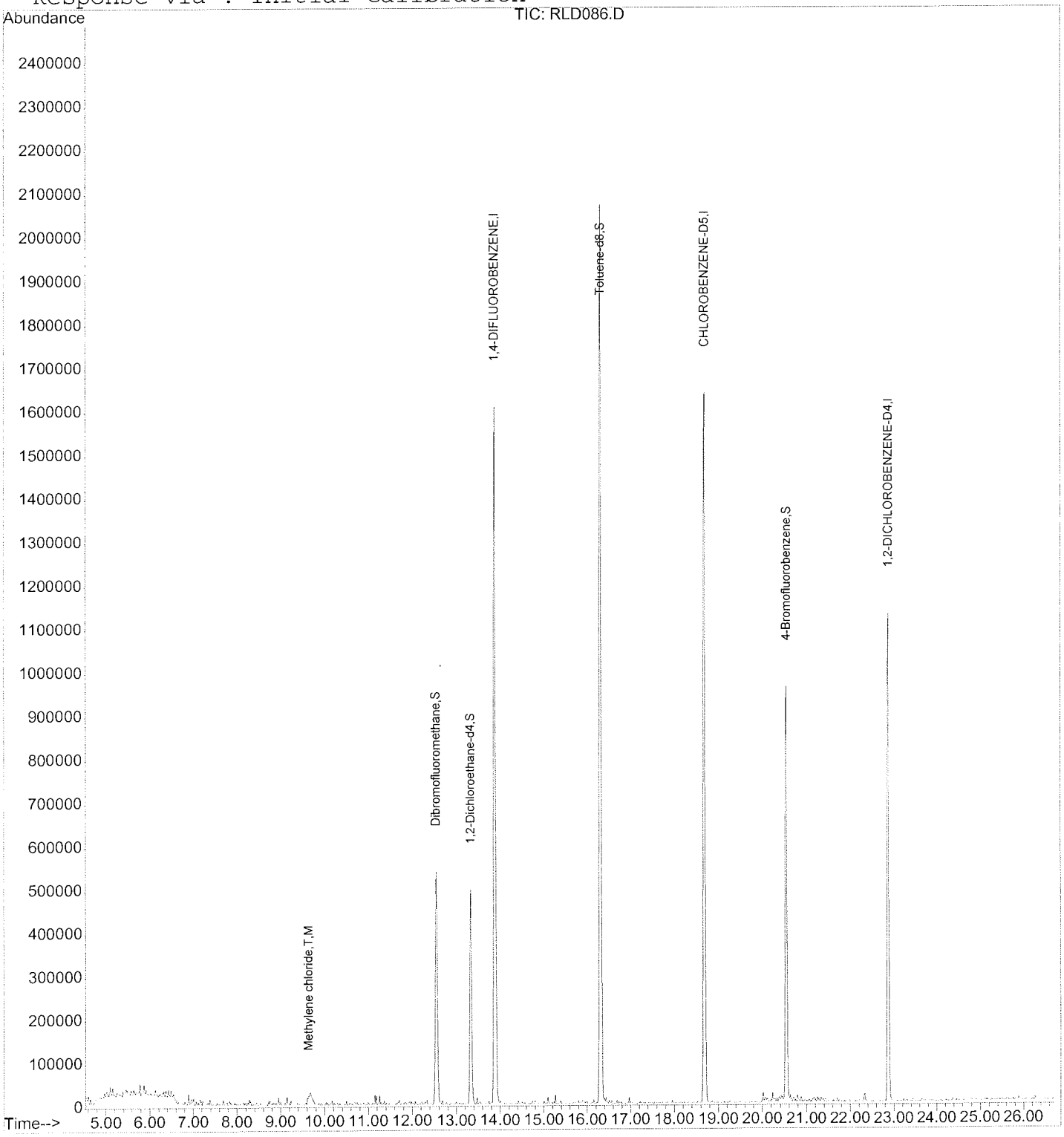
(#) = qualifier out of range (m) = manual integration

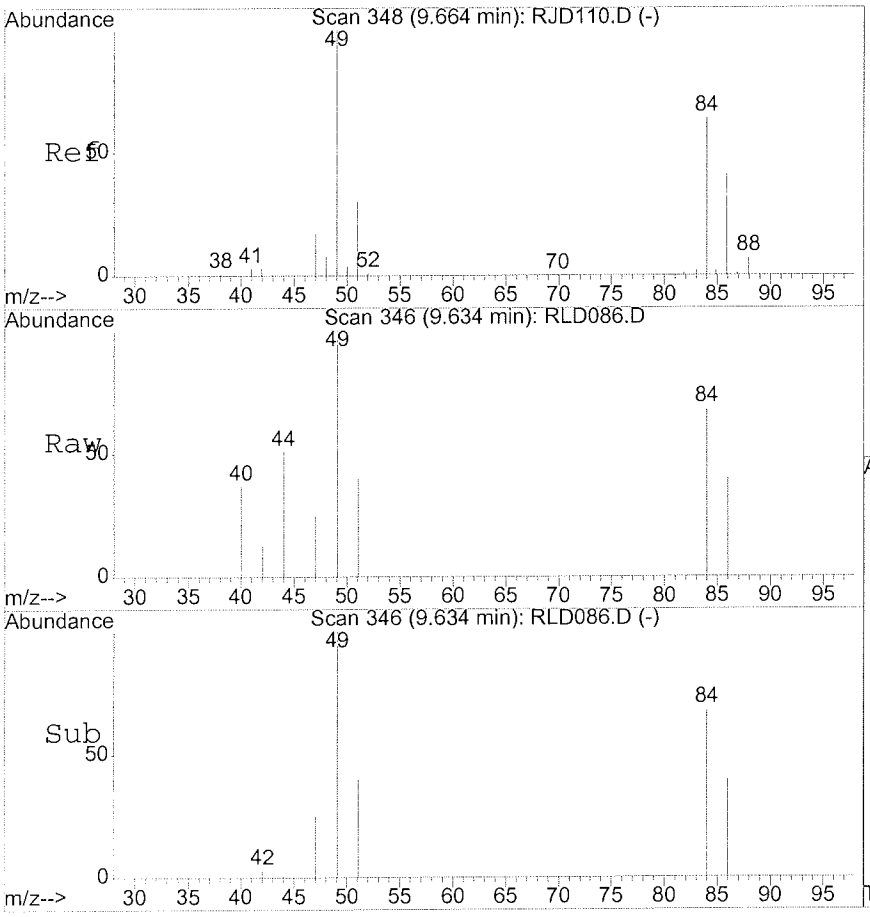
Data File : D:\HPCHEM\1\DATA\19L13\RLD086.D
Acq On : 13 Dec 2019 2:16 pm
Sample : 19L043-08 25mL
Misc : DF=1.0
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:56 2019

Vial: 9
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration

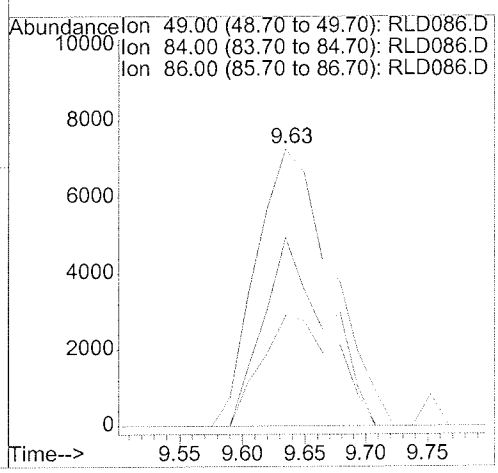




#18
Methylene chloride
Concen: 0.27 ug/l
RT: 9.63 min Scan# 346
Delta R.T. -0.03 min
Lab File: RLD086.D
Acq: 13 Dec 2019 2:16 pm

Tgt Ion: 49 Resp: 30857

Ion	Ratio	Lower	Upper
49	100		
84	56.6	33.0	93.0
86	39.2	10.1	70.1



QC SUMMARIES

METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: NA
Project : VA SALT LAKE CITY	Date Received: 12/13/19
Batch No. : 19L043	Date Extracted: 12/13/19 12:42
Sample ID: MBLK1W	Date Analyzed: 12/13/19 12:42
Lab Samp ID: V094L04B	Dilution Factor: 1
Lab File ID: RLD083	Matrix : WATER
Ext Btch ID: V094L04	% Moisture : NA
Calib. Ref.: RJD110	Instrument ID : T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	ND	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	10.3	10.00	103	70-130
BROMOFLUOROBENZENE	10.0	10.00	100	70-130
TOLUENE-D8	10.7	10.00	107	70-130
DIBROMOFLUOROMETHANE	9.76	10.00	97.6	70-130

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L043
METHOD: SW5030B/8260C

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1W
LAB SAMP ID: VO94L04B VO94L04L VO94L04C
LAB FILE ID: RLD083 RLD080 RLD081
DATE EXTRACTED: 12/13/1912:42 12/13/1911:08 12/13/1911:40 DATE COLLECTED: NA
DATE ANALYZED: 12/13/1912:42 12/13/1911:08 12/13/1911:40 DATE RECEIVED: 12/13/19
PREP. BATCH: VO94L04 VO94L04 VO94L04
CALIB. REF: RJD110 RJD110 RJD110

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1,1-Trichloroethane	ND	10.0	11.1	111	10.0	11.2	112	1	74-131	20
1,1,2,2-Tetrachloroethane	ND	10.0	11.0	110	10.0	11.2	112	2	71-121	20
1,1,2-Trichloroethane	ND	10.0	10.0	100	10.0	10.6	106	5	80-119	20
1,1-Dichloroethane	ND	10.0	10.4	104	10.0	10.5	105	1	77-125	20
1,1-Dichloroethene	ND	10.0	10.0	100	10.0	9.98	100	0	71-131	20
1,2,3-Trichlorobenzene	ND	10.0	9.18	92	10.0	9.06	91	1	69-129	20
1,2,4-Trichlorobenzene	ND	10.0	9.30	93	10.0	9.15	91	2	69-130	20
1,2,4-Trimethylbenzene	ND	10.0	10.6	106	10.0	10.7	107	1	76-124	20
1,2-Dibromo-3-chloropropane	ND	10.0	9.95	100	10.0	9.99	100	0	62-138	20
1,2-Dichlorobenzene	ND	10.0	10.2	102	10.0	10.1	101	0	80-119	20
1,2-Dichloroethane	ND	10.0	10.6	106	10.0	10.6	106	0	73-128	20
1,2-Dichloropropane	ND	10.0	10.5	105	10.0	10.5	105	1	78-122	20
1,3,5-Trimethylbenzene	ND	10.0	10.4	104	10.0	10.6	106	2	75-124	20
1,3-Dichlorobenzene	ND	10.0	10.1	101	10.0	10.2	102	1	80-119	20
1,4-Dichlorobenzene	ND	10.0	10.0	100	10.0	10.2	102	2	79-118	20
2-Butanone	ND	50.0	57.3	115	50.0	59.6	119	4	56-143	20
2-Hexanone	ND	50.0	59.9	120	50.0	60.3	121	1	57-139	20
Acetone	ND	50.0	56.8	114	50.0	57.1	114	1	39-160	20
Benzene	ND	10.0	11.2	112	10.0	11.3	113	1	79-120	20
Bromochloromethane	ND	10.0	10.2	102	10.0	10.3	103	1	78-120	20
Bromodichloromethane	ND	10.0	11.2	112	10.0	11.5	115	2	79-125	20
Bromoform	ND	10.0	10.1	101	10.0	10.1	101	1	66-130	20
Bromomethane	ND	10.0	9.20	92	10.0	9.10	91	1	53-141	20
Carbon Disulfide	ND	10.0	9.19	92	10.0	9.66	97	5	64-133	20
Carbon Tetrachloride	ND	10.0	11.4	114	10.0	11.5	115	1	72-136	20
Chlorobenzene	ND	10.0	9.89	99	10.0	10.1	101	2	82-118	20
Chloroethane	ND	10.0	10.3	103	10.0	9.80	98	5	60-138	20
Chloroform	ND	10.0	10.7	107	10.0	10.6	106	0	79-124	20
Chloromethane	ND	10.0	8.82	88	10.0	8.47	85	4	50-139	20
cis-1,2-Dichloroethylene	ND	10.0	10.6	106	10.0	10.5	105	1	78-123	20
Dibromochloromethane	ND	10.0	9.81	98	10.0	10.2	102	4	74-126	20
Dichlorodifluoromethane	ND	10.0	7.32	73	10.0	7.02	70	4	32-152	20
Ethylbenzene	ND	10.0	9.80	98	10.0	10.1	101	3	79-121	20
Isopropylbenzene	ND	10.0	10.9	109	10.0	10.8	108	2	72-131	20
m,p-Xylene	ND	20.0	20.1	100	20.0	20.7	103	3	80-121	20
4-Methyl-2-Pentanone	ND	50.0	57.9	116	50.0	58.2	116	0	67-130	20
Methylene Chloride	ND	10.0	10.2	102	10.0	10.1	101	1	74-124	20
tert-Butyl Methyl Ether	ND	10.0	10.5	105	10.0	10.3	103	2	71-124	20
o-Xylene	ND	10.0	10.1	101	10.0	10.4	104	3	78-122	20
Styrene	ND	10.0	9.97	100	10.0	10.4	104	5	78-123	20
Tetrachloroethene	ND	10.0	9.11	91	10.0	9.25	93	2	74-129	20
Toluene	ND	10.0	10.3	103	10.0	10.6	106	3	80-121	20
Trans-1,2-DCE	ND	10.0	10.3	103	10.0	10.3	103	0	75-124	20
cis-1,3-Dichloropropene	ND	10.0	11.3	113	10.0	11.4	114	1	75-124	20
Trans-1,3-Dichloropropene	ND	10.0	12.0	120	10.0	12.2	122	2	73-127	20
TCE	ND	10.0	9.92	99	10.0	9.88	99	0	79-123	20
Trichlorofluoromethane	ND	10.0	10.1	101	10.0	10.0	100	1	65-141	20
Vinyl Chloride	ND	10.0	10.1	101	10.0	9.64	96	5	58-137	20
1,2-Dibromoethane	ND	10.0	10.1	101	10.0	10.7	107	6	77-121	20
Vinyl Acetate	ND	10.0	12.2	122	10.0	12.3	123	0	54-146	20
Trichlorotrifluoroethane	ND	10.0	10.5	105	10.0	10.3	103	2	70-136	20
Methyl Acetate	ND	10.0	9.93	99	10.0	10.3	103	4	50-136	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	10.0	10.1	101	10.0	10.2	102	70-130
Bromofluorobenzene	10.0	10.2	102	10.0	10.2	102	70-130
Toluene-d8	10.0	10.4	104	10.0	10.5	105	70-130
Dibromofluoromethane	10.0	10.2	102	10.0	9.96	100	70-130

METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: NA
Project : VA SALT LAKE CITY	Date Received: 12/16/19
Batch No. : 19L043	Date Extracted: 12/16/19 14:10
Sample ID: MBLK2W	Date Analyzed: 12/16/19 14:10
Lab Samp ID: V094L05B	Dilution Factor: 1
Lab File ID: RLD105	Matrix : WATER
Ext Btch ID: V094L05	% Moisture : NA
Calib. Ref.: RJD110	Instrument ID : T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	ND	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	10.3	10.00	103	70-130
BROMOFLUOROBENZENE	10.3	10.00	103	70-130
TOLUENE-D8	10.9	10.00	109	70-130
DIBROMOFLUOROMETHANE	9.97	10.00	99.7	70-130

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L043
METHOD: SW5030B/8260C

MATRIX: WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	V094L05B	V094L05L	V094L05C		
LAB FILE ID:	RLD105	RLD102	RLD103		
DATE EXTRACTED:	12/16/1914:10	12/16/1912:36	12/16/1913:08	DATE COLLECTED:	NA
DATE ANALYZED:	12/16/1914:10	12/16/1912:36	12/16/1913:08	DATE RECEIVED:	12/16/19
PREP. BATCH:	V094L05	V094L05	V094L05		
CALIB. REF:	RJD110	RJD110	RJD110		

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1,1-Trichloroethane	ND	10.0	11.5	115	10.0	11.4	114	1	74-131	20
1,1,2,2-Tetrachloroethane	ND	10.0	11.3	113	10.0	12.0	120	6	71-121	20
1,1,2-Trichloroethane	ND	10.0	10.1	101	10.0	10.8	108	6	80-119	20
1,1-Dichloroethane	ND	10.0	10.9	109	10.0	11.0	110	1	77-125	20
1,1-Dichloroethene	ND	10.0	10.2	102	10.0	10.4	104	2	71-131	20
1,2,3-Trichlorobenzene	ND	10.0	9.29	93	10.0	9.14	91	2	69-129	20
1,2,4-Trichlorobenzene	ND	10.0	9.50	95	10.0	8.92	89	6	69-130	20
1,2,4-Trimethylbenzene	ND	10.0	11.6	116	10.0	10.9	109	6	76-124	20
1,2-Dibromo-3-chloropropane	ND	10.0	10.3	103	10.0	10.5	105	2	62-138	20
1,2-Dichlorobenzene	ND	10.0	10.4	104	10.0	10.3	103	1	80-119	20
1,2-Dichloroethane	ND	10.0	10.6	106	10.0	10.9	109	2	73-128	20
1,2-Dichloropropane	ND	10.0	10.5	105	10.0	10.7	107	2	78-122	20
1,3,5-Trimethylbenzene	ND	10.0	11.5	115	10.0	10.8	108	6	75-124	20
1,3-Dichlorobenzene	ND	10.0	10.5	105	10.0	10.3	103	2	80-119	20
1,4-Dichlorobenzene	ND	10.0	10.8	108	10.0	10.4	104	3	79-118	20
2-Butanone	ND	50.0	54.5	109	50.0	61.4	123	12	56-143	20
2-Hexanone	ND	50.0	56.0	112	50.0	62.9	126	12	57-139	20
Acetone	ND	50.0	53.5	107	50.0	60.1	120	12	39-160	20
Benzene	ND	10.0	11.6	116	10.0	11.6	116	1	79-120	20
Bromochloromethane	ND	10.0	10.3	103	10.0	10.7	107	4	78-120	20
Bromodichloromethane	ND	10.0	11.5	115	10.0	11.8	118	2	79-125	20
Bromoform	ND	10.0	10.2	102	10.0	10.4	104	1	66-130	20
Bromomethane	ND	10.0	8.82	88	10.0	8.92	89	1	53-141	20
Carbon Disulfide	ND	10.0	9.31	93	10.0	9.71	97	4	64-133	20
Carbon Tetrachloride	ND	10.0	11.7	117	10.0	11.8	118	1	72-136	20
Chlorobenzene	ND	10.0	10.2	102	10.0	10.2	102	1	82-118	20
Chloroethane	ND	10.0	10.1	101	10.0	9.83	98	3	60-138	20
Chloroform	ND	10.0	10.7	107	10.0	11.2	112	5	79-124	20
Chloromethane	ND	10.0	8.52	85	10.0	8.35	83	2	50-139	20
cis-1,2-Dichloroethylene	ND	10.0	10.7	107	10.0	10.9	109	2	78-123	20
Dibromochloromethane	ND	10.0	9.80	98	10.0	10.3	103	5	74-126	20
Dichlorodifluoromethane	ND	10.0	7.12	71	10.0	6.87	69	4	32-152	20
Ethylbenzene	ND	10.0	10.2	102	10.0	10.2	102	0	79-121	20
Isopropylbenzene	ND	10.0	11.0	110	10.0	11.1	111	1	72-131	20
m,p-Xylene	ND	20.0	21.0	105	20.0	21.3	106	1	80-121	20
4-Methyl-2-Pentanone	ND	50.0	54.3	109	50.0	60.8	122	11	67-130	20
Methylene Chloride	ND	10.0	10.3	103	10.0	10.7	107	4	74-124	20
tert-Butyl Methyl Ether	ND	10.0	10.4	104	10.0	10.7	107	4	71-124	20
o-Xylene	ND	10.0	10.5	105	10.0	10.7	107	2	78-122	20
Styrene	ND	10.0	10.5	105	10.0	10.5	105	0	78-123	20
Tetrachloroethene	ND	10.0	9.26	93	10.0	9.11	91	2	74-129	20
Toluene	ND	10.0	10.8	108	10.0	10.8	108	0	80-121	20
Trans-1,2-DCE	ND	10.0	10.7	107	10.0	10.7	107	0	75-124	20
cis-1,3-Dichloropropene	ND	10.0	11.3	113	10.0	11.7	117	3	75-124	20
Trans-1,3-Dichloropropene	ND	10.0	12.0	120	10.0	12.4	124	3	73-127	20
TCE	ND	10.0	9.99	100	10.0	10.1	101	1	79-123	20
Trichlorofluoromethane	ND	10.0	9.67	97	10.0	9.51	95	2	65-141	20
Vinyl Chloride	ND	10.0	9.68	97	10.0	9.63	96	0	58-137	20
1,2-Dibromoethane	ND	10.0	10.3	103	10.0	11.0	110	7	77-121	20
Vinyl Acetate	ND	10.0	12.0	120	10.0	11.9	119	1	54-146	20
Trichlorotrifluoroethane	ND	10.0	10.1	101	10.0	10.3	103	2	70-136	20
Methyl Acetate	ND	10.0	10.2	102	10.0	10.7	107	6	50-136	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	10.0	9.98	100	10.0	10.3	103	70-130
Bromofluorobenzene	10.0	10.6	106	10.0	10.2	102	70-130
Toluene-d8	10.0	10.5	105	10.0	10.5	105	70-130
Dibromofluoromethane	10.0	9.88	99	10.0	9.91	99	70-130

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L043
METHOD: SW5030B/8260C

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: OU2-MW02-GW120519
LAB SAMP ID: L043-07 L043-07M L043-07S
LAB FILE ID: RLD087 RLD088 RLD089
DATE EXTRACTED: 12/13/1914:47 12/13/1915:18 12/13/1915:50 DATE COLLECTED: 12/05/19
DATE ANALYZED: 12/13/1914:47 12/13/1915:18 12/13/1915:50 DATE RECEIVED: 12/06/19
PREP. BATCH: VO94L04 VO94L04 VO94L04
CALIB. REF: RJD110 RJD110 RJD110

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	SPIKE AMT (ug/L)	MSD RSLT (ug/L)	MSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1,1-Trichloroethane	ND	10.0	11.6	116	10.0	12.1	121	4	74-131	20
1,1,2,2-Tetrachloroethane	ND	10.0	11.9	119	10.0	11.8	118	1	71-121	20
1,1,2-Trichloroethane	ND	10.0	11.6	116	10.0	12.4	124*	6	80-119	20
1,1-Dichloroethane	ND	10.0	11.1	111	10.0	11.5	115	3	77-125	20
1,1-Dichloroethene	ND	10.0	10.2	102	10.0	10.6	106	3	71-131	20
1,2,3-Trichlorobenzene	ND	10.0	9.51	95	10.0	9.09	91	4	69-129	20
1,2,4-Trichlorobenzene	ND	10.0	9.10	91	10.0	9.22	92	1	69-130	20
1,2,4-Trimethylbenzene	ND	10.0	11.0	110	10.0	11.4	114	4	76-124	20
1,2-Dibromo-3-chloropropane	ND	10.0	10.8	108	10.0	10.2	102	5	62-138	20
1,2-Dichlorobenzene	ND	10.0	10.5	105	10.0	11.1	111	5	80-119	20
1,2-Dichloroethane	ND	10.0	11.2	112	10.0	11.4	114	2	73-128	20
1,2-Dichloropropane	ND	10.0	11.1	111	10.0	11.3	113	1	78-122	20
1,3,5-Trimethylbenzene	ND	10.0	10.9	109	10.0	11.2	112	3	75-124	20
1,3-Dichlorobenzene	ND	10.0	10.4	104	10.0	10.6	106	2	80-119	20
1,4-Dichlorobenzene	ND	10.0	10.2	102	10.0	10.8	108	5	79-118	20
2-Butanone	ND	50.0	61.6	123	50.0	62.6	125	2	56-143	20
2-Hexanone	ND	50.0	66.7	133	50.0	67.6	135	1	57-139	20
Acetone	ND	50.0	58.8	118	50.0	57.4	115	2	39-160	20
Benzene	ND	10.0	11.8	118	10.0	12.1	121*	3	79-120	20
Bromochloromethane	ND	10.0	11.0	110	10.0	10.9	109	1	78-120	20
Bromodichloromethane	0.400J	10.0	12.5	121	10.0	12.9	125	3	79-125	20
Bromoform	ND	10.0	10.4	104	10.0	10.8	108	4	66-130	20
Bromomethane	ND	10.0	9.40	94	10.0	9.81	98	4	53-141	20
Carbon Disulfide	ND	10.0	9.87	99	10.0	10.4	104	5	64-133	20
Carbon Tetrachloride	ND	10.0	11.9	119	10.0	12.4	124	4	72-136	20
Chlorobenzene	ND	10.0	10.5	105	10.0	11.0	110	4	82-118	20
Chloroethane	ND	10.0	10.5	105	10.0	11.2	112	6	60-138	20
Chloroform	4.92	10.0	16.5	115	10.0	16.7	118	1	79-124	20
Chloromethane	ND	10.0	9.10	91	10.0	9.80	98	7	50-139	20
cis-1,2-Dichloroethylene	0.364J	10.0	11.4	110	10.0	11.9	115	4	78-123	20
Dibromochloromethane	ND	10.0	10.4	104	10.0	10.6	106	1	74-126	20
Dichlorodifluoromethane	ND	10.0	7.89	79	10.0	8.28	83	5	32-152	20
Ethylbenzene	ND	10.0	10.3	103	10.0	10.9	109	6	79-121	20
Isopropylbenzene	ND	10.0	12.1	121	10.0	12.0	120	1	72-131	20
m,p-Xylene	ND	20.0	21.0	105	20.0	22.3	111	6	80-121	20
4-Methyl-2-Pentanone	ND	50.0	57.4	115	50.0	56.1	112	2	67-130	20
Methylene Chloride	ND	10.0	10.9	109	10.0	11.2	112	2	74-124	20
tert-Butyl Methyl Ether	ND	10.0	10.8	108	10.0	11.0	110	2	71-124	20
o-Xylene	ND	10.0	11.1	111	10.0	11.5	115	4	78-122	20
Styrene	ND	10.0	10.1	101	10.0	10.6	106	5	78-123	20
Tetrachloroethene	150	10.0	189E	390*	10.0	198E	480*	5	74-129	20
Toluene	ND	10.0	11.3	113	10.0	12.0	120	6	80-121	20
Trans-1,2-DCE	ND	10.0	10.7	107	10.0	10.9	109	2	75-124	20
cis-1,3-Dichloropropene	ND	10.0	11.3	113	10.0	11.4	114	1	75-124	20
Trans-1,3-Dichloropropene	ND	10.0	12.8	128*	10.0	13.2	132*	3	73-127	20
TCE	0.537J	10.0	10.7	101	10.0	11.3	108	5	79-123	20
Trichlorofluoromethane	ND	10.0	10.4	104	10.0	10.8	108	4	65-141	20
Vinyl Chloride	ND	10.0	10.4	104	10.0	10.9	109	5	58-137	20
1,2-Dibromoethane	ND	10.0	10.7	107	10.0	11.0	110	3	77-121	20
Vinyl Acetate	ND	10.0	7.49	75	10.0	7.92	79	6	54-146	20
Trichlorotrifluoroethane	ND	10.0	10.2	102	10.0	11.0	110	7	70-136	20
Methyl Acetate	ND	10.0	7.76	78	10.0	7.64	76	2	50-136	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	SPIKE AMT (ug/L)	MSD RSLT (ug/L)	MSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	10.0	10.5	105	10.0	10.0	100	70-130
Bromofluorobenzene	10.0	10.2	102	10.0	10.0	100	70-130
Toluene-d8	10.0	10.8	108	10.0	10.9	109	70-130
Dibromofluoromethane	10.0	10.2	102	10.0	9.86	99	70-130

Client Sample ID: OU2-MW02-GW120519DL
Laboratory Sample ID: L043-07I
Parameters: Tetrachloroethene
Dilution Factor: 10
Analysis DateTime: 12/16/19 15:12
Extraction DateTime: 12/16/19 15:12
Sample Data FN: RLD107
Calibration Data FN: RJD110
Prep. Batch: VO94L05

QC DATA

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLD083.D Vial: 6
Acq On : 13 Dec 2019 12:42 pm Operator: VLu
Sample : VO94L04B 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:48 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.88	114	1870804	10.00	ug/l	-0.02
55) CHLOROBENZENE-D5	18.69	117	1479695	10.00	ug/l	-0.02
74) 1,2-DICHLOROBENZENE-D4	22.87	152	419959	10.00	ug/l	-0.02
System Monitoring Compounds						
36) Dibromofluoromethane	12.54	111	543417	9.76	ug/l	-0.03
Spiked Amount 10.000			Recovery = 97.60%			
43) 1,2-Dichloroethane-d4	13.33	65	489557	10.26	ug/l	-0.02
Spiked Amount 10.000			Recovery = 102.60%			
56) Toluene-d8	16.31	98	2092494	10.67	ug/l	-0.02
Spiked Amount 10.000			Recovery = 106.70%			
77) 4-Bromofluorobenzene	20.54	95	579858	10.03	ug/l	-0.02
Spiked Amount 10.000			Recovery = 100.30%			
Target Compounds						Qvalue
18) Methylene chloride	9.63	49	13890	0.12	ug/l	81

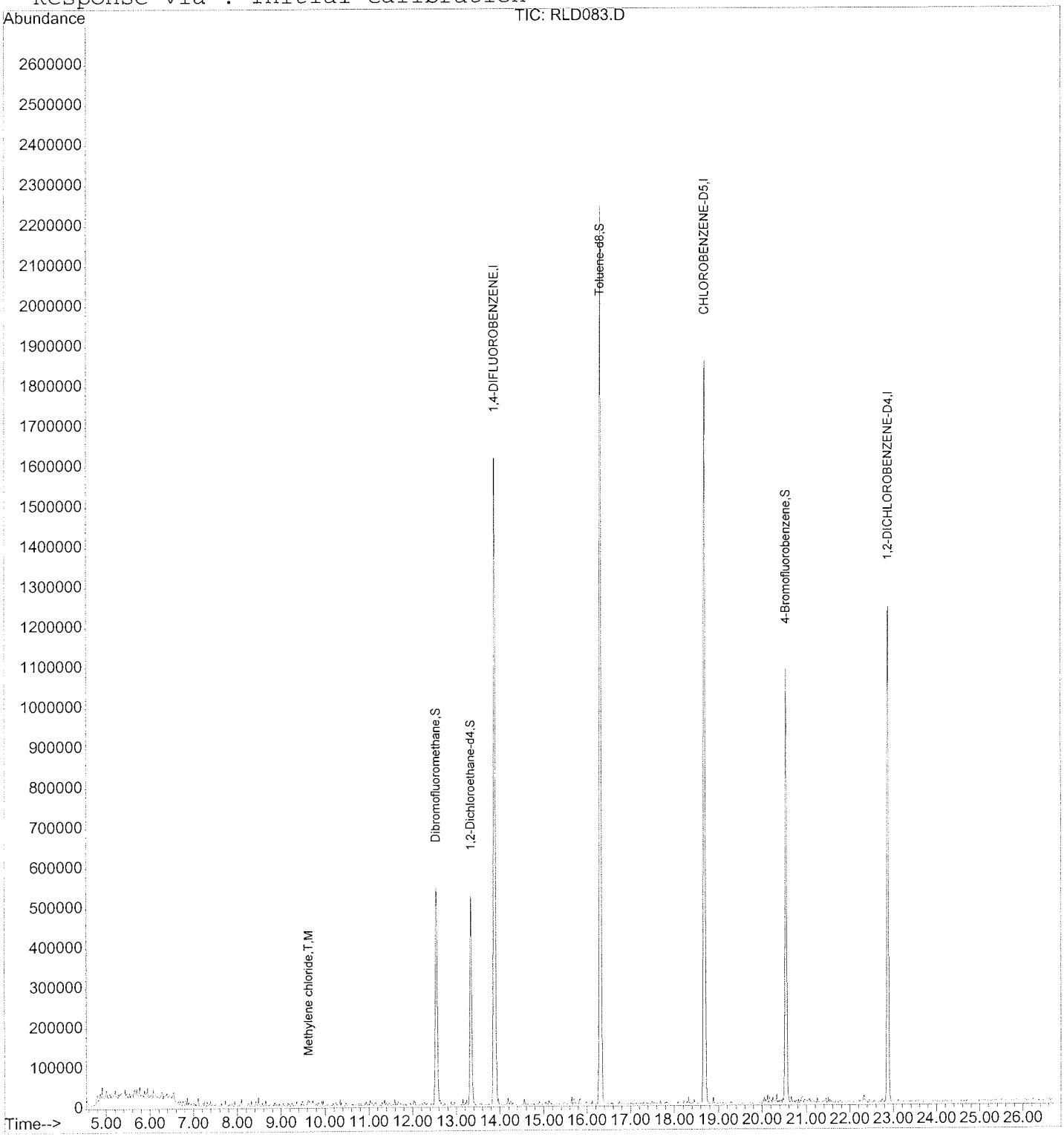
(#) = qualifier out of range (m) = manual integration

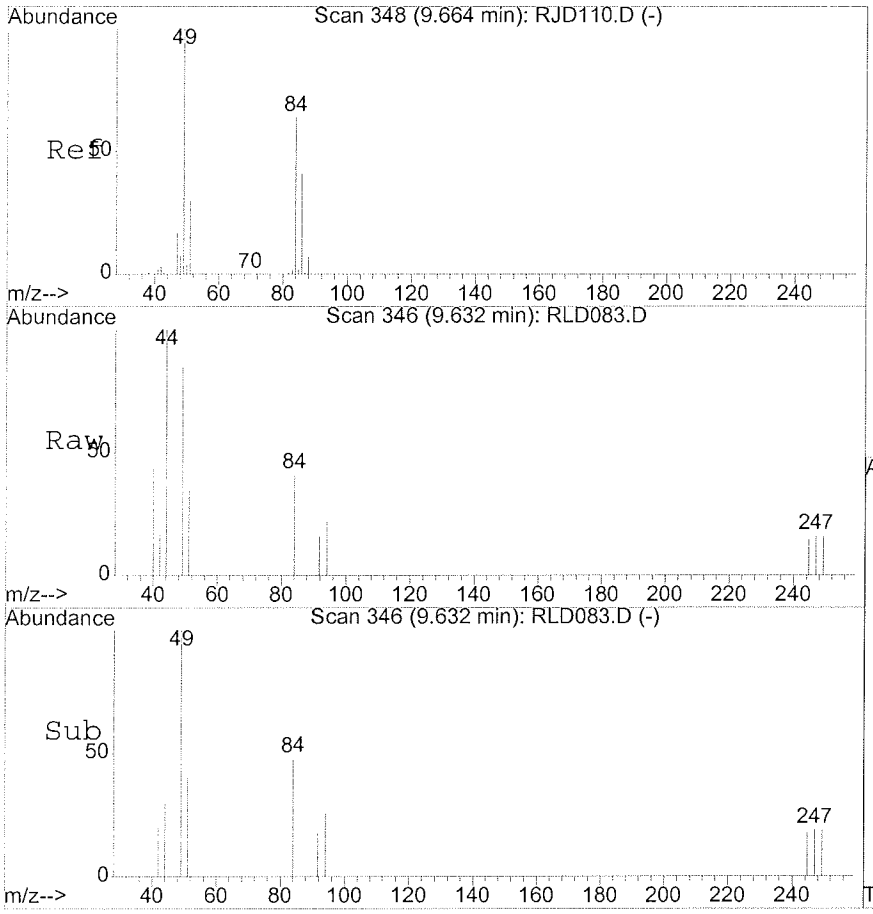
Data File : D:\HPCHEM\1\DATA\19L13\RLD083.D
Acq On : 13 Dec 2019 12:42 pm
Sample : VO94L04B 25mL
Misc : DF=1.0
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:48 2019

Vial: 6
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration

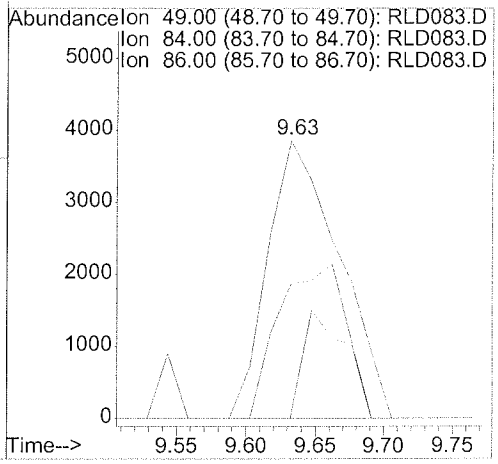




#18
Methylene chloride
Concen: 0.12 ug/l
RT: 9.63 min Scan# 346
Delta R.T. -0.03 min
Lab File: RLD083.D
Acq: 13 Dec 2019 12:42 pm

Tgt Ion: 49 Resp: 13890

Ion	Ratio	Lower	Upper
49	100		
84	52.1	33.0	93.0
86	23.2	10.1	70.1



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLD080.D Vial: 3
Acq On : 13 Dec 2019 11:08 am Operator: VLu
Sample : VO94L04L Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:48 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.88	114	1483895	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	18.68	117	1272191	10.00	ug/l	-0.03
74) 1,2-DICHLOROBENZENE-D4	22.86	152	349042	10.00	ug/l	-0.03
System Monitoring Compounds						
36) Dibromofluoromethane	12.54	111	448894	10.17	ug/l	-0.03
Spiked Amount 10.000			Recovery = 101.70%			
43) 1,2-Dichloroethane-d4	13.32	65	381693	10.08	ug/l	-0.03
Spiked Amount 10.000			Recovery = 100.80%			
56) Toluene-d8	16.30	98	1758335	10.43	ug/l	-0.03
Spiked Amount 10.000			Recovery = 104.30%			
77) 4-Bromofluorobenzene	20.53	95	491301	10.23	ug/l	-0.03
Spiked Amount 10.000			Recovery = 102.30%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.65	85	636446	7.32	ug/l	98
4) Chloromethane	5.30	50	1221031	8.82	ug/l	99
5) Vinyl chloride	5.60	62	1057037	10.09	ug/l	100
6) Bromomethane	6.70	94	608434	9.20	ug/l	99
7) Chloroethane	6.89	64	725631	10.28	ug/l	100
8) Dichlorofluoromethane	6.97	67	1644728	11.85	ug/l	100
9) Trichlorofluoromethane	7.45	101	817876	10.11	ug/l	98
10) Acrolein	8.32	56	262154	64.04	ug/l	95
11) 1,1,2-Trichloro-1,2,2-trif	8.37	151	345454	10.51	ug/l	97
12) Acetone	8.43	43	402284	56.80	ug/l	97
13) 1,1-Dichloroethene	8.74	61	1232755	10.02	ug/l	99
14) tert-Butyl alcohol	8.82	59	146639	67.23	ug/l	81
15) Acetonitrile	8.96	41	392163	105.16	ug/l	90
16) Methyl acetate	9.31	43	229444	9.93	ug/l	94
17) Iodomethane	9.37	142	822988	11.52	ug/l	100
18) Methylene chloride	9.64	49	955454	10.15	ug/l	98
19) Carbon disulfide	9.74	76	2120905	9.19	ug/l	99
20) Acrylonitrile	9.83	53	545355	53.91	ug/l	98
21) tert-Butyl methyl ether (M	9.87	73	901334	10.49	ug/l	97
22) trans-1,2-Dichloroethene	10.17	96	633412	10.26	ug/l	99
24) Isopropyl ether (DIPE)	10.62	45	2516438	11.63	ug/l	99
25) Vinyl acetate	10.83	43	922732	12.24	ug/l	98
26) 1,1-Dichloroethane	10.90	63	1304852	10.41	ug/l	100
28) tert-Butyl ethyl ether (ET	11.32	59	1450116	10.21	ug/l	99
29) 2-Butanone	11.55	72	136614	57.25	ug/l	100
30) 2,2-Dichloropropane	11.85	77	573213	11.71	ug/l	96
31) cis-1,2-Dichloroethene	11.92	96	628962	10.58	ug/l	97

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLD080.D Vial: 3
Acq On : 13 Dec 2019 11:08 am Operator: VLu
Sample : VO94L04L Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:48 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
32)	Chloroform	12.19	83	984443	10.65	ug/l	98
34)	Bromochloromethane	12.48	130	255160	10.20	ug/l	97
35)	Tetrahydrofuran	12.50	42	84363	10.83	ug/l	93
37)	1,1,1-Trichloroethane	12.84	97	680923	11.06	ug/l	87
39)	Cyclohexane	12.89	84	1056672	10.67	ug/l	97
40)	1,1-Dichloropropene	13.09	110	273770	10.12	ug/l	95
41)	tert-Amyl methyl ether (TA	13.19	87	190596	10.95	ug/l	99
42)	Carbon tetrachloride	13.28	119	563678	11.39	ug/l	99
44)	1,2-Dichloroethane	13.47	62	495822	10.64	ug/l	99
45)	Benzene	13.53	78	2441565	11.17	ug/l	99
46)	Trichloroethene	14.47	130	556517	9.92	ug/l	98
47)	Methylcyclohexane	14.58	83	1073313	9.53	ug/l	99
48)	1,2-Dichloropropane	14.72	63	608941	10.45	ug/l	100
49)	1,4-Dioxane	15.09	88	40672	221.53	ug/l	99
50)	Bromodichloromethane	15.11	83	587580	11.22	ug/l	98
51)	Dibromomethane	15.23	93	193467	9.88	ug/l	98
52)	2-Chloroethyl vinyl ether	15.45	63	183425	9.05	ug/l	99
53)	4-Methyl-2-pentanone	15.48	43	1702468	57.89	ug/l	99
54)	cis-1,3-Dichloropropene	15.89	75	819682	11.27	ug/l	97
57)	Toluene	16.43	91	2131251	10.30	ug/l	99
58)	Ethyl methacrylate	16.51	69	420018	11.44	ug/l	92
59)	trans-1,3-Dichloropropene	16.64	75	598716	11.97	ug/l	98
60)	2-Hexanone	16.82	43	1058546	59.85	ug/l	99
61)	1,1,2-Trichloroethane	16.92	97	261228	10.05	ug/l	100
62)	1,3-Dichloropropane	17.30	76	584831	10.61	ug/l	98
63)	Tetrachloroethene	17.47	164	344653	9.11	ug/l	96
64)	Dibromochloromethane	17.81	129	305381	9.81	ug/l	97
65)	1,2-Dibromoethane	18.13	107	242442	10.05	ug/l	97
66)	1-Chlorohexane	18.19	91	955049	10.84	ug/l	99
67)	Chlorobenzene	18.73	112	1266073	9.89	ug/l	99
68)	Ethylbenzene	18.76	91	2349521	9.80	ug/l	99
69)	1,1,1,2-Tetrachloroethane	18.78	131	381918	11.01	ug/l	100
70)	m-Xylene & p-Xylene	18.87	91	3312732	20.08	ug/l	98
71)	o-Xylene	19.58	91	1631763	10.11	ug/l	98
72)	Styrene	19.62	104	1242711	9.97	ug/l	99
73)	Isopropylbenzene	20.09	105	2299488	10.94	ug/l	99
75)	Bromoform	20.26	173	116860	10.08	ug/l	98
76)	1,1,2,2-Tetrachloroethane	20.36	83	322121	11.04	ug/l	96
78)	1,2,3-Trichloropropane	20.60	110	71335	10.88	ug/l	95
79)	trans-1,4-Dichloro-2-buten	20.64	53	78210	12.78	ug/l	97
80)	n-Propylbenzene	20.72	91	2723843	10.78	ug/l	99

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

Data File : D:\HPCHEM\1\DATA\19L13\RLD080.D
Acq On : 13 Dec 2019 11:08 am
Sample : VO94L04L
Misc : 10ppb 8260/50ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:48 2019

Vial: 3
Operator: VLu
Inst : 94
Multiplr: 1.00
Quant Results File: VO94J09.RES

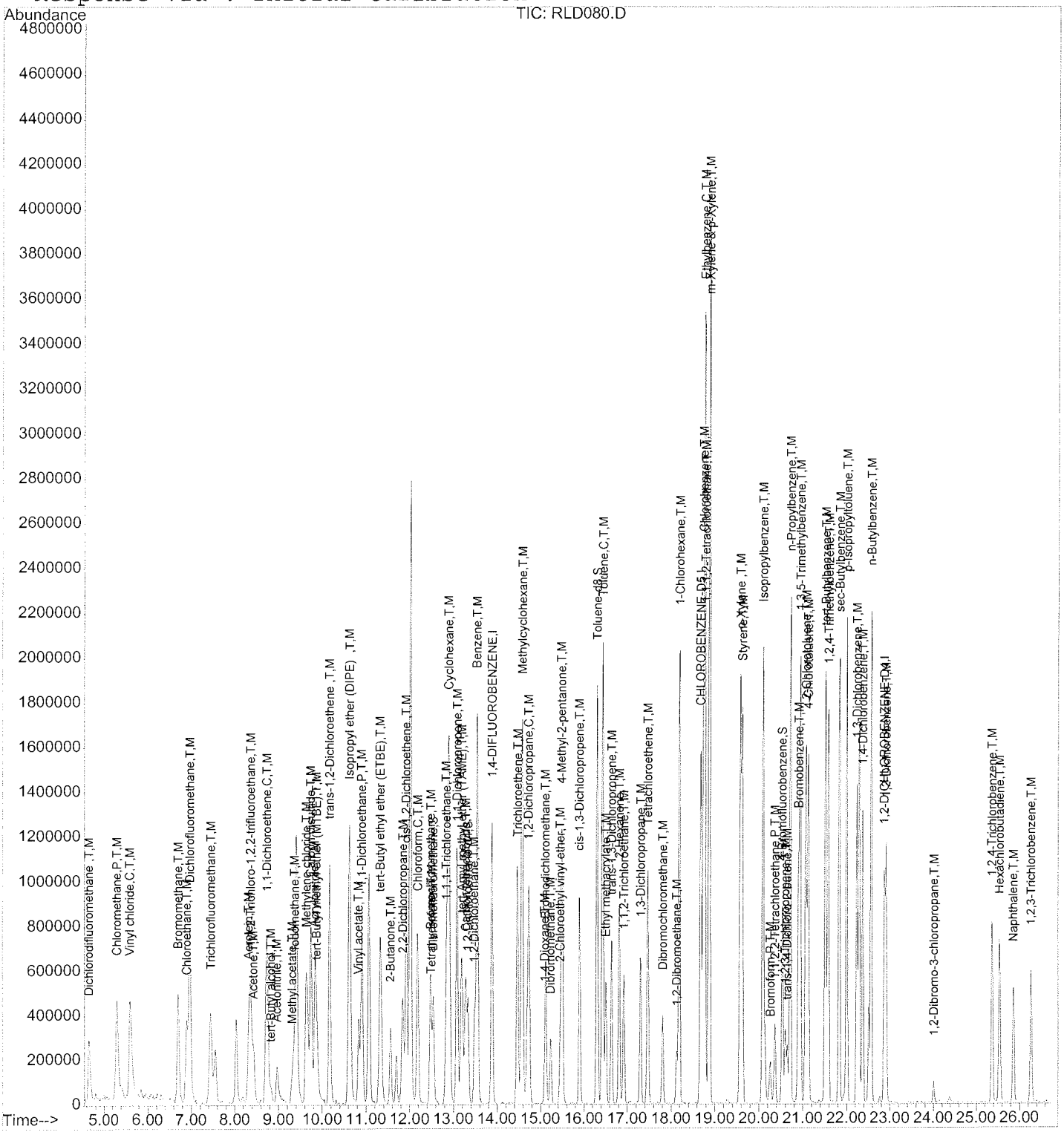
Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
81) Bromobenzene	20.91	156	335489	10.29 ug/l	97
82) 1,3,5-Trimethylbenzene	20.94	105	1556309	10.45 ug/l	98
83) 2-Chlorotoluene	21.07	91	1658534	11.71 ug/l	96
84) 4-Chlorotoluene	21.11	91	1140726	9.41 ug/l	98
85) tert-Butylbenzene	21.51	134	339090	10.24 ug/l	95
86) 1,2,4-Trimethylbenzene	21.58	105	1514884	10.61 ug/l	98
87) sec-Butylbenzene	21.83	105	2254872	10.47 ug/l	99
88) p-Isopropyltoluene	21.99	119	1774217	10.42 ug/l	100
89) 1,3-Dichlorobenzene	22.23	146	717129	10.05 ug/l	100
90) 1,4-Dichlorobenzene	22.36	146	679051	10.03 ug/l	99
91) n-Butylbenzene	22.55	91	1764526	10.16 ug/l	98
92) 1,2-Dichlorobenzene	22.90	146	590149	10.15 ug/l	99
93) 1,2-Dibromo-3-chloropropan	24.01	157	30213	9.95 ug/l	91
94) 1,2,4-Trichlorobenzene	25.36	180	366872	9.30 ug/l	98
95) Hexachlorobutadiene	25.53	225	234554	8.32 ug/l	99
96) Naphthalene	25.86	128	649233	9.97 ug/l	99
97) 1,2,3-Trichlorobenzene	26.27	180	286039	9.18 ug/l	97

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

Data File : D:\HPCHEM\1\DATA\19L13\RLD080.D Vial: 3
Acq On : 13 Dec 2019 11:08 am Operator: VLu
Sample : VO94L04L Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:48 2019 Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLD081.D Vial: 4
Acq On : 13 Dec 2019 11:40 am Operator: VLu
Sample : VO94L04C Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:49 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.88	114	1487964	10.00	ug/l	-0.02
55) CHLOROBENZENE-D5	18.69	117	1251449	10.00	ug/l	-0.02
74) 1,2-DICHLOROBENZENE-D4	22.87	152	352510	10.00	ug/l	-0.02
System Monitoring Compounds						
36) Dibromofluoromethane	12.54	111	441038	9.96	ug/l	-0.03
Spiked Amount 10.000			Recovery = 99.60%			
43) 1,2-Dichloroethane-d4	13.33	65	385498	10.15	ug/l	-0.02
Spiked Amount 10.000			Recovery = 101.50%			
56) Toluene-d8	16.31	98	1735280	10.46	ug/l	-0.02
Spiked Amount 10.000			Recovery = 104.60%			
77) 4-Bromofluorobenzene	20.53	95	495170	10.21	ug/l	-0.03
Spiked Amount 10.000			Recovery = 102.10%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.65	85	611104	7.02	ug/l	99
4) Chloromethane	5.30	50	1175840	8.47	ug/l	98
5) Vinyl chloride	5.61	62	1012655	9.64	ug/l	98
6) Bromomethane	6.70	94	603896	9.10	ug/l	98
7) Chloroethane	6.89	64	694098	9.80	ug/l	99
8) Dichlorofluoromethane	6.96	67	1642868	11.80	ug/l	99
9) Trichlorofluoromethane	7.45	101	812623	10.02	ug/l	98
10) Acrolein	8.32	56	270608	65.92	ug/l	97
11) 1,1,2-Trichloro-1,2,2-trif	8.36	151	338867	10.28	ug/l	99
12) Acetone	8.44	43	405543	57.11	ug/l	96
13) 1,1-Dichloroethene	8.73	61	1231732	9.98	ug/l	99
14) tert-Butyl alcohol	8.82	59	154530	70.66	ug/l	81
15) Acetonitrile	8.97	41	405608	108.46	ug/l	94
16) Methyl acetate	9.31	43	239276	10.32	ug/l	93
17) Iodomethane	9.37	142	826728	11.54	ug/l	97
18) Methylene chloride	9.63	49	950270	10.07	ug/l	97
19) Carbon disulfide	9.74	76	2234604	9.66	ug/l	100
20) Acrylonitrile	9.84	53	550842	54.31	ug/l	99
21) tert-Butyl methyl ether (M	9.87	73	889237	10.32	ug/l	99
22) trans-1,2-Dichloroethene	10.16	96	638156	10.30	ug/l	99
24) Isopropyl ether (DIPE)	10.62	45	2513898	11.58	ug/l	100
25) Vinyl acetate	10.84	43	928032	12.27	ug/l	99
26) 1,1-Dichloroethane	10.90	63	1315957	10.47	ug/l	99
28) tert-Butyl ethyl ether (ET	11.31	59	1457944	10.23	ug/l	100
29) 2-Butanone	11.56	72	142541	59.57	ug/l	98
30) 2,2-Dichloropropane	11.85	77	574859	11.71	ug/l	98
31) cis-1,2-Dichloroethene	11.93	96	624368	10.47	ug/l	98

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLD081.D Vial: 4
Acq On : 13 Dec 2019 11:40 am Operator: VLu
Sample : VO94L04C Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:49 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32)	Chloroform	12.18	83	986214	10.64 ug/l	98
34)	Bromochloromethane	12.48	130	257726	10.27 ug/l	98
35)	Tetrahydrofuran	12.51	42	85763	10.98 ug/l	94
37)	1,1,1-Trichloroethane	12.85	97	692172	11.21 ug/l	86
39)	Cyclohexane	12.89	84	1049343	10.57 ug/l	96
40)	1,1-Dichloropropene	13.08	110	268403	9.90 ug/l	99
41)	tert-Amyl methyl ether (TA	13.19	87	194640	11.15 ug/l	99
42)	Carbon tetrachloride	13.28	119	572836	11.55 ug/l	99
44)	1,2-Dichloroethane	13.48	62	496177	10.62 ug/l	100
45)	Benzene	13.54	78	2480078	11.31 ug/l	99
46)	Trichloroethene	14.47	130	555978	9.88 ug/l	98
47)	Methylcyclohexane	14.57	83	1083407	9.59 ug/l	98
48)	1,2-Dichloropropane	14.74	63	615261	10.53 ug/l	98
49)	1,4-Dioxane	15.09	88	38047	208.11 ug/l	96
50)	Bromodichloromethane	15.12	83	601678	11.46 ug/l	98
51)	Dibromomethane	15.24	93	192338	9.80 ug/l	98
52)	2-Chloroethyl vinyl ether	15.44	63	186585	9.19 ug/l	100
53)	4-Methyl-2-pentanone	15.49	43	1715648	58.18 ug/l	100
54)	cis-1,3-Dichloropropene	15.90	75	829191	11.37 ug/l	97
57)	Toluene	16.43	91	2152432	10.57 ug/l	99
58)	Ethyl methacrylate	16.51	69	424699	11.76 ug/l	93
59)	trans-1,3-Dichloropropene	16.64	75	600336	12.20 ug/l	99
60)	2-Hexanone	16.81	43	1048380	60.26 ug/l	100
61)	1,1,2-Trichloroethane	16.92	97	270833	10.59 ug/l	98
62)	1,3-Dichloropropane	17.30	76	584470	10.78 ug/l	99
63)	Tetrachloroethene	17.46	164	344273	9.25 ug/l	97
64)	Dibromochloromethane	17.80	129	312475	10.19 ug/l	96
65)	1,2-Dibromoethane	18.13	107	253164	10.67 ug/l	99
66)	1-Chlorohexane	18.19	91	966251	11.15 ug/l	98
67)	Chlorobenzene	18.75	112	1273903	10.12 ug/l	100
68)	Ethylbenzene	18.76	91	2386450	10.12 ug/l	98
69)	1,1,1,2-Tetrachloroethane	18.78	131	376550	11.03 ug/l	98
70)	m-Xylene & p-Xylene	18.86	91	3354086	20.67 ug/l	98
71)	o-Xylene	19.57	91	1646579	10.37 ug/l	99
72)	Styrene	19.62	104	1279605	10.44 ug/l	98
73)	Isopropylbenzene	20.08	105	2225469	10.76 ug/l	100
75)	Bromoform	20.26	173	118816	10.14 ug/l	99
76)	1,1,2,2-Tetrachloroethane	20.36	83	330833	11.23 ug/l	100
78)	1,2,3-Trichloropropane	20.60	110	70485	10.64 ug/l	99
79)	trans-1,4-Dichloro-2-buten	20.64	53	81671	13.21 ug/l	98
80)	n-Propylbenzene	20.72	91	2766107	10.84 ug/l	98

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

Data File : D:\HPCHEM\1\DATA\19L13\RLD081.D Vial: 4
Acq On : 13 Dec 2019 11:40 am Operator: VLu
Sample : VO94L04C Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:49 2019 Quant Results File: VO94J09.RES

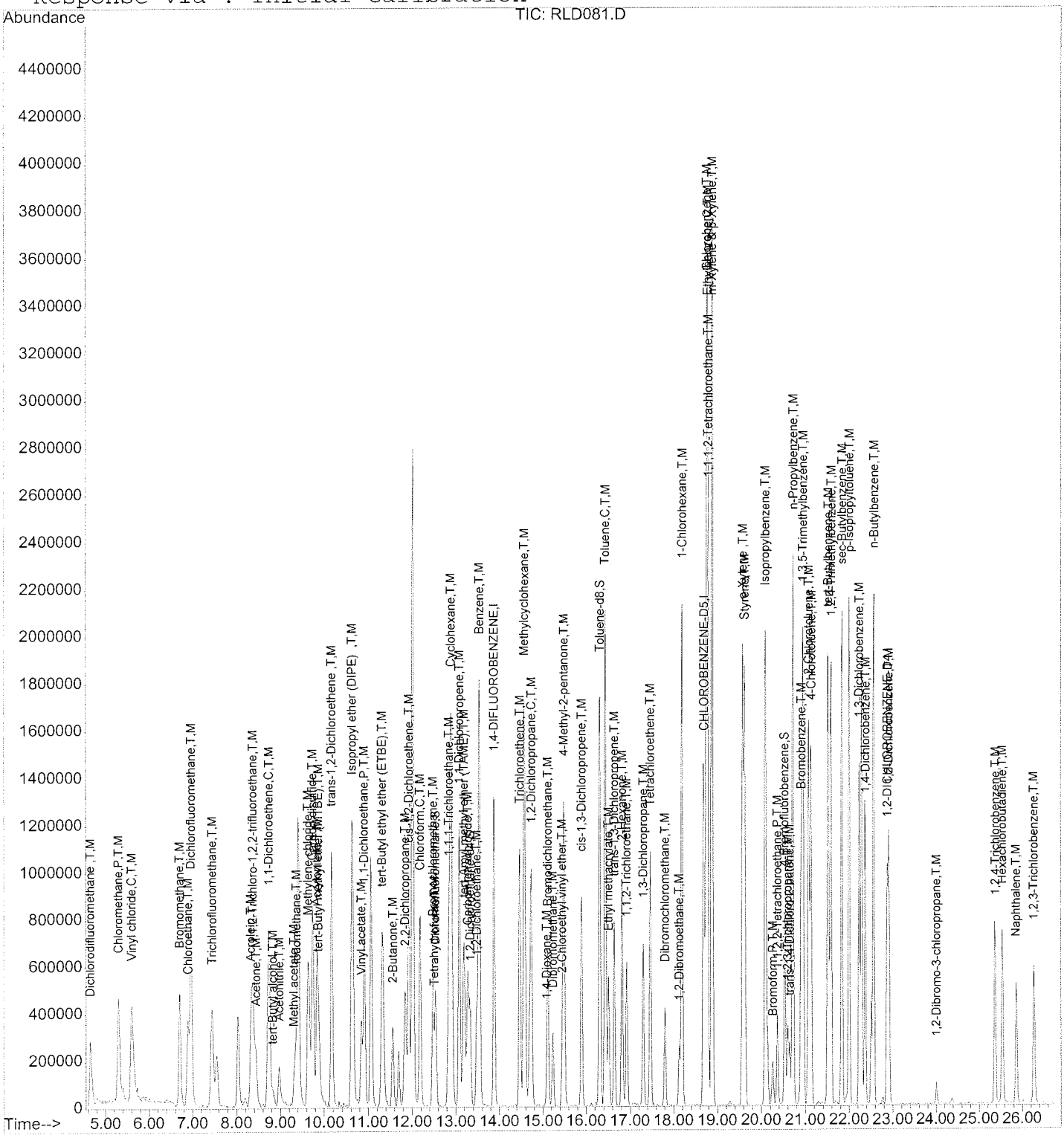
Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
81)	Bromobenzene	20.91	156	334673	10.17	ug/l	98
82)	1,3,5-Trimethylbenzene	20.94	105	1598852	10.63	ug/l	98
83)	2-Chlorotoluene	21.07	91	1621237	11.34	ug/l	97
84)	4-Chlorotoluene	21.13	91	1200236	9.81	ug/l	98
85)	tert-Butylbenzene	21.51	134	341543	10.21	ug/l	94
86)	1,2,4-Trimethylbenzene	21.58	105	1547476	10.73	ug/l	98
87)	sec-Butylbenzene	21.83	105	2283029	10.50	ug/l	99
88)	p-Isopropyltoluene	21.99	119	1760005	10.23	ug/l	100
89)	1,3-Dichlorobenzene	22.23	146	731608	10.15	ug/l	99
90)	1,4-Dichlorobenzene	22.38	146	700559	10.24	ug/l	99
91)	n-Butylbenzene	22.57	91	1809618	10.31	ug/l	99
92)	1,2-Dichlorobenzene	22.90	146	594522	10.13	ug/l	98
93)	1,2-Dibromo-3-chloropropan	24.01	157	30619	9.99	ug/l	93
94)	1,2,4-Trichlorobenzene	25.37	180	364345	9.15	ug/l	97
95)	Hexachlorobutadiene	25.53	225	233933	8.22	ug/l	99
96)	Naphthalene	25.86	128	640979	9.74	ug/l	100
97)	1,2,3-Trichlorobenzene	26.27	180	284968	9.06	ug/l	96

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

Data File : D:\HPCHEM\1\DATA\19L13\RLD081.D Vial: 4
Acq On : 13 Dec 2019 11:40 am Operator: VLu
Sample : VO94L04C Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:49 2019 Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLD105.D Vial: 6
Acq On : 16 Dec 2019 2:10 pm Operator: VLu
Sample : VO94L05B 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 17 9:43 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

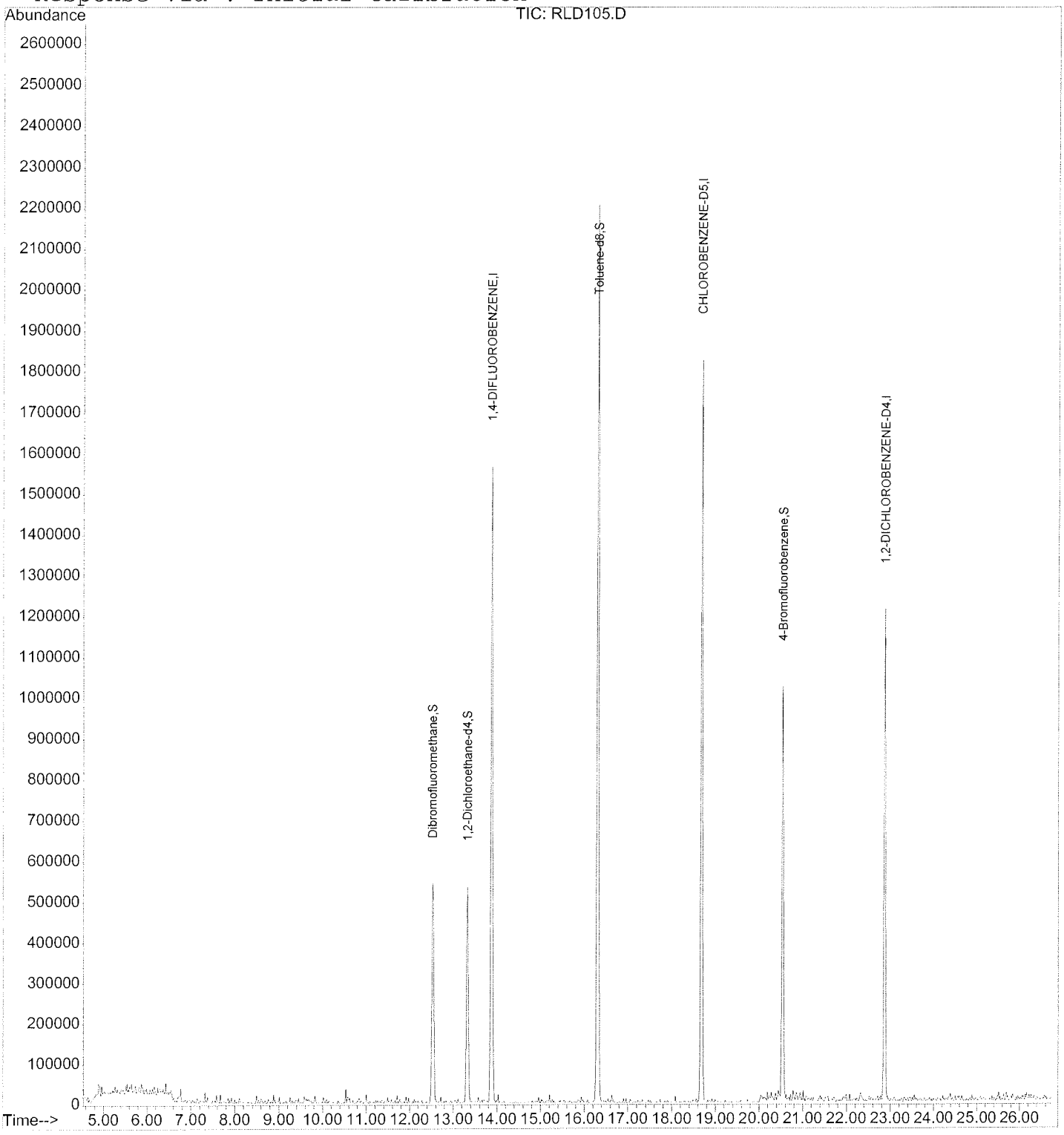
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.87	114	1822145	10.00	ug/l	-0.03
55) CHLOROBENZENE-D5	18.67	117	1402872	10.00	ug/l	-0.03
74) 1,2-DICHLOROBENZENE-D4	22.86	152	395336	10.00	ug/l	-0.03
System Monitoring Compounds						
36) Dibromofluoromethane	12.52	111	540385	9.97	ug/l	-0.05
Spiked Amount 10.000			Recovery =	99.70%		
43) 1,2-Dichloroethane-d4	13.32	65	478224	10.29	ug/l	-0.03
Spiked Amount 10.000			Recovery =	102.90%		
56) Toluene-d8	16.30	98	2031683	10.93	ug/l	-0.03
Spiked Amount 10.000			Recovery =	109.30%		
77) 4-Bromofluorobenzene	20.53	95	558422	10.26	ug/l	-0.03
Spiked Amount 10.000			Recovery =	102.60%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLD105.D VO94J09.M Tue Dec 17 09:43:26 2019 Page 1

Data File : D:\HPCHEM\1\DATA\19L16\RLD105.D Vial: 6
Acq On : 16 Dec 2019 2:10 pm Operator: VLu
Sample : VO94L05B 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 17 9:43 2019 Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLD102.D Vial: 3
Acq On : 16 Dec 2019 12:36 pm Operator: VLu
Sample : VO94L05L Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 17 9:43 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.88	114	1437407	10.00	ug/l	-0.02
55) CHLOROBENZENE-D5	18.67	117	1200720	10.00	ug/l	-0.03
74) 1,2-DICHLOROBENZENE-D4	22.86	152	308500	10.00	ug/l	-0.03
System Monitoring Compounds						
36) Dibromofluoromethane	12.54	111	422563	9.88	ug/l	-0.03
Spiked Amount 10.000			Recovery =	98.80%		
43) 1,2-Dichloroethane-d4	13.32	65	365900	9.98	ug/l	-0.03
Spiked Amount 10.000			Recovery =	99.80%		
56) Toluene-d8	16.30	98	1670257	10.49	ug/l	-0.03
Spiked Amount 10.000			Recovery =	104.90%		
77) 4-Bromofluorobenzene	20.53	95	452080	10.65	ug/l	-0.03
Spiked Amount 10.000			Recovery =	106.50%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.65	85	598575	7.12	ug/l	97
4) Chloromethane	5.30	50	1142449	8.52	ug/l	98
5) Vinyl chloride	5.59	62	982670	9.68	ug/l	100
6) Bromomethane	6.70	94	565098	8.82	ug/l	98
7) Chloroethane	6.89	64	693608	10.14	ug/l	98
8) Dichlorofluoromethane	6.96	67	1583694	11.78	ug/l	99
9) Trichlorofluoromethane	7.43	101	757570	9.67	ug/l	99
10) Acrolein	8.32	56	248550	62.68	ug/l	97
11) 1,1,2-Trichloro-1,2,2-trif	8.36	151	320940	10.08	ug/l	97
12) Acetone	8.44	43	366971	53.49	ug/l	98
13) 1,1-Dichloroethene	8.73	61	1220092	10.23	ug/l	99
14) tert-Butyl alcohol	8.82	59	136669	64.69	ug/l	81
15) Acetonitrile	8.97	41	381964	105.73	ug/l	92
16) Methyl acetate	9.31	43	227270	10.15	ug/l	97
17) Iodomethane	9.37	142	802297	11.59	ug/l	97
18) Methylene chloride	9.63	49	937003	10.28	ug/l	98
19) Carbon disulfide	9.74	76	2081243	9.31	ug/l	99
20) Acrylonitrile	9.84	53	521231	53.19	ug/l	98
21) tert-Butyl methyl ether (M	9.87	73	863664	10.37	ug/l	97
22) trans-1,2-Dichloroethene	10.16	96	637682	10.66	ug/l	99
24) Isopropyl ether (DIPE)	10.62	45	2477618	11.82	ug/l	99
25) Vinyl acetate	10.84	43	874765	11.98	ug/l	100
26) 1,1-Dichloroethane	10.90	63	1321804	10.88	ug/l	99
27) 2-Butanol	11.22	45	2549	1.26	ug/l #	59
28) tert-Butyl ethyl ether (ET	11.31	59	1418265	10.31	ug/l	99
29) 2-Butanone	11.55	72	125959	54.49	ug/l	99
30) 2,2-Dichloropropane	11.84	77	585569	12.35	ug/l	99

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

Data File : D:\HPCHEM\1\DATA\19L16\RLD102.D Vial: 3
Acq On : 16 Dec 2019 12:36 pm Operator: VLu
Sample : VO94L05L Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 17 9:43 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31)	cis-1,2-Dichloroethene	11.92	96	614282	10.66 ug/l	97
32)	Chloroform	12.18	83	956435	10.68 ug/l	99
34)	Bromochloromethane	12.48	130	248946	10.27 ug/l	99
35)	Tetrahydrofuran	12.51	42	79276	10.50 ug/l	92
37)	1,1,1-Trichloroethane	12.83	97	684645	11.48 ug/l	87
39)	Cyclohexane	12.89	84	1037324	10.82 ug/l	96
40)	1,1-Dichloropropene	13.08	110	269882	10.30 ug/l	100
41)	tert-Amyl methyl ether (TA	13.19	87	174676	10.36 ug/l	97
42)	Carbon tetrachloride	13.27	119	558963	11.66 ug/l	97
44)	1,2-Dichloroethane	13.47	62	480143	10.64 ug/l	99
45)	Benzene	13.53	78	2463445	11.63 ug/l	100
46)	Trichloroethene	14.45	130	543005	9.99 ug/l	98
47)	Methylcyclohexane	14.57	83	1046553	9.59 ug/l	99
48)	1,2-Dichloropropane	14.72	63	593394	10.51 ug/l	99
49)	1,4-Dioxane	15.07	88	34620	197.29 ug/l	91
50)	Bromodichloromethane	15.10	83	585645	11.54 ug/l	98
51)	Dibromomethane	15.22	93	185865	9.80 ug/l	94
52)	2-Chloroethyl vinyl ether	15.44	63	167734	8.55 ug/l	95
53)	4-Methyl-2-pentanone	15.49	43	1546759	54.30 ug/l	100
54)	cis-1,3-Dichloropropene	15.88	75	793181	11.26 ug/l	99
57)	Toluene	16.43	91	2114524	10.82 ug/l	100
58)	Ethyl methacrylate	16.50	69	388712	11.22 ug/l	99
59)	trans-1,3-Dichloropropene	16.64	75	566174	11.99 ug/l	97
60)	2-Hexanone	16.81	43	935149	56.02 ug/l	99
61)	1,1,2-Trichloroethane	16.92	97	248257	10.12 ug/l	99
62)	1,3-Dichloropropane	17.30	76	567778	10.92 ug/l	98
63)	Tetrachloroethene	17.46	164	330710	9.26 ug/l	95
64)	Dibromochloromethane	17.80	129	287998	9.80 ug/l	98
65)	1,2-Dibromoethane	18.13	107	234460	10.30 ug/l	96
66)	1-Chlorohexane	18.19	91	964881	11.61 ug/l	98
67)	Chlorobenzene	18.75	112	1230624	10.19 ug/l	99
68)	Ethylbenzene	18.76	91	2306684	10.20 ug/l	99
69)	1,1,1,2-Tetrachloroethane	18.78	131	355729	10.86 ug/l	96
70)	m-Xylene & p-Xylene	18.86	91	3269955	21.01 ug/l	98
71)	o-Xylene	19.57	91	1599250	10.50 ug/l	97
72)	Styrene	19.62	104	1230266	10.46 ug/l	99
73)	Isopropylbenzene	20.09	105	2179457	10.98 ug/l	99
75)	Bromoform	20.25	173	104988	10.24 ug/l	99
76)	1,1,2,2-Tetrachloroethane	20.36	83	291874	11.32 ug/l	97
78)	1,2,3-Trichloropropane	20.60	110	65189	11.25 ug/l	94
79)	trans-1,4-Dichloro-2-buten	20.64	53	75158	13.87 ug/l	98

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLD102.D Vial: 3
Acq On : 16 Dec 2019 12:36 pm Operator: VLu
Sample : VO94L05L Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 17 9:43 2019 Quant Results File: VO94J09.RES

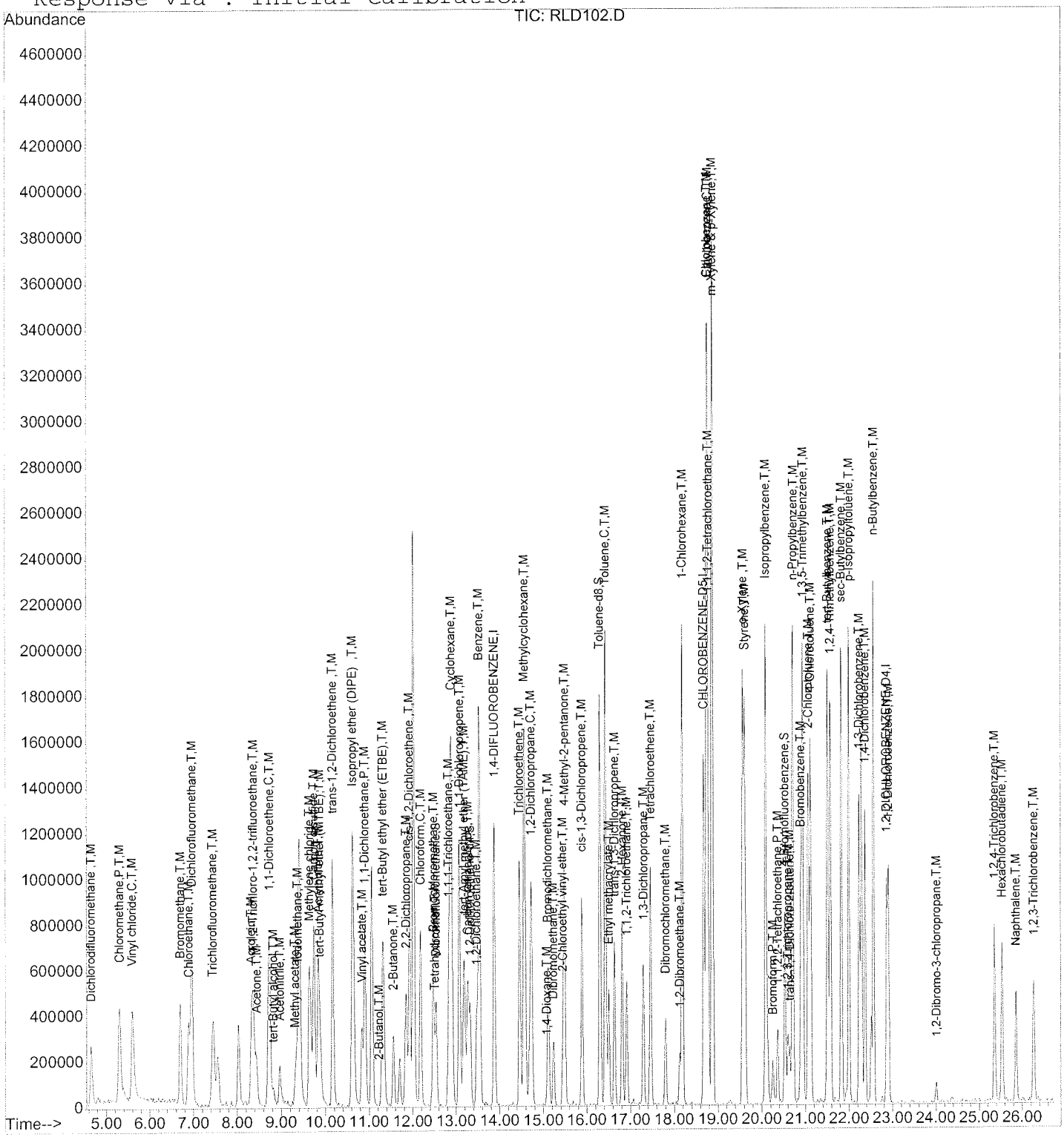
Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
80)	n-Propylbenzene	20.72	91	2701090	12.09	ug/l	98
81)	Bromobenzene	20.89	156	316521	10.99	ug/l	97
82)	1,3,5-Trimethylbenzene	20.94	105	1513933	11.50	ug/l	99
83)	2-Chlorotoluene	21.07	91	1366937	10.92	ug/l	92
84)	4-Chlorotoluene	21.11	91	1348400	12.59	ug/l	85
85)	tert-Butylbenzene	21.51	134	331497	11.32	ug/l	98
86)	1,2,4-Trimethylbenzene	21.57	105	1460522	11.57	ug/l	99
87)	sec-Butylbenzene	21.82	105	2181990	11.46	ug/l	99
88)	p-Isopropyltoluene	21.99	119	1660249	11.03	ug/l	100
89)	1,3-Dichlorobenzene	22.23	146	661711	10.49	ug/l	99
90)	1,4-Dichlorobenzene	22.36	146	646044	10.79	ug/l	100
91)	n-Butylbenzene	22.55	91	1695522	11.04	ug/l	97
92)	1,2-Dichlorobenzene	22.90	146	534175	10.40	ug/l	98
93)	1,2-Dibromo-3-chloropropan	24.01	157	27576	10.26	ug/l	91
94)	1,2,4-Trichlorobenzene	25.36	180	331163	9.50	ug/l	98
95)	Hexachlorobutadiene	25.53	225	212088	8.51	ug/l	99
96)	Naphthalene	25.86	128	585021	10.16	ug/l	100
97)	1,2,3-Trichlorobenzene	26.27	180	255865	9.29	ug/l	97

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

Data File : D:\HPCHEM\1\DATA\19L16\RLD102.D Vial: 3
Acq On : 16 Dec 2019 12:36 pm Operator: VLu
Sample : VO94L05L Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 17 9:43 2019 Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLD103.D Vial: 4
Acq On : 16 Dec 2019 1:08 pm Operator: VLu
Sample : VO94L05C Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 17 9:44 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.88	114	1414340	10.00	ug/l	-0.02
55) CHLOROBENZENE-D5	18.67	117	1190611	10.00	ug/l	-0.03
74) 1,2-DICHLOROBENZENE-D4	22.86	152	329821	10.00	ug/l	-0.03
System Monitoring Compounds						
36) Dibromofluoromethane	12.54	111	417057	9.91	ug/l	-0.03
Spiked Amount 10.000			Recovery = 99.10%			
43) 1,2-Dichloroethane-d4	13.32	65	372994	10.34	ug/l	-0.03
Spiked Amount 10.000			Recovery = 103.40%			
56) Toluene-d8	16.30	98	1650073	10.46	ug/l	-0.03
Spiked Amount 10.000			Recovery = 104.60%			
77) 4-Bromofluorobenzene	20.53	95	464469	10.23	ug/l	-0.03
Spiked Amount 10.000			Recovery = 102.30%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.65	85	567529	6.87	ug/l	99
4) Chloromethane	5.30	50	1101608	8.35	ug/l	100
5) Vinyl chloride	5.59	62	962409	9.63	ug/l	99
6) Bromomethane	6.68	94	562552	8.92	ug/l	97
7) Chloroethane	6.88	64	661815	9.83	ug/l	98
8) Dichlorofluoromethane	6.95	67	1640913	12.40	ug/l	99
9) Trichlorofluoromethane	7.44	101	733536	9.51	ug/l	99
10) Acrolein	8.31	56	266023	68.18	ug/l	97
11) 1,1,2-Trichloro-1,2,2-trif	8.35	151	323766	10.34	ug/l	99
12) Acetone	8.42	43	405862	60.13	ug/l	93
13) 1,1-Dichloroethene	8.72	61	1218812	10.39	ug/l	99
14) tert-Butyl alcohol	8.82	59	144728	69.62	ug/l	78
15) Acetonitrile	8.95	41	397173	111.74	ug/l	89
16) Methyl acetate	9.31	43	236807	10.75	ug/l	95
17) Iodomethane	9.37	142	804501	11.81	ug/l	98
18) Methylene chloride	9.63	49	963840	10.74	ug/l	99
19) Carbon disulfide	9.74	76	2135624	9.71	ug/l	99
20) Acrylonitrile	9.82	53	557693	57.84	ug/l	97
21) tert-Butyl methyl ether (M	9.85	73	880570	10.75	ug/l	97
22) trans-1,2-Dichloroethene	10.16	96	627756	10.66	ug/l	100
24) Isopropyl ether (DIPE)	10.62	45	2486593	12.05	ug/l	99
25) Vinyl acetate	10.83	43	855649	11.91	ug/l	99
26) 1,1-Dichloroethane	10.90	63	1310255	10.96	ug/l	99
27) 2-Butanol	11.30	45	16107	8.11	ug/l #	59
28) tert-Butyl ethyl ether (ET	11.31	59	1431602	10.57	ug/l	99
29) 2-Butanone	11.55	72	139717	61.43	ug/l	100
30) 2,2-Dichloropropane	11.84	77	556611	11.93	ug/l	100

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

Data File : D:\HPCHEM\1\DATA\19L16\RLD103.D Vial: 4
Acq On : 16 Dec 2019 1:08 pm Operator: VLu
Sample : VO94L05C Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 17 9:44 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
31)	cis-1,2-Dichloroethene	11.92	96	618441	10.91	ug/l	98
32)	Chloroform	12.17	83	984574	11.18	ug/l	97
34)	Bromochloromethane	12.46	130	255318	10.71	ug/l	99
35)	Tetrahydrofuran	12.49	42	85552	11.52	ug/l	95
37)	1,1,1-Trichloroethane	12.83	97	669272	11.40	ug/l	88
39)	Cyclohexane	12.89	84	1013509	10.74	ug/l	97
40)	1,1-Dichloropropene	13.07	110	269533	10.46	ug/l	98
41)	tert-Amyl methyl ether (TA	13.17	87	185513	11.18	ug/l	100
42)	Carbon tetrachloride	13.26	119	555423	11.78	ug/l	98
44)	1,2-Dichloroethane	13.47	62	482034	10.86	ug/l	99
45)	Benzene	13.53	78	2407041	11.55	ug/l	99
46)	Trichloroethene	14.46	130	541807	10.13	ug/l	98
47)	Methylcyclohexane	14.57	83	1036000	9.65	ug/l	99
48)	1,2-Dichloropropane	14.72	63	595524	10.72	ug/l	99
49)	1,4-Dioxane	15.09	88	38926	222.36	ug/l	97
50)	Bromodichloromethane	15.10	83	587100	11.76	ug/l	98
51)	Dibromomethane	15.22	93	189408	10.15	ug/l	96
52)	2-Chloroethyl vinyl ether	15.44	63	186472	9.66	ug/l	99
53)	4-Methyl-2-pentanone	15.47	43	1705508	60.85	ug/l	100
54)	cis-1,3-Dichloropropene	15.89	75	807946	11.65	ug/l	99
57)	Toluene	16.43	91	2090705	10.79	ug/l	99
58)	Ethyl methacrylate	16.50	69	419070	12.20	ug/l	98
59)	trans-1,3-Dichloropropene	16.64	75	580010	12.39	ug/l	99
60)	2-Hexanone	16.80	43	1041000	62.89	ug/l	99
61)	1,1,2-Trichloroethane	16.92	97	262327	10.78	ug/l	97
62)	1,3-Dichloropropane	17.30	76	589031	11.42	ug/l	98
63)	Tetrachloroethene	17.46	164	322418	9.11	ug/l	96
64)	Dibromochloromethane	17.80	129	299330	10.26	ug/l	97
65)	1,2-Dibromoethane	18.13	107	248728	11.02	ug/l	95
66)	1-Chlorohexane	18.19	91	942015	11.43	ug/l	97
67)	Chlorobenzene	18.73	112	1226839	10.24	ug/l	100
68)	Ethylbenzene	18.76	91	2279722	10.16	ug/l	99
69)	1,1,1,2-Tetrachloroethane	18.78	131	366273	11.28	ug/l	99
70)	m-Xylene & p-Xylene	18.86	91	3280179	21.25	ug/l	97
71)	o-Xylene	19.57	91	1621982	10.74	ug/l	98
72)	Styrene	19.62	104	1221465	10.48	ug/l	99
73)	Isopropylbenzene	20.09	105	2184352	11.10	ug/l	100
75)	Bromoform	20.25	173	113759	10.37	ug/l	98
76)	1,1,2,2-Tetrachloroethane	20.36	83	330162	11.98	ug/l	96
78)	1,2,3-Trichloropropane	20.60	110	69290	11.18	ug/l	100
79)	trans-1,4-Dichloro-2-buten	20.64	53	81859	14.13	ug/l	98

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

Data File : D:\HPCHEM\1\DATA\19L16\RLD103.D Vial: 4
Acq On : 16 Dec 2019 1:08 pm Operator: VLu
Sample : VO94L05C Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 17 9:44 2019 Quant Results File: VO94J09.RES

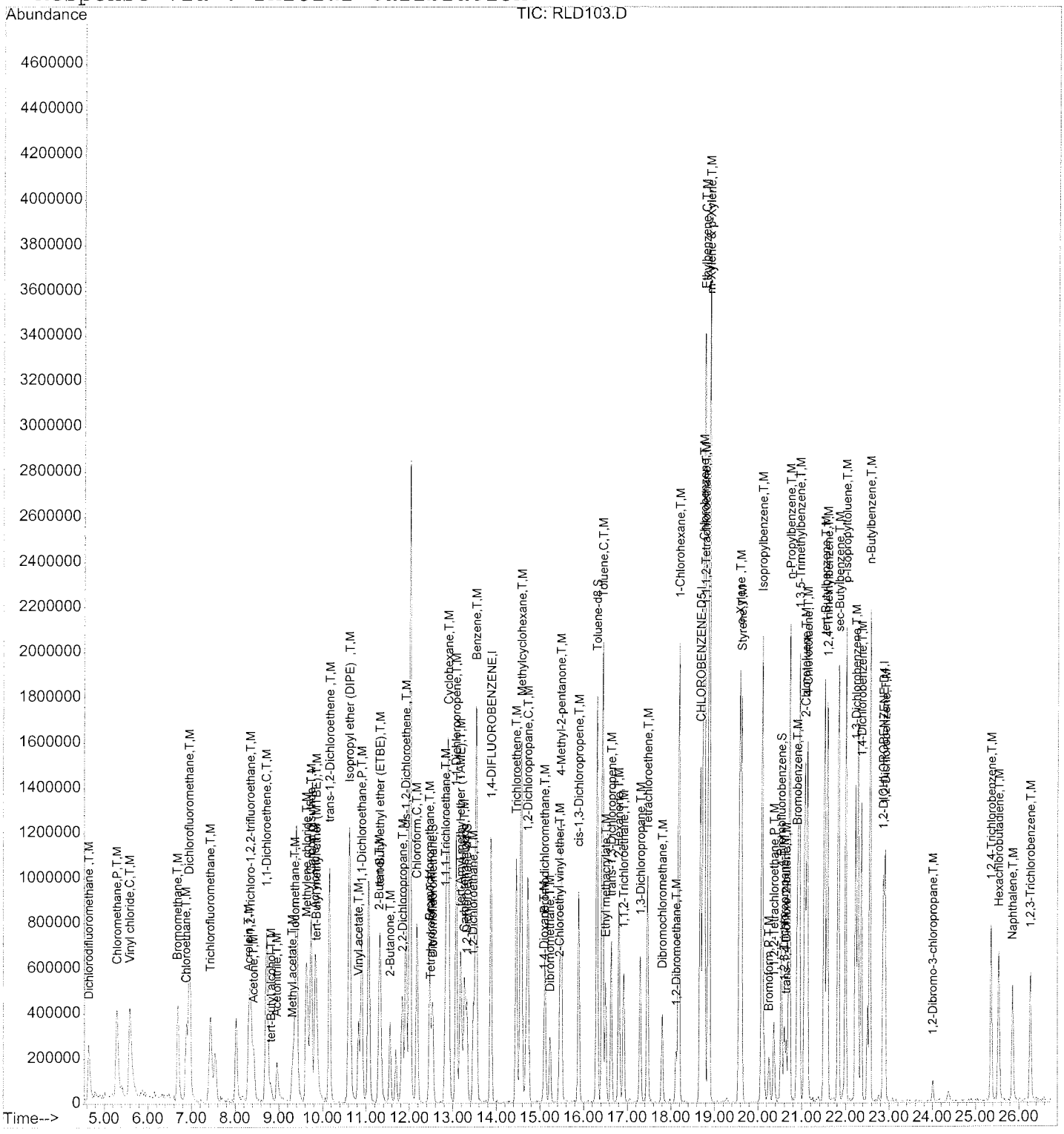
Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
80)	n-Propylbenzene	20.72	91	2665955	11.16	ug/l	98
81)	Bromobenzene	20.89	156	321724	10.45	ug/l	97
82)	1,3,5-Trimethylbenzene	20.94	105	1520517	10.80	ug/l	98
83)	2-Chlorotoluene	21.07	91	1365804	10.21	ug/l	93
84)	4-Chlorotoluene	21.11	91	1365360	11.92	ug/l	86
85)	tert-Butylbenzene	21.51	134	325970	10.42	ug/l	98
86)	1,2,4-Trimethylbenzene	21.57	105	1466789	10.87	ug/l	98
87)	sec-Butylbenzene	21.83	105	2189344	10.76	ug/l	99
88)	p-Isopropyltoluene	21.99	119	1687449	10.48	ug/l	100
89)	1,3-Dichlorobenzene	22.23	146	693302	10.28	ug/l	99
90)	1,4-Dichlorobenzene	22.36	146	667749	10.43	ug/l	98
91)	n-Butylbenzene	22.55	91	1744320	10.62	ug/l	98
92)	1,2-Dichlorobenzene	22.90	146	564811	10.28	ug/l	99
93)	1,2-Dibromo-3-chloropropan	24.01	157	30202	10.50	ug/l	94
94)	1,2,4-Trichlorobenzene	25.36	180	332452	8.92	ug/l	98
95)	Hexachlorobutadiene	25.53	225	220565	8.28	ug/l	98
96)	Naphthalene	25.86	128	612575	9.95	ug/l	99
97)	1,2,3-Trichlorobenzene	26.27	180	269150	9.14	ug/l	97

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

Data File : D:\HPCHEM\1\DATA\19L16\RLD103.D Vial: 4
Acq On : 16 Dec 2019 1:08 pm Operator: VLu
Sample : VO94L05C Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 17 9:44 2019 Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLD088.D Vial: 11
Acq On : 13 Dec 2019 3:18 pm Operator: VLu
Sample : 19L043-07M 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:51 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.89	114	1379289	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	18.69	117	1114091	10.00	ug/l	-0.01
74) 1,2-DICHLOROBENZENE-D4	22.88	152	321322	10.00	ug/l	-0.01
System Monitoring Compounds						
36) Dibromofluoromethane	12.54	111	417649	10.18	ug/l	-0.03
Spiked Amount 10.000			Recovery = 101.80%			
43) 1,2-Dichloroethane-d4	13.34	65	369080	10.49	ug/l	-0.01
Spiked Amount 10.000			Recovery = 104.90%			
56) Toluene-d8	16.32	98	1588147	10.75	ug/l	-0.01
Spiked Amount 10.000			Recovery = 107.50%			
77) 4-Bromofluorobenzene	20.54	95	449490	10.16	ug/l	-0.01
Spiked Amount 10.000			Recovery = 101.60%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.65	85	639960	7.89	ug/l	98
4) Chloromethane	5.30	50	1170446	9.10	ug/l	99
5) Vinyl chloride	5.60	62	1009781	10.37	ug/l	98
6) Bromomethane	6.70	94	578139	9.40	ug/l	97
7) Chloroethane	6.90	64	692042	10.54	ug/l	99
8) Dichlorofluoromethane	6.97	67	1576312	12.22	ug/l	99
9) Trichlorofluoromethane	7.44	101	784174	10.43	ug/l	97
10) Acrolein	8.33	56	218761	57.49	ug/l	93
11) 1,1,2-Trichloro-1,2,2-trif	8.36	151	312836	10.24	ug/l	98
12) Acetone	8.44	43	387132	58.81	ug/l	96
13) 1,1-Dichloroethene	8.74	61	1167584	10.21	ug/l	99
14) tert-Butyl alcohol	8.83	59	145208	71.63	ug/l	82
15) Acetonitrile	8.97	41	373173	107.65	ug/l	86
16) Methyl acetate	9.31	43	166704	7.76	ug/l	98
17) Iodomethane	9.37	142	785079	11.82	ug/l	98
18) Methylene chloride	9.64	49	955286	10.92	ug/l	98
19) Carbon disulfide	9.74	76	2117821	9.87	ug/l	100
20) Acrylonitrile	9.83	53	550696	58.57	ug/l	98
21) tert-Butyl methyl ether (M	9.87	73	863507	10.81	ug/l	98
22) trans-1,2-Dichloroethene	10.17	96	615817	10.73	ug/l	99
24) Isopropyl ether (DIPE)	10.63	45	2478889	12.32	ug/l	100
25) Vinyl acetate	10.85	43	524845	7.49	ug/l	99
26) 1,1-Dichloroethane	10.91	63	1296653	11.13	ug/l	98
28) tert-Butyl ethyl ether (ET	11.32	59	1408103	10.66	ug/l	99
29) 2-Butanone	11.56	72	136730	61.65	ug/l	96
30) 2,2-Dichloropropane	11.85	77	463982	10.19	ug/l	97
31) cis-1,2-Dichloroethene	11.94	96	630744	11.41	ug/l	98

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

Data File : D:\HPCHEM\1\DATA\19L13\RLD088.D Vial: 11
Acq On : 13 Dec 2019 3:18 pm Operator: VLu
Sample : 19L043-07M 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:51 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
32)	Chloroform	12.19	83	1414572	16.47 ug/l		99
34)	Bromochloromethane	12.48	130	256370	11.02 ug/l		98
35)	Tetrahydrofuran	12.51	42	85181	11.76 ug/l		93
37)	1,1,1-Trichloroethane	12.85	97	664596	11.61 ug/l		86
39)	Cyclohexane	12.90	84	996669	10.83 ug/l		96
40)	1,1-Dichloropropene	13.09	110	266167	10.59 ug/l		96
41)	tert-Amyl methyl ether (TA	13.19	87	178458	11.03 ug/l		98
42)	Carbon tetrachloride	13.28	119	546072	11.88 ug/l		100
44)	1,2-Dichloroethane	13.49	62	484951	11.20 ug/l		98
45)	Benzene	13.55	78	2388096	11.75 ug/l		99
46)	Trichloroethene	14.48	130	556422	10.67 ug/l		98
47)	Methylcyclohexane	14.58	83	1005944	9.61 ug/l		99
48)	1,2-Dichloropropane	14.74	63	601929	11.12 ug/l		98
49)	1,4-Dioxane	15.09	88	37713	221.04 ug/l		94
50)	Bromodichloromethane	15.12	83	606444	12.46 ug/l		100
51)	Dibromomethane	15.24	93	189259	10.40 ug/l		97
52)	2-Chloroethyl vinyl ether	15.49	63	3188	0.17 ug/l	#	1
53)	4-Methyl-2-pentanone	15.49	43	1570235	57.45 ug/l		96
54)	cis-1,3-Dichloropropene	15.91	75	764011	11.30 ug/l		99
57)	Toluene	16.44	91	2055032	11.34 ug/l		100
58)	Ethyl methacrylate	16.51	69	426316	13.26 ug/l		97
59)	trans-1,3-Dichloropropene	16.64	75	559492	12.77 ug/l		100
60)	2-Hexanone	16.82	43	1033114	66.71 ug/l		99
61)	1,1,2-Trichloroethane	16.92	97	264127	11.60 ug/l		99
62)	1,3-Dichloropropane	17.31	76	567782	11.77 ug/l		100
63)	Tetrachloroethene	17.47	164	6257030	188.84 ug/l		96
64)	Dibromochloromethane	17.81	129	284980	10.43 ug/l		96
65)	1,2-Dibromoethane	18.13	107	226931	10.74 ug/l		97
66)	1-Chlorohexane	18.19	91	804131	10.42 ug/l		98
67)	Chlorobenzene	18.75	112	1179042	10.52 ug/l		99
68)	Ethylbenzene	18.77	91	2163110	10.30 ug/l		99
69)	1,1,1,2-Tetrachloroethane	18.78	131	348012	11.45 ug/l		97
70)	m-Xylene & p-Xylene	18.87	91	3027399	20.96 ug/l		99
71)	o-Xylene	19.58	91	1567467	11.09 ug/l		97
72)	Styrene	19.62	104	1102652	10.11 ug/l		99
73)	Isopropylbenzene	20.10	105	2224800	12.08 ug/l		98
75)	Bromoform	20.26	173	110820	10.37 ug/l		98
76)	1,1,2,2-Tetrachloroethane	20.37	83	320512	11.94 ug/l		98
78)	1,2,3-Trichloropropane	20.60	110	66961	11.09 ug/l		98
79)	trans-1,4-Dichloro-2-buten	20.64	53	73302	13.01 ug/l		97
80)	n-Propylbenzene	20.72	91	2510714	10.79 ug/l		99

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

Data File : D:\HPCHEM\1\DATA\19L13\RLD088.D Vial: 11
Acq On : 13 Dec 2019 3:18 pm Operator: VLu
Sample : 19L043-07M 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:51 2019 Quant Results File: VO94J09.RES

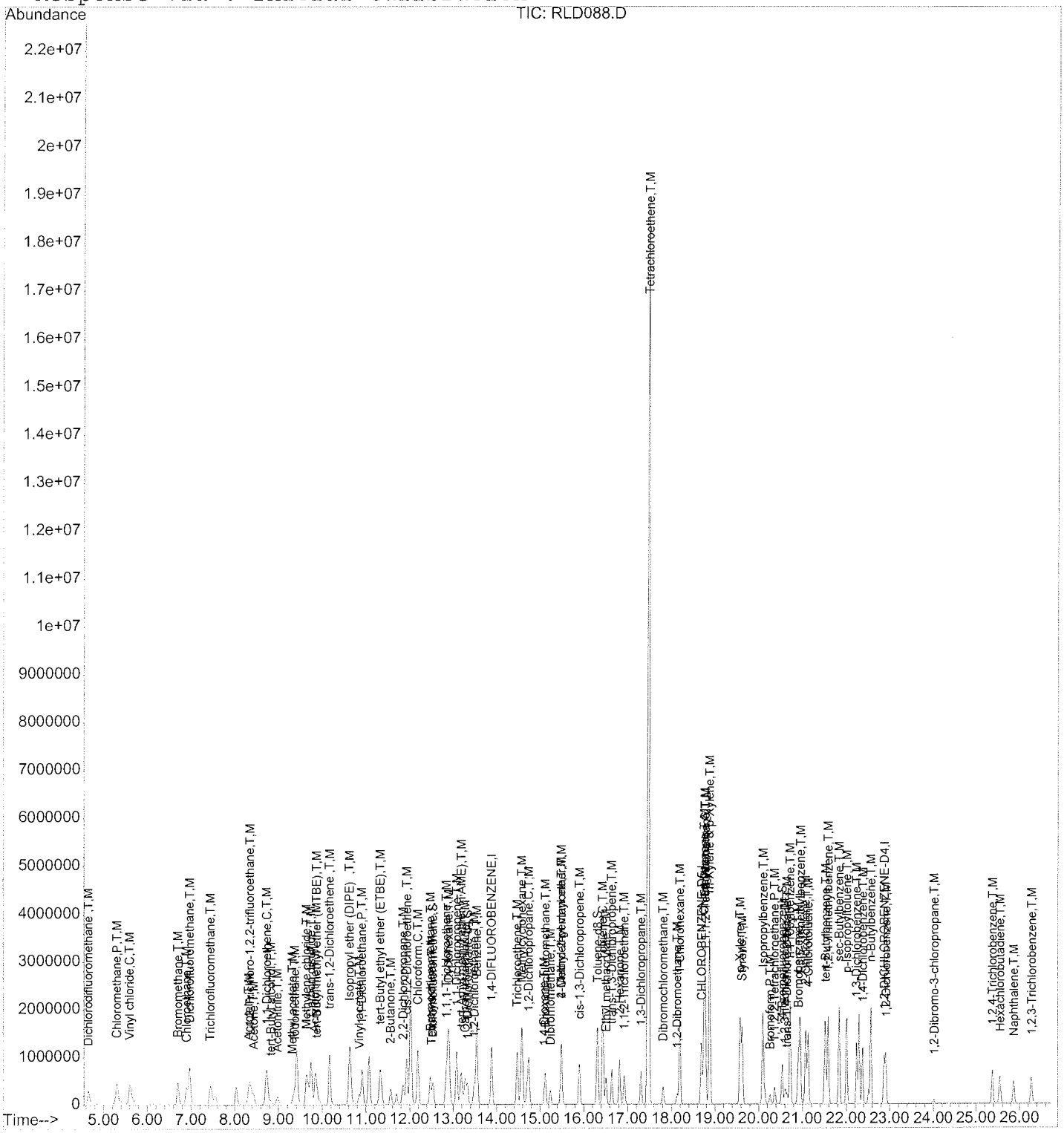
Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
81)	Bromobenzene	20.91	156	329113	10.97 ug/l	99
82)	1,3,5-Trimethylbenzene	20.95	105	1494169	10.90 ug/l	99
83)	2-Chlorotoluene	21.07	91	1436500	11.02 ug/l	98
84)	4-Chlorotoluene	21.13	91	1200808	10.76 ug/l	97
85)	tert-Butylbenzene	21.53	134	325679	10.68 ug/l	100
86)	1,2,4-Trimethylbenzene	21.58	105	1442538	10.97 ug/l	97
87)	sec-Butylbenzene	21.83	105	2105618	10.62 ug/l	99
88)	p-Isopropyltoluene	22.01	119	1601369	10.21 ug/l	100
89)	1,3-Dichlorobenzene	22.23	146	681038	10.37 ug/l	99
90)	1,4-Dichlorobenzene	22.38	146	637753	10.23 ug/l	99
91)	n-Butylbenzene	22.57	91	1551301	9.70 ug/l	99
92)	1,2-Dichlorobenzene	22.92	146	562207	10.51 ug/l	99
93)	1,2-Dibromo-3-chloropropan	24.02	157	30200	10.77 ug/l	94
94)	1,2,4-Trichlorobenzene	25.37	180	330159	9.10 ug/l	97
95)	Hexachlorobutadiene	25.55	225	193511	7.46 ug/l	100
96)	Naphthalene	25.87	128	611333	10.20 ug/l	99
97)	1,2,3-Trichlorobenzene	26.28	180	272751	9.51 ug/l	97

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

Data File : D:\HPCHEM\1\DATA\19L13\RLD088.D Vial: 11
Acq On : 13 Dec 2019 3:18 pm Operator: VLu
Sample : 19L043-07M 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:51 2019 Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLD089.D Vial: 12
Acq On : 13 Dec 2019 3:50 pm Operator: VLu
Sample : 19L043-07S 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:51 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.88	114	1331039	10.00	ug/l	-0.02
55) CHLOROBENZENE-D5	18.69	117	1041910	10.00	ug/l	-0.02
74) 1,2-DICHLOROBENZENE-D4	22.88	152	303740	10.00	ug/l	-0.01
System Monitoring Compounds						
36) Dibromofluoromethane	12.54	111	390621	9.86	ug/l	-0.03
Spiked Amount 10.000			Recovery = 98.60%			
43) 1,2-Dichloroethane-d4	13.33	65	340470	10.02	ug/l	-0.02
Spiked Amount 10.000			Recovery = 100.20%			
56) Toluene-d8	16.31	98	1510505	10.94	ug/l	-0.02
Spiked Amount 10.000			Recovery = 109.40%			
77) 4-Bromofluorobenzene	20.54	95	418612	10.01	ug/l	-0.01
Spiked Amount 10.000			Recovery = 100.10%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.65	85	648882	8.28	ug/l	98
4) Chloromethane	5.30	50	1217156	9.80	ug/l	98
5) Vinyl chloride	5.61	62	1027772	10.93	ug/l	100
6) Bromomethane	6.70	94	582533	9.81	ug/l	97
7) Chloroethane	6.89	64	711342	11.23	ug/l	99
8) Dichlorofluoromethane	6.95	67	1575917	12.66	ug/l	100
9) Trichlorofluoromethane	7.45	101	784966	10.82	ug/l	98
10) Acrolein	8.32	56	202151	55.05	ug/l	87
11) 1,1,2-Trichloro-1,2,2-trif	8.35	151	323094	10.96	ug/l	98
12) Acetone	8.44	43	364837	57.43	ug/l	96
13) 1,1-Dichloroethene	8.72	61	1165733	10.56	ug/l	99
14) tert-Butyl alcohol	8.82	59	132771	67.87	ug/l	94
15) Acetonitrile	8.97	41	401535	120.03	ug/l	98
16) Methyl acetate	9.31	43	158417	7.64	ug/l ✓	100
17) Iodomethane	9.37	142	785319	12.25	ug/l	99
18) Methylene chloride	9.63	49	942079	11.16	ug/l	99
19) Carbon disulfide	9.74	76	2142680	10.35	ug/l	99
20) Acrylonitrile	9.82	53	527149	58.10	ug/l	97
21) tert-Butyl methyl ether (M	9.87	73	850796	11.04	ug/l	97
22) trans-1,2-Dichloroethene	10.16	96	605295	10.93	ug/l	99
24) Isopropyl ether (DIPE)	10.62	45	2416874	12.45	ug/l	99
25) Vinyl acetate	10.83	43	535498	7.92	ug/l	98
26) 1,1-Dichloroethane	10.90	63	1288738	11.46	ug/l	99
28) tert-Butyl ethyl ether (ET	11.31	59	1380279	10.83	ug/l	100
29) 2-Butanone	11.55	72	134041	62.62	ug/l	98
30) 2,2-Dichloropropane	11.84	77	458086	10.43	ug/l	97
31) cis-1,2-Dichloroethene	11.93	96	633015	11.87	ug/l	98

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLD089.D Vial: 12
Acq On : 13 Dec 2019 3:50 pm Operator: VLu
Sample : 19L043-07S 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:51 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32)	Chloroform	12.18	83	1385558	16.71 ug/l	99
34)	Bromochloromethane	12.48	130	245040	10.92 ug/l	97
35)	Tetrahydrofuran	12.51	42	80762	11.56 ug/l	92
37)	1,1,1-Trichloroethane	12.85	97	668231	12.10 ug/l	87
39)	Cyclohexane	12.89	84	967324	10.89 ug/l	97
40)	1,1-Dichloropropene	13.08	110	255951	10.55 ug/l	98
41)	tert-Amyl methyl ether (TA	13.19	87	177533	11.37 ug/l	99
42)	Carbon tetrachloride	13.27	119	549575	12.39 ug/l	99
44)	1,2-Dichloroethane	13.48	62	477396	11.43 ug/l	99
45)	Benzene	13.54	78	2382205	12.15 ug/l	99
46)	Trichloroethene	14.47	130	568572	11.29 ug/l	99
47)	Methylcyclohexane	14.57	83	1005702	9.96 ug/l	99
48)	1,2-Dichloropropane	14.73	63	588318	11.26 ug/l	100
49)	1,4-Dioxane	15.09	88	35550	216.42 ug/l	99
50)	Bromodichloromethane	15.12	83	606345	12.91 ug/l	98
51)	Dibromomethane	15.24	93	185220	10.55 ug/l	97
53)	4-Methyl-2-pentanone	15.49	43	1478852	56.06 ug/l	95
54)	cis-1,3-Dichloropropene	15.90	75	743219	11.39 ug/l	99
57)	Toluene	16.43	91	2034178	12.00 ug/l	100
58)	Ethyl methacrylate	16.50	69	405278	13.48 ug/l	97
59)	trans-1,3-Dichloropropene	16.64	75	540113	13.18 ug/l	99
60)	2-Hexanone	16.81	43	979409	67.62 ug/l	100
61)	1,1,2-Trichloroethane	16.92	97	263039	12.35 ug/l	98
62)	1,3-Dichloropropane	17.30	76	568371	12.59 ug/l	98
63)	Tetrachloroethene	17.46	164	6137114	198.06 ug/l	97
64)	Dibromochloromethane	17.80	129	270365	10.58 ug/l	97
65)	1,2-Dibromoethane	18.13	107	218093	11.04 ug/l	96
66)	1-Chlorohexane	18.19	91	789834	10.95 ug/l	98
67)	Chlorobenzene	18.75	112	1148914	10.96 ug/l	99
68)	Ethylbenzene	18.76	91	2141279	10.91 ug/l	99
69)	1,1,1,2-Tetrachloroethane	18.78	131	342696	12.06 ug/l	98
70)	m-Xylene & p-Xylene	18.88	91	3010562	22.29 ug/l	98
71)	o-Xylene	19.57	91	1526176	11.54 ug/l	98
72)	Styrene	19.63	104	1082158	10.61 ug/l	99
73)	Isopropylbenzene	20.10	105	2067000	12.00 ug/l	99
75)	Bromoform	20.26	173	109555	10.82 ug/l	100
76)	1,1,2,2-Tetrachloroethane	20.36	83	298613	11.76 ug/l	100
78)	1,2,3-Trichloropropane	20.60	110	64201	11.25 ug/l	98
79)	trans-1,4-Dichloro-2-buten	20.64	53	69547	13.06 ug/l	100
80)	n-Propylbenzene	20.72	91	2490316	11.32 ug/l	98
81)	Bromobenzene	20.91	156	318515	11.23 ug/l	100

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

Data File : D:\HPCHEM\1\DATA\19L13\RLD089.D Vial: 12
Acq On : 13 Dec 2019 3:50 pm Operator: VLu
Sample : 19L043-07S 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:51 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

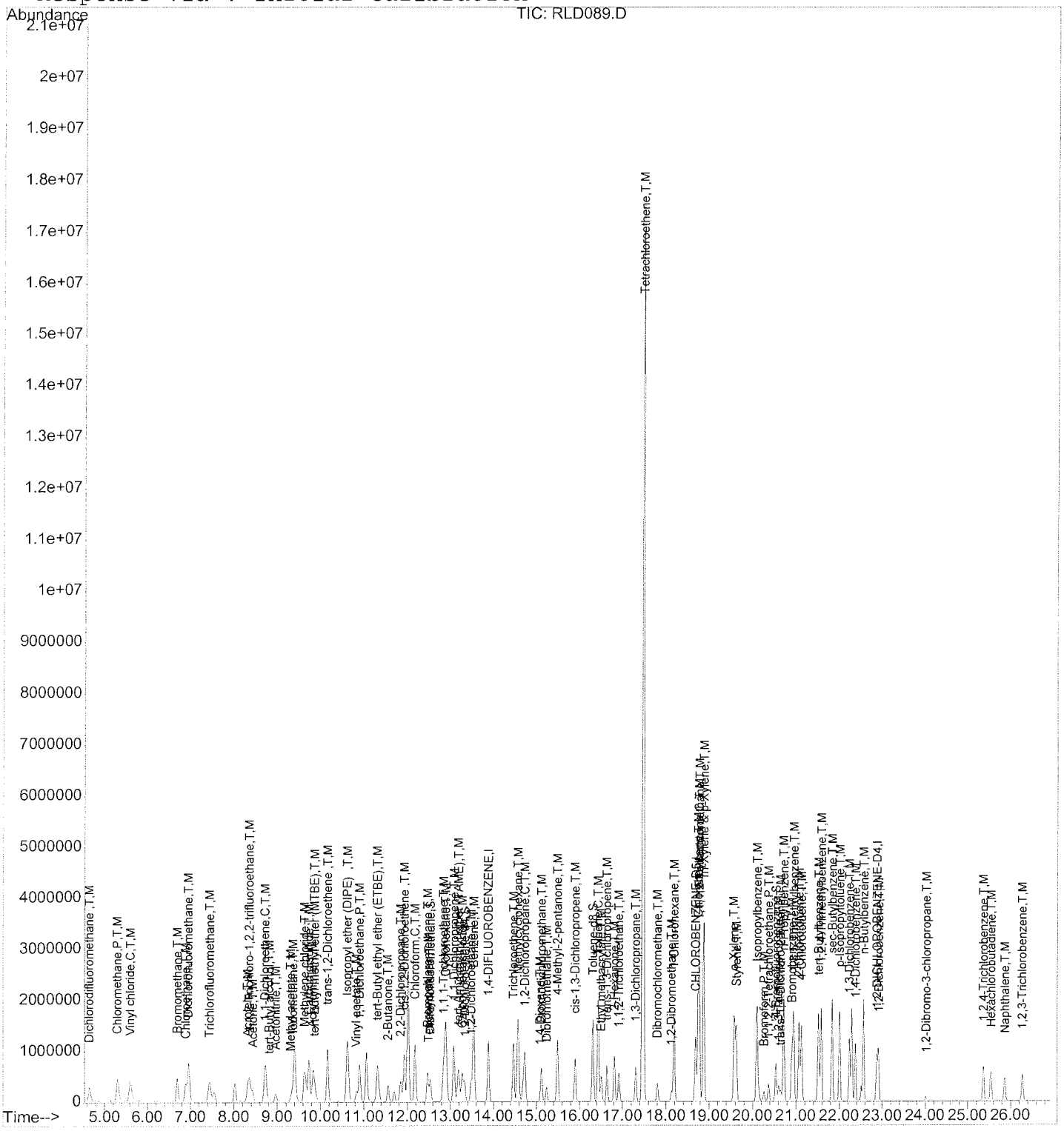
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
82)	1,3,5-Trimethylbenzene	20.95	105	1454443	11.22	ug/l	99
83)	2-Chlorotoluene	21.07	91	1433640	11.64	ug/l	97
84)	4-Chlorotoluene	21.13	91	1177494	11.16	ug/l	96
85)	tert-Butylbenzene	21.52	134	321520	11.16	ug/l	100
86)	1,2,4-Trimethylbenzene	21.58	105	1412535	11.36	ug/l	99
87)	sec-Butylbenzene	21.83	105	2068241	11.04	ug/l	99
88)	p-Isopropyltoluene	22.01	119	1557806	10.51	ug/l	99
89)	1,3-Dichlorobenzene	22.23	146	657237	10.59	ug/l	99
90)	1,4-Dichlorobenzene	22.38	146	635771	10.79	ug/l	100
91)	n-Butylbenzene	22.57	91	1525807	10.09	ug/l	99
92)	1,2-Dichlorobenzene	22.92	146	559055	11.05	ug/l	98
93)	1,2-Dibromo-3-chloropropan	24.02	157	26998	10.21	ug/l	89
94)	1,2,4-Trichlorobenzene	25.37	180	316497	9.22	ug/l	98
95)	Hexachlorobutadiene	25.55	225	195320	7.96	ug/l	99
96)	Naphthalene	25.87	128	590185	10.41	ug/l	99
97)	1,2,3-Trichlorobenzene	26.27	180	246503	9.09	ug/l	98

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLD089.D Vial: 12
Acq On : 13 Dec 2019 3:50 pm Operator: VLu
Sample : 19L043-07S 25mL Inst : 94
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:51 2019 Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



INITIAL CALIBRATION

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc Contract: VA SALT LAKE CITY
Lab Code: EMXT Case No.: SAS No.: SDG No.: 19L043
Lab File ID: RJD104 BFB Injection Date : 10/09/19
Instrument ID: 94 BFB Injection Time : 09:10
GC Column:RTX502.2ID:0.25mm (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	25.05
75	30.0 - 60.0% of mass 95	50.88
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.84
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	66.44
175	5.0 - 9.0% of mass 174	5.01(7.5)1
176	95.0 - 101.0% of mass 174	64.88(97.7)1
177	5.0 - 9.0% of mass 176	5.62(8.7)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD0.3	V094J091	RJD105	10/09/19	09:59
2	VSTD0.5	V094J092	RJD106	10/09/19	10:30
3	VSTD01	V094J093	RJD107	10/09/19	11:01
4	VSTD02	V094J094	RJD108	10/09/19	11:32
5	VSTD05	V094J095	RJD109	10/09/19	12:03
6	VSTD010	V094J096	RJD110	10/09/19	12:34
7	VSTD020	V094J097	RJD111	10/09/19	13:05
8	VSTD030	V094J098	RJD112	10/09/19	13:36
9	VSTD050	V094J099	RJD113	10/09/19	14:07
10	VSTD100	V094J0910	RJD114	10/09/19	14:38

INITIAL_CALIBRATION - RELATIVE_RESPONSE_FACTOR

Instrument ID :94
Beginning DateTime :10/09/19 09:59
Spike Units :PPB
IC File :RJD110

Column Spec :RTX502.2 ID :0.25MM
Ending DateTime :10/09/19 14:38
HPChem Method :VO94J09

M	IDX	Parameters	.3 09:59 RJD105	.5 10:30 RJD106	1 11:01 RJD107	2 11:32 RJD108	5 12:03 RJD109	10 12:34 RJD110	20 13:05 RJD111	30 13:36 RJD112	50 14:07 RJD113	100 14:38 RJD114	Av_RRF	%_RSD	Av_Rt_M
	1	1,4-DIFLUOROBENZENE	1	1	1	1	1	1	1	1	1	1	1	0	13.9022
	2	Dichlorodifluoromethane	------	0.394	0.471	0.450	0.493	0.519	0.568	0.612	0.641	------	0.519	16.17	4.6646
	3	Dichlorotetrafluoroethane	------	------	0.368	0.355	0.435	0.406	0.481	0.501	0.523	0.543	0.451	15.75	4.9484
	4	Chloromethane	0.869	0.838	0.835	0.797	0.919	0.915	1.008	1.047	1.049	1.053	0.933	10.63	5.3149
	5	Vinyl chloride	------	0.600	0.676	0.652	0.729	0.738	0.773	0.768	0.714	------	0.706	8.48	5.6176
	6	Bromomethane	0.405	0.369	0.413	0.387	0.435	0.445	0.476	0.505	0.511	0.511	0.446	11.85	6.7159
	7	Chloroethane	------	0.359	0.421	0.418	0.483	0.474	0.510	0.542	0.544	0.532	0.476	13.56	6.9075
	8	Dichlorofluoromethane	0.829	0.790	0.840	0.854	0.959	0.940	1.031	1.081	1.060	0.971	0.935	11.03	6.9799
	9	Trichlorofluoromethane	------	0.413	0.486	0.478	0.533	0.565	0.589	0.622	0.618	0.604	0.545	13.40	7.4663
5	10	Acrolein	------	------	------	0.022	0.025	0.027	0.030	0.030	0.030	0.029	0.028	10.99	8.3469
	11	1,1,2-Trichloro-1,2,2-trifluoroethane	0.188	0.187	0.200	0.202	0.231	0.218	0.243	0.250	0.251	0.244	0.221	11.53	8.3823
5	12	Acetone	------	------	0.052	0.048	0.045	0.047	0.048	0.049	0.048	0.045	0.048	4.67	8.4601
	13	1,1-Dichloroethene	0.750	0.713	0.763	0.780	0.858	0.829	0.921	0.931	0.909	0.842	0.829	9.22	8.7569
5	14	tert-Butyl alcohol	------	------	0.013	0.015	0.013	0.014	0.016	0.016	0.016	0.015	0.015	8.51	8.8490
10	15	Acetonitrile	------	------	0.023	0.022	0.025	0.026	0.026	0.027	0.027	0.025	0.025	6.81	8.9928
	16	Methyl acetate	------	------	0.147	0.138	0.147	0.159	0.171	0.159	0.163	0.163	0.156	6.98	9.3338
	17	Iodomethane	------	0.398	0.413	0.442	0.492	0.468	0.523	0.541	0.542	0.515	0.482	11.30	9.3965
	18	Methylene chloride	0.660	0.633	0.611	0.619	0.646	0.608	0.671	0.666	0.643	0.588	0.634	4.36	9.6668
	19	Carbon disulfide	------	1.179	1.309	1.369	1.618	1.605	1.726	1.790	1.726	1.672	1.555	13.83	9.7669
5	20	Acrylonitrile	------	------	0.059	0.063	0.067	0.069	0.075	0.074	0.071	0.067	0.068	7.94	9.8573
	21	tert-Butyl methyl ether (MTBE)	0.525	0.542	0.514	0.559	0.579	0.572	0.625	0.653	0.633	0.592	0.579	8.04	9.8939
	22	trans-1,2-Dichloroethene	0.390	0.390	0.381	0.413	0.425	0.424	0.448	0.444	0.436	0.411	0.416	5.65	10.1947
	23	n-Hexane	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
	24	Isopropyl ether (DIPE)	1.275	1.309	1.334	1.479	1.525	1.495	1.616	1.598	1.533	1.421	1.459	8.20	10.6519
	25	Vinyl acetate	------	------	0.429	0.436	0.486	0.512	0.547	0.549	0.554	0.553	0.508	10.32	10.8601
	26	1,1-Dichloroethane	0.764	0.805	0.784	0.858	0.884	0.858	0.916	0.899	0.868	0.814	0.845	6.01	10.9321
5	27	2-Butanol	------	------	------	0.014	0.012	0.013	0.015	0.014	0.015	0.015	0.014	7.22	11.2373
	28	tert-Butyl ethyl ether (ETBE)	0.951	0.958	0.872	0.953	0.956	0.944	1.010	1.026	0.986	0.919	0.957	4.59	11.3450
5	29	2-Butanone	------	0.015	0.013	0.014	0.016	0.016	0.018	0.018	0.017	0.017	0.016	9.95	11.5824
	30	2,2-Dichloropropane	0.281	0.302	0.314	0.345	0.355	0.345	0.369	0.351	0.335	0.304	0.330	8.56	11.8700
	31	cis-1,2-Dichloroethene	0.379	0.368	0.371	0.399	0.413	0.403	0.432	0.424	0.415	0.404	0.401	5.45	11.9526
	32	Chloroform	0.612	0.554	0.616	0.650	0.646	0.620	0.657	0.645	0.631	0.597	0.623	4.97	12.2063
5	33	tert-Amyl alcohol	------	------	------	0.010	0.011	0.013	0.013	0.013	0.014	0.014	0.013	10.60	12.3812
	34	Bromochloromethane	0.138	0.150	0.164	0.172	0.176	0.170	0.178	0.180	0.181	0.175	0.169	8.34	12.5012
	35	Tetrahydrofuran	------	------	0.055	0.048	0.055	0.053	0.055	0.052	0.054	0.048	0.053	5.29	12.5303
	36	Dibromofluoromethane	------	0.250	0.286	0.291	0.309	0.324	0.294	0.306	0.304	0.313	0.298	7.15	12.5639
	37	1,1,1-Trichloroethane	0.349	0.385	0.401	0.426	0.444	0.422	0.452	0.445	0.425	0.401	0.415	7.61	12.8654
	38	2,2,4-Trimethylpentane	1.803	1.898	2.191	2.216	2.294	2.328	2.258	2.243	2.134	2.077	2.144	8.05	12.8964
	39	Cyclohexane	------	0.579	0.631	0.646	0.672	0.682	0.721	0.693	0.683	0.697	0.667	6.37	12.9194
	40	1,1-Dichloropropene	0.183	0.171	0.183	0.186	0.188	0.175	0.191	0.187	0.180	0.177	0.182	3.42	13.1044
	41	tert-Amyl methyl ether (TAME)	------	0.090	0.112	0.124	0.117	0.115	0.124	0.127	0.125	0.121	0.117	9.64	13.2128
	42	Carbon tetrachloride	------	0.256	0.285	0.314	0.337	0.337	0.373	0.368	0.369	0.363	0.333	12.35	13.3012
	43	1,2-Dichloroethane-d4	0.218	0.243	0.272	0.263	0.271	0.277	0.247	0.258	0.250	0.252	0.255	6.77	13.3506
	44	1,2-Dichloroethane	0.290	0.300	0.300	0.334	0.326	0.312	0.332	0.328	0.317	0.301	0.314	4.99	13.4996
	45	Benzene	1.491	1.434	1.459	1.535	1.535	1.461	1.515	1.484	1.448	1.369	1.473	3.44	13.5600
	46	Trichloroethene	0.368	0.362	0.340	0.369	0.370	0.367	0.392	0.401	0.407	0.405	0.378	5.82	14.4876
	47	Methylcyclohexane	0.598	0.714	0.759	0.742	0.754	0.791	0.819	0.803	0.787	0.823	0.759	8.77	14.5968
	48	1,2-Dichloropropane	0.378	0.373	0.377	0.397	0.402	0.386	0.413	0.415	0.403	0.383	0.393	3.90	14.7531
20	49	1,4-Dioxane	------	------	------	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	15.59	15.1116
	50	Bromodichloromethane	------	0.262	0.294	0.334	0.345	0.350	0.390	0.400	0.400	0.401	0.353	14.23	15.1364
	51	Dibromomethane	0.125	0.127	0.119	0.129	0.131	0.127	0.138	0.143	0.142	0.138	0.132	5.98	15.2530
	52	2-Chloroethyl vinyl ether	------	0.120	0.115	0.127	0.128	0.134	0.147	0.154	0.151	0.153	0.137	11.03	15.4707
5	53	4-Methyl-2-pentanone	0.159	0.183	0.182	0.195	0.199	0.208	0.218	0.219	0.213	0.205	0.198	9.63	15.5052
	54	cis-1,3-Dichloropropene	------	0.386	0.415	0.447	0.478	0.477	0.540	0.558	0.559	0.554	0.490	13.38	15.9164
	55	CHLOROBENZENE-D5	1	1	1	1	1	1	1	1	1	1	1	0	18.7038
	56	Toluene-d8	1.173	1.181	1.355	1.360	1.403	1.454	1.325	1.347	1.305	1.351	1.325	6.67	16.3295
	57	Toluene	1.652	1.591	1.633	1.711	1.687	1.624	1.677	1.622	1.581	1.494	1.627	3.84	16.4534
	58	Ethyl methacrylate	------	0.235	0.270	0.283	0.287	0.287	0.319	0.313	0.305	0.300	0.289	8.79	16.5292

Sa
11/14/19

59	trans-1,3-Dichloropropene	------	0.296	0.332	0.363	0.397	0.403	0.444	0.440	0.433	0.431	0.393	13.33	16.6587
5 60	2-Hexanone	0.115	0.129	0.133	0.141	0.141	0.147	0.153	0.150	0.143	0.138	0.139	7.91	16.8324
61	1,1,2-Trichloroethane	0.172	0.194	0.201	0.217	0.214	0.203	0.216	0.216	0.206	0.205	0.204	6.68	16.9386
62	1,3-Dichloropropane	0.394	0.397	0.407	0.446	0.450	0.429	0.464	0.460	0.445	0.440	0.433	5.88	17.3191
63	Tetrachloroethene	0.287	0.290	0.285	0.309	0.308	0.288	0.310	0.302	0.295	0.298	0.297	3.20	17.4872
64	Dibromochloromethane	------	0.160	0.170	0.190	0.207	0.218	0.249	0.251	0.250	0.257	0.217	17.24	17.8253
65	1,2-Dibromoethane	0.174	0.157	0.170	0.195	0.187	0.191	0.207	0.208	0.203	0.205	0.190	9.25	18.1449
66	1-Chlorohexane	0.694	0.621	0.674	0.687	0.703	0.689	0.737	0.726	0.706	0.687	0.692	4.54	18.2098
67	Chlorobenzene	0.995	0.929	1.002	1.040	1.027	0.983	1.055	1.047	1.006	0.975	1.006	3.81	18.7643
68	Ethylbenzene	1.906	1.858	1.879	1.969	1.935	1.867	1.956	1.934	1.813	1.725	1.884	3.93	18.7820
69	1,1,1,2-Tetrachloroethane	0.209	0.227	0.236	0.273	0.277	0.282	0.305	0.309	0.306	0.304	0.273	13.45	18.7938
2 70	m-Xylene & p-Xylene	1.340	1.284	1.342	1.386	1.377	1.306	1.352	1.309	1.216	1.052	1.296	7.63	18.8955
71	o-Xylene	1.220	1.185	1.244	1.323	1.322	1.266	1.318	1.323	1.267	1.222	1.269	4.02	19.5946
72	Styrene	0.980	0.904	0.991	1.003	1.013	0.965	1.006	1.028	0.971	0.932	0.979	3.88	19.6417
73	Isopropylbenzene	1.597	1.521	1.645	1.701	1.717	1.653	1.729	1.719	1.636	1.609	1.653	4.00	20.1148
74	1,2-DICHLOROBENZENE-D4	1	1	1	1	1	1	1	1	1	1	1	0	22.8901
75	Bromoform	------	0.126	0.201	0.261	0.270	0.297	0.338	0.362	0.344	0.345	0.283	27.64	20.2764
76	1,1,2,2-Tetrachloroethane	0.750	0.792	0.837	0.855	0.836	0.826	0.878	0.904	0.860	0.818	0.836	5.20	20.3806
77	4-Bromofluorobenzene	1.371	1.260	1.408	1.364	1.362	1.487	1.347	1.448	1.357	1.360	1.376	4.44	20.5553
78	1,2,3-Trichloropropane	------	0.202	0.168	0.195	0.187	0.181	0.194	0.199	0.185	0.179	0.188	5.89	20.6288
79	trans-1,4-Dichloro-2-butene	------	0.116	0.120	0.150	0.149	0.155	0.175	0.184	0.181	------	0.154	16.92	20.6656
80	n-Propylbenzene	7.049	6.520	7.164	7.487	7.517	7.174	7.643	7.588	7.030	------	7.241	4.95	20.7333
81	Bromobenzene	0.837	0.863	0.898	0.971	0.944	0.930	0.993	1.019	0.951	0.932	0.934	6.01	20.9239
82	1,3,5-Trimethylbenzene	3.984	3.892	4.267	4.456	4.537	4.334	4.545	4.542	4.204	3.915	4.268	6.12	20.9650
83	2-Chlorotoluene	4.025	4.058	4.065	4.262	4.194	4.015	4.177	4.106	3.690	3.972	4.056	3.87	21.0854
84	4-Chlorotoluene	3.580	3.042	3.404	3.692	3.577	3.334	3.550	3.665	3.408	------	3.473	5.82	21.1428
85	tert-Butylbenzene	0.876	0.867	0.948	0.944	0.984	0.932	0.989	1.032	0.967	0.951	0.949	5.26	21.5392
86	1,2,4-Trimethylbenzene	3.955	3.786	4.076	4.314	4.310	4.074	4.316	4.337	4.009	3.744	4.092	5.45	21.5979
87	sec-Butylbenzene	5.901	5.783	5.974	6.512	6.463	6.135	6.444	6.429	5.890	------	6.170	4.74	21.8476
88	p-Isopropyltoluene	4.981	4.577	4.778	5.149	5.074	4.907	5.009	5.118	4.764	4.443	4.880	4.84	22.0223
89	1,3-Dichlorobenzene	1.964	1.899	2.010	2.082	2.083	1.993	2.131	2.156	2.095	2.026	2.044	3.90	22.2499
90	1,4-Dichlorobenzene	1.929	1.788	1.851	2.013	2.033	1.902	2.000	2.043	1.943	1.901	1.940	4.28	22.3908
91	n-Butylbenzene	4.992	4.696	4.845	5.205	5.307	4.983	5.233	4.906	4.632	------	4.978	4.75	22.5818
92	1,2-Dichlorobenzene	1.574	1.497	1.637	1.708	1.714	1.617	1.733	1.766	1.735	1.672	1.665	5.06	22.9282
93	1,2-Dibromo-3-chloropropane	------	------	0.064	0.068	0.072	0.076	0.089	0.095	------	------	0.077	15.83	24.0330
94	1,2,4-Trichlorobenzene	------	0.923	0.934	1.047	1.062	1.053	1.219	1.283	1.325	1.321	1.130	14.14	25.3863
95	Hexachlorobutadiene	------	0.675	0.715	0.756	0.771	0.753	0.878	0.918	0.921	0.882	0.808	11.46	25.5625
96	Naphthalene	------	------	1.455	1.696	1.693	1.781	2.000	2.108	2.129	2.066	1.866	13.13	25.8854
97	1,2,3-Trichlorobenzene	------	0.718	0.737	0.880	0.858	0.854	0.970	1.002	1.029	0.984	0.893	12.70	26.2950

Spike Amount = Nominal Amount * M
Ave_%RSD : 8.4 Max_%RSD : 27.6

Use Least Square Linear Regression with weighting factor of inverse concentration for comps with %_RSD > 15
Resp_Ratio = xo + x1 * Amt_Ratio

IDX	Parameter	x0	x1	CCF
2	Dichlorodifluoromethane	-0.01915	0.61213	0.9975
3	Dichlorotetrafluoroethane	-0.03168	0.52724	0.9983
49	1,4-Dioxane	-0.00296	0.00137	0.9987
64	Dibromochloromethane	-0.00833	0.25314	0.9993
75	Bromoform	-0.01473	0.34687	0.9992
79	trans-1,4-Dichloro-2-butene	-0.00528	0.17939	0.9988
93	1,2-Dibromo-3-chloropropane	-0.00452	0.09151	0.9966

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11/14/19

INITIAL_CALIBRATION - RELATIVE_RESPONSE_FACTOR(%REC)

Instrument ID :94
Beginning DateTime :10/09/19 09:59
Spike Units :PPB
IC File :RJD110

Column Spec :RTX502.2 ID :0.25MM
Ending DateTime :10/09/19 14:38
HPChem Method :VO94J09

M	IDX	Parameters	.3 09:59 RJD105	.5 10:30 RJD106	1 11:01 RJD107	2 11:32 RJD108	5 12:03 RJD109	10 12:34 RJD110	20 13:05 RJD111	30 13:36 RJD112	50 14:07 RJD113	100 14:38 RJD114	AvDRec	%_RSD	Av_Rt_M
	1	1,4-DIFLUOROBENZENE	1	1	1	1	1	1	1	1	1	1	1	0	13.9022
	2	Dichlorodifluoromethane	------	127	108	89	87	88	94	101	105	------	10.4	16.17	4.6646
	3	Dichlorotetrafluoroethane	------	------	130	97	95	83	94	97	100	104	8.5	15.75	4.9484
	4	Chloromethane	93	90	89	85	98	98	108	112	112	113	9.1	10.63	5.3149
	5	Vinyl chloride	------	85	96	92	103	105	109	109	101	------	6.8	8.48	5.6176
	6	Bromomethane	91	83	93	87	98	100	107	113	115	115	9.9	11.85	6.7159
	7	Chloroethane	------	75	88	88	101	100	107	114	114	112	10.8	13.56	6.9075
	8	Dichlorofluoromethane	89	84	90	91	103	101	110	116	113	104	9.2	11.03	6.9799
	9	Trichlorofluoromethane	------	76	89	88	98	104	108	114	113	111	11.1	13.40	7.4663
5	10	Acrolein	------	------	------	79	89	96	107	107	107	104	8.7	10.99	8.3469
	11	1,1,2-Trichloro-1,2,2-trifluoroethane	85	85	90	91	105	99	110	113	114	110	10.1	11.53	8.3823
5	12	Acetone	------	------	108	100	94	98	100	102	100	94	3.1	4.67	8.4601
	13	1,1-Dichloroethene	90	86	92	94	103	100	111	112	110	102	7.6	9.22	8.7569
5	14	tert-Butyl alcohol	------	------	87	100	87	93	107	107	107	100	6.7	8.51	8.8490
10	15	Acetonitrile	------	------	92	88	100	104	104	108	108	100	5.5	6.81	8.9928
	16	Methyl acetate	------	------	94	88	94	102	110	102	104	104	5.7	6.98	9.3338
	17	Iodomethane	------	83	86	92	102	97	109	112	112	107	9.5	11.30	9.3965
	18	Methylene chloride	104	100	96	98	102	96	106	105	101	93	3.6	4.36	9.6668
	19	Carbon disulfide	------	76	84	88	104	103	111	115	111	108	11.5	13.83	9.7669
5	20	Acrylonitrile	------	------	87	93	99	101	110	109	104	99	6.1	7.94	9.8573
	21	tert-Butyl methyl ether (MTBE)	91	94	89	97	100	99	108	113	109	102	6.4	8.04	9.8939
	22	trans-1,2-Dichloroethene	94	94	92	99	102	102	108	107	105	99	4.6	5.65	10.1947
	23	n-Hexane	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
	24	Isopropyl ether (DIPE)	87	90	91	101	105	102	111	110	105	97	6.8	8.20	10.6519
	25	Vinyl acetate	------	------	84	86	96	101	108	108	109	109	8.6	10.32	10.8601
	26	1,1-Dichloroethane	90	95	93	102	105	102	108	106	103	96	5	6.01	10.9321
5	27	2-Butanol	------	------	------	100	86	93	107	100	107	107	6.1	7.22	11.2373
	28	tert-Butyl ethyl ether (ETBE)	99	100	91	100	100	99	106	107	103	96	3.1	4.59	11.3450
5	29	2-Butanone	------	94	81	87	100	100	112	112	106	106	8.3	9.95	11.5824
	30	2,2-Dichloropropane	85	92	95	105	108	105	112	106	102	92	7.2	8.56	11.8700
	31	cis-1,2-Dichloroethene	95	92	93	100	103	100	108	106	103	101	4.3	5.45	11.9526
	32	Chloroform	98	89	99	104	104	100	105	104	101	96	3.7	4.97	12.2063
5	33	tert-Amyl alcohol	------	------	------	77	85	100	100	100	108	108	7.7	10.60	12.3812
	34	Bromochloromethane	82	89	97	102	104	101	105	107	107	104	6.2	8.34	12.5012
	35	Tetrahydrofuran	------	------	104	91	104	100	104	98	102	91	4.2	5.29	12.5303
	36	Dibromofluoromethane	------	84	96	98	104	109	99	103	102	105	5.1	7.15	12.5639
	37	1,1,1-Trichloroethane	84	93	97	103	107	102	109	107	102	97	6	7.61	12.8654
	38	2,2,4-Trimethylpentane	84	89	102	103	107	109	105	105	100	97	6.2	8.05	12.8964
	39	Cyclohexane	------	87	95	97	101	102	108	104	102	104	4.8	6.37	12.9194
	40	1,1-Dichloropropene	101	94	101	102	103	96	105	103	99	97	2.8	3.42	13.1044
	41	tert-Amyl methyl ether (TAME)	------	77	96	106	100	98	106	109	107	103	6.6	9.64	13.2128
	42	Carbon tetrachloride	------	77	86	94	101	101	112	111	111	109	9.8	12.35	13.3012
	43	1,2-Dichloroethane-d4	85	95	107	103	106	109	97	101	98	99	5.1	6.77	13.3506
	44	1,2-Dichloroethane	92	96	96	106	104	99	106	104	101	96	4.3	4.99	13.4996
	45	Benzene	101	97	99	104	104	99	103	101	98	93	2.6	3.44	13.5600
	46	Trichloroethene	97	96	90	98	98	97	104	106	108	107	4.9	5.82	14.4876
	47	Methylcyclohexane	79	94	100	98	99	104	108	106	104	108	6	8.77	14.5968
	48	1,2-Dichloropropane	96	95	96	101	102	98	105	106	103	97	3.4	3.90	14.7531

For 8260C
SG
11/14/19

20	49	1,4-Dioxane	------	------	------	121	94	91	92	97	103	102	7.4	15.59	15.1116
	50	Bromodichloromethane	------	74	83	95	98	99	110	113	113	114	11.3	14.23	15.1364
	51	Dibromomethane	95	96	90	98	99	96	105	108	108	105	5.1	5.98	15.2530
	52	2-Chloroethyl vinyl ether	------	88	84	93	93	98	107	112	110	112	9.6	11.03	15.4707
5	53	4-Methyl-2-pentanone	80	92	92	98	101	105	110	111	108	104	7.4	9.63	15.5052
	54	cis-1,3-Dichloropropene	------	79	85	91	98	97	110	114	114	113	11.3	13.38	15.9164
	55	CHLOROBENZENE-D5	1	1	1	1	1	1	1	1	1	1	1	0	18.7038
	56	Toluene-d8	89	89	102	103	106	110	100	102	98	102	4.8	6.67	16.3295
	57	Toluene	102	98	100	105	104	100	103	100	97	92	2.8	3.84	16.4534
	58	Ethyl methacrylate	------	81	93	98	99	99	110	108	106	104	6.3	8.79	16.5292
	59	trans-1,3-Dichloropropene	------	75	84	92	101	103	113	112	110	110	10.7	13.33	16.6587
5	60	2-Hexanone	83	93	96	101	101	106	110	108	103	99	5.9	7.91	16.8324
	61	1,1,2-Trichloroethane	84	95	99	106	105	100	106	106	101	100	4.7	6.68	16.9386
	62	1,3-Dichloropropane	91	92	94	103	104	99	107	106	103	102	4.9	5.88	17.3191
	63	Tetrachloroethene	97	98	96	104	104	97	104	102	99	100	2.8	3.20	17.4872
	64	Dibromochloromethane	------	129	100	92	88	89	100	100	100	102	6.9	17.24	17.8253
	65	1,2-Dibromoethane	92	83	89	103	98	101	109	109	107	108	7.4	9.25	18.1449
	66	1-Chlorohexane	100	90	97	99	102	100	107	105	102	99	3	4.54	18.2098
	67	Chlorobenzene	99	92	100	103	102	98	105	104	100	97	2.9	3.81	18.7643
	68	Ethylbenzene	101	99	100	105	103	99	104	103	96	92	3	3.93	18.7820
	69	1,1,1,2-Tetrachloroethane	77	83	86	100	101	103	112	113	112	111	10.7	13.45	18.7938
2	70	m-Xylene & p-Xylene	103	99	104	107	106	101	104	101	94	81	5.2	7.63	18.8955
	71	o-Xylene	96	93	98	104	104	100	104	104	100	96	3.3	4.02	19.5946
	72	Styrene	100	92	101	102	103	99	103	105	99	95	3	3.88	19.6417
	73	Isopropylbenzene	97	92	100	103	104	100	105	104	99	97	3.1	4.00	20.1148
	74	1,2-DICHLOROBENZENE-D4	1	1	1	1	1	1	1	1	1	1	1	0	22.8901
	75	Bromoform	------	121	101	97	86	90	99	106	100	100	6.2	27.64	20.2764
	76	1,1,2,2-Tetrachloroethane	90	95	100	102	100	99	105	108	103	98	3.7	5.20	20.3806
	77	4-Bromofluorobenzene	100	92	102	99	99	108	98	105	99	99	3.1	4.44	20.5553
	78	1,2,3-Trichloropropane	------	107	89	104	99	96	103	106	98	95	4.6	5.89	20.6288
	79	trans-1,4-Dichloro-2-butene	------	123	96	98	89	89	99	103	101	------	7	16.92	20.6656
	80	n-Propylbenzene	97	90	99	103	104	99	106	105	97	------	3.9	4.95	20.7333
	81	Bromobenzene	90	92	96	104	101	100	106	109	102	100	4.5	6.01	20.9239
	82	1,3,5-Trimethylbenzene	93	91	100	104	106	102	106	106	99	92	5	6.12	20.9650
	83	2-Chlorotoluene	99	100	100	105	103	99	103	101	91	98	2.6	3.87	21.0854
	84	4-Chlorotoluene	103	88	98	106	103	96	102	106	98	------	4.5	5.82	21.1428
	85	tert-Butylbenzene	92	91	100	99	104	98	104	109	102	100	3.8	5.26	21.5392
	86	1,2,4-Trimethylbenzene	97	93	100	105	105	100	105	106	98	91	4.4	5.45	21.5979
	87	sec-Butylbenzene	96	94	97	106	105	99	104	104	95	------	4.2	4.74	21.8476
	88	p-Isopropyltoluene	102	94	98	106	104	101	103	105	98	91	3.9	4.84	22.0223
	89	1,3-Dichlorobenzene	96	93	98	102	102	98	104	105	102	99	3.2	3.90	22.2499
	90	1,4-Dichlorobenzene	99	92	95	104	105	98	103	105	100	98	3.4	4.28	22.3908
	91	n-Butylbenzene	100	94	97	105	107	100	105	99	93	------	3.7	4.75	22.5818
	92	1,2-Dichlorobenzene	95	90	98	103	103	97	104	106	104	100	4	5.06	22.9282
	93	1,2-Dibromo-3-chloropropane	------	------	119	99	88	88	99	106	------	------	8.5	15.83	24.0330
	94	1,2,4-Trichlorobenzene	------	82	83	93	94	93	108	114	117	117	12.4	14.14	25.3863
	95	Hexachlorobutadiene	------	84	88	94	95	93	109	114	114	109	10.1	11.46	25.5625
	96	Naphthalene	------	------	78	91	91	95	107	113	114	111	11.2	13.13	25.8854
	97	1,2,3-Trichlorobenzene	------	80	83	99	96	96	109	112	115	110	10.3	12.70	26.2950

SL

For 8260C

11/14/19

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
Total Cpnds : 97

PK#		Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I	1,4-DIFLUOROBENZENE	114	13.90	1.000	A	1	A	B
2	T	Dichlorodifluoromethane	85	4.66	0.336	L	1	A	B
3	T	Dichlorotetrafluoroethane	85	4.94	0.356	L	1	A	B
4	T	Chloromethane	50	5.31	0.382	A	1	A	B
5	T	Vinyl chloride	62	5.62	0.405	A	1	A	B
6	T	Bromomethane	94	6.71	0.483	A	1	A	B
7	T	Chloroethane	64	6.91	0.497	A	1	A	B
8	T	Dichlorofluoromethane	67	6.98	0.502	A	1	A	B
9	T	Trichlorofluoromethane	101	7.47	0.537	A	1	A	B
10	T	Acrolein	56	8.34	0.600	A	1	A	B
11	T	1,1,2-Trichloro-1,2,2-trifluor	151	8.38	0.603	A	1	A	B
12	T	Acetone	43	8.45	0.608	A	1	A	B
13	T	1,1-Dichloroethene	61	8.75	0.630	A	2	A	B
14	T	tert-Butyl alcohol	59	8.85	0.637	A	1	A	B
15	T	Acetonitrile	41	8.99	0.647	A	2	A	B
16	T	Methyl acetate	43	9.34	0.672	A	1	A	B
17	T	Iodomethane	142	9.38	0.675	A	1	A	B
18	T	Methylene chloride	49	9.66	0.695	A	2	A	B
19	T	Carbon disulfide	76	9.77	0.703	A	1	A	B
20	T	Acrylonitrile	53	9.86	0.709	A	2	A	B
21	T	tert-Butyl methyl ether (MTBE)	73	9.88	0.711	A	1	A	B
22	T	trans-1,2-Dichloroethene	96	10.19	0.734	A	1	A	B
23	T	n-Hexane	57	0.00	0.000	A	3	A	B
24	T	Isopropyl ether (DIPE)	45	10.65	0.767	A	1	A	B
25	T	Vinyl acetate	43	10.86	0.781	A	1	A	B
26	T	1,1-Dichloroethane	63	10.93	0.787	A	2	A	B
27	T	2-Butanol	45	11.23	0.808	A	1	A	B
28	T	tert-Butyl ethyl ether (ETBE)	59	11.34	0.816	A	1	A	B
29	T	2-Butanone	72	11.58	0.833	A	1	A	B
30	T	2,2-Dichloropropane	77	11.86	0.854	A	2	A	B
31	T	cis-1,2-Dichloroethene	96	11.95	0.860	A	1	A	B
32	T	Chloroform	83	12.20	0.878	A	2	A	B
33	T	tert-Amyl alcohol	59	12.38	0.891	A	1	A	B
34	T	Bromochloromethane	130	12.50	0.899	A	1	A	B
35	T	Tetrahydrofuran	42	12.52	0.901	A	2	A	B
36	S	Dibromofluoromethane	111	12.57	0.904	A	1	A	B
37	T	1,1,1-Trichloroethane	97	12.86	0.926	A	2	A	B
38	T	2,2,4-Trimethylpentane	57	12.89	0.928	A	1	A	B
39	T	Cyclohexane	84	12.91	0.929	A	1	A	B
40	T	1,1-Dichloropropene	110	13.10	0.943	A	1	A	B
41	T	tert-Amyl methyl ether (TAME)	87	13.22	0.951	A	1	A	B
42	T	Carbon tetrachloride	119	13.29	0.956	A	1	A	B
43	S	1,2-Dichloroethane-d4	65	13.35	0.961	A	1	A	B
44	T	1,2-Dichloroethane	62	13.50	0.971	A	1	A	B
45	T	Benzene	78	13.56	0.976	A	2	A	B
46	T	Trichloroethene	130	14.49	1.042	A	3	A	B
47	T	Methylcyclohexane	83	14.59	1.050	A	2	A	B
48	T	1,2-Dichloropropane	63	14.75	1.062	A	1	A	B
49	T	1,4-Dioxane	88	15.11	1.087	L	1	A	B
50	T	Bromodichloromethane	83	15.13	1.089	A	1	A	B
51	T	Dibromomethane	93	15.25	1.098	A	2	A	B
52	T	2-Chloroethyl vinyl ether	63	15.46	1.112	A	1	A	B
53	T	4-Methyl-2-pentanone	43	15.50	1.116	A	3	A	B

11/14/19

54	T	cis-1,3-Dichloropropene	75	15.92	1.145	A	3	A	B
55	I	CHLOROBENZENE-D5	117	18.70	1.000	A	2	A	B
56	S	Toluene-d8	98	16.33	0.873	A	1	A	B
57	T	Toluene	91	16.45	0.879	A	1	A	B
58	T	Ethyl methacrylate	69	16.52	0.883	A	1	A	B
59	T	trans-1,3-Dichloropropene	75	16.65	0.890	A	1	A	B
60	T	2-Hexanone	43	16.83	0.900	A	1	A	B
61	T	1,1,2-Trichloroethane	97	16.93	0.905	A	2	A	B
62	T	1,3-Dichloropropane	76	17.32	0.926	A	1	A	B
63	T	Tetrachloroethene	164	17.48	0.935	A	3	A	B
64	T	Dibromochloromethane	129	17.82	0.953	L	1	A	B
65	T	1,2-Dibromoethane	107	18.14	0.970	A	1	A	B
66	T	1-Chlorohexane	91	18.20	0.973	A	1	A	B
67	T	Chlorobenzene	112	18.76	1.003	A	1	A	B
68	T	Ethylbenzene	91	18.78	1.004	A	1	A	B
69	T	1,1,1,2-Tetrachloroethane	131	18.79	1.005	A	1	A	B
70	T	m-Xylene & p-Xylene	91	18.90	1.010	A	1	A	B
71	T	o-Xylene	91	19.59	1.047	A	1	A	B
72	T	Styrene	104	19.65	1.050	A	2	A	B
73	T	Isopropylbenzene	105	20.12	1.075	A	3	A	B
74	I	1,2-DICHLOROBENZENE-D4	152	22.89	1.000	A	1	A	B
75	T	Bromoform	173	20.28	0.886	L	2	A	B
76	T	1,1,2,2-Tetrachloroethane	83	20.38	0.890	A	1	A	B
77	S	4-Bromofluorobenzene	95	20.56	0.898	A	2	A	B
78	T	1,2,3-Trichloropropane	110	20.63	0.901	A	1	A	B
79	T	trans-1,4-Dichloro-2-butene	53	20.66	0.902	L	1	A	B
80	T	n-Propylbenzene	91	20.73	0.906	A	2	A	B
81	T	Bromobenzene	156	20.92	0.914	A	1	A	B
82	T	1,3,5-Trimethylbenzene	105	20.97	0.916	A	2	A	B
83	T	2-Chlorotoluene	91	21.08	0.921	A	1	A	B
84	T	4-Chlorotoluene	91	21.14	0.924	A	1	A	B
85	T	tert-Butylbenzene	134	21.54	0.941	A	1	A	B
86	T	1,2,4-Trimethylbenzene	105	21.60	0.944	A	1	A	B
87	T	sec-Butylbenzene	105	21.85	0.954	A	1	A	B
88	T	p-Isopropyltoluene	119	22.02	0.962	A	2	A	B
89	T	1,3-Dichlorobenzene	146	22.24	0.972	A	2	A	B
90	T	1,4-Dichlorobenzene	146	22.39	0.978	A	2	A	B
91	T	n-Butylbenzene	91	22.58	0.987	A	2	A	B
92	T	1,2-Dichlorobenzene	146	22.92	1.001	A	1	A	B
93	T	1,2-Dibromo-3-chloropropane	157	24.04	1.050	L	1	A	B
94	T	1,2,4-Trichlorobenzene	180	25.39	1.109	A	2	A	B
95	T	Hexachlorobutadiene	225	25.56	1.117	A	2	A	B
96	T	Naphthalene	128	25.89	1.131	A	1	A	B
97	T	1,2,3-Trichlorobenzene	180	26.30	1.149	A	2	A	B

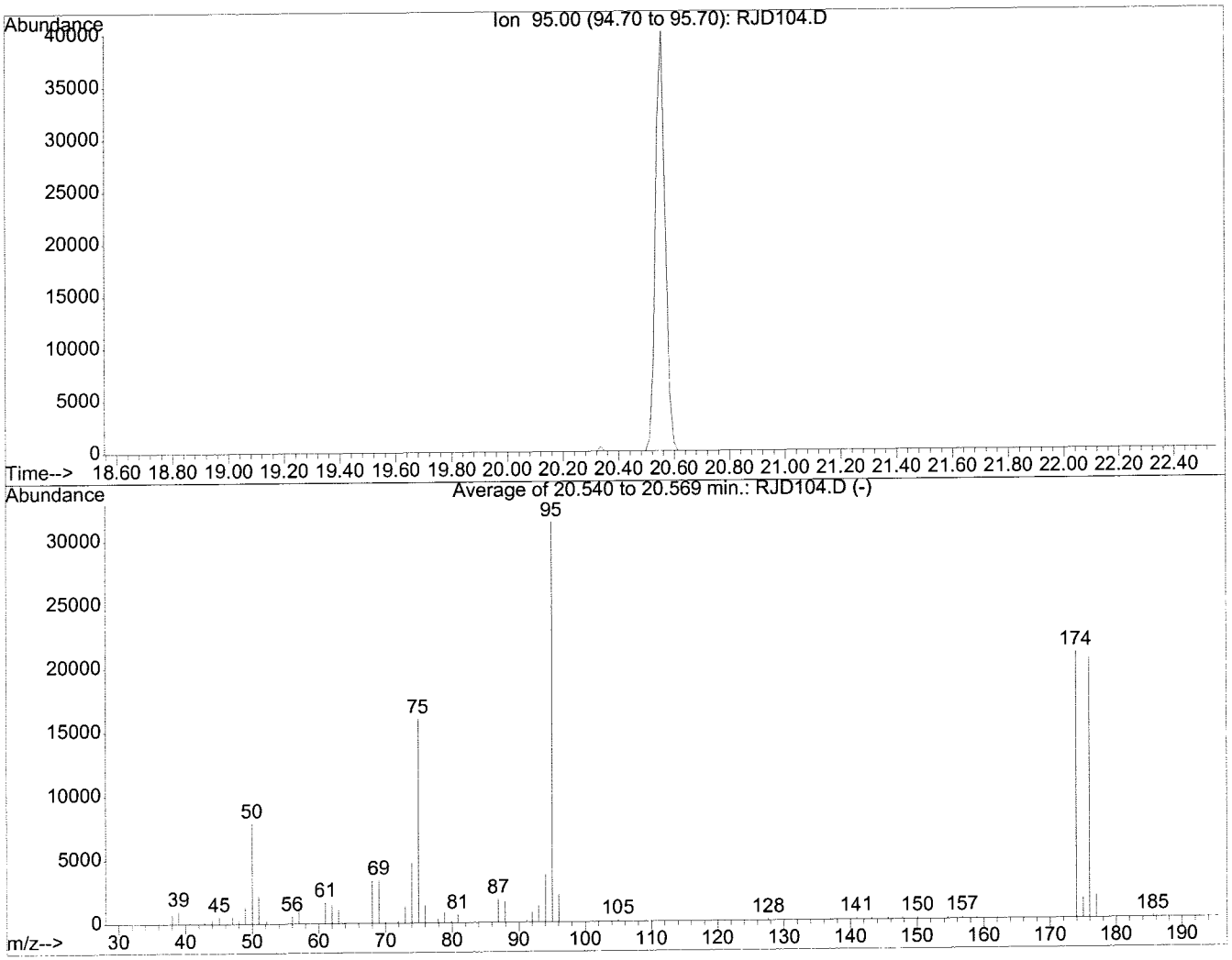
Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

VO94J09.M Wed Nov 13 16:41:01 2019

SW 11/14/19

Data File : D:\HPCHEM\1\DATA\19J09\RJD104.D
Acq On : 9 Oct 2019 9:10 am
Sample : BFB94J05
Misc : T/CHK
MS Integration Params: LSCINT1.P
Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260

Vial: 1
Operator: VLu
Inst : 94
Multiplr: 1.00



AutoFind: Scans 1084, 1085, 1086; Background Corrected with Scan 1079

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	25.0	7865	PASS
75	95	30	60	50.9	15979	PASS
95	95	100	100	100.0	31403	PASS
96	95	5	9	6.8	2149	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	66.4	20863	PASS
175	174	5	9	7.5	1572	PASS
176	174	95	101	97.7	20375	PASS
177	176	5	9	8.7	1766	PASS

RJD104.D VO94J09.M Wed Nov 13 17:05:34 2019

SA 11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD105.D
Acq On : 9 Oct 2019 9:59 am
Sample : VO94J091
Misc : 0.3ppb 8260/1.5ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:21 2019

Vial: 2
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.90	114	1702057	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	18.71	117	1337269	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	22.89	152	388495	10.00	ug/l	0.00
System Monitoring Compounds						
36) Dibromofluoromethane	12.56	111	10824	0.21	ug/l	-0.01
Spiked Amount 10.000			Recovery =	2.10%		
43) 1,2-Dichloroethane-d4	13.35	65	11145	0.26	ug/l	0.00
Spiked Amount 10.000			Recovery =	2.60%		
56) Toluene-d8	16.33	98	47045	0.27	ug/l	0.00
Spiked Amount 10.000			Recovery =	2.70%		
77) 4-Bromofluorobenzene	20.56	95	15975	0.30	ug/l	0.00
Spiked Amount 10.000			Recovery =	3.00%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.67	85	22689	0.53	ug/l	78
4) Chloromethane	5.32	50	44360	0.28	ug/l	92
5) Vinyl chloride	5.61	62	28942	0.24	ug/l	97
6) Bromomethane	6.72	94	20694	0.27	ug/l	79
7) Chloroethane	6.91	64	17587	0.22	ug/l	94
8) Dichlorofluoromethane	6.98	67	42330	0.27	ug/l	98
9) Trichlorofluoromethane	7.47	101	20403	0.22	ug/l	89
10) Acrolein	8.35	56	4547	0.97	ug/l	96
11) 1,1,2-Trichloro-1,2,2-trif	8.40	151	9614	0.26	ug/l	100
12) Acetone	8.47	43	20585	2.53	ug/l	83
13) 1,1-Dichloroethene	8.77	61	38298	0.27	ug/l	97
17) Iodomethane	9.39	142	20892	0.25	ug/l	87
18) Methylene chloride	9.67	49	33702	0.31	ug/l	96
19) Carbon disulfide	9.77	76	59392	0.22	ug/l	99
20) Acrylonitrile	9.86	53	13978	1.20	ug/l	89
21) tert-Butyl methyl ether (M	9.90	73	26806	0.27	ug/l	95
22) trans-1,2-Dichloroethene	10.20	96	19914	0.28	ug/l	98
24) Isopropyl ether (DIPE)	10.65	45	65121	0.26	ug/l	98
26) 1,1-Dichloroethane	10.93	63	38995	0.27	ug/l	98
28) tert-Butyl ethyl ether (ET	11.35	59	48564	0.30	ug/l	96
30) 2,2-Dichloropropane	11.86	77	14328	0.26	ug/l	81
31) cis-1,2-Dichloroethene	11.95	96	19360	0.28	ug/l	96
32) Chloroform	12.20	83	31232	0.29	ug/l	97
34) Bromochloromethane	12.50	130	7068	0.25	ug/l	94
37) 1,1,1-Trichloroethane	12.87	97	17813	0.25	ug/l	92
38) 2,2,4-Trimethylpentane	12.90	57	92039	0.25	ug/l	90
39) Cyclohexane	12.93	84	25721	0.23	ug/l	100

(#) = qualifier out of range (m) = manual integration
RJD105.D VO94J09.M Wed Nov 13 17:07:10 2019

SM 11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD105.D
Acq On : 9 Oct 2019 9:59 am
Sample : VO94J091
Misc : 0.3ppb 8260/1.5ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:21 2019

Vial: 2
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
40) 1,1-Dichloropropene	13.12	110	9364	0.30 ug/l	95
41) tert-Amyl methyl ether (TA	13.23	87	4875	0.24 ug/l	99
42) Carbon tetrachloride	13.31	119	11129	0.20 ug/l	98
44) 1,2-Dichloroethane	13.50	62	14794	0.28 ug/l	100
45) Benzene	13.56	78	76128	0.30 ug/l	93
46) Trichloroethene	14.49	130	18787	0.29 ug/l	97
47) Methylcyclohexane	14.59	83	30513	0.24 ug/l	91
48) 1,2-Dichloropropane	14.75	63	19307	0.29 ug/l	91
50) Bromodichloromethane	15.14	83	13906	0.23 ug/l	99
51) Dibromomethane	15.26	93	6366	0.28 ug/l	86
53) 4-Methyl-2-pentanone	15.51	43	40501	1.20 ug/l	95
54) cis-1,3-Dichloropropene	15.92	75	17659	0.21 ug/l	92
57) Toluene	16.45	91	66290	0.30 ug/l	98
58) Ethyl methacrylate	16.54	69	8373	0.22 ug/l	81
59) trans-1,3-Dichloropropene	16.66	75	10617	0.20 ug/l	94
60) 2-Hexanone	16.83	43	23099	1.24 ug/l	92
61) 1,1,2-Trichloroethane	16.94	97	6900	0.25 ug/l	92
62) 1,3-Dichloropropane	17.32	76	15807	0.27 ug/l	93
63) Tetrachloroethene	17.48	164	11530	0.29 ug/l	99
64) Dibromochloromethane	17.82	129	4199	0.45 ug/l	100
65) 1,2-Dibromoethane	18.15	107	6997	0.28 ug/l	84
66) 1-Chlorohexane	18.20	91	27828	0.30 ug/l	95
67) Chlorobenzene	18.76	112	39915	0.30 ug/l	99
68) Ethylbenzene	18.78	91	76458	0.30 ug/l	100
69) 1,1,1,2-Tetrachloroethane	18.79	131	8373	0.23 ug/l	98
70) m-Xylene & p-Xylene	18.90	91	107514	0.62 ug/l	97
71) o-Xylene	19.59	91	48934	0.29 ug/l	97
72) Styrene	19.63	104	39331	0.30 ug/l	96
73) Isopropylbenzene	20.11	105	64072	0.29 ug/l	99
75) Bromoform	20.28	173	2125	0.58 ug/l	72
76) 1,1,2,2-Tetrachloroethane	20.38	83	8746	0.27 ug/l	90
78) 1,2,3-Trichloropropane	20.61	110	1144	0.16 ug/l	71
80) n-Propylbenzene	20.73	91	82152	0.29 ug/l	99
81) Bromobenzene	20.92	156	9754	0.27 ug/l	96
82) 1,3,5-Trimethylbenzene	20.97	105	46429	0.28 ug/l	98
83) 2-Chlorotoluene	21.08	91	46914	0.30 ug/l	98
84) 4-Chlorotoluene	21.14	91	41730	0.31 ug/l	94
85) tert-Butylbenzene	21.54	134	10212	0.28 ug/l	88
86) 1,2,4-Trimethylbenzene	21.60	105	46092	0.29 ug/l	97
87) sec-Butylbenzene	21.85	105	68781	0.29 ug/l	98
88) p-Isopropyltoluene	22.02	119	58058	0.31 ug/l	99

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

Su 11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD105.D
Acq On : 9 Oct 2019 9:59 am
Sample : VO94J091
Misc : 0.3ppb 8260/1.5ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:21 2019

Vial: 2
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
89) 1,3-Dichlorobenzene	22.24	146	22885	0.29	ug/l	99
90) 1,4-Dichlorobenzene	22.39	146	22481	0.30	ug/l	99
91) n-Butylbenzene	22.58	91	58183	0.30	ug/l	100
92) 1,2-Dichlorobenzene	22.92	146	18340	0.28	ug/l	96
94) 1,2,4-Trichlorobenzene	25.39	180	10977	0.25	ug/l	94
95) Hexachlorobutadiene	25.56	225	7597	0.24	ug/l	89
96) Naphthalene	25.89	128	16970	0.23	ug/l	98
97) 1,2,3-Trichlorobenzene	26.30	180	8462	0.24	ug/l	89

11/14/19

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

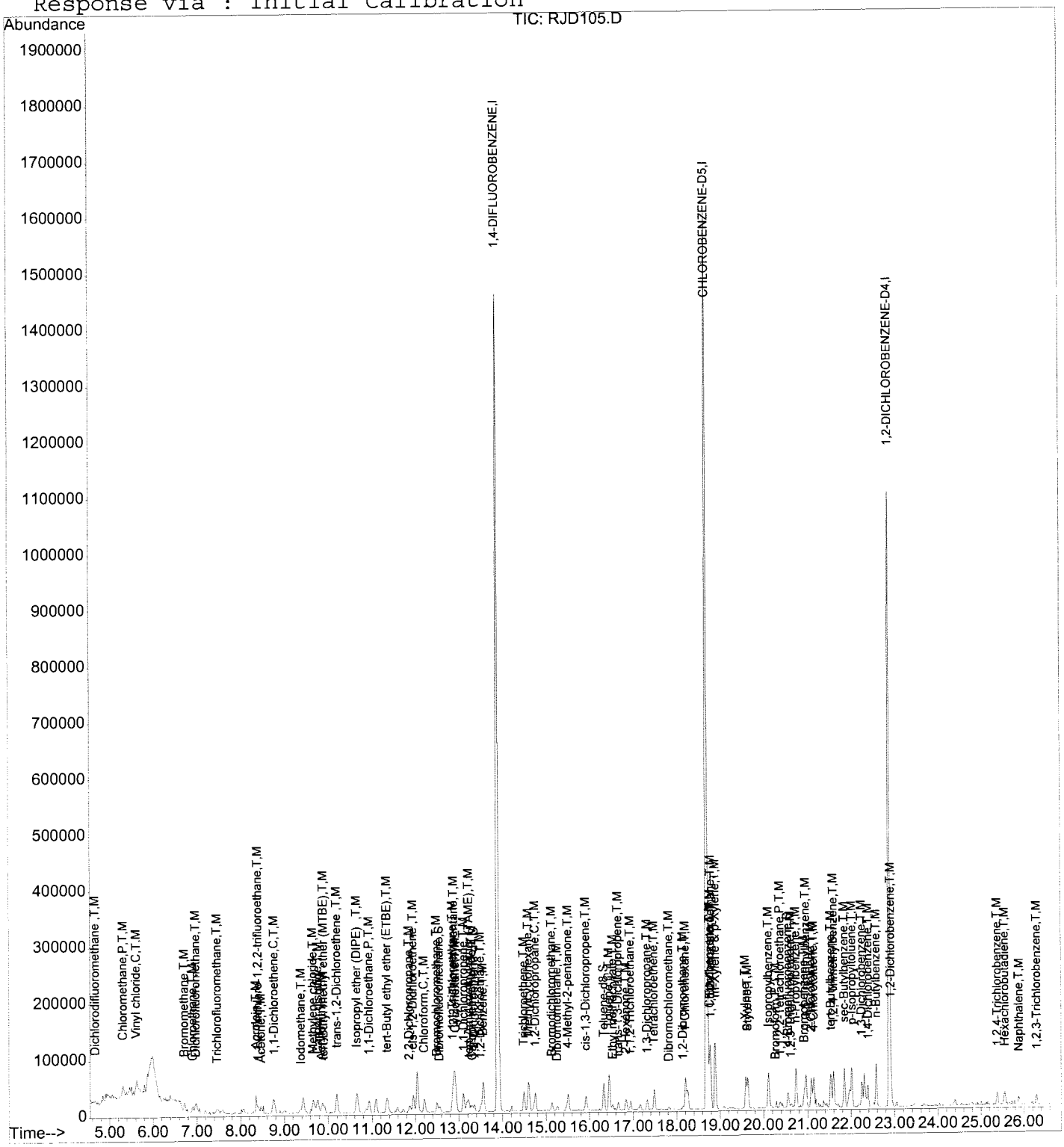
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19J09\RJD105.D
Acq On : 9 Oct 2019 9:59 am
Sample : VO94J091
Misc : 0.3ppb 8260/1.5ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:21 2019

Vial: 2
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD106.D
Acq On : 9 Oct 2019 10:30 am
Sample : VO94J092
Misc : 0.5ppb 8260/2.5ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:24 2019

Vial: 3
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.89	114	1538690	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	18.70	117	1249561	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	22.89	152	370308	10.00	ug/l	0.00
System Monitoring Compounds						
36) Dibromofluoromethane	12.57	111	19264	0.42	ug/l	0.00
Spiked Amount 10.000			Recovery =	4.20%		
43) 1,2-Dichloroethane-d4	13.35	65	18706	0.48	ug/l	0.00
Spiked Amount 10.000			Recovery =	4.80%		
56) Toluene-d8	16.33	98	73813	0.45	ug/l	0.00
Spiked Amount 10.000			Recovery =	4.50%		
77) 4-Bromofluorobenzene	20.56	95	23326	0.46	ug/l	0.00
Spiked Amount 10.000			Recovery =	4.60%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.66	85	30324	0.63	ug/l	93
3) Dichlorotetrafluoroethane	4.94	85	24946	0.91	ug/l	79
4) Chloromethane	5.33	50	64443	0.45	ug/l	98
5) Vinyl chloride	5.62	62	46146	0.42	ug/l	92
6) Bromomethane	6.73	94	28410	0.41	ug/l	93
7) Chloroethane	6.92	64	27622	0.38	ug/l	96
8) Dichlorofluoromethane	6.98	67	60770	0.42	ug/l	100
9) Trichlorofluoromethane	7.47	101	31778	0.38	ug/l	99
10) Acrolein	8.36	56	6999	1.65	ug/l	98
11) 1,1,2-Trichloro-1,2,2-trif	8.38	151	14388	0.42	ug/l	83
12) Acetone	8.47	43	24969	3.40	ug/l	89
13) 1,1-Dichloroethene	8.76	61	54844	0.43	ug/l	99
15) Acetonitrile	9.00	41	12555	3.25	ug/l	89
17) Iodomethane	9.40	142	30618	0.41	ug/l	98
18) Methylene chloride	9.66	49	48731	0.50	ug/l	98
19) Carbon disulfide	9.77	76	90722	0.38	ug/l	100
20) Acrylonitrile	9.85	53	22075	2.10	ug/l	97
21) tert-Butyl methyl ether (M	9.90	73	41694	0.47	ug/l	96
22) trans-1,2-Dichloroethene	10.19	96	29995	0.47	ug/l	95
24) Isopropyl ether (DIPE)	10.65	45	100714	0.45	ug/l	100
25) Vinyl acetate	10.86	43	27844	0.36	ug/l	96
26) 1,1-Dichloroethane	10.93	63	61957	0.48	ug/l	97
28) tert-Butyl ethyl ether (ET	11.34	59	73704	0.50	ug/l	99
29) 2-Butanone	11.58	72	5778	2.34	ug/l	64
30) 2,2-Dichloropropane	11.87	77	23230	0.46	ug/l	95
31) cis-1,2-Dichloroethene	11.95	96	28337	0.46	ug/l	97
32) Chloroform	12.20	83	42629	0.44	ug/l	94

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

SG 11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD106.D
Acq On : 9 Oct 2019 10:30 am
Sample : VO94J092
Misc : 0.5ppb 8260/2.5ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:24 2019

Vial: 3
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
34) Bromochloromethane	12.49	130	11528	0.44 ug/l	96
37) 1,1,1-Trichloroethane	12.86	97	29645	0.46 ug/l	99
38) 2,2,4-Trimethylpentane	12.89	57	146006	0.44 ug/l	98
39) Cyclohexane	12.92	84	44558	0.43 ug/l	98
40) 1,1-Dichloropropene	13.10	110	13191	0.47 ug/l	98
41) tert-Amyl methyl ether (TA	13.22	87	6949	0.38 ug/l	91
42) Carbon tetrachloride	13.30	119	19713	0.38 ug/l	93
44) 1,2-Dichloroethane	13.50	62	23081	0.48 ug/l	99
45) Benzene	13.56	78	110301	0.49 ug/l	96
46) Trichloroethene	14.48	130	27840	0.48 ug/l	96
47) Methylcyclohexane	14.60	83	54907	0.47 ug/l	99
48) 1,2-Dichloropropane	14.75	63	28694	0.47 ug/l	93
50) Bromodichloromethane	15.13	83	20177	0.37 ug/l	96
51) Dibromomethane	15.25	93	9764	0.48 ug/l	89
52) 2-Chloroethyl vinyl ether	15.47	63	9215	0.44 ug/l	93
53) 4-Methyl-2-pentanone	15.50	43	70430	2.31 ug/l	97
54) cis-1,3-Dichloropropene	15.92	75	29713	0.39 ug/l	95
57) Toluene	16.45	91	99387	0.49 ug/l	99
58) Ethyl methacrylate	16.53	69	14694	0.41 ug/l	93
59) trans-1,3-Dichloropropene	16.65	75	18480	0.38 ug/l	85
60) 2-Hexanone	16.83	43	40422	2.33 ug/l	93
61) 1,1,2-Trichloroethane	16.93	97	12144	0.48 ug/l	96
62) 1,3-Dichloropropane	17.32	76	24813	0.46 ug/l	94
63) Tetrachloroethene	17.48	164	18107	0.49 ug/l	95
64) Dibromochloromethane	17.82	129	10001	0.65 ug/l	93
65) 1,2-Dibromoethane	18.14	107	9787	0.41 ug/l	100
66) 1-Chlorohexane	18.22	91	38809	0.45 ug/l	94
67) Chlorobenzene	18.76	112	58037	0.46 ug/l	99
68) Ethylbenzene	18.78	91	116065	0.49 ug/l	97
69) 1,1,1,2-Tetrachloroethane	18.79	131	14210	0.42 ug/l	92
70) m-Xylene & p-Xylene	18.89	91	160464	0.99 ug/l	98
71) o-Xylene	19.59	91	74046	0.47 ug/l	99
72) Styrene	19.63	104	56504	0.46 ug/l	96
73) Isopropylbenzene	20.12	105	94999	0.46 ug/l	99
75) Bromoform	20.28	173	2340	0.61 ug/l	80
76) 1,1,2,2-Tetrachloroethane	20.38	83	14663	0.47 ug/l	98
78) 1,2,3-Trichloropropane	20.63	110	3748	0.54 ug/l	63
79) trans-1,4-Dichloro-2-buten	20.66	53	2146	0.62 ug/l	94
80) n-Propylbenzene	20.73	91	120726	0.45 ug/l	99
81) Bromobenzene	20.92	156	15982	0.46 ug/l	99
82) 1,3,5-Trimethylbenzene	20.95	105	72070	0.46 ug/l	99

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

SA 11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD106.D
Acq On : 9 Oct 2019 10:30 am
Sample : VO94J092
Misc : 0.5ppb 8260/2.5ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:24 2019

Vial: 3
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
83) 2-Chlorotoluene	21.08	91	75143	0.50	ug/l	99
84) 4-Chlorotoluene	21.14	91	56329	0.44	ug/l	99
85) tert-Butylbenzene	21.54	134	16047	0.46	ug/l	98
86) 1,2,4-Trimethylbenzene	21.60	105	70098	0.46	ug/l	100
87) sec-Butylbenzene	21.85	105	107072	0.47	ug/l	100
88) p-Isopropyltoluene	22.01	119	84750	0.47	ug/l	100
89) 1,3-Dichlorobenzene	22.24	146	35166	0.46	ug/l	99
90) 1,4-Dichlorobenzene	22.39	146	33112	0.46	ug/l	97
91) n-Butylbenzene	22.58	91	86949	0.47	ug/l	99
92) 1,2-Dichlorobenzene	22.92	146	27711	0.45	ug/l	95
94) 1,2,4-Trichlorobenzene	25.39	180	17093	0.41	ug/l	95
95) Hexachlorobutadiene	25.56	225	12499	0.42	ug/l	97
96) Naphthalene	25.89	128	27232	0.39	ug/l	98
97) 1,2,3-Trichlorobenzene	26.28	180	13288	0.40	ug/l	96

SY
11/14/19

(#) = qualifier out of range (m) = manual integration
RJD106.D VO94J09.M Wed Nov 13 17:07:38 2019

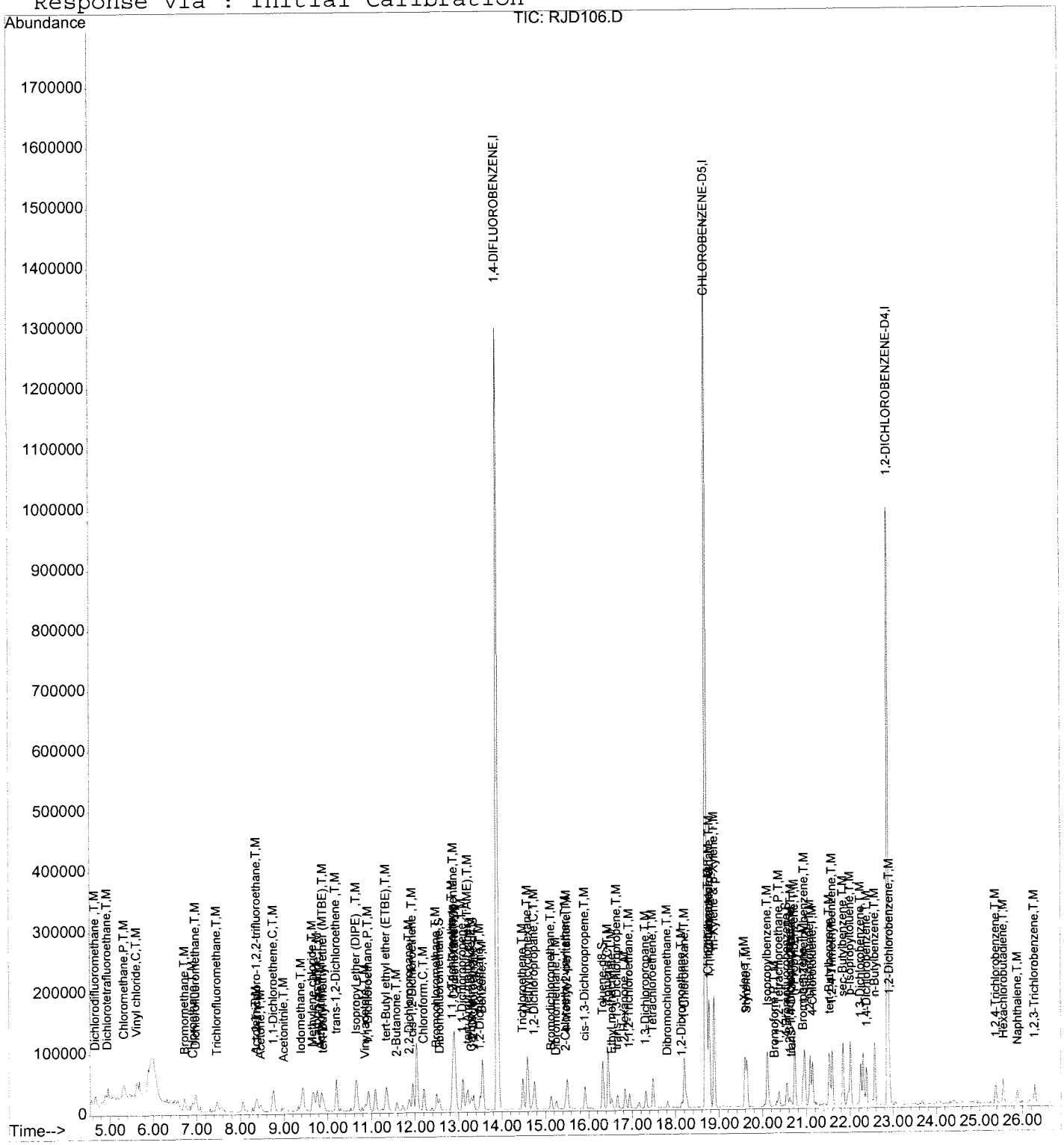
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19J09\RJD106.D
Acq On : 9 Oct 2019 10:30 am
Sample : VO94J092
Misc : 0.5ppb 8260/2.5ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:24 2019

Vial: 3
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD107.D
Acq On : 9 Oct 2019 11:01 am
Sample : VO94J093
Misc : 1.0ppb 8260/5.0ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:27 2019

Vial: 4
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.90	114	1490039	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	18.71	117	1204085	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	22.89	152	353449	10.00	ug/l	0.00
System Monitoring Compounds						
36) Dibromofluoromethane	12.56	111	42589	0.96	ug/l	-0.01
Spiked Amount 10.000			Recovery =	9.60%		
43) 1,2-Dichloroethane-d4	13.35	65	40595	1.07	ug/l	0.00
Spiked Amount 10.000			Recovery =	10.70%		
56) Toluene-d8	16.33	98	163147	1.02	ug/l	0.00
Spiked Amount 10.000			Recovery =	10.20%		
77) 4-Bromofluorobenzene	20.56	95	49750	1.02	ug/l	0.00
Spiked Amount 10.000			Recovery =	10.20%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.67	85	70195	1.08	ug/l	98
3) Dichlorotetrafluoroethane	4.95	85	54853	1.30	ug/l	84
4) Chloromethane	5.31	50	124452	0.90	ug/l	99
5) Vinyl chloride	5.62	62	100683	0.96	ug/l	97
6) Bromomethane	6.72	94	61466	0.93	ug/l	93
7) Chloroethane	6.91	64	62745	0.88	ug/l	95
8) Dichlorofluoromethane	6.98	67	125196	0.90	ug/l	99
9) Trichlorofluoromethane	7.47	101	72347	0.89	ug/l	95
10) Acrolein	8.34	56	13943	3.39	ug/l	87
11) 1,1,2-Trichloro-1,2,2-trif	8.38	151	29804	0.90	ug/l	100
12) Acetone	8.47	43	38514	5.42	ug/l	99
13) 1,1-Dichloroethene	8.75	61	113649	0.92	ug/l	98
14) tert-Butyl alcohol	8.85	59	9540	4.36	ug/l	62
15) Acetonitrile	8.99	41	34430	9.19	ug/l	91
16) Methyl acetate	9.33	43	21863	0.94	ug/l	92
17) Iodomethane	9.40	142	61493	0.86	ug/l	94
18) Methylene chloride	9.67	49	90994	0.96	ug/l	99
19) Carbon disulfide	9.77	76	195097	0.84	ug/l	98
20) Acrylonitrile	9.86	53	43772	4.31	ug/l	99
21) tert-Butyl methyl ether (M	9.89	73	76605	0.89	ug/l	100
22) trans-1,2-Dichloroethene	10.20	96	56719	0.91	ug/l	96
24) Isopropyl ether (DIPE)	10.65	45	198793	0.91	ug/l	99
25) Vinyl acetate	10.86	43	63893	0.84	ug/l	93
26) 1,1-Dichloroethane	10.93	63	116788	0.93	ug/l	100
28) tert-Butyl ethyl ether (ET	11.35	59	129879	0.91	ug/l	98
29) 2-Butanone	11.58	72	9761	4.07	ug/l	94
30) 2,2-Dichloropropane	11.88	77	46726	0.95	ug/l	95

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

11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD107.D
Acq On : 9 Oct 2019 11:01 am
Sample : VO94J093
Misc : 1.0ppb 8260/5.0ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:27 2019

Vial: 4
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31)	cis-1,2-Dichloroethene	11.95	96	55230	0.92 ug/l	97
32)	Chloroform	12.20	83	91729	0.99 ug/l	99
34)	Bromochloromethane	12.50	130	24471	0.97 ug/l	99
35)	Tetrahydrofuran	12.54	42	8199	1.05 ug/l	73
37)	1,1,1-Trichloroethane	12.87	97	59753	0.97 ug/l	98
38)	2,2,4-Trimethylpentane	12.89	57	326491	1.02 ug/l	98
39)	Cyclohexane	12.92	84	93961	0.95 ug/l	99
40)	1,1-Dichloropropene	13.10	110	27275	1.00 ug/l	100
41)	tert-Amyl methyl ether (TA	13.20	87	16751	0.96 ug/l	93
42)	Carbon tetrachloride	13.31	119	42434	0.85 ug/l	94
44)	1,2-Dichloroethane	13.50	62	44658	0.95 ug/l	99
45)	Benzene	13.56	78	217412	0.99 ug/l	98
46)	Trichloroethene	14.49	130	50725	0.90 ug/l	97
47)	Methylcyclohexane	14.59	83	113151	1.00 ug/l	100
48)	1,2-Dichloropropane	14.75	63	56111	0.96 ug/l	99
50)	Bromodichloromethane	15.14	83	43857	0.83 ug/l	98
51)	Dibromomethane	15.25	93	17785	0.90 ug/l	97
52)	2-Chloroethyl vinyl ether	15.48	63	17072	0.84 ug/l	99
53)	4-Methyl-2-pentanone	15.51	43	135948	4.60 ug/l	99
54)	cis-1,3-Dichloropropene	15.92	75	61787	0.85 ug/l	97
57)	Toluene	16.45	91	196676	1.00 ug/l	99
58)	Ethyl methacrylate	16.52	69	32469	0.93 ug/l	81
59)	trans-1,3-Dichloropropene	16.66	75	40002	0.84 ug/l	94
60)	2-Hexanone	16.83	43	80208	4.79 ug/l	100
61)	1,1,2-Trichloroethane	16.94	97	24260	0.99 ug/l	97
62)	1,3-Dichloropropane	17.32	76	48974	0.94 ug/l	98
63)	Tetrachloroethene	17.50	164	34363	0.96 ug/l	95
64)	Dibromochloromethane	17.82	129	20413	1.00 ug/l	98
65)	1,2-Dibromoethane	18.14	107	20480	0.90 ug/l	100
66)	1-Chlorohexane	18.20	91	81180	0.97 ug/l	97
67)	Chlorobenzene	18.76	112	120642	1.00 ug/l	98
68)	Ethylbenzene	18.78	91	226286	1.00 ug/l	99
69)	1,1,1,2-Tetrachloroethane	18.79	131	28374	0.86 ug/l	90
70)	m-Xylene & p-Xylene	18.90	91	323285	2.07 ug/l	98
71)	o-Xylene	19.59	91	149759	0.98 ug/l	99
72)	Styrene	19.63	104	119350	1.01 ug/l	99
73)	Isopropylbenzene	20.11	105	198124	1.00 ug/l	100
75)	Bromoform	20.28	173	7118	1.01 ug/l	90
76)	1,1,2,2-Tetrachloroethane	20.38	83	29590	1.00 ug/l	98
78)	1,2,3-Trichloropropane	20.63	110	5925	0.89 ug/l	85
79)	trans-1,4-Dichloro-2-buten	20.66	53	4227	0.96 ug/l	76

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

11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD107.D
Acq On : 9 Oct 2019 11:01 am
Sample : VO94J093
Misc : 1.0ppb 8260/5.0ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:27 2019

Vial: 4
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
80) n-Propylbenzene	20.73	91	253215	0.99	ug/l	99
81) Bromobenzene	20.92	156	31727	0.96	ug/l	97
82) 1,3,5-Trimethylbenzene	20.97	105	150817	1.00	ug/l	97
83) 2-Chlorotoluene	21.08	91	143663	1.00	ug/l	99
84) 4-Chlorotoluene	21.14	91	120306	0.98	ug/l	98
85) tert-Butylbenzene	21.54	134	33500	1.00	ug/l	97
86) 1,2,4-Trimethylbenzene	21.60	105	144073	1.00	ug/l	100
87) sec-Butylbenzene	21.85	105	211157	0.97	ug/l	99
88) p-Isopropyltoluene	22.02	119	168865	0.98	ug/l	98
89) 1,3-Dichlorobenzene	22.24	146	71030	0.98	ug/l	98
90) 1,4-Dichlorobenzene	22.39	146	65437	0.95	ug/l	98
91) n-Butylbenzene	22.58	91	171258	0.97	ug/l	99
92) 1,2-Dichlorobenzene	22.92	146	57863	0.98	ug/l	100
93) 1,2-Dibromo-3-chloropropan	24.02	157	2253	1.19	ug/l	98
94) 1,2,4-Trichlorobenzene	25.39	180	33015	0.83	ug/l	98
95) Hexachlorobutadiene	25.56	225	25284	0.89	ug/l	97
96) Naphthalene	25.89	128	51427	0.78	ug/l	98
97) 1,2,3-Trichlorobenzene	26.30	180	26047	0.83	ug/l	99

(#) = qualifier out of range (m) = manual integration
RJD107.D VO94J09.M Wed Nov 13 17:08:33 2019

11/14/19

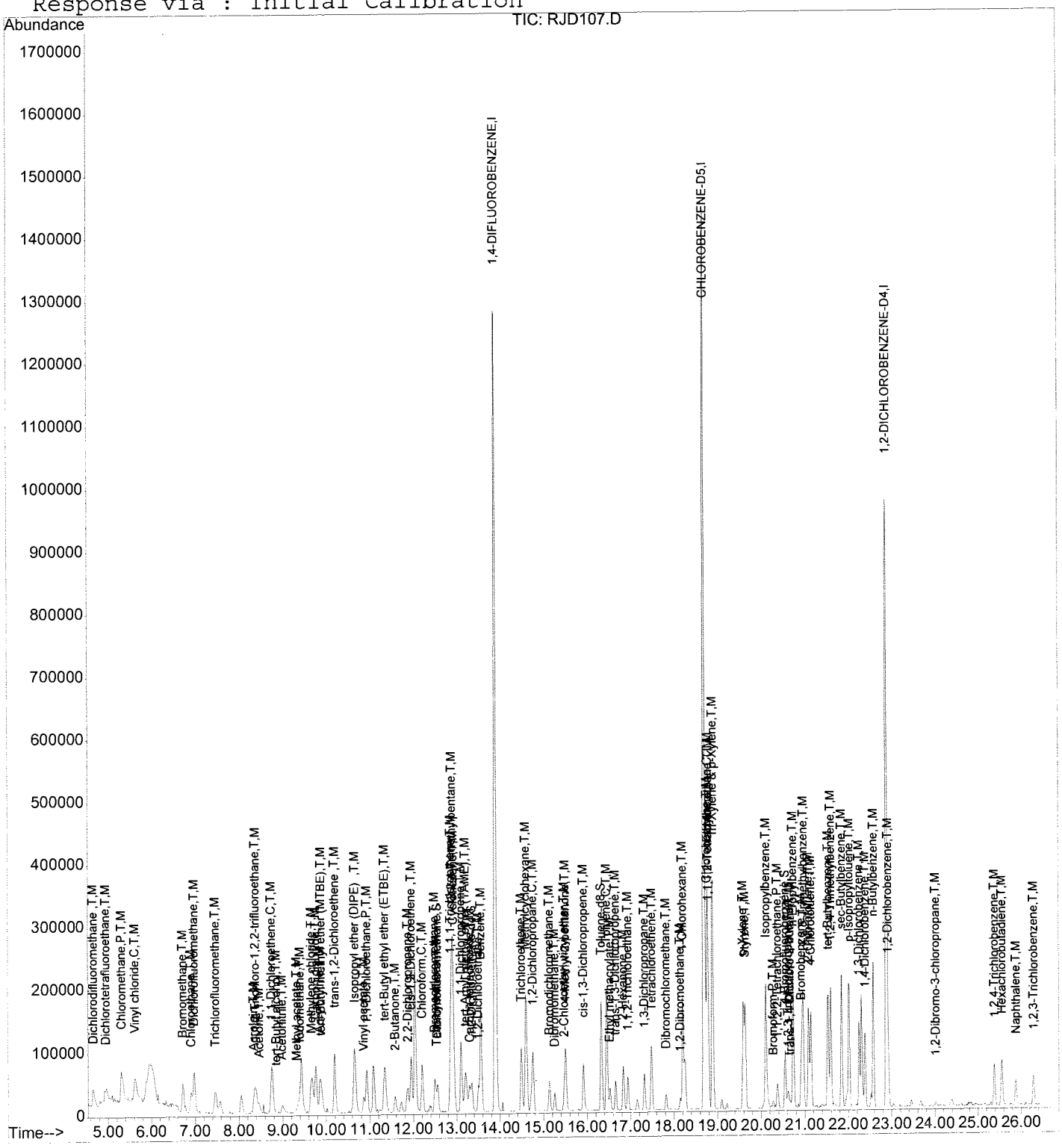
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19J09\RJD107.D
Acq On : 9 Oct 2019 11:01 am
Sample : VO94J093
Misc : 1.0ppb 8260/5.0ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:27 2019

Vial: 4
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD108.D
Acq On : 9 Oct 2019 11:32 am
Sample : VO94J094
Misc : 2.0ppb 8260/10ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:29 2019

Vial: 5
Operator: VLu
Inst : 94
Multiplr: 1.00
Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.91	114	1442538	10.00	ug/l	0.01
55) CHLOROBENZENE-D5	18.70	117	1158942	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	22.89	152	334020	10.00	ug/l	0.00
System Monitoring Compounds						
36) Dibromofluoromethane	12.57	111	83999	1.96	ug/l	0.00
Spiked Amount 10.000			Recovery =	19.60%		
43) 1,2-Dichloroethane-d4	13.35	65	75757	2.06	ug/l	0.00
Spiked Amount 10.000			Recovery =	20.60%		
56) Toluene-d8	16.33	98	315332	2.05	ug/l	0.00
Spiked Amount 10.000			Recovery =	20.50%		
77) 4-Bromofluorobenzene	20.56	95	91149	1.98	ug/l	0.00
Spiked Amount 10.000			Recovery =	19.80%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.66	85	129938	1.78	ug/l	96
3) Dichlorotetrafluoroethane	4.94	85	102343	1.95	ug/l	93
4) Chloromethane	5.31	50	229901	1.71	ug/l	99
5) Vinyl chloride	5.62	62	188110	1.85	ug/l	100
6) Bromomethane	6.71	94	111796	1.74	ug/l	95
7) Chloroethane	6.90	64	120725	1.76	ug/l	97
8) Dichlorofluoromethane	6.98	67	246387	1.83	ug/l	99
9) Trichlorofluoromethane	7.46	101	137897	1.75	ug/l	97
10) Acrolein	8.35	56	31976	8.04	ug/l	92
11) 1,1,2-Trichloro-1,2,2-trif	8.38	151	58329	1.83	ug/l	100
12) Acetone	8.47	43	68658	9.97	ug/l	98
13) 1,1-Dichloroethene	8.75	61	225067	1.88	ug/l	98
14) tert-Butyl alcohol	8.83	59	21177	9.99	ug/l	97
15) Acetonitrile	9.00	41	64034	17.66	ug/l	100
16) Methyl acetate	9.34	43	39734	1.77	ug/l	99
17) Iodomethane	9.39	142	127459	1.83	ug/l	100
18) Methylene chloride	9.66	49	178446	1.95	ug/l	100
19) Carbon disulfide	9.76	76	395028	1.76	ug/l	100
20) Acrylonitrile	9.85	53	91299	9.28	ug/l	98
21) tert-Butyl methyl ether (M	9.90	73	161178	1.93	ug/l	97
22) trans-1,2-Dichloroethene	10.19	96	119278	1.99	ug/l	99
24) Isopropyl ether (DIPE)	10.65	45	426802	2.03	ug/l	98
25) Vinyl acetate	10.85	43	125804	1.72	ug/l	100
26) 1,1-Dichloroethane	10.93	63	247682	2.03	ug/l	98
27) 2-Butanol	11.24	45	19516	9.64	ug/l	93
28) tert-Butyl ethyl ether (ET	11.34	59	274896	1.99	ug/l	98
29) 2-Butanone	11.58	72	20792	8.96	ug/l	95

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD108.D
Acq On : 9 Oct 2019 11:32 am
Sample : VO94J094
Misc : 2.0ppb 8260/10ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:29 2019

Vial: 5
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
30) 2,2-Dichloropropane	11.87	77	99437	2.09 ug/l	98
31) cis-1,2-Dichloroethene	11.96	96	115099	1.99 ug/l	98
32) Chloroform	12.21	83	187593	2.09 ug/l	96
33) tert-Amyl alcohol	12.39	59	15131	8.29 ug/l	88
34) Bromochloromethane	12.51	130	49714	2.04 ug/l	99
35) Tetrahydrofuran	12.54	42	13900	1.84 ug/l	93
37) 1,1,1-Trichloroethane	12.86	97	122821	2.05 ug/l	98
38) 2,2,4-Trimethylpentane	12.89	57	639344	2.07 ug/l	99
39) Cyclohexane	12.92	84	186416	1.94 ug/l	98
40) 1,1-Dichloropropene	13.10	110	53747	2.04 ug/l	98
41) tert-Amyl methyl ether (TA	13.21	87	35708	2.11 ug/l	89
42) Carbon tetrachloride	13.30	119	90529	1.88 ug/l	99
44) 1,2-Dichloroethane	13.49	62	96266	2.13 ug/l	98
45) Benzene	13.55	78	442930	2.08 ug/l	99
46) Trichloroethene	14.48	130	106483	1.95 ug/l	99
47) Methylcyclohexane	14.60	83	214166	1.96 ug/l	98
48) 1,2-Dichloropropane	14.75	63	114416	2.02 ug/l	98
49) 1,4-Dioxane	15.12	88	5313	48.48 ug/l	88
50) Bromodichloromethane	15.13	83	96314	1.89 ug/l	99
51) Dibromomethane	15.25	93	37171	1.95 ug/l	97
52) 2-Chloroethyl vinyl ether	15.47	63	36661	1.86 ug/l	100
53) 4-Methyl-2-pentanone	15.50	43	280715	9.82 ug/l	99
54) cis-1,3-Dichloropropene	15.91	75	128898	1.82 ug/l	98
57) Toluene	16.46	91	396525	2.10 ug/l	99
58) Ethyl methacrylate	16.53	69	65569	1.96 ug/l	93
59) trans-1,3-Dichloropropene	16.67	75	84201	1.85 ug/l	95
60) 2-Hexanone	16.83	43	163109	10.12 ug/l	100
61) 1,1,2-Trichloroethane	16.95	97	50311	2.12 ug/l	98
62) 1,3-Dichloropropane	17.31	76	103457	2.06 ug/l	99
63) Tetrachloroethene	17.49	164	71612	2.08 ug/l	98
64) Dibromochloromethane	17.83	129	44149	1.83 ug/l	100
65) 1,2-Dibromoethane	18.14	107	45294	2.06 ug/l	97
66) 1-Chlorohexane	18.21	91	159222	1.98 ug/l	100
67) Chlorobenzene	18.76	112	241159	2.07 ug/l	99
68) Ethylbenzene	18.79	91	456506	2.09 ug/l	100
69) 1,1,1,2-Tetrachloroethane	18.79	131	63219	2.00 ug/l	99
70) m-Xylene & p-Xylene	18.89	91	642682	4.28 ug/l	98
71) o-Xylene	19.60	91	306666	2.09 ug/l	99
72) Styrene	19.64	104	232394	2.05 ug/l	99
73) Isopropylbenzene	20.11	105	394174	2.06 ug/l	99
75) Bromoform	20.28	173	17446	1.93 ug/l	96

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

SA 11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD108.D
Acq On : 9 Oct 2019 11:32 am
Sample : VO94J094
Misc : 2.0ppb 8260/10ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:29 2019

Vial: 5
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
76)	1,1,2,2-Tetrachloroethane	20.38	83	57141	2.05 ug/l	99
78)	1,2,3-Trichloropropane	20.63	110	13019	2.07 ug/l	88
79)	trans-1,4-Dichloro-2-buten	20.66	53	9996	1.96 ug/l	89
80)	n-Propylbenzene	20.73	91	500162	2.07 ug/l	99
81)	Bromobenzene	20.92	156	64886	2.08 ug/l	98
82)	1,3,5-Trimethylbenzene	20.97	105	297653	2.09 ug/l	98
83)	2-Chlorotoluene	21.08	91	284747	2.10 ug/l	99
84)	4-Chlorotoluene	21.14	91	246615	2.13 ug/l	97
85)	tert-Butylbenzene	21.54	134	63045	1.99 ug/l	99
86)	1,2,4-Trimethylbenzene	21.60	105	288190	2.11 ug/l	100
87)	sec-Butylbenzene	21.85	105	435046	2.11 ug/l	99
88)	p-Isopropyltoluene	22.02	119	343996	2.11 ug/l	99
89)	1,3-Dichlorobenzene	22.24	146	139085	2.04 ug/l	99
90)	1,4-Dichlorobenzene	22.39	146	134474	2.07 ug/l	99
91)	n-Butylbenzene	22.58	91	347695	2.09 ug/l	99
92)	1,2-Dichlorobenzene	22.93	146	114094	2.05 ug/l	98
93)	1,2-Dibromo-3-chloropropan	24.04	157	4557	1.99 ug/l	92
94)	1,2,4-Trichlorobenzene	25.39	180	69961	1.85 ug/l	99
95)	Hexachlorobutadiene	25.56	225	50532	1.87 ug/l	98
96)	Naphthalene	25.89	128	113314	1.82 ug/l	99
97)	1,2,3-Trichlorobenzene	26.30	180	58782	1.97 ug/l	97

SG 11/14/19

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

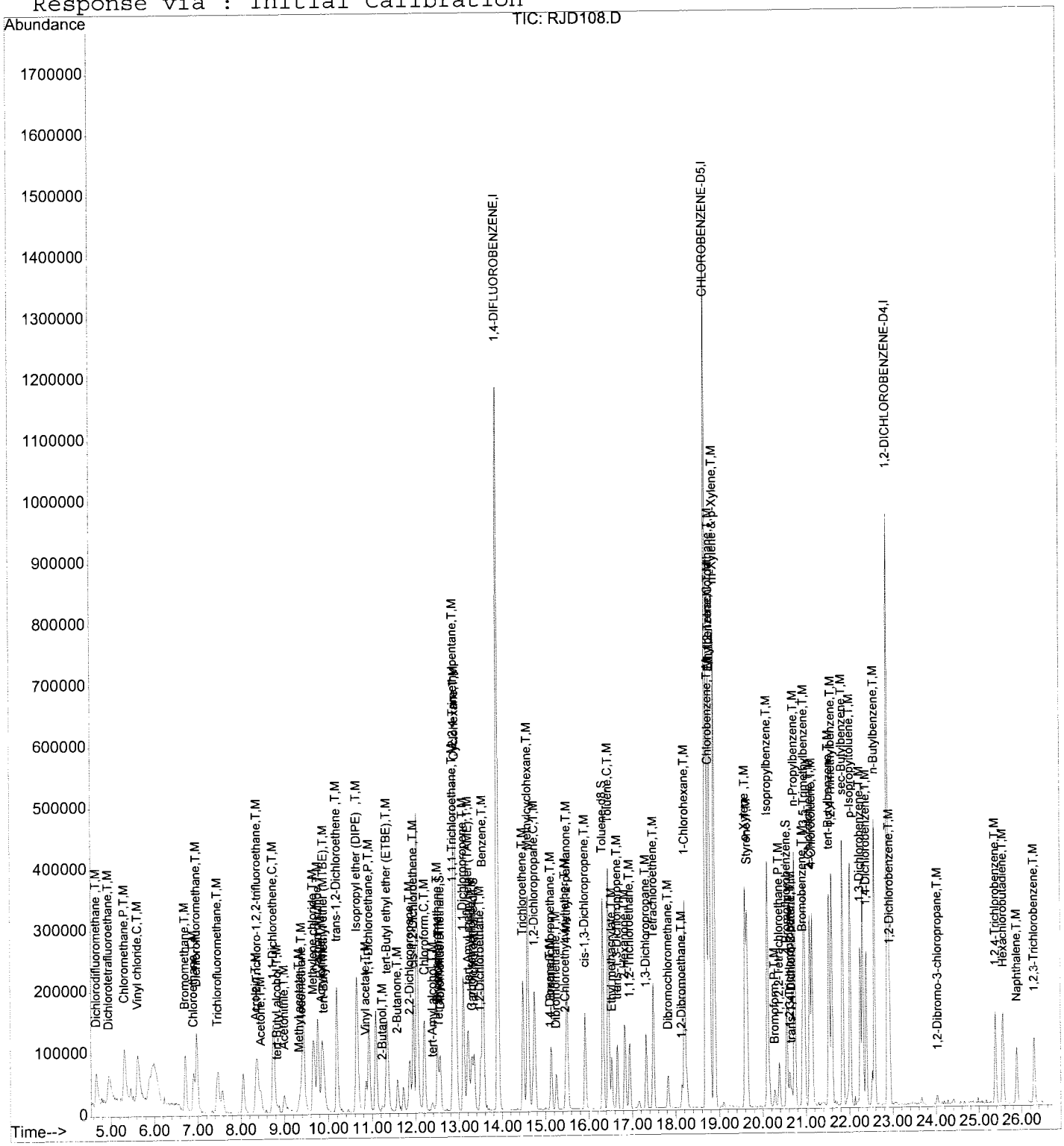
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19J09\RJD108.D
Acq On : 9 Oct 2019 11:32 am
Sample : VO94J094
Misc : 2.0ppb 8260/10ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:29 2019

Vial: 5
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD109.D
Acq On : 9 Oct 2019 12:03 pm
Sample : VO94J095
Misc : 5.0ppb 8260/25ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:25 2019

Vial: 6
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.90	114	1279736	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	18.71	117	1057852	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	22.89	152	312472	10.00	ug/l	0.00
System Monitoring Compounds						
36) Dibromofluoromethane	12.56	111	197995	5.20	ug/l	-0.01
Spiked Amount 10.000			Recovery =	52.00%		
43) 1,2-Dichloroethane-d4	13.35	65	173477	5.31	ug/l	0.00
Spiked Amount 10.000			Recovery =	53.10%		
56) Toluene-d8	16.33	98	741873	5.29	ug/l	0.00
Spiked Amount 10.000			Recovery =	52.90%		
77) 4-Bromofluorobenzene	20.55	95	212830	4.95	ug/l	0.00
Spiked Amount 10.000			Recovery =	49.50%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.67	85	315731	4.34	ug/l	100
3) Dichlorotetrafluoroethane	4.95	85	278662	4.73	ug/l	95
4) Chloromethane	5.32	50	587920	4.92	ug/l	100
5) Vinyl chloride	5.61	62	466773	5.16	ug/l	98
6) Bromomethane	6.72	94	278550	4.88	ug/l	99
7) Chloroethane	6.91	64	308789	5.07	ug/l	100
8) Dichlorofluoromethane	6.98	67	613667	5.13	ug/l	99
9) Trichlorofluoromethane	7.47	101	340785	4.88	ug/l	100
10) Acrolein	8.35	56	79654	22.56	ug/l	99
11) 1,1,2-Trichloro-1,2,2-trif	8.38	151	147962	5.22	ug/l	98
12) Acetone	8.46	43	144233	23.62	ug/l	96
13) 1,1-Dichloroethene	8.75	61	548719	5.17	ug/l	100
14) tert-Butyl alcohol	8.86	59	42377	22.53	ug/l	98
15) Acetonitrile	8.99	41	160499	49.90	ug/l	96
16) Methyl acetate	9.33	43	94150	4.72	ug/l	99
17) Iodomethane	9.40	142	314855	5.11	ug/l	100
18) Methylene chloride	9.67	49	413042	5.09	ug/l	100
19) Carbon disulfide	9.77	76	1035090	5.20	ug/l	100
20) Acrylonitrile	9.86	53	213896	24.52	ug/l	98
21) tert-Butyl methyl ether (M	9.89	73	370494	5.00	ug/l	100
22) trans-1,2-Dichloroethene	10.20	96	272018	5.11	ug/l	100
24) Isopropyl ether (DIPE)	10.65	45	975795	5.23	ug/l	99
25) Vinyl acetate	10.86	43	311064	4.78	ug/l	99
26) 1,1-Dichloroethane	10.94	63	565890	5.23	ug/l	100
27) 2-Butanol	11.24	45	39196	21.82	ug/l	100
28) tert-Butyl ethyl ether (ET	11.35	59	611886	4.99	ug/l	100
29) 2-Butanone	11.58	72	51314	24.94	ug/l	96

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

11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD109.D
Acq On : 9 Oct 2019 12:03 pm
Sample : VO94J095
Misc : 5.0ppb 8260/25ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:25 2019

Vial: 6
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
30) 2,2-Dichloropropane	11.86	77	226894	5.37 ug/l	99
31) cis-1,2-Dichloroethene	11.95	96	264027	5.15 ug/l	99
32) Chloroform	12.20	83	413652	5.19 ug/l	99
33) tert-Amyl alcohol	12.38	59	35694	22.05 ug/l	100
34) Bromochloromethane	12.50	130	112481	5.21 ug/l	98
35) Tetrahydrofuran	12.53	42	34943	5.20 ug/l	96
37) 1,1,1-Trichloroethane	12.87	97	283811	5.34 ug/l	99
38) 2,2,4-Trimethylpentane	12.90	57	1467819	5.35 ug/l	99
39) Cyclohexane	12.91	84	430210	5.04 ug/l	99
40) 1,1-Dichloropropene	13.10	110	120556	5.17 ug/l	98
41) tert-Amyl methyl ether (TA	13.21	87	74833	4.98 ug/l	94
42) Carbon tetrachloride	13.29	119	215560	5.05 ug/l	100
44) 1,2-Dichloroethane	13.50	62	208493	5.19 ug/l	97
45) Benzene	13.56	78	981889	5.21 ug/l	99
46) Trichloroethene	14.49	130	236691	4.89 ug/l	98
47) Methylcyclohexane	14.59	83	482305	4.97 ug/l	99
48) 1,2-Dichloropropane	14.75	63	257129	5.12 ug/l	100
49) 1,4-Dioxane	15.11	88	12634	93.62 ug/l	82
50) Bromodichloromethane	15.14	83	220840	4.89 ug/l	98
51) Dibromomethane	15.26	93	84040	4.98 ug/l	99
52) 2-Chloroethyl vinyl ether	15.46	63	82106	4.70 ug/l	100
53) 4-Methyl-2-pentanone	15.51	43	636342	25.09 ug/l	99
54) cis-1,3-Dichloropropene	15.92	75	305794	4.87 ug/l	98
57) Toluene	16.45	91	892262	5.18 ug/l	100
58) Ethyl methacrylate	16.52	69	151695	4.97 ug/l	99
59) trans-1,3-Dichloropropene	16.66	75	210086	5.05 ug/l	100
60) 2-Hexanone	16.83	43	372595	25.34 ug/l	99
61) 1,1,2-Trichloroethane	16.94	97	113168	5.23 ug/l	97
62) 1,3-Dichloropropane	17.32	76	238030	5.20 ug/l	97
63) Tetrachloroethene	17.48	164	163058	5.18 ug/l	97
64) Dibromochloromethane	17.82	129	109422	4.42 ug/l	100
65) 1,2-Dibromoethane	18.15	107	98850	4.93 ug/l	97
66) 1-Chlorohexane	18.21	91	372030	5.08 ug/l	100
67) Chlorobenzene	18.77	112	543311	5.11 ug/l	100
68) Ethylbenzene	18.78	91	1023530	5.14 ug/l	100
69) 1,1,1,2-Tetrachloroethane	18.80	131	146363	5.07 ug/l	98
70) m-Xylene & p-Xylene	18.90	91	1456349	10.62 ug/l	98
71) o-Xylene	19.59	91	699440	5.21 ug/l	100
72) Styrene	19.64	104	535639	5.17 ug/l	99
73) Isopropylbenzene	20.11	105	908333	5.20 ug/l	100
75) Bromoform	20.28	173	42201	4.32 ug/l	98

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

11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD109.D
Acq On : 9 Oct 2019 12:03 pm
Sample : VO94J095
Misc : 5.0ppb 8260/25ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:25 2019

Vial: 6
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
76) 1,1,2,2-Tetrachloroethane	20.38	83	130606	5.00 ug/l	99
78) 1,2,3-Trichloropropane	20.63	110	29208	4.98 ug/l	96
79) trans-1,4-Dichloro-2-buten	20.67	53	23334	4.46 ug/l	89
80) n-Propylbenzene	20.73	91	1174404	5.19 ug/l	99
81) Bromobenzene	20.92	156	147451	5.05 ug/l	100
82) 1,3,5-Trimethylbenzene	20.97	105	708826	5.32 ug/l	98
83) 2-Chlorotoluene	21.08	91	655203	5.17 ug/l	99
84) 4-Chlorotoluene	21.14	91	558836	5.15 ug/l	99
85) tert-Butylbenzene	21.54	134	153789	5.19 ug/l	97
86) 1,2,4-Trimethylbenzene	21.60	105	673355	5.27 ug/l	100
87) sec-Butylbenzene	21.85	105	1009709	5.24 ug/l	99
88) p-Isopropyltoluene	22.02	119	792809	5.20 ug/l	100
89) 1,3-Dichlorobenzene	22.26	146	325512	5.10 ug/l	98
90) 1,4-Dichlorobenzene	22.39	146	317697	5.24 ug/l	98
91) n-Butylbenzene	22.58	91	829075	5.33 ug/l	99
92) 1,2-Dichlorobenzene	22.93	146	267774	5.15 ug/l	98
93) 1,2-Dibromo-3-chloropropan	24.03	157	11203	4.41 ug/l	91
94) 1,2,4-Trichlorobenzene	25.39	180	165956	4.70 ug/l	97
95) Hexachlorobutadiene	25.56	225	120397	4.77 ug/l	99
96) Naphthalene	25.88	128	264481	4.54 ug/l	99
97) 1,2,3-Trichlorobenzene	26.30	180	134100	4.81 ug/l	98

(#) = qualifier out of range (m) = manual integration
RJD109.D VO94J09.M Wed Nov 13 17:09:30 2019 11/14/19 Page 3

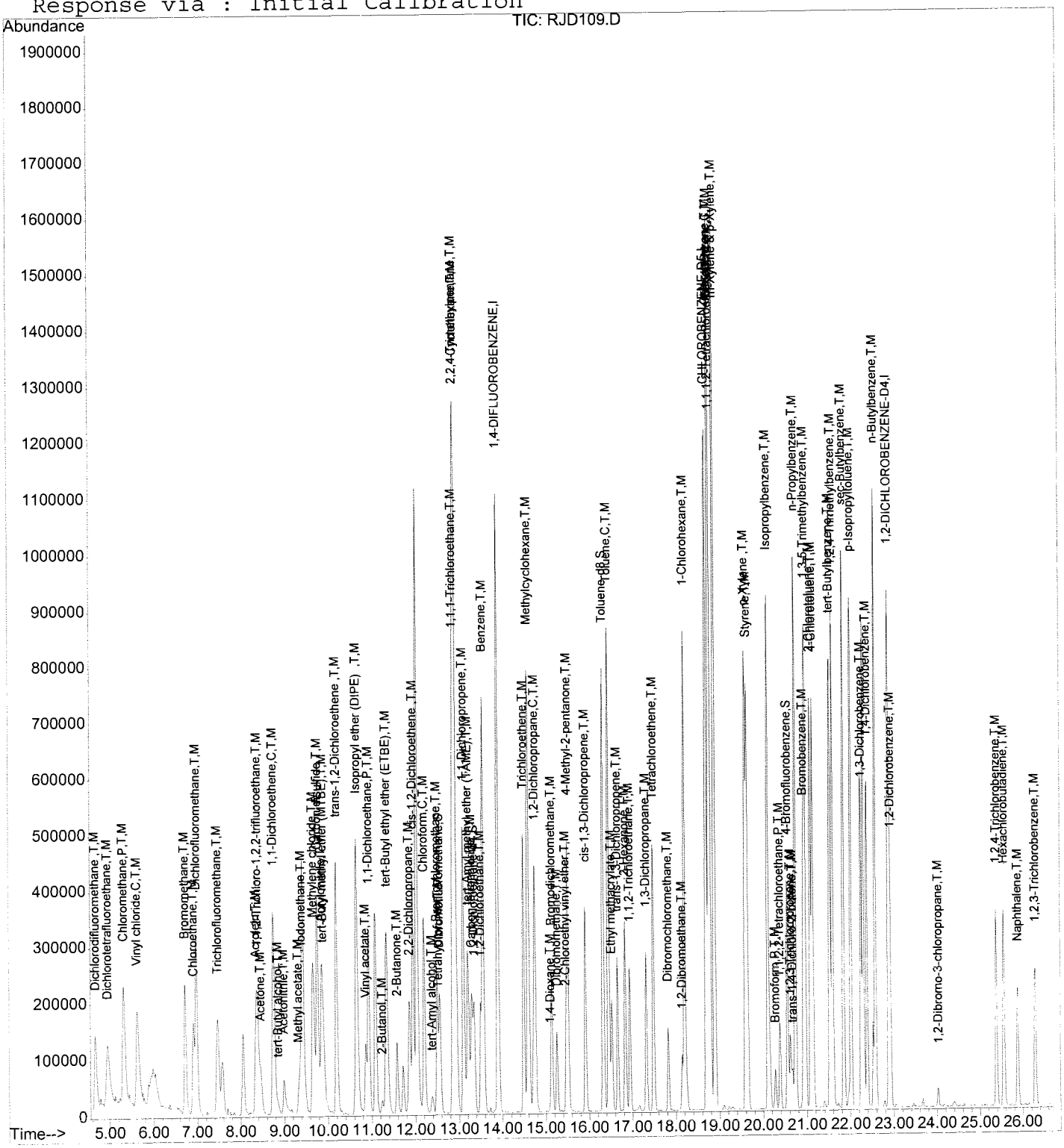
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19J09\RJD109.D
Acq On : 9 Oct 2019 12:03 pm
Sample : VO94J095
Misc : 5.0ppb 8260/25ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:25 2019

Vial: 6
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD110.D Vial: 7
Acq On : 9 Oct 2019 12:34 pm Operator: VLu
Sample : VO94J096 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.90	114	1207070	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	18.70	117	1010068	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	22.89	152	294363	10.00	ug/l	0.00
System Monitoring Compounds						
36) Dibromofluoromethane	12.57	111	390949	10.88	ug/l	0.00
Spiked Amount 10.000			Recovery =	108.80%		
43) 1,2-Dichloroethane-d4	13.35	65	334146	10.85	ug/l	0.00
Spiked Amount 10.000			Recovery =	108.50%		
56) Toluene-d8	16.33	98	1468866	10.97	ug/l	0.00
Spiked Amount 10.000			Recovery =	109.70%		
77) 4-Bromofluorobenzene	20.56	95	437603	10.80	ug/l	0.00
Spiked Amount 10.000			Recovery =	108.00%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.66	85	626591	8.79	ug/l	100
3) Dichlorotetrafluoroethane	4.94	85	490026	8.30	ug/l	100
4) Chloromethane	5.31	50	1104618	9.81	ug/l	100
5) Vinyl chloride	5.62	62	890930	10.45	ug/l	100
6) Bromomethane	6.71	94	537687	9.99	ug/l	100
7) Chloroethane	6.91	64	571657	9.95	ug/l	100
8) Dichlorofluoromethane	6.98	67	1134285	10.04	ug/l	100
9) Trichlorofluoromethane	7.47	101	681459	10.35	ug/l	100
10) Acrolein	8.34	56	165172	49.60	ug/l	100
11) 1,1,2-Trichloro-1,2,2-trif	8.38	151	263551	9.86	ug/l	100
12) Acetone	8.45	43	281143	48.80	ug/l	100
13) 1,1-Dichloroethene	8.75	61	1000724	10.00	ug/l	100
14) tert-Butyl alcohol	8.85	59	84968	47.89	ug/l	100
15) Acetonitrile	8.99	41	314306	103.61	ug/l	100
16) Methyl acetate	9.34	43	191655	10.19	ug/l	100
17) Iodomethane	9.38	142	564914	9.72	ug/l	100
18) Methylene chloride	9.66	49	733379	9.58	ug/l	100
19) Carbon disulfide	9.77	76	1937825	10.32	ug/l	100
20) Acrylonitrile	9.86	53	418800	50.90	ug/l	100
21) tert-Butyl methyl ether (M	9.88	73	689941	9.87	ug/l	100
22) trans-1,2-Dichloroethene	10.19	96	511817	10.19	ug/l	100
24) Isopropyl ether (DIPE)	10.65	45	1805045	10.25	ug/l	100
25) Vinyl acetate	10.86	43	617844	10.07	ug/l	100
26) 1,1-Dichloroethane	10.93	63	1035372	10.15	ug/l	100
27) 2-Butanol	11.23	45	81376	48.03	ug/l	100
28) tert-Butyl ethyl ether (ET	11.34	59	1138991	9.86	ug/l	100
29) 2-Butanone	11.58	72	98703	50.85	ug/l	100

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

11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD110.D
Acq On : 9 Oct 2019 12:34 pm
Sample : VO94J096
Misc : 10ppb 8260/50ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 7
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
30) 2,2-Dichloropropane	11.86	77	416890	10.47	ug/l	100
31) cis-1,2-Dichloroethene	11.95	96	486624	10.06	ug/l	100
32) Chloroform	12.20	83	748312	9.95	ug/l	100
33) tert-Amyl alcohol	12.38	59	78623	51.50	ug/l	100
34) Bromochloromethane	12.50	130	205633	10.10	ug/l	100
35) Tetrahydrofuran	12.52	42	63789	10.07	ug/l	100
37) 1,1,1-Trichloroethane	12.86	97	509733	10.18	ug/l	100
38) 2,2,4-Trimethylpentane	12.89	57	2810570	10.86	ug/l	100
39) Cyclohexane	12.91	84	822937	10.22	ug/l	100
40) 1,1-Dichloropropene	13.10	110	211768	9.63	ug/l	100
41) tert-Amyl methyl ether (TA	13.22	87	138542	9.78	ug/l	100
42) Carbon tetrachloride	13.29	119	406489	10.10	ug/l	100
44) 1,2-Dichloroethane	13.50	62	376654	9.94	ug/l	100
45) Benzene	13.56	78	1763774	9.92	ug/l	100
46) Trichloroethene	14.49	130	443244	9.71	ug/l	100
47) Methylcyclohexane	14.59	83	955247	10.43	ug/l	100
48) 1,2-Dichloropropane	14.75	63	466488	9.84	ug/l	100
49) 1,4-Dioxane	15.11	88	26700	182.95	ug/l	100
50) Bromodichloromethane	15.13	83	422652	9.92	ug/l	100
51) Dibromomethane	15.25	93	153649	9.65	ug/l	100
52) 2-Chloroethyl vinyl ether	15.46	63	161743	9.82	ug/l	100
53) 4-Methyl-2-pentanone	15.50	43	1257863	52.58	ug/l	100
54) cis-1,3-Dichloropropene	15.92	75	575644	9.73	ug/l	100
57) Toluene	16.45	91	1640711	9.98	ug/l	100
58) Ethyl methacrylate	16.52	69	289496	9.93	ug/l	100
59) trans-1,3-Dichloropropene	16.65	75	407076	10.25	ug/l	100
60) 2-Hexanone	16.83	43	743176	52.93	ug/l	100
61) 1,1,2-Trichloroethane	16.93	97	204637	9.91	ug/l	100
62) 1,3-Dichloropropane	17.32	76	433096	9.90	ug/l	100
63) Tetrachloroethene	17.48	164	291180	9.69	ug/l	100
64) Dibromochloromethane	17.82	129	220367	8.95	ug/l	100
65) 1,2-Dibromoethane	18.14	107	192450	10.05	ug/l	100
66) 1-Chlorohexane	18.20	91	695940	9.95	ug/l	100
67) Chlorobenzene	18.76	112	992963	9.77	ug/l	100
68) Ethylbenzene	18.78	91	1885649	9.91	ug/l	100
69) 1,1,1,2-Tetrachloroethane	18.79	131	284704	10.33	ug/l	100
70) m-Xylene & p-Xylene	18.90	91	2638382	20.15	ug/l	100
71) o-Xylene	19.59	91	1278985	9.98	ug/l	100
72) Styrene	19.65	104	975154	9.86	ug/l	100
73) Isopropylbenzene	20.12	105	1669661	10.00	ug/l	100
75) Bromoform	20.28	173	87489	8.99	ug/l	100

(#) = qualifier out of range (m) = manual integration
RJD110.D VO94J09.M Wed Nov 13 17:09:52 2019

11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD110.D
Acq On : 9 Oct 2019 12:34 pm
Sample : VO94J096
Misc : 10ppb 8260/50ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 7
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
76)	1,1,2,2-Tetrachloroethane	20.38	83	243089	9.88	ug/l	100
78)	1,2,3-Trichloropropane	20.63	110	53227	9.62	ug/l	100
79)	trans-1,4-Dichloro-2-buten	20.66	53	45583	8.93	ug/l	100
80)	n-Propylbenzene	20.73	91	2111789	9.91	ug/l	100
81)	Bromobenzene	20.92	156	273713	9.96	ug/l	100
82)	1,3,5-Trimethylbenzene	20.97	105	1275759	10.16	ug/l	100
83)	2-Chlorotoluene	21.08	91	1181930	9.90	ug/l	100
84)	4-Chlorotoluene	21.14	91	981532	9.60	ug/l	100
85)	tert-Butylbenzene	21.54	134	274248	9.82	ug/l	100
86)	1,2,4-Trimethylbenzene	21.60	105	1199355	9.96	ug/l	100
87)	sec-Butylbenzene	21.85	105	1805809	9.94	ug/l	100
88)	p-Isopropyltoluene	22.02	119	1444481	10.06	ug/l	100
89)	1,3-Dichlorobenzene	22.24	146	586713	9.75	ug/l	100
90)	1,4-Dichlorobenzene	22.39	146	559801	9.80	ug/l	100
91)	n-Butylbenzene	22.58	91	1466817	10.01	ug/l	100
92)	1,2-Dichlorobenzene	22.92	146	475863	9.71	ug/l	100
93)	1,2-Dibromo-3-chloropropan	24.04	157	22453	8.83	ug/l	100
94)	1,2,4-Trichlorobenzene	25.39	180	309880	9.32	ug/l	100
95)	Hexachlorobutadiene	25.56	225	221591	9.32	ug/l	100
96)	Naphthalene	25.89	128	524406	9.55	ug/l	100
97)	1,2,3-Trichlorobenzene	26.30	180	251373	9.57	ug/l	100

SM 11/14/19

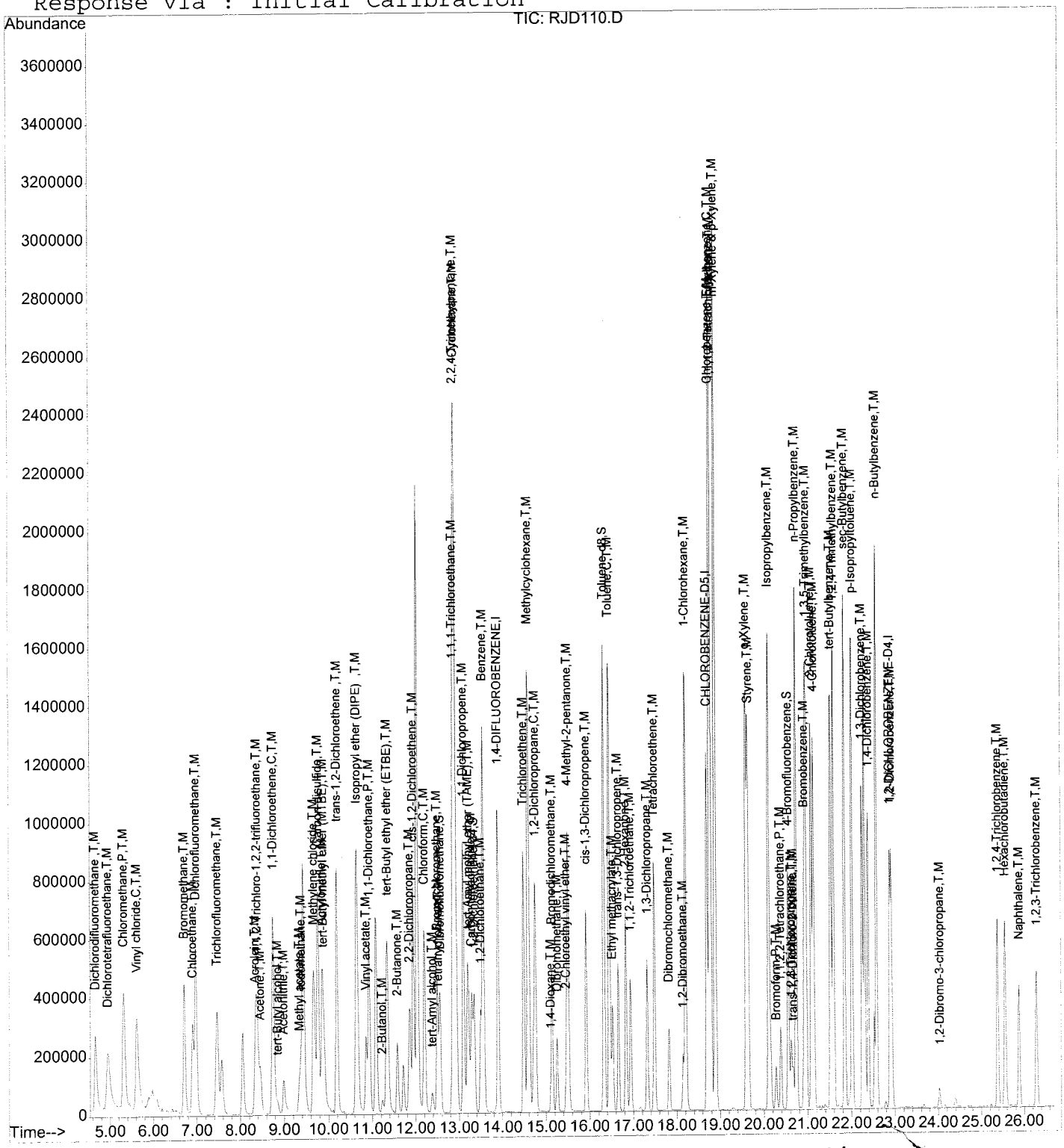
(#) = qualifier out of range (m) = manual integration

Data File : D:\HPCHEM\1\DATA\19J09\RJD110.D
Acq On : 9 Oct 2019 12:34 pm
Sample : VO94J096
Misc : 10ppb 8260/50ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 7
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD111.D
Acq On : 9 Oct 2019 1:05 pm
Sample : VO94J097
Misc : 20ppb 8260/100ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 8
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.91	114	1115537	10.00	ug/l	0.01
55) CHLOROBENZENE-D5	18.70	117	952702	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	22.89	152	277166	10.00	ug/l	0.00
System Monitoring Compounds						
36) Dibromofluoromethane	12.57	111	655012	19.73	ug/l	0.00
Spiked Amount 10.000			Recovery =	197.30%		
43) 1,2-Dichloroethane-d4	13.35	65	552124	19.40	ug/l	0.00
Spiked Amount 10.000			Recovery =	194.00%		
56) Toluene-d8	16.33	98	2524594	19.99	ug/l	0.00
Spiked Amount 10.000			Recovery =	199.90%		
77) 4-Bromofluorobenzene	20.56	95	746814	19.58	ug/l	0.00
Spiked Amount 10.000			Recovery =	195.80%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.66	85	1267991	18.88	ug/l	99
3) Dichlorotetrafluoroethane	4.96	85	1072976	18.84	ug/l	99
4) Chloromethane	5.31	50	2249543	21.61	ug/l	100
5) Vinyl chloride	5.62	62	1725342	21.90	ug/l	99
6) Bromomethane	6.71	94	1062766	21.37	ug/l	99
7) Chloroethane	6.90	64	1137557	21.43	ug/l	100
8) Dichlorofluoromethane	6.98	67	2299639	22.04	ug/l	98
9) Trichlorofluoromethane	7.46	101	1313870	21.60	ug/l	99
10) Acrolein	8.35	56	331453	107.70	ug/l	99
11) 1,1,2-Trichloro-1,2,2-trif	8.38	151	541773	21.93	ug/l	99
12) Acetone	8.45	43	536714	100.81	ug/l	98
13) 1,1-Dichloroethene	8.76	61	2054544	22.20	ug/l	99
14) tert-Butyl alcohol	8.85	59	181657	110.79	ug/l	97
15) Acetonitrile	9.00	41	579983	206.87	ug/l	93
16) Methyl acetate	9.34	43	381171	21.94	ug/l	98
17) Iodomethane	9.40	142	1167131	21.73	ug/l	99
18) Methylene chloride	9.66	49	1496870	21.15	ug/l	99
19) Carbon disulfide	9.77	76	3850904	22.20	ug/l	100
20) Acrylonitrile	9.85	53	834106	109.69	ug/l	99
21) tert-Butyl methyl ether (M	9.90	73	1394467	21.58	ug/l	99
22) trans-1,2-Dichloroethene	10.19	96	999278	21.52	ug/l	100
24) Isopropyl ether (DIPE)	10.65	45	3605546	22.16	ug/l	99
25) Vinyl acetate	10.86	43	1219455	21.51	ug/l	99
26) 1,1-Dichloroethane	10.93	63	2042570	21.67	ug/l	100
27) 2-Butanol	11.24	45	162657	103.88	ug/l	96
28) tert-Butyl ethyl ether (ET	11.34	59	2254480	21.11	ug/l	100
29) 2-Butanone	11.58	72	196392	109.48	ug/l	97

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

11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD111.D
Acq On : 9 Oct 2019 1:05 pm
Sample : VO94J097
Misc : 20ppb 8260/100ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 8
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
30)	2,2-Dichloropropane	11.87	77	823280	22.37 ug/l	99
31)	cis-1,2-Dichloroethene	11.95	96	964149	21.57 ug/l	100
32)	Chloroform	12.21	83	1465537	21.09 ug/l	100
33)	tert-Amyl alcohol	12.38	59	141567	100.33 ug/l	98
34)	Bromochloromethane	12.51	130	398178	21.17 ug/l	98
35)	Tetrahydrofuran	12.52	42	122580	20.93 ug/l	94
37)	1,1,1-Trichloroethane	12.86	97	1008315	21.78 ug/l	98
38)	2,2,4-Trimethylpentane	12.89	57	5036702	21.06 ug/l	100
39)	Cyclohexane	12.92	84	1607701	21.60 ug/l	100
40)	1,1-Dichloropropene	13.11	110	425659	20.94 ug/l	99
41)	tert-Amyl methyl ether (TA	13.22	87	277194	21.18 ug/l	98
42)	Carbon tetrachloride	13.30	119	831741	22.37 ug/l	99
44)	1,2-Dichloroethane	13.50	62	740689	21.15 ug/l	100
45)	Benzene	13.57	78	3379185	20.56 ug/l	100
46)	Trichloroethene	14.48	130	875171	20.74 ug/l	98
47)	Methylcyclohexane	14.60	83	1827671	21.59 ug/l	100
48)	1,2-Dichloropropane	14.75	63	920847	21.03 ug/l	99
49)	1,4-Dioxane	15.12	88	52790	366.77 ug/l	99
50)	Bromodichloromethane	15.13	83	870813	22.12 ug/l	100
51)	Dibromomethane	15.25	93	307190	20.87 ug/l	100
52)	2-Chloroethyl vinyl ether	15.47	63	328679	21.58 ug/l	100
53)	4-Methyl-2-pentanone	15.50	43	2436713	110.22 ug/l	99
54)	cis-1,3-Dichloropropene	15.91	75	1203753	22.01 ug/l	99
57)	Toluene	16.46	91	3195360	20.61 ug/l	100
58)	Ethyl methacrylate	16.53	69	608114	22.12 ug/l	97
59)	trans-1,3-Dichloropropene	16.67	75	846811	22.60 ug/l	100
60)	2-Hexanone	16.83	43	1454687	109.84 ug/l	100
61)	1,1,2-Trichloroethane	16.95	97	411793	21.15 ug/l	99
62)	1,3-Dichloropropane	17.32	76	883168	21.40 ug/l	99
63)	Tetrachloroethene	17.49	164	589970	20.82 ug/l	99
64)	Dibromochloromethane	17.83	129	473747	19.97 ug/l	97
65)	1,2-Dibromoethane	18.14	107	393470	21.78 ug/l	98
66)	1-Chlorohexane	18.22	91	1404496	21.29 ug/l	99
67)	Chlorobenzene	18.76	112	2009546	20.97 ug/l	99
68)	Ethylbenzene	18.79	91	3727039	20.76 ug/l	99
69)	1,1,1,2-Tetrachloroethane	18.79	131	582040	22.40 ug/l	97
70)	m-Xylene & p-Xylene	18.89	91	5151227	41.70 ug/l	99
71)	o-Xylene	19.60	91	2511240	20.77 ug/l	99
72)	Styrene	19.65	104	1916038	20.54 ug/l	99
73)	Isopropylbenzene	20.12	105	3294538	20.92 ug/l	99
75)	Bromoform	20.28	173	187236	19.90 ug/l	99

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

11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD111.D
Acq On : 9 Oct 2019 1:05 pm
Sample : VO94J097
Misc : 20ppb 8260/100ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 8
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
76) 1,1,2,2-Tetrachloroethane	20.38	83	486524	21.00	ug/l	100
78) 1,2,3-Trichloropropane	20.63	110	107766	20.69	ug/l	97
79) trans-1,4-Dichloro-2-buten	20.67	53	96971	19.80	ug/l	98
80) n-Propylbenzene	20.73	91	4236803	21.11	ug/l	100
81) Bromobenzene	20.92	156	550511	21.27	ug/l	99
82) 1,3,5-Trimethylbenzene	20.97	105	2519248	21.30	ug/l	99
83) 2-Chlorotoluene	21.08	91	2315206	20.59	ug/l	99
84) 4-Chlorotoluene	21.14	91	1967990	20.45	ug/l	100
85) tert-Butylbenzene	21.54	134	548145	20.84	ug/l	98
86) 1,2,4-Trimethylbenzene	21.60	105	2392536	21.09	ug/l	100
87) sec-Butylbenzene	21.85	105	3572280	20.89	ug/l	100
88) p-Isopropyltoluene	22.02	119	2776661	20.53	ug/l	99
89) 1,3-Dichlorobenzene	22.24	146	1181504	20.86	ug/l	99
90) 1,4-Dichlorobenzene	22.39	146	1108439	20.61	ug/l	99
91) n-Butylbenzene	22.58	91	2900837	21.03	ug/l	100
92) 1,2-Dichlorobenzene	22.93	146	960910	20.82	ug/l	99
93) 1,2-Dibromo-3-chloropropan	24.04	157	49209	19.90	ug/l	90
94) 1,2,4-Trichlorobenzene	25.39	180	675769	21.58	ug/l	98
95) Hexachlorobutadiene	25.56	225	486877	21.75	ug/l	98
96) Naphthalene	25.89	128	1108544	21.43	ug/l	100
97) 1,2,3-Trichlorobenzene	26.30	180	537890	21.74	ug/l	99

11/14/19

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

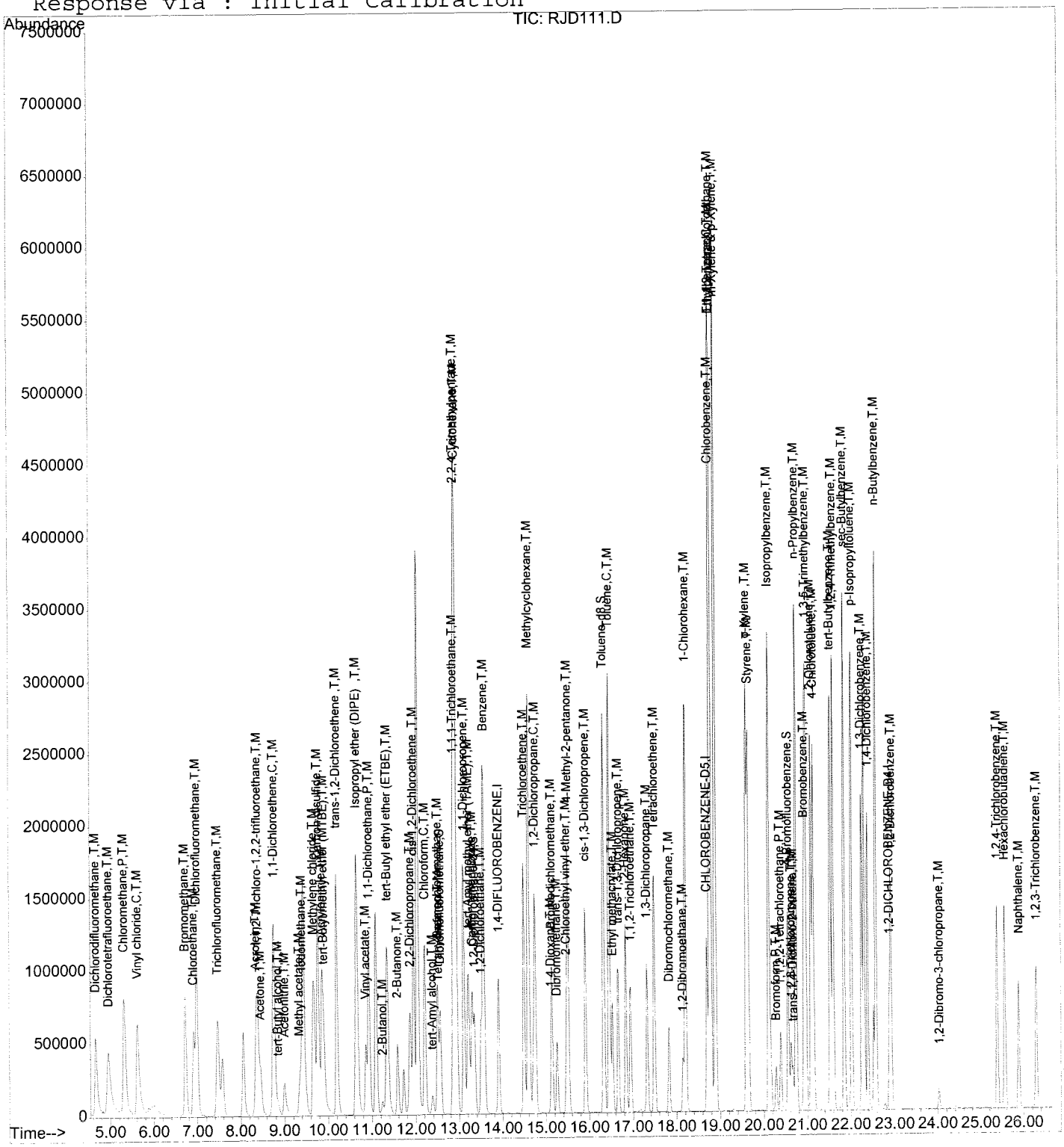
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19J09\RJD111.D
Acq On : 9 Oct 2019 1:05 pm
Sample : VO94J097
Misc : 20ppb 8260/100ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 8
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD112.D
Acq On : 9 Oct 2019 1:36 pm
Sample : VO94J098
Misc : 30ppb 8260/150ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 9
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.91	114	1033714	10.00	ug/l	0.02
55) CHLOROBENZENE-D5	18.70	117	917862	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	22.89	152	261872	10.00	ug/l	0.00
System Monitoring Compounds						
36) Dibromofluoromethane	12.57	111	950229	30.89	ug/l	0.00
Spiked Amount 10.000			Recovery =	308.90%		
43) 1,2-Dichloroethane-d4	13.35	65	798958	30.29	ug/l	0.00
Spiked Amount 10.000			Recovery =	302.90%		
56) Toluene-d8	16.33	98	3709270	30.49	ug/l	0.00
Spiked Amount 10.000			Recovery =	304.90%		
77) 4-Bromofluorobenzene	20.56	95	1137197	31.55	ug/l	0.00
Spiked Amount 10.000			Recovery =	315.50%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.66	85	1897715	30.30	ug/l	100
3) Dichlorotetrafluoroethane	4.95	85	1552833	29.09	ug/l	99
4) Chloromethane	5.31	50	3247552	33.67	ug/l	99
5) Vinyl chloride	5.61	62	2381182	32.61	ug/l	99
6) Bromomethane	6.71	94	1566224	33.98	ug/l	100
7) Chloroethane	6.91	64	1679537	34.15	ug/l	100
8) Dichlorofluoromethane	6.98	67	3351783	34.66	ug/l	98
9) Trichlorofluoromethane	7.47	101	1928433	34.21	ug/l	98
10) Acrolein	8.35	56	468746	164.37	ug/l	99
11) 1,1,2-Trichloro-1,2,2-trif	8.38	151	774970	33.85	ug/l	100
12) Acetone	8.45	43	766285	155.33	ug/l	94
13) 1,1-Dichloroethene	8.76	61	2885799	33.66	ug/l	99
14) tert-Butyl alcohol	8.85	59	245841	161.80	ug/l	93
15) Acetonitrile	9.00	41	839479	323.13	ug/l	94
16) Methyl acetate	9.34	43	494446	30.71	ug/l	96
17) Iodomethane	9.40	142	1679048	33.73	ug/l	100
18) Methylene chloride	9.68	49	2064716	31.49	ug/l	99
19) Carbon disulfide	9.77	76	5551064	34.54	ug/l	99
20) Acrylonitrile	9.86	53	1149023	163.06	ug/l	99
21) tert-Butyl methyl ether (M	9.90	73	2023613	33.80	ug/l	99
22) trans-1,2-Dichloroethene	10.20	96	1376686	32.00	ug/l	99
24) Isopropyl ether (DIPE)	10.65	45	4955401	32.87	ug/l	99
25) Vinyl acetate	10.86	43	1702650	32.41	ug/l	100
26) 1,1-Dichloroethane	10.93	63	2786897	31.91	ug/l	99
27) 2-Butanol	11.24	45	222714	153.49	ug/l	99
28) tert-Butyl ethyl ether (ET	11.35	59	3180380	32.14	ug/l	99
29) 2-Butanone	11.58	72	273847	164.74	ug/l	99

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

SA 11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD112.D
Acq On : 9 Oct 2019 1:36 pm
Sample : VO94J098
Misc : 30ppb 8260/150ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 9
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
30) 2,2-Dichloropropane	11.88	77	1087349	31.88	ug/l	100
31) cis-1,2-Dichloroethene	11.95	96	1314260	31.72	ug/l	100
32) Chloroform	12.22	83	2001642	31.09	ug/l	99
33) tert-Amyl alcohol	12.38	59	208323	159.33	ug/l	99
34) Bromochloromethane	12.51	130	558481	32.05	ug/l	98
35) Tetrahydrofuran	12.53	42	162154	29.88	ug/l	92
37) 1,1,1-Trichloroethane	12.86	97	1379294	32.15	ug/l	98
38) 2,2,4-Trimethylpentane	12.91	57	6956379	31.38	ug/l	100
39) Cyclohexane	12.92	84	2148869	31.16	ug/l	99
40) 1,1-Dichloropropene	13.10	110	579321	30.75	ug/l	98
41) tert-Amyl methyl ether (TA	13.22	87	394984	32.56	ug/l	99
42) Carbon tetrachloride	13.31	119	1140117	33.08	ug/l	99
44) 1,2-Dichloroethane	13.50	62	1016127	31.31	ug/l	100
45) Benzene	13.56	78	4602746	30.23	ug/l	100
46) Trichloroethene	14.49	130	1244228	31.83	ug/l	98
47) Methylcyclohexane	14.60	83	2489936	31.74	ug/l	99
48) 1,2-Dichloropropane	14.75	63	1287209	31.72	ug/l	100
49) 1,4-Dioxane	15.11	88	79449	582.18	ug/l	99
50) Bromodichloromethane	15.14	83	1240192	33.99	ug/l	100
51) Dibromomethane	15.25	93	443702	32.54	ug/l	99
52) 2-Chloroethyl vinyl ether	15.47	63	476311	33.75	ug/l	99
53) 4-Methyl-2-pentanone	15.50	43	3402336	166.08	ug/l	99
54) cis-1,3-Dichloropropene	15.92	75	1729351	34.13	ug/l	98
57) Toluene	16.46	91	4467659	29.91	ug/l	99
58) Ethyl methacrylate	16.54	69	860794	32.49	ug/l	98
59) trans-1,3-Dichloropropene	16.65	75	1210520	33.54	ug/l	99
60) 2-Hexanone	16.83	43	2064129	161.77	ug/l	99
61) 1,1,2-Trichloroethane	16.93	97	593418	31.64	ug/l	98
62) 1,3-Dichloropropane	17.32	76	1267458	31.88	ug/l	99
63) Tetrachloroethene	17.49	164	832885	30.51	ug/l	99
64) Dibromochloromethane	17.83	129	692223	30.12	ug/l	99
65) 1,2-Dibromoethane	18.14	107	572651	32.91	ug/l	98
66) 1-Chlorohexane	18.22	91	1998181	31.44	ug/l	99
67) Chlorobenzene	18.76	112	2881923	31.22	ug/l	100
68) Ethylbenzene	18.78	91	5324359	30.79	ug/l	99
69) 1,1,1,2-Tetrachloroethane	18.79	131	850423	33.97	ug/l	98
70) m-Xylene & p-Xylene	18.90	91	7209460	60.58	ug/l	99
71) o-Xylene	19.60	91	3642773	31.28	ug/l	100
72) Styrene	19.65	104	2831477	31.50	ug/l	99
73) Isopropylbenzene	20.11	105	4732946	31.20	ug/l	99
75) Bromoform	20.28	173	284143	31.71	ug/l	98

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

11/14/19

Data File : D:\HPCHEM\1\DATA\19J09\RJD112.D
Acq On : 9 Oct 2019 1:36 pm
Sample : VO94J098
Misc : 30ppb 8260/150ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 9
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
76) 1,1,2,2-Tetrachloroethane	20.38	83	710237	32.45 ug/l	100
78) 1,2,3-Trichloropropane	20.63	110	156696	31.85 ug/l	98
79) trans-1,4-Dichloro-2-buten	20.67	53	144386	31.03 ug/l	96
80) n-Propylbenzene	20.73	91	5961076	31.44 ug/l	99
81) Bromobenzene	20.92	156	800845	32.75 ug/l	99
82) 1,3,5-Trimethylbenzene	20.97	105	3568365	31.93 ug/l	100
83) 2-Chlorotoluene	21.08	91	3225658	30.37 ug/l	99
84) 4-Chlorotoluene	21.14	91	2879019	31.66 ug/l	99
85) tert-Butylbenzene	21.54	134	810719	32.63 ug/l	96
86) 1,2,4-Trimethylbenzene	21.60	105	3407574	31.80 ug/l	99
87) sec-Butylbenzene	21.85	105	5050492	31.26 ug/l	99
88) p-Isopropyltoluene	22.02	119	4021157	31.46 ug/l	99
89) 1,3-Dichlorobenzene	22.26	146	1693835	31.65 ug/l	100
90) 1,4-Dichlorobenzene	22.39	146	1604957	31.59 ug/l	99
91) n-Butylbenzene	22.58	91	3854177	29.57 ug/l	94
92) 1,2-Dichlorobenzene	22.93	146	1387387	31.82 ug/l	100
93) 1,2-Dibromo-3-chloropropan	24.04	157	74741	31.68 ug/l	93
94) 1,2,4-Trichlorobenzene	25.39	180	1008250	34.08 ug/l	98
95) Hexachlorobutadiene	25.56	225	720852	34.08 ug/l	98
96) Naphthalene	25.89	128	1656172	33.89 ug/l	100
97) 1,2,3-Trichlorobenzene	26.30	180	787496	33.69 ug/l	99

SU 11/14/19

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

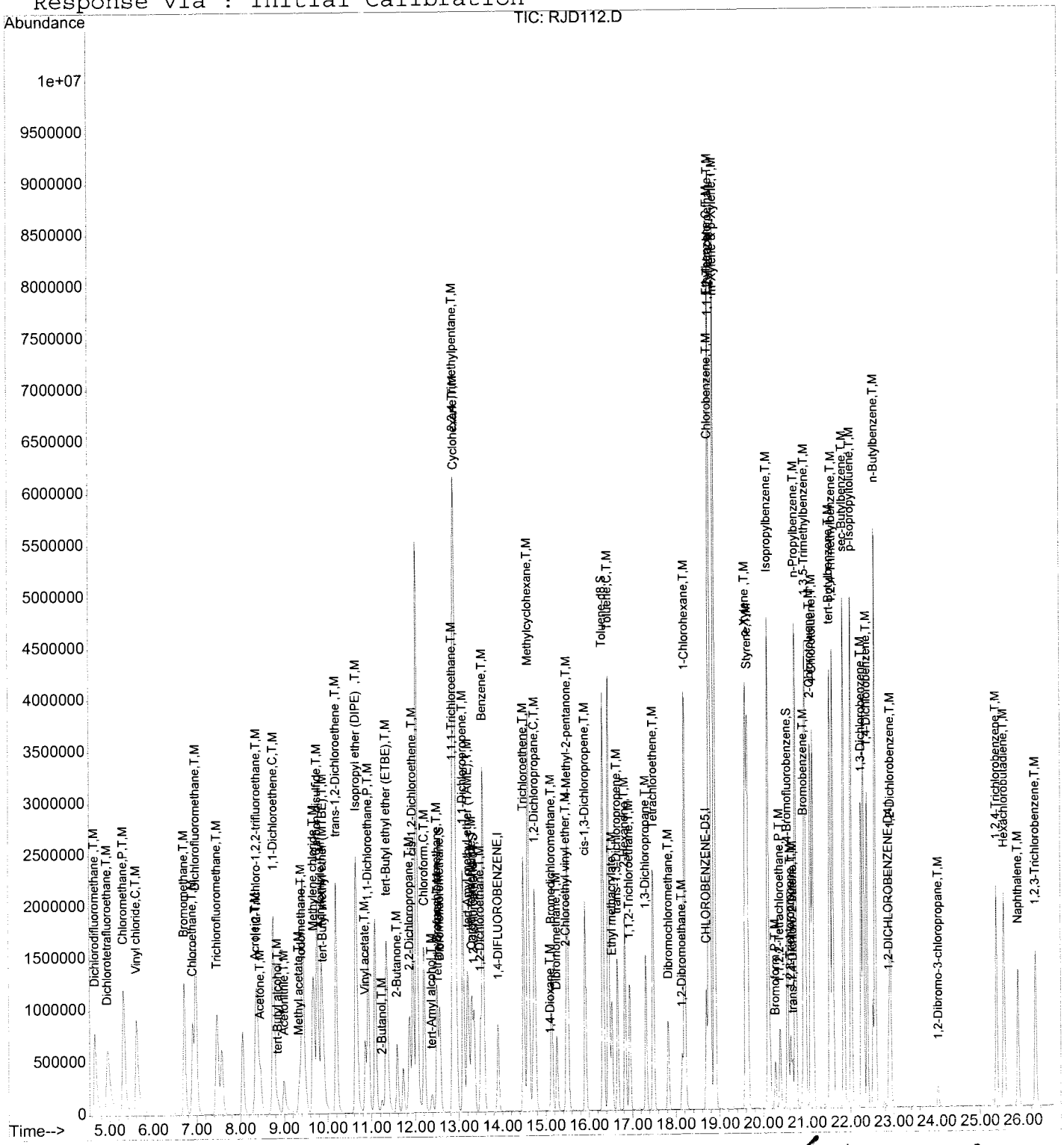
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19J09\RJD112.D
Acq On : 9 Oct 2019 1:36 pm
Sample : VO94J098
Misc : 30ppb 8260/150ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 9
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD113.D
Acq On : 9 Oct 2019 2:07 pm
Sample : VO94J099
Misc : 50ppb 8260/250ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 10
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.90	114	982076	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	18.71	117	886347	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	22.89	152	260659	10.00	ug/l	0.00
System Monitoring Compounds						
36) Dibromofluoromethane	12.56	111	1494228	51.13	ug/l	-0.01
Spiked Amount 10.000			Recovery =	511.30%		
43) 1,2-Dichloroethane-d4	13.35	65	1226310	48.94	ug/l	0.00
Spiked Amount 10.000			Recovery =	489.40%		
56) Toluene-d8	16.33	98	5783221	49.23	ug/l	0.00
Spiked Amount 10.000			Recovery =	492.30%		
77) 4-Bromofluorobenzene	20.56	95	1768844	49.30	ug/l	0.00
Spiked Amount 10.000			Recovery =	493.00%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.67	85	3147903	52.68	ug/l	100
3) Dichlorotetrafluoroethane	4.95	85	2566856	50.17	ug/l	100
4) Chloromethane	5.32	50	5152210	56.23	ug/l	98
5) Vinyl chloride	5.61	62	3506133	50.55	ug/l	99
6) Bromomethane	6.72	94	2510444	57.33	ug/l	99
7) Chloroethane	6.91	64	2673483	57.21	ug/l	100
8) Dichlorofluoromethane	6.98	67	5207003	56.68	ug/l	98
9) Trichlorofluoromethane	7.47	101	3036237	56.70	ug/l	99
10) Acrolein	8.34	56	735390	271.43	ug/l	98
11) 1,1,2-Trichloro-1,2,2-trif	8.38	151	1233113	56.69	ug/l	100
12) Acetone	8.46	43	1185596	252.96	ug/l	95
13) 1,1-Dichloroethene	8.75	61	4461640	54.77	ug/l	98
14) tert-Butyl alcohol	8.84	59	384824	266.59	ug/l	89
15) Acetonitrile	8.99	41	1309801	530.68	ug/l	94
16) Methyl acetate	9.33	43	799291	52.25	ug/l	96
17) Iodomethane	9.40	142	2662113	56.29	ug/l	99
18) Methylene chloride	9.67	49	3155473	50.66	ug/l	97
19) Carbon disulfide	9.77	76	8474337	55.49	ug/l	99
20) Acrylonitrile	9.86	53	1748618	261.20	ug/l	99
21) tert-Butyl methyl ether (M	9.89	73	3106479	54.61	ug/l	98
22) trans-1,2-Dichloroethene	10.20	96	2141317	52.38	ug/l	99
24) Isopropyl ether (DIPE)	10.65	45	7526228	52.54	ug/l	97
25) Vinyl acetate	10.86	43	2720354	54.51	ug/l	100
26) 1,1-Dichloroethane	10.93	63	4261528	51.36	ug/l	99
27) 2-Butanol	11.23	45	372764	270.41	ug/l	99
28) tert-Butyl ethyl ether (ET	11.35	59	4840075	51.48	ug/l	98
29) 2-Butanone	11.58	72	423933	268.44	ug/l	98

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

11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD113.D
Acq On : 9 Oct 2019 2:07 pm
Sample : VO94J099
Misc : 50ppb 8260/250ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 10
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
30) 2,2-Dichloropropane	11.86	77	1644006	50.73 ug/l	96
31) cis-1,2-Dichloroethene	11.95	96	2035567	51.72 ug/l	99
32) Chloroform	12.20	83	3099083	50.67 ug/l	99
33) tert-Amyl alcohol	12.38	59	333700	268.64 ug/l	99
34) Bromochloromethane	12.50	130	889258	53.71 ug/l	100
35) Tetrahydrofuran	12.53	42	263901	51.18 ug/l	96
37) 1,1,1-Trichloroethane	12.87	97	2087884	51.23 ug/l	98
38) 2,2,4-Trimethylpentane	12.90	57	10480294	49.77 ug/l	100
39) Cyclohexane	12.93	84	3355511	51.22 ug/l	99
40) 1,1-Dichloropropene	13.10	110	883614	49.38 ug/l	100
41) tert-Amyl methyl ether (TA	13.21	87	613760	53.26 ug/l	98
42) Carbon tetrachloride	13.29	119	1811022	55.32 ug/l	100
44) 1,2-Dichloroethane	13.50	62	1558525	50.55 ug/l	100
45) Benzene	13.56	78	7112087	49.16 ug/l	99
46) Trichloroethene	14.49	130	2000416	53.86 ug/l	98
47) Methylcyclohexane	14.59	83	3863758	51.84 ug/l	98
48) 1,2-Dichloropropane	14.75	63	1979673	51.34 ug/l	99
49) 1,4-Dioxane	15.11	88	136236	1033.40 ug/l	98
50) Bromodichloromethane	15.14	83	1962469	56.62 ug/l	98
51) Dibromomethane	15.26	93	695171	53.66 ug/l	99
52) 2-Chloroethyl vinyl ether	15.48	63	743355	55.45 ug/l	100
53) 4-Methyl-2-pentanone	15.51	43	5221001	268.26 ug/l	99
54) cis-1,3-Dichloropropene	15.92	75	2743691	56.99 ug/l	97
57) Toluene	16.45	91	7005011	48.57 ug/l	99
58) Ethyl methacrylate	16.52	69	1352225	52.86 ug/l	98
59) trans-1,3-Dichloropropene	16.66	75	1918906	55.05 ug/l	97
60) 2-Hexanone	16.83	43	3162204	256.64 ug/l	99
61) 1,1,2-Trichloroethane	16.94	97	910904	50.29 ug/l	98
62) 1,3-Dichloropropane	17.32	76	1971323	51.35 ug/l	100
63) Tetrachloroethene	17.48	164	1309297	49.67 ug/l	99
64) Dibromochloromethane	17.82	129	1109390	49.77 ug/l	99
65) 1,2-Dibromoethane	18.15	107	898972	53.49 ug/l	99
66) 1-Chlorohexane	18.21	91	3130955	51.01 ug/l	99
67) Chlorobenzene	18.77	112	4457191	49.99 ug/l	99
68) Ethylbenzene	18.78	91	8034039	48.11 ug/l	98
69) 1,1,1,2-Tetrachloroethane	18.79	131	1357261	56.14 ug/l	98
70) m-Xylene & p-Xylene	18.90	91	10778894	93.80 ug/l	100
71) o-Xylene	19.59	91	5614442	49.92 ug/l	99
72) Styrene	19.65	104	4301742	49.56 ug/l	99
73) Isopropylbenzene	20.11	105	7251967	49.50 ug/l	98
75) Bromoform	20.28	173	448670	50.05 ug/l	99

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

11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD113.D
Acq On : 9 Oct 2019 2:07 pm
Sample : VO94J099
Misc : 50ppb 8260/250ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 10
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
76)	1,1,2,2-Tetrachloroethane	20.38	83	1121370	51.48	ug/l	99
78)	1,2,3-Trichloropropane	20.63	110	241336	49.28	ug/l	100
79)	trans-1,4-Dichloro-2-buten	20.67	53	235932	50.75	ug/l	95
80)	n-Propylbenzene	20.75	91	9161944	48.54	ug/l	99
81)	Bromobenzene	20.92	156	1239586	50.93	ug/l	100
82)	1,3,5-Trimethylbenzene	20.97	105	5478844	49.25	ug/l	99
83)	2-Chlorotoluene	21.08	91	4809347	45.49	ug/l	98
84)	4-Chlorotoluene	21.14	91	4442260	49.08	ug/l	99
85)	tert-Butylbenzene	21.54	134	1259906	50.94	ug/l	96
86)	1,2,4-Trimethylbenzene	21.60	105	5224970	48.98	ug/l	97
87)	sec-Butylbenzene	21.85	105	7676588	47.73	ug/l	97
88)	p-Isopropyltoluene	22.02	119	6209253	48.81	ug/l	98
89)	1,3-Dichlorobenzene	22.26	146	2730603	51.25	ug/l	99
90)	1,4-Dichlorobenzene	22.39	146	2532587	50.07	ug/l	99
91)	n-Butylbenzene	22.58	91	6037220	46.53	ug/l	94
92)	1,2-Dichlorobenzene	22.93	146	2261289	52.10	ug/l	99
93)	1,2-Dibromo-3-chloropropan	24.04	157	131672	55.70	ug/l	95
94)	1,2,4-Trichlorobenzene	25.39	180	1726396	58.63	ug/l	99
95)	Hexachlorobutadiene	25.56	225	1200141	57.01	ug/l	99
96)	Naphthalene	25.89	128	2774121	57.03	ug/l	99
97)	1,2,3-Trichlorobenzene	26.30	180	1341050	57.64	ug/l	98

11/19/19

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

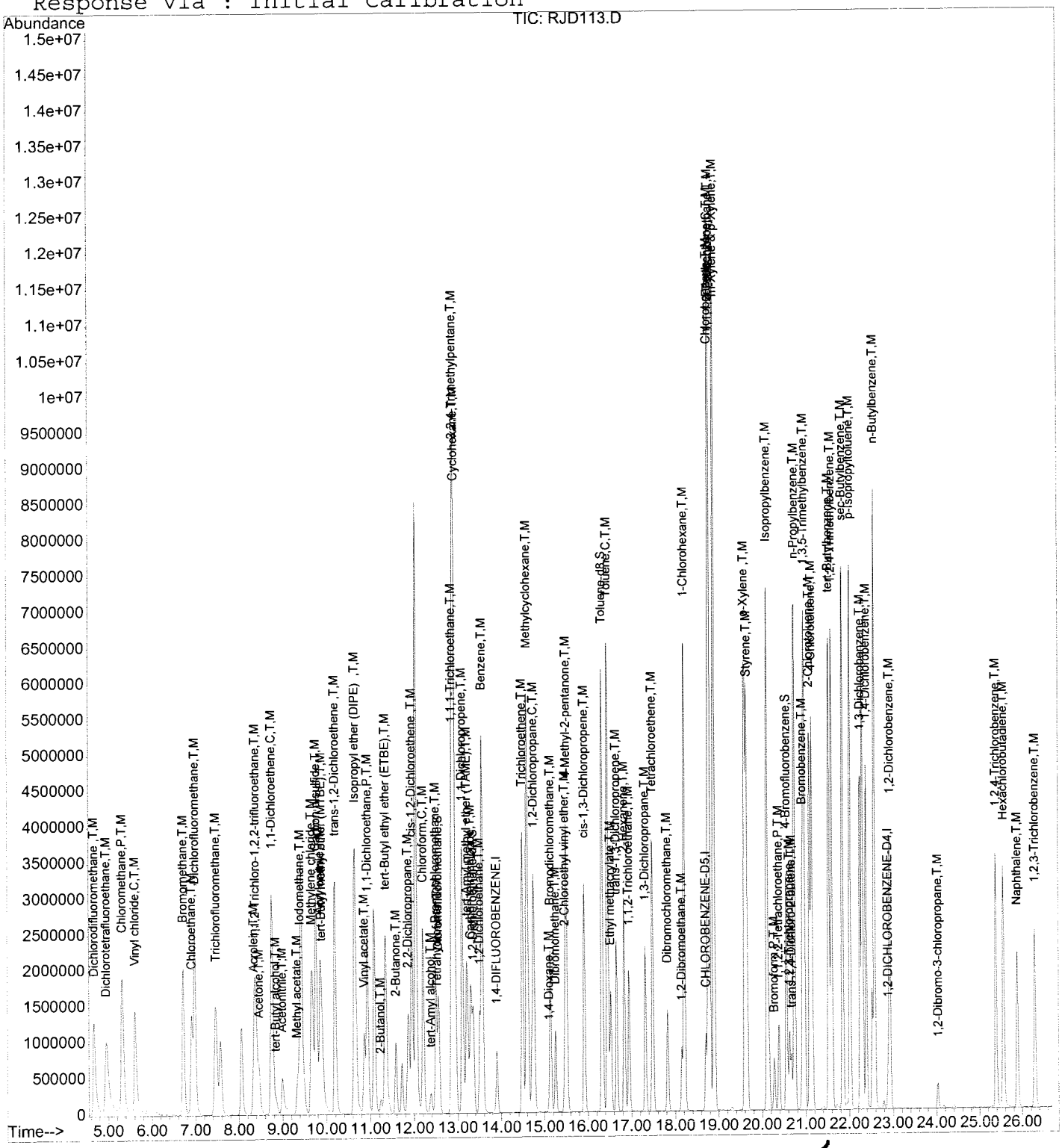
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19J09\RJD113.D
Acq On : 9 Oct 2019 2:07 pm
Sample : VO94J099
Misc : 50ppb 8260/250ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 10
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



RJD113.D VO94J09.M Wed Nov 13 17:10:56 2019 Page 4

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD114.D
Acq On : 9 Oct 2019 2:38 pm
Sample : VO94J0910
Misc : 100ppb 8260/500ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 11
Operator: VLu
Inst : 94
Multiplr: 1.00
Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.91	114	914614	10.00 ug/l	0.01
55) CHLOROBENZENE-D5	18.70	117	813875	10.00 ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	22.89	152	243942	10.00 ug/l	0.00
System Monitoring Compounds					
36) Dibromofluoromethane	12.57	111	2863979	105.23 ug/l	0.00
Spiked Amount 10.000				Recovery = 1052.30%	
43) 1,2-Dichloroethane-d4	13.35	65	2309014	98.94 ug/l	0.00
Spiked Amount 10.000				Recovery = 989.40%	
56) Toluene-d8	16.33	98	10999381	101.96 ug/l	0.00
Spiked Amount 10.000				Recovery = 1019.60%	
77) 4-Bromofluorobenzene	20.55	95	3317937	98.82 ug/l	0.00
Spiked Amount 10.000				Recovery = 988.20%	
Target Compounds					Qvalue
2) Dichlorodifluoromethane	4.66	85	6184424	110.78 ug/l	100
3) Dichlorotetrafluoroethane	4.96	85	4967433	103.61 ug/l	99
4) Chloromethane	5.31	50	9630994	112.86 ug/l	98
5) Vinyl chloride	5.61	62	6155224	95.29 ug/l	98
6) Bromomethane	6.71	94	4674786	114.62 ug/l	99
7) Chloroethane	6.90	64	4863228	111.75 ug/l	99
8) Dichlorofluoromethane	6.98	67	8882298	103.81 ug/l	97
9) Trichlorofluoromethane	7.46	101	5527813	110.85 ug/l	99
10) Acrolein	8.35	56	1316313	521.69 ug/l	99
11) 1,1,2-Trichloro-1,2,2-trif	8.38	151	2230667	110.12 ug/l	99
12) Acetone	8.47	43	2058985	471.70 ug/l	95
13) 1,1-Dichloroethene	8.76	61	7700709	101.51 ug/l	97
14) tert-Butyl alcohol	8.85	59	684308	509.03 ug/l	91
15) Acetonitrile	9.00	41	2276805	990.51 ug/l	94
16) Methyl acetate	9.34	43	1487140	104.39 ug/l	96
17) Iodomethane	9.40	142	4707028	106.88 ug/l	100
18) Methylene chloride	9.68	49	5376686	92.68 ug/l	95
19) Carbon disulfide	9.76	76	15290885	107.52 ug/l	98
20) Acrylonitrile	9.87	53	3062048	491.13 ug/l	98
21) tert-Butyl methyl ether (M	9.90	73	5413432	102.18 ug/l	98
22) trans-1,2-Dichloroethene	10.19	96	3761626	98.81 ug/l	99
24) Isopropyl ether (DIPE)	10.65	45	12998135	97.43 ug/l	96
25) Vinyl acetate	10.87	43	5057158	108.81 ug/l	99
26) 1,1-Dichloroethane	10.93	63	7443352	96.32 ug/l	98
27) 2-Butanol	11.24	45	679932	529.61 ug/l	94
28) tert-Butyl ethyl ether (ET	11.34	59	8401164	95.94 ug/l	96
29) 2-Butanone	11.59	72	789501	536.80 ug/l	98

(#) = qualifier out of range (m) = manual integration
RJD114.D VO94J09.M Wed Nov 13 17:11:04 2019

11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD114.D
Acq On : 9 Oct 2019 2:38 pm
Sample : VO94J0910
Misc : 100ppb 8260/500ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 11
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
30) 2,2-Dichloropropane	11.87	77	2784380	92.26 ug/l	97
31) cis-1,2-Dichloroethene	11.96	96	3698885	100.91 ug/l	99
32) Chloroform	12.21	83	5458442	95.82 ug/l	98
33) tert-Amyl alcohol	12.39	59	647061	559.33 ug/l	96
34) Bromochloromethane	12.51	130	1603803	104.01 ug/l	98
35) Tetrahydrofuran	12.54	42	442584	92.17 ug/l	91
37) 1,1,1-Trichloroethane	12.88	97	3671185	96.72 ug/l	96
38) 2,2,4-Trimethylpentane	12.91	57	18996061	96.86 ug/l	99
39) Cyclohexane	12.92	84	6378172	104.53 ug/l	99
40) 1,1-Dichloropropene	13.11	110	1615941	96.96 ug/l	100
41) tert-Amyl methyl ether (TA	13.22	87	1109289	103.36 ug/l	97
42) Carbon tetrachloride	13.30	119	3316552	108.77 ug/l	100
44) 1,2-Dichloroethane	13.51	62	2753579	95.91 ug/l	99
45) Benzene	13.57	78	12523573	92.95 ug/l	99
46) Trichloroethene	14.50	130	3701925	107.02 ug/l	98
47) Methylcyclohexane	14.60	83	7525060	108.40 ug/l	95
48) 1,2-Dichloropropane	14.76	63	3499153	97.45 ug/l	98
49) 1,4-Dioxane	15.12	88	252178	2032.59 ug/l	98
50) Bromodichloromethane	15.15	83	3665619	113.56 ug/l	99
51) Dibromomethane	15.25	93	1266272	104.95 ug/l	98
52) 2-Chloroethyl vinyl ether	15.47	63	1395866	111.79 ug/l	100
53) 4-Methyl-2-pentanone	15.52	43	9381452	517.58 ug/l	98
54) cis-1,3-Dichloropropene	15.91	75	5063914	112.94 ug/l	97
57) Toluene	16.46	91	12156118	91.79 ug/l	98
58) Ethyl methacrylate	16.53	69	2437654	103.78 ug/l	94
59) trans-1,3-Dichloropropene	16.67	75	3506437	109.55 ug/l	96
60) 2-Hexanone	16.84	43	5627571	497.39 ug/l	98
61) 1,1,2-Trichloroethane	16.95	97	1668785	100.33 ug/l	98
62) 1,3-Dichloropropane	17.33	76	3577291	101.48 ug/l	100
63) Tetrachloroethene	17.49	164	2428324	100.32 ug/l	99
64) Dibromochloromethane	17.83	129	2090430	101.79 ug/l	98
65) 1,2-Dibromoethane	18.16	107	1666274	107.98 ug/l	99
66) 1-Chlorohexane	18.21	91	5589198	99.18 ug/l	98
67) Chlorobenzene	18.78	112	7934923	96.93 ug/l	98
68) Ethylbenzene	18.79	91	14041410	91.56 ug/l	96
69) 1,1,1,2-Tetrachloroethane	18.80	131	2474653	111.47 ug/l	97
70) m-Xylene & p-Xylene	18.89	91	17126752	162.31 ug/l	92
71) o-Xylene	19.60	91	9942454	96.27 ug/l	97
72) Styrene	19.65	104	7588387	95.20 ug/l	99
73) Isopropylbenzene	20.11	105	13098990	97.38 ug/l	98
75) Bromoform	20.28	173	842521	99.99 ug/l	100

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J09\RJD114.D
Acq On : 9 Oct 2019 2:38 pm
Sample : VO94J0910
Misc : 100ppb 8260/500ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 11
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
76) 1,1,2,2-Tetrachloroethane	20.39	83	1995750	97.90 ug/l	100
78) 1,2,3-Trichloropropane	20.63	110	437117	95.37 ug/l	99
79) trans-1,4-Dichloro-2-buten	20.67	53	423724	97.12 ug/l	93
80) n-Propylbenzene	20.75	91	15309983	86.67 ug/l	97
81) Bromobenzene	20.94	156	2272682	99.77 ug/l	99
82) 1,3,5-Trimethylbenzene	20.97	105	9551325	91.75 ug/l	98
83) 2-Chlorotoluene	21.10	91	9689362	97.92 ug/l	97
84) 4-Chlorotoluene	21.14	91	6388806	75.42 ug/l	95
85) tert-Butylbenzene	21.54	134	2318724	100.18 ug/l	92
86) 1,2,4-Trimethylbenzene	21.60	105	9133277	91.49 ug/l	96
87) sec-Butylbenzene	21.85	105	13174034	87.53 ug/l	95
88) p-Isopropyltoluene	22.02	119	10838370	91.04 ug/l	96
89) 1,3-Dichlorobenzene	22.26	146	4942394	99.12 ug/l	99
90) 1,4-Dichlorobenzene	22.39	146	4637651	97.98 ug/l	99
91) n-Butylbenzene	22.58	91	10589159	87.21 ug/l	94
92) 1,2-Dichlorobenzene	22.93	146	4077699	100.38 ug/l	100
93) 1,2-Dibromo-3-chloropropan	24.03	157	257226	115.73 ug/l	94
94) 1,2,4-Trichlorobenzene	25.39	180	3221463	116.90 ug/l	99
95) Hexachlorobutadiene	25.56	225	2152171	109.23 ug/l	100
96) Naphthalene	25.88	128	5041014	110.74 ug/l	99
97) 1,2,3-Trichlorobenzene	26.30	180	2401040	110.28 ug/l	98

(#) = qualifier out of range (m) = manual integration
RJD114.D VO94J09.M Wed Nov 13 17:11:05 2019 Page 3

11/14/19

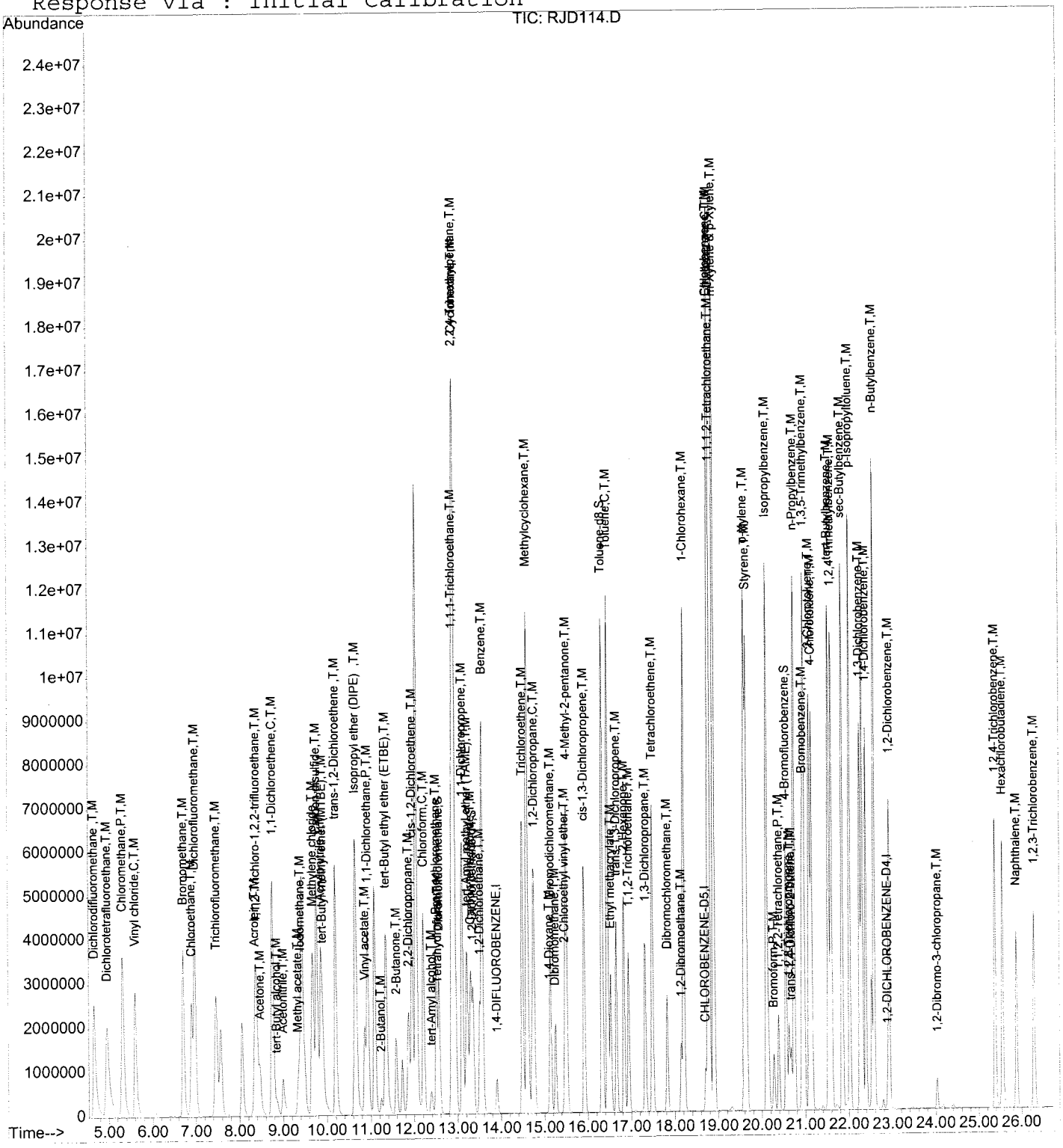
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19J09\RJD114.D
Acq On : 9 Oct 2019 2:38 pm
Sample : VO94J0910
Misc : 100ppb 8260/500ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:26 2019

Vial: 11
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



11/14/19

SECOND SOURCE VERIFICATION

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc
Lab Code: EMXT Case No.:
Lab File ID: RJD124
Instrument ID: 94
GC Column:RTX502.2ID:0.25mm (mm)

Contract: ICAL
SAS No.: SDG No.: ICAL
BFB Injection Date : 10/10/19
BFB Injection Time : 16:31
Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	24.76
75	30.0 - 60.0% of mass 95	50.54
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.28
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	68.93
175	5.0 - 9.0% of mass 174	5.36(7.8)1
176	95.0 - 101.0% of mass 174	65.78(95.4)1
177	5.0 - 9.0% of mass 176	4.38(6.7)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD010	IVO94J0902	RJD125	10/10/19	17:07

CONTINUE_CALIBRATION - CALIBRATION VERIFICATION

Instrument ID :94
IC Beginning DateTime :10/09/19 09:59
Spike Amount :10 PPB
CC/CV File :RJD125
IC File :RJD110

Column Spec :RTX502.2 ID :0.25MM
IC Ending DateTime :10/09/19 14:38
HPChem Method :V094J09
Date_Time :10/10/19 17:07

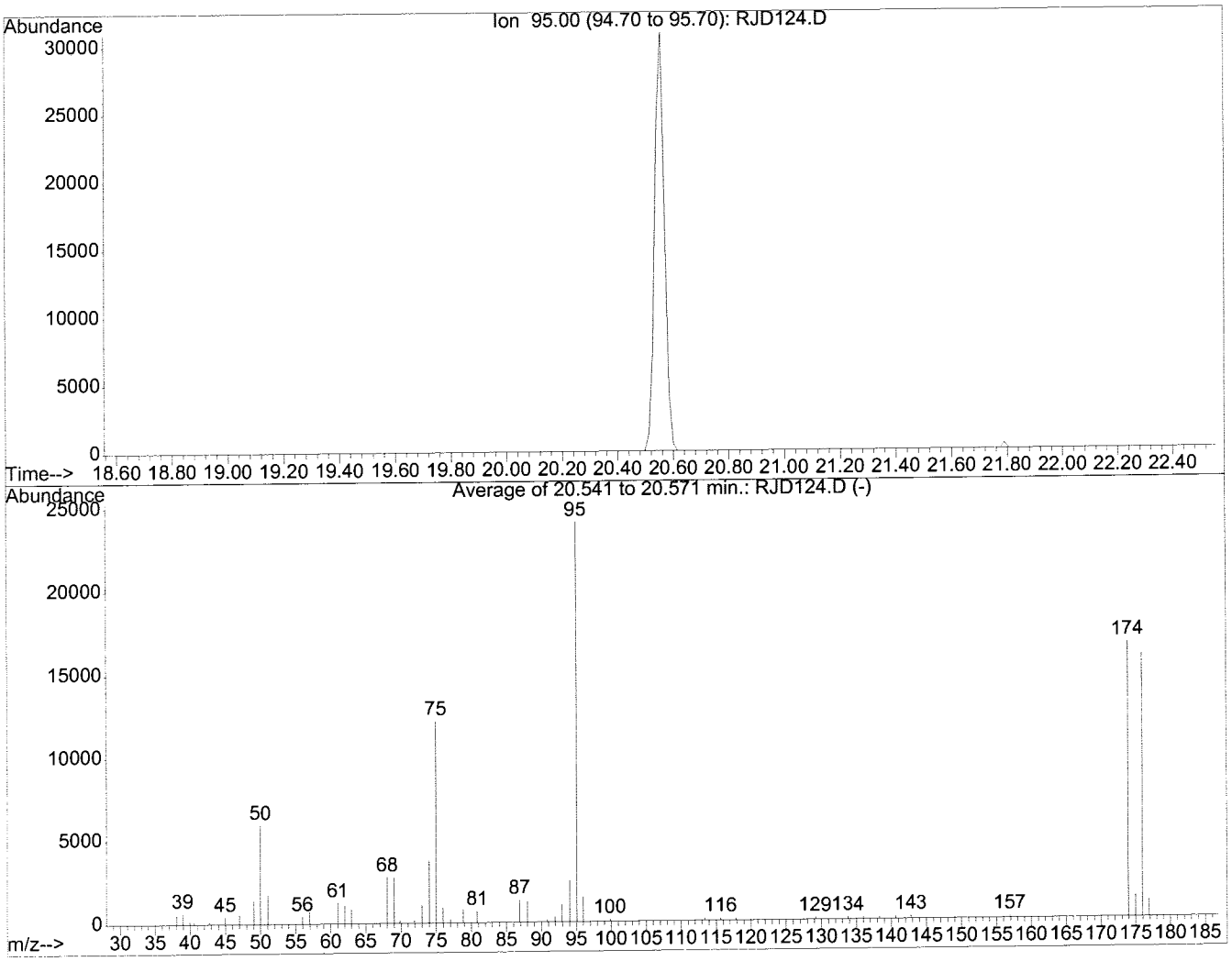
M	IDX	Parameters	CC Con	CC% D	CC Resp	CCRRF	AVRRF	CC Rtm	AVRtm	% RSD	Co X0	Co X1	Co X2	Co Cor
	1	1,4-DIFLUOROBENZENE	10.000	0	1275469	1	1	13.899	13.902	0				
	2	Dichlorodifluoromethane	9.059	-9.4	682840	0.535	0.519	4.667	4.665	16.17	-0.0192	0.6121		0.9975
	3	Dichlorotetrafluoroethane	11.278	12.8	718026	0.563	0.451	4.947	4.948	15.75	-0.0317	0.5272		0.9983
	4	Chloromethane	9.823	-1.8	1168919	0.916	0.933	5.316	5.315	10.63				
	5	Vinyl chloride	10.115	1.1	911184	0.714	0.706	5.611	5.618	8.48				
	6	Bromomethane	10.177	1.8	578794	0.454	0.446	6.717	6.716	11.85				
	7	Chloroethane	10.884	8.8	660527	0.518	0.476	6.909	6.907	13.56				
	8	Dichlorofluoromethane	11.641	16.4	1388974	1.089	0.935	6.982	6.980	11.03				
	9	Trichlorofluoromethane	11.080	10.8	770513	0.604	0.545	7.469	7.466	13.40				
5	10	Acrolein	47.559	-4.9	167345	0.026	0.028	8.354	8.347	10.99				
	11	1,1,2-Trichloro-1,2,2-trifluoroethane	10.940	9.4	309058	0.242	0.221	8.383	8.382	11.53				
5	12	Acetone	59.133	18.3	359952	0.056	0.048	8.457	8.460	4.67				
	13	1,1-Dichloroethene	10.801	8.0	1142674	0.896	0.829	8.752	8.757	9.22				
5	14	tert-Butyl alcohol	57.980	16.0	108696	0.017	0.015	8.855	8.849	8.51				
10	15	Acetonitrile	102.448	2.4	328399	0.026	0.025	9.002	8.993	6.81				
	16	Methyl acetate	10.254	2.5	203703	0.160	0.156	9.342	9.334	6.98				
	17	Iodomethane	11.699	17.0	718567	0.563	0.482	9.401	9.396	11.30				
	18	Methylene chloride	10.304	3.0	833643	0.654	0.634	9.666	9.667	4.36				
	19	Carbon disulfide	11.207	12.1	2222684	1.743	1.555	9.769	9.767	13.83				
5	20	Acrylonitrile	53.925	7.8	468858	0.074	0.068	9.858	9.857	7.94				
	21	tert-Butyl methyl ether (MTBE)	11.407	14.1	842771	0.661	0.579	9.902	9.894	8.04				
	22	trans-1,2-Dichloroethene	10.958	9.6	581740	0.456	0.416	10.197	10.195	5.65				
	23	n-Hexane												
	24	Isopropyl ether (DIPE)	11.518	15.2	2142788	1.680	1.459	10.654	10.652	8.20				
	25	Vinyl acetate	11.183	11.8	724823	0.568	0.508	10.861	10.860	10.32				
	26	1,1-Dichloroethane	10.829	8.3	1167031	0.915	0.845	10.934	10.932	6.01				
5	27	2-Butanol	53.027	6.1	94937	0.015	0.014	11.229	11.237	7.22				
	28	tert-Butyl ethyl ether (ETBE)	11.195	11.9	1367012	1.072	0.957	11.347	11.345	4.59				
5	29	2-Butanone	58.477	17.0	119938	0.019	0.016	11.583	11.582	9.25				
	30	2,2-Dichloropropane	10.951	9.5	460895	0.361	0.330	11.863	11.870	8.56				
	31	cis-1,2-Dichloroethene	10.914	9.1	557904	0.437	0.401	11.952	11.953	5.45				
	32	Chloroform	10.926	9.3	867982	0.681	0.623	12.203	12.206	4.97				
5	33	tert-Amyl alcohol	48.443	-3.1	78152	0.012	0.013	12.380	12.381	10.60				
	34	Bromochloromethane	10.890	8.9	234175	0.184	0.169	12.498	12.501	8.34				
	35	Tetrahydrofuran	10.628	6.3	71173	0.056	0.053	12.527	12.530	5.29				
	36	Dibromofluoromethane	9.455	-5.4	358871	0.281	0.298	12.557	12.564	7.15				
	37	1,1,1-Trichloroethane	10.813	8.1	572346	0.449	0.415	12.866	12.865	7.61				
	38	2,2,4-Trimethylpentane	10.561	5.6	2888218	2.264	2.144	12.896	12.896	8.05				
	39	Cyclohexane	11.309	13.1	962266	0.754	0.667	12.925	12.919	6.37				
	40	1,1-Dichloropropene	10.569	5.7	245656	0.193	0.182	13.102	13.104	3.42				
	41	tert-Amyl methyl ether (TAME)	10.992	9.9	164521	0.129	0.117	13.205	13.213	9.64				
	42	Carbon tetrachloride	10.628	6.3	451890	0.354	0.333	13.294	13.301	12.35				
	43	1,2-Dichloroethane-d4	9.634	-3.7	313562	0.246	0.255	13.353	13.351	6.77				
	44	1,2-Dichloroethane	10.620	6.2	425188	0.333	0.314	13.500	13.500	4.99				
	45	Benzene	10.898	9.0	2047643	1.605	1.473	13.559	13.560	3.44				
	46	Trichloroethene	9.856	-1.4	475414	0.373	0.378	14.488	14.488	5.82				
	47	Methylcyclohexane	10.057	0.6	973552	0.763	0.759	14.592	14.597	8.77				
	48	1,2-Dichloropropane	10.284	2.8	514977	0.404	0.393	14.754	14.753	3.90				
20	49	1,4-Dioxane	189.098	-5.5	29288	0.001	0.001	15.108	15.112	15.59	-0.0030	0.0014		0.9987
	50	Bromodichloromethane	10.633	6.3	478664	0.375	0.353	15.137	15.136	14.23				
	51	Dibromomethane	9.918	-0.8	166877	0.131	0.132	15.255	15.253	5.98				
	52	2-Chloroethyl vinyl ether	9.802	-2.0	170672	0.134	0.137	15.476	15.471	11.03				
5	53	4-Methyl-2-pentanone	53.826	7.7	1360561	0.213	0.198	15.506	15.505	9.63				
	54	cis-1,3-Dichloropropene	10.621	6.2	664108	0.521	0.490	15.919	15.916	13.38				
	55	CHLOROBENZENE-D5	10.000	0	1039483	1	1	18.706	18.704	0				
	56	Toluene-d8	9.544	-4.6	1314965	1.265	1.325	16.332	16.330	6.67				
	57	Toluene	10.457	4.6	1768764	1.702	1.627	16.450	16.453	3.84				
	58	Ethyl methacrylate	11.097	11.0	332934	0.320	0.289	16.524	16.529	8.79				
	59	trans-1,3-Dichloropropene	11.416	14.2	466689	0.449	0.393	16.656	16.659	13.33				
5	60	2-Hexanone	57.067	14.1	824648	0.159	0.139	16.833	16.832	7.91				
	61	1,1,2-Trichloroethane	10.511	5.1	223299	0.215	0.204	16.937	16.939	6.68				
	62	1,3-Dichloropropane	10.916	9.2	491469	0.473	0.433	17.320	17.319	5.88				
	63	Tetrachloroethene	9.886	-1.1	305615	0.294	0.297	17.482	17.487	3.20				
	64	Dibromochloromethane	9.774	-2.3	248529	0.239	0.217	17.821	17.825	17.24	-0.0083	0.2531		0.9993
	65	1,2-Dibromoethane	10.615	6.2	209212	0.201	0.190	18.146	18.145	9.25				
	66	Chlorohexane	11.241	12.4	809094	0.778	0.692	18.205	18.210	4.54				
	67	Chlorobenzene	10.184	1.8	1064767	1.024	1.006	18.765	18.764	3.81				
	68	Ethylbenzene	10.009	0.1	1960461	1.886	1.884	18.780	18.782	3.93				
	69	1,1,1,2-Tetrachloroethane	10.537	5.4	298782	0.287	0.273	18.795	18.794	13.45				
2	70	m-Xylene & p-Xylene	20.553	2.8	2769905	1.332	1.296	18.898	18.896	7.63				
	71	o-Xylene	10.332	3.3	1362870	1.311	1.269	19.591	19.595	4.02				
	72	Styrene	10.301	3.0	1048716	1.009	0.979	19.635	19.642	3.88				
	73	Isopropylbenzene	10.171	1.7	1747459	1.681	1.653	20.115	20.115	4.00				
	74	1,2-DICHLOROBENZENE-D4	10.000	0	285391	1	1	22.890	22.890	0				
	75	Bromoform	10.152	1.5	96299	0.337	0.283	20.277	20.276	27.64	-0.0147	0.3469		0.9992
	76	1,1,2,2-Tetrachloroethane	10.461	4.6	249499	0.874	0.836	20.379	20.381	5.20				
	77	4-Bromofluorobenzene	9.520	-4.8	373955	1.310	1.376	20.556	20.555	4.44				
	78	1,2,3-Trichloropropane	10.450	4.5	56035	0.196	0.188	20.629	20.629	5.89				
	79	trans-1,4-Dichloro-2-butene	11.702	17.0	58403	0.205	0.154	20.673	20.666	16.92	-0.0053	0.1794		0.9988
	80	n-Propylbenzene	10.768	7.7	2225358	7.798	7.241	20.732	20.733	4.95				
	81	Bromobenzene	10.889	8.9	290178	1.017	0.934	20.923	20.924	6.01				
	82	1,3,5-Trimethylbenzene	10.616	6.2	1292961	4.530	4.268	20.967	20.965	6.12				
	83	2-Chlorotoluene	10.554	5.5	1221847	4.281	4.056	21.084	21.085	3.87				
	84	4-Chlorotoluene	10.690	6.9	1059375	3.712	3.473	21.143	21.143	5.82				
	85	tert-Butylbenzene	10.583	5.8	286580	1.004	0.949	21.539	21.539	5.26				
	86	1,2,4-Trimethylbenzene	10.818	8.2	1263386	4.427	4.092	21.598	21.598	5.45				
	87	sec-Butylbenzene	10.633	6.3	1872317	6.561	6.170	21.848	21.848	4.74				
	88	p-Isopropyltoluene	10.413	4.1	1450223	5.082	4.880	22.024	22.022	4.84				
	89	1,3-Dichlorobenzene	10.283	2.8	599816	2.102	2.044	22.244	22.250	3.90				
	90	1,4-Dichlorobenzene	10.288	2.9	569697	1.996	1.940	22.391	22.391	4.28				
	91	n-Butylbenzene	10.170	1.7	1444698	5.062	4.978	22.582	22.582	4.75				
	92	1,2-Dichlorobenzene	10.300	3.0	489482	1.715	1.665	22.920	22.928	5.06				
	93	1,2-Dibromo-3-chloropropane	9.830	-1.7	24380	0.085	0.077	24.036	24.033	15.83	-0.0045	0.0915		0.9966
	94	1,2,4-Trichlorobenzene	10.120	1.2	326283	1.143	1.130	25.387	25.386	14.14				
	95	Hexachlorobutadiene	9.859	-1.4	227255	0.796	0.808	25.563	25.563	11.46				
	96	Naphthalene	9.739	-2.6	518677	1.817	1.866	25.886	25.885	13.13				
	97	1,2,3-Trichlorobenzene	10.100	1.0	257257	0.901	0.893	26.297	26.295	12.70				

Spike Amount = Nominal Amount * M

SA 11/14/19

Data File : D:\HPCHEM\1\DATA\19J10\RJD124.D
Acq On : 10 Oct 2019 4:31 pm
Sample : BFB94J06
Misc : T/CHK
MS Integration Params: LSCINT1.P
Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260

Vial: 1
Operator: VLu
Inst : 94
Multiplr: 1.00



AutoFind: Scans 1084, 1085, 1086; Background Corrected with Scan 1079

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	24.8	5964	PASS
75	95	30	60	50.5	12175	PASS
95	95	100	100	100.0	24091	PASS
96	95	5	9	6.3	1513	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	68.9	16607	PASS
175	174	5	9	7.8	1290	PASS
176	174	95	101	95.4	15848	PASS
177	176	5	9	6.7	1054	PASS

SC 11/14/19

RJD124.D VO94J09.M Thu Nov 14 11:59:56 2019

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19J10\RJD125.D
Acq On : 10 Oct 2019 5:07 pm
Sample : IVO94J0902
Misc : 10ppb 8260/50ppb KET-AA
MS Integration Params: LSCINT1.P

Vial: 2
Operator: VLu
Inst : 94
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	106	0.00
2	T,M	Dichlorodifluoromethane	10.000	9.059	9.4	109	0.00
3	T,M	Dichlorotetrafluoroethane	10.000	11.278	-12.8	147	0.00
4	P,T,M	Chloromethane	10.000	9.823	1.8	106	0.00
5	C,T,M	Vinyl chloride	10.000	10.115	-1.2	102	-0.01
6	T,M	Bromomethane	10.000	10.177	-1.8	108	0.00
7	T,M	Chloroethane	10.000	10.884	-8.8	116	0.00
8	T,M	Dichlorofluoromethane	10.000	11.641	-16.4	122	0.00
9	T,M	Trichlorofluoromethane	10.000	11.080	-10.8	113	0.00
10	T,M	Acrolein	50.000	47.559	4.9	101	0.02
11	T,M	1,1,2-Trichloro-1,2,2-trifl	10.000	10.940	-9.4	117	0.00
12	T,M	Acetone	50.000	59.133	-18.3	128	0.00
13	C,T,M	1,1-Dichloroethene	10.000	10.801	-8.0	114	0.00
14	T,M	tert-Butyl alcohol	50.000	57.980	-16.0	128	0.00
15	T,M	Acetonitrile	100.000	102.448	-2.4	104	0.02
16	T,M	Methyl acetate	10.000	10.254	-2.5	106	0.00
17	T,M	Iodomethane	10.000	11.699	-17.0	127	0.02
18	T,M	Methylene chloride	10.000	10.304	-3.0	114	0.00
19	T,M	Carbon disulfide	10.000	11.207	-12.1	115	0.00
20	T,M	Acrylonitrile	50.000	53.925	-7.8	112	0.00
21	T,M	tert-Butyl methyl ether (MT	10.000	11.407	-14.1	122	0.02
22	T,M	trans-1,2-Dichloroethene	10.000	10.958	-9.6	114	0.00
23	T,M	n-Hexane	-1.000	0.000	0.0	0	0.00
24	T,M	Isopropyl ether (DIPE)	10.000	11.518	-15.2	119	0.00
25	T,M	Vinyl acetate	10.000	11.183	-11.8	117	0.00
26	P,T,M	1,1-Dichloroethane	10.000	10.829	-8.3	113	0.00
27	T,M	2-Butanol	50.000	53.026	-6.1	117	0.00
28	T,M	tert-Butyl ethyl ether (ETB	10.000	11.195	-12.0	120	0.00
29	T,M	2-Butanone	50.000	58.477	-17.0	122	0.00
30	T,M	2,2-Dichloropropane	10.000	10.951	-9.5	111	0.00
31	T,M	cis-1,2-Dichloroethene	10.000	10.914	-9.1	115	0.00
32	C,T,M	Chloroform	10.000	10.926	-9.3	116	0.00
33	T,M	tert-Amyl alcohol	50.000	48.443	3.1	99	0.00
34	T,M	Bromochloromethane	10.000	10.890	-8.9	114	0.00
35	T,M	Tetrahydrofuran	10.000	10.628	-6.3	112	0.00
36	S	Dibromofluoromethane	10.000	9.455	5.4	92	-0.01
37	T,M	1,1,1-Trichloroethane	10.000	10.813	-8.1	112	0.00
38	T,M	2,2,4-Trimethylpentane	10.000	10.561	-5.6	103	0.00
39	T,M	Cyclohexane	10.000	11.309	-13.1	117	0.02
40	T,M	1,1-Dichloropropene	10.000	10.569	-5.7	116	0.00
41	T,M	tert-Amyl methyl ether (TAM	10.000	10.992	-9.9	119	-0.01

(#) = Out of Range

SU 11/14/19

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19J10\RJD125.D
Acq On : 10 Oct 2019 5:07 pm
Sample : IVO94J0902
Misc : 10ppb 8260/50ppb KET-AA
MS Integration Params: LSCINT1.P

Vial: 2
Operator: VLu
Inst : 94
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
42	T,M	Carbon tetrachloride	10.000	10.628	-6.3	111	0.00
43	S	1,2-Dichloroethane-d4	10.000	9.634	3.7	94	0.00
44	T,M	1,2-Dichloroethane	10.000	10.620	-6.2	113	0.00
45	T,M	Benzene	10.000	10.898	-9.0	116	0.00
46	T,M	Trichloroethene	10.000	9.855	1.4	107	0.00
47	T,M	Methylcyclohexane	10.000	10.057	-0.6	102	0.00
48	C,T,M	1,2-Dichloropropane	10.000	10.284	-2.8	110	0.00
49	T,M	1,4-Dioxane	200.000	189.098	5.5	110	0.00
50	T,M	Bromodichloromethane	10.000	10.633	-6.3	113	0.00
51	T,M	Dibromomethane	10.000	9.918	0.8	109	0.00
52	T,M	2-Chloroethyl vinyl ether	10.000	9.802	2.0	106	0.02
53	T,M	4-Methyl-2-pentanone	50.000	53.826	-7.7	108	0.00
54	T,M	cis-1,3-Dichloropropene	10.000	10.621	-6.2	115	0.00
55	I	CHLOROBENZENE-D5	10.000	10.000	0.0	103	0.00
56	S	Toluene-d8	10.000	9.544	4.6	90	0.00
57	C,T,M	Toluene	10.000	10.457	-4.6	108	0.00
58	T,M	Ethyl methacrylate	10.000	11.097	-11.0	115	0.00
59	T,M	trans-1,3-Dichloropropene	10.000	11.416	-14.2	115	0.00
60	T,M	2-Hexanone	50.000	57.067	-14.1	111	0.00
61	T,M	1,1,2-Trichloroethane	10.000	10.511	-5.1	109	0.00
62	T,M	1,3-Dichloropropane	10.000	10.916	-9.2	113	0.00
63	T,M	Tetrachloroethene	10.000	9.886	1.1	105	0.00
64	T,M	Dibromochloromethane	10.000	9.774	2.3	113	0.00
65	T,M	1,2-Dibromoethane	10.000	10.615	-6.2	109	0.00
66	T,M	1-Chlorohexane	10.000	11.241	-12.4	116	0.00
67	T,M	Chlorobenzene	10.000	10.184	-1.8	107	0.00
68	C,T,M	Ethylbenzene	10.000	10.010	-0.1	104	0.00
69	T,M	1,1,1,2-Tetrachloroethane	10.000	10.537	-5.4	105	0.00
70	T,M	m-Xylene & p-Xylene	20.000	20.553	-2.8	105	0.00
71	T,M	o-Xylene	10.000	10.332	-3.3	107	0.00
72	T,M	Styrene	10.000	10.301	-3.0	108	-0.01
73	T,M	Isopropylbenzene	10.000	10.171	-1.7	105	0.00
74	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	97	0.00
75	P,T,M	Bromoform	10.000	10.152	-1.5	110	0.00
76	P,T,M	1,1,2,2-Tetrachloroethane	10.000	10.461	-4.6	103	0.00
77	S	4-Bromofluorobenzene	10.000	9.520	4.8	85	0.00
78	T,M	1,2,3-Trichloropropane	10.000	10.450	-4.5	105	0.00
79	T,M	trans-1,4-Dichloro-2-butene	10.000	11.702	-17.0	128	0.02
80	T,M	n-Propylbenzene	10.000	10.768	-7.7	105	0.00

(#) = Out of Range

11/14/19

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19J10\RJD125.D
Acq On : 10 Oct 2019 5:07 pm
Sample : IVO94J0902
Misc : 10ppb 8260/50ppb KET-AA
MS Integration Params: LSCINT1.P

Vial: 2
Operator: VLu
Inst : 94
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	10.000	10.889	-8.9	106	0.00
82	T,M	1,3,5-Trimethylbenzene	10.000	10.616	-6.2	101	0.00
83	T,M	2-Chlorotoluene	10.000	10.554	-5.5	103	0.00
84	T,M	4-Chlorotoluene	10.000	10.690	-6.9	108	0.00
85	T,M	tert-Butylbenzene	10.000	10.583	-5.8	104	0.00
86	T,M	1,2,4-Trimethylbenzene	10.000	10.818	-8.2	105	0.00
87	T,M	sec-Butylbenzene	10.000	10.633	-6.3	104	0.00
88	T,M	p-Isopropyltoluene	10.000	10.413	-4.1	100	0.00
89	T,M	1,3-Dichlorobenzene	10.000	10.283	-2.8	102	0.00
90	T,M	1,4-Dichlorobenzene	10.000	10.288	-2.9	102	0.00
91	T,M	n-Butylbenzene	10.000	10.170	-1.7	98	0.00
92	T,M	1,2-Dichlorobenzene	10.000	10.300	-3.0	103	0.00
93	T,M	1,2-Dibromo-3-chloropropane	10.000	9.830	1.7	109	0.00
94	T,M	1,2,4-Trichlorobenzene	10.000	10.120	-1.2	105	0.00
95	T,M	Hexachlorobutadiene	10.000	9.859	1.4	103	0.00
96	T,M	Naphthalene	10.000	9.739	2.6	99	0.00
97	T,M	1,2,3-Trichlorobenzene	10.000	10.100	-1.0	102	0.00

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19J10\RJD125.D
Acq On : 10 Oct 2019 5:07 pm
Sample : IVO94J0902
Misc : 10ppb 8260/50ppb KET-AA
MS Integration Params: LSCINT1.P

Vial: 2
Operator: VLu
Inst : 94
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	106	0.00
2	T,M	Dichlorodifluoromethane	0.519	0.535	-3.1	109	0.00
3	T,M	Dichlorotetrafluoroethane	0.451	0.563	-24.8#	147	0.00
4	P,T,M	Chloromethane	0.933	0.916	1.8	106	0.00
5	C,T,M	Vinyl chloride	0.706	0.714	-1.1	102	-0.01
6	T,M	Bromomethane	0.446	0.454	-1.8	108	0.00
7	T,M	Chloroethane	0.476	0.518	-8.8	116	0.00
8	T,M	Dichlorofluoromethane	0.935	1.089	-16.5	122	0.00
9	T,M	Trichlorofluoromethane	0.545	0.604	-10.8	113	0.00
10	T,M	Acrolein	0.028	0.026	7.1	101	0.02
11	T,M	1,1,2-Trichloro-1,2,2-trifl	0.221	0.242	-9.5	117	0.00
12	T,M	Acetone	0.048	0.056	-16.7	128	0.00
13	C,T,M	1,1-Dichloroethene	0.829	0.896	-8.1	114	0.00
14	T,M	tert-Butyl alcohol	0.015	0.017	-13.3	128	0.00
15	T,M	Acetonitrile	0.025	0.026	-4.0	104	0.02
16	T,M	Methyl acetate	0.156	0.160	-2.6	106	0.00
17	T,M	Iodomethane	0.482	0.563	-16.8	127	0.02
18	T,M	Methylene chloride	0.634	0.654	-3.2	114	0.00
19	T,M	Carbon disulfide	1.555	1.743	-12.1	115	0.00
20	T,M	Acrylonitrile	0.068	0.074	-8.8	112	0.00
21	T,M	tert-Butyl methyl ether (MT	0.579	0.661	-14.2	122	0.02
22	T,M	trans-1,2-Dichloroethene	0.416	0.456	-9.6	114	0.00
23	T,M	n-Hexane	0.000	0.000	0.0	0#	0.00
24	T,M	Isopropyl ether (DIPE)	1.459	1.680	-15.1	119	0.00
25	T,M	Vinyl acetate	0.508	0.568	-11.8	117	0.00
26	P,T,M	1,1-Dichloroethane	0.845	0.915	-8.3	113	0.00
27	T,M	2-Butanol	0.014	0.015	-7.1	117	0.00
28	T,M	tert-Butyl ethyl ether (ETB	0.957	1.072	-12.0	120	0.00
29	T,M	2-Butanone	0.016	0.019	-18.7	122	0.00
30	T,M	2,2-Dichloropropane	0.330	0.361	-9.4	111	0.00
31	T,M	cis-1,2-Dichloroethene	0.401	0.437	-9.0	115	0.00
32	C,T,M	Chloroform	0.623	0.681	-9.3	116	0.00
33	T,M	tert-Amyl alcohol	0.013	0.012	7.7	99	0.00
34	T,M	Bromochloromethane	0.169	0.184	-8.9	114	0.00
35	T,M	Tetrahydrofuran	0.053	0.056	-5.7	112	0.00
36	S	Dibromofluoromethane	0.298	0.281	5.7	92	-0.01
37	T,M	1,1,1-Trichloroethane	0.415	0.449	-8.2	112	0.00
38	T,M	2,2,4-Trimethylpentane	2.144	2.264	-5.6	103	0.00
39	T,M	Cyclohexane	0.667	0.754	-13.0	117	0.02
40	T,M	1,1-Dichloropropene	0.182	0.193	-6.0	116	0.00
41	T,M	tert-Amyl methyl ether (TAM	0.117	0.129	-10.3	119	-0.01

(#) = Out of Range

11/14/19

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19J10\RJD125.D
Acq On : 10 Oct 2019 5:07 pm
Sample : IVO94J0902
Misc : 10ppb 8260/50ppb KET-AA
MS Integration Params: LSCINT1.P

Vial: 2
Operator: VLu
Inst : 94
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
42	T,M	Carbon tetrachloride	0.333	0.354	-6.3	111	0.00
43	S	1,2-Dichloroethane-d4	0.255	0.246	3.5	94	0.00
44	T,M	1,2-Dichloroethane	0.314	0.333	-6.1	113	0.00
45	T,M	Benzene	1.473	1.605	-9.0	116	0.00
46	T,M	Trichloroethene	0.378	0.373	1.3	107	0.00
47	T,M	Methylcyclohexane	0.759	0.763	-0.5	102	0.00
48	C,T,M	1,2-Dichloropropane	0.393	0.404	-2.8	110	0.00
49	T,M	1,4-Dioxane	0.001	0.001	0.0	110	0.00
50	T,M	Bromodichloromethane	0.353	0.375	-6.2	113	0.00
51	T,M	Dibromomethane	0.132	0.131	0.8	109	0.00
52	T,M	2-Chloroethyl vinyl ether	0.137	0.134	2.2	106	0.02
53	T,M	4-Methyl-2-pentanone	0.198	0.213	-7.6	108	0.00
54	T,M	cis-1,3-Dichloropropene	0.490	0.521	-6.3	115	0.00
55	I	CHLOROBENZENE-D5	1.000	1.000	0.0	103	0.00
56	S	Toluene-d8	1.325	1.265	4.5	90	0.00
57	C,T,M	Toluene	1.627	1.702	-4.6	108	0.00
58	T,M	Ethyl methacrylate	0.289	0.320	-10.7	115	0.00
59	T,M	trans-1,3-Dichloropropene	0.393	0.449	-14.2	115	0.00
60	T,M	2-Hexanone	0.139	0.159	-14.4	111	0.00
61	T,M	1,1,2-Trichloroethane	0.204	0.215	-5.4	109	0.00
62	T,M	1,3-Dichloropropane	0.433	0.473	-9.2	113	0.00
63	T,M	Tetrachloroethene	0.297	0.294	1.0	105	0.00
64	T,M	Dibromochloromethane	0.217	0.239	-10.1	113	0.00
65	T,M	1,2-Dibromoethane	0.190	0.201	-5.8	109	0.00
66	T,M	1-Chlorohexane	0.692	0.778	-12.4	116	0.00
67	T,M	Chlorobenzene	1.006	1.024	-1.8	107	0.00
68	C,T,M	Ethylbenzene	1.884	1.886	-0.1	104	0.00
69	T,M	1,1,1,2-Tetrachloroethane	0.273	0.287	-5.1	105	0.00
70	T,M	m-Xylene & p-Xylene	1.296	1.332	-2.8	105	0.00
71	T,M	o-Xylene	1.269	1.311	-3.3	107	0.00
72	T,M	Styrene	0.979	1.009	-3.1	108	-0.01
73	T,M	Isopropylbenzene	1.653	1.681	-1.7	105	0.00
74	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	97	0.00
75	P,T,M	Bromoform	0.283	0.337	-19.1	110	0.00
76	P,T,M	1,1,2,2-Tetrachloroethane	0.836	0.874	-4.5	103	0.00
77	S	4-Bromofluorobenzene	1.376	1.310	4.8	85	0.00
78	T,M	1,2,3-Trichloropropane	0.188	0.196	-4.3	105	0.00
79	T,M	trans-1,4-Dichloro-2-butene	0.154	0.205	-33.1#	128	0.02
80	T,M	n-Propylbenzene	7.241	7.798	-7.7	105	0.00

(#) = Out of Range

11/14/19

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19J10\RJD125.D
Acq On : 10 Oct 2019 5:07 pm
Sample : IVO94J0902
Misc : 10ppb 8260/50ppb KET-AA
MS Integration Params: LSCINT1.P

Vial: 2
Operator: VLu
Inst : 94
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	0.934	1.017	-8.9	106	0.00
82	T,M	1,3,5-Trimethylbenzene	4.268	4.530	-6.1	101	0.00
83	T,M	2-Chlorotoluene	4.056	4.281	-5.5	103	0.00
84	T,M	4-Chlorotoluene	3.473	3.712	-6.9	108	0.00
85	T,M	tert-Butylbenzene	0.949	1.004	-5.8	104	0.00
86	T,M	1,2,4-Trimethylbenzene	4.092	4.427	-8.2	105	0.00
87	T,M	sec-Butylbenzene	6.170	6.561	-6.3	104	0.00
88	T,M	p-Isopropyltoluene	4.880	5.082	-4.1	100	0.00
89	T,M	1,3-Dichlorobenzene	2.044	2.102	-2.8	102	0.00
90	T,M	1,4-Dichlorobenzene	1.940	1.996	-2.9	102	0.00
91	T,M	n-Butylbenzene	4.978	5.062	-1.7	98	0.00
92	T,M	1,2-Dichlorobenzene	1.665	1.715	-3.0	103	0.00
93	T,M	1,2-Dibromo-3-chloropropane	0.077	0.085	-10.4	109	0.00
94	T,M	1,2,4-Trichlorobenzene	1.130	1.143	-1.2	105	0.00
95	T,M	Hexachlorobutadiene	0.808	0.796	1.5	103	0.00
96	T,M	Naphthalene	1.866	1.817	2.6	99	0.00
97	T,M	1,2,3-Trichlorobenzene	0.893	0.901	-0.9	102	0.00

SU 11/14/19

(#) = Out of Range SPCC's out = 0 CCC's out = 0
RJD125.D VO94J09.M Wed Nov 13 17:12:40 2019 Page 3

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J10\RJD125.D
Acq On : 10 Oct 2019 5:07 pm
Sample : IVO94J0902
Misc : 10ppb 8260/50ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:35 2019

Vial: 2
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.90	114	1275469	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	18.71	117	1039483	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	22.89	152	285391	10.00	ug/l	0.00
System Monitoring Compounds						
36) Dibromofluoromethane	12.56	111	358871	9.46	ug/l	-0.01
Spiked Amount 10.000			Recovery =	94.60%		
43) 1,2-Dichloroethane-d4	13.35	65	313562	9.63	ug/l	0.00
Spiked Amount 10.000			Recovery =	96.30%		
56) Toluene-d8	16.33	98	1314965	9.54	ug/l	0.00
Spiked Amount 10.000			Recovery =	95.40%		
77) 4-Bromofluorobenzene	20.56	95	373955	9.52	ug/l	0.00
Spiked Amount 10.000			Recovery =	95.20%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.67	85	682840	9.06	ug/l	100
3) Dichlorotetrafluoroethane	4.95	85	718026	11.28	ug/l	94
4) Chloromethane	5.32	50	1168919	9.82	ug/l	99
5) Vinyl chloride	5.61	62	911184	10.11	ug/l	99
6) Bromomethane	6.72	94	578794	10.18	ug/l	98
7) Chloroethane	6.91	64	660527	10.88	ug/l	100
8) Dichlorofluoromethane	6.98	67	1388974	11.64	ug/l	100
9) Trichlorofluoromethane	7.47	101	770513	11.08	ug/l	97
10) Acrolein	8.35	56	167345	47.56	ug/l	99
11) 1,1,2-Trichloro-1,2,2-trif	8.38	151	309058	10.94	ug/l	99
12) Acetone	8.46	43	359952	59.13	ug/l	96
13) 1,1-Dichloroethene	8.75	61	1142674	10.80	ug/l	99
14) tert-Butyl alcohol	8.86	59	108696	57.98	ug/l	97
15) Acetonitrile	9.00	41	328399	102.45	ug/l	92
16) Methyl acetate	9.34	43	203703	10.25	ug/l	96
17) Iodomethane	9.40	142	718567	11.70	ug/l	99
18) Methylene chloride	9.67	49	833643	10.30	ug/l	99
19) Carbon disulfide	9.77	76	2222684	11.21	ug/l	100
20) Acrylonitrile	9.86	53	468858	53.92	ug/l	99
21) tert-Butyl methyl ether (M	9.90	73	842771	11.41	ug/l	99
22) trans-1,2-Dichloroethene	10.20	96	581740	10.96	ug/l	100
24) Isopropyl ether (DIPE)	10.65	45	2142788	11.52	ug/l	99
25) Vinyl acetate	10.86	43	724823	11.18	ug/l	100
26) 1,1-Dichloroethane	10.93	63	1167031	10.83	ug/l	99
27) 2-Butanol	11.23	45	94937	53.03	ug/l	97
28) tert-Butyl ethyl ether (ET	11.35	59	1367012	11.19	ug/l	100
29) 2-Butanone	11.58	72	119938	58.48	ug/l	98

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

11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J10\RJD125.D
Acq On : 10 Oct 2019 5:07 pm
Sample : IVO94J0902
Misc : 10ppb 8260/50ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:35 2019

Vial: 2
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
30) 2,2-Dichloropropane	11.86	77	460895	10.95 ug/l	99
31) cis-1,2-Dichloroethene	11.95	96	557904	10.91 ug/l	100
32) Chloroform	12.20	83	867982	10.93 ug/l	99
33) tert-Amyl alcohol	12.38	59	78152	48.44 ug/l	100
34) Bromochloromethane	12.50	130	234175	10.89 ug/l	100
35) Tetrahydrofuran	12.53	42	71173	10.63 ug/l	97
37) 1,1,1-Trichloroethane	12.87	97	572346	10.81 ug/l	97
38) 2,2,4-Trimethylpentane	12.90	57	2888218	10.56 ug/l	100
39) Cyclohexane	12.93	84	962266	11.31 ug/l	98
40) 1,1-Dichloropropene	13.10	110	245656	10.57 ug/l	99
41) tert-Amyl methyl ether (TA	13.21	87	164521	10.99 ug/l	98
42) Carbon tetrachloride	13.29	119	451890	10.63 ug/l	99
44) 1,2-Dichloroethane	13.50	62	425188	10.62 ug/l	99
45) Benzene	13.56	78	2047643	10.90 ug/l	100
46) Trichloroethene	14.49	130	475414	9.86 ug/l	99
47) Methylcyclohexane	14.59	83	973552	10.06 ug/l	99
48) 1,2-Dichloropropane	14.75	63	514977	10.28 ug/l	99
49) 1,4-Dioxane	15.11	88	29288	189.10 ug/l	99
50) Bromodichloromethane	15.14	83	478664	10.63 ug/l	100
51) Dibromomethane	15.26	93	166877	9.92 ug/l	98
52) 2-Chloroethyl vinyl ether	15.48	63	170672	9.80 ug/l	99
53) 4-Methyl-2-pentanone	15.51	43	1360561	53.83 ug/l	100
54) cis-1,3-Dichloropropene	15.92	75	664108	10.62 ug/l	98
57) Toluene	16.45	91	1768764	10.46 ug/l	100
58) Ethyl methacrylate	16.52	69	332934	11.10 ug/l	99
59) trans-1,3-Dichloropropene	16.66	75	466689	11.42 ug/l	98
60) 2-Hexanone	16.83	43	824648	57.07 ug/l	99
61) 1,1,2-Trichloroethane	16.94	97	223299	10.51 ug/l	97
62) 1,3-Dichloropropane	17.32	76	491469	10.92 ug/l	99
63) Tetrachloroethene	17.48	164	305615	9.89 ug/l	98
64) Dibromochloromethane	17.82	129	248529	9.77 ug/l	96
65) 1,2-Dibromoethane	18.15	107	209212	10.62 ug/l	100
66) 1-Chlorohexane	18.20	91	809094	11.24 ug/l	99
67) Chlorobenzene	18.77	112	1064767	10.18 ug/l	99
68) Ethylbenzene	18.78	91	1960461	10.01 ug/l	99
69) 1,1,1,2-Tetrachloroethane	18.79	131	298782	10.54 ug/l	97
70) m-Xylene & p-Xylene	18.90	91	2769905	20.55 ug/l	99
71) o-Xylene	19.59	91	1362870	10.33 ug/l	99
72) Styrene	19.64	104	1048716	10.30 ug/l	99
73) Isopropylbenzene	20.12	105	1747459	10.17 ug/l	100
75) Bromoform	20.28	173	96299	10.15 ug/l	99

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

SM 11/14/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19J10\RJD125.D
Acq On : 10 Oct 2019 5:07 pm
Sample : IVO94J0902
Misc : 10ppb 8260/50ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:35 2019

Vial: 2
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
76) 1,1,2,2-Tetrachloroethane	20.38	83	249499	10.46 ug/l	100
78) 1,2,3-Trichloropropane	20.63	110	56035	10.45 ug/l	99
79) trans-1,4-Dichloro-2-buten	20.67	53	58403	11.70 ug/l	98
80) n-Propylbenzene	20.73	91	2225358	10.77 ug/l	99
81) Bromobenzene	20.92	156	290178	10.89 ug/l	98
82) 1,3,5-Trimethylbenzene	20.97	105	1292961	10.62 ug/l	99
83) 2-Chlorotoluene	21.08	91	1221847	10.55 ug/l	99
84) 4-Chlorotoluene	21.14	91	1059375	10.69 ug/l	99
85) tert-Butylbenzene	21.54	134	286580	10.58 ug/l	98
86) 1,2,4-Trimethylbenzene	21.60	105	1263386	10.82 ug/l	99
87) sec-Butylbenzene	21.85	105	1872317	10.63 ug/l	100
88) p-Isopropyltoluene	22.02	119	1450223	10.41 ug/l	100
89) 1,3-Dichlorobenzene	22.24	146	599816	10.28 ug/l	99
90) 1,4-Dichlorobenzene	22.39	146	569697	10.29 ug/l	99
91) n-Butylbenzene	22.58	91	1444698	10.17 ug/l	100
92) 1,2-Dichlorobenzene	22.92	146	489482	10.30 ug/l	99
93) 1,2-Dibromo-3-chloropropan	24.04	157	24380	9.83 ug/l	96
94) 1,2,4-Trichlorobenzene	25.39	180	326283	10.12 ug/l	97
95) Hexachlorobutadiene	25.56	225	227255	9.86 ug/l	99
96) Naphthalene	25.89	128	518677	9.74 ug/l	99
97) 1,2,3-Trichlorobenzene	26.30	180	257257	10.10 ug/l	99

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

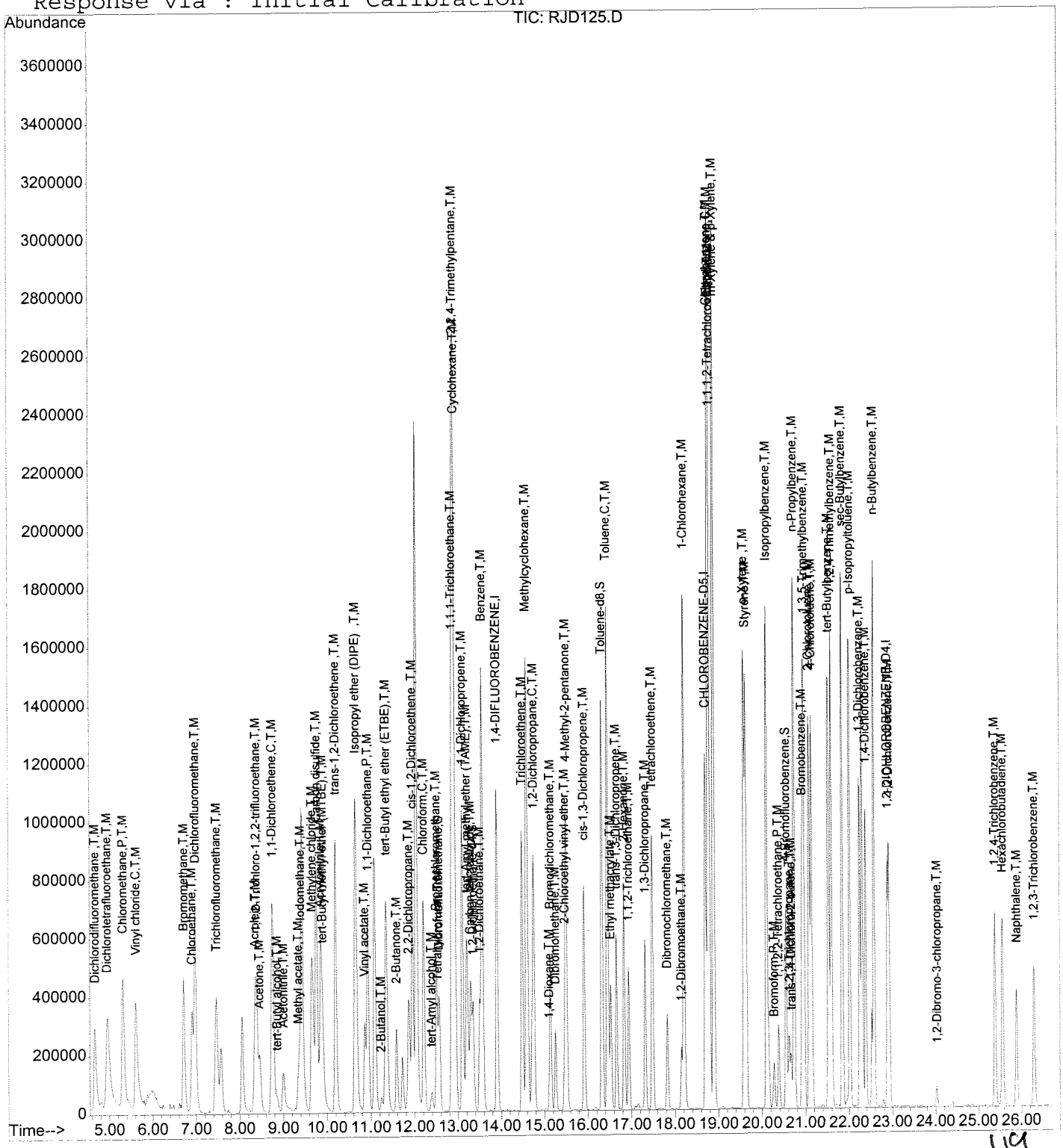
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19J10\RJD125.D
Acq On : 10 Oct 2019 5:07 pm
Sample : IVO94J0902
Misc : 10ppb 8260/50ppb KET-AA
MS Integration Params: LSCINT1.P
Quant Time: Nov 13 16:35 2019

Vial: 2
Operator: VLu
Inst : 94
Multiplr: 1.00

Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



DAILY CALIBRATIONS

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc Contract: VA SALT LAKE CITY
Lab Code: EMXT Case No.: SAS No.: SDG No.: 19L043
Lab File ID: RLD078 BFB Injection Date : 12/13/19
Instrument ID: 94 BFB Injection Time : 09:45
GC Column:RTX502.2ID:0.25mm (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	25.11
75	30.0 - 60.0% of mass 95	51.90
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.11
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	56.22
175	5.0 - 9.0% of mass 174	4.22(7.5)1
176	95.0 - 101.0% of mass 174	53.74(95.6)1
177	5.0 - 9.0% of mass 176	3.05(5.7)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD010	CV094J0926	RLD079	12/13/19	10:37
2	MBLK1W	V094L04B	RLD083	12/13/19	12:42
3	LCS1W	V094L04L	RLD080	12/13/19	11:08
4	LCD1W	V094L04C	RLD081	12/13/19	11:40
5	OU2-TB2-GW120519	L043-03	RLD084	12/13/19	13:13
6	OU2-TB1-GW120519	L043-06	RLD085	12/13/19	13:45
7	OU2-TB3-GW120519	L043-08	RLD086	12/13/19	14:16
8	OU2-MW02-GW120519	L043-07	RLD087	12/13/19	14:47
9	OU2-MW02-GW120519MS	L043-07M	RLD088	12/13/19	15:18
10	OU2-MW02-GW120519MSD	L043-07S	RLD089	12/13/19	15:50
11	OU2-MW20S-GW120419	L043-01	RLD091	12/13/19	16:52
12	OU2-MW20D-GW120519	L043-02	RLD092	12/13/19	17:23
13	OU2-MW18-GW120519	L043-04	RLD093	12/13/19	17:54
14	OU2-MW19-GW120519	L043-05	RLD094	12/13/19	18:26

FORM 8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

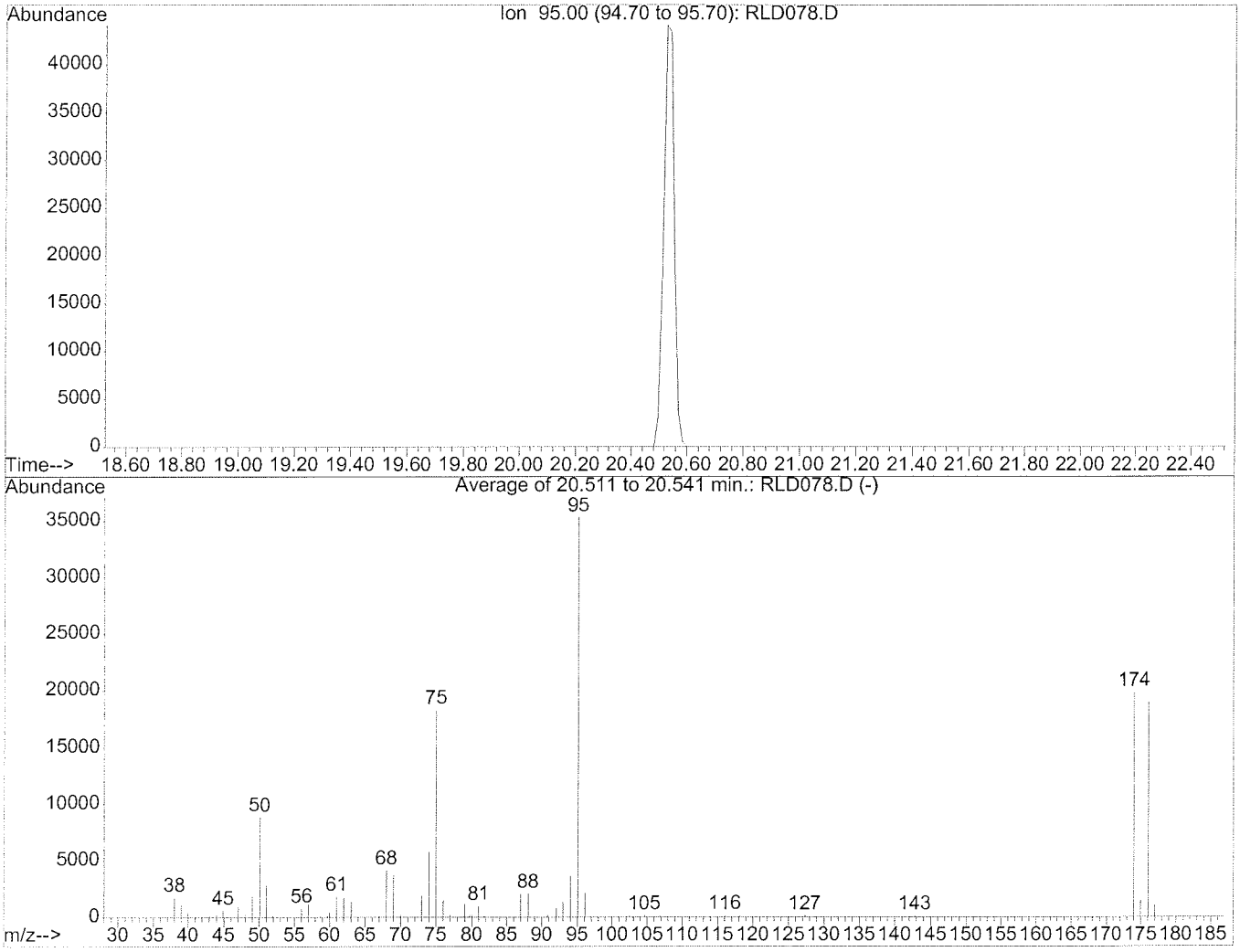
Lab Name : EMAX Inc
Lab Code : EMXT
Lab File ID : RJD110
Instrument ID: 94
GC Column : RTX502.2ID:0.25mm (mm)

Project: VA SALT LAKE CITY
SDG No: 19L043
Date Analyzed: 10/09/2019
Time Analyzed: 12:34
Heated Purge (Y/N): N

		1,4-DIFLUOROBENZENE		CHLOROBENZENE-D5		1,2-DICHLOROBENZENE-D4	
		AREA #	RT(min)	AREA #	RT(min)	AREA #	RT(min)
	12 HOUR STD	1207070	13.90	1010068	18.70	294363	22.89
	UPPER LIMIT	2414140	14.07	2020136	18.87	588726	23.06
	LOWER LIMIT	603535	13.73	505034	18.53	147182	22.72
	SAMPLE ID						
1	VSTD010	1709079	13.89	1376977	18.68	363856	22.86
2	MBLK1W	1870804	13.88	1479695	18.69	419959	22.87
3	LCS1W	1483895	13.88	1272191	18.68	349042	22.86
4	LCD1W	1487964	13.88	1251449	18.69	352510	22.87
5	OU2-TB2-GW120519	1963053	13.88	1531211	18.69	439319	22.88
6	OU2-TB1-GW120519	1835682	13.88	1462394	18.69	415169	22.87
7	OU2-TB3-GW120519	1798667	13.88	1405512	18.69	381361	22.88
8	OU2-MW02-GW120519	1721974	13.88	1239042	18.69	370238	22.88
9	OU2-MW02-GW120519MS	1379289	13.89	1114091	18.69	321322	22.88
10	OU2-MW02-GW120519MSD	1331039	13.88	1041910	18.69	303740	22.88
11	OU2-MW20S-GW120419	1703716	13.88	1341836	18.69	384061	22.88
12	OU2-MW20D-GW120519	1800882	13.89	1378272	18.70	385352	22.89
13	OU2-MW18-GW120519	1795714	13.88	1316856	18.69	384871	22.88
14	OU2-MW19-GW120519	1758904	13.88	1297491	18.69	366448	22.88

Area Upper Limit = + 100% of internal standard area
Area Lower Limit = - 50% of internal standard area
RT Upper Limit = + 0.167 min. (10 sec.) of internal standard RT
RT Lower Limit = - 0.167 min. (10 sec.) of internal standard RT

Data File : D:\HPCHEM\1\DATA\19L13\RLD078.D Vial: 1
Acq On : 13 Dec 2019 9:45 am Operator: VLu
Sample : BFB94L04 Inst : 94
Misc : T/CHK Multiplr: 1.00
MS Integration Params: LSCINT1.P
Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260



AutoFind: Scans 1083, 1084, 1085; Background Corrected with Scan 1079

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	25.1	8872	PASS
75	95	30	60	51.9	18336	PASS
95	95	100	100	100.0	35328	PASS
96	95	5	9	6.1	2158	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	56.2	19862	PASS
175	174	5	9	7.5	1491	PASS
176	174	95	101	95.6	18986	PASS
177	176	5	9	5.7	1079	PASS

RLD078.D VO94J09.M Mon Dec 16 09:45:54 2019

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L13\RLD079.D Vial: 2
Acq On : 13 Dec 2019 10:37 am Operator: VLu
Sample : CVO94J0926 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	142	-0.01
2	T,M	Dichlorodifluoromethane	10.000	10.745	-7.4	174	-0.01
3	T,M	Dichlorotetrafluoroethane	10.000	0.601	94.0#	0	-4.94#
4	P,T,M	Chloromethane	10.000	11.246	-12.5	162	-0.01
5	C,T,M	Vinyl chloride	10.000	11.959	-19.6	162	-0.03
6	T,M	Bromomethane	10.000	11.677	-16.8	166	-0.01
7	T,M	Chloroethane	10.000	10.635	-6.3	151	-0.01
8	T,M	Dichlorofluoromethane	10.000	11.181	-11.8	158	-0.03
9	T,M	Trichlorofluoromethane	10.000	10.700	-7.0	146	-0.03
10	T,M	Acrolein	50.000	55.489	-11.0	158	-0.01
11	T,M	1,1,2-Trichloro-1,2,2-trifl	10.000	10.188	-1.9	146	-0.03
12	T,M	Acetone	50.000	48.427	3.1	140	-0.01
13	C,T,M	1,1-Dichloroethene	10.000	10.610	-6.1	150	-0.01
14	T,M	tert-Butyl alcohol	50.000	60.074	-20.1#	178	-0.01
15	T,M	Acetonitrile	100.000	99.551	0.4	136	-0.01
16	T,M	Methyl acetate	10.000	10.632	-6.3	148	-0.03
17	T,M	Iodomethane	10.000	10.908	-9.1	159	-0.01
18	T,M	Methylene chloride	10.000	10.399	-4.0	154	-0.03
19	T,M	Carbon disulfide	10.000	9.496	5.0	130	-0.03
20	T,M	Acrylonitrile	50.000	49.395	1.2	137	-0.01
21	T,M	tert-Butyl methyl ether (MT	10.000	9.662	3.4	139	-0.01
22	T,M	trans-1,2-Dichloroethene	10.000	10.715	-7.1	149	-0.03
23	T,M	n-Hexane	-1.000	0.000	0.0	0	0.00
24	T,M	Isopropyl ether (DIPE)	10.000	10.933	-9.3	151	-0.01
25	T,M	Vinyl acetate	10.000	11.151	-11.5	157	-0.01
26	P,T,M	1,1-Dichloroethane	10.000	10.599	-6.0	148	-0.03
27	T,M	2-Butanol	50.000	53.578	-7.2	158	-0.01
28	T,M	tert-Butyl ethyl ether (ETB	10.000	9.609	3.9	138	-0.01
29	T,M	2-Butanone	50.000	50.338	-0.7	140	-0.01
30	T,M	2,2-Dichloropropane	10.000	11.829	-18.3	160	-0.01
31	T,M	cis-1,2-Dichloroethene	10.000	10.264	-2.6	144	-0.01
32	C,T,M	Chloroform	10.000	10.222	-2.2	145	-0.01
33	T,M	tert-Amyl alcohol	50.000	0.000	100.0#	0	-12.38#
34	T,M	Bromochloromethane	10.000	9.915	0.9	139	-0.01
35	T,M	Tetrahydrofuran	10.000	9.624	3.8	135	-0.01
36	S	Dibromofluoromethane	10.000	9.990	0.1	130	-0.03
37	T,M	1,1,1-Trichloroethane	10.000	11.111	-11.1	155	-0.03
38	T,M	2,2,4-Trimethylpentane	10.000	0.000	100.0#	0	-12.89#
39	T,M	Cyclohexane	10.000	10.499	-5.0	145	-0.01
40	T,M	1,1-Dichloropropene	10.000	9.940	0.6	146	-0.01
41	T,M	tert-Amyl methyl ether (TAM	10.000	9.526	4.7	138	-0.03

(#) = Out of Range

Data File : D:\HPCHEM\1\DATA\19L13\RLD079.D Vial: 2
Acq On : 13 Dec 2019 10:37 am Operator: VLu
Sample : CVO94J0926 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
42	T,M	Carbon tetrachloride	10.000	11.539	-15.4	162	-0.01
43	S	1,2-Dichloroethane-d4	10.000	9.649	3.5	126	-0.03
44	T,M	1,2-Dichloroethane	10.000	9.772	2.3	139	-0.01
45	T,M	Benzene	10.000	10.440	-4.4	149	-0.03
46	T,M	Trichloroethene	10.000	9.633	3.7	140	-0.03
47	T,M	Methylcyclohexane	10.000	10.661	-6.6	145	-0.01
48	C,T,M	1,2-Dichloropropane	10.000	9.779	2.2	141	-0.03
49	T,M	1,4-Dioxane	200.000	185.864	7.1	144	-0.03
50	T,M	Bromodichloromethane	10.000	10.249	-2.5	146	-0.03
51	T,M	Dibromomethane	10.000	9.299	7.0	136	-0.03
52	T,M	2-Chloroethyl vinyl ether	10.000	6.641	33.6#	96	-0.01
53	T,M	4-Methyl-2-pentanone	50.000	46.416	7.2	125	-0.01
54	T,M	cis-1,3-Dichloropropene	10.000	10.253	-2.5	149	-0.03
55	I	CHLOROBENZENE-D5	10.000	10.000	0.0	136	-0.03
56	S	Toluene-d8	10.000	10.579	-5.8	131	-0.03
57	C,T,M	Toluene	10.000	10.486	-4.9	143	-0.01
58	T,M	Ethyl methacrylate	10.000	10.286	-2.9	141	-0.01
59	T,M	trans-1,3-Dichloropropene	10.000	10.950	-9.5	146	-0.01
60	T,M	2-Hexanone	50.000	49.947	0.1	129	-0.03
61	T,M	1,1,2-Trichloroethane	10.000	9.734	2.7	134	-0.01
62	T,M	1,3-Dichloropropane	10.000	10.111	-1.1	139	-0.03
63	T,M	Tetrachloroethene	10.000	9.169	8.3	129	-0.01
64	T,M	Dibromochloromethane	10.000	9.089	9.1	139	-0.01
65	T,M	1,2-Dibromoethane	10.000	9.511	4.9	129	-0.01
66	T,M	1-Chlorohexane	10.000	10.178	-1.8	139	-0.01
67	T,M	Chlorobenzene	10.000	9.888	1.1	138	-0.03
68	C,T,M	Ethylbenzene	10.000	10.275	-2.8	141	-0.01
69	T,M	1,1,1,2-Tetrachloroethane	10.000	10.499	-5.0	139	-0.03
70	T,M	m-Xylene & p-Xylene	20.000	20.467	-2.3	138	-0.03
71	T,M	o-Xylene	10.000	10.164	-1.6	139	-0.01
72	T,M	Styrene	10.000	9.812	1.9	136	-0.03
73	T,M	Isopropylbenzene	10.000	11.090	-10.9	151	-0.03
74	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	124	-0.03
75	P,T,M	Bromoform	10.000	9.368	6.3	129	-0.01
76	P,T,M	1,1,2,2-Tetrachloroethane	10.000	10.519	-5.2	132	-0.02
77	S	4-Bromofluorobenzene	10.000	10.525	-5.3	120	-0.03
78	T,M	1,2,3-Trichloropropane	10.000	9.731	2.7	125	-0.03
79	T,M	trans-1,4-Dichloro-2-butene	10.000	9.694	3.1	135	-0.01
80	T,M	n-Propylbenzene	10.000	11.136	-11.4	139	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L13\RLD079.D Vial: 2
Acq On : 13 Dec 2019 10:37 am Operator: VLu
Sample : CVO94J0926 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	10.000	10.212	-2.1	127	-0.02
82	T,M	1,3,5-Trimethylbenzene	10.000	11.123	-11.2	135	-0.03
83	T,M	2-Chlorotoluene	10.000	11.949	-19.5	149	-0.02
84	T,M	4-Chlorotoluene	10.000	9.755	2.4	126	-0.02
85	T,M	tert-Butylbenzene	10.000	10.443	-4.4	131	-0.03
86	T,M	1,2,4-Trimethylbenzene	10.000	10.988	-9.9	136	-0.02
87	T,M	sec-Butylbenzene	10.000	10.927	-9.3	136	-0.01
88	T,M	p-Isopropyltoluene	10.000	10.745	-7.4	132	-0.03
89	T,M	1,3-Dichlorobenzene	10.000	10.335	-3.4	131	-0.02
90	T,M	1,4-Dichlorobenzene	10.000	10.147	-1.5	128	-0.03
91	T,M	n-Butylbenzene	10.000	10.899	-9.0	135	-0.02
92	T,M	1,2-Dichlorobenzene	10.000	10.123	-1.2	129	-0.02
93	T,M	1,2-Dibromo-3-chloropropane	10.000	9.330	6.7	131	-0.03
94	T,M	1,2,4-Trichlorobenzene	10.000	9.120	8.8	121	-0.02
95	T,M	Hexachlorobutadiene	10.000	8.659	13.4	115	-0.03
96	T,M	Naphthalene	10.000	9.626	3.7	125	-0.03
97	T,M	1,2,3-Trichlorobenzene	10.000	8.966	10.3	116	-0.03

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L13\RLD079.D Vial: 2
Acq On : 13 Dec 2019 10:37 am Operator: VLu
Sample : CVO94J0926 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	142	-0.01
2	T,M	Dichlorodifluoromethane	0.519	0.639	-23.1#	174	-0.01
3	T,M	Dichlorotetrafluoroethane	0.451	0.000	100.0#	0#	-4.94#
4	P,T,M	Chloromethane	0.933	1.049	-12.4	162	-0.01
5	C,T,M	Vinyl chloride	0.706	0.845	-19.7	162	-0.03
6	T,M	Bromomethane	0.446	0.521	-16.8	166	-0.01
7	T,M	Chloroethane	0.476	0.506	-6.3	151	-0.01
8	T,M	Dichlorofluoromethane	0.935	1.046	-11.9	158	-0.03
9	T,M	Trichlorofluoromethane	0.545	0.583	-7.0	146	-0.03
10	T,M	Acrolein	0.028	0.031	-10.7	158	-0.01
11	T,M	1,1,2-Trichloro-1,2,2-trifl	0.221	0.226	-2.3	146	-0.03
12	T,M	Acetone	0.048	0.046	4.2	140	-0.01
13	C,T,M	1,1-Dichloroethene	0.829	0.880	-6.2	150	-0.01
14	T,M	tert-Butyl alcohol	0.015	0.018	-20.0	178	-0.01
15	T,M	Acetonitrile	0.025	0.025	0.0	136	-0.01
16	T,M	Methyl acetate	0.156	0.166	-6.4	148	-0.03
17	T,M	Iodomethane	0.482	0.525	-8.9	159	-0.01
18	T,M	Methylene chloride	0.634	0.660	-4.1	154	-0.03
19	T,M	Carbon disulfide	1.555	1.477	5.0	130	-0.03
20	T,M	Acrylonitrile	0.068	0.067	1.5	137	-0.01
21	T,M	tert-Butyl methyl ether (MT	0.579	0.560	3.3	139	-0.01
22	T,M	trans-1,2-Dichloroethene	0.416	0.446	-7.2	149	-0.03
23	T,M	n-Hexane	0.000	0.000	0.0	0#	0.00
24	T,M	Isopropyl ether (DIPE)	1.459	1.595	-9.3	151	-0.01
25	T,M	Vinyl acetate	0.508	0.567	-11.6	157	-0.01
26	P,T,M	1,1-Dichloroethane	0.845	0.896	-6.0	148	-0.03
27	T,M	2-Butanol	0.014	0.015	-7.1	158	-0.01
28	T,M	tert-Butyl ethyl ether (ETB	0.957	0.920	3.9	138	-0.01
29	T,M	2-Butanone	0.016	0.016	0.0	140	-0.01
30	T,M	2,2-Dichloropropane	0.330	0.390	-18.2	160	-0.01
31	T,M	cis-1,2-Dichloroethene	0.401	0.411	-2.5	144	-0.01
32	C,T,M	Chloroform	0.623	0.637	-2.2	145	-0.01
33	T,M	tert-Amyl alcohol	0.013	0.000	100.0#	0#	-12.38#
34	T,M	Bromochloromethane	0.169	0.167	1.2	139	-0.01
35	T,M	Tetrahydrofuran	0.053	0.051	3.8	135	-0.01
36	S	Dibromofluoromethane	0.298	0.297	0.3	130	-0.03
37	T,M	1,1,1-Trichloroethane	0.415	0.461	-11.1	155	-0.03
38	T,M	2,2,4-Trimethylpentane	2.144	0.000	100.0#	0#	-12.89#
39	T,M	Cyclohexane	0.667	0.700	-4.9	145	-0.01
40	T,M	1,1-Dichloropropene	0.182	0.181	0.5	146	-0.01
41	T,M	tert-Amyl methyl ether (TAM	0.117	0.112	4.3	138	-0.03

(#) = Out of Range

Data File : D:\HPCHEM\1\DATA\19L13\RLD079.D Vial: 2
Acq On : 13 Dec 2019 10:37 am Operator: VLu
Sample : CVO94J0926 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
42	T,M	Carbon tetrachloride	0.333	0.385	-15.6	162	-0.01
43	S	1,2-Dichloroethane-d4	0.255	0.246	3.5	126	-0.03
44	T,M	1,2-Dichloroethane	0.314	0.307	2.2	139	-0.01
45	T,M	Benzene	1.473	1.538	-4.4	149	-0.03
46	T,M	Trichloroethene	0.378	0.364	3.7	140	-0.03
47	T,M	Methylcyclohexane	0.759	0.809	-6.6	145	-0.01
48	C,T,M	1,2-Dichloropropane	0.393	0.384	2.3	141	-0.03
49	T,M	1,4-Dioxane	0.001	0.001	0.0	144	-0.03
50	T,M	Bromodichloromethane	0.353	0.362	-2.5	146	-0.03
51	T,M	Dibromomethane	0.132	0.123	6.8	136	-0.03
52	T,M	2-Chloroethyl vinyl ether	0.137	0.091	33.6#	96	-0.01
53	T,M	4-Methyl-2-pentanone	0.198	0.184	7.1	125	-0.01
54	T,M	cis-1,3-Dichloropropene	0.490	0.503	-2.7	149	-0.03
55	I	CHLOROBENZENE-D5	1.000	1.000	0.0	136	-0.03
56	S	Toluene-d8	1.325	1.402	-5.8	131	-0.03
57	C,T,M	Toluene	1.627	1.706	-4.9	143	-0.01
58	T,M	Ethyl methacrylate	0.289	0.297	-2.8	141	-0.01
59	T,M	trans-1,3-Dichloropropene	0.393	0.431	-9.7	146	-0.01
60	T,M	2-Hexanone	0.139	0.139	0.0	129	-0.03
61	T,M	1,1,2-Trichloroethane	0.204	0.199	2.5	134	-0.01
62	T,M	1,3-Dichloropropane	0.433	0.438	-1.2	139	-0.03
63	T,M	Tetrachloroethene	0.297	0.273	8.1	129	-0.01
64	T,M	Dibromochloromethane	0.217	0.222	-2.3	139	-0.01
65	T,M	1,2-Dibromoethane	0.190	0.180	5.3	129	-0.01
66	T,M	1-Chlorohexane	0.692	0.705	-1.9	139	-0.01
67	T,M	Chlorobenzene	1.006	0.995	1.1	138	-0.03
68	C,T,M	Ethylbenzene	1.884	1.936	-2.8	141	-0.01
69	T,M	1,1,1,2-Tetrachloroethane	0.273	0.286	-4.8	139	-0.03
70	T,M	m-Xylene & p-Xylene	1.296	1.327	-2.4	138	-0.03
71	T,M	o-Xylene	1.269	1.290	-1.7	139	-0.01
72	T,M	Styrene	0.979	0.961	1.8	136	-0.03
73	T,M	Isopropylbenzene	1.653	1.833	-10.9	151	-0.03
74	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	124	-0.03
75	P,T,M	Bromoform	0.283	0.310	-9.5	129	-0.01
76	P,T,M	1,1,2,2-Tetrachloroethane	0.836	0.879	-5.1	132	-0.02
77	S	4-Bromofluorobenzene	1.376	1.449	-5.3	120	-0.03
78	T,M	1,2,3-Trichloropropane	0.188	0.183	2.7	125	-0.03
79	T,M	trans-1,4-Dichloro-2-butene	0.154	0.169	-9.7	135	-0.01
80	T,M	n-Propylbenzene	7.241	8.064	-11.4	139	-0.01

(#) = Out of Range

Data File : D:\HPCHEM\1\DATA\19L13\RLD079.D Vial: 2
Acq On : 13 Dec 2019 10:37 am Operator: VLu
Sample : CVO94J0926 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	0.934	0.954	-2.1	127	-0.02
82	T,M	1,3,5-Trimethylbenzene	4.268	4.747	-11.2	135	-0.03
83	T,M	2-Chlorotoluene	4.056	4.847	-19.5	149	-0.02
84	T,M	4-Chlorotoluene	3.473	3.388	2.4	126	-0.02
85	T,M	tert-Butylbenzene	0.949	0.991	-4.4	131	-0.03
86	T,M	1,2,4-Trimethylbenzene	4.092	4.496	-9.9	136	-0.02
87	T,M	sec-Butylbenzene	6.170	6.742	-9.3	136	-0.01
88	T,M	p-Isopropyltoluene	4.880	5.244	-7.5	132	-0.03
89	T,M	1,3-Dichlorobenzene	2.044	2.112	-3.3	131	-0.02
90	T,M	1,4-Dichlorobenzene	1.940	1.969	-1.5	128	-0.03
91	T,M	n-Butylbenzene	4.978	5.425	-9.0	135	-0.02
92	T,M	1,2-Dichlorobenzene	1.665	1.686	-1.3	129	-0.02
93	T,M	1,2-Dibromo-3-chloropropane	0.077	0.081	-5.2	131	-0.03
94	T,M	1,2,4-Trichlorobenzene	1.130	1.030	8.8	121	-0.02
95	T,M	Hexachlorobutadiene	0.808	0.699	13.5	115	-0.03
96	T,M	Naphthalene	1.866	1.796	3.8	125	-0.03
97	T,M	1,2,3-Trichlorobenzene	0.893	0.800	10.4	116	-0.03

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLD079.D Vial: 2
Acq On : 13 Dec 2019 10:37 am Operator: VLu
Sample : CVO94J0926 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:46 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.89	114	1709079	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	18.68	117	1376977	10.00	ug/l	-0.03
74) 1,2-DICHLOROBENZENE-D4	22.86	152	363856	10.00	ug/l	-0.03
System Monitoring Compounds						
36) Dibromofluoromethane	12.54	111	508060	9.99	ug/l	-0.03
Spiked Amount 10.000			Recovery = 99.90%			
43) 1,2-Dichloroethane-d4	13.33	65	420775	9.65	ug/l	-0.03
Spiked Amount 10.000			Recovery = 96.50%			
56) Toluene-d8	16.30	98	1930775	10.58	ug/l	-0.03
Spiked Amount 10.000			Recovery = 105.80%			
77) 4-Bromofluorobenzene	20.53	95	527096	10.53	ug/l	-0.03
Spiked Amount 10.000			Recovery = 105.30%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.65	85	1091441	10.75	ug/l	98
4) Chloromethane	5.30	50	1793353	11.25	ug/l	100
5) Vinyl chloride	5.60	62	1443511	11.96	ug/l	100
6) Bromomethane	6.70	94	889914	11.68	ug/l	94
7) Chloroethane	6.90	64	864862	10.64	ug/l	97
8) Dichlorofluoromethane	6.95	67	1787597	11.18	ug/l	100
9) Trichlorofluoromethane	7.44	101	997045	10.70	ug/l	97
10) Acrolein	8.33	56	261622	55.49	ug/l	93
11) 1,1,2-Trichloro-1,2,2-trif	8.36	151	385637	10.19	ug/l	99
12) Acetone	8.44	43	394998	48.43	ug/l	93
13) 1,1-Dichloroethene	8.74	61	1503996	10.61	ug/l	98
14) tert-Butyl alcohol	8.84	59	150908	60.07	ug/l	82
15) Acetonitrile	8.97	41	427598	99.55	ug/l	93
16) Methyl acetate	9.31	43	283022	10.63	ug/l	94
17) Iodomethane	9.37	142	897689	10.91	ug/l	97
18) Methylene chloride	9.64	49	1127323	10.40	ug/l	99
19) Carbon disulfide	9.74	76	2523476	9.50	ug/l	100
20) Acrylonitrile	9.84	53	575471	49.39	ug/l	98
21) tert-Butyl methyl ether (M	9.87	73	956532	9.66	ug/l	98
22) trans-1,2-Dichloroethene	10.17	96	762216	10.71	ug/l	98
24) Isopropyl ether (DIPE)	10.64	45	2725546	10.93	ug/l	100
25) Vinyl acetate	10.85	43	968508	11.15	ug/l	99
26) 1,1-Dichloroethane	10.91	63	1530599	10.60	ug/l	100
27) 2-Butanol	11.22	45	128534	53.58	ug/l	97
28) tert-Butyl ethyl ether (ET	11.33	59	1572287	9.61	ug/l	99
29) 2-Butanone	11.57	72	138345	50.34	ug/l	99
30) 2,2-Dichloropropane	11.85	77	667096	11.83	ug/l	99

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

Data File : D:\HPCHEM\1\DATA\19L13\RLD079.D Vial: 2
Acq On : 13 Dec 2019 10:37 am Operator: VLu
Sample : CVO94J0926 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:46 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
31)	cis-1,2-Dichloroethene	11.94	96	703030	10.26	ug/l	99
32)	Chloroform	12.19	83	1088066	10.22	ug/l	99
34)	Bromochloromethane	12.48	130	285708	9.92	ug/l	100
35)	Tetrahydrofuran	12.51	42	86354	9.62	ug/l	96
37)	1,1,1-Trichloroethane	12.84	97	788059	11.11	ug/l	89
39)	Cyclohexane	12.90	84	1197050	10.50	ug/l	96
40)	1,1-Dichloropropene	13.09	110	309580	9.94	ug/l	98
41)	tert-Amyl methyl ether (TA	13.19	87	191052	9.53	ug/l	99
42)	Carbon tetrachloride	13.28	119	657453	11.54	ug/l	100
44)	1,2-Dichloroethane	13.49	62	524281	9.77	ug/l	100
45)	Benzene	13.53	78	2628530	10.44	ug/l	99
46)	Trichloroethene	14.46	130	622650	9.63	ug/l	98
47)	Methylcyclohexane	14.58	83	1382930	10.66	ug/l	100
48)	1,2-Dichloropropane	14.73	63	656163	9.78	ug/l	100
49)	1,4-Dioxane	15.08	88	38487	185.86	ug/l	99
50)	Bromodichloromethane	15.11	83	618208	10.25	ug/l	99
51)	Dibromomethane	15.23	93	209660	9.30	ug/l	95
52)	2-Chloroethyl vinyl ether	15.45	63	154947	6.64	ug/l	98
53)	4-Methyl-2-pentanone	15.49	43	1572102	46.42	ug/l	98
54)	cis-1,3-Dichloropropene	15.89	75	859014	10.25	ug/l	97
57)	Toluene	16.44	91	2349457	10.49	ug/l	100
58)	Ethyl methacrylate	16.51	69	408768	10.29	ug/l	92
59)	trans-1,3-Dichloropropene	16.64	75	592938	10.95	ug/l	98
60)	2-Hexanone	16.81	43	956093	49.95	ug/l	99
61)	1,1,2-Trichloroethane	16.92	97	273933	9.73	ug/l	98
62)	1,3-Dichloropropane	17.29	76	603003	10.11	ug/l	99
63)	Tetrachloroethene	17.47	164	375483	9.17	ug/l	95
64)	Dibromochloromethane	17.81	129	305345	9.09	ug/l	99
65)	1,2-Dibromoethane	18.13	107	248302	9.51	ug/l	100
66)	1-Chlorohexane	18.19	91	970406	10.18	ug/l	98
67)	Chlorobenzene	18.74	112	1369494	9.89	ug/l	99
68)	Ethylbenzene	18.77	91	2665752	10.27	ug/l	99
69)	1,1,1,2-Tetrachloroethane	18.77	131	394359	10.50	ug/l	97
70)	m-Xylene & p-Xylene	18.87	91	3653902	20.47	ug/l	98
71)	o-Xylene	19.58	91	1775999	10.16	ug/l	99
72)	Styrene	19.62	104	1323233	9.81	ug/l	98
73)	Isopropylbenzene	20.09	105	2523782	11.09	ug/l	99
75)	Bromoform	20.26	173	112879	9.37	ug/l	98
76)	1,1,2,2-Tetrachloroethane	20.36	83	319841	10.52	ug/l	98
78)	1,2,3-Trichloropropane	20.60	110	66521	9.73	ug/l	98
79)	trans-1,4-Dichloro-2-buten	20.64	53	61352	9.69	ug/l	98

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

Data File : D:\HPCHEM\1\DATA\19L13\RLD079.D Vial: 2
Acq On : 13 Dec 2019 10:37 am Operator: VLu
Sample : CVO94J0926 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:46 2019 Quant Results File: VO94J09.RES

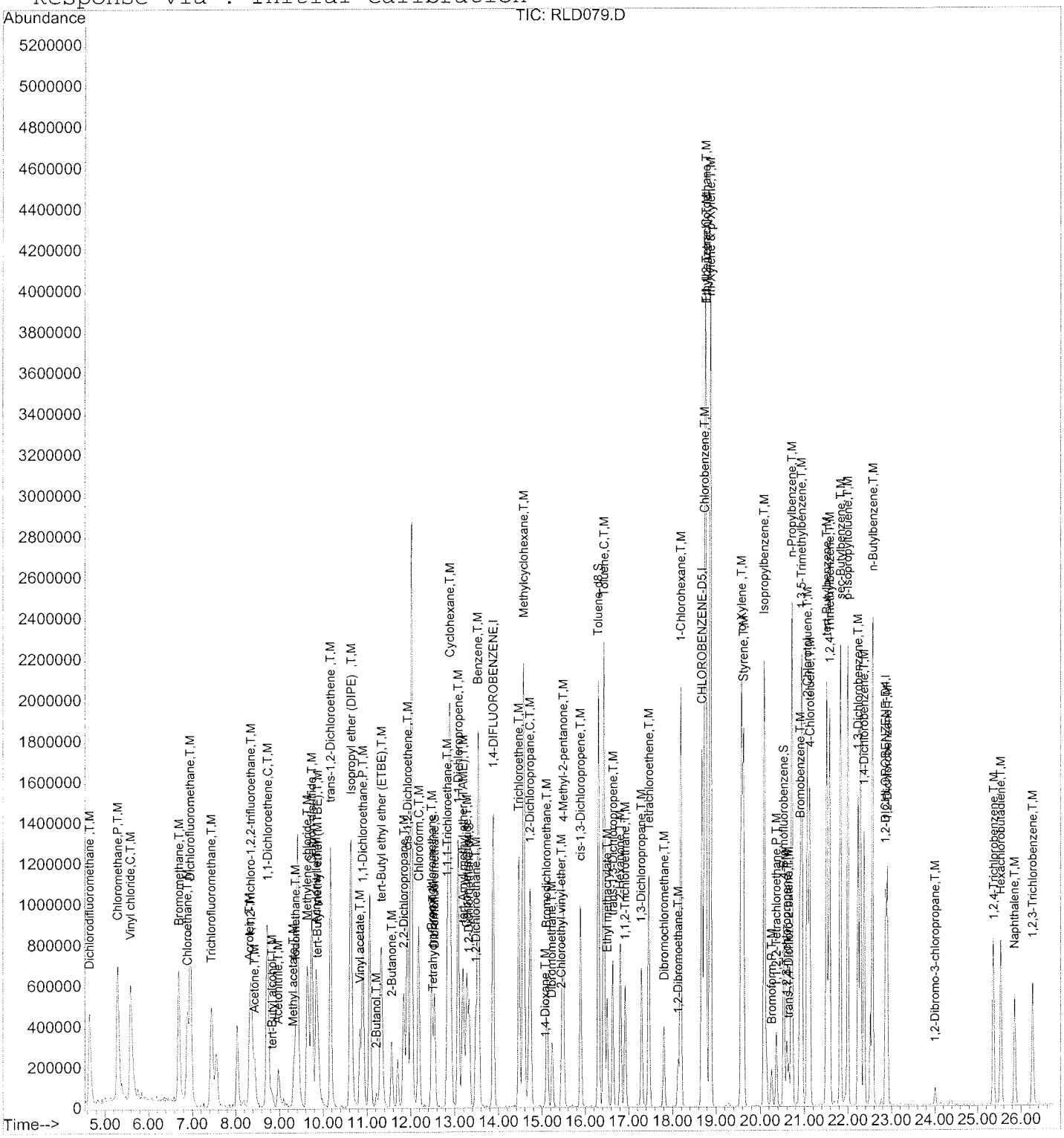
Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
80)	n-Propylbenzene	20.72	91	2934114	11.14	ug/l	99
81)	Bromobenzene	20.91	156	346952	10.21	ug/l	99
82)	1,3,5-Trimethylbenzene	20.94	105	1727152	11.12	ug/l	98
83)	2-Chlorotoluene	21.07	91	1763616	11.95	ug/l	97
84)	4-Chlorotoluene	21.13	91	1232587	9.76	ug/l	99
85)	tert-Butylbenzene	21.51	134	360542	10.44	ug/l	97
86)	1,2,4-Trimethylbenzene	21.58	105	1636054	10.99	ug/l	99
87)	sec-Butylbenzene	21.83	105	2453078	10.93	ug/l	99
88)	p-Isopropyltoluene	21.99	119	1907978	10.74	ug/l	100
89)	1,3-Dichlorobenzene	22.23	146	768601	10.33	ug/l	98
90)	1,4-Dichlorobenzene	22.36	146	716369	10.15	ug/l	100
91)	n-Butylbenzene	22.57	91	1973962	10.90	ug/l	98
92)	1,2-Dichlorobenzene	22.90	146	613365	10.12	ug/l	98
93)	1,2-Dibromo-3-chloropropan	24.01	157	29418	9.33	ug/l	97
94)	1,2,4-Trichlorobenzene	25.37	180	374866	9.12	ug/l	98
95)	Hexachlorobutadiene	25.53	225	254474	8.66	ug/l	99
96)	Naphthalene	25.86	128	653594	9.63	ug/l	100
97)	1,2,3-Trichlorobenzene	26.27	180	291170	8.97	ug/l	98

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

Data File : D:\HPCHEM\1\DATA\19L13\RLD079.D Vial: 2
Acq On : 13 Dec 2019 10:37 am Operator: VLu
Sample : CVO94J0926 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 16 9:46 2019 Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc
Lab Code: EMXT Case No.:
Lab File ID: RLD100
Instrument ID: 94
GC Column:RTX502.2ID:0.25mm (mm)

Contract: VA SALT LAKE CITY
SAS No.: SDG No.: 19L043
BFB Injection Date : 12/16/19
BFB Injection Time : 09:34
Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	23.13
75	30.0 - 60.0% of mass 95	48.73
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.33
173	Less than 2.0% of mass 174	0.55(1.0)1
174	Greater than 50% of mass 95	55.94
175	5.0 - 9.0% of mass 174	4.12(7.4)1
176	95.0 - 101.0% of mass 174	53.23(95.2)1
177	5.0 - 9.0% of mass 176	3.42(6.4)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD010	CVO94J0927	RLD101	12/16/19	12:05
2	MBLK2W	VO94L05B	RLD105	12/16/19	14:10
3	LCS2W	VO94L05L	RLD102	12/16/19	12:36
4	LCD2W	VO94L05C	RLD103	12/16/19	13:08
5	OU2-MW02-GW120519DL	L043-07I	RLD107	12/16/19	15:12

FORM 8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : EMAX Inc
Lab Code : EMXT
Lab File ID : RJD110
Instrument ID: 94
GC Column : RTX502.2ID:0.25mm (mm)

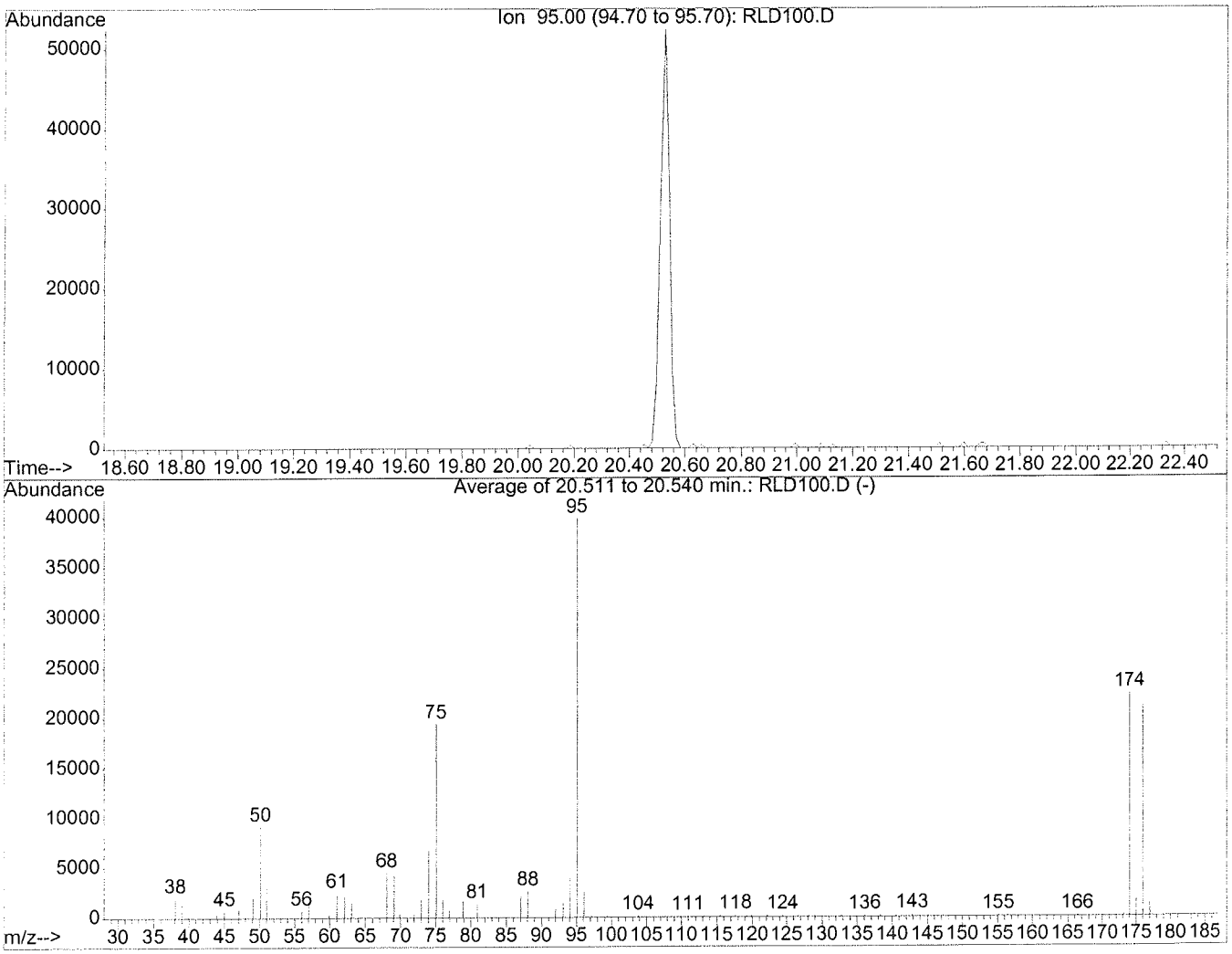
Project: VA SALT LAKE CITY
SDG No: 19L043
Date Analyzed: 10/09/2019
Time Analyzed: 12:34
Heated Purge (Y/N): N

		1,4-DIFLUOROBENZENE		CHLOROBENZENE-D5		1,2-DICHLOROBENZENE-D4	
		AREA #	RT(min)	AREA #	RT(min)	AREA #	RT(min)
	12 HOUR STD	1207070	13.90	1010068	18.70	294363	22.89
	UPPER LIMIT	2414140	14.07	2020136	18.87	588726	23.06
	LOWER LIMIT	603535	13.73	505034	18.53	147182	22.72
	SAMPLE ID						
1	VSTD010	1516109	13.88	1268458	18.68	351411	22.86
2	MBLK2W	1822145	13.87	1402872	18.67	395336	22.86
3	LCS2W	1437407	13.88	1200720	18.67	308500	22.86
4	LCD2W	1414340	13.88	1190611	18.67	329821	22.86
5	OU2-MW02-GW120519DL	1827240	13.87	1415933	18.68	399305	22.86

Area Upper Limit = + 100% of internal standard area
Area Lower Limit = - 50% of internal standard area
RT Upper Limit = + 0.167 min. (10 sec.) of internal standard RT
RT Lower Limit = - 0.167 min. (10 sec.) of internal standard RT

Data File : D:\HPCHEM\1\DATA\19L16\RLD100.D
Acq On : 16 Dec 2019 9:34 am
Sample : BFB94L05
Misc : T/CHK
MS Integration Params: LSCINT1.P
Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260

Vial: 1
Operator: VLu
Inst : 94
Multiplr: 1.00



AutoFind: Scans 1082, 1083, 1084; Background Corrected with Scan 1075

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	23.1	9227	PASS
75	95	30	60	48.7	19441	PASS
95	95	100	100	100.0	39893	PASS
96	95	5	9	6.3	2525	PASS
173	174	0.00	2	1.0	221	PASS
174	95	50	100	55.9	22317	PASS
175	174	5	9	7.4	1643	PASS
176	174	95	101	95.2	21235	PASS
177	176	5	9	6.4	1365	PASS

RLD100.D VO94J09.M Tue Dec 17 09:39:59 2019

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L16\RLD101.D Vial: 2
Acq On : 16 Dec 2019 12:05 pm Operator: VLu
Sample : CVO94J0927 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	126	-0.01
2	T,M	Dichlorodifluoromethane	10.000	10.422	-4.2	150	-0.01
3	T,M	Dichlorotetrafluoroethane	10.000	0.601	94.0#	0	-4.94#
4	P,T,M	Chloromethane	10.000	11.025	-10.3	141	-0.01
5	C,T,M	Vinyl chloride	10.000	11.317	-13.2	136	-0.03
6	T,M	Bromomethane	10.000	10.957	-9.6	138	-0.01
7	T,M	Chloroethane	10.000	10.723	-7.2	135	-0.01
8	T,M	Dichlorofluoromethane	10.000	12.013	-20.1#	150	-0.03
9	T,M	Trichlorofluoromethane	10.000	9.985	0.2	121	-0.03
10	T,M	Acrolein	50.000	60.346	-20.7#	153	-0.01
11	T,M	1,1,2-Trichloro-1,2,2-trifl	10.000	10.299	-3.0	131	-0.01
12	T,M	Acetone	50.000	53.698	-7.4	138	-0.01
13	C,T,M	1,1-Dichloroethene	10.000	11.059	-10.6	139	-0.03
14	T,M	tert-Butyl alcohol	50.000	66.954	-33.9#	176	-0.01
15	T,M	Acetonitrile	100.000	115.192	-15.2	140	-0.01
16	T,M	Methyl acetate	10.000	11.852	-18.5	146	-0.03
17	T,M	Iodomethane	10.000	10.937	-9.4	141	-0.01
18	T,M	Methylene chloride	10.000	10.977	-9.8	144	-0.03
19	T,M	Carbon disulfide	10.000	10.250	-2.5	125	-0.03
20	T,M	Acrylonitrile	50.000	54.819	-9.6	135	-0.03
21	T,M	tert-Butyl methyl ether (MT	10.000	10.626	-6.3	135	-0.01
22	T,M	trans-1,2-Dichloroethene	10.000	10.936	-9.4	135	-0.03
23	T,M	n-Hexane	-1.000	0.000	0.0	0	0.00
24	T,M	Isopropyl ether (DIPE)	10.000	11.645	-16.4	143	-0.03
25	T,M	Vinyl acetate	10.000	11.209	-12.1	140	-0.03
26	P,T,M	1,1-Dichloroethane	10.000	10.997	-10.0	136	-0.03
27	T,M	2-Butanol	50.000	61.403	-22.8#	161	-0.01
28	T,M	tert-Butyl ethyl ether (ETB	10.000	10.367	-3.7	132	-0.03
29	T,M	2-Butanone	50.000	54.530	-9.1	135	-0.03
30	T,M	2,2-Dichloropropane	10.000	11.978	-19.8	144	-0.01
31	T,M	cis-1,2-Dichloroethene	10.000	10.623	-6.2	133	-0.03
32	C,T,M	Chloroform	10.000	10.501	-5.0	133	-0.01
33	T,M	tert-Amyl alcohol	50.000	0.000	100.0#	0	-12.38#
34	T,M	Bromochloromethane	10.000	10.294	-2.9	128	-0.01
35	T,M	Tetrahydrofuran	10.000	10.538	-5.4	131	-0.01
36	S	Dibromofluoromethane	10.000	9.938	0.6	115	-0.03
37	T,M	1,1,1-Trichloroethane	10.000	11.260	-12.6	139	-0.03
38	T,M	2,2,4-Trimethylpentane	10.000	0.000	100.0#	0	-12.89#
39	T,M	Cyclohexane	10.000	10.352	-3.5	127	-0.01
40	T,M	1,1-Dichloropropene	10.000	10.277	-2.8	134	-0.01
41	T,M	tert-Amyl methyl ether (TAM	10.000	10.495	-4.9	135	-0.03

(#) = Out of Range

Data File : D:\HPCHEM\1\DATA\19L16\RLD101.D Vial: 2
Acq On : 16 Dec 2019 12:05 pm Operator: VLu
Sample : CVO94J0927 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
42	T,M	Carbon tetrachloride	10.000	11.632	-16.3	145	-0.01
43	S	1,2-Dichloroethane-d4	10.000	10.345	-3.5	120	-0.03
44	T,M	1,2-Dichloroethane	10.000	10.535	-5.4	133	-0.03
45	T,M	Benzene	10.000	10.848	-8.5	137	-0.03
46	T,M	Trichloroethene	10.000	10.038	-0.4	130	-0.03
47	T,M	Methylcyclohexane	10.000	10.624	-6.2	128	-0.01
48	C,T,M	1,2-Dichloropropane	10.000	10.431	-4.3	133	-0.03
49	T,M	1,4-Dioxane	200.000	206.558	-3.3	144	-0.03
50	T,M	Bromodichloromethane	10.000	11.066	-10.7	140	-0.03
51	T,M	Dibromomethane	10.000	9.813	1.9	128	-0.03
52	T,M	2-Chloroethyl vinyl ether	10.000	7.601	24.0#	97	-0.01
53	T,M	4-Methyl-2-pentanone	50.000	52.655	-5.3	126	-0.01
54	T,M	cis-1,3-Dichloropropene	10.000	11.015	-10.2	142	-0.03
55	I	CHLOROBENZENE-D5	10.000	10.000	0.0	126	-0.03
56	S	Toluene-d8	10.000	10.528	-5.3	121	-0.03
57	C,T,M	Toluene	10.000	10.689	-6.9	134	-0.01
58	T,M	Ethyl methacrylate	10.000	11.283	-12.8	143	-0.01
59	T,M	trans-1,3-Dichloropropene	10.000	11.405	-14.0	140	-0.01
60	T,M	2-Hexanone	50.000	54.492	-9.0	129	-0.03
61	T,M	1,1,2-Trichloroethane	10.000	10.250	-2.5	130	-0.01
62	T,M	1,3-Dichloropropane	10.000	10.549	-5.5	134	-0.03
63	T,M	Tetrachloroethene	10.000	9.228	7.7	120	-0.01
64	T,M	Dibromochloromethane	10.000	9.411	5.9	132	-0.01
65	T,M	1,2-Dibromoethane	10.000	10.109	-1.1	126	-0.03
66	T,M	1-Chlorohexane	10.000	10.307	-3.1	130	-0.01
67	T,M	Chlorobenzene	10.000	10.128	-1.3	130	-0.03
68	C,T,M	Ethylbenzene	10.000	10.523	-5.2	133	-0.01
69	T,M	1,1,1,2-Tetrachloroethane	10.000	10.845	-8.5	132	-0.01
70	T,M	m-Xylene & p-Xylene	20.000	20.987	-4.9	131	-0.03
71	T,M	o-Xylene	10.000	10.538	-5.4	133	-0.01
72	T,M	Styrene	10.000	10.096	-1.0	129	-0.03
73	T,M	Isopropylbenzene	10.000	11.727	-17.3	147	-0.03
74	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	119	-0.03
75	P,T,M	Bromoform	10.000	9.320	6.8	124	-0.03
76	P,T,M	1,1,2,2-Tetrachloroethane	10.000	11.042	-10.4	133	-0.02
77	S	4-Bromofluorobenzene	10.000	10.400	-4.0	115	-0.03
78	T,M	1,2,3-Trichloropropane	10.000	9.848	1.5	122	-0.03
79	T,M	trans-1,4-Dichloro-2-butene	10.000	10.972	-9.7	148	-0.01
80	T,M	n-Propylbenzene	10.000	11.111	-11.1	134	-0.01

(#) = Out of Range

Data File : D:\HPCHEM\1\DATA\19L16\RLD101.D Vial: 2
Acq On : 16 Dec 2019 12:05 pm Operator: VLu
Sample : CVO94J0927 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	10.000	10.121	-1.2	121	-0.03
82	T,M	1,3,5-Trimethylbenzene	10.000	11.080	-10.8	130	-0.03
83	T,M	2-Chlorotoluene	10.000	10.479	-4.8	126	-0.02
84	T,M	4-Chlorotoluene	10.000	11.555	-15.5	144	-0.03
85	T,M	tert-Butylbenzene	10.000	10.400	-4.0	126	-0.03
86	T,M	1,2,4-Trimethylbenzene	10.000	10.988	-9.9	132	-0.02
87	T,M	sec-Butylbenzene	10.000	10.754	-7.5	129	-0.01
88	T,M	p-Isopropyltoluene	10.000	10.763	-7.6	128	-0.03
89	T,M	1,3-Dichlorobenzene	10.000	9.878	1.2	121	-0.02
90	T,M	1,4-Dichlorobenzene	10.000	10.093	-0.9	123	-0.03
91	T,M	n-Butylbenzene	10.000	10.908	-9.1	130	-0.03
92	T,M	1,2-Dichlorobenzene	10.000	10.076	-0.8	124	-0.02
93	T,M	1,2-Dibromo-3-chloropropane	10.000	9.314	6.9	126	-0.03
94	T,M	1,2,4-Trichlorobenzene	10.000	8.702	13.0	111	-0.03
95	T,M	Hexachlorobutadiene	10.000	8.140	18.6	104	-0.03
96	T,M	Naphthalene	10.000	9.712	2.9	121	-0.03
97	T,M	1,2,3-Trichlorobenzene	10.000	8.499	15.0	106	-0.03

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L16\RLD101.D Vial: 2
Acq On : 16 Dec 2019 12:05 pm Operator: VLu
Sample : CVO94J0927 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	126	-0.01
2	T,M	Dichlorodifluoromethane	0.519	0.619	-19.3	150	-0.01
3	T,M	Dichlorotetrafluoroethane	0.451	0.000	100.0#	0#	-4.94#
4	P,T,M	Chloromethane	0.933	1.029	-10.3	141	-0.01
5	C,T,M	Vinyl chloride	0.706	0.799	-13.2	136	-0.03
6	T,M	Bromomethane	0.446	0.489	-9.6	138	-0.01
7	T,M	Chloroethane	0.476	0.510	-7.1	135	-0.01
8	T,M	Dichlorofluoromethane	0.935	1.124	-20.2#	150	-0.03
9	T,M	Trichlorofluoromethane	0.545	0.544	0.2	121	-0.03
10	T,M	Acrolein	0.028	0.033	-17.9	153	-0.01
11	T,M	1,1,2-Trichloro-1,2,2-trifl	0.221	0.228	-3.2	131	-0.01
12	T,M	Acetone	0.048	0.051	-6.2	138	-0.01
13	C,T,M	1,1-Dichloroethene	0.829	0.917	-10.6	139	-0.03
14	T,M	tert-Butyl alcohol	0.015	0.020	-33.3#	176	-0.01
15	T,M	Acetonitrile	0.025	0.029	-16.0	140	-0.01
16	T,M	Methyl acetate	0.156	0.185	-18.6	146	-0.03
17	T,M	Iodomethane	0.482	0.527	-9.3	141	-0.01
18	T,M	Methylene chloride	0.634	0.696	-9.8	144	-0.03
19	T,M	Carbon disulfide	1.555	1.594	-2.5	125	-0.03
20	T,M	Acrylonitrile	0.068	0.075	-10.3	135	-0.03
21	T,M	tert-Butyl methyl ether (MT	0.579	0.616	-6.4	135	-0.01
22	T,M	trans-1,2-Dichloroethene	0.416	0.455	-9.4	135	-0.03
23	T,M	n-Hexane	0.000	0.000	0.0	0#	0.00
24	T,M	Isopropyl ether (DIPE)	1.459	1.699	-16.4	143	-0.03
25	T,M	Vinyl acetate	0.508	0.570	-12.2	140	-0.03
26	P,T,M	1,1-Dichloroethane	0.845	0.929	-9.9	136	-0.03
27	T,M	2-Butanol	0.014	0.017	-21.4#	161	-0.01
28	T,M	tert-Butyl ethyl ether (ETB	0.957	0.993	-3.8	132	-0.03
29	T,M	2-Butanone	0.016	0.018	-12.5	135	-0.03
30	T,M	2,2-Dichloropropane	0.330	0.395	-19.7	144	-0.01
31	T,M	cis-1,2-Dichloroethene	0.401	0.426	-6.2	133	-0.03
32	C,T,M	Chloroform	0.623	0.654	-5.0	133	-0.01
33	T,M	tert-Amyl alcohol	0.013	0.000	100.0#	0#	-12.38#
34	T,M	Bromochloromethane	0.169	0.174	-3.0	128	-0.01
35	T,M	Tetrahydrofuran	0.053	0.055	-3.8	131	-0.01
36	S	Dibromofluoromethane	0.298	0.296	0.7	115	-0.03
37	T,M	1,1,1-Trichloroethane	0.415	0.467	-12.5	139	-0.03
38	T,M	2,2,4-Trimethylpentane	2.144	0.000	100.0#	0#	-12.89#
39	T,M	Cyclohexane	0.667	0.691	-3.6	127	-0.01
40	T,M	1,1-Dichloropropene	0.182	0.187	-2.7	134	-0.01
41	T,M	tert-Amyl methyl ether (TAM	0.117	0.123	-5.1	135	-0.03

(#) = Out of Range

Data File : D:\HPCHEM\1\DATA\19L16\RLD101.D Vial: 2
Acq On : 16 Dec 2019 12:05 pm Operator: VLu
Sample : CVO94J0927 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
42	T,M	Carbon tetrachloride	0.333	0.388	-16.5	145	-0.01
43	S	1,2-Dichloroethane-d4	0.255	0.264	-3.5	120	-0.03
44	T,M	1,2-Dichloroethane	0.314	0.331	-5.4	133	-0.03
45	T,M	Benzene	1.473	1.598	-8.5	137	-0.03
46	T,M	Trichloroethene	0.378	0.380	-0.5	130	-0.03
47	T,M	Methylcyclohexane	0.759	0.806	-6.2	128	-0.01
48	C,T,M	1,2-Dichloropropane	0.393	0.410	-4.3	133	-0.03
49	T,M	1,4-Dioxane	0.001	0.001	0.0	144	-0.03
50	T,M	Bromodichloromethane	0.353	0.391	-10.8	140	-0.03
51	T,M	Dibromomethane	0.132	0.129	2.3	128	-0.03
52	T,M	2-Chloroethyl vinyl ether	0.137	0.104	24.1#	97	-0.01
53	T,M	4-Methyl-2-pentanone	0.198	0.209	-5.6	126	-0.01
54	T,M	cis-1,3-Dichloropropene	0.490	0.540	-10.2	142	-0.03
55	I	CHLOROBENZENE-D5	1.000	1.000	0.0	126	-0.03
56	S	Toluene-d8	1.325	1.395	-5.3	121	-0.03
57	C,T,M	Toluene	1.627	1.739	-6.9	134	-0.01
58	T,M	Ethyl methacrylate	0.289	0.326	-12.8	143	-0.01
59	T,M	trans-1,3-Dichloropropene	0.393	0.448	-14.0	140	-0.01
60	T,M	2-Hexanone	0.139	0.152	-9.4	129	-0.03
61	T,M	1,1,2-Trichloroethane	0.204	0.209	-2.5	130	-0.01
62	T,M	1,3-Dichloropropane	0.433	0.457	-5.5	134	-0.03
63	T,M	Tetrachloroethene	0.297	0.274	7.7	120	-0.01
64	T,M	Dibromochloromethane	0.217	0.230	-6.0	132	-0.01
65	T,M	1,2-Dibromoethane	0.190	0.192	-1.1	126	-0.03
66	T,M	1-Chlorohexane	0.692	0.714	-3.2	130	-0.01
67	T,M	Chlorobenzene	1.006	1.019	-1.3	130	-0.03
68	C,T,M	Ethylbenzene	1.884	1.983	-5.3	133	-0.01
69	T,M	1,1,1,2-Tetrachloroethane	0.273	0.296	-8.4	132	-0.01
70	T,M	m-Xylene & p-Xylene	1.296	1.360	-4.9	131	-0.03
71	T,M	o-Xylene	1.269	1.337	-5.4	133	-0.01
72	T,M	Styrene	0.979	0.989	-1.0	129	-0.03
73	T,M	Isopropylbenzene	1.653	1.938	-17.2	147	-0.03
74	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	119	-0.03
75	P,T,M	Bromoform	0.283	0.309	-9.2	124	-0.03
76	P,T,M	1,1,2,2-Tetrachloroethane	0.836	0.923	-10.4	133	-0.02
77	S	4-Bromofluorobenzene	1.376	1.431	-4.0	115	-0.03
78	T,M	1,2,3-Trichloropropane	0.188	0.185	1.6	122	-0.03
79	T,M	trans-1,4-Dichloro-2-butene	0.154	0.192	-24.7#	148	-0.01
80	T,M	n-Propylbenzene	7.241	8.046	-11.1	134	-0.01

(#) = Out of Range

Data File : D:\HPCHEM\1\DATA\19L16\RLD101.D Vial: 2
Acq On : 16 Dec 2019 12:05 pm Operator: VLu
Sample : CVO94J0927 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	0.934	0.945	-1.2	121	-0.03
82	T,M	1,3,5-Trimethylbenzene	4.268	4.728	-10.8	130	-0.03
83	T,M	2-Chlorotoluene	4.056	4.251	-4.8	126	-0.02
84	T,M	4-Chlorotoluene	3.473	4.012	-15.5	144	-0.03
85	T,M	tert-Butylbenzene	0.949	0.987	-4.0	126	-0.03
86	T,M	1,2,4-Trimethylbenzene	4.092	4.497	-9.9	132	-0.02
87	T,M	sec-Butylbenzene	6.170	6.635	-7.5	129	-0.01
88	T,M	p-Isopropyltoluene	4.880	5.253	-7.6	128	-0.03
89	T,M	1,3-Dichlorobenzene	2.044	2.019	1.2	121	-0.02
90	T,M	1,4-Dichlorobenzene	1.940	1.958	-0.9	123	-0.03
91	T,M	n-Butylbenzene	4.978	5.430	-9.1	130	-0.03
92	T,M	1,2-Dichlorobenzene	1.665	1.678	-0.8	124	-0.02
93	T,M	1,2-Dibromo-3-chloropropane	0.077	0.081	-5.2	126	-0.03
94	T,M	1,2,4-Trichlorobenzene	1.130	0.983	13.0	111	-0.03
95	T,M	Hexachlorobutadiene	0.808	0.657	18.7	104	-0.03
96	T,M	Naphthalene	1.866	1.812	2.9	121	-0.03
97	T,M	1,2,3-Trichlorobenzene	0.893	0.759	15.0	106	-0.03

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLD101.D Vial: 2
Acq On : 16 Dec 2019 12:05 pm Operator: VLu
Sample : CVO94J0927 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 17 9:40 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	13.88	114	1516109	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	18.68	117	1268458	10.00	ug/l	-0.03
74) 1,2-DICHLOROBENZENE-D4	22.86	152	351411	10.00	ug/l	-0.03
System Monitoring Compounds						
36) Dibromofluoromethane	12.54	111	448360	9.94	ug/l	-0.03
Spiked Amount 10.000			Recovery = 99.40%			
43) 1,2-Dichloroethane-d4	13.32	65	400221	10.35	ug/l	-0.03
Spiked Amount 10.000			Recovery = 103.50%			
56) Toluene-d8	16.30	98	1770060	10.53	ug/l	-0.03
Spiked Amount 10.000			Recovery = 105.30%			
77) 4-Bromofluorobenzene	20.53	95	502987	10.40	ug/l	-0.03
Spiked Amount 10.000			Recovery = 104.00%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	4.65	85	938215	10.42	ug/l	98
4) Chloromethane	5.30	50	1559511	11.02	ug/l	100
5) Vinyl chloride	5.59	62	1211794	11.32	ug/l	99
6) Bromomethane	6.70	94	740717	10.96	ug/l	94
7) Chloroethane	6.89	64	773540	10.72	ug/l	100
8) Dichlorofluoromethane	6.95	67	1703795	12.01	ug/l	99
9) Trichlorofluoromethane	7.44	101	825419	9.99	ug/l	98
10) Acrolein	8.32	56	252398	60.35	ug/l	97
11) 1,1,2-Trichloro-1,2,2-trif	8.37	151	345841	10.30	ug/l	100
12) Acetone	8.44	43	388537	53.70	ug/l	97
13) 1,1-Dichloroethene	8.72	61	1390673	11.06	ug/l	98
14) tert-Butyl alcohol	8.84	59	149201	66.95	ug/l	83
15) Acetonitrile	8.97	41	438917	115.19	ug/l	95
16) Methyl acetate	9.31	43	279862	11.85	ug/l	97
17) Iodomethane	9.37	142	798450	10.94	ug/l	98
18) Methylene chloride	9.64	49	1055652	10.98	ug/l	99
19) Carbon disulfide	9.74	76	2416351	10.25	ug/l	99
20) Acrylonitrile	9.83	53	566561	54.82	ug/l	98
21) tert-Butyl methyl ether (M	9.87	73	933191	10.63	ug/l	97
22) trans-1,2-Dichloroethene	10.17	96	690099	10.94	ug/l	99
24) Isopropyl ether (DIPE)	10.62	45	2575291	11.65	ug/l	98
25) Vinyl acetate	10.83	43	863590	11.21	ug/l	98
26) 1,1-Dichloroethane	10.90	63	1408749	11.00	ug/l	100
27) 2-Butanol	11.21	45	130675	61.40	ug/l	95
28) tert-Butyl ethyl ether (ET	11.32	59	1504753	10.37	ug/l	98
29) 2-Butanone	11.55	72	132945	54.53	ug/l	100
30) 2,2-Dichloropropane	11.85	77	599205	11.98	ug/l	97

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

Data File : D:\HPCHEM\1\DATA\19L16\RLD101.D Vial: 2
Acq On : 16 Dec 2019 12:05 pm Operator: VLu
Sample : CVO94J0927 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 17 9:40 2019 Quant Results File: VO94J09.RES

Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
31)	cis-1,2-Dichloroethene	11.92	96	645491	10.62	ug/l	98
32)	Chloroform	12.19	83	991561	10.50	ug/l	99
34)	Bromochloromethane	12.48	130	263124	10.29	ug/l	99
35)	Tetrahydrofuran	12.51	42	83879	10.54	ug/l	96
37)	1,1,1-Trichloroethane	12.84	97	708470	11.26	ug/l	88
39)	Cyclohexane	12.89	84	1047021	10.35	ug/l	98
40)	1,1-Dichloropropene	13.09	110	283939	10.28	ug/l	96
41)	tert-Amyl methyl ether (TA	13.19	87	186710	10.49	ug/l	98
42)	Carbon tetrachloride	13.28	119	587883	11.63	ug/l	100
44)	1,2-Dichloroethane	13.47	62	501406	10.54	ug/l	100
45)	Benzene	13.53	78	2422800	10.85	ug/l	100
46)	Trichloroethene	14.46	130	575603	10.04	ug/l	99
47)	Methylcyclohexane	14.58	83	1222513	10.62	ug/l	99
48)	1,2-Dichloropropane	14.72	63	620877	10.43	ug/l	99
49)	1,4-Dioxane	15.08	88	38443	206.56	ug/l	96
50)	Bromodichloromethane	15.11	83	592114	11.07	ug/l	98
51)	Dibromomethane	15.22	93	196261	9.81	ug/l	97
52)	2-Chloroethyl vinyl ether	15.45	63	157315	7.60	ug/l	99
53)	4-Methyl-2-pentanone	15.49	43	1582073	52.66	ug/l	99
54)	cis-1,3-Dichloropropene	15.89	75	818665	11.01	ug/l	99
57)	Toluene	16.43	91	2206234	10.69	ug/l	100
58)	Ethyl methacrylate	16.51	69	413078	11.28	ug/l	98
59)	trans-1,3-Dichloropropene	16.64	75	568903	11.40	ug/l	98
60)	2-Hexanone	16.80	43	960892	54.49	ug/l	100
61)	1,1,2-Trichloroethane	16.92	97	265705	10.25	ug/l	98
62)	1,3-Dichloropropane	17.29	76	579580	10.55	ug/l	97
63)	Tetrachloroethene	17.47	164	348122	9.23	ug/l	97
64)	Dibromochloromethane	17.81	129	291611	9.41	ug/l	100
65)	1,2-Dibromoethane	18.11	107	243125	10.11	ug/l	99
66)	1-Chlorohexane	18.19	91	905323	10.31	ug/l	100
67)	Chlorobenzene	18.73	112	1292145	10.13	ug/l	99
68)	Ethylbenzene	18.76	91	2515114	10.52	ug/l	98
69)	1,1,1,2-Tetrachloroethane	18.78	131	375225	10.84	ug/l	98
70)	m-Xylene & p-Xylene	18.87	91	3451430	20.99	ug/l	98
71)	o-Xylene	19.57	91	1696186	10.54	ug/l	98
72)	Styrene	19.62	104	1254168	10.10	ug/l	98
73)	Isopropylbenzene	20.09	105	2458556	11.73	ug/l	99
75)	Bromoform	20.25	173	108425	9.32	ug/l	100
76)	1,1,2,2-Tetrachloroethane	20.36	83	324264	11.04	ug/l	97
78)	1,2,3-Trichloropropane	20.60	110	65019	9.85	ug/l	98
79)	trans-1,4-Dichloro-2-buten	20.64	53	67314	10.97	ug/l	100

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

Data File : D:\HPCHEM\1\DATA\19L16\RLD101.D Vial: 2
Acq On : 16 Dec 2019 12:05 pm Operator: VLu
Sample : CVO94J0927 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 17 9:40 2019 Quant Results File: VO94J09.RES

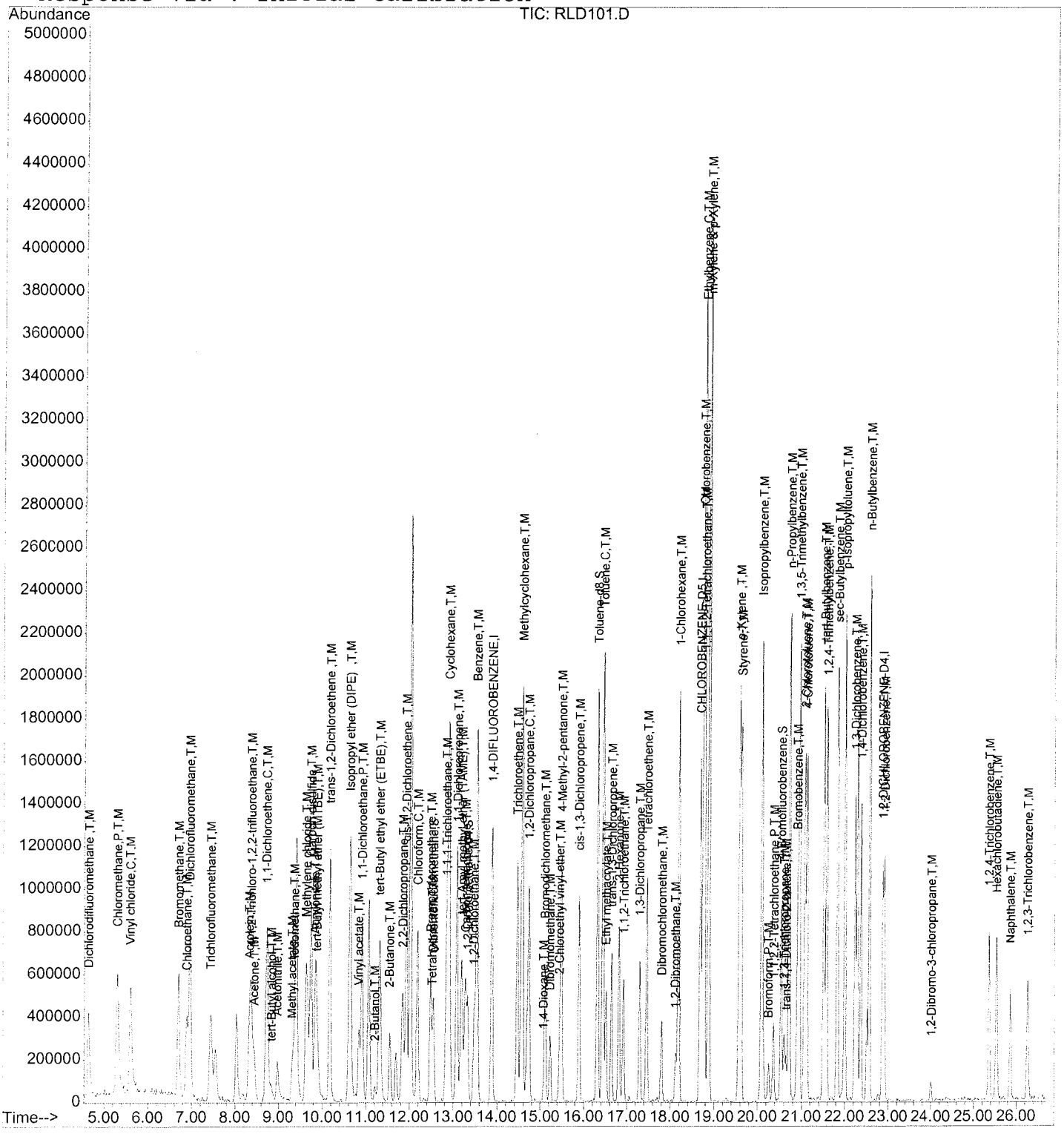
Quant Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration
DataAcq Meth : VO94J09

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
80)	n-Propylbenzene	20.72	91	2827327	11.11	ug/l	98
81)	Bromobenzene	20.89	156	332119	10.12	ug/l	99
82)	1,3,5-Trimethylbenzene	20.94	105	1661568	11.08	ug/l	98
83)	2-Chlorotoluene	21.07	91	1493706	10.48	ug/l	94
84)	4-Chlorotoluene	21.11	91	1410007	11.55	ug/l	86
85)	tert-Butylbenzene	21.51	134	346780	10.40	ug/l	99
86)	1,2,4-Trimethylbenzene	21.58	105	1580121	10.99	ug/l	98
87)	sec-Butylbenzene	21.83	105	2331787	10.75	ug/l	99
88)	p-Isopropyltoluene	21.99	119	1845858	10.76	ug/l	99
89)	1,3-Dichlorobenzene	22.23	146	709544	9.88	ug/l	99
90)	1,4-Dichlorobenzene	22.36	146	688204	10.09	ug/l	98
91)	n-Butylbenzene	22.55	91	1908103	10.91	ug/l	98
92)	1,2-Dichlorobenzene	22.90	146	589607	10.08	ug/l	98
93)	1,2-Dibromo-3-chloropropan	24.01	157	28362	9.31	ug/l	86
94)	1,2,4-Trichlorobenzene	25.36	180	345455	8.70	ug/l	97
95)	Hexachlorobutadiene	25.53	225	231029	8.14	ug/l	99
96)	Naphthalene	25.86	128	636878	9.71	ug/l	100
97)	1,2,3-Trichlorobenzene	26.27	180	266578	8.50	ug/l	97

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

Data File : D:\HPCHEM\1\DATA\19L16\RLD101.D Vial: 2
Acq On : 16 Dec 2019 12:05 pm Operator: VLu
Sample : CVO94J0927 Inst : 94
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: LSCINT1.P
Quant Time: Dec 17 9:40 2019 Quant Results File: VO94J09.RES

Method : D:\HPCHEM\1\METHODS\VO94J09.M (RTE Integrator)
Title : METHOD 8260
Last Update : Wed Nov 13 15:46:59 2019
Response via : Initial Calibration



ANALYTICAL LOG(S)

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR VOLATILES

SOP ☑ EMAX-8260 Rev.No. 10 ☑ EMAX-8260C Rev. No. 1 ☐ EMAX-8260SIM Rev.No. 1 ☐ EMAX-M8260SIM Rev.No. 0 ☐ EMAX-TCPSIM Rev.No. 2 ☐ EMAX-624 Rev.No. 4

Start Date: 10/9/19 ☐ 5-mL Purge ☐ 10-mL Purge ☑ 25-mL Purge

Book #: A94-049

BATCH V094J096

	Sample Prep ID	Data File Name	Lab Sample ID	(*) Sample Amount mL	DF	Matrix W pH <2	Matrix W Cl_2 <5ppm	Matrix S	Notes
01		RJD104	BFB94J05	A / B	NA	NA	NA		8260 Ket-AA 09:10
02		05	V094J091	0.03/0.15					0.3 1.5 ppb
03		06	2	0.05/0.25					0.5 2.5
04		07	3	0.1/0.5					1.0 5.0
05		08	4	0.2/1.0					2.0 10
06		09	5	0.5/2.5					5.0 25
07		10	6	1.0/5.0					10 50
08		11	7	2.0/10					20 100
09		12	8	3.0/15					30 150
10		13	9	5.0/25					50 250
11		14	10	10/50					100 500
12		15	RINSE						
13		16	↓						
14		17	IV094J0901						bad purge
15		18	RINSE	VL 10/10/19					
16		19	LOD VERF. 1	~~0.02/0.1~~					0.2 4.0
17		20	LOQ VERF. 1	~~0~~					4.0
18		21	LOD VERF. 2						2.0 ppb GAS / 10 ppb TBA
19		22	LOQ VERF. 2						5.0 25
20		23	RINSE						19:16
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									VL 10/10/19

Instrument No.	94
INITIAL CALIBRATION REFERENCE	
DATE	VL 10/10/19 ~~10/9/19~~
ICAL ID	V094J09 / V094J09A

STANDARDS

NAME	ID	Amount (µl)	Conc. (mg/L)
DCC 8260 Ket-AA	SV1 - 32-89-02	*	50
	- 33-10-03		250
DCC 4add GAS	- 33-04-02		250/1250
	- 33-01-01		250
DCC CS_2 FREON114	- 33-10-01		250
	- 33-11-03		250
DCC TAA +224	- 33-11-02	↓	250/1250
BFB	- 32-76-01	1	50
IS/SURR. IS	- 32-93-02	5	50
SS	- 32-84-03	*	250
ICV/LCS 8260 Ket-AA	- 33-11-01	5	50
	- 33-01-02	5	250
ICV/LCS 3add 2but	- 33-13-02	5	50
	- 33-13-03	5	250
ICV/LCS GAS CS_2	- 33-14-01	1	250
	- 32-82-02	1	250
ICV/LCS FREON114 TAA 224	- 33-12-01	5	50
	- 33-12-03	5	250
	- 32-23-01	5	50
Data File Folder	19J09		

	LOT #	Syringe Lot #
pH strip		MSV-01-05-03-02
Chlorine strip		-05-04-02
Methanol		-04-16
$NaHSO_4$		-04-13
Reagent Water	RW5-19-001	-05-08
Sand		

Electronic Data Archival Location	Date
HPCHEM_VOA/TO94	10/28/19

Comments: (*) varied amount
(A) GAS, CS_2, 4add, FREON 114, TAA+224
(B) 8260, ket-AA

Analyzed By: VL

Date Disposed: 10/10/19 Disposed By: VL

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR VOLATILES

SOP ☑ EMAX-8260 Rev.No. 10 ☑ EMAX-8260C Rev. No. 1 ☐ EMAX-8260SIM Rev.No. 1 ☐ EMAX-M8260SIM Rev.No. 0 ☐ EMAX-TCPSIM Rev.No. 2 ☐ EMAX-624 Rev.No. 4

Start Date: 10/10/19 ☐ 5-mL Purge ☐ 10-mL Purge ☑ 25-mL Purge

Book #: A94-049

BATCH IV094J0902

	Sample Prep ID	Data File Name	Lab Sample ID	Sample Amount	DF	Matrix W pH < 2	Matrix W Cl_2 < 5ppm	Matrix S	Notes
01		RJD124	BFB94J06		NA	NA	NA		16:31
02		↓ 25	IV094J0902		↓	↓	↓		17:07
03									
04									
05									
06									
07									
08									
09									
10									
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29									
30									VL 10/11/19

Instrument No.	94	
INITIAL CALIBRATION REFERENCE		
DATE	10/9/19	
ICAL ID	V094J09 / V094J09A	
STANDARDS		
NAME	ID	Amount (µl) / Conc. (mg/L)
DCC		
DCC		
DCC		
DCC		
BFB	SVI-32-76-01	1 / 50
IS/SURR.	-33-06-01	5 / 50
ICV/LCS 8260 Kit-AA	-33-11-01	5 / 50
ICV/LCS 3422	-33-01-07	5 / 250
ICV/LCS 2 but	-33-13-02	5 / 50
ICV/LCS GAS	-33-13-03	5 / 250
ICV/LCS CS2	-33-14-01	1 / 250
ICV/LCS FREON114	-32-82-02	1 / 250
ICV/LCS TAA	-33-12-01	5 / 50
Data File Folder 224	-33-12-03	5 / 250
	-32-23-01 19J15	5 / 50
	LOT #	Syringe Lot #
pH strip		MSV-01-05-03-02
Chlorine strip		↓ -05-04-02
Methanol		↓ -04-16
$NaHSO_4$		
Reagent Water	RWS-19-001	
Sand		
Electronic Data Archival Location		Date
HPCHEM_VOA/TO94		10/28/19

Comments:

VL 10/11/19

Analyzed By: ~~10~~ VL

Date Disposed: 10/11/19 Disposed By: VL

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR VOLATILES

VL 12/16/19

SOP ☑ EMAX-8260 Rev.No. 10 ☑ EMAX-8260C Rev. No. 1 ☐ EMAX-8260SIM Rev.No. 1 ☐ EMAX-M8260SIM Rev.No. 0 ☐ EMAX-TCPSIM Rev.No. 2 ☐ EMAX-624 Rev.No. 4

Start Date: 12/13/19 ☐ 5-mL Purge ☐ 10-mL Purge ☑ 25-mL Purge Book #: A94-049

BATCH CV094J926

	Sample Prep ID	Data File Name VL 12/16/19	Lab Sample ID	Sample Amount	DF	Matrix W pH < 2	Matrix W Cl_2 < 5ppm	Matrix S	Notes
01		~~RLR~~RLD078	BFB94L04 ✓						09:45
02		RLD079	CV094J0926 ✓						
03		80	V094L04L ✓						
04		81	↓ C ✓						
05		82	RINSE						
06		83	V094L04B ✓	25mL					
07		84	19L043-03 ✓	↓	1.0	✓	✓		
08		85	-06 ✓		↓	✓	✓		
09		86	-08 ✓			✓	✓		
10		87	-07 ✓			✓	✓		10X
11		88	-07M ✓			✓	✓		
12		89	-07S ✓	↓	↓	✓	✓		
13		90	RINSE						
14		91	19L043-01 ✓	25mL	1.0	✓	✓		
15		92	-02 ✓	↓	↓	✓	✓		
16		93	-04 ✓			✓	✓		
17		94	-05 ✓	↓	↓	✓	✓		18:26
18		95	RINSE						
19		96	↓						
20		97							
21		98							
22		99							
23									
24									
25									
26									
27									
28									
29									
30									VL 12/16/19

Instrument No.	94
INITIAL CALIBRATION REFERENCE	
DATE	10/9/19
ICAL ID	V094J09

STANDARDS

NAME	ID	Amount (µl)	Conc. (mg/L)
DCC 8260 Kel-AA	SVI-33-22-01	5	50 12501
	-32-01	5	
DCC 4add	-43-02	1	
DCC GAS	-45-02	1	
DCC CS_2	-10-02	1	
BFB	SVI-32-75-03	1	
IS/SURR.	SVI-33-46-02	5	
ICV/LCS 8260 Kel-AA	-11-01	VL 12/16/19 5	1250
	-42-01	5	
ICV/LCS 3add	-13-02	5	
ICV/LCS GAS	-26-01	1	
ICV/LCS CS_2	SVI-32-82-02	1	
Data File Folder	19L13		

	LOT #	Syringe Lot #
pH strip	HC863463	MSV-02-01-05-1
Chlorine strip	9130B	-01-05-04-06
Methanol		-01-04-16
$NaHSO_4$		
Reagent Water	RWS-19-001	
Sand		

Electronic Data Archival Location	Date
HPCHEM_VOA/TO94	

Comments:

Analyzed By: VL

Date Disposed: 12/16/19 Disposed By: VL

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR VOLATILES

SOP ☐ EMAX-8260 Rev.No. 10 ☑ EMAX-8260C Rev. No. 1 ☐ EMAX-8260SIM Rev.No. 1 ☐ EMAX-M8260SIM Rev.No. 0 ☐ EMAX-TCPSIM Rev.No. 2 ☐ EMAX-624 Rev.No. 4

Start Date: 12/16/19 ☐ 5-mL Purge ☐ 10-mL Purge ☑ 25-mL Purge

Book #: A94-049

BATCH CV094J0927

	Sample Prep ID	Data File Name	Lab Sample ID	Sample Amount	DF	Matrix W pH < 2	Matrix W Cl_2 < 5ppm	Matrix S	Notes
01		RLD100	BFB94L05 ✓						09:34
02		101	CV094J0927 ✓						
03		102	V094L05L ✓						
04		103	↓ C ✓						
05		104	RINSE						
06		105	V094L05B ✓	25 mL					
07		106	19L084-01N ✓	↓	1.0	✓	✓		confirmation only
08		107	19L043-07I ✓	2.5 mL	10	✓	✓		10x ≠ 1x (r/r 1x to confirm)
09		108	19L084-19 ✓	25 mL	1.0	✓	✓		
10		109	↓ -19M ✓	↓	↓	✓	✓		
11		110	↓ -19S ✓	↓	↓	✓	✓		
12		111	RINSE						
13		112	19L084-13 ✓	25 mL	1.0	✓	✓		
14		113	-14 ✓	↓	↓	✓	✓		
15		114	-15 ✓	↓	↓	✓	✓		
16		115	-16 ✓	↓	↓	✓	✓		
17		116	-17 ✓	↓	↓	✓	✓		
18		117	-18 ✓	↓	↓	✓	✓		
19		118	↓ -20 ✓	↓	↓	✓	✓		
20		119	EV094J0927 ✓						21:27
21		120	↓ A						
22		121	↓ B						
23		122	RINSE						
24		123	↓						
25		124							
26		125							
27		126	↓						
28									
29									
30									VL 12/17/19

Instrument No.	94
INITIAL CALIBRATION REFERENCE	
DATE	10/9/19
ICAL ID	V094J09

STANDARDS

NAME	ID	Amount (µl)	Conc. (mg/L)
DCC 8260 ICAL-AA	SV1-33-22-01 - 32-01	5 5	
DCC 4add	↓ - 43-02	1	
DCC GAS	- 45-02	1	
DCC CS_2	↓ - 10-02	1	
BFB	SV1-32-75-03	1	5012501
IS/SURR.	SV1-33-46-02	5	1250
ICV/LCS 8260 ICAL-AA	- 11-01 - 42-01	5 5	
ICV/LCS 3add	- 13-02	5	
ICV/LCS GAS	↓ - 26-01	1	
ICV/LCS CS_2	SV1-32-82-02	1	
Data File Folder	19L16		

	LOT #	Syringe Lot #
pH strip	HC863463	MSV-02-01-05-1
Chlorine strip	9130B	↓ -01-05-04-06
Methanol		↓ -01-04-16
$NaHSO_4$		
Reagent Water	RWS-19-001	
Sand		

Electronic Data Archival Location	Date
HPCHEM_VOA/TO94	

Comments:

Analyzed By: VL

Date Disposed: 12/17/19 Disposed By: VL

LABORATORY REPORT FOR

CDM SMITH

VA SALT LAKE CITY

METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

SDG#: 19L043

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L043

METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

A total of five(5) water samples were received on 12/06/19 to be analyzed for 1,4-Dioxane by GC/MS SIM in accordance with Method SW3520C/SW8270D SIM and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Instrument Performance and Calibration
Instrument tune check was performed prior to calibration. Result was within acceptance criteria. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried out at a frequency required by the project. There was one(1)CCV associated with this SDG. CCV(Data file ID:RLF037) was within calibration acceptance criteria. All calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. SVL003WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. SVL003WL/SVL003WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. 1,4-Dioxane (P-DIOXANE) was within MS QC limits in 19L043-07M/19L043-07S. Refer to Matrix QC summary form for details.

Surrogate
Surrogate was added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
1,4-DIOXANE BY GC/MS SIM

Client : CDM SMITH
Project : VA SALT LAKE CITY

SDG NO. : 19L043
Instrument ID : F0

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	SVL003WB	1	NA	12/11/1910:32	12/09/1913:00	RLF038	RKF014	19SVL003W	Method Blank
LCS1W	SVL003WL	1	NA	12/11/1910:45	12/09/1913:00	RLF039	RKF014	19SVL003W	Lab Control Sample (LCS)
LCD1W	SVL003WC	1	NA	12/11/1911:01	12/09/1913:00	RLF040	RKF014	19SVL003W	LCS Duplicate
OU2-MW02-GW120519MS	19L043-07M	1	NA	12/11/1911:16	12/09/1913:00	RLF041	RKF014	19SVL003W	Matrix Spike Sample (MS)
OU2-MW02-GW120519MSD	19L043-07S	1	NA	12/11/1911:31	12/09/1913:00	RLF042	RKF014	19SVL003W	MS Duplicate (MSD)
OU2-MW20S-GW120419	19L043-01	1	NA	12/11/1911:46	12/09/1913:00	RLF043	RKF014	19SVL003W	Field Sample
OU2-MW20D-GW120519	19L043-02	1	NA	12/11/1912:02	12/09/1913:00	RLF044	RKF014	19SVL003W	Field Sample
OU2-MW18-GW120519	19L043-04	1	NA	12/11/1912:17	12/09/1913:00	RLF045	RKF014	19SVL003W	Field Sample
OU2-MW19-GW120519	19L043-05	1	NA	12/11/1912:33	12/09/1913:00	RLF046	RKF014	19SVL003W	Field Sample
OU2-MW02-GW120519	19L043-07	1	NA	12/11/1912:48	12/09/1913:00	RLF047	RKF014	19SVL003W	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/04/19 16:10
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
Batch No.	: 19L043	Date Extracted:	12/09/19 13:00
Sample ID	: OU2-MW20S-GW120419	Date Analyzed:	12/11/19 11:46
Lab Samp ID:	19L043-01	Dilution Factor:	1
Lab File ID:	RLF043	Matrix:	WATER
Ext Btch ID:	19SVL003W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.42	0.21

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	26.1	41.6	63	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 960ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

Quantitation Report (QT Reviewed)

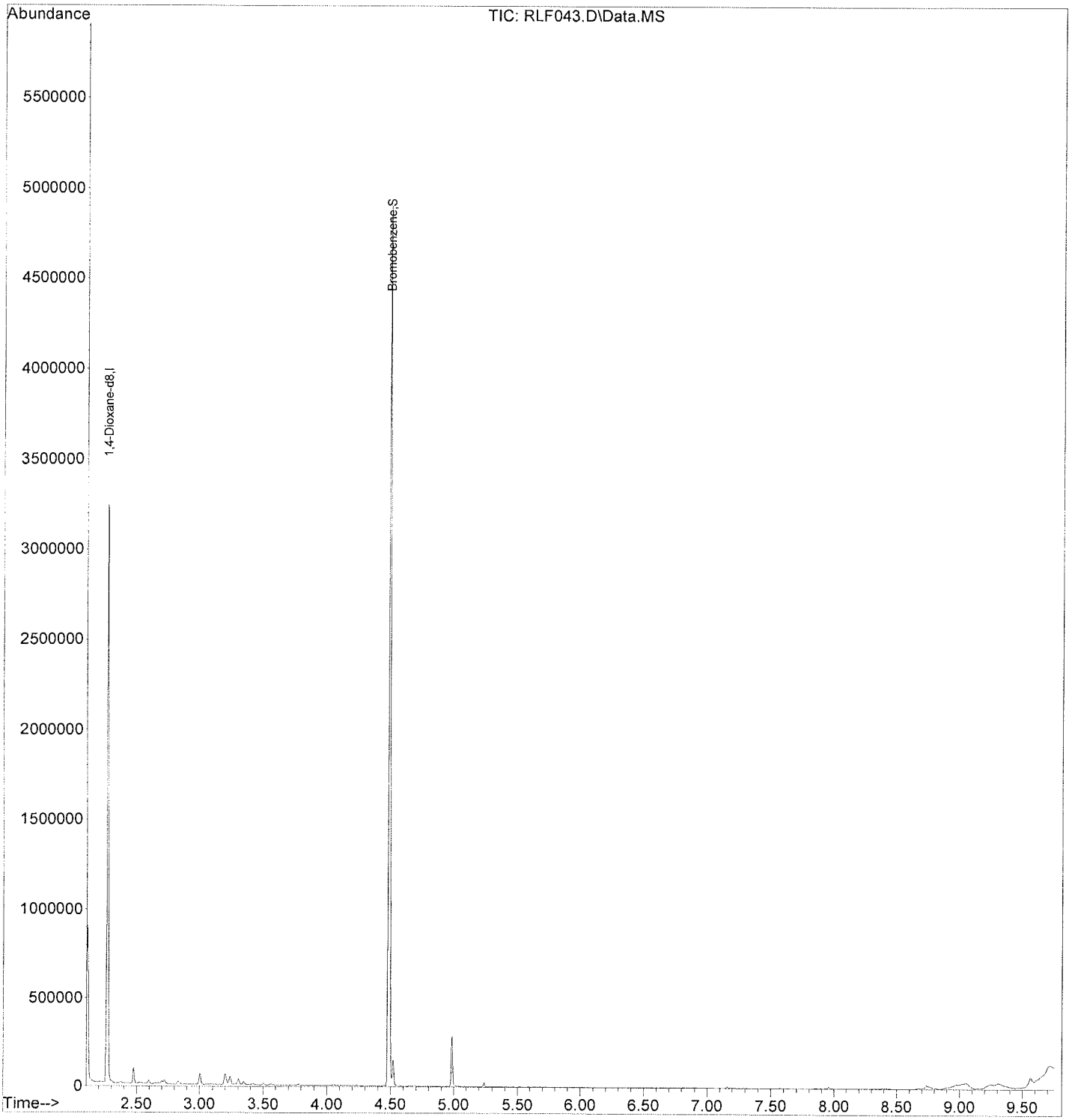
Data File : C:\msdchem\1\DATA\19L11\RLF043.D Vial: 9
Acq On : 11 Dec 2019 11:46 Operator: KVu
Sample : 19L043-01 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 12:28:19 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	283429	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	566187	12.53	ppm	0.00
Spiked Amount 20.000			Recovery =	62.65%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF043.D Vial: 9
Acq On : 11 Dec 2019 11:46 Operator: KVu
Sample : 19L043-01 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 12:28:19 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/05/19 11:50
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
Batch No.	: 19L043	Date Extracted:	12/09/19 13:00
Sample ID	: OU2-MW20D-GW120519	Date Analyzed:	12/11/19 12:02
Lab Samp ID:	19L043-02	Dilution Factor:	1
Lab File ID:	RLF044	Matrix:	WATER
Ext Btch ID:	19SVL003W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	FO

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.44	0.22

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	30.9	44.4	70	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 900ml	Final Volume :	2ml
Prepared by	: HWang	Analyzed by :	KVu

Quantitation Report (QT Reviewed)

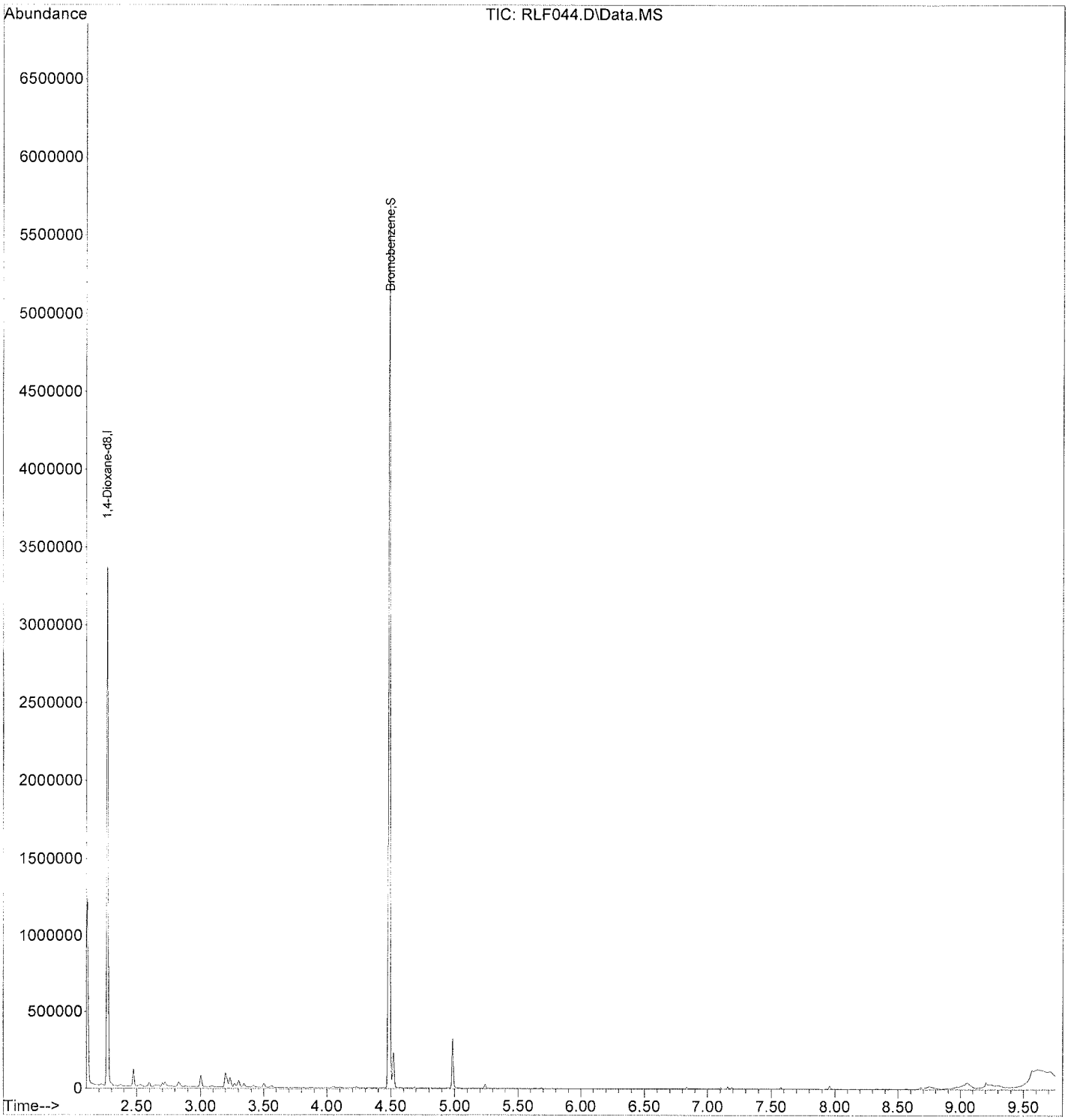
Data File : C:\msdchem\1\DATA\19L11\RLF044.D Vial: 10
Acq On : 11 Dec 2019 12:02 Operator: KVu
Sample : 19L043-02 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 12:28:47 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	293423	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	651599	13.93	ppm	0.00
Spiked Amount 20.000			Recovery =	69.65%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF044.D Vial: 10
Acq On : 11 Dec 2019 12:02 Operator: KVu
Sample : 19L043-02 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 12:28:47 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/05/19 09:55
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
Batch No.	: 19L043	Date Extracted:	12/09/19 13:00
Sample ID	: OU2-MW18-GW120519	Date Analyzed:	12/11/19 12:17
Lab Samp ID:	19L043-04	Dilution Factor:	1
Lab File ID:	RLF045	Matrix:	WATER
Ext Btch ID:	19SVL003W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	FO

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.40	0.20

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	28.1	39.6	71	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 1010ml	Final Volume :	2ml
Prepared by	: HWang	Analyzed by :	KVu

Quantitation Report (QT Reviewed)

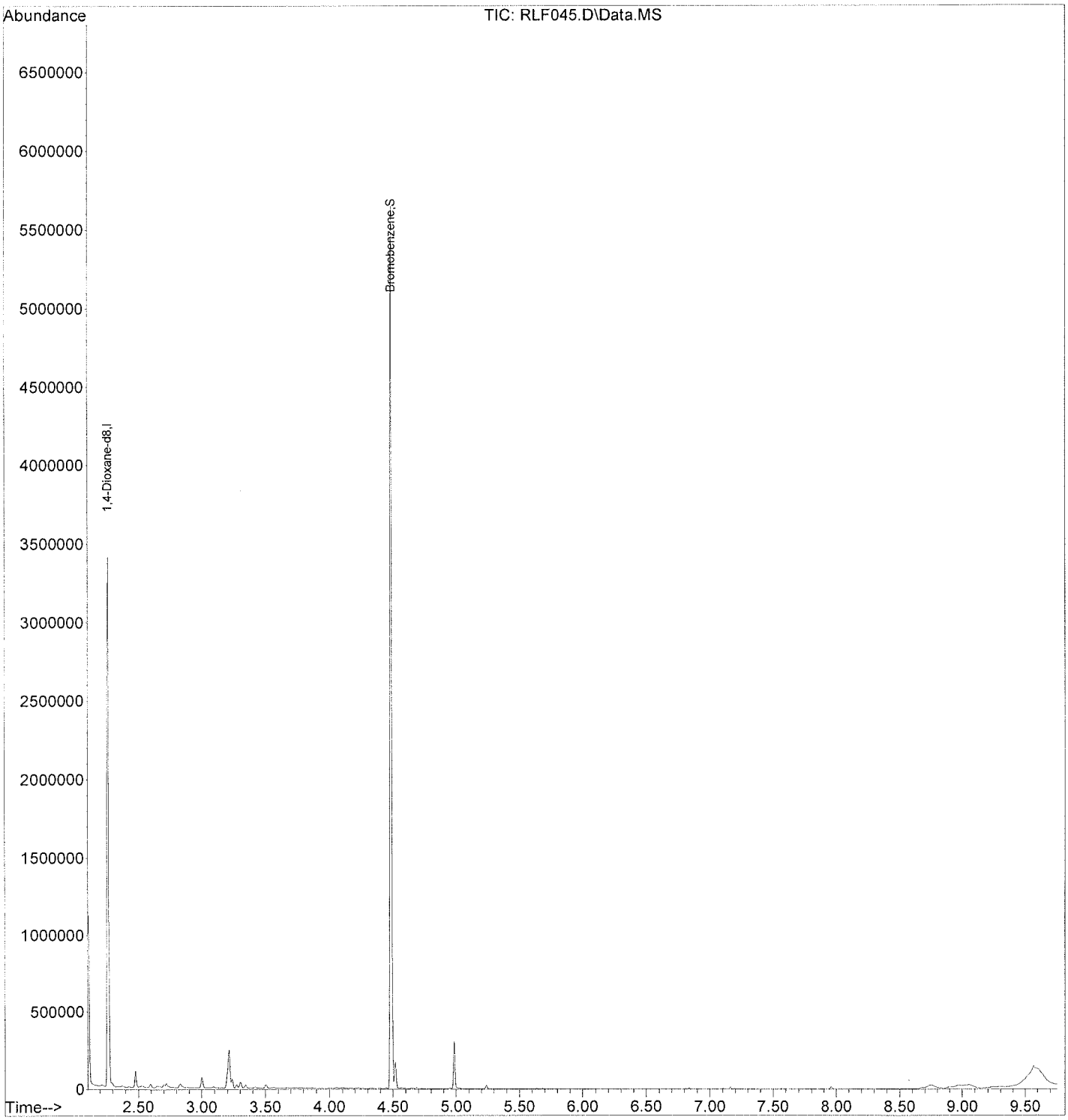
Data File : C:\msdchem\1\DATA\19L11\RLF045.D Vial: 11
Acq On : 11 Dec 2019 12:17 Operator: KVu
Sample : 19L043-04 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 13:01:41 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	280369	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	635329	14.21	ppm	0.00
Spiked Amount 20.000			Recovery =	71.05%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF045.D Vial: 11
Acq On : 11 Dec 2019 12:17 Operator: KVu
Sample : 19L043-04 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 13:01:41 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/05/19 10:00
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
Batch No.	: 19L043	Date Extracted:	12/09/19 13:00
Sample ID	: OU2-MW19-GW120519	Date Analyzed:	12/11/19 12:33
Lab Samp ID:	19L043-05	Dilution Factor:	1
Lab File ID:	RLF046	Matrix:	WATER
Ext Btch ID:	19SVL003W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.48	0.24

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	24.9	48.0	52	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 830ml	Final Volume :	2ml
Prepared by	: HWang	Analyzed by :	KVu

Quantitation Report (QT Reviewed)

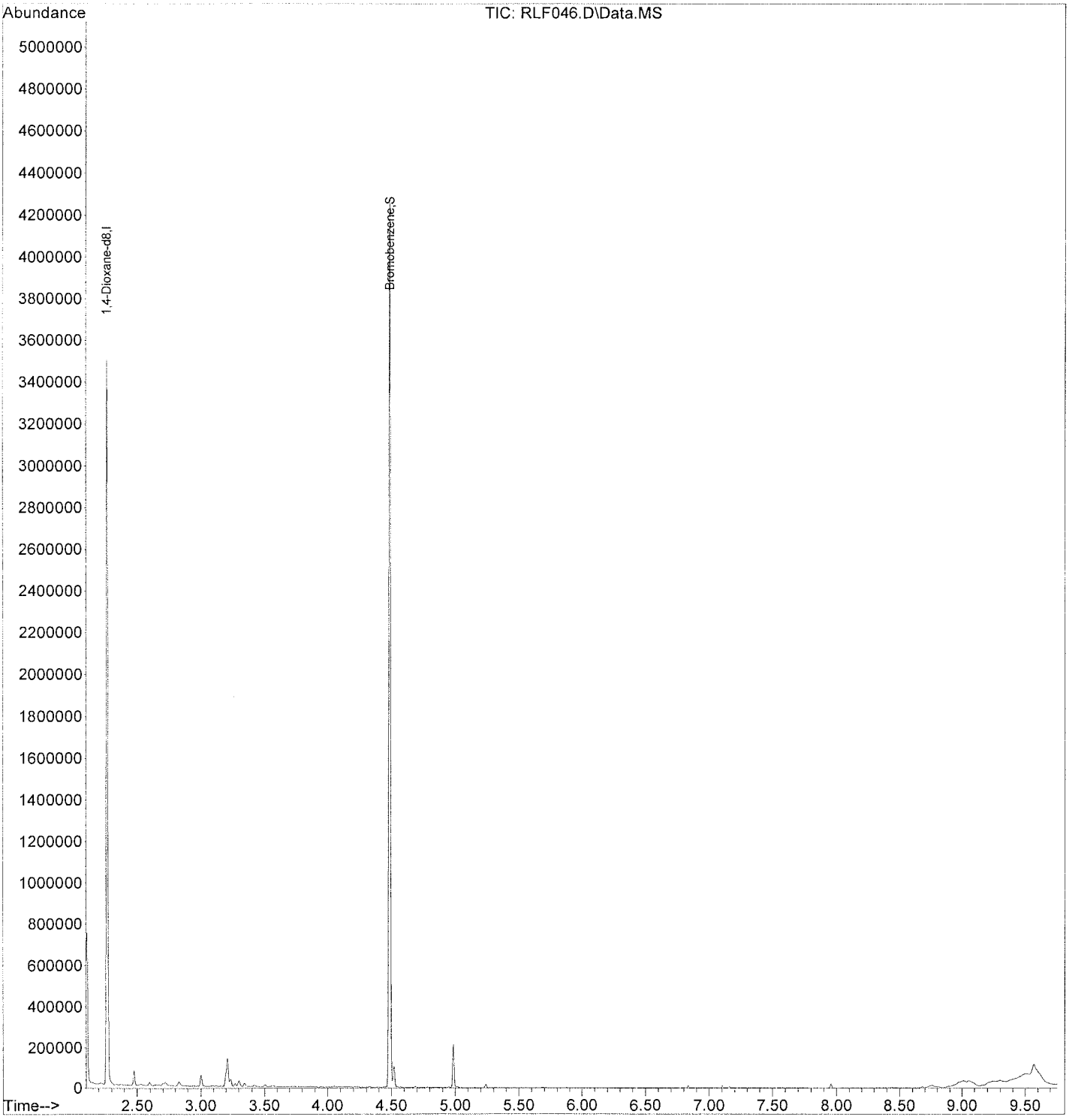
Data File : C:\msdchem\1\DATA\19L11\RLF046.D Vial: 12
Acq On : 11 Dec 2019 12:33 Operator: KVu
Sample : 19L043-05 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 13:01:58 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	288805	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	476337	10.34	ppm	0.00
Spiked Amount 20.000			Recovery =	51.70%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF046.D Vial: 12
Acq On : 11 Dec 2019 12:33 Operator: KVu
Sample : 19L043-05 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 13:01:58 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/05/19 12:15
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
Batch No.	: 19L043	Date Extracted:	12/09/19 13:00
Sample ID	: OU2-MW02-GW120519	Date Analyzed:	12/11/19 12:48
Lab Samp ID:	19L043-07	Dilution Factor:	1
Lab File ID:	RLF047	Matrix:	WATER
Ext Btch ID:	19SVL003W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.46	0.23

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	29.8	46.0	65	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 870ml	Final Volume :	2ml
Prepared by	: HWang	Analyzed by :	KVu

Quantitation Report (QT Reviewed)

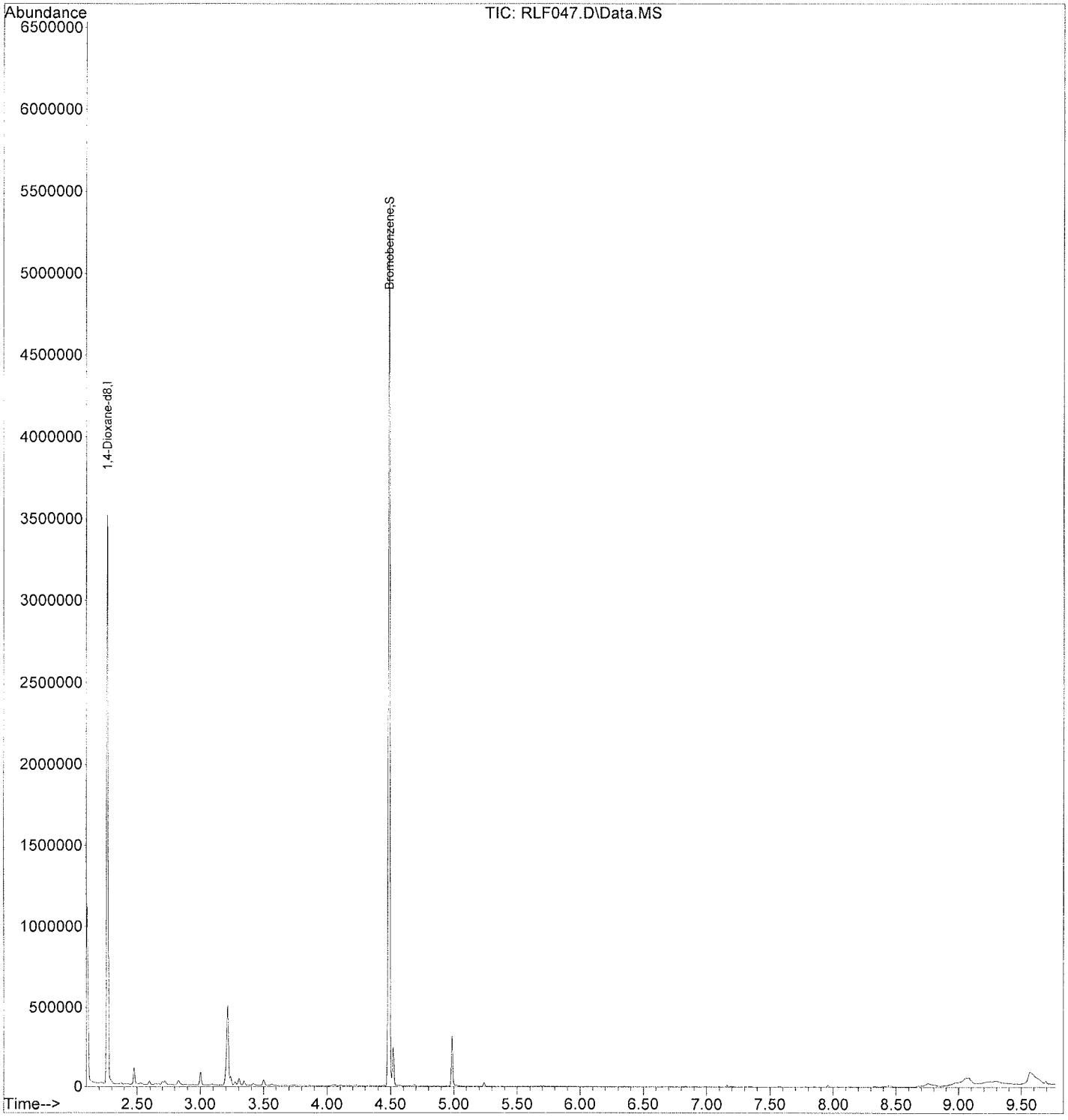
Data File : C:\msdchem\1\DATA\19L11\RLF047.D Vial: 13
Acq On : 11 Dec 2019 12:48 Operator: KVu
Sample : 19L043-07 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 13:19:54 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	300370	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	620123	12.95	ppm	0.00
Spiked Amount 20.000			Recovery =	64.75%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF047.D Vial: 13
Acq On : 11 Dec 2019 12:48 Operator: KVu
Sample : 19L043-07 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 13:19:54 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



QC SUMMARIES

METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/09/19 13:00
Project	: VA SALT LAKE CITY	Date Received:	12/09/19
Batch No.	: 19L043	Date Extracted:	12/09/19 13:00
Sample ID	: MBLK1W	Date Analyzed:	12/11/19 10:32
Lab Samp ID:	SVL003WB	Dilution Factor:	1
Lab File ID:	RLF038	Matrix:	WATER
Ext Btch ID:	19SVL003W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.40	0.20

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	26.6	40.0	66	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 1000ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : SW3520C/SW8270D SIM

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: SVL003WB	SVL003WL	SVL003WC
LAB FILE ID	: RLF038	RLF039	RLF040
DATE PREPARED	: 12/09/19 13:00	12/09/19 13:00	12/09/19 13:00
DATE ANALYZED	: 12/11/19 10:32	12/11/19 10:45	12/11/19 11:01
PREP BATCH	: 19SVL003W	19SVL003W	19SVL003W
CALIBRATION REF	: RKF014	RKF014	RKF014

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRP (%)
1,4-Dioxane (P-Dioxane)	ND	40.0	30.2	76	40.0	31.7	79	5	50-130	20

SURROGATE PARAMETER	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	QCLimit (%)
Bromobenzene	40.0	30.3	76	40.0	30.6	77	30-160

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : SW3520C/SW8270D SIM

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: OU2-MW02-GW120519	OU2-MW02-GW120519MS	OU2-MW02-GW120519MSD
LAB SAMPLE ID	: 19L043-07	19L043-07M	19L043-07S
LAB FILE ID	: RLF047	RLF041	RLF042
DATE PREPARED	: 12/09/19 13:00	12/09/19 13:00	12/09/19 13:00
DATE ANALYZED	: 12/11/19 12:48	12/11/19 11:16	12/11/19 11:31
PREP BATCH	: 19SVL003W	19SVL003W	19SVL003W
CALIBRATION REF	: RKF014	RKF014	RKF014

ACCESSION:

PARAMETERS	PSResult (ug/L)	SpikeAmt (ug/L)	MSResult (ug/L)	MSRec (%)	SpikeAmt (ug/L)	MSDResult (ug/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRP (%)
1,4-Dioxane (P-Dioxane)	ND	41.6	36.3	87	41.2	33.5	81	8	50-130	20

SURROGATE PARAMETER	SpikeAmt (ug/L)	MSResult (ug/L)	MSRec (%)	SpikeAmt (ug/L)	MSDResult (ug/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	41.6	30.7	74	41.2	30.0	73	30-160

PS: Parent Sample MS: Matrix Spike MSD: Matrix Spike Duplicate

QC DATA

Quantitation Report (QT Reviewed)

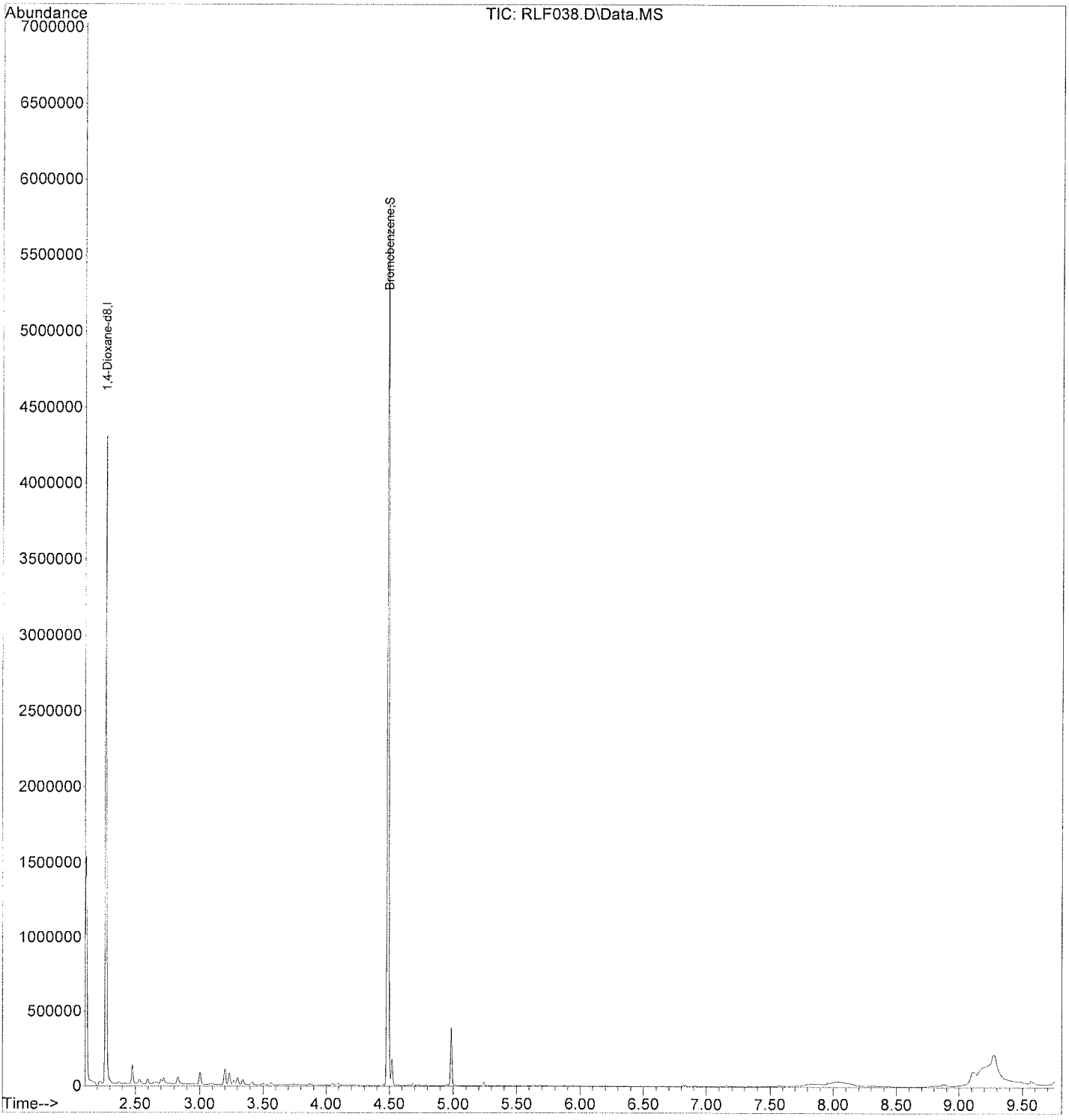
Data File : C:\msdchem\1\DATA\19L11\RLF038.D Vial: 4
Acq On : 11 Dec 2019 10:32 Operator: KVu
Sample : SVL003WB Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 11:02:52 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.268	96	307251	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	651359	13.29	ppm	0.00
Spiked Amount 20.000			Recovery =	66.45%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF038.D Vial: 4
Acq On : 11 Dec 2019 10:32 Operator: KVu
Sample : SVL003WB Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 11:02:52 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



Quantitation Report (QT Reviewed)

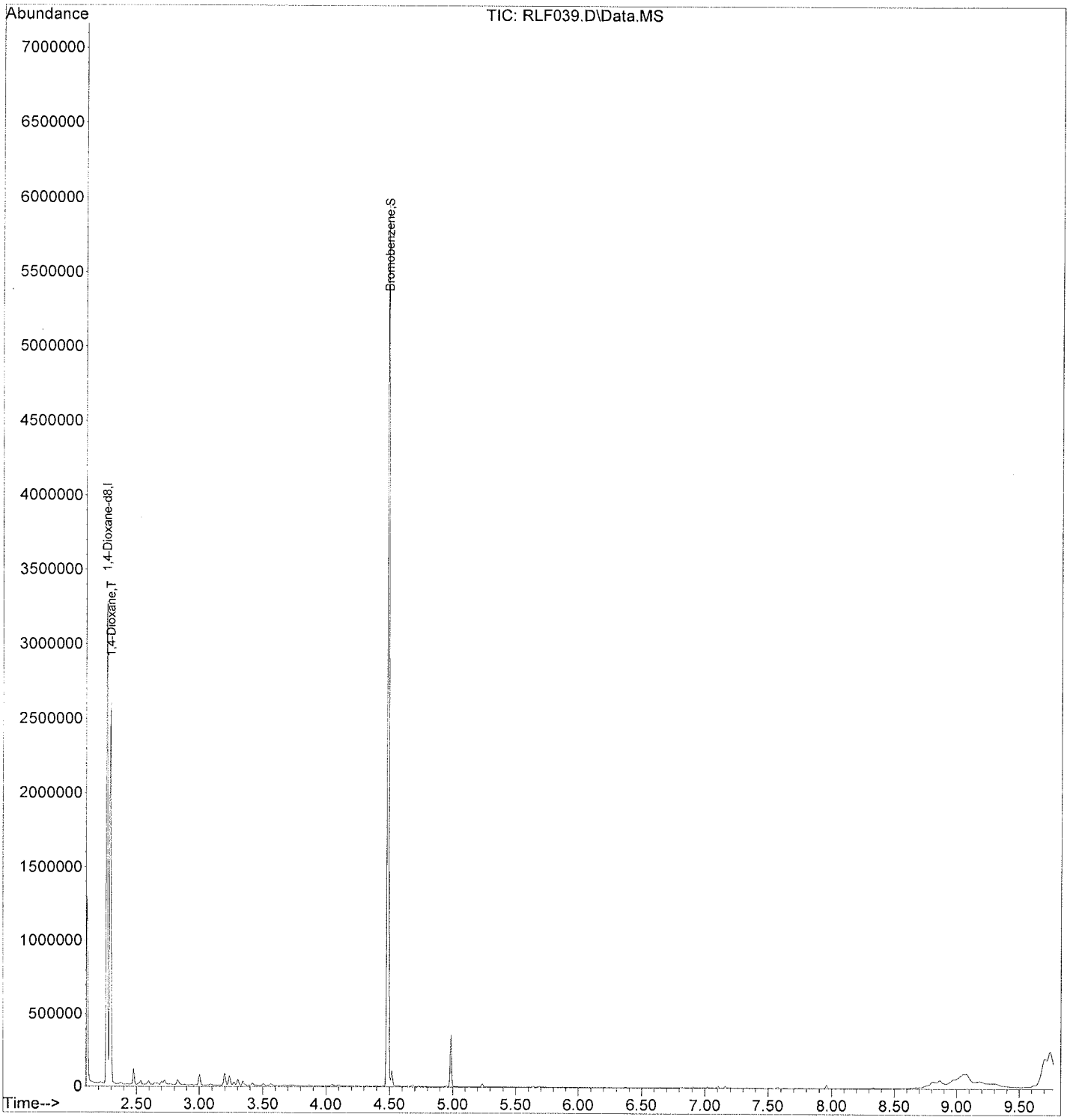
Data File : C:\msdchem\1\DATA\19L11\RLF039.D Vial: 5
Acq On : 11 Dec 2019 10:45 Operator: KVu
Sample : SVL003WL Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 11:03:08 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	278732	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	674298	15.17	ppm	0.00
Spiked Amount 20.000			Recovery =	75.85%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.295	88	187036	15.11	ppm	78

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF039.D Vial: 5
Acq On : 11 Dec 2019 10:45 Operator: KVu
Sample : SVL003WL Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 11:03:08 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



Quantitation Report (QT Reviewed)

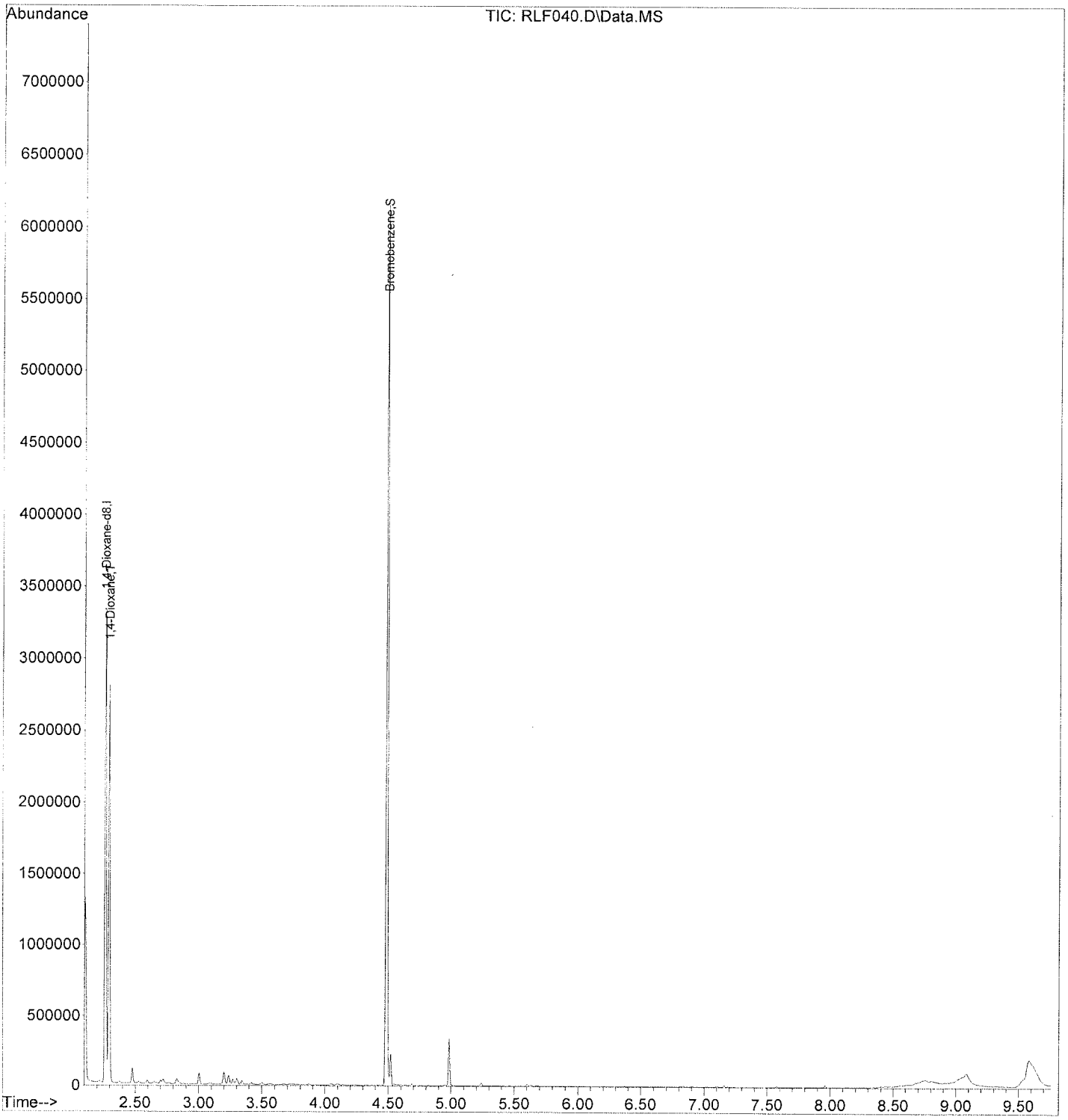
Data File : C:\msdchem\1\DATA\19L11\RLF040.D Vial: 6
Acq On : 11 Dec 2019 11:01 Operator: KVu
Sample : SVL003WC Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 11:26:19 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	282494	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	690023	15.32	ppm	0.00
Spiked Amount 20.000			Recovery = 76.60%			
Target Compounds						Qvalue
2) 1,4-Dioxane	2.295	88	198865	15.85	ppm	78

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF040.D Vial: 6
Acq On : 11 Dec 2019 11:01 Operator: KVu
Sample : SVL003WC Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 11:26:19 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



Quantitation Report (QT Reviewed)

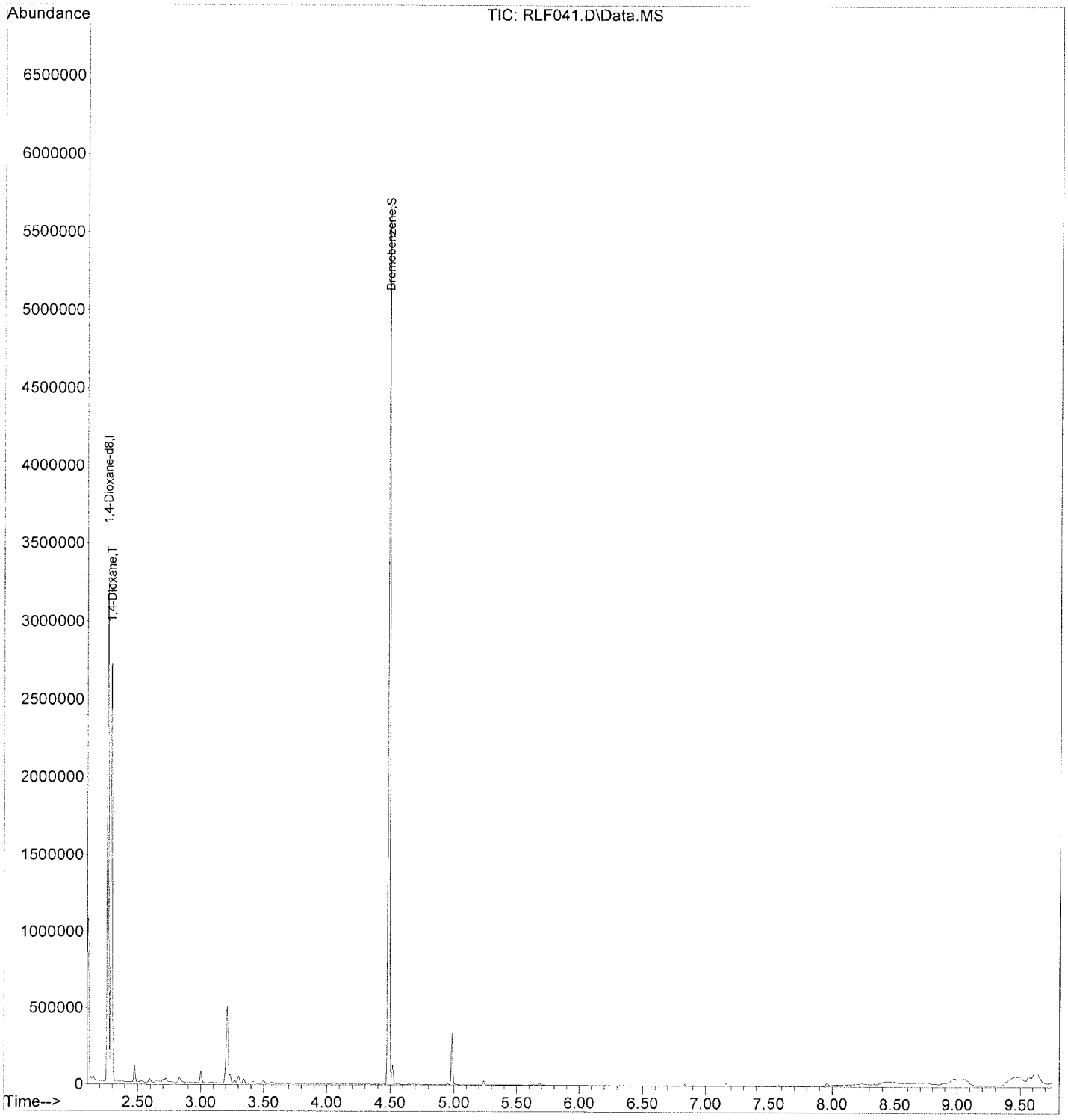
Data File : C:\msdchem\1\DATA\19L11\RLF041.D Vial: 7
Acq On : 11 Dec 2019 11:16 Operator: KVu
Sample : 19L043-07M Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 11:36:37 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	275657	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	646904	14.72	ppm	0.00
Spiked Amount 20.000			Recovery =	73.60%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	212922	17.40	ppm	# 74

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF041.D Vial: 7
Acq On : 11 Dec 2019 11:16 Operator: KVu
Sample : 19L043-07M Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 11:36:37 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



Quantitation Report (QT Reviewed)

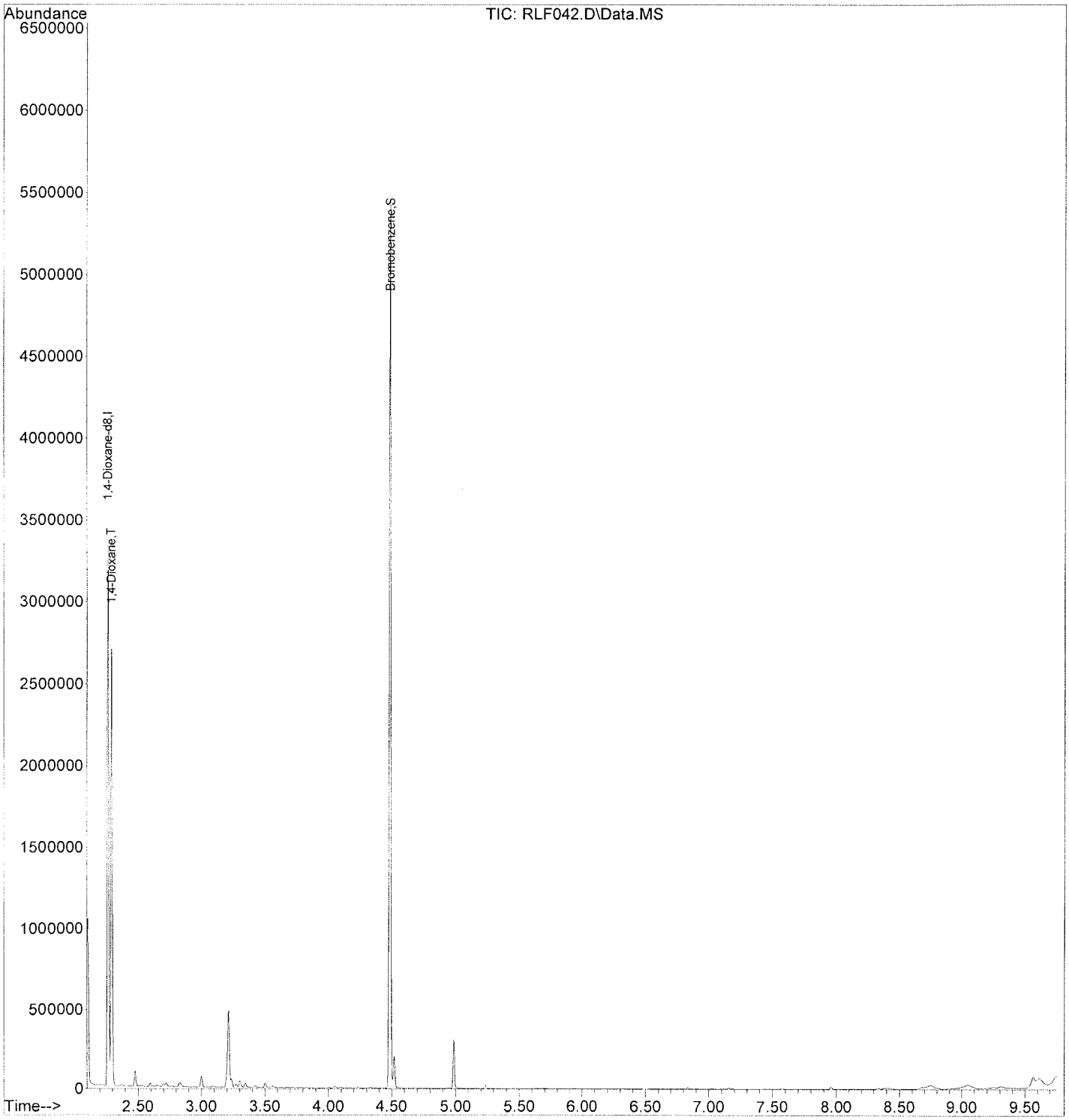
Data File : C:\msdchem\1\DATA\19L11\RLF042.D Vial: 8
Acq On : 11 Dec 2019 11:31 Operator: KVu
Sample : 19L043-07S Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 11:58:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	271472	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	629786	14.55	ppm	0.00
Spiked Amount 20.000			Recovery =	72.75%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	196023	16.26	ppm	79

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF042.D Vial: 8
Acq On : 11 Dec 2019 11:31 Operator: KVu
Sample : 19L043-07S Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 11:58:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



INITIAL CALIBRATIONS

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : EMAX Laboratories, Inc. Project :VA SALT LAKE CITY
Lab Code : EMAX SDG No :19L043
Lab File ID: RKF011 DFTPP Injection Date:11/15/19
Instrument ID: F0 DFTPP Injection Time:10:37

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15 - 40% of mass 95	36.470
75	30 - 60% of mass 95	55.773
95	Base Peak, 100% relative abundance	100.000
96	5 - 9% of mass 95	6.772
173	Less than 2% of mass 174	0.000(0)1
174	50 - 100% of mass 95	61.677
175	5 - 9% of mass 174	4.861(7.88)1
176	95 - 101% % of mass 174	58.982(95.63)1
177	5 - 9% % of mass 176	3.759(6.37)2

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

This check applies to the following samples, Lab QCs and Standards:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	SSTD100	SVF0K1541	RKF012	11/15/19	10:50
2	SSTD60	SVF0K152	RKF013	11/15/19	11:03
3	SSTD20	SVF0K153	RKF014	11/15/19	11:19
4	SSTD5	SVF0K154	RKF015	11/15/19	11:37
5	SSTD1	SVF0K155	RKF016	11/15/19	11:51
6	SSTD0.5	SVF0K156	RKF017	11/15/19	12:07
7	SSTD0.2	SVF0K157	RKF018	11/15/19	12:23
8	SSTD0.15	SVF0K158	RKF019	11/15/19	12:39
9	SSTD0.075	SVF0K159	RKF020	11/15/19	12:55
10	SSTD0.05	SVF0K1510	RKF021	11/15/19	13:11
11	ISSTD20	ISVF0K151	RKF022	11/15/19	13:27

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: EMAX Laboratories, Inc.

Project: ICAL

Lab Code: EMAX SDG No: ICAL

Lab File ID: RKF014 Date Analyzed: 11/15/19

Instrument ID: F0 Time Analyzed: 11:19

	INTERNAL STANDARD (IS)	1,4-Dioxane-d8 Area #	RT #
	12 HOUR STD	213044	2.26
	UPPER LIMIT	426088	2.76
	LOWER LIMIT	106522	1.76
		Area #	RT #
1	SSTD100	203218	2.27
2	SSTD60	206910	2.26
3	SSTD20	213044	2.26
4	SSTD5	224906	2.26
5	SSTD1	220732	2.26
6	SSTD0.5	219847	2.26
7	SSTD0.2	228530	2.26
8	SSTD0.15	238530	2.26
9	SSTD0.075	240731	2.26
10	SSTD0.05	249906	2.26
11	ISSTD20	263400	2.28

Area Upper Limit = +100% of ICAL Midpoint IS Area

Area Lower Limit = -50% of ICAL Midpoint IS Area

Retention Time(RT) Upper Limit = +30 seconds of ICAL Midpoint IS RT

Retention Time(RT) Lower Limit = -30 seconds of ICAL Midpoint IS RT

YM 12/22/19

INITIAL_CALIBRATION - RELATIVE_RESPONSE_FACTOR

Instrument ID :DSQ
Beginning DateTime :11/15/19 10:50
Spike Units :PPM
IC File :RKF014

Column Spec :ZB-SemiVoa ID :0.25MM
Ending DateTime :11/15/19 13:11
HPChem Method :SVFOK15

IDX	Parameters	.05 13:11 RKF021	.075 12:55 RKF020	.15 12:39 RKF019	.2 12:23 RKF018	.5 12:07 RKF017	1 11:51 RKF016	5 11:37 RKF015	20 11:19 RKF014	60 11:03 RKF013	100 10:50 RKF012	Av_RRF	%_RSD	Av_Rt_M
1	1,4-Dioxane-d8	1	1	1	1	1	1	1	1	1	1	1	0	2.2651
2	1,4-Dioxane	1.676	1.446	1.493	1.293	1.283	1.109	1.119	0.995	0.883	0.850	1.215	22.39	2.2937
3	Bromobenzene	------	------	3.651	3.361	3.244	3.268	3.266	2.983	2.553	------	3.189	10.74	4.4866

Ave_%RSD : 16.6 Max_%RSD : 22.4

Use Least Square Linear Regression with weighting factor of inverse concentration
Resp_Ratio = xo + x1 * Amt_Ratio

IDX	Parameter	x0	x1	CCF
2	1,4-Dioxane	0.00343	0.88374	0.9976

YM 12/22/19

INITIAL_CALIBRATION - RELATIVE_RESPONSE_FACTOR(%REC)

Instrument ID :DSQ
Beginning DateTime :11/15/19 10:50
Spike Units :PPM
IC File :RKF014

Column Spec :ZB-SemiVoa ID :0.25MM
Ending DateTime :11/15/19 13:11
HPChem Method :SVF0K15

IDX	Parameters	.05 13:11 RKF021	.075 12:55 RKF020	.15 12:39 RKF019	.2 12:23 RKF018	.5 12:07 RKF017	1 11:51 RKF016	5 11:37 RKF015	20 11:19 RKF014	60 11:03 RKF013	100 10:50 RKF012	AvDRec	%_RSD	Av_Rt_M
1	1,4-Dioxane-d8	1	1	1	1	1	1	1	1	1	1	1	0	2.2651
2	1,4-Dioxane	138	119	123	106	106	91	92	82	73	70	18.4	22.39	2.2937
3	Bromobenzene	------	------	114	105	102	102	102	94	80	------	7.6	10.74	4.4866

YM 12/22/19

Quantitation Limit from Lowest Initial Calibration Concentration

Instrument ID :DSQ
Beginning DateTime :11/15/19 10:50
IC File :RKF014

Column Spec :ZB-SemiVoa ID :0.25MM
Ending DateTime :11/15/19 13:11
HPChem Method :SVF0K15

WATER Init. Vol. (ml) : 1000
SOIL Init. Weight (gm) : 30

Final Vol. (ml) : 2
Final Vol. (ml) : 2

IDX	Parameters	ON_COL MG/L	WATER UG/L	SOIL MG/KG	R_FILE
1	1,4-Dioxane-d8	IntSTD	IntSTD	IntSTD	IntSTD
2	1,4-Dioxane	.05	.1	.003333	RKF021
3	Bromobenzene	.15	.3	.01	RKF019

YM 12/22/19

Quantitation Limit from Lowest Initial Calibration Concentration

Instrument ID :DSQ
Beginning DateTime :11/15/19 10:50
IC File :RKF014

Column Spec :ZB-SemiVoa ID :0.25MM
Ending DateTime :11/15/19 13:11
HPChem Method :SVF0K15

WATER Init. Vol. (ml) : 1000 Final Vol. (ml) : 1
SOIL Init. Weight (gm) : 30 Final Vol. (ml) : 1

IDX	Parameters	ON_COL MG/L	WATER UG/L	SOIL MG/KG	R_FILE
1	1,4-Dioxane-d8	IntSTD	IntSTD	IntSTD	IntSTD
2	1,4-Dioxane	.05	.05	.001667	RKF021
3	Bromobenzene	.15	.15	.005	RKF019

YM 12/22/19

Compound List Report DSQ

Method Path : C:\msdchem\1\METHODS\
Method File : SVF0K15.M
Title : SEMIVOLATILES - SIM
Last Update : Fri Nov 15 15:37:37 2019
Response Via : Initial Calibration

Total Cpnds : 3

PK#		Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I	1,4-Dioxane-d8	96	2.264	1.000	A	1	A	B
2	T	1,4-Dioxane	88	2.291	1.012	L	2	A	B
3	S	Bromobenzene	77	4.486	1.981	A	1	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

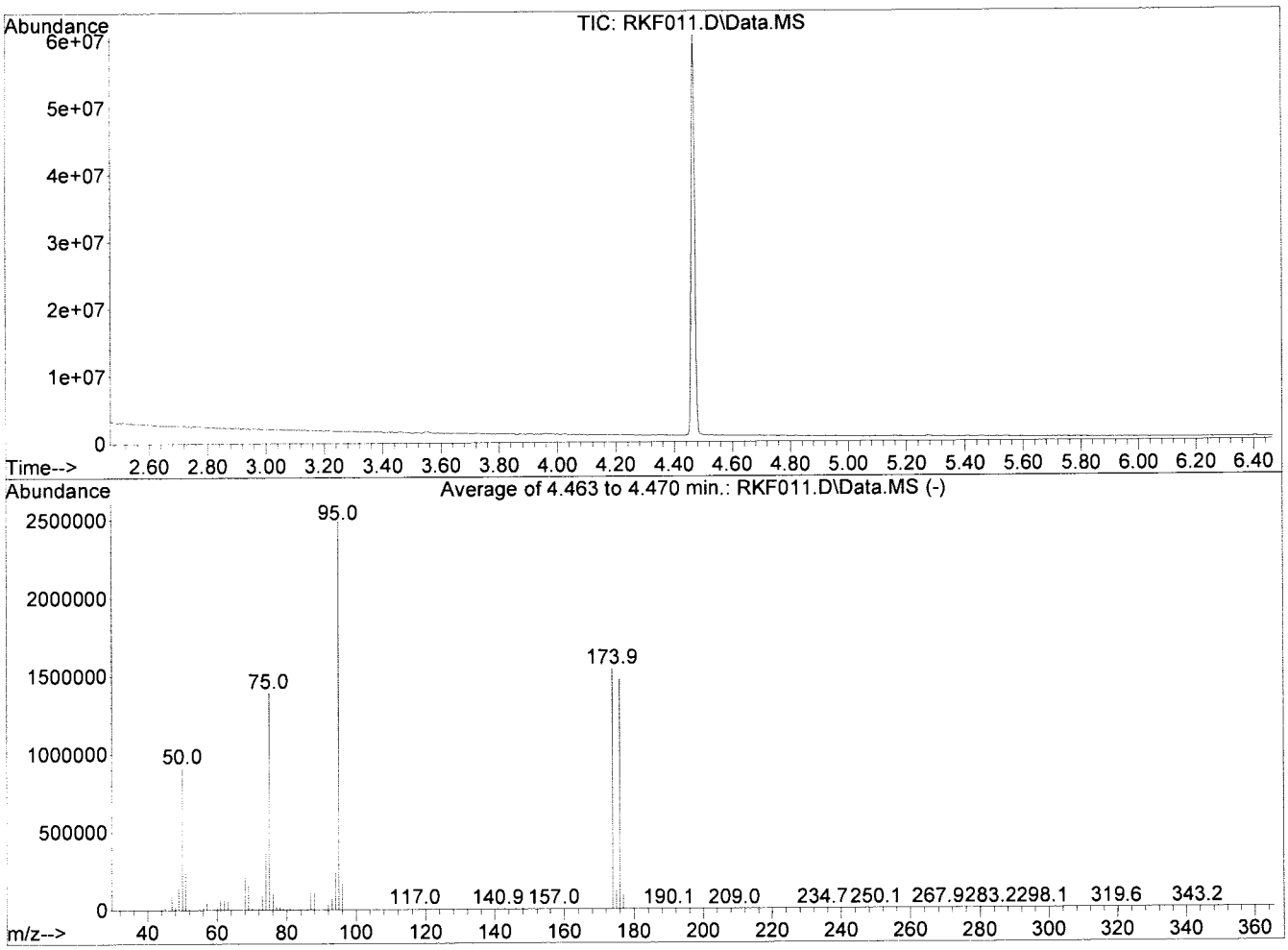
SVF0K15.M Fri Nov 15 15:38:01 2019 F0

YM
12/22/19

Data Path : C:\msdchem\1\DATA\19K15\
Data File : RKF011.D
Acq On : 15 Nov 2019 10:37
Operator : KVu
Sample : BFBF0K1501
Misc : F0
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\BFB.M
Title : BFB
Last Update : Fri Nov 15 14:33:51 2019



AutoFind: Scans 684, 685, 686; Background Corrected with Scan 671

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	36.5	910057	PASS
75	95	30	60	55.8	1391765	PASS
95	95	100	100	100.0	2495388	PASS
96	95	5	9	6.8	168981	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	61.7	1539072	PASS
175	174	5	9	7.9	121293	PASS
176	174	95	101	95.6	1471829	PASS
177	176	5	9	6.4	93795	PASS

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF021.D Vial: 12
Acq On : 15 Nov 2019 13:11 Operator: KVu
Sample : SVF0K1510 0.05PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 21 11:02:40 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	249906	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	0.000	77	0d	0.00	ppm	
Spiked Amount 20.000			Recovery =	0.00%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.295	88	1047	0.02	ppm	# 37

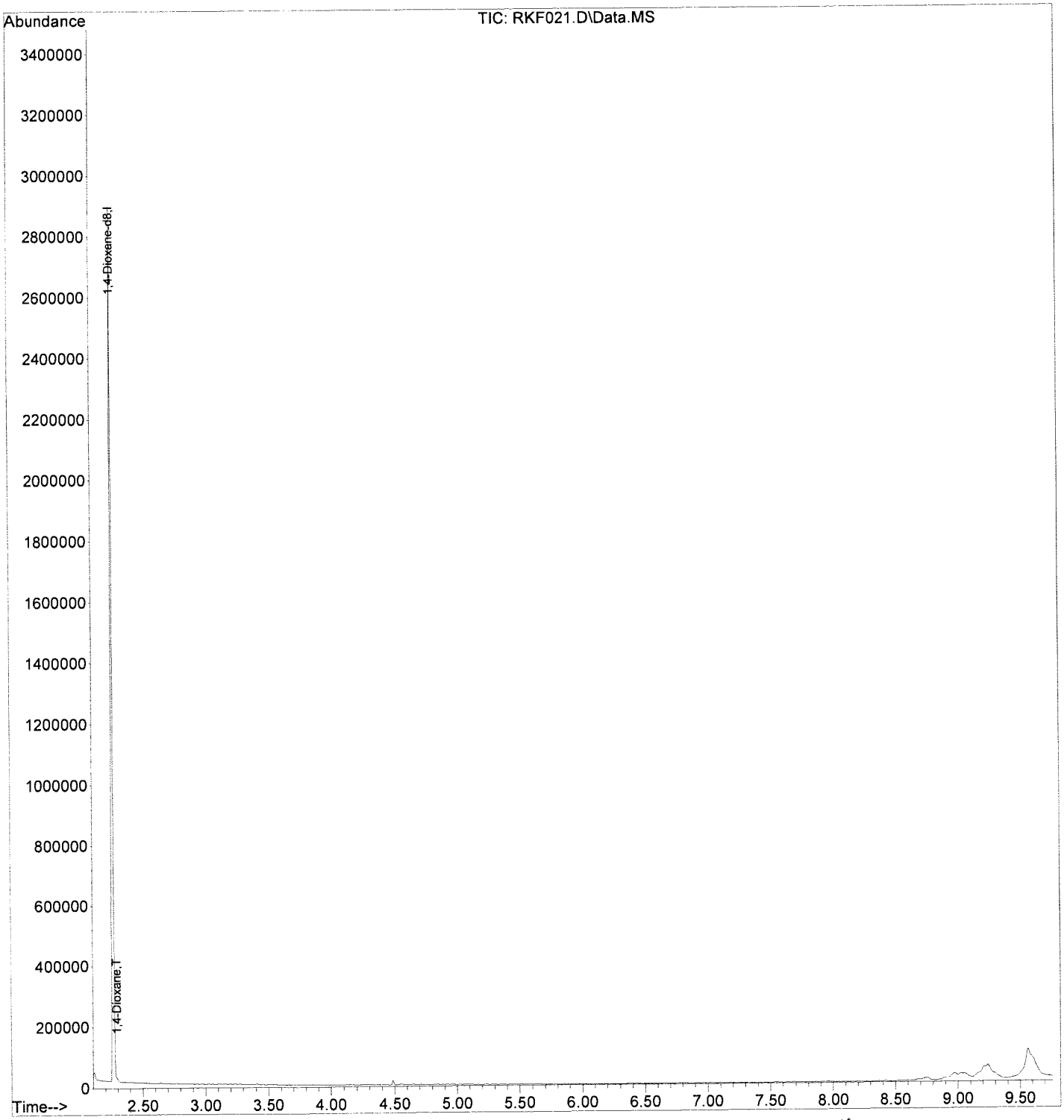
(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF021.D
Acq On : 15 Nov 2019 13:11
Sample : SVF0K1510 0.05PPM
Misc : F0
Integrator: RTE
Quant Time: Nov 21 11:02:40 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Vial: 12
Operator: KVu
Inst : DSQ
Multiplr: 1.00



Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF020.D Vial: 11
Acq On : 15 Nov 2019 12:55 Operator: KVu
Sample : SVF0K159 0.075PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 21 11:02:31 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

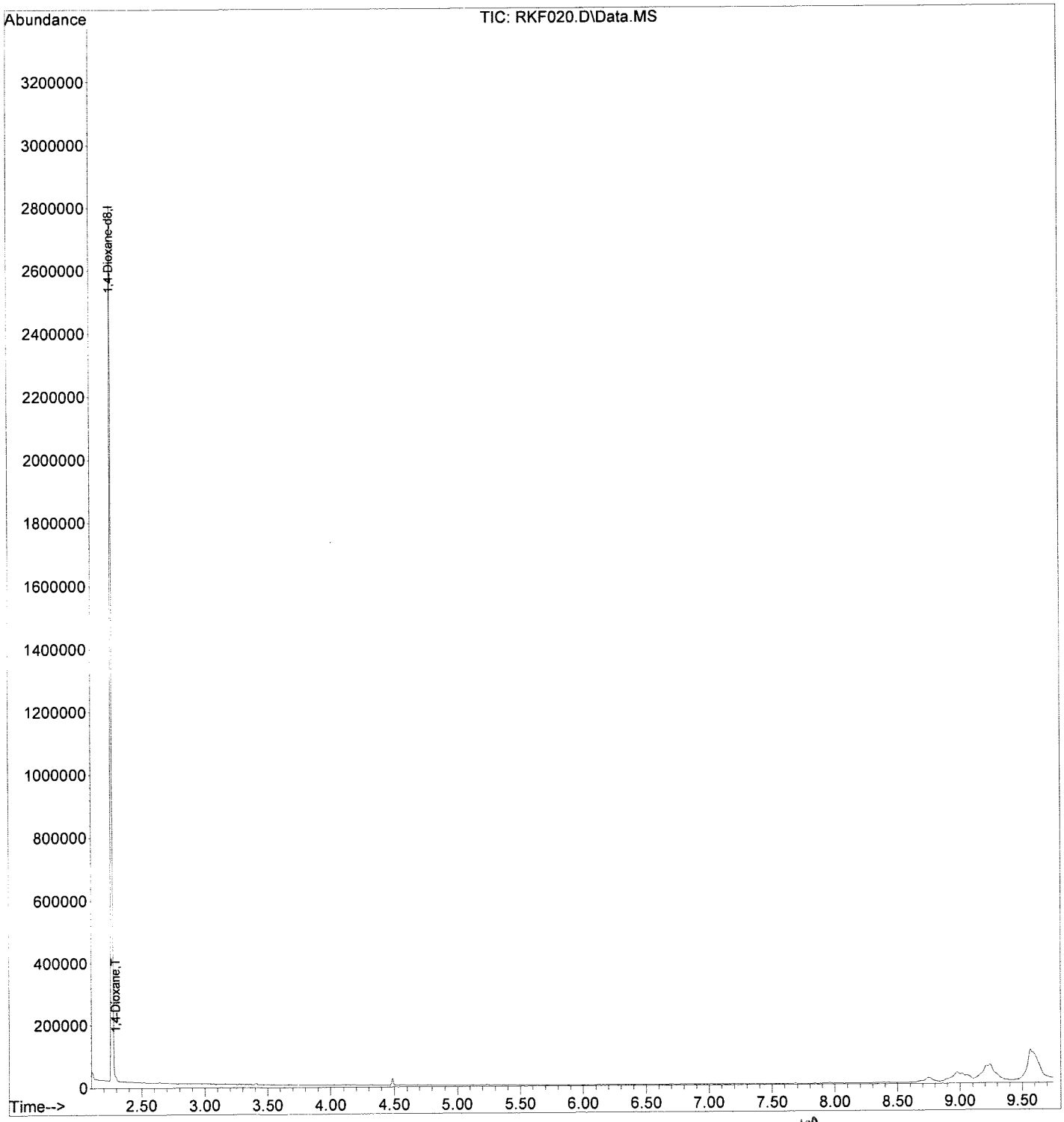
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	240731	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	0.000	77	0d	0.00	ppm	
Spiked Amount 20.000			Recovery =	0.00%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.295	88	1305	0.05	ppm	# 55

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF020.D Vial: 11
Acq On : 15 Nov 2019 12:55 Operator: KVu
Sample : SVF0K159 0.075PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 21 11:02:31 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF019.D Vial: 10
Acq On : 15 Nov 2019 12:39 Operator: KVu
Sample : SVF0K158 0.15PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:55:55 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	238530	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	6531	0.17	ppm	0.00
Spiked Amount 20.000			Recovery =	0.85%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.295	88	2671	0.18	ppm	# 71

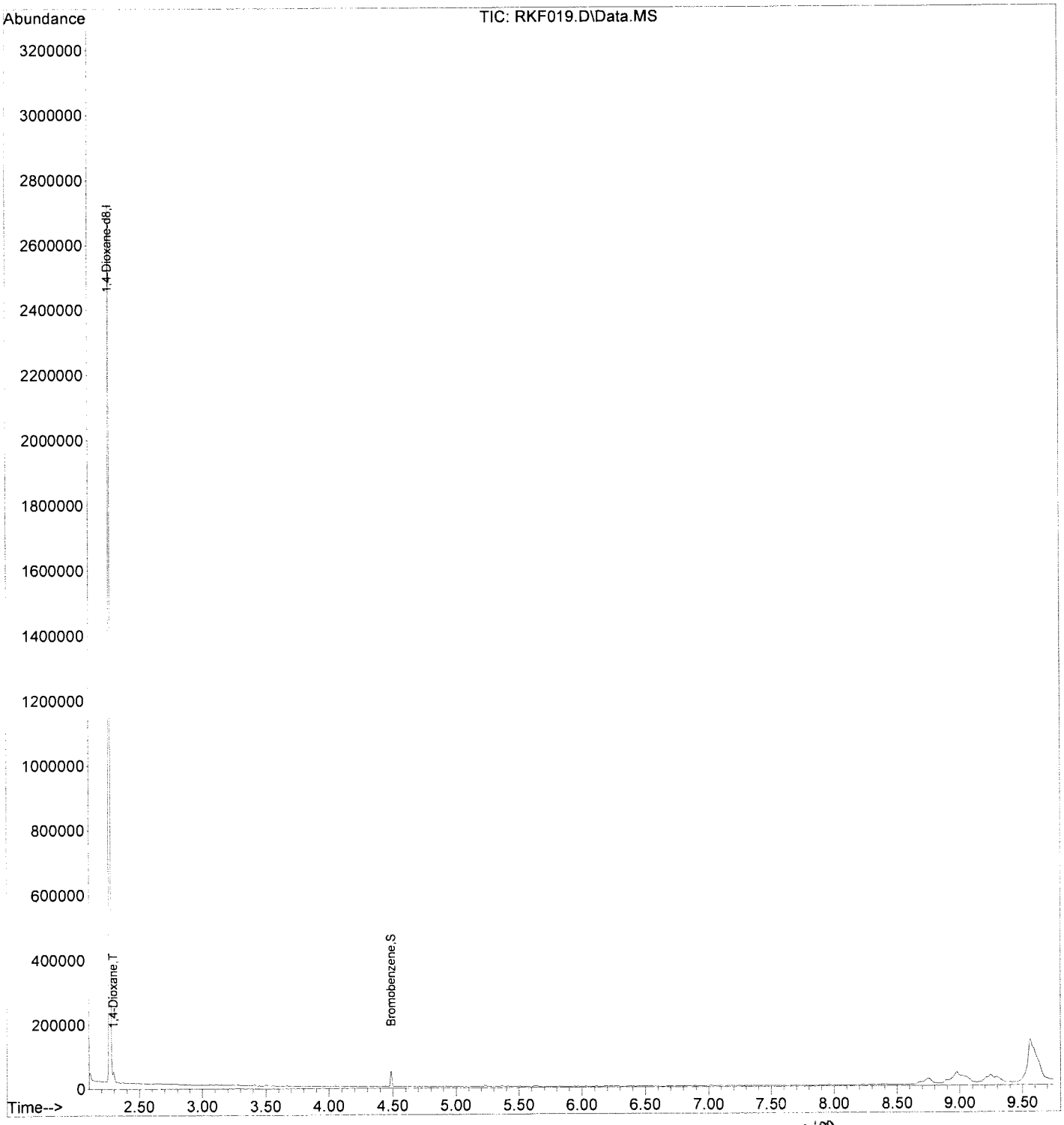
(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF019.D
Acq On : 15 Nov 2019 12:39
Sample : SVF0K158 0.15PPM
Misc : F0
Integrator: RTE
Quant Time: Nov 18 08:55:55 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Vial: 10
Operator: KVu
Inst : DSQ
Multiplr: 1.00



Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF018.D Vial: 9
Acq On : 15 Nov 2019 12:23 Operator: KVu
Sample : SVF0K157 0.2PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:55:36 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	228530	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	7680	0.21	ppm	0.00
Spiked Amount 20.000			Recovery =	1.05%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.295	88	2954	0.21	ppm	78

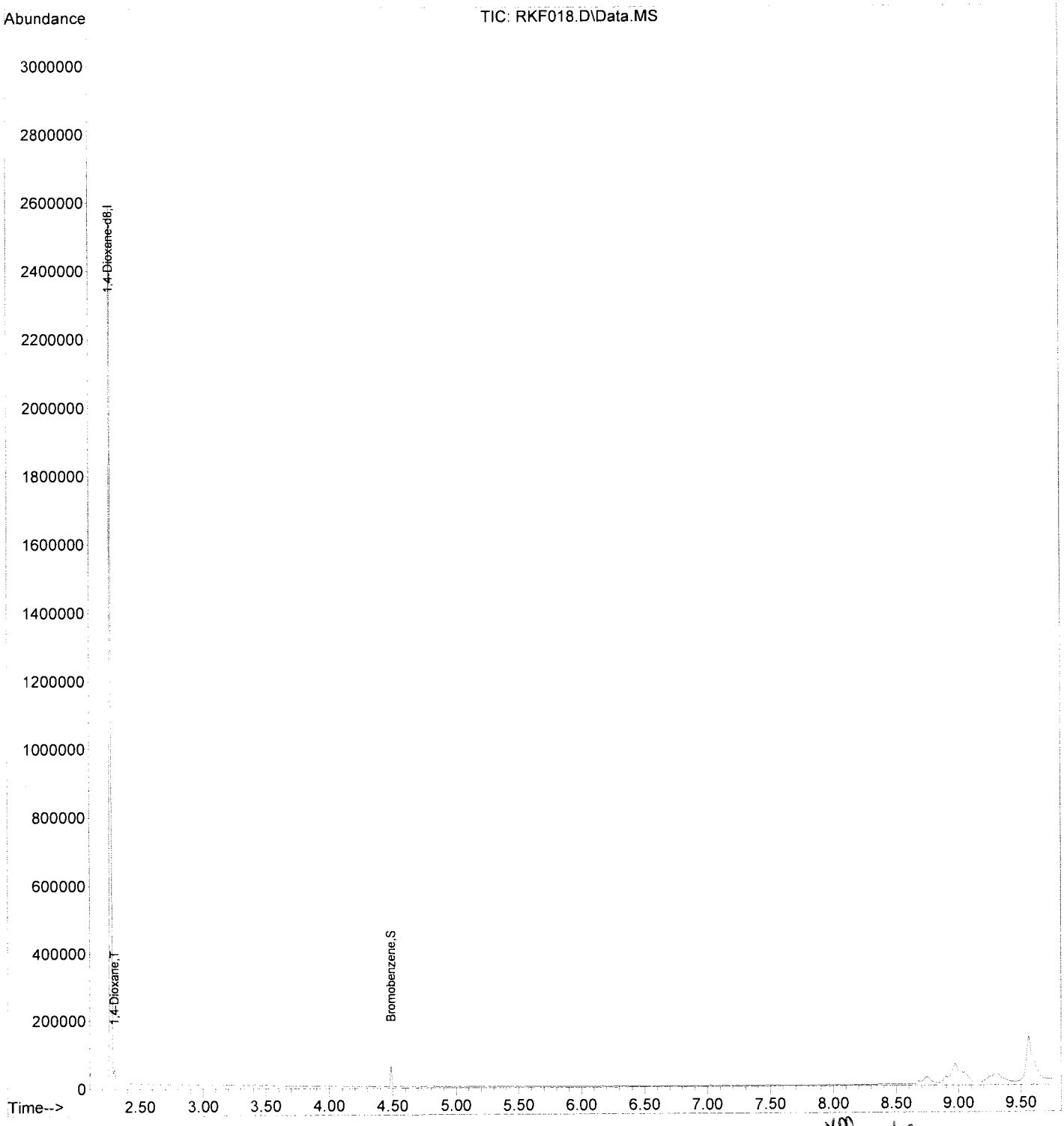
(#) = qualifier out of range (m) = manual integration (+) = signals summed

ym 12/2/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF018.D
Acq On : 15 Nov 2019 12:23
Sample : SVF0K157 0.2PPM
Misc : F0
Integrator: RTE
Quant Time: Nov 18 08:55:36 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Vial: 9
Operator: KVu
Inst : DSQ
Multip1r: 1.00



Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF017.D Vial: 8
Acq On : 15 Nov 2019 12:07 Operator: KVu
Sample : SVF0K156 0.5PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:54:25 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

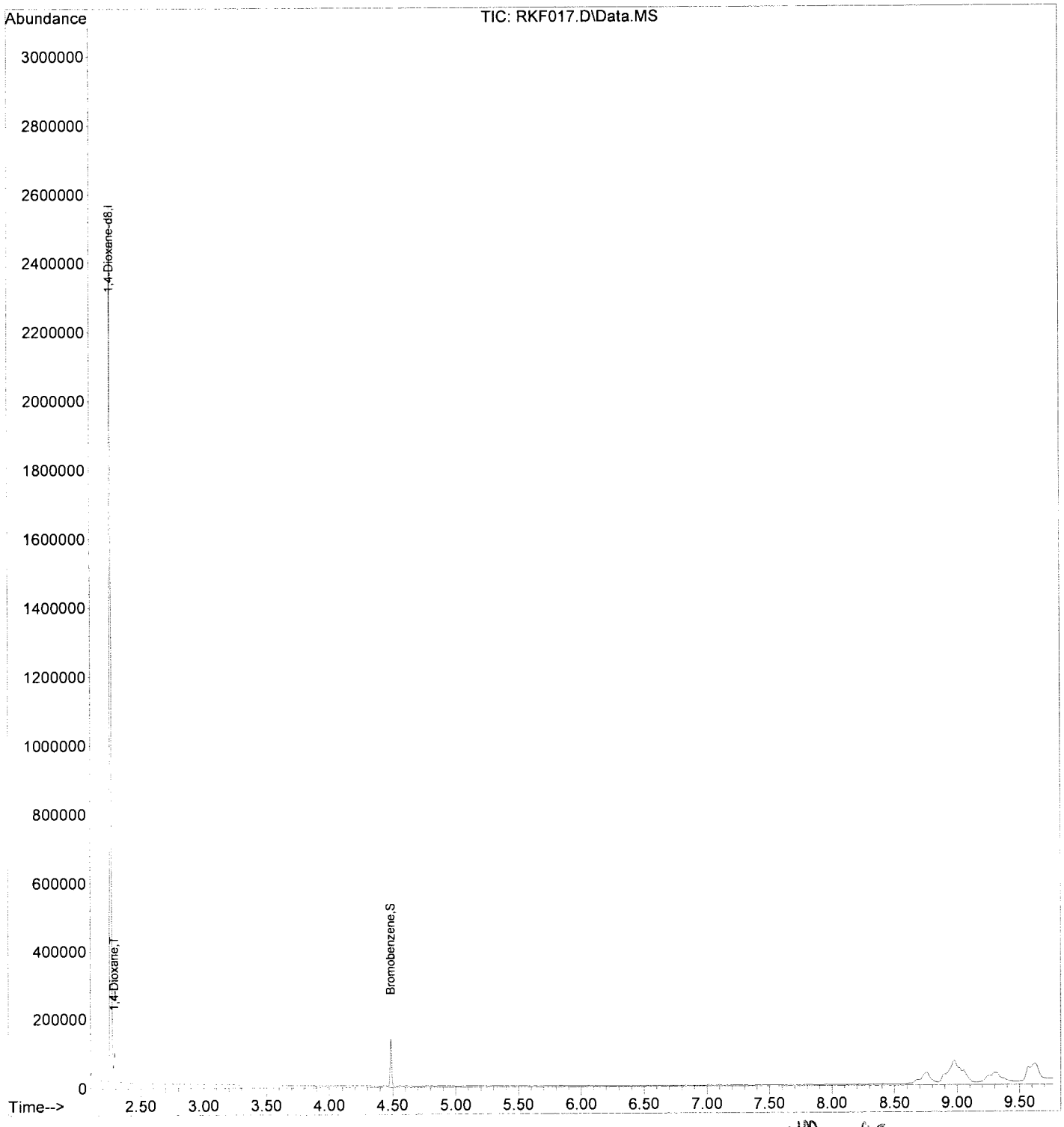
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	219847	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	17830	0.51	ppm	0.00
Spiked Amount 20.000			Recovery =	2.55%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	7051	0.65	ppm	80

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/24/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF017.D Vial: 8
Acq On : 15 Nov 2019 12:07 Operator: KVu
Sample : SVF0K156 0.5PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:54:25 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



YM 12/20/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF016.D Vial: 7
Acq On : 15 Nov 2019 11:51 Operator: KVu
Sample : SVF0K155 1PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:53:53 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

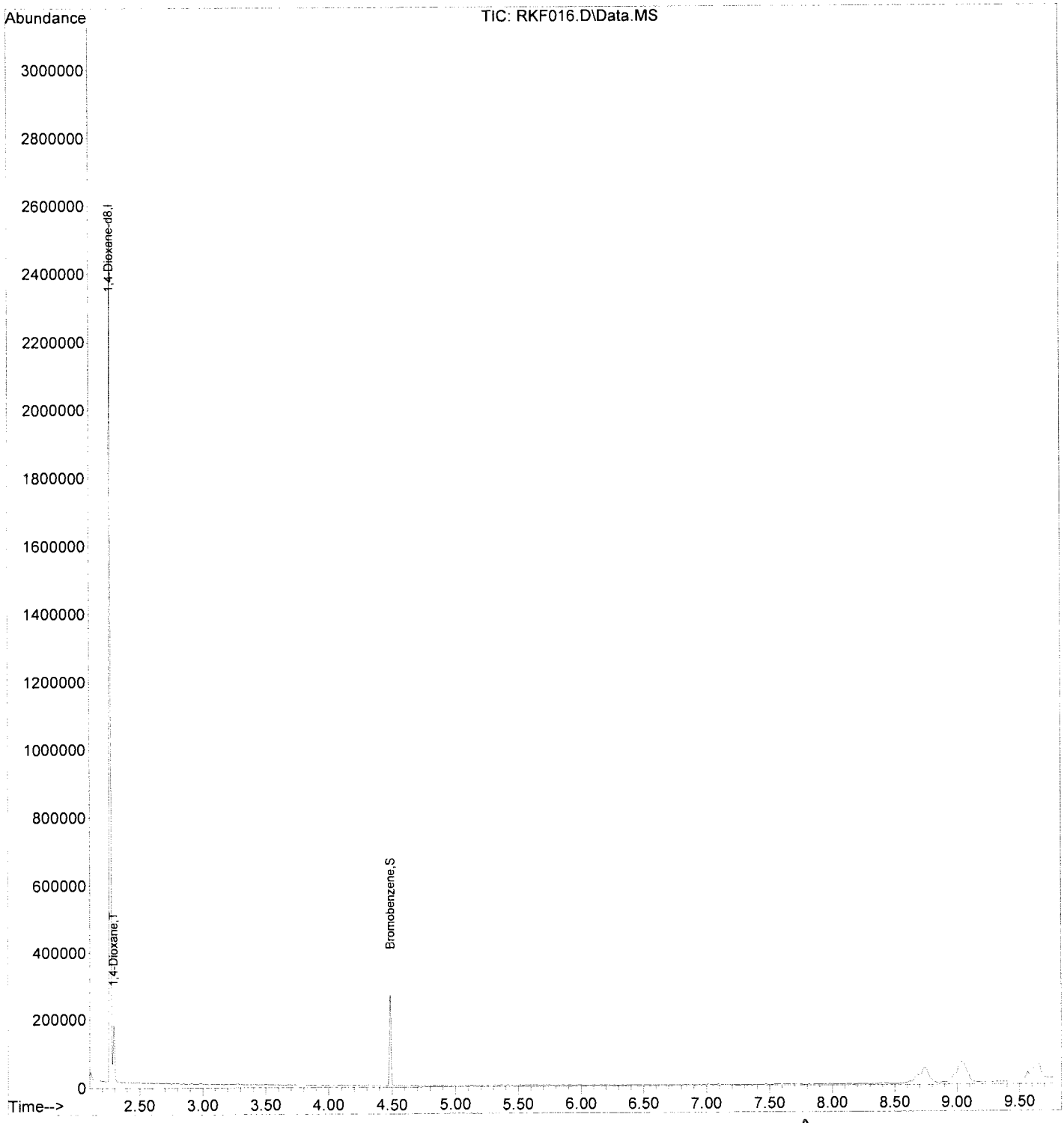
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	220732	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	36063	1.02	ppm	0.00
Spiked Amount 20.000			Recovery =	5.10%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	12235	1.18	ppm	92

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF016.D Vial: 7
Acq On : 15 Nov 2019 11:51 Operator: KVu
Sample : SVF0K155 1PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:53:53 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



YM 12/19/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF015.D Vial: 6
Acq On : 15 Nov 2019 11:37 Operator: KVu
Sample : SVF0K154 5PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:52:42 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

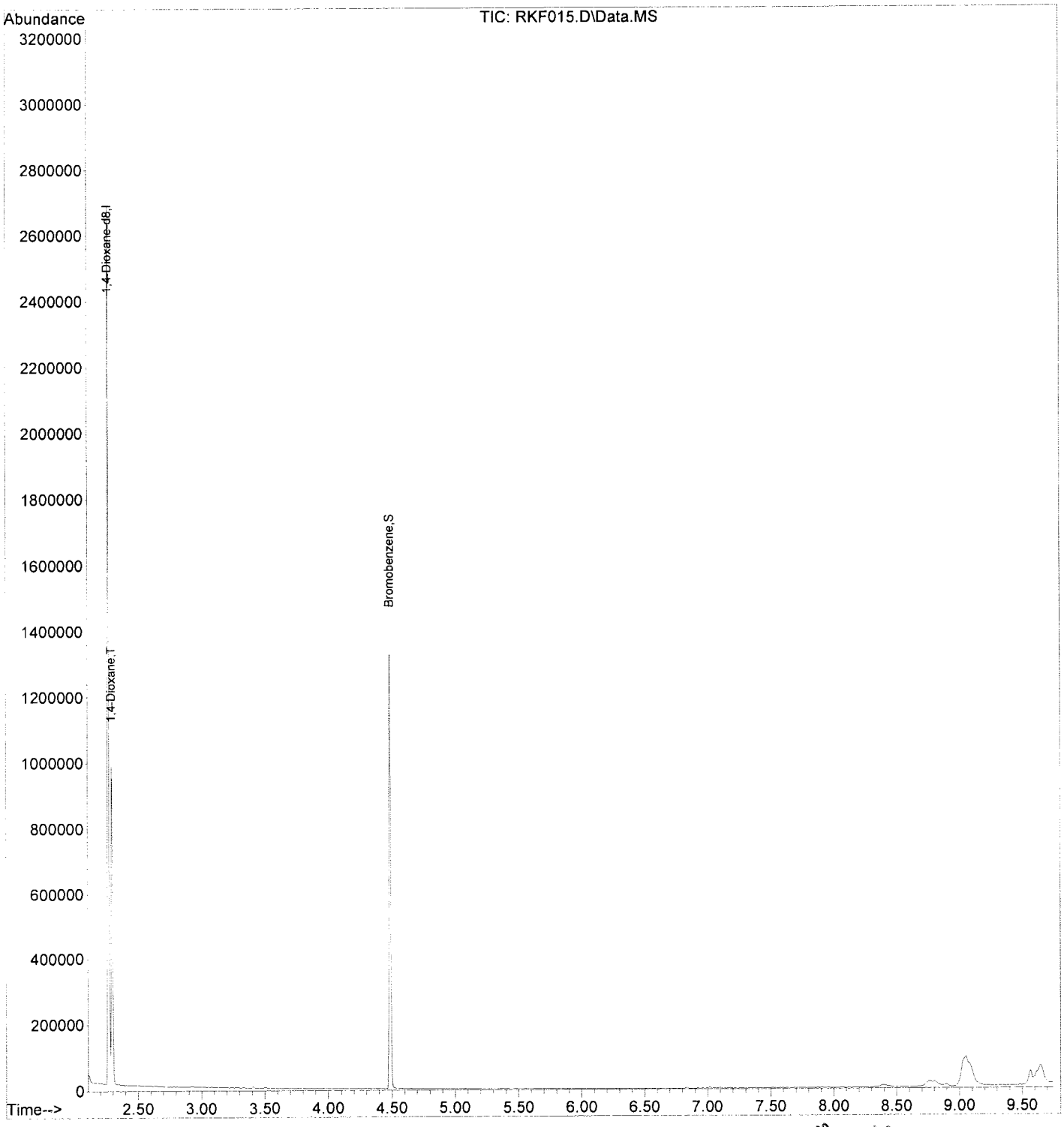
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	224906	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	183639	5.12	ppm	0.00
Spiked Amount 20.000			Recovery =	25.60%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	62943	6.26	ppm	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 2/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF015.D Vial: 6
Acq On : 15 Nov 2019 11:37 Operator: KVu
Sample : SVF0K154 5PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:52:42 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF014.D
Acq On : 15 Nov 2019 11:19
Sample : SVF0K153 20PPM
Misc : F0
Integrator: RTE
Quant Time: Nov 18 08:52:22 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Vial: 5
Operator: KVu
Inst : DSQ
Multiplr: 1.00

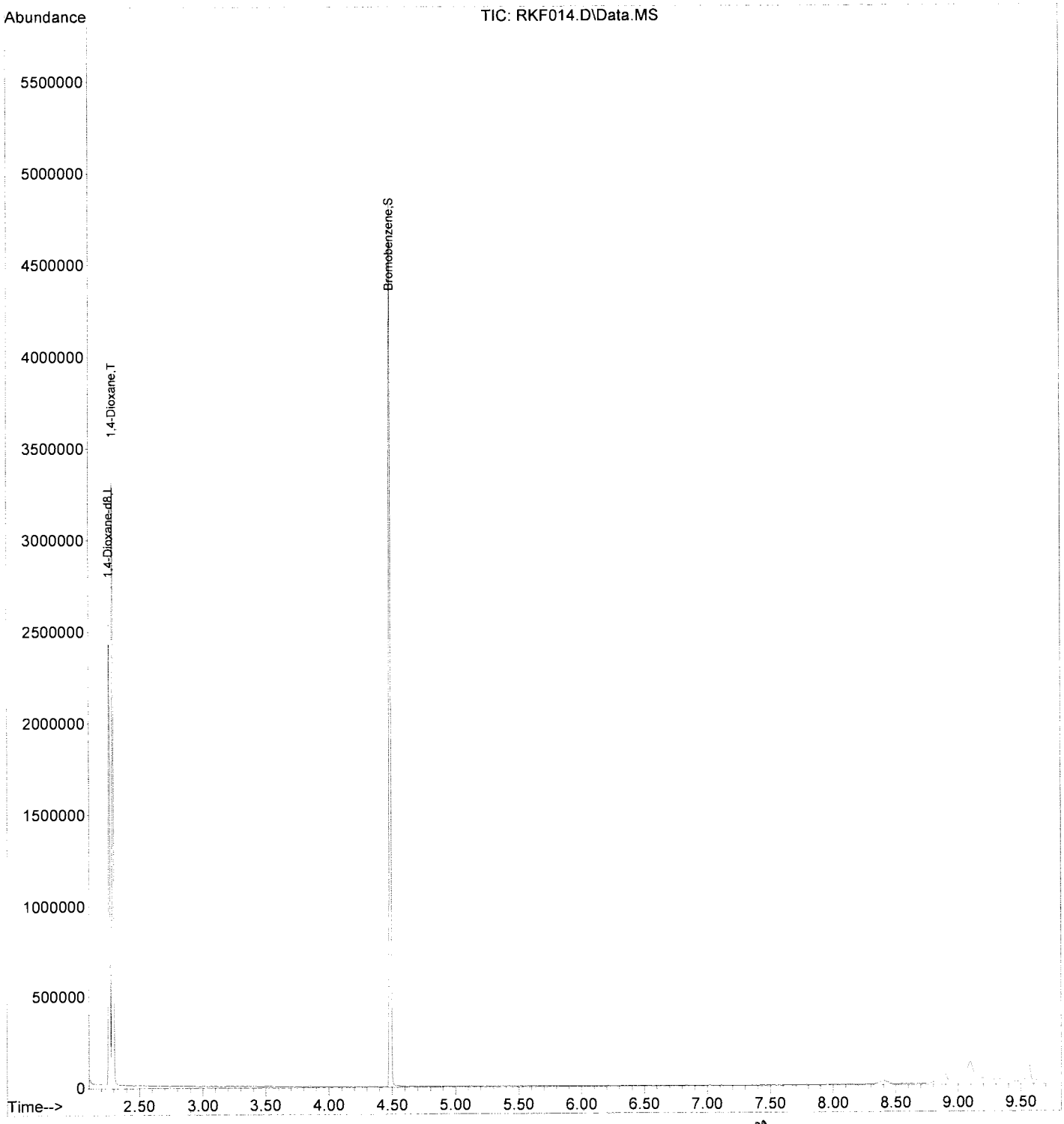
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	213044	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	635497	18.71	ppm	0.00
Spiked Amount 20.000			Recovery =	93.55%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	212034	22.45	ppm	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/23/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF014.D Vial: 5
Acq On : 15 Nov 2019 11:19 Operator: KVu
Sample : SVF0K153 20PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:52:22 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF013.D Vial: 4
Acq On : 15 Nov 2019 11:03 Operator: KVu
Sample : SVF0K152 60PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:51:30 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

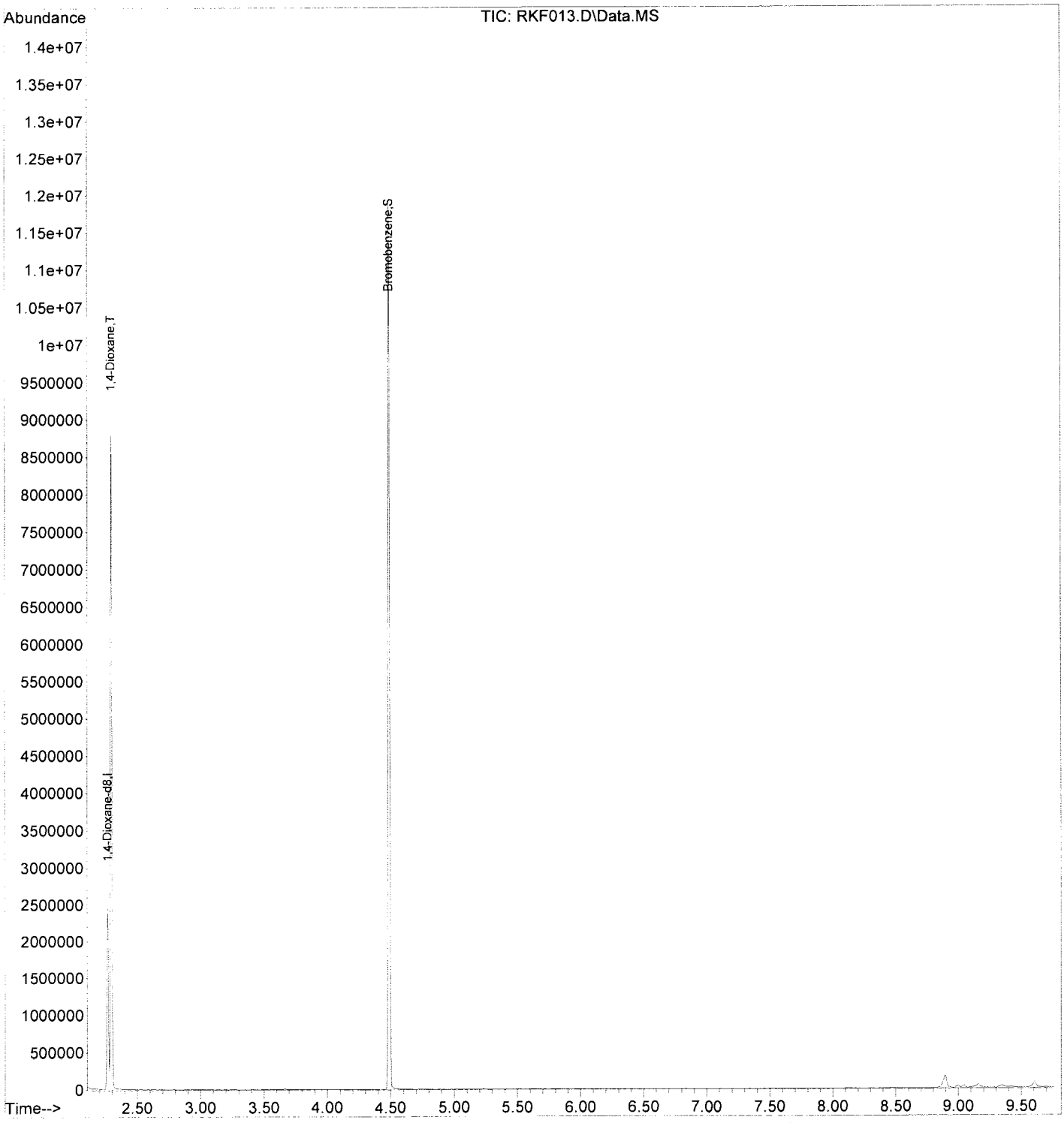
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	206910	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	1584987	48.04	ppm	0.00
Spiked Amount 20.000			Recovery =	240.20%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	547884	59.85	ppm	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF013.D Vial: 4
Acq On : 15 Nov 2019 11:03 Operator: KVu
Sample : SVF0K152 60PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:51:30 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



SVF0K15.M Mon Nov 18 08:51:44 2019 F0 YM 12/22/19 Page: 2

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF012.D Vial: 3
Acq On : 15 Nov 2019 10:50 Operator: KVu
Sample : SVF0K1541 100PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 21 10:58:40 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

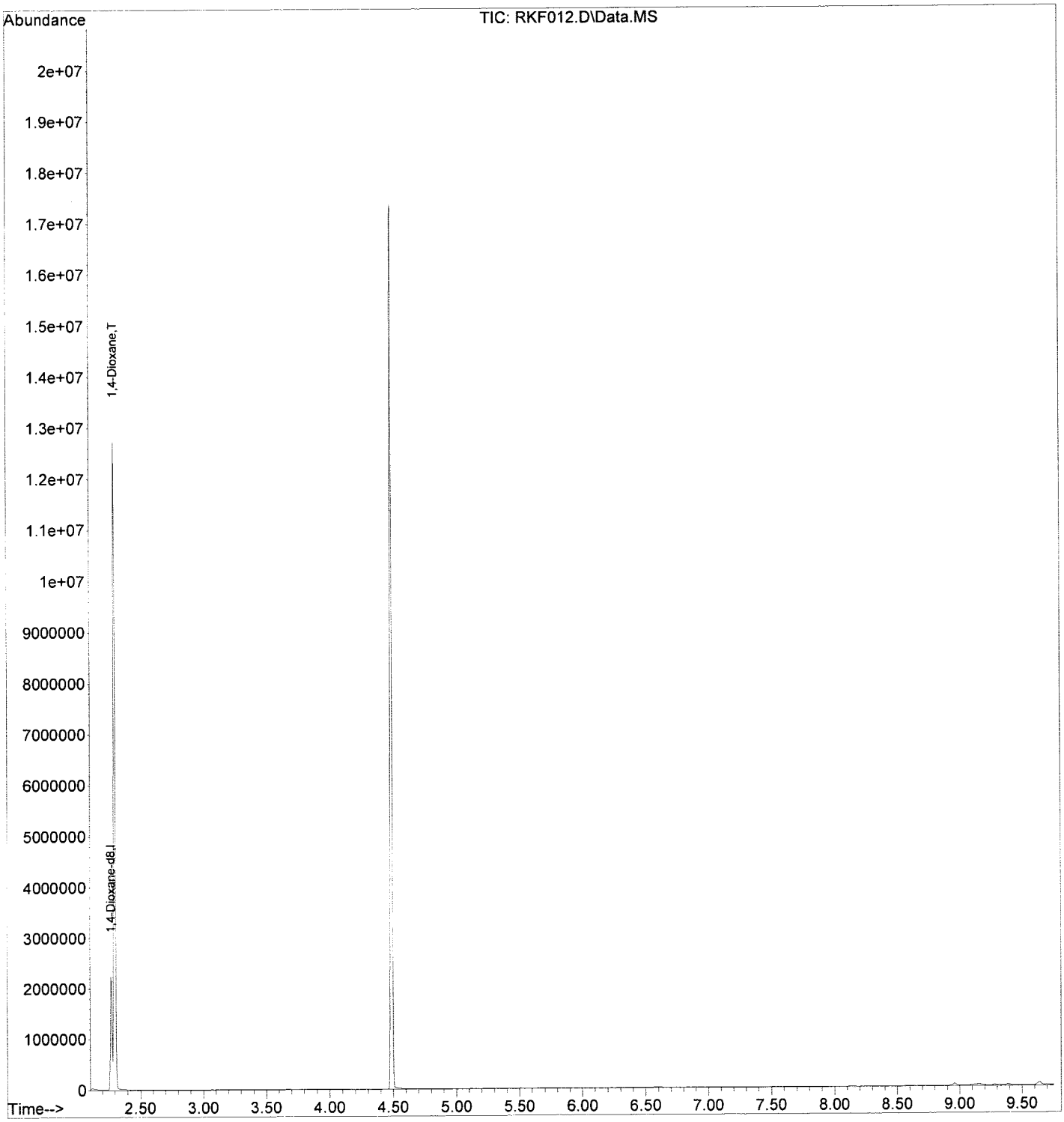
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.272	96	203218	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	0.000	77	0d	0.00	ppm	
Spiked Amount 20.000			Recovery =	0.00%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.299	88	864050	96.15	ppm	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF012.D Vial: 3
Acq On : 15 Nov 2019 10:50 Operator: KVu
Sample : SVF0K1541 100PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 21 10:58:40 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



SECOND SOURCE VERIFICATION

CONTINUE_CALIBRATION - CALIBRATION VERIFICATION

Instrument ID :DSQ
IC_Beginning DateTime :11/15/19 10:50
Spike Amount :20 PPM
CC/CV File :RKF022
IC File :RKF014

Column Spec :ZB-SemiVoa ID :0.25MM
IC_Ending DateTime :11/15/19 13:11
HPChem Method :SVF0K15
Date_Time :11/15/19 13:27

M IDX	Parameters	CC_Con	CC%_D	CC_Resp	CCRRF	AvRRF	CC_Rtm	AvRtm	%_RSD	Co_X0	Co_X1	Co_X2	Co_Cor
1	1,4-Dioxane-d8	20.000	0	263400	1	1	2.276	2.265	0				
2	1,4-Dioxane	21.369	6.8	249613	0.948	1.215	2.303	2.294	22.39	0.0034	0.8837		0.9976
3	Bromobenzene	18.159	-9.2	762761	2.896	3.189	4.486	4.487	10.74				

YM 12/22/19

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\19K15\RKF022.D Vial: 13
Acq On : 15 Nov 2019 13:27 Operator: KVu
Sample : ISVF0K151 ICV Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:57:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dioxane-d8	20.000	20.000	0.0	124	0.01
2	T	1,4-Dioxane	20.000	21.369	-6.8	118	0.01
3	S	Bromobenzene	20.000	18.159	9.2	120	0.00

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

YM 12/22/19

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\19K15\RKF022.D Vial: 13
Acq On : 15 Nov 2019 13:27 Operator: KVu
Sample : ISVF0K151 ICV Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:57:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dioxane-d8	1.000	1.000	0.0	124	0.01
2	T	1,4-Dioxane	1.215	0.948	22.0#	118	0.01
3	S	Bromobenzene	3.189	2.896	9.2	120	0.00

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

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF022.D Vial: 13
Acq On : 15 Nov 2019 13:27 Operator: KVu
Sample : ISVF0K151 ICV Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:57:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

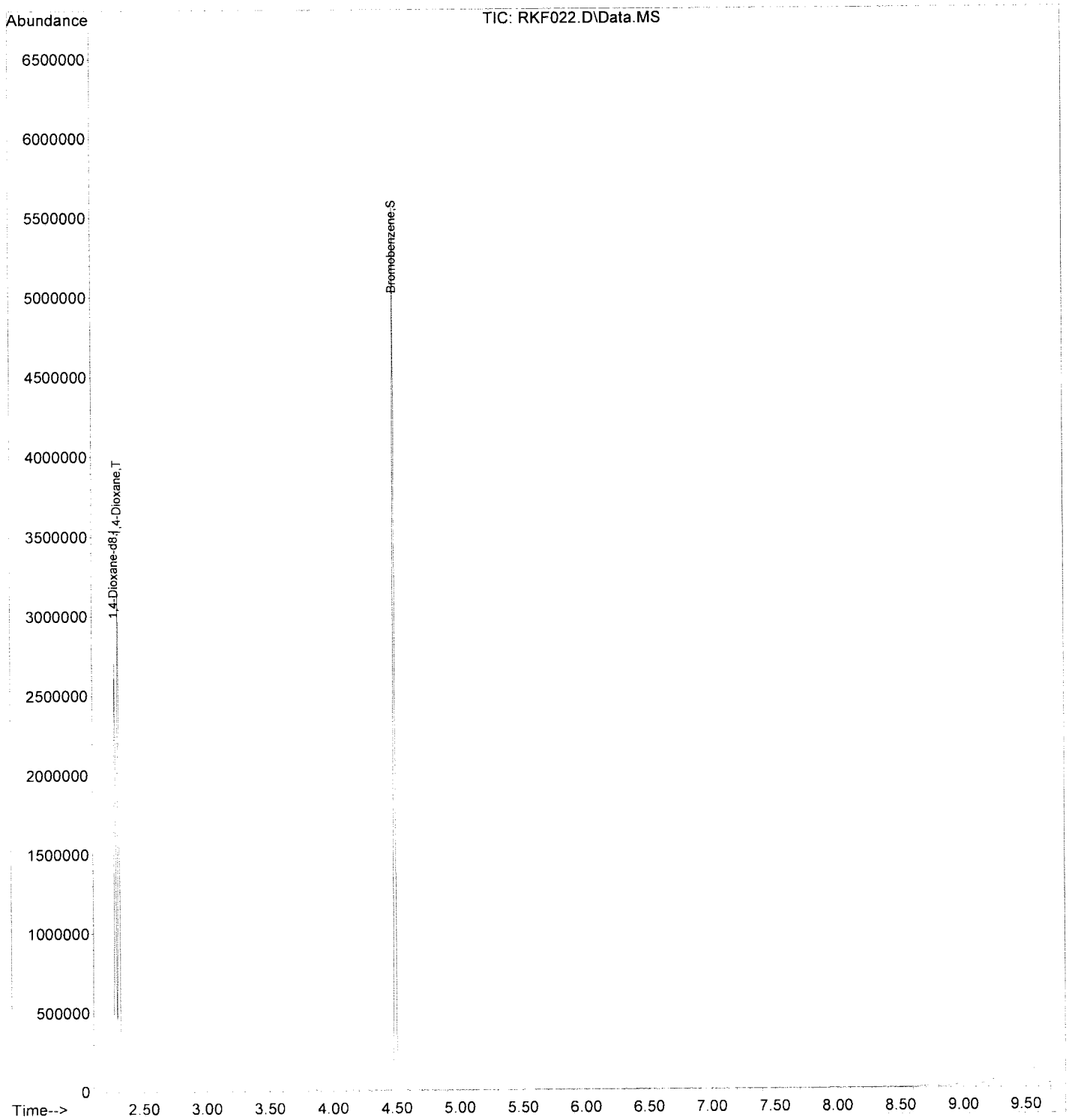
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.276	96	263400	20.00	ppm	0.01
System Monitoring Compounds						
3) Bromobenzene	4.486	77	762761	18.16	ppm	0.00
Spiked Amount 20.000			Recovery =	90.80%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.303	88	249613	21.37	ppm	88

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/24/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF022.D Vial: 13
Acq On : 15 Nov 2019 13:27 Operator: KVu
Sample : ISVF0K151 ICV Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:57:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



SVF0K15.M Mon Nov 18 08:57:39 2019 F0 12/12/19 Page: 2

DAILY CALIBRATIONS

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: EMAX Laboratories, Inc. Project: VA SALT LAKE CITY

Lab Code: EMAX SDG No: 19L043

Lab File ID: RLF036 DFTPP Injection Date: 12/11/19

Instrument ID: F0 DFTPP Injection Time: 09:37

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15 - 40% of mass 95	26.722
75	30 - 60% of mass 95	44.185
95	Base Peak, 100% relative abundance	100.000
96	5 - 9% of mass 95	6.504
173	Less than 2% of mass 174	0.299(.37)1
174	50 - 100% of mass 95	81.457
175	5 - 9% of mass 174	6.231(7.65)1
176	95 - 101% % of mass 174	77.790(95.5)1
177	5 - 9% % of mass 176	4.799(6.17)2

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

This check applies to the following samples, Lab QCs and Standards:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	SSTD020	CSVF0K1506	RLF037	12/11/19	10:19
2	MBLK1W	SVL003WB	RLF038	12/11/19	10:32
3	LCS1W	SVL003WL	RLF039	12/11/19	10:45
4	LCD1W	SVL003WC	RLF040	12/11/19	11:01
5	OU2-MW02-GW120519MS	19L043-07M	RLF041	12/11/19	11:16
6	OU2-MW02-GW120519MSD	19L043-07S	RLF042	12/11/19	11:31
7	OU2-MW20S-GW120419	19L043-01	RLF043	12/11/19	11:46
8	OU2-MW20D-GW120519	19L043-02	RLF044	12/11/19	12:02
9	OU2-MW18-GW120519	19L043-04	RLF045	12/11/19	12:17
10	OU2-MW19-GW120519	19L043-05	RLF046	12/11/19	12:33
11	OU2-MW02-GW120519	19L043-07	RLF047	12/11/19	12:48

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: EMAX Laboratories, Inc. Project: VA SALT LAKE CITY

Lab Code: EMAX SDG No: 19L043

Lab File ID: RKF014 Date Analyzed: 11/15/19

Instrument ID: F0 Time Analyzed: 11:19

	INTERNAL STANDARD (IS)	1,4-Dioxane-d8 Area #	1,4-Dioxane-d8 RT #
	12 HOUR STD	213044	2.26
	UPPER LIMIT	426088	2.76
	LOWER LIMIT	106522	1.76
		Area #	RT #
1	SSTD020	256989	2.26
2	MBLK1W	307251	2.27
3	LCS1W	278732	2.26
4	LCD1W	282494	2.26
5	OU2-MW02-GW120519MS	275657	2.26
6	OU2-MW02-GW120519MSD	271472	2.26
7	OU2-MW20S-GW120419	283429	2.26
8	OU2-MW20D-GW120519	293423	2.26
9	OU2-MW18-GW120519	280369	2.26
10	OU2-MW19-GW120519	288805	2.26
11	OU2-MW02-GW120519	300370	2.26

Area Upper Limit = +100% of ICAL Midpoint IS Area

Area Lower Limit = -50% of ICAL Midpoint IS Area

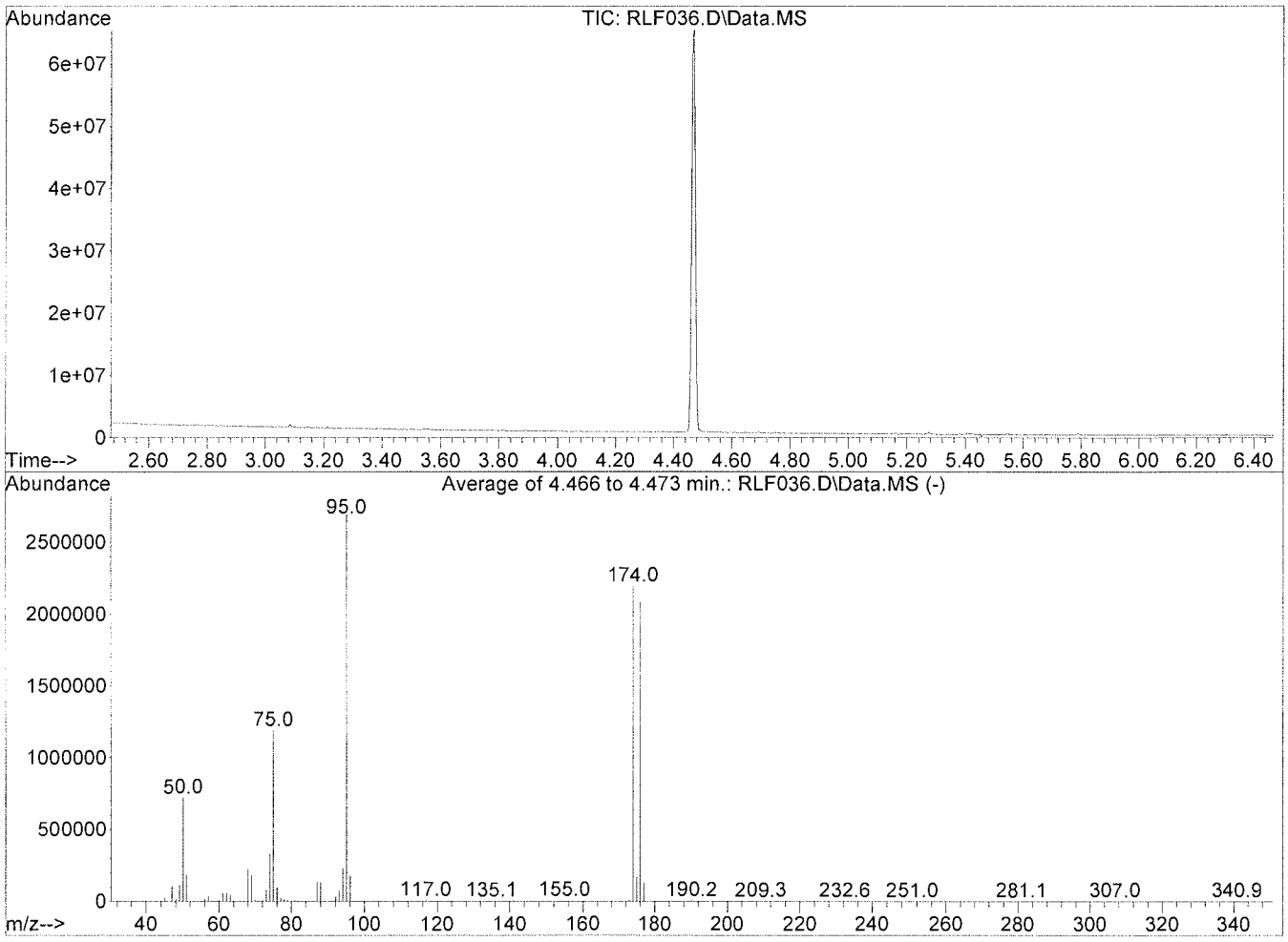
Retention Time(RT) Upper Limit = +30 seconds of ICAL Midpoint IS RT

Retention Time(RT) Lower Limit = -30 seconds of ICAL Midpoint IS RT

Data Path : C:\msdchem\1\DATA\19L11\
Data File : RLF036.D
Acq On : 11 Dec 2019 09:37
Operator : KVu
Sample : BFBF0K1506
Misc : F0
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\BFB.M
Title : BFB
Last Update : Fri Nov 15 14:33:51 2019



AutoFind: Scans 685, 686, 687; Background Corrected with Scan 674

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	26.7	719204	PASS
75	95	30	60	44.2	1189227	PASS
95	95	100	100	100.0	2691464	PASS
96	95	5	9	6.5	175041	PASS
173	174	0.00	2	0.4	8053	PASS
174	95	50	100	81.5	2192384	PASS
175	174	5	9	7.6	167704	PASS
176	174	95	101	95.5	2093677	PASS
177	176	5	9	6.2	129153	PASS

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\19L11\RLF037.D Vial: 3
Acq On : 11 Dec 2019 10:19 Operator: KVu
Sample : CSVF0K1506 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 10:32:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dioxane-d8	20.000	20.000	0.0	121	0.00
2	T	1,4-Dioxane	20.000	23.959	-19.8	129	0.00
3	S	Bromobenzene	20.000	19.189	4.1	124	0.00

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

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\19L11\RLF037.D Vial: 3
Acq On : 11 Dec 2019 10:19 Operator: KVu
Sample : CSVF0K1506 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 10:32:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dioxane-d8	1.000	1.000	0.0	121	0.00
2	T	1,4-Dioxane	1.215	1.062	12.6	129	0.00
3	S	Bromobenzene	3.189	3.060	4.0	124	0.00

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

Quantitation Report (QT Reviewed)

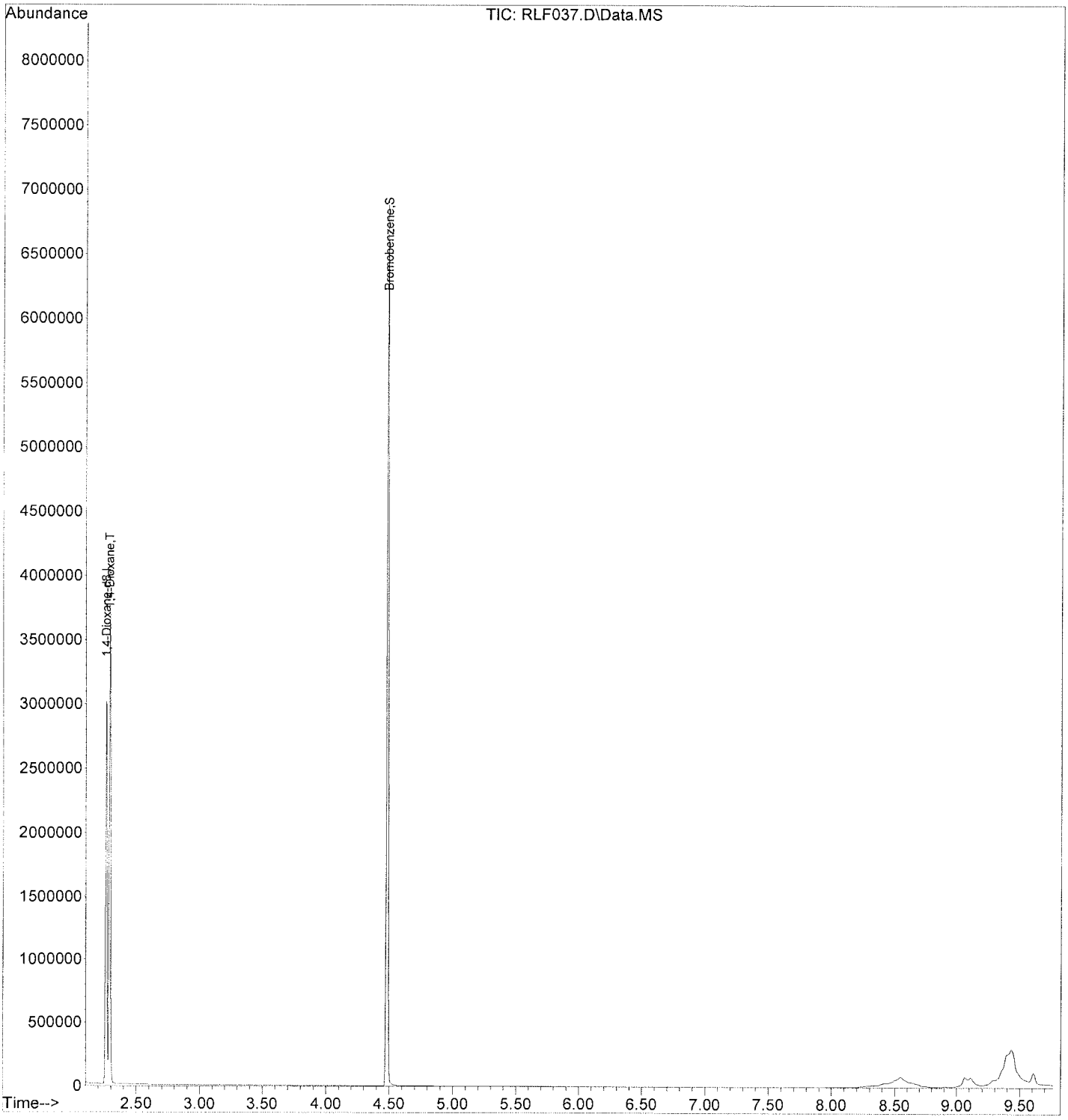
Data File : C:\msdchem\1\DATA\19L11\RLF037.D Vial: 3
Acq On : 11 Dec 2019 10:19 Operator: KVu
Sample : CSVF0K1506 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 10:32:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.260	96	256989	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.483	77	786386	19.19	ppm	0.00
Spiked Amount 20.000			Recovery =	95.95%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.288	88	272951	23.96	ppm	78

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF037.D Vial: 3
Acq On : 11 Dec 2019 10:19 Operator: KVu
Sample : CSVF0K1506 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 10:32:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



ANALYTICAL LOGS

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR SEMIVOLATILES

SOP ☐ EMAX-8270 Rev. No. 6 ☐ EMAX-8270D Rev. No. 1 ☐ EMAX-8270SIM Rev. No. 2 ☑ EMAX-M8270SIM Rev. No. 2 ☐ EMAX-625 Rev. No. 1 ☐ Book #: AF0-005

Method File: SVF0K15 Tune File: BFB Start Date/Time: 11/15/19 10:37 End Date/Time: 11/15/19 13:27

ANALYTICAL BATCH: SVF0K153

Preparative Batch	Data File Name	Run ID	DF	Matrix S	Matrix W	Notes
NA	RKF010	IBFFK1501	1			
	011	BFBF0K1501				
	012	SVF0K151				100 ppm
	013	2				60
	014	3				20
	015	4				5
	016	5				1
	017	6				0.5
	018	7				0.2
	019	8				0.15
	020	9				0.075
	021	10				0.05
	022	I SVF0K151				ICV
	023	SS2B-16-41-02				spike test
	024	SS2B-16-41-01				Surr

MV 11/15/19

Instrument No:	F0
INITIAL CALIBRATION REFERENCE	
Date	11/15/19
ICAL ID	SVF0K15
Standards	

Name	ID	Conc. (mg/L)
DFTPP		
INT. STD.	SS2A-13-10-05	1000
ICV	SS2C-18-17-03	20
DCC/ICAL	SS2C-18-17-02	.05-100
BENZIDINE		
APP 9		
APP 9 ADD		
BFB	SS2C-18-13-02	50

Solvent	ID
CH_2Cl_2	59137
DATA FILE	19K15

Electronic Data Archival	
Location	Date
HPCHEM_SVOA/TOF0	

Micropipette ID: ☐ PO97A-02 ☐ PO97A-03 ☐ PO00-01 Syringe ID: ☐ 503302- ☐

Comments:

Analyzed By: MV

Date Disposed: NA

Disposed By: NA

This page is checked during data review.

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR SEMIVOLATILES

SOP ☐ EMAX-8270 Rev. No. 6 ☐ EMAX-8270D Rev. No. 1 ☐ EMAX-8270SIM Rev. No. 2 ☑ EMAX-M8270SIM Rev. No. 2 ☐ EMAX-625 Rev. No. 1 ☐

Method File: SVF0K15 Tune File: BFB Start Date/Time: 12/11/19 9:37 End Date/Time: 12/11/19 21:23 Book #: AF0-006

ANALYTICAL BATCH: CSVF0K1506

Preparative Batch	Data File Name	Run ID	DF	Matrix S	Matrix W	Notes
	RLF035	IBF0K1506				
	036	BFBF0K1506				
	037	CSVF0K1506				
SVL003W	038	SVL003WB	1		X	
↓	039	↓ WL	↓	↓	↓	
	040	↓ WC				
	041	19L043-07M				
	042	07S				
	043	01				
	044	02				
	045	04				
	046	05				
	047	↓ 07				
	048	19L057-01				
	049	02				
	050	03				
	051	04				
	052	05				
	053	07				
	054	08				
	055	09				
↓	056	↓ 10	↓		↓	
SVL004W	057	SVL004WB	1		X	
	058	WL				
	059	↓ WC				
	060	19L064-07M				
	061	07S				
	062	01				
	063	02				
	064	03				
	065	04				
↓	066	↓ 06	↓	↓	↓	

	Instrument No:	F0
INITIAL CALIBRATION REFERENCE		
Date	11/15/19	
ICAL ID	SVF0K15	
Standards		
Name	ID	Conc. (mg/L)
DFTPP		
INT. STD.	SS2A-13-10-05	1000
CCV - 8270		
CCV - 1,4-Dioxane	SS2C-18-17-02	20
BFB	SS2C-18-03-02	50
Solvent	ID	
CH_2Cl_2	59137	
DATA FILE	19L11	
Electronic Data Archival		
Location		Date
HPCHEM_SVOA/TOF0		

Micropipette ID: ☑ PO97A-02 ☐ PO97A-03 ☐ PO00-01 Syringe ID: ☑ 503302-2 ☐

Comments:

Analyzed By: MV

Date Disposed: 12/12/19

Disposed By: MV

This page is checked during data review.

ANALYSIS LOG FOR SEMIVOLATILES

SOP ☐ EMAX-8270 Rev. No. 6 ☐ EMAX-8270D Rev. No. 1 ☐ EMAX-8270SIM Rev. No. 2 ☑ EMAX-M8270SIM Rev. No. 2 ☐ EMAX-625 Rev. No. 1 ☐ Book #: AF0-006

Method File: SVF0K15 Tune File: BFB Start Date/Time: 12/11/19 9:37 End Date/Time: 12/11/19 21:23

ANALYTICAL BATCH: ESVF0K1506

Preparative Batch	Data File Name	Run ID	DF	Matrix S	Matrix W	Notes
SVL004W	KLF067	19L064-07	1		X	
↓	068	08	↓		↓	
	069	09				
	070	10				
	071	11				
	072	12				
	073	13				
	074	14				
	075	15				
	076	17				
	077	18				
	078	20				
↓	↓ 079	21	↓		↓	
	080	ESVF0K1507				

KW 12/11/19

Instrument No:	F0
INITIAL CALIBRATION REFERENCE	
Date	11/15/19
ICAL ID	SVF0K15
Standards	
Name / ID / Conc. (mg/L)	
DFTPP	
INT. STD.	SS2A-13-10-05 1000
CCV - 8270	
CCV - 1,4-Dioxane	SS2C-18.17-02 20
BFB	
Solvent	ID
CH_2Cl_2	59137
DATA FILE	19L11
Electronic Data Archival	
Location	Date
HPCHEM_SVOA/TOF0	

Micropipette ID: ☑ PO97A-02 ☐ PO97A-03 ☐ PO00-01 Syringe ID: ☑ 503302-2 ☐

Comments:

Analyzed By: KW

Date Disposed: 12/12/19

Disposed By: KW

This page is checked during data review.

EXTRACTION LOGS

SOP	Rev. #
☑ EMAX-3520	5
☐ EMAX-3540	3
☐ EMAX-3546	0
☐ EMAX-3550	5
☐ EMAX-3580	3
☐ EMAX-625	1

Note: For samples and relevant QCs/Standards extracted, refer to attached extraction sequence.

☐ MS/MSD can not be extracted due to insufficient amount of samples

Comments:

Book #: ESV-109
Preparation Batch: SVL003W
Matrix: WATER
Micropipette ID: 1000 µL : PE00-02
Micropipette ID: 100 µL : PE97C-03
Micropipette ID:

Standards	ID	Amount Added (ml)
Surrogate	SS2B-16-41-01	0.1
LCS/MS/1,4-Dioxane	SS2B-16-40-03	1.0
LCS/MS		
LCS/MS		
LCS/MS		

Reagent	Lot# / ID
CH_2Cl_2	188890
Na_2SO_4	SWIB-006-15-23
H_2SO_4	
NaOH	SPIB-12-60-03
Silica Sand	
Silica Gel	
Reagent Water	SWIA-08-20-10
Residual Chlorine Strip	92218
pH Strip	HC863463
Filter Paper	16812807

Lab Sample ID	Sonicator #	Cell #	Concentrator #
SVL003-WB			1
-WL			1
-WC			1
L043-01			2
-02			2
-04			2
-05			2
-07			2
-07M			2
-07S			3
L057-01			3
-02			3
-03			3
-04			3
-05			3
-07			4
-08			4
-09			4
-10			4

TUNING (Note: A free flowing mixture of soil and solvent must be achieved.)

Sonicator #	Power Output Reading	Acceptance Criteria
		< 15 g sample: at least 10% power output. > 15 g sample: at least 20% power output.

Concentrator	Water Bath Temperature Setting (°C)	Thermometer Reading (°C)
1	35	35
2	35	35
3	35	35
4	35	35
5		
6		
8		

Thermometer ID = SVOC-T1

Prepared By: HW — Witnessed By: ER
Standard Added By: HW — Checked By: ML
Extract Received By: KV 12/10/19 — Location: SE01-10
Disposed By: — Disposed On:

EMAX LABORATORIES, INC.

EXTRACTION LOG FOR SEMIVOLATILES

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Ve(ml)	ExpAmt	ExpVe(ml)	PrepFctr	Comments
19SVL003W01	SVL003WB	1000	ml	12/9/19 14:47	2	1000	2	1	
19SVL003W02	SVL003WL	1000	ml	12/9/19 14:47	2	1000	2	1	1,4-Dioxane
19SVL003W03	SVL003WC	1000	ml	12/9/19 14:47	2	1000	2	1	1,4-Dioxane
19SVL003W04	L043-01	960	ml	12/9/19 14:47	2	1000	2	1.04	
19SVL003W05	L043-02	900	ml	12/9/19 14:47	2	1000	2	1.11	
19SVL003W06	L043-04	1010	ml	12/9/19 14:47	2	1000	2	0.99	
19SVL003W07	L043-05	830	ml	12/9/19 14:47	2	1000	2	1.2	
19SVL003W08	L043-07	870	ml	12/9/19 14:47	2	1000	2	1.15	
19SVL003W09	L043-07M	960	ml	12/9/19 14:47	2	1000	2	1.04	1,4-Dioxane
19SVL003W10	L043-07S	970	ml	12/9/19 14:47	2	1000	2	1.03	1,4-Dioxane
19SVL003W11	L057-01	920	ml	12/9/19 14:47	2	1000	2	1.09	
19SVL003W12	L057-02	920	ml	12/9/19 14:48	2	1000	2	1.09	
19SVL003W13	L057-03	970	ml	12/9/19 14:48	2	1000	2	1.03	
19SVL003W14	L057-04	850	ml	12/9/19 14:48	2	1000	2	1.18	
19SVL003W15	L057-05	930	ml	12/9/19 14:48	2	1000	2	1.08	
19SVL003W16	L057-07	1020	ml	12/9/19 14:48	2	1000	2	0.98	
19SVL003W17	L057-08	1030	ml	12/9/19 14:48	2	1000	2	0.97	
19SVL003W18	L057-09	980	ml	12/9/19 14:48	2	1000	2	1.02	
19SVL003W19	L057-10	910	ml	12/9/19 14:48	2	1000	2	1.1	

Ve=extract volume

PrepFctr=(ExpAmt/Aliquot)(Ve/ExpVe)

☑ Extraction Started @ 12/9/19 13:00 ☐ pHAdj(≤2) @ Vial Lot No.: 277518 Prepared By: HWang

☑ Extraction Ended @ 12/10/19 7:00 ☑ pHAdj(≥11) @ 12/9/19 13:00 Vial Cal Ref.: VC-19-020 Checked By: ML

Comments: volume entered after extraction started, pH=7, chlorine not detected Date 12/10/19

SOP EMAX-3520 Rev. 5

LABORATORY REPORT FOR

CDM SMITH

VA SALT LAKE CITY

METHOD RSK-175
DISSOLVED GASES

SDG#: 19L043

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L043

METHOD RSK-175
DISSOLVED GASES

A total of five(5) water samples were received on 12/06/19 to be analyzed for Dissolved Gases in accordance with Method RSK-175 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DGL002WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. DGL002WL/DGL002WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. L043-07M/L043-07S - all analytes were within MS QC limits. Refer to Matrix QC summary form for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
DISSOLVED GASES

Client : CDM SMITH
Project : VA SALT LAKE CITY

SDG NO. : 19L043
Instrument ID : GCT072

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	DGL002WB	1	NA	12/10/1910:44	12/10/1909:40	BL10004A	BL10003A	DGL002W	Method Blank
LCS1W	DGL002WL	1	NA	12/10/1911:01	12/10/1909:40	BL10005A	BL10003A	DGL002W	Lab Control Sample (LCS)
LCD1W	DGL002WC	1	NA	12/10/1911:14	12/10/1909:40	BL10006A	BL10003A	DGL002W	LCS Duplicate
OU2-MW20S-GW120419	L043-01	1	NA	12/10/1911:26	12/10/1909:40	BL10007A	BL10003A	DGL002W	Field Sample
OU2-MW20D-GW120519	L043-02	1	NA	12/10/1911:54	12/10/1909:40	BL10008A	BL10003A	DGL002W	Field Sample
OU2-MW18-GW120519	L043-04	1	NA	12/10/1912:10	12/10/1909:40	BL10009A	BL10003A	DGL002W	Field Sample
OU2-MW19-GW120519	L043-05	1	NA	12/10/1912:25	12/10/1909:40	BL10010A	BL10003A	DGL002W	Field Sample
OU2-MW02-GW120519	L043-07	1	NA	12/10/1912:39	12/10/1909:40	BL10011A	BL10003A	DGL002W	Field Sample
OU2-MW02-GW120519MS	L043-07M	1	NA	12/10/1912:51	12/10/1909:40	BL10012A	BL10003A	DGL002W	Matrix Spike Sample (MS)
OU2-MW02-GW120519MSD	L043-07S	1	NA	12/10/1913:04	12/10/1909:40	BL10013A	BL10003A	DGL002W	MS Duplicate (MSD)

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/04/19
Project : VA SALT LAKE CITY	Date Received: 12/06/19
Batch No. : 19L043	Date Extracted: 12/10/19 09:40
Sample ID: OU2-MW20S-GW120419	Date Analyzed: 12/10/19 11:26
Lab Samp ID: L043-01	Dilution Factor: 1
Lab File ID: BL10007A	Matrix : WATER
Ext Btch ID: DGL002W	% Moisture : NA
Calib. Ref.: BL10003A	Instrument ID : GCT072

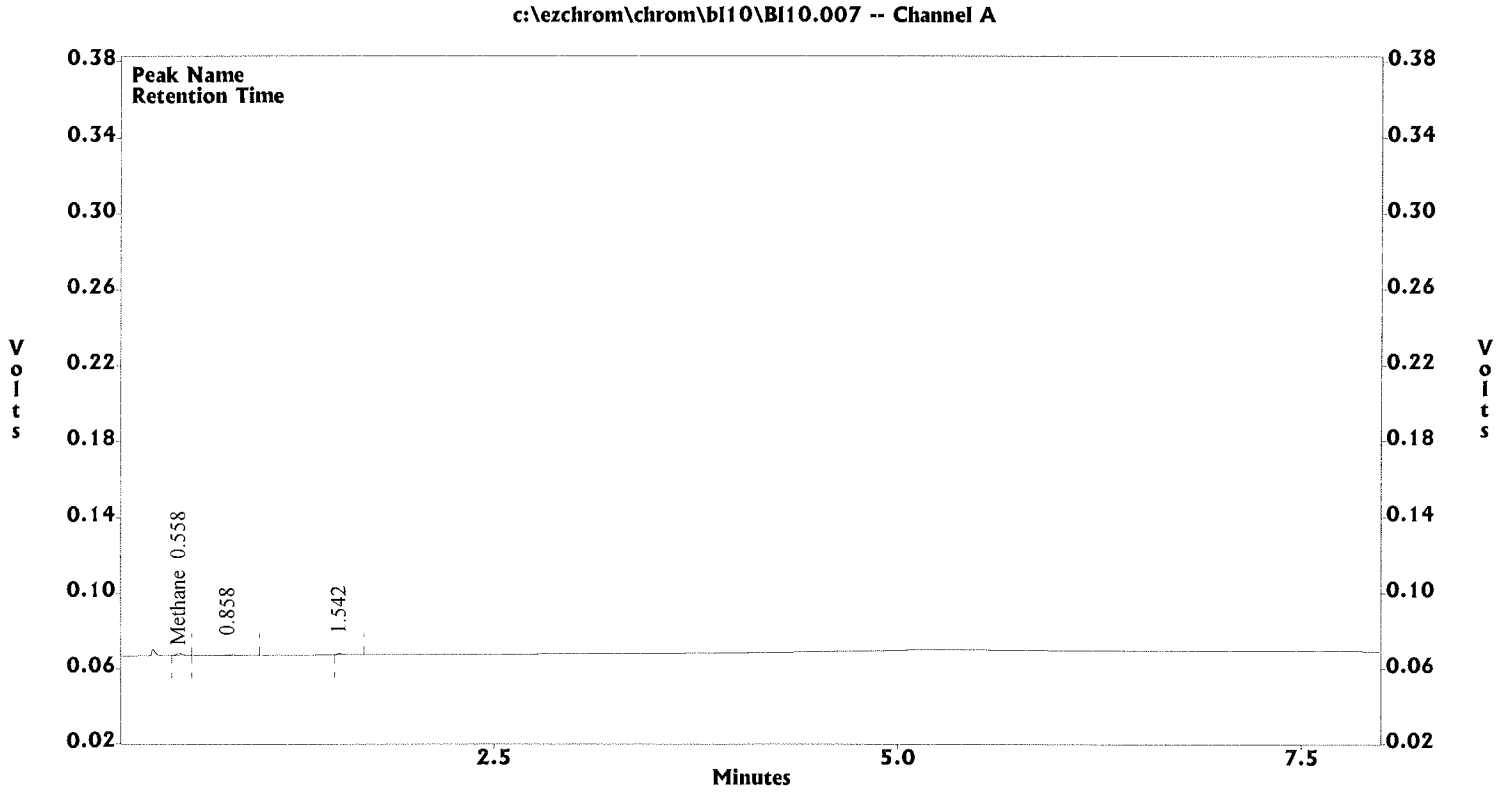
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	0.19J	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.007
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L043-01
Acquired : Dec 10, 2019 11:26:36
Printed : Dec 10, 2019 11:34:37
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.558	2494	13000.2	0.192
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/05/19
Project : VA SALT LAKE CITY	Date Received: 12/06/19
Batch No. : 19L043	Date Extracted: 12/10/19 09:40
Sample ID: OU2-MW20D-GW120519	Date Analyzed: 12/10/19 11:54
Lab Samp ID: L043-02	Dilution Factor: 1
Lab File ID: BL10008A	Matrix : WATER
Ext Btch ID: DGL002W	% Moisture : NA
Calib. Ref.: BL10003A	Instrument ID : GCT072

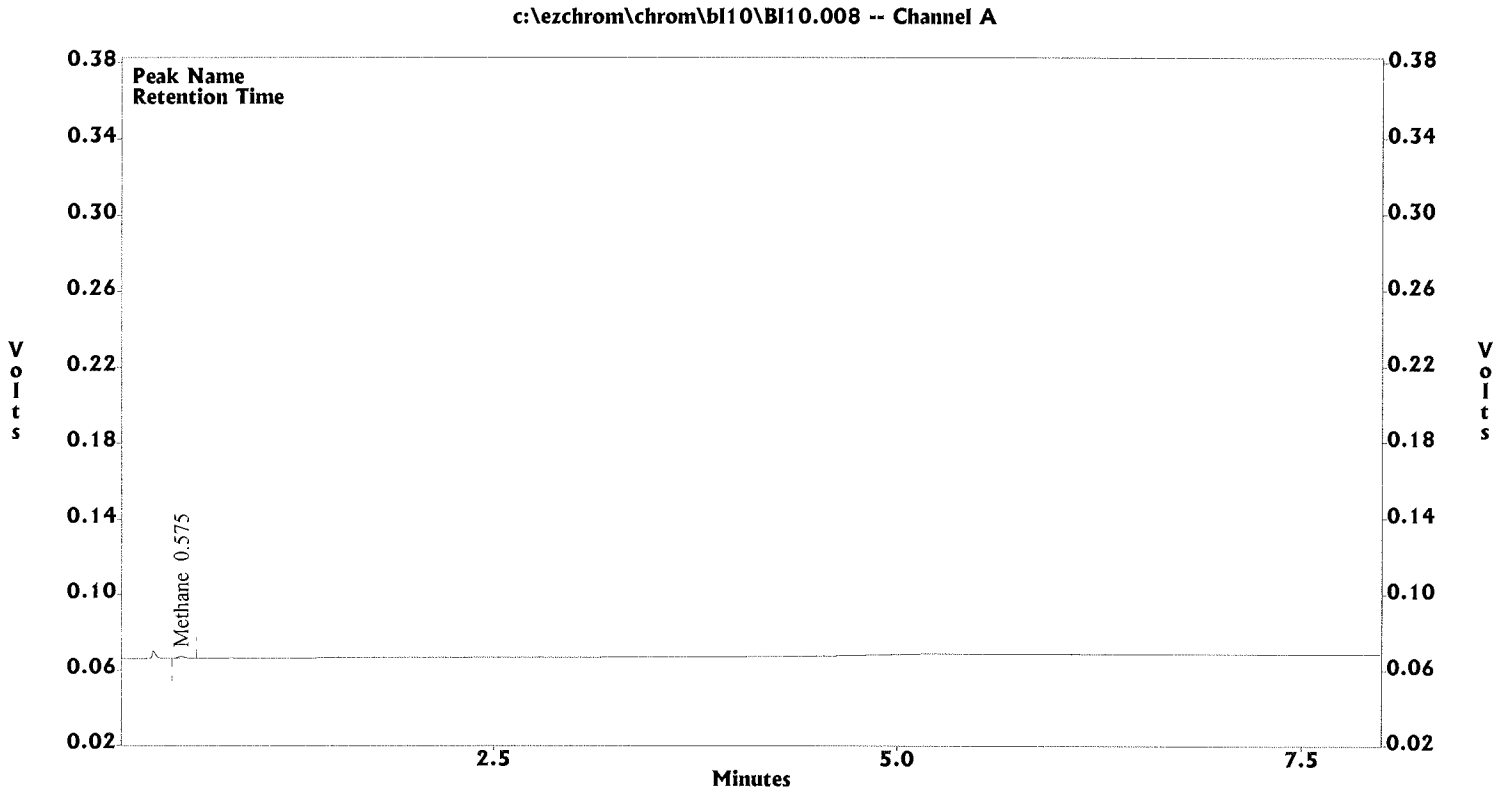
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	0.20J	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.008
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L043-02
Acquired : Dec 10, 2019 11:54:41
Printed : Dec 10, 2019 12:02:42
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.575	2671	13000.2	0.205
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/05/19
Project : VA SALT LAKE CITY	Date Received: 12/06/19
Batch No. : 19L043	Date Extracted: 12/10/19 09:40
Sample ID: OU2-MW18-GW120519	Date Analyzed: 12/10/19 12:10
Lab Samp ID: L043-04	Dilution Factor: 1
Lab File ID: BL10009A	Matrix : WATER
Ext Btch ID: DGL002W	% Moisture : NA
Calib. Ref.: BL10003A	Instrument ID : GCT072

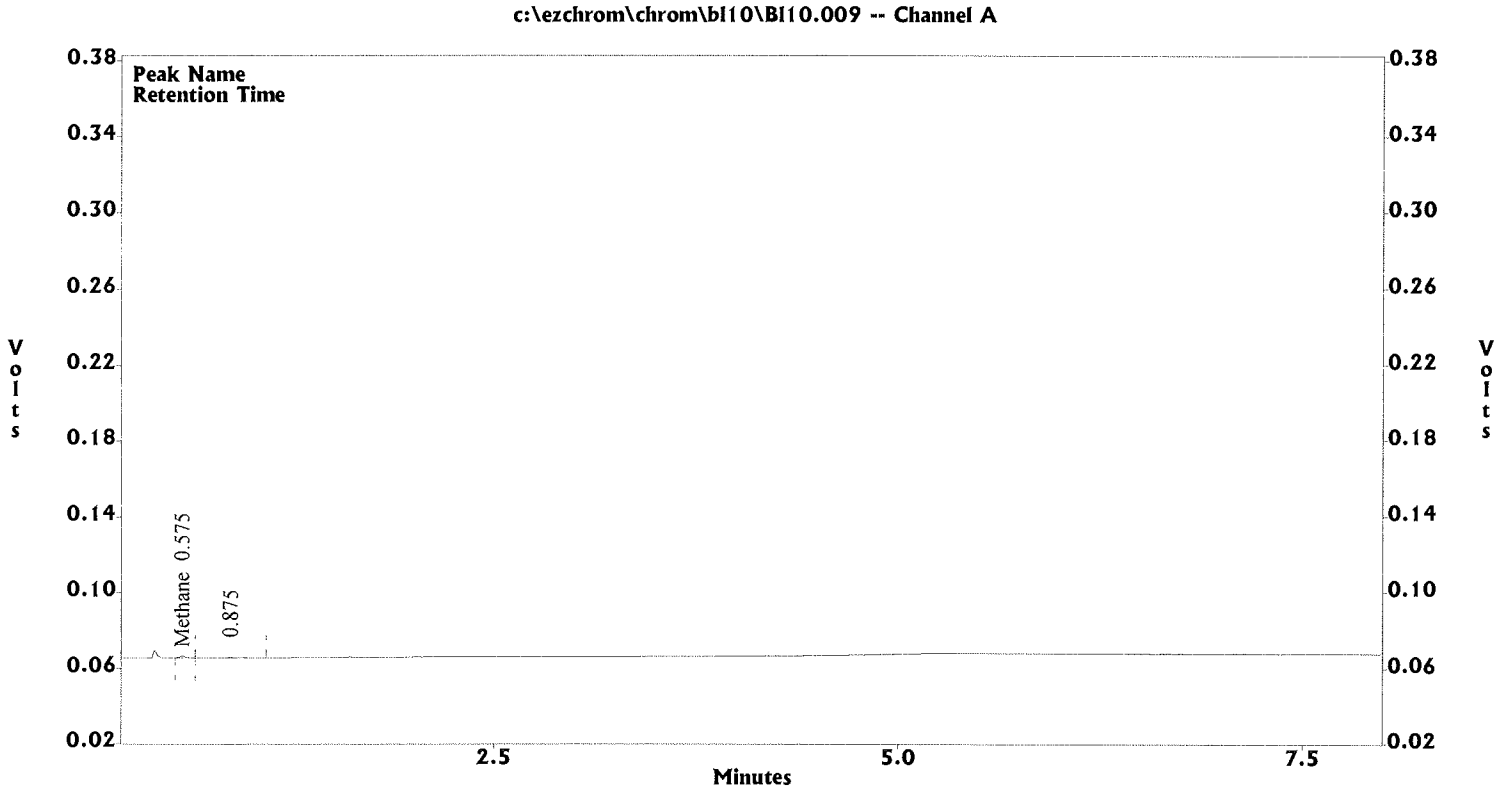
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	ND	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.009
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L043-04
Acquired : Dec 10, 2019 12:10:25
Printed : Dec 10, 2019 12:18:27
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.575	1954	13000.2	0.150
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/05/19
Project : VA SALT LAKE CITY	Date Received: 12/06/19
Batch No. : 19L043	Date Extracted: 12/10/19 09:40
Sample ID: OU2-MW19-GW120519	Date Analyzed: 12/10/19 12:25
Lab Samp ID: L043-05	Dilution Factor: 1
Lab File ID: BL10010A	Matrix : WATER
Ext Btch ID: DGL002W	% Moisture : NA
Calib. Ref.: BL10003A	Instrument ID : GCT072

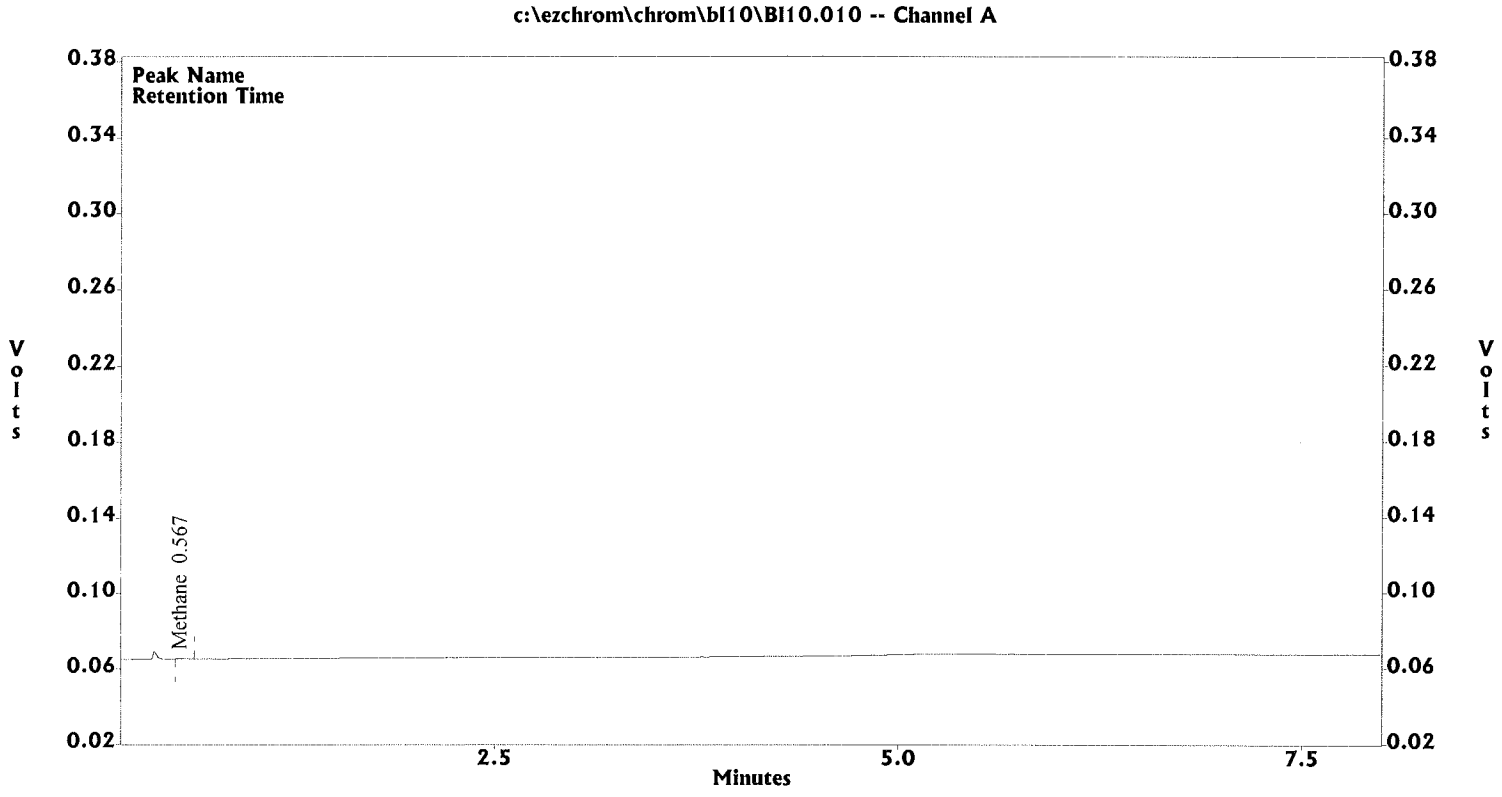
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	ND	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.010
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L043-05
Acquired : Dec 10, 2019 12:25:16
Printed : Dec 10, 2019 12:33:18
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	1096	13000.2	0.084
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client	: CDM SMITH	Date Collected:	12/05/19
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
Batch No.	: 19L043	Date Extracted:	12/10/19 09:40
Sample ID:	OU2-MW02-GW120519	Date Analyzed:	12/10/19 12:39
Lab Samp ID:	L043-07	Dilution Factor:	1
Lab File ID:	BL10011A	Matrix :	WATER
Ext Btch ID:	DGL002W	% Moisture :	NA
Calib. Ref.:	BL10003A	Instrument ID :	GCT072

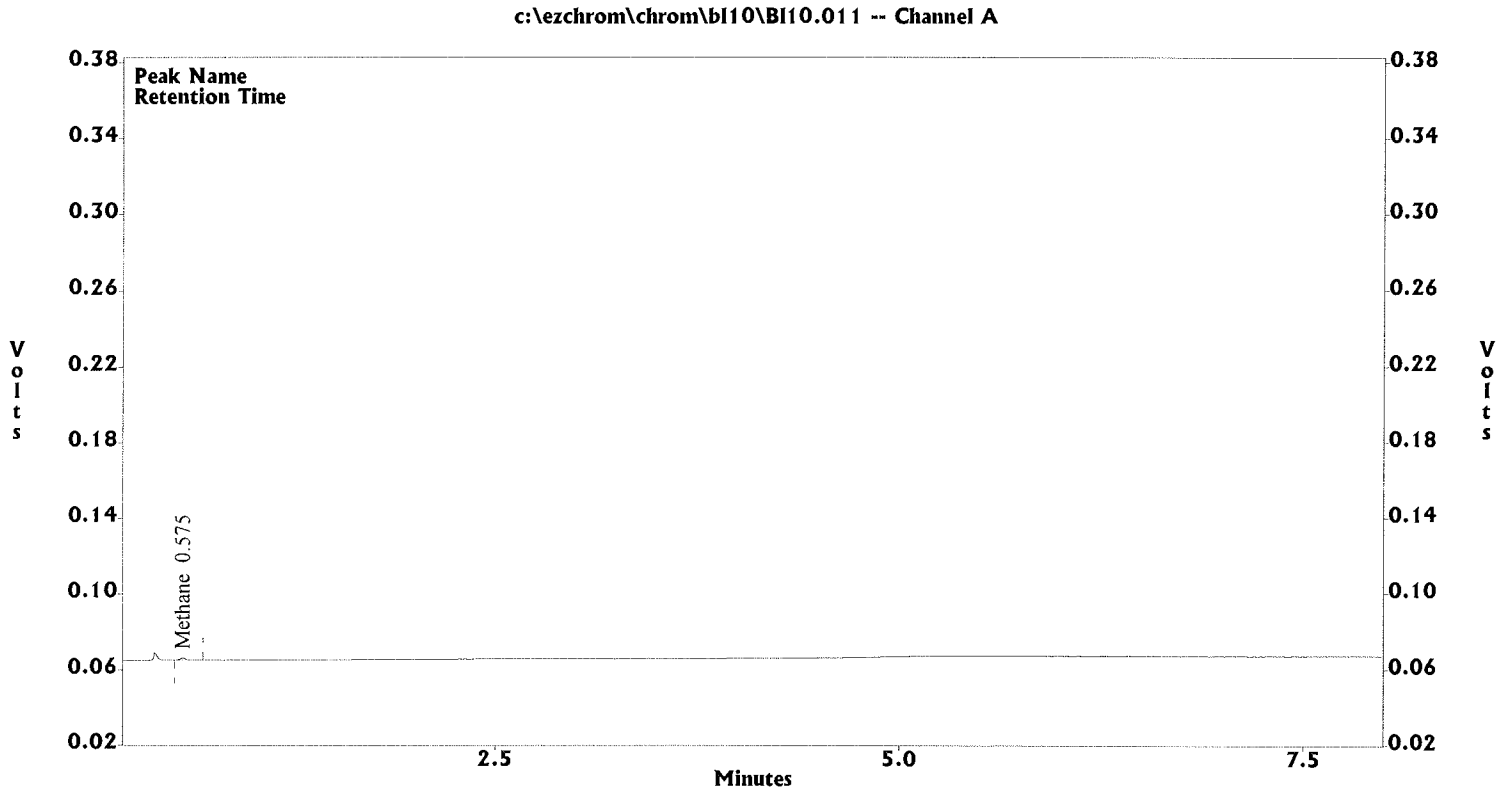
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	0.18J	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.011
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L043-07
Acquired : Dec 10, 2019 12:39:24
Printed : Dec 10, 2019 12:47:26
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.575	2355	13000.2	0.181
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



QC SUMMARIES

METHOD RSK-175
DISSOLVED GASES

Client	: CDM SMITH	Date Collected	: NA
Project	: VA SALT LAKE CITY	Date Received	: 12/10/19
Batch No.	: 19L043	Date Extracted	: 12/10/19 09:40
Sample ID	: MBLK1W	Date Analyzed	: 12/10/19 10:44
Lab Samp ID	: DGL002WB	Dilution Factor	: 1
Lab File ID	: BL10004A	Matrix	: WATER
Ext Btch ID	: DGL002W	% Moisture	: NA
Calib. Ref.	: BL10003A	Instrument ID	: GCT072

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	ND	2.0	0.17

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L043
METHOD: RSK-175

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1W
LAB SAMP ID: DGL002WB DGL002WL DGL002WC
LAB FILE ID: BL10004A BL10005A BL10006A
DATE EXTRACTED: 12/10/1909:40 12/10/1909:40 12/10/1909:40 DATE COLLECTED: NA
DATE ANALYZED: 12/10/1910:44 12/10/1911:01 12/10/1911:14 DATE RECEIVED: 12/10/19
PREP. BATCH: DGL002W DGL002W DGL002W
CALIB. REF: BL10003A BL10003A BL10003A

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Ethane	ND	25.5	25.4	100	25.5	27.3	107	7	70-140	30
Ethene	ND	23.8	22.7	95	23.8	24.2	102	6	70-140	30
Methane	ND	13.6	13.0	96	13.6	14.1	103	8	70-130	30

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L043
METHOD: RSK-175

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: OU2-MW02-GW120519
LAB SAMP ID: L043-07 L043-07M L043-07S
LAB FILE ID: BL10011A BL10012A BL10013A
DATE EXTRACTED: 12/10/1909:40 12/10/1909:40 12/10/1909:40 DATE COLLECTED: 12/05/19
DATE ANALYZED: 12/10/1912:39 12/10/1912:51 12/10/1913:04 DATE RECEIVED: 12/06/19
PREP. BATCH: DGL002W DGL002W DGL002W
CALIB. REF: BL10003A BL10003A BL10003A

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	SPIKE AMT (ug/L)	MSD RSLT (ug/L)	MSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Ethane	ND	25.5	28.4	111	25.5	28.6	112	1	70-140	30
Ethene	ND	23.8	25.4	107	23.8	25.6	107	1	70-140	30
Methane	0.181J	13.6	14.5	105	13.6	14.5	105	0	70-130	30

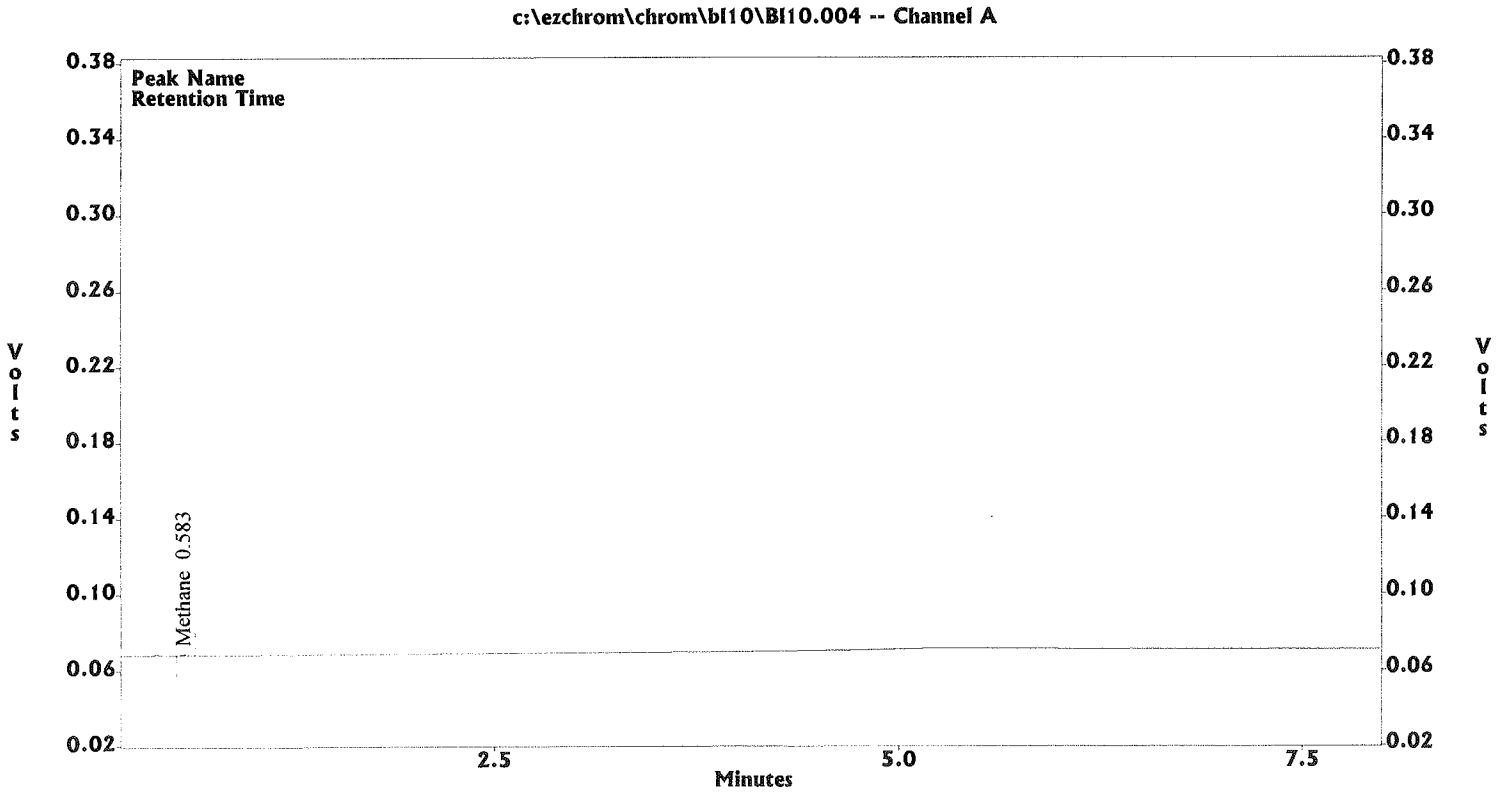
QC DATA

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.004
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : DGL002WB
Acquired : Dec 10, 2019 10:44:37
Printed : Dec 10, 2019 10:52:38
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.583	1184	13000.2	0.091
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000

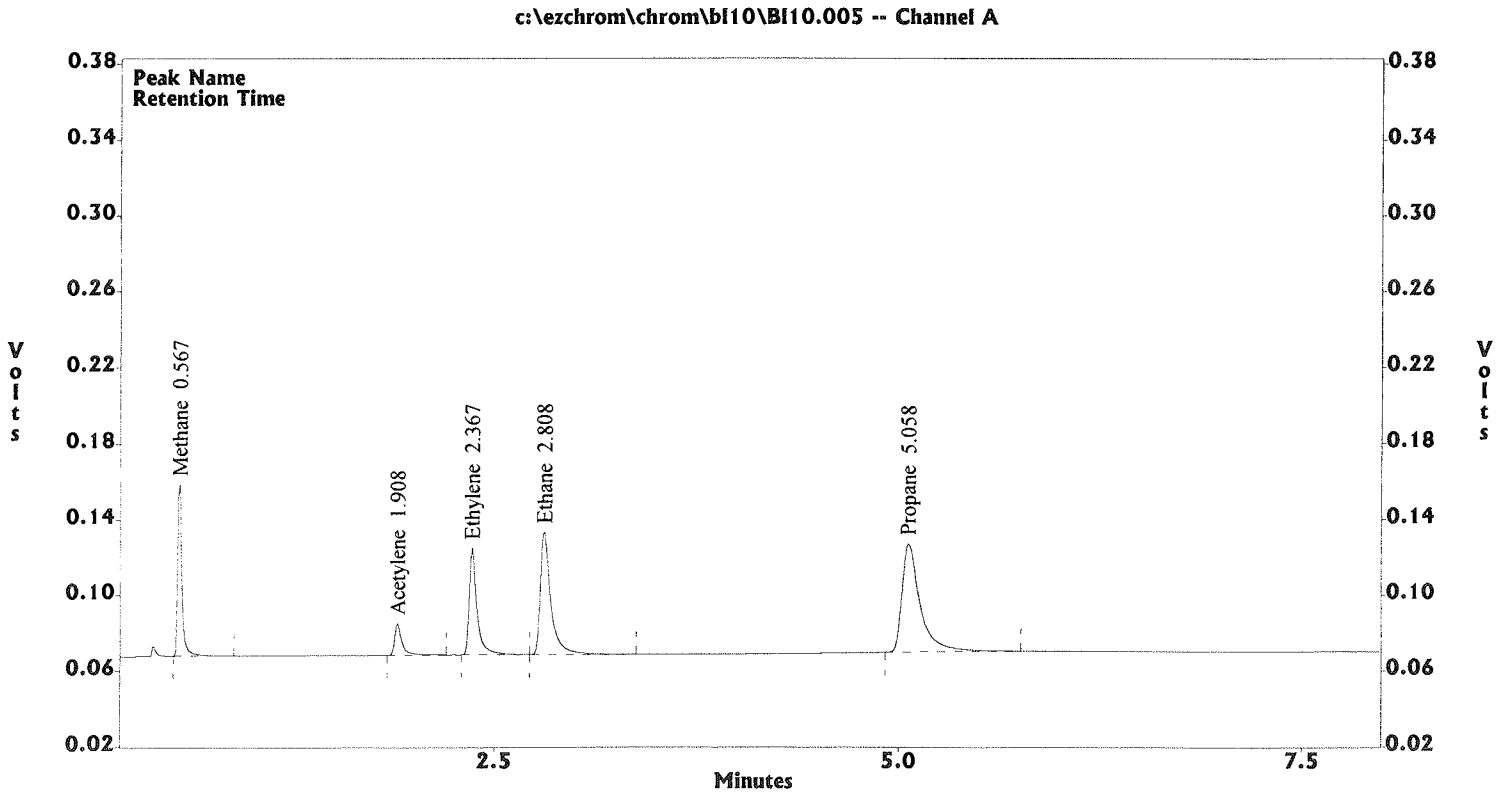


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.005
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : DGL002WL
Acquired : Dec 10, 2019 11:01:37
Printed : Dec 10, 2019 11:09:37
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	169496	13000.2	13.038
2	Acetylene	1.908	52272	2310.0	22.629
3	Ethylene	2.367	188730	8316.3	22.694
4	Ethane	2.808	288977	11378.1	25.398
5	Propane	5.058	448696	12067.0	37.184

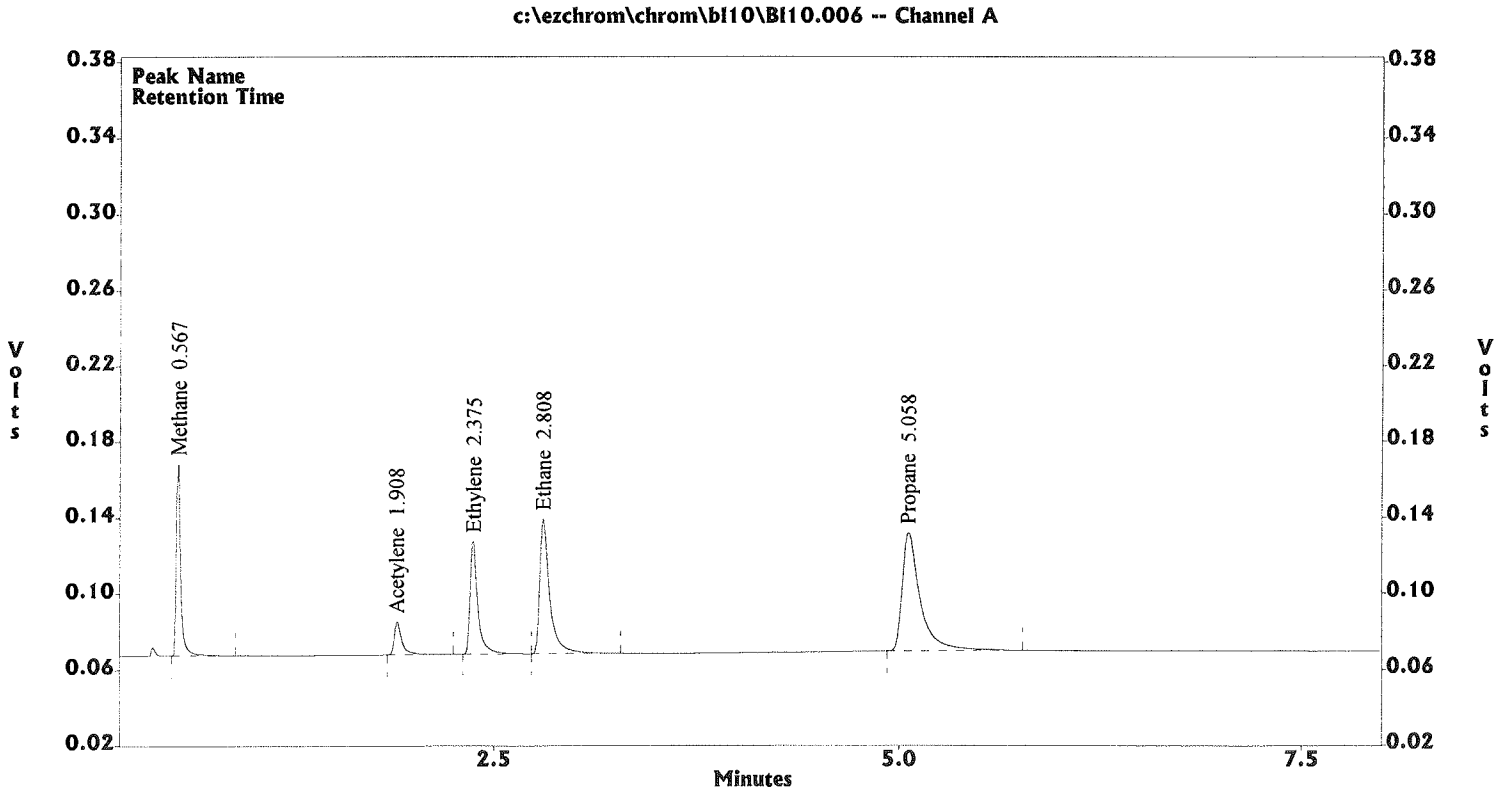


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.006
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : DGL002WC
Acquired : Dec 10, 2019 11:14:10
Printed : Dec 10, 2019 11:22:11
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	182669	13000.2	14.051
2	Acetylene	1.908	55480	2310.0	24.017
3	Ethylene	2.375	201222	8316.3	24.196
4	Ethane	2.808	310773	11378.1	27.313
5	Propane	5.058	485808	12067.0	40.259

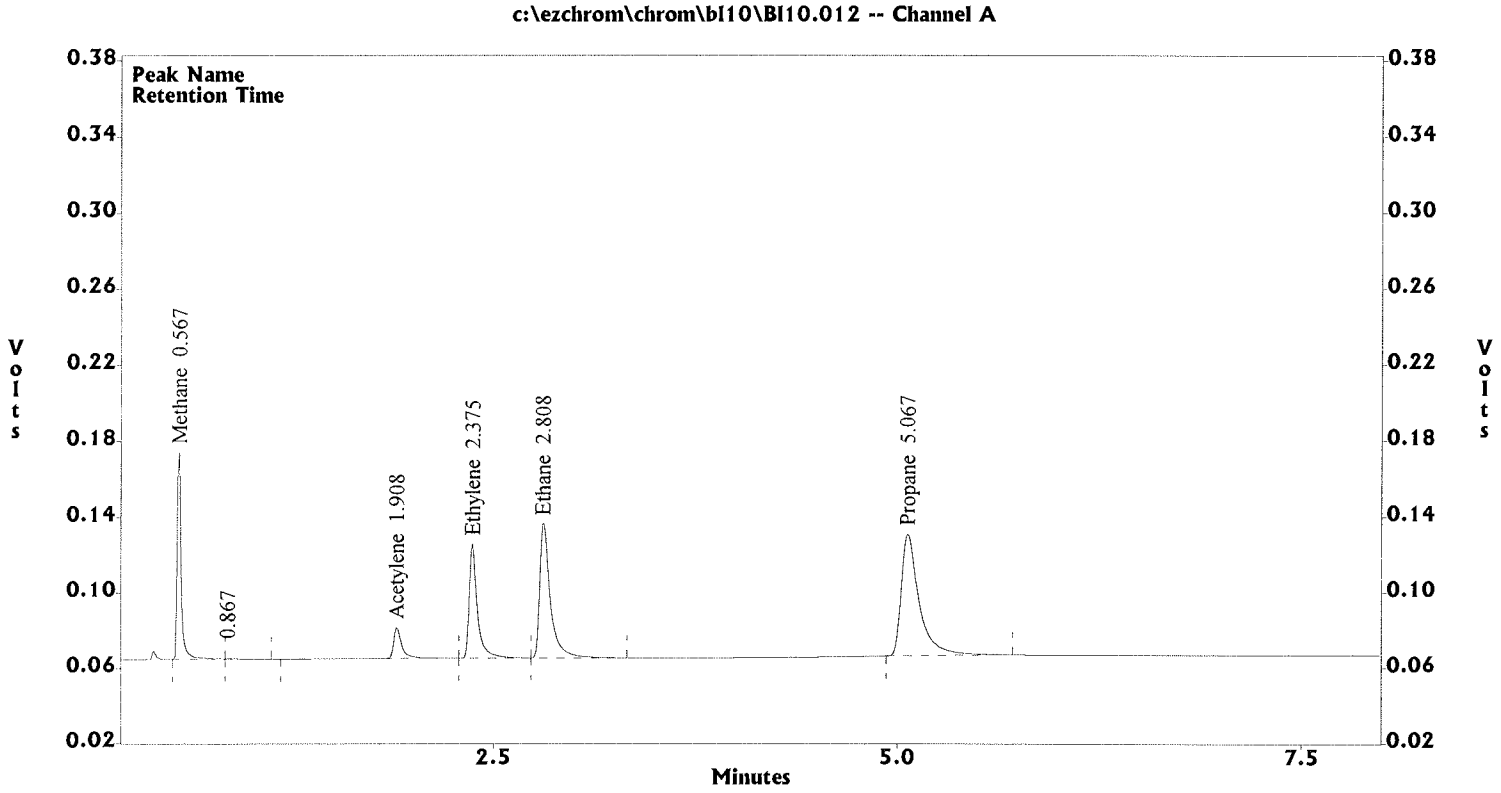


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.012
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L043-07M
Acquired : Dec 10, 2019 12:51:51
Printed : Dec 10, 2019 12:59:52
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	188340	13000.2	14.487
3	Acetylene	1.908	61418	2310.0	26.588
4	Ethylene	2.375	211542	8316.3	25.437
5	Ethane	2.808	323337	11378.1	28.417
6	Propane	5.067	499032	12067.0	41.355

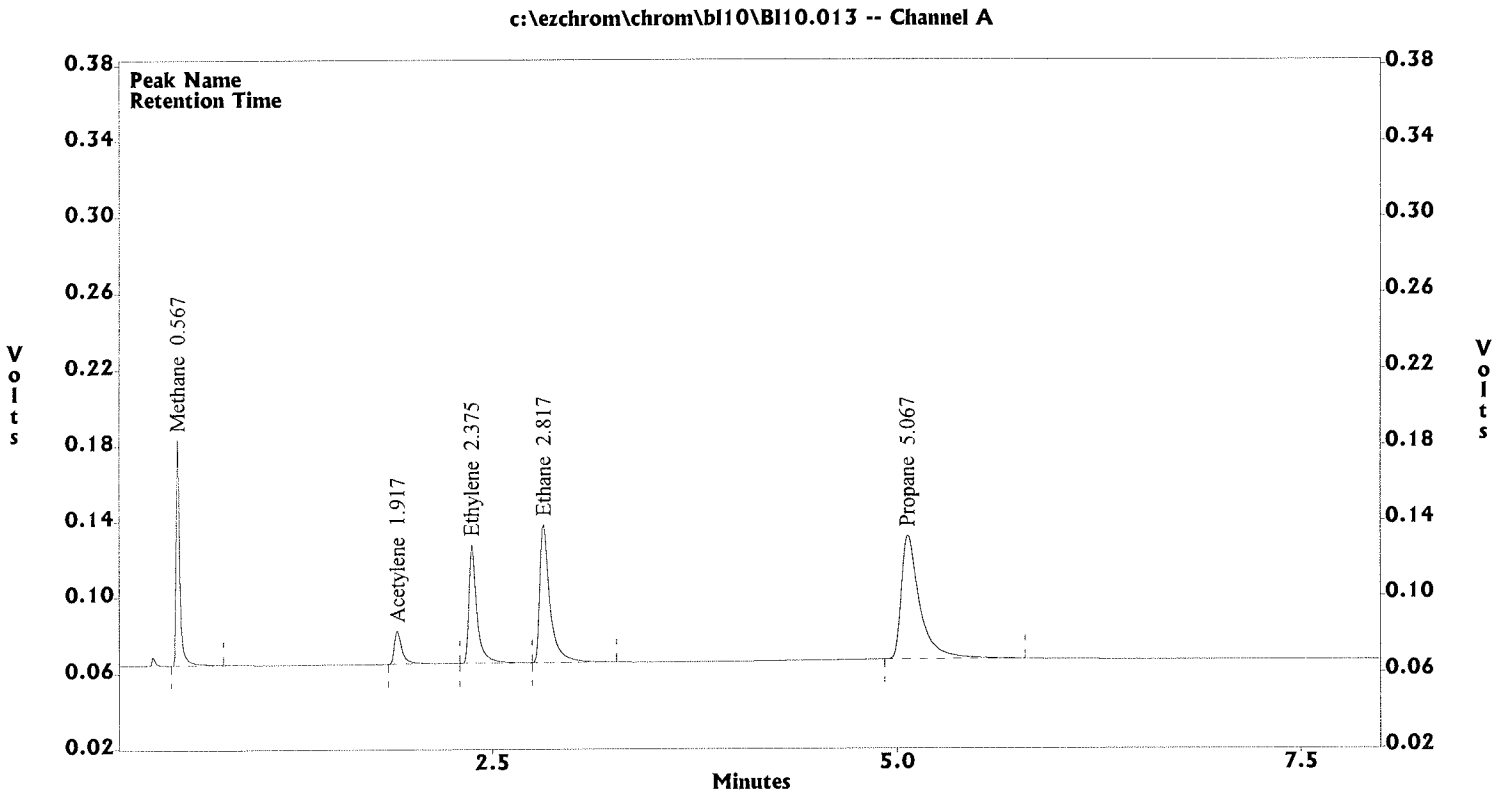


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.013
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L043-07S
Acquired : Dec 10, 2019 13:04:38
Printed : Dec 10, 2019 13:12:39
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	188105	13000.2	14.469
2	Acetylene	1.917	58472	2310.0	25.312
3	Ethylene	2.375	212664	8316.3	25.572
4	Ethane	2.817	325001	11378.1	28.564
5	Propane	5.067	507837	12067.0	42.085



INITIAL CALIBRATIONS

INITIAL CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Column : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
LFID & Datetime: BC20002A 03/20/19 10:19
LFID & Datetime: BC20003A 03/20/19 10:31
LFID & Datetime: BC20004A 03/20/19 10:44
LFID & Datetime: BC20005A 03/20/19 10:56
LFID & Datetime: BC20006A 03/20/19 11:08
LFID & Datetime: BC20007A 03/20/19 11:21
CONC UNIT: ppb

COMPOUND	CONC X	CALIBRATION FACTORS (AREA)/UNIT 2.00X	10.00X	25.00X	40.00X	75.00X	100.00X	MEAN	%RSD
Methane	0.34	12510	15188	13549	12749	12136	11869	13000.2	9.4
Acetylene	0.55	1871	2639	2493	2383	2248	2226	2310.0	11.5
Ethylene	0.60	6392	9743	9097	8533	8116	8017	8316.3	13.7
Ethane	0.64	9016	13286	12338	11571	11068	10989	11378.1	12.7
Propane	0.94	9664	13882	13122	12439	11732	11562	12067.0	12.1

DG72C20.MET

FORM VI DGAS -2 1/96 Rev 2/2006

LE 3/20/19

INITIAL CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Columm : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
LFID & Datetime: BC20002A 03/20/19 10:19
LFID & Datetime: BC20003A 03/20/19 10:31
LFID & Datetime: BC20004A 03/20/19 10:44
LFID & Datetime: BC20005A 03/20/19 10:56
LFID & Datetime: BC20006A 03/20/19 11:08
LFID & Datetime: BC20007A 03/20/19 11:21

COMPOUND	RT OF STANDARDS (MIN) 2.0X	10.0X	25.0X	40.0X	75.0X	100.0X	MEAN RT	RT WINDOW FROM	TO	RTWINDOW WIDTH
Methane	0.567	0.567	0.550	0.550	0.550	0.550	0.556	0.530	0.582	0.026
Acetylene	1.917	1.908	1.892	1.892	1.892	1.892	1.899	1.846	1.952	0.053
Ethylene	2.358	2.358	2.350	2.350	2.350	2.350	2.353	2.315	2.391	0.038
Ethane	2.792	2.792	2.792	2.792	2.783	2.792	2.790	2.752	2.829	0.038
Propane	5.050	5.050	5.042	5.050	5.042	5.050	5.047	4.995	5.099	0.052

DG72C20.MET

FORM VI DGAS -1 1/96 Rev 2/2006

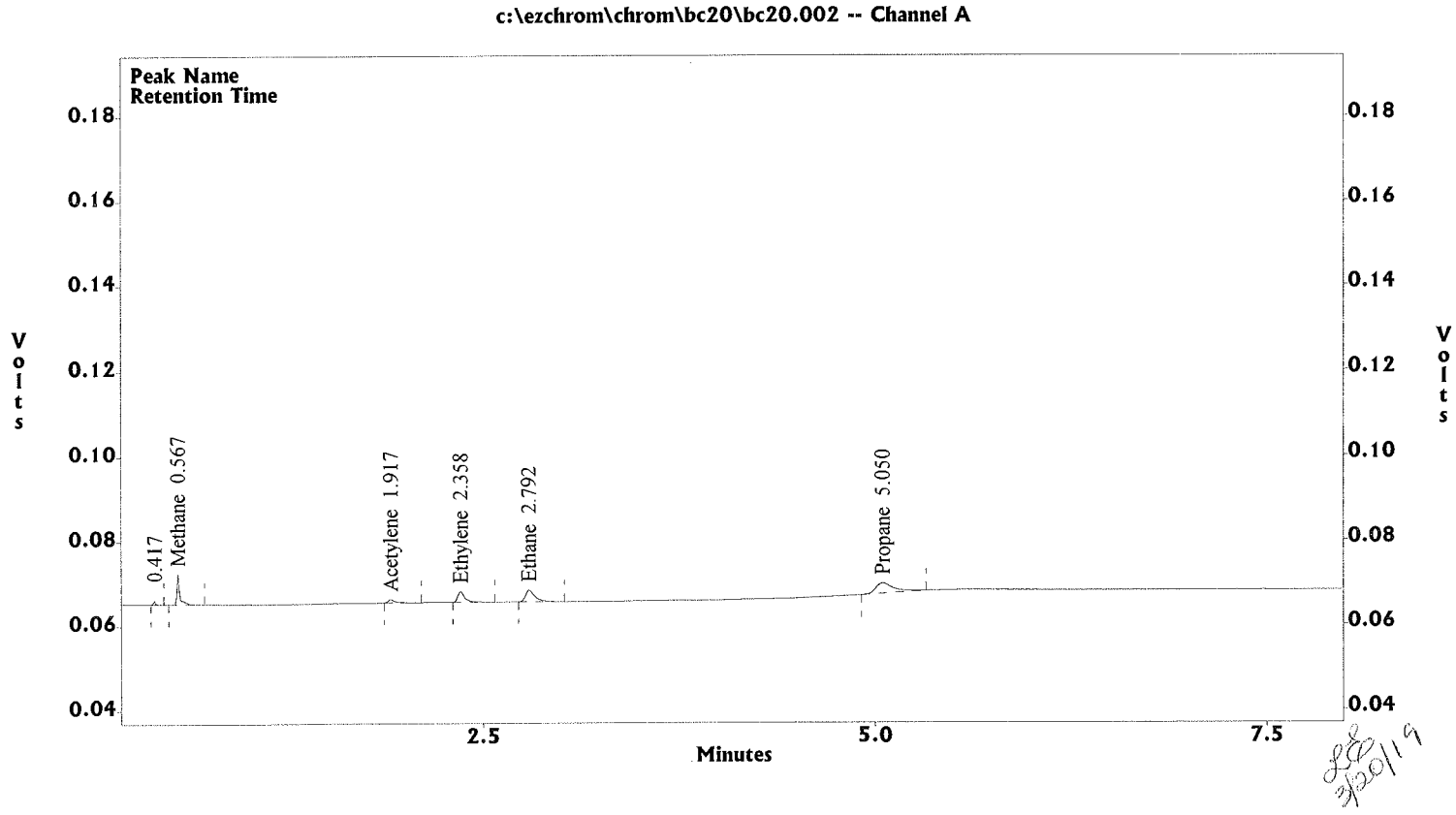
LSP 3/20/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.002
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2001
Acquired : Mar 20, 2019 10:19:11
Printed : Mar 20, 2019 12:29:31
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.567	8507	13000.2	0.680
3	Acetylene	1.917	2068	2310.0	1.105
4	Ethylene	2.358	7606	8316.3	1.190
5	Ethane	2.792	11496	11378.1	1.275
6	Propane	5.050	18071	12067.0	1.870

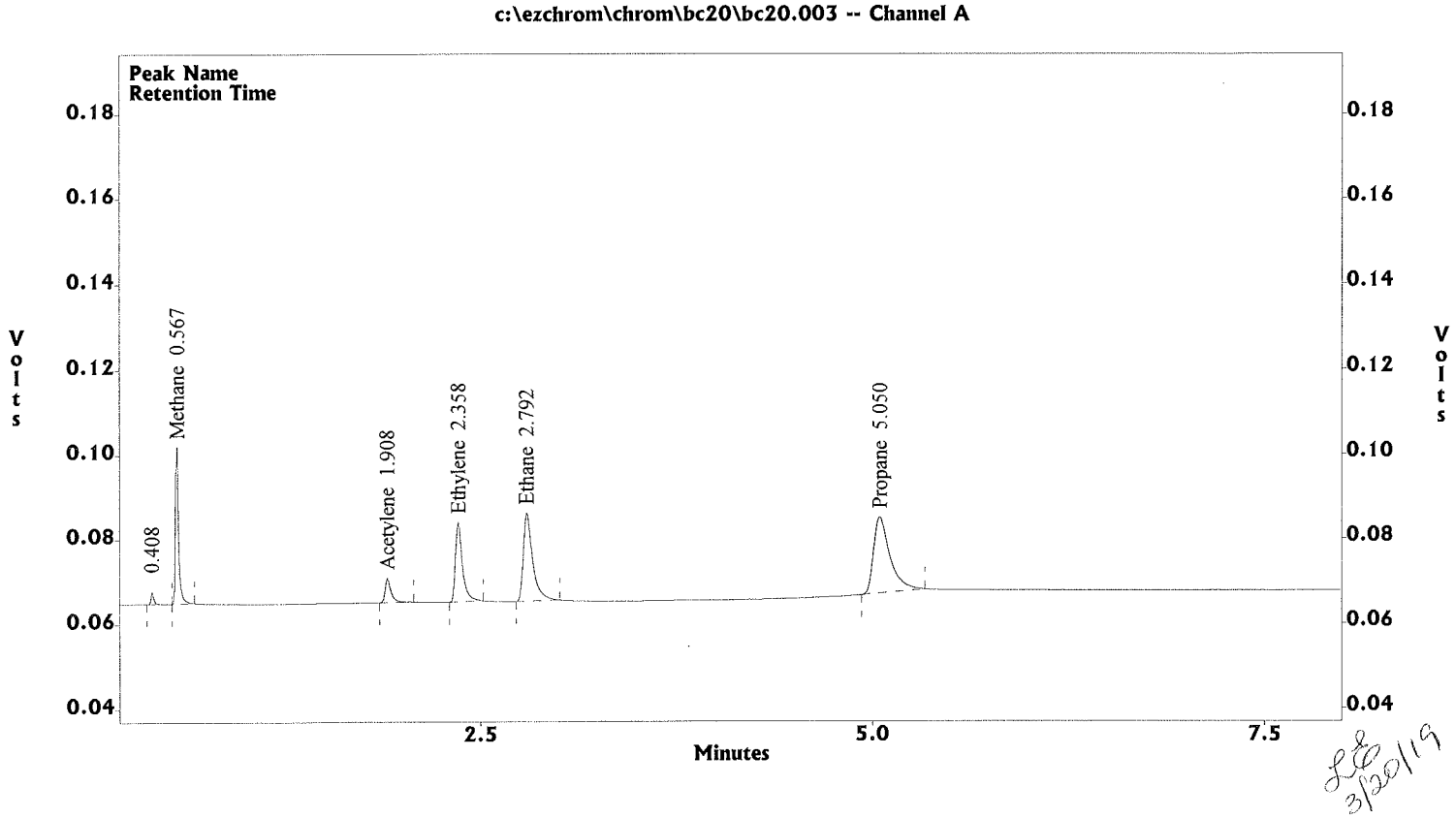


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.003
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2002
Acquired : Mar 20, 2019 10:31:35
Printed : Mar 20, 2019 12:33:26
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.567	51668	13000.2	3.402
3	Acetylene	1.908	14589	2310.0	5.528
4	Ethylene	2.358	58000	8316.3	5.953
5	Ethane	2.792	84739	11378.1	6.378
6	Propane	5.050	129801	12067.0	9.350



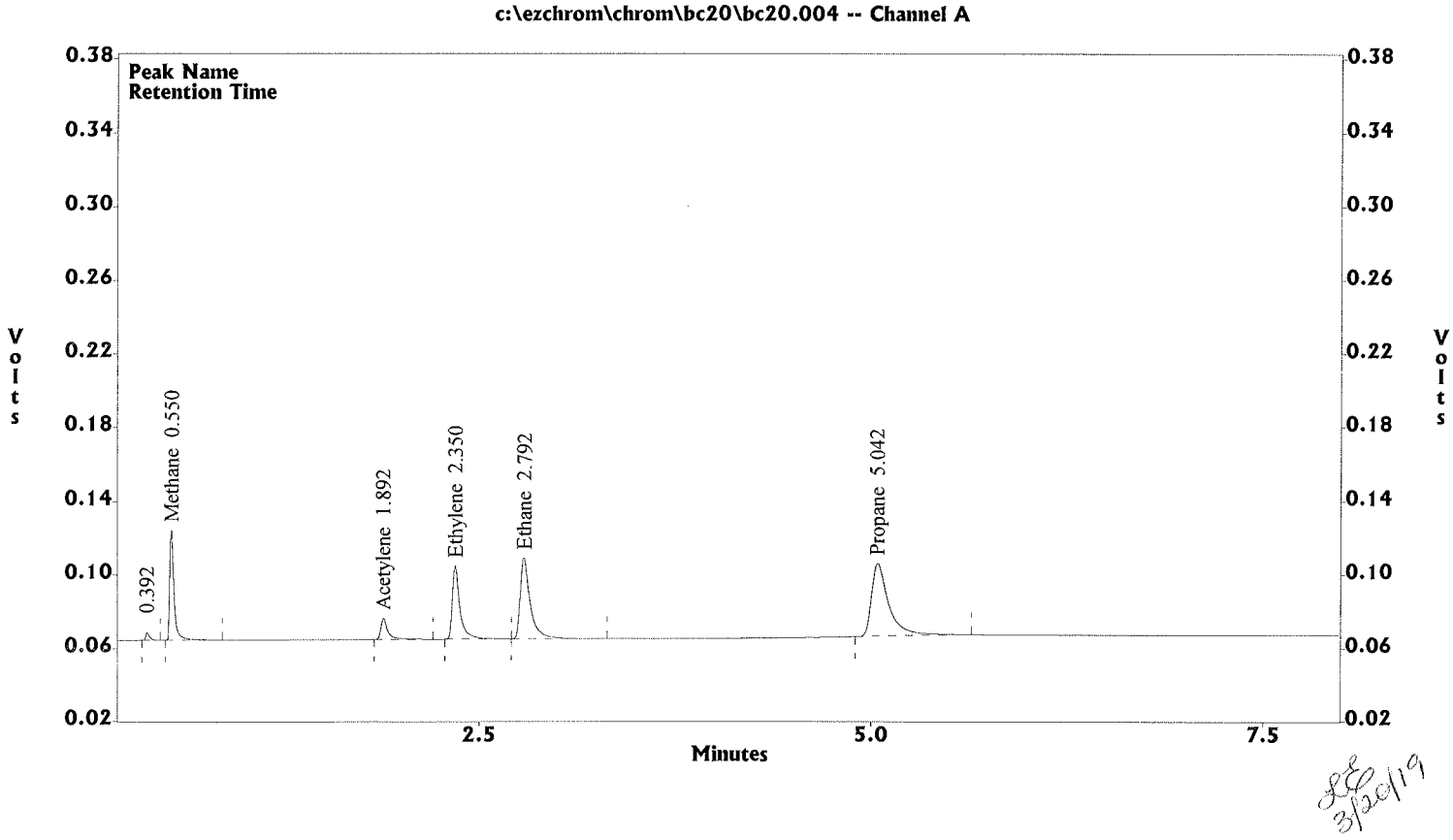
LL 3/20/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.004
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2003
Acquired : Mar 20, 2019 10:44:01
Printed : Mar 20, 2019 12:33:35
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.550	115223	13000.2	8.504
3	Acetylene	1.892	34458	2310.0	13.820
4	Ethylene	2.350	135369	8316.3	14.880
5	Ethane	2.792	196786	11378.1	15.950
6	Propane	5.042	306927	12067.0	23.390



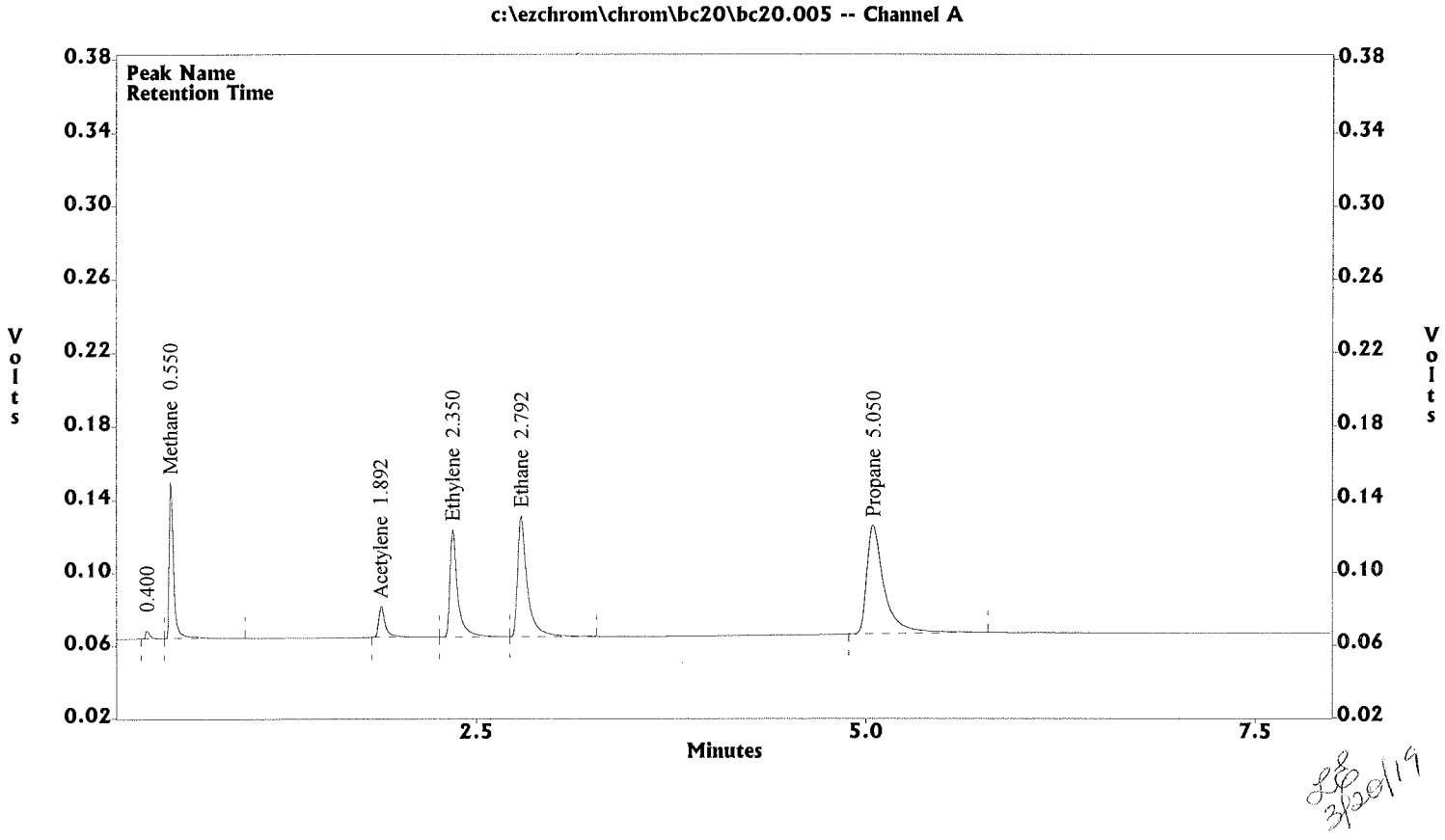
LL 3/20/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.005
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2004
Acquired : Mar 20, 2019 10:56:26
Printed : Mar 20, 2019 12:33:43
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.550	173389	13000.2	13.600
3	Acetylene	1.892	52679	2310.0	22.110
4	Ethylene	2.350	203174	8316.3	23.810
5	Ethane	2.792	295175	11378.1	25.510
6	Propane	5.050	465357	12067.0	37.410



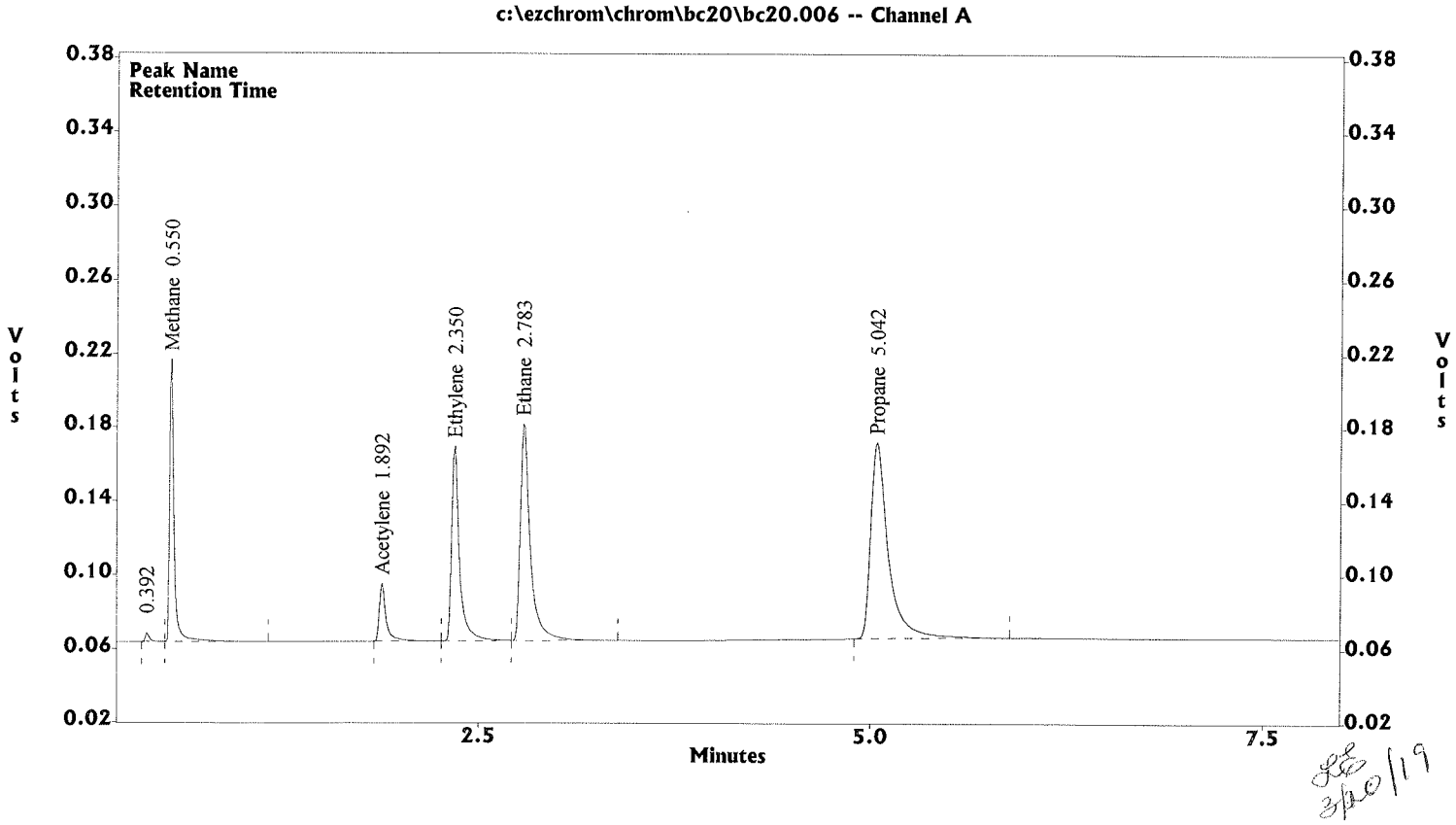
LL 3/20/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.006
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2005
Acquired : Mar 20, 2019 11:08:57
Printed : Mar 20, 2019 12:33:48
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.550	309596	13000.2	25.510
3	Acetylene	1.892	93177	2310.0	41.450
4	Ethylene	2.350	362291	8316.3	44.640
5	Ethane	2.783	529400	11378.1	47.830
6	Propane	5.042	823014	12067.0	70.150



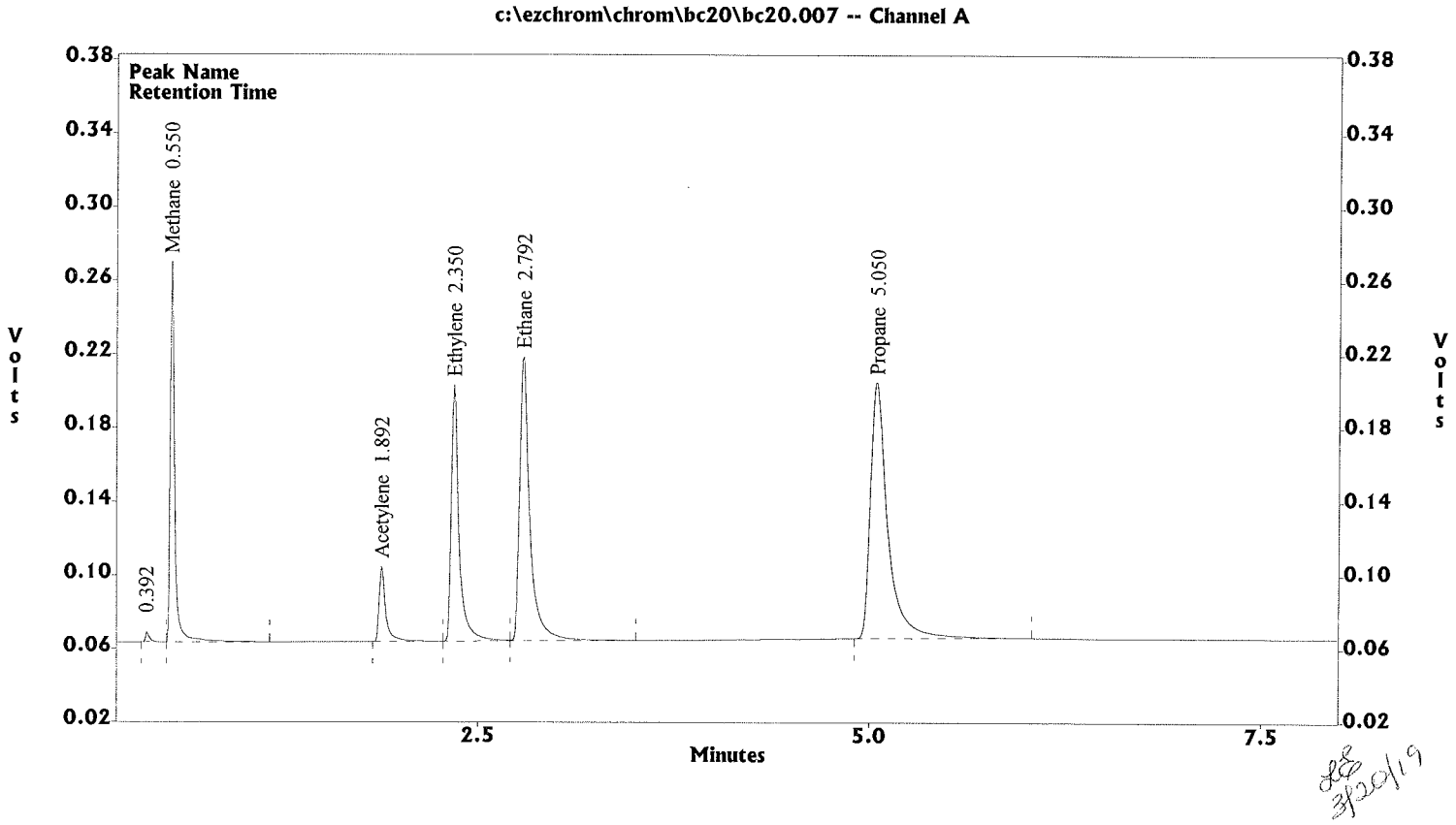
3/20/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.007
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2006
Acquired : Mar 20, 2019 11:21:24
Printed : Mar 20, 2019 12:33:54
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.550	403662	13000.2	34.010
3	Acetylene	1.892	123007	2310.0	55.270
4	Ethylene	2.350	477149	8316.3	59.520
5	Ethane	2.792	700779	11378.1	63.770
6	Propane	5.050	1081384	12067.0	93.530



3/20/19

SECOND SOURCE VERIFICATION

INITIAL CALIBRATION VERIFICATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Columm : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BC20005A 03/20/2019 10:56
Conc Cont LFID & Datetime: BC20008A 03/20/2019 11:56
CONC UNIT : ppb

COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.550	0.524	0.576	13.6	13000.2	177629	13.66	0		15
Acetylene	1.883	1.830	1.936	22.1	2310.0	53924	23.34	6		15
Ethylene	2.350	2.312	2.388	23.8	8316.3	197232	23.72	-0		15
Ethane	2.792	2.754	2.830	25.5	11378.1	299479	26.32	3		15
Propane	5.050	4.998	5.102	37.4	12067.0	474137	39.29	5		15

DG72C20.MET

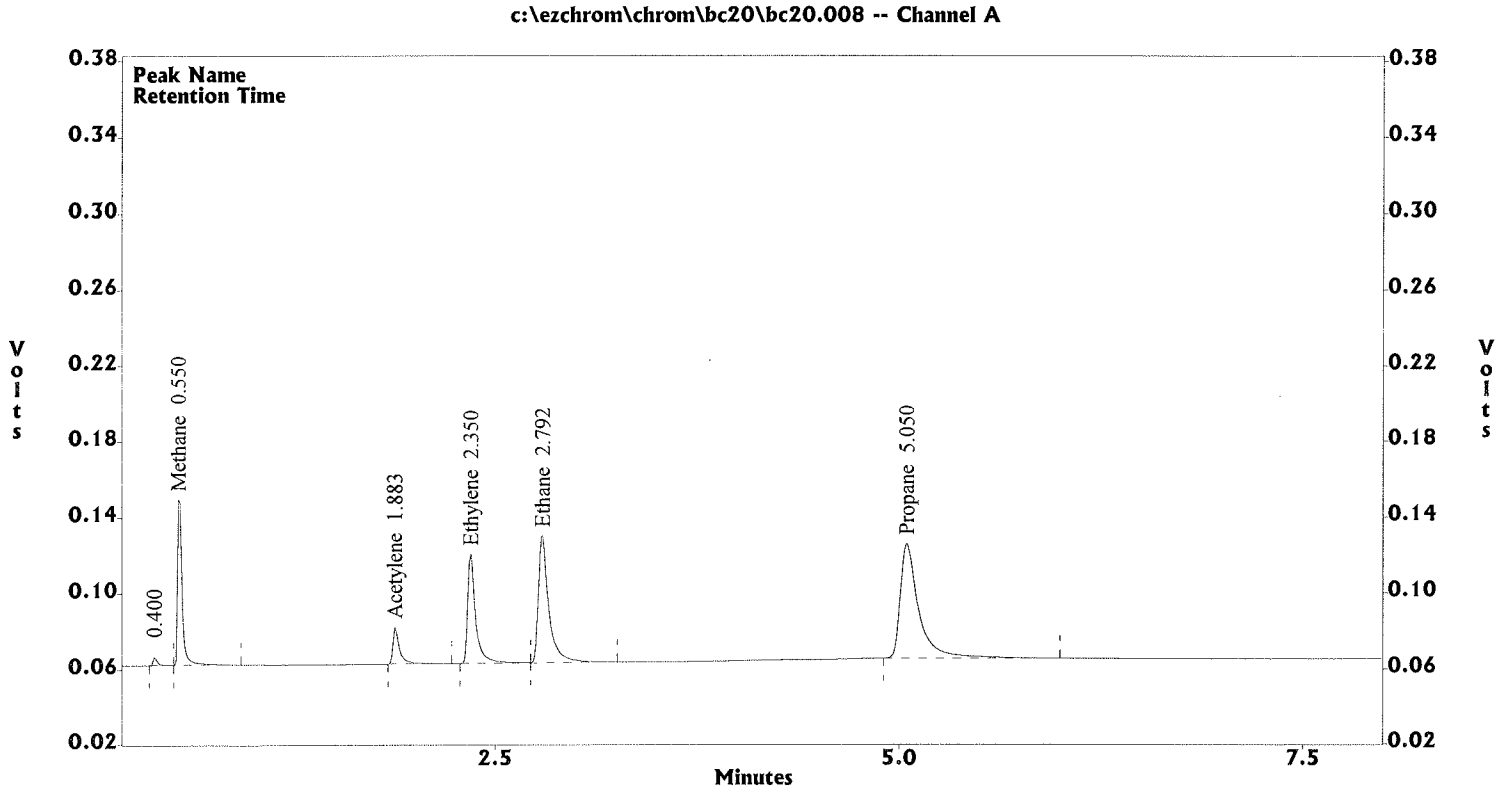
lb 3/29/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.008
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : IDG72C2001
Acquired : Mar 20, 2019 11:56:07
Printed : Mar 20, 2019 12:34:47
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.550	177629	13000.2	13.664
3	Acetylene	1.883	53924	2310.0	23.344
4	Ethylene	2.350	197232	8316.3	23.716
5	Ethane	2.792	299479	11378.1	26.321
6	Propane	5.050	474137	12067.0	39.292



3/20/19

DAILY CALIBRATIONS

CONTINUE CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Columm : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BC20005A 03/20/2019 10:56
Conc Cont LFID & Datetime: BL10003A 12/10/2019 10:23
CONC UNIT : ppb

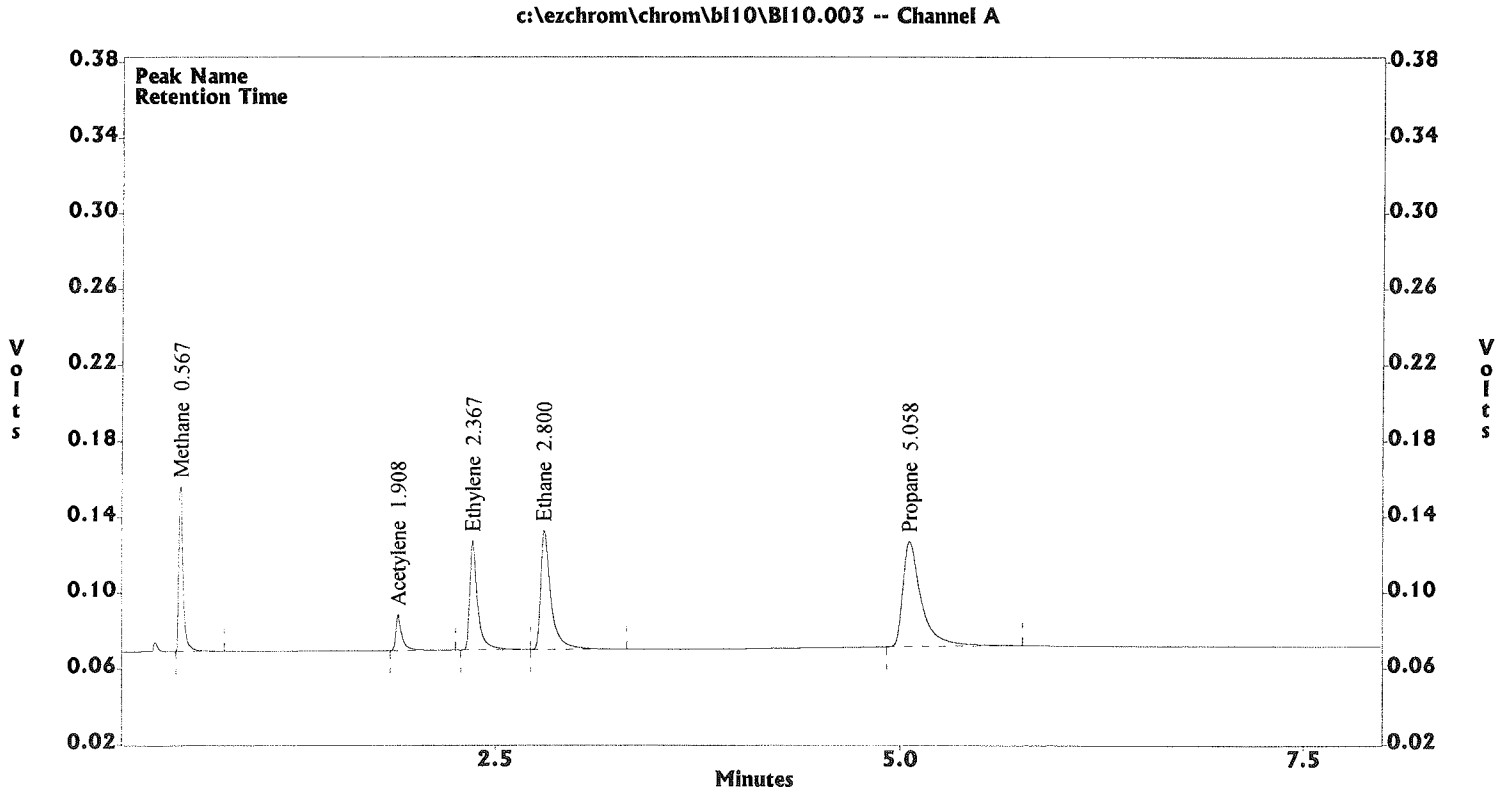
COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.567	0.541	0.593	13.6	13000.2	159564	12.27	-10		15
Acetylene	1.908	1.855	1.961	22.1	2310.0	49397	21.38	-3		15
Ethylene	2.367	2.329	2.405	23.8	8316.3	190242	22.88	-4		15
Ethane	2.800	2.762	2.838	25.5	11378.1	277906	24.42	-4		15
Propane	5.058	5.006	5.110	37.4	12067.0	440123	36.47	-2		15

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.003
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : CDG72C20414
Acquired : Dec 10, 2019 10:23:56
Printed : Dec 10, 2019 10:31:57
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	159564	13000.2	12.274
2	Acetylene	1.908	49397	2310.0	21.384
3	Ethylene	2.367	190242	8316.3	22.876
4	Ethane	2.800	277906	11378.1	24.425
5	Propane	5.058	440123	12067.0	36.473



CONTINUE CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Columm : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BC20005A 03/20/2019 10:56
Conc Cont LFID & Datetime: BL10014A 12/10/2019 13:18
CONC UNIT : ppb

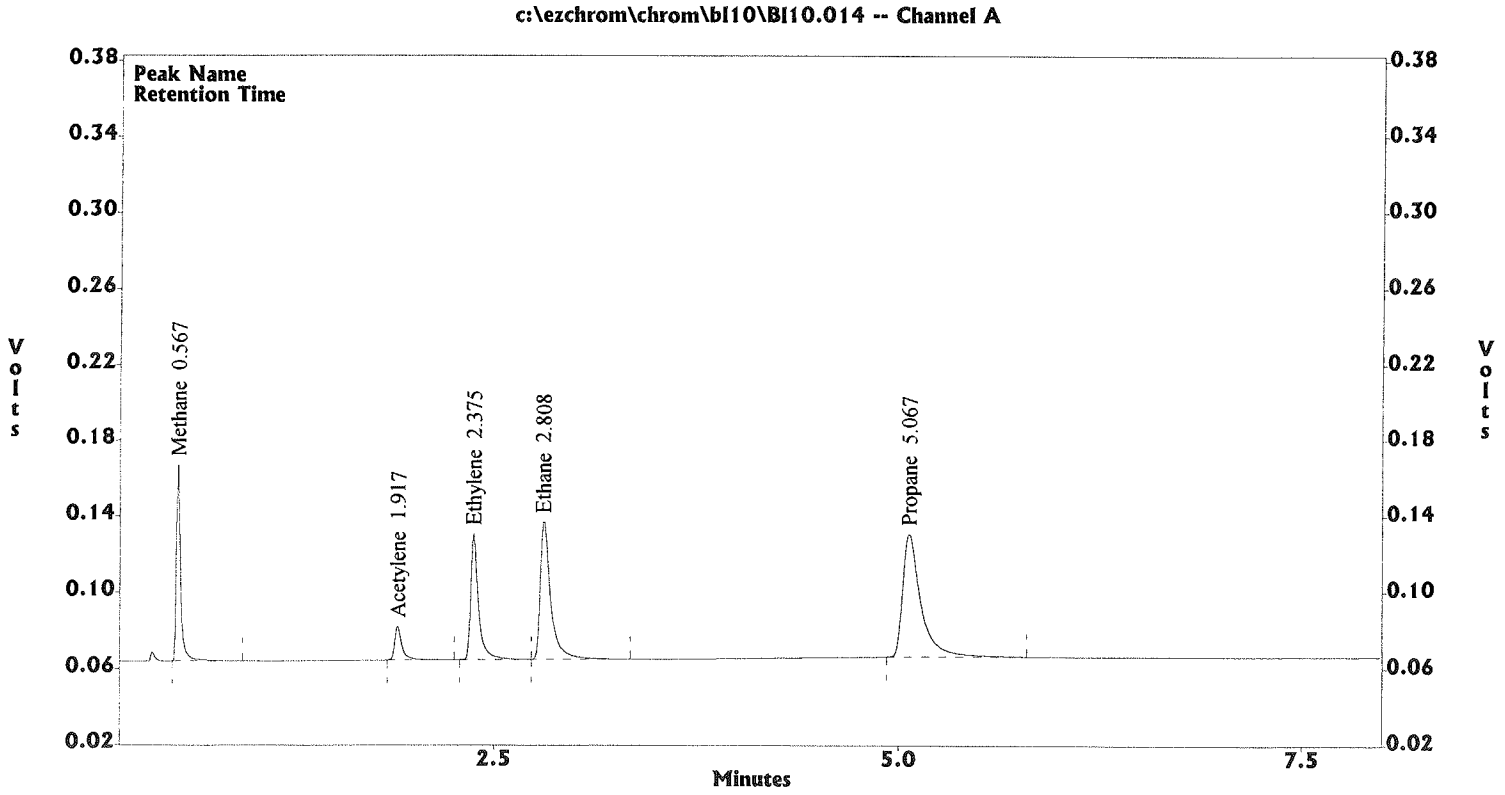
COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.567	0.541	0.593	13.6	13000.2	186147	14.32	5		15
Acetylene	1.917	1.864	1.970	22.1	2310.0	56514	24.47	11		15
Ethylene	2.375	2.337	2.413	23.8	8316.3	219899	26.44	11		15
Ethane	2.808	2.770	2.846	25.5	11378.1	322564	28.35	11		15
Propane	5.067	5.015	5.119	37.4	12067.0	502762	41.66	11		15

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.014
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : CDG72C20415
Acquired : Dec 10, 2019 13:18:16
Printed : Dec 10, 2019 13:26:17
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	186147	13000.2	14.319
2	Acetylene	1.917	56514	2310.0	24.465
3	Ethylene	2.375	219899	8316.3	26.442
4	Ethane	2.808	322564	11378.1	28.349
5	Propane	5.067	502762	12067.0	41.664



ANALYTICAL LOG(S)

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
DISSOLVED GAS

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

DGAS ICAL

Book #:	A72-015
Instrument No.:	72
Analytical Sequence:	BC20
Method File:	DG72C20
Analytical Batch:	N/A

SOP #	Rev. #
☑ EMAX-RSK175	4
☐ EMAX-D1945	0
☐ EMAX-	
☐ EMAX-	

STANDARDS ID		Conc ~~(ug/L)~~ ug/L
ICAL	SSB-17-09-01	10 - 500
ICV	↓ -02	200
Temperature (°C) 21		
Data File		

AS 3/20

SYRINGES
☑ 500 µL - MSF-01-02-12
☐ 100 µL - MSF-01-03-02
☐ 100 µL - MSF-01-02-01
☐ 100 µL - MSF-01-02-20
☐ 100 µL - MSF-01-03-08
☐ 10 µL - MSF-01-02-05
☐

ELECTRONIC DATA ARCHIVAL	
Location	Date
Labbkup/Ezchrom/EZC_9_DGAS	

Analyzed By: AS

Date: 3/20/19

Disposed By:

Date Disposed:

Run	Run Type	Sample ID	Method	FileName	Sample Qnt.	Multi.	Description
1	Unknown	IB72C2001	dg72c20.met	BC20.001	500 uL	1	
2	Begin Calibration	DG72C2001	dg72c20.met	BC20.002	500 uL	1	
3	Calibration	DG72C2002	dg72c20.met	BC20.003	500 uL	1	
4	Calibration	DG72C2003	dg72c20.met	BC20.004	500 uL	1	DGAS
5	Calibration	DG72C2004	dg72c20.met	BC20.005	500 uL	1	ICAL
6	Calibration	DG72C2005	dg72c20.met	BC20.006	500 uL	1	
7	End Calibration	DG72C2006	dg72c20.met	BC20.007	500 uL	1	
8	Unknown	IDG72C2001	dg72c20.met	BC20.008	500 uL	1	DGAS ICV

FINAL

As

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

DG1002W : L043, L057

Book #: A72-018

Instrument No.: 72

Analytical Sequence: BL10

Method File: DG72C20

Analytical Batch: CDG72C20414

SOP #	Rev. #
☑ EMAX-RSK175	4
☐ EMAX-D1945	0
☐ EMAX-	
☐ EMAX-	

STANDARDS ID		Conc (µL/L)
DCC	SSSB-17-50-03	200
Temperature (°C)	21	
Data File		

SYRINGES
☐ 500 µL - MSF-01-03-21
☑ 500 µL - MSF-01-02-12
☐ 100 µL - MSF-01-03-05
☐ 100 µL - MSF-01-02-01
☐ 100 µL - MSF-01-02-20
☐ 100 µL - MSF-01-03-08
☐ 10 µL - MSF-01-02-05
☐

ELECTRONIC DATA ARCHIVAL	
Location	Date
Labbkup/Ezchrom/EZC_9_DGAS	

Analyzed By: SC

Date: 12/10/19

Disposed By:

Date Disposed:

Batch: bl10.seq

Run	Sample ID	Method	Filename	Sample Amt.	Mult.	Desc
1	IB72L1001	dg72c20.met	BL10.001	500uL	1	
2	CDG72C20414 Bad Inj.	dg72c20.met	BL10.002	500uL	1	
3	CDG72C20414	dg72c20.met	BL10.003	500uL	1	
4	DGL002WB	dg72c20.met	BL10.004	500uL	1	
5	DGL002WL	dg72c20.met	BL10.005	500uL	1	
6	DGL002WC	dg72c20.met	BL10.006	500uL	1	
7	L043-01	dg72c20.met	BL10.007	500uL	1	
8	L043-02	dg72c20.met	BL10.008	500uL	1	
9	L043-04	dg72c20.met	BL10.009	500uL	1	
10	L043-05	dg72c20.met	BL10.010	500uL	1	
11	L043-07	dg72c20.met	BL10.011	500uL	1	
12	L043-07M	dg72c20.met	BL10.012	500uL	1	
13	L043-07S	dg72c20.met	BL10.013	500uL	1	
14	CDG72C20415	dg72c20.met	BL10.014	500uL	1	
15	L057-01	dg72c20.met	BL10.015	500uL	1	
16	L057-02	dg72c20.met	BL10.016	500uL	1	
17	L057-03	dg72c20.met	BL10.017	500uL	1	
18	L057-04	dg72c20.met	BL10.018	500uL	1	
19	L057-05	dg72c20.met	BL10.019	500uL	1	
20	L057-07	dg72c20.met	BL10.020	500uL	1	
21	L057-08	dg72c20.met	BL10.021	500uL	1	
22	L057-09	dg72c20.met	BL10.022	500uL	1	

FINAL
SC 12/10/19

EXTRACTION LOG(S)

EMAX LABORATORIES, INC.

EXTRACTION LOG FOR DISSOLVED GAS

SOP ☑ EMAX-RSK175 Rev. 4 ☐ CO2 ☐ Room Temp. (°C): 21 Book #: EDG-043

Start Date: 3/20/19 Time: 9:15 End Date: 3/20/19 Time: 9:30

PREPARATION BATCH* N/A

Sample Prep ID	Lab Sample ID	Sample Amount (ml)	Extract Volume (ml)	pH (< 2)	Notes
01	DG72E20-01	39	4	N/A	
02	-02	↓	↓	N/A	
03	-03			N/A	
04	-04			N/A	
05	-05			N/A	
06	-06			N/A	
07	IDG72C20-01			N/A	
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

AS 3/20/19

Standards	ID	Amount Added (ul)
LCS/MS ICV	555A-10-01-07	1600
ICAL	↓ -02	*

Reagent	Source
H_2O	RW2-18-001
He	555A-10-02-02
Thermometer ID #:	RSK175-01
Tedlar Bag Lot#:	28180128
pH Strips:	HC857466
Vial Manufacturer:	VWR 090318-3

Syringes

- ☐ 10 mL - MSF-01-01-24
- ☑ 5 mL - MSF-01-01-25
- ☑ 5 mL - MSF-01-01-13
- ☐ 5 mL - MSF-01-03-06
- ☑ 1 mL - MSF-01-02-24

Comments: *

DGAS std (mL)		Helium (mL)
1) 0.08 mL	+	3.92 mL
2) 0.40	+	3.60
3) 1.00	+	3.00
4) 1.60	+	2.40
5) 3.00	+	1.00
6) 4.00	+	—

Prepared By: AS

Standard Added By: AS

EMAX LABORATORIES, INC.

EXTRACTION LOG FOR DISSOLVED GAS

SOP ☑ EMAX-RSK175 Rev. 4 ☐ CO2 ☐ Room Temp. (°C): 21 Book #: EDG-044

Start Date: 12/10/19 Time: 9:40 End Date: 12/10/19 Time: 10:40

PREPARATION BATCH* DG1002W

Sample Prep ID	Lab Sample ID	Sample Amount (ml)	Extract Volume (ml)	pH (< 2)	Notes
01	DG1002 WB	39	4	N/A	
02	↓ L	↓	↓	N/A	
03	↓ C	↓	↓	N/A	
04	L043 - 01	↓	↓	✓	
05	-02	↓	↓	✓	
06	-04	↓	↓	✓	
07	-05	↓	↓	✓	
08	-07	↓	↓	✓	
09	-07M	↓	↓	✓	
10	↓ -07S	↓	↓	✓	
11	L057- 01	↓	↓	✓	
12	-02	↓	↓	✓	
13	-03	↓	↓	✓	
14	-04	↓	↓	✓	
15	-05	↓	↓	✓	
16	-07	↓	↓	✓	
17	-08	↓	↓	✓	
18	-09	↓	↓	✓	
19	↓ -10	↓	↓	✓	
20					
21					
22					
23					
24				SC 12/10/19	
25					
26					
27					
28					
29					
30					

Standards	ID	Amount Added (ul)
LCS/MS	SSSA-10-01-07	1600

Reagent	Source
H_2O	RW2-18-001
He	SSSA-10-02-02
Thermometer ID #:	RSK175-01
Tedlar Bag Lot#:	2818/B0128
pH Strips:	HC863463
Vial Manufacturer:	ESS # FR238546-2-19221

Syringes

- ☐ 10 mL - MSF-01-01-24
- ☐ ~~5 mL - MSF-01-01-25~~
- ☑ 5 mL - MSF-01-01-13
- ☐ 5 mL - MSF-01-03-06
- ☐ 1 mL - MSF-01-02-24
- ☐

Comments:

Prepared By: SC

Standard Added By: SC

LABORATORY REPORT FOR

CDM SMITH

VA SALT LAKE CITY

METALS / MERCURY

SDG#: 19L043

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L043

METHOD SW6020A
METALS BY ICP-MS

A total of five(5) water samples were received on 12/06/19 to be analyzed for Metals by ICP-MS in accordance with Method SW6020A and project specific requirements.

Holding Time
Samples were digested and analyzed within the prescribed holding time.

Calibration
Initial Calibration was established as prescribed by the method and was verified using a secondary source(ICV). Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were satisfied. MRL was analyzed as required by the project.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Calcium(51.8J <1/10 sample concentration level), Lead(0.0572J <1/2 LOQ), Sodium(41.4J <1/2 LOQ) and Zinc(5.13J <1/2 LOQ) were detected at trace level in IML008WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. IML008WL/IML008WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed and the following were noted: L043-07M/L043-07S - Percent recoveries for Calcium(63X), Magnesium(24X) and Sodium(85X) were not within MS/MSD QC limits. The enclosed value(#X) is the ratio of parent sample result and spike amount. Presence of matrix interference was suspected. The rest of the analytes were in control. Analytical spike and serial dilution were analyzed and evaluated as appropriate. Results were within expected values. Refer to Matrix QC summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met with the exception of those that were discussed within the associated QC parameter.

LAB CHRONICLE
METALS BY ICP-MS

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L043
Instrument ID : H6

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IML008WB	1	NA	12/12/1911:12	12/11/1909:46	H6L03017	H6L03015	IML008W	Method Blank
LCS1W	IML008WL	1	NA	12/12/1911:15	12/11/1909:46	H6L03018	H6L03015	IML008W	Lab Control Sample (LCS)
LCD1W	IML008WC	1	NA	12/12/1911:17	12/11/1909:46	H6L03019	H6L03015	IML008W	LCS Duplicate
OU2-MW20S-GW120419	L043-01I	10	NA	12/12/1911:31	12/11/1909:46	H6L03025	H6L03023	IML008W	Diluted Sample
OU2-MW20D-GW120519	L043-02I	10	NA	12/12/1911:33	12/11/1909:46	H6L03026	H6L03023	IML008W	Diluted Sample
OU2-MW18-GW120519	L043-04I	10	NA	12/12/1911:36	12/11/1909:46	H6L03027	H6L03023	IML008W	Diluted Sample
OU2-MW19-GW120519	L043-05I	10	NA	12/12/1911:38	12/11/1909:46	H6L03028	H6L03023	IML008W	Diluted Sample
OU2-MW02-GW120519MS	L043-07M	10	NA	12/12/1911:40	12/11/1909:46	H6L03029	H6L03023	IML008W	Matrix Spike Sample (MS)
OU2-MW02-GW120519MSD	L043-07S	10	NA	12/12/1911:42	12/11/1909:46	H6L03030	H6L03023	IML008W	MS Duplicate (MSD)
OU2-MW02-GW120519	L043-07A	10	NA	12/12/1911:45	12/11/1909:46	H6L03031	H6L03023	IML008W	Analytical Spike Sample
OU2-MW02-GW120519	L043-07I	10	NA	12/12/1911:47	12/11/1909:46	H6L03032	H6L03023	IML008W	Diluted Sample
OU2-MW02-GW120519	L043-07J	50	NA	12/12/1911:49	12/11/1909:46	H6L03033	H6L03023	IML008W	Diluted Sample
OU2-MW20S-GW120419	L043-01	1	NA	12/12/1912:21	12/11/1909:46	H6L03047	H6L03045	IML008W	Field Sample
OU2-MW20D-GW120519	L043-02	1	NA	12/12/1912:24	12/11/1909:46	H6L03048	H6L03045	IML008W	Field Sample
OU2-MW18-GW120519	L043-04	1	NA	12/12/1912:26	12/11/1909:46	H6L03049	H6L03045	IML008W	Field Sample
OU2-MW19-GW120519	L043-05	1	NA	12/12/1912:28	12/11/1909:46	H6L03050	H6L03045	IML008W	Field Sample
OU2-MW02-GW120519MS	L043-07M	1	NA	12/12/1912:36	12/11/1909:46	H6L03051	H6L03045	IML008W	Matrix Spike Sample (MS)
OU2-MW02-GW120519MSD	L043-07S	1	NA	12/12/1912:38	12/11/1909:46	H6L03052	H6L03045	IML008W	MS Duplicate (MSD)
OU2-MW02-GW120519	L043-07A	1	NA	12/12/1912:40	12/11/1909:46	H6L03053	H6L03045	IML008W	Analytical Spike Sample
OU2-MW02-GW120519	L043-07	1	NA	12/12/1912:42	12/11/1909:46	H6L03054	H6L03045	IML008W	Field Sample
OU2-MW02-GW120519	L043-07J	5	NA	12/12/1912:45	12/11/1909:46	H6L03055	H6L03045	IML008W	Diluted Sample

FN - Filename
% Moist - Percent Moisture

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/04/19 16:10
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
SDG NO.	: 19L043	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW20S-GW120419	Date Analyzed:	12/12/19 12:21
Lab Samp ID:	L043-01	Dilution Factor:	1
Lab File ID:	H6L03047	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03045	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.777J	1.00	0.125
Barium	48.0	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	1.47	1.00	0.100
Cobalt	0.130J	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	ND	1.00	0.0500
Magnesium	33200	100	25.0
Manganese	2.04	1.00	0.250
Nickel	1.40	1.00	0.250
Potassium	2450	100	25.0
Selenium	0.803J	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	1.61	1.00	0.250
Zinc	8.09J	20.0	5.00

Sample ID:	OU2-MW20S-GW120419	Date Analyzed:	12/12/19 11:31
Lab Samp ID:	L043-01I	Dilution Factor:	10
Lab File ID:	H6L03025	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03023	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	96000	1000	250
Sodium	96200	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/04/19 16:10
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
SDG NO.	: 19L043	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW20S-GW120419	Date Analyzed:	12/12/19 12:21
Lab Samp ID:	L043-01	Dilution Factor:	1
Lab File ID:	H6L03047	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03045	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.777J	1.00	0.125
Barium	48.0	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	99900E	100	25.0
Chromium	1.47	1.00	0.100
Cobalt	0.130J	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	ND	1.00	0.0500
Magnesium	33200	100	25.0
Manganese	2.04	1.00	0.250
Nickel	1.40	1.00	0.250
Potassium	2450	100	25.0
Selenium	0.803J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	108000E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.61	1.00	0.250
Zinc	8.09J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/04/19 16:10
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
SDG NO.	: 19L043	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW20S-GW120419	Date Analyzed:	12/12/19 11:31
Lab Samp ID:	L043-01I	Dilution Factor:	10
Lab File ID:	H6L03025	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03023	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	46.2	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	96000	1000	250
Chromium	1.21J	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	34100	1000	250
Manganese	ND	10.0	2.50
Nickel	ND	10.0	2.50
Potassium	2090	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	96200	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 11:50
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
SDG NO.	: 19L043	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW20D-GW120519	Date Analyzed:	12/12/19 12:24
Lab Samp ID:	L043-02	Dilution Factor:	1
Lab File ID:	H6L03048	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03045	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.704J	1.00	0.125
Barium	40.0	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	2.19	1.00	0.100
Cobalt	0.109J	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	ND	1.00	0.0500
Magnesium	35800	100	25.0
Manganese	2.21	1.00	0.250
Nickel	0.495J	1.00	0.250
Potassium	2190	100	25.0
Selenium	0.723J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	41600	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.53	1.00	0.250
Zinc	5.56J	20.0	5.00

Sample ID:	OU2-MW20D-GW120519	Date Analyzed:	12/12/19 11:33
Lab Samp ID:	L043-02I	Dilution Factor:	10
Lab File ID:	H6L03026	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03023	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	94600	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 11:50
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
SDG NO.	: 19L043	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW20D-GW120519	Date Analyzed:	12/12/19 12:24
Lab Samp ID:	L043-02	Dilution Factor:	1
Lab File ID:	H6L03048	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03045	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.704J	1.00	0.125
Barium	40.0	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	101000E	100	25.0
Chromium	2.19	1.00	0.100
Cobalt	0.109J	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	ND	1.00	0.0500
Magnesium	35800	100	25.0
Manganese	2.21	1.00	0.250
Nickel	0.495J	1.00	0.250
Potassium	2190	100	25.0
Selenium	0.723J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	41600	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.53	1.00	0.250
Zinc	5.56J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 11:50
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
SDG NO.	: 19L043	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW20D-GW120519	Date Analyzed:	12/12/19 11:33
Lab Samp ID:	L043-02I	Dilution Factor:	10
Lab File ID:	H6L03026	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03023	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	37.9	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	94600	1000	250
Chromium	1.75J	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	33100	1000	250
Manganese	ND	10.0	2.50
Nickel	ND	10.0	2.50
Potassium	1770	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	39800	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 09:55
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
SDG NO.	: 19L043	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW18-GW120519	Date Analyzed:	12/12/19 12:26
Lab Samp ID:	L043-04	Dilution Factor:	1
Lab File ID:	H6L03049	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03045	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.648J	1.00	0.125
Barium	89.5	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	0.935J	1.00	0.100
Cobalt	0.202J	1.00	0.100
Copper	ND	2.00	0.500
Iron	27.5J	100	25.0
Lead	0.0501J	1.00	0.0500
Manganese	12.0	1.00	0.250
Nickel	1.17	1.00	0.250
Potassium	3200	100	25.0
Selenium	0.963J	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	1.38	1.00	0.250
Zinc	7.03J	20.0	5.00

Sample ID:	OU2-MW18-GW120519	Date Analyzed:	12/12/19 11:36
Lab Samp ID:	L043-04I	Dilution Factor:	10
Lab File ID:	H6L03027	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03023	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	165000	1000	250
Magnesium	68700	1000	250
Sodium	89200	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 09:55
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
SDG NO.	: 19L043	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW18-GW120519	Date Analyzed:	12/12/19 12:26
Lab Samp ID:	L043-04	Dilution Factor:	1
Lab File ID:	H6L03049	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03045	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.648J	1.00	0.125
Barium	89.5	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	160000E	100	25.0
Chromium	0.935J	1.00	0.100
Cobalt	0.202J	1.00	0.100
Copper	ND	2.00	0.500
Iron	27.5J	100	25.0
Lead	0.0501J	1.00	0.0500
Magnesium	66700E	100	25.0
Manganese	12.0	1.00	0.250
Nickel	1.17	1.00	0.250
Potassium	3200	100	25.0
Selenium	0.963J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	88400E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.38	1.00	0.250
Zinc	7.03J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 09:55
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
SDG NO.	: 19L043	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW18-GW120519	Date Analyzed:	12/12/19 11:36
Lab Samp ID:	L043-04I	Dilution Factor:	10
Lab File ID:	H6L03027	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03023	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	85.3	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	165000	1000	250
Chromium	ND	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	68700	1000	250
Manganese	12.3	10.0	2.50
Nickel	ND	10.0	2.50
Potassium	2700	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	89200	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 10:00
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
SDG NO.	: 19L043	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW19-GW120519	Date Analyzed:	12/12/19 12:28
Lab Samp ID:	L043-05	Dilution Factor:	1
Lab File ID:	H6L03050	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03045	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.511J	1.00	0.125
Barium	70.8	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	2.41	1.00	0.100
Cobalt	0.378J	1.00	0.100
Copper	ND	2.00	0.500
Iron	31.2J	100	25.0
Lead	0.0693J	1.00	0.0500
Manganese	13.5	1.00	0.250
Nickel	7.35	1.00	0.250
Potassium	3040	100	25.0
Selenium	0.890J	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	1.31	1.00	0.250
Zinc	6.14J	20.0	5.00

Sample ID:	OU2-MW19-GW120519	Date Analyzed:	12/12/19 11:38
Lab Samp ID:	L043-05I	Dilution Factor:	10
Lab File ID:	H6L03028	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03023	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	148000	1000	250
Magnesium	56300	1000	250
Sodium	79000	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 10:00
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
SDG NO.	: 19L043	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW19-GW120519	Date Analyzed:	12/12/19 12:28
Lab Samp ID:	L043-05	Dilution Factor:	1
Lab File ID:	H6L03050	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03045	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.511J	1.00	0.125
Barium	70.8	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	147000E	100	25.0
Chromium	2.41	1.00	0.100
Cobalt	0.378J	1.00	0.100
Copper	ND	2.00	0.500
Iron	31.2J	100	25.0
Lead	0.0693J	1.00	0.0500
Magnesium	57000E	100	25.0
Manganese	13.5	1.00	0.250
Nickel	7.35	1.00	0.250
Potassium	3040	100	25.0
Selenium	0.890J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	79800E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.31	1.00	0.250
Zinc	6.14J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 10:00
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
SDG NO.	: 19L043	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW19-GW120519	Date Analyzed:	12/12/19 11:38
Lab Samp ID:	L043-05I	Dilution Factor:	10
Lab File ID:	H6L03028	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03023	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	66.2	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	148000	1000	250
Chromium	2.03J	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	56300	1000	250
Manganese	13.5	10.0	2.50
Nickel	7.56J	10.0	2.50
Potassium	2590	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	79000	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH		Date Collected:	12/05/19 12:15
Project : VA SALT LAKE CITY		Date Received:	12/06/19
SDG NO. : 19L043		Date Extracted:	12/11/19 09:46
Sample ID: OU2-MW02-GW120519		Date Analyzed:	12/12/19 12:42
Lab Samp ID: L043-07		Dilution Factor:	1
Lab File ID: H6L03054		Matrix:	WATER
Ext Btch ID: IML008W		% Moisture:	NA
Calib. Ref.: H6L03045		Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.999J	1.00	0.125
Barium	77.8	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	0.859J	1.00	0.100
Cobalt	0.168J	1.00	0.100
Copper	ND	2.00	0.500
Iron	25.6J	100	25.0
Lead	0.0692J	1.00	0.0500
Manganese	0.460J	1.00	0.250
Nickel	0.781J	1.00	0.250
Potassium	3040	100	25.0
Selenium	0.704J	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	1.96	1.00	0.250
Zinc	6.77J	20.0	5.00

Sample ID: OU2-MW02-GW120519		Date Analyzed:	12/12/19 11:47
Lab Samp ID: L043-07I		Dilution Factor:	10
Lab File ID: H6L03032		Matrix:	WATER
Ext Btch ID: IML008W		% Moisture:	NA
Calib. Ref.: H6L03023		Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	189000	1000	250
Magnesium	72100	1000	250
Sodium	255000	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 12:15
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
SDG NO.	: 19L043	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW02-GW120519	Date Analyzed:	12/12/19 12:42
Lab Samp ID:	L043-07	Dilution Factor:	1
Lab File ID:	H6L03054	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03045	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.999J	1.00	0.125
Barium	77.8	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	184000E	100	25.0
Chromium	0.859J	1.00	0.100
Cobalt	0.168J	1.00	0.100
Copper	ND	2.00	0.500
Iron	25.6J	100	25.0
Lead	0.0692J	1.00	0.0500
Magnesium	74300E	100	25.0
Manganese	0.460J	1.00	0.250
Nickel	0.781J	1.00	0.250
Potassium	3040	100	25.0
Selenium	0.704J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	252000E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.96	1.00	0.250
Zinc	6.77J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 12:15
Project	: VA SALT LAKE CITY	Date Received:	12/06/19
SDG NO.	: 19L043	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW02-GW120519	Date Analyzed:	12/12/19 11:47
Lab Samp ID:	L043-07I	Dilution Factor:	10
Lab File ID:	H6L03032	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03023	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	76.0	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	189000	1000	250
Chromium	ND	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	72100	1000	250
Manganese	ND	10.0	2.50
Nickel	ND	10.0	2.50
Potassium	2510	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	255000	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	NA
Project	: VA SALT LAKE CITY	Date Received:	NA
SDG NO.	: 19L043	Date Extracted:	12/11/19 09:46
Sample ID:	MBLK1W	Date Analyzed:	12/12/19 11:12
Lab Samp ID:	IML008WB	Dilution Factor:	1
Lab File ID:	H6L03017	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03015	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	ND	1.00	0.125
Barium	ND	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	51.8J	100	25.0
Chromium	ND	1.00	0.100
Cobalt	ND	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	0.0572J	1.00	0.0500
Magnesium	ND	100	25.0
Manganese	ND	1.00	0.250
Nickel	ND	1.00	0.250
Potassium	ND	100	25.0
Selenium	ND	1.00	0.150
Silver	ND	1.00	0.100
Sodium	41.4J	100	25.0
Thallium	ND	1.00	0.100
Vanadium	ND	1.00	0.250
Zinc	5.13J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : SW6020A

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: IML008WB	IML008WL	IML008WC
LAB FILE ID	: H6L03017	H6L03018	H6L03019
DATE PREPARED	: 12/11/19 09:46	12/11/19 09:46	12/11/19 09:46
DATE ANALYZED	: 12/12/19 11:12	12/12/19 11:15	12/12/19 11:17
PREP BATCH	: IML008W	IML008W	IML008W
CALIBRATION REF	: H6L03015	H6L03015	H6L03015

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Aluminum	ND	3000	2690	90	3000	2900	97	8	80-120	20
Antimony	ND	30	27.3	91	30	27.8	93	2	80-120	20
Arsenic	ND	30	28.7	96	30	28.4	95	1	80-120	20
Barium	ND	30	26.8	89	30	27.1	90	1	80-120	20
Beryllium	ND	30	28.5	95	30	27.0	90	5	80-120	20
Cadmium	ND	30	27.5	92	30	27.6	92	0	80-120	20
Calcium	51.8J	3000	2770	92	3000	2790	93	1	80-120	20
Chromium	ND	30	27.7	92	30	27.4	91	1	80-120	20
Cobalt	ND	30	27.4	91	30	28.5	95	4	80-120	20
Copper	ND	30	28.7	96	30	28.2	94	2	80-120	20
Iron	ND	3000	2810	94	3000	2900	97	3	80-120	20
Lead	0.0572J	30	28.8	96	30	27.6	92	4	80-120	20
Magnesium	ND	3000	2740	91	3000	2970	99	8	80-120	20
Manganese	ND	30	28.2	94	30	30.4	101	8	80-120	20
Nickel	ND	30	28.3	94	30	28.0	93	1	80-120	20
Potassium	ND	3000	3160	105	3000	3050	102	4	80-120	20
Selenium	ND	30	29.3	98	30	29.0	97	1	80-120	20
Silver	ND	30	27.8	93	30	28.4	95	2	80-120	20
Sodium	41.4J	3000	2770	92	3000	2820	94	2	80-120	20
Thallium	ND	30	28.9	96	30	27.7	92	4	80-120	20
Vanadium	ND	30	26.3	88	30	26.1	87	1	80-120	20
Zinc	5.13J	60	59.3	99	60	61.1	102	3	80-120	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : SW6020A

MATRIX : WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : OU2-MW02-GW120519 OU2-MW02-GW120519MS OU2-MW02-GW120519MSD
LAB SAMPLE ID : L043-07 L043-07M L043-07S
LAB FILE ID : H6L03054 H6L03051 H6L03052
DATE PREPARED : 12/11/19 09:46 12/11/19 09:46 12/11/19 09:46
DATE ANALYZED : 12/12/19 12:42 12/12/19 12:36 12/12/19 12:38
PREP BATCH : IML008W IML008W IML008W
CALIBRATION REF: H6L03045 H6L03045 H6L03045

ACCESSION:

PARAMETERS	PSResult (ug/L)	SpikeAmt (ug/L)	MSResult (ug/L)	MSRec (%)	SpikeAmt (ug/L)	MSDResult (ug/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Aluminum	ND	3000	2960	99	3000	2770	92	7	75-125	20
Antimony	ND	30	27.7	92	30	28.2	94	2	75-125	20
Arsenic	0.999J	30	28.7	92	30	29.4	95	2	75-125	20
Barium	77.8	30	108	101	30	110	107	2	75-125	20
Beryllium	ND	30	28.7	96	30	29.2	97	2	75-125	20
Cadmium	ND	30	26.3	88	30	26.9	90	2	75-125	20
Chromium	0.859J	30	27.0	87	30	28.0	90	4	75-125	20
Cobalt	0.168J	30	27.1	90	30	26.4	87	3	75-125	20
Copper	ND	30	26.3	88	30	27.3	91	4	75-125	20
Iron	25.6J	3000	2950	97	3000	2880	95	2	75-125	20
Lead	0.0692J	30	27.2	90	30	28.2	94	4	75-125	20
Manganese	0.460J	30	28.0	92	30	28.8	94	3	75-125	20
Nickel	0.781J	30	26.4	85	30	27.4	89	4	75-125	20
Potassium	3040	3000	5740	90	3000	5680	88	1	75-125	20
Selenium	0.704J	30	28.5	93	30	29.1	95	2	75-125	20
Silver	ND	30	26.6	89	30	27.2	91	2	75-125	20
Thallium	ND	30	27.4	91	30	28.6	95	4	75-125	20
Vanadium	1.96	30	28.0	87	30	29.0	90	4	75-125	20
Zinc	6.77J	60	54.4	79	60	60.1	89	10	75-125	20

PSResult - Parent Sample Result

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : SW6020A

MATRIX : WATER % MOISTURE: NA
DILUTION FACTOR: 10 10 10
SAMPLE ID : OU2-MW02-GW120519 OU2-MW02-GW120519MS OU2-MW02-GW120519MSD
LAB SAMPLE ID : L043-07I L043-07M L043-07S
LAB FILE ID : H6L03032 H6L03029 H6L03030
DATE PREPARED : 12/11/19 09:46 12/11/19 09:46 12/11/19 09:46
DATE ANALYZED : 12/12/19 11:47 12/12/19 11:40 12/12/19 11:42
PREP BATCH : IML008W IML008W IML008W
CALIBRATION REF: H6L03023 H6L03023 H6L03023

ACCESSION:

PARAMETERS	PSResult (ug/L)	SpikeAmt (ug/L)	MSResult (ug/L)	MSRec (%)	SpikeAmt (ug/L)	MSDResult (ug/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Calcium	189000	3000	202000	433*	3000	200000	367*	1	75-125	20
Magnesium	72100	3000	79700	253*	3000	78400	210*	2	75-125	20
Sodium	255000	3000	272000	567*	3000	266000	367*	2	75-125	20

PSResult - Parent Sample Result
* Out of QC limit

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : SW6020A

MATRIX : WATER % MOISTURE: NA
DILUTION FACTOR: 1 5
SAMPLE ID : OU2-MW02-GW120519 OU2-MW02-GW120519
LAB SAMPLE ID : L043-07 L043-07J
LAB FILE ID : H6L03054 H6L03055
DATE PREPARED : 12/11/19 09:46 12/11/19 09:46
DATE ANALYZED : 12/12/19 12:42 12/12/19 12:45
PREP BATCH : IML008W IML008W
CALIBRATION REF: H6L03045 H6L03045

ACCESSION:

PARAMETERS	Sample Result (ug/L)	SD Result (ug/L)	%Difference (%)	Max %D (%)
Aluminum	ND	ND	0	10
Antimony	ND	ND	0	10
Arsenic	0.999J	1.09J	NA	10
Barium	77.8	77.4	1	10
Beryllium	ND	ND	0	10
Cadmium	ND	ND	0	10
Chromium	0.859J	0.533J	NA	10
Cobalt	0.168J	ND	NA	10
Copper	ND	ND	0	10
Iron	25.6J	ND	NA	10
Lead	0.0692J	ND	NA	10
Manganese	0.460J	ND	NA	10
Nickel	0.781J	ND	NA	10
Potassium	3040	2500	18*	10
Selenium	0.704J	ND	NA	10
Silver	ND	ND	0	10
Thallium	ND	ND	0	10
Vanadium	1.96	2.45J	NA	10
Zinc	6.77J	ND	NA	10

SD - Serial Dilution
* Out of QC limit

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : SW6020A

MATRIX : WATER % MOISTURE: NA
DILUTION FACTOR: 10 50
SAMPLE ID : OU2-MW02-GW120519 OU2-MW02-GW120519
LAB SAMPLE ID : L043-07I L043-07J
LAB FILE ID : H6L03032 H6L03033
DATE PREPARED : 12/11/19 09:46 12/11/19 09:46
DATE ANALYZED : 12/12/19 11:47 12/12/19 11:49
PREP BATCH : IML008W IML008W
CALIBRATION REF: H6L03023 H6L03023

ACCESSION:

PARAMETERS	Sample Result (ug/L)	SD Result (ug/L)	%Difference (%)	Max %D (%)
Calcium	189000	177000	6	10
Magnesium	72100	73700	2	10
Sodium	255000	234000	8	10

SD - Serial Dilution

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : SW6020A

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR	: 1	1
SAMPLE ID	: OU2-MW02-GW120519	OU2-MW02-GW120519
LAB SAMPLE ID	: L043-07	L043-07A
LAB FILE ID	: H6L03054	H6L03053
DATE PREPARED	: 12/11/19 09:46	12/11/19 09:46
DATE ANALYZED	: 12/12/19 12:42	12/12/19 12:40
PREP BATCH	: IML008W	IML008W
CALIBRATION REF	: H6L03045	H6L03045

ACCESSION:

PARAMETERS	Sample Result (ug/L)	Spike Amt (ug/L)	AS Result (ug/L)	AS Rec (%)	QC Limit (%)
Aluminum	ND	3000	3080	103	80-120
Antimony	ND	30	29.0	97	80-120
Arsenic	0.999J	30	31.0	100	80-120
Barium	77.8	30	108	101	80-120
Beryllium	ND	30	31.6	105	80-120
Cadmium	ND	30	28.4	95	80-120
Chromium	0.859J	30	29.7	96	80-120
Cobalt	0.168J	30	29.9	99	80-120
Copper	ND	30	29.2	97	80-120
Iron	25.6J	3000	3060	101	80-120
Lead	0.0692J	30	28.3	94	80-120
Manganese	0.460J	30	32.2	106	80-120
Nickel	0.781J	30	29.0	94	80-120
Potassium	3040	3000	5960	97	80-120
Selenium	0.704J	30	30.0	98	80-120
Silver	ND	30	28.2	94	80-120
Thallium	ND	30	28.7	96	80-120
Vanadium	1.96	30	30.4	95	80-120
Zinc	6.77J	60	62.7	93	80-120

AS - Analytical Spike

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : SW6020A

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR	: 10	10
SAMPLE ID	: OU2-MW02-GW120519	OU2-MW02-GW120519
LAB SAMPLE ID	: L043-07I	L043-07A
LAB FILE ID	: H6L03032	H6L03031
DATE PREPARED	: 12/11/19 09:46	12/11/19 09:46
DATE ANALYZED	: 12/12/19 11:47	12/12/19 11:45
PREP BATCH	: IML008W	IML008W
CALIBRATION REF	: H6L03023	H6L03023

ACCESSION:

PARAMETERS	Sample Result (ug/L)	Spike Amt (ug/L)	AS Result (ug/L)	AS Rec (%)	QC Limit (%)
Calcium	189000	30000	222000	110	80-120
Magnesium	72100	30000	102000	100	80-120
Sodium	255000	30000	288000	110	80-120

AS - Analytical Spike

ICP-MS QC CHECK TABLE

QC	HIGH STD	ICV	CCV	ICSAB	ICSA
Limit%		90-110	90-110	80-120	80-120
Comp	ug/L	ug/L	ug/L	ug/L	ug/L
Al	50000	30000	25000	100000	100000
Sb	100	60	50	20	0
As	500	300	250	20	0
Ba	1000	300	500	20	0
Be	50	30	25	20	0
B	100	30	50	20	0
Cd	500	300	250	20	0
Ca	50000	30000	25000	100000	100000
Cr	500	300	250	20	0
Co	500	300	250	20	0
Cu	500	300	250	20	0
Fe	50000	30000	25000	100000	100000
Li	50	30	25	20	0
Pb	500	300	250	20	0
Mg	50000	30000	25000	100000	100000
Mn	3000	2000	1500	20	0
Mo	500	300	250	2000	2000
Ni	500	300	250	20	0
P	500	300	250	100000	100000
K	50000	30000	25000	100000	100000
Se	500	300	250	20	0
Si	5000	3000	2500	200	0
Ag	50	30	25	20	0
Na	50000	30000	25000	100000	100000
Sr	500	300	250	20	0
Tl	500	300	250	20	0
Sn	500	300	250	20	0
Ti	500	300	250	2000	2000
W	50	30	25	20	0
V	500	300	250	20	0
U	500	300	250	20	0
Zn	500	300	250	20	0
Zr	50	30	25	20	0

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ICP-MS

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 12/12/19 10:36

End Date: 12/12/19 13:28

Comments:

All soil/solid samples are diluted at 10x dilution prior to analysis.

Filter Lot #: NA

- MRL4204 Na fail
- MRL4205 ↓

Book #:	AH6-002
Instrument No.:	H6
Analytical Batch:	1H6L03
Analytical Sequence:	H6L03
Method File:	E6020HG
Micropipette ID:	☐ 142781004
Micropipette ID:	☒ ICP-06
Micropipette ID:	☒ 339362028
Micropipette ID:	☒ GFAA-07
Micropipette ID:	☐ 339342032
Micropipette ID:	☒ 542780515
Micropipette ID:	☐ 542761827
Micropipette ID:	☐

SOP #	Rev. #
☐ EMAX-200.8	6
☒ EMAX-6020	11
☐ EMAX-6020CA	1
☐ EMAX-	
☐ EMAX-	

STANDARDS ID		STANDARDS ID	
S0	SM6B-18-26-01	MRL1 (1)	SM6B-18-38-01
S1	S0-01	MRL2 (0.4)	48-02
S2	S0-02	MRL3 (HG)	15-01
S3	S1-01	MRL4	NA
S4	S1-02	MRL5	↓
S5	NA	MRL6	↓
S6	↓	Internal Standard	SM6B-17-90-02
S7	↓	Post-Spike 1	SM6A-007-06-09
ICV	SM6B-18-47-01	Post-Spike 2	↓ 06-10
CCV	S2-01	Post-Spike 3	NA
ICSA	66-02	Post-Spike 4	↓
ICSAB	67-01		
6020 TUNE SOLN.	NA		
200.8 TUNE SOLN.	SM6B-17-91-01		

Analyzed By: LV

Date: 12/12/19

INITIAL CALIBRATION VERIFICATION SUMMARY FORM

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L043
Method : METHOD SW6020A
Sequence : IH6L03
InstrumentID: H6

		ICV				ICSA			ICSAB		
Lab Samp ID :		ICV				ICSA			ICSAB		
QC Limit :		%R:90-110/RSD:<5				%R:80-120/<LOD			%R:80-120		
Lab File ID :		H6L03008				H6L03012			H6L03013		
DateAnalyed :		12/12/1910:52				12/12/1911:01			12/12/1911:03		
Parameter		Result	ICV EV	RSD	%Recovery	Result	ICSA EV	%Rec/LOD	Result	ICSAB EV	%Recovery
Lithium		29.47	30	2.8	98	0.47724	0	>0	21.658	20	108
Beryllium	T	30.26	30	3.3	101	0.0010533	0	<0.10	21.431	20	107
Boron		29.51	30	4.8	98	0.69837	0	<5.0	21.424	20	107
Sodium	T	29880	30000	4.1	100	103050	100000	103	98598	100000	99
Magnesium	T	30640	30000	7.6	102	98874	100000	99	94734	100000	95
Aluminum	T	29500	30000	4.1	98	100860	100000	101	95493	100000	95
Silicon		3061	3000	4.4	102	5.0163	0	<20	196.91	200	98
Phosphorus		295.7	300	2.8	99	94246	100000	94	93729	100000	94
Potassium	T	28790	30000	1.6	96	99478	100000	99	98314	100000	98
Calcium	T	30020	30000	1.2	100	106210	100000	106	101930	100000	102
Titanium		298.2	300	3.4	99	2083.1	2000	104	2003.1	2000	100
Vanadium	T	321.1	300	3.3	107	0.17835	0	<0.25	18.397	20	92
Chromium	T	317.4	300	1.4	106	0.25416	0	>0.1	19.014	20	95
Manganese	T	1952	2000	2.5	98	0.23954	0	<0.25	19.230	20	96
Iron	T	30410	30000	4.2	101	107530	100000	108	101420	100000	101
Cobalt	T	303.3	300	1.9	101	0.36010	0	>0.1	19.021	20	95
Nickel	T	303.2	300	1.3	101	0.31798	0	>0.25	19.231	20	96
Copper	T	323.3	300	0.9	108	0.077132	0	<0.50	19.200	20	96
Zinc	T	301.1	300	7.0	100	1.2515	0	<5	19.867	20	99
Arsenic	T	315.0	300	0.4	105	0.017600	0	<0.125	19.398	20	97
Selenium	T	310.2	300	1.1	103	0.11256	0	<0.15	20.375	20	102
Strontium		292.9	300	6.9	98	0.79661	0	<1.0	19.928	20	100
Zirconium		29.61	30	4.9	99	0.055391	0	<2.0	3.8255	20	19*
Molybdenum		301.1	300	3.5	100	1998.5	2000	100	2030.8	2000	102
Silver	T	28.43	30	1.1	95	0.0064527	0	<0.1	19.602	20	98
Cadmium	T	303.8	300	1.8	101	0.049906	0	<0.1	19.728	20	99
Tin		316.1	300	4.0	105	0.26682	0	>0.2	20.775	20	104
Antimony	T	57.45	60	1.6	96	0.17156	0	<0.25	20.169	20	101
Barium	T	308.8	300	1.7	103	0.23408	0	<0.25	19.839	20	99
Tungsten		29.63	30	1.1	99	0.17696	0	<1.0	20.015	20	100
Mercury		3.043	3	1.0	101	0.0086839	0	<0.1	2.0673	2	103
Thallium	T	323.8	300	5.2	108	0.029961	0	<0.1	19.488	20	97
Lead	T	312.0	300	2.9	104	0.094588	0	>0.05	19.547	20	98
Uranium		324.2	300	5.7	108	0.0018374	0	<0.1	19.663	20	98

| Unit: ug/L
| T: Target analyte
| EV: Expected Value
| Comment: * Out of QC limit

CONTINUING CALIBRATION VERIFICATION SUMMARY FORM

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L043
Method : METHOD SW6020A
Sequence : IH6L03
Instrument ID: H6

CCV SampleID			CCV1			CCV2			CCV3			CCV4			CCV5		
CCV DataFileID			H6L03015			H6L03023			H6L03034			H6L03045			H6L03056		
CCV DateTime			12/12/19 11:08			12/12/19 11:26			12/12/19 11:52			12/12/19 12:17			12/12/19 12:47		
PARAMETER		CCV EV	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD
Lithium		25	24.5	98	2.8	23.8	95	10.0	25.7	103	3.8	25.9	104	11.6	24.5	98	2.4
Beryllium	T	25	25.2	101	3.3	24.9	100	6.9	25.7	103	3.6	26.2	105	8.5	24.5	98	2.5
Boron		50	48.7	97	4.6	47.7	95	4.5	50.8	102	4.1	51.5	103	10.4	48.8	98	3.4
Sodium	T	25000	25200	101	5.9	25000	100	5.4	25100	100	3.4	25500	102	7.5	25400	102	2.9
Magnesium	T	25000	25400	102	6.5	24700	99	3.1	25100	101	3.3	25300	101	1.8	25700	103	2.4
Aluminum	T	25000	24700	99	8.0	24900	100	7.4	25500	102	4.8	24700	99	3.6	24900	100	4.5
Silicon		2500	2520	101	7.9	2480	99	6.4	2540	102	7.9	2510	100	1.8	2470	99	2.2
Phosphorus		250	240	96	6.8	239	96	4.8	240	96	2.5	243	97	0.9	244	98	5.3
Potassium	T	25000	25000	100	2.4	25100	100	2.0	25400	102	2.4	25600	102	1.8	25700	103	0.4
Calcium	T	25000	24900	100	2.5	25800	103	3.8	24800	99	5.3	25700	103	8.0	24800	99	2.1
Titanium		250	242	97	6.1	238	95	4.1	241	96	3.2	242	97	2.1	239	96	4.5
Vanadium	T	250	258	103	2.5	259	103	4.1	268	107	1.1	260	104	5.3	254	102	4.8
Chromium	T	250	253	101	3.4	256	103	0.9	261	104	1.3	249	100	3.2	265	106	3.0
Manganese	T	1500	1560	104	4.8	1570	105	4.1	1580	106	5.0	1540	103	2.4	1560	104	2.1
Iron	T	25000	25100	100	3.5	26000	104	3.5	26100	104	3.9	26700	107	8.2	25500	102	3.5
Cobalt	T	250	250	100	8.1	253	101	3.6	259	104	6.6	255	102	1.6	251	100	2.2
Nickel	T	250	243	97	1.8	240	96	0.0	243	97	0.4	243	97	1.3	247	99	2.0
Copper	T	250	261	105	5.7	263	105	2.2	265	106	1.2	256	102	2.0	267	107	1.3
Zinc	T	250	240	96	4.0	249	99	0.6	236	95	2.5	255	102	5.0	249	100	7.1
Arsenic	T	250	248	99	0.7	248	99	1.1	248	99	0.4	249	100	0.6	246	98	1.8
Selenium	T	250	256	102	1.1	252	101	1.6	251	100	0.4	253	101	2.8	249	100	0.7
Strontium		250	244	97	2.8	249	99	3.8	242	97	5.7	248	99	1.2	250	100	9.3
Zirconium		25	23.9	96	2.5	24.0	96	2.7	23.5	94	3.9	24.7	99	1.9	24.3	97	5.5
Molybdenum		250	240	96	3.8	239	95	1.4	246	99	9.9	252	101	3.6	252	101	3.6
Silver	T	25	24.0	96	0.5	24.6	98	3.0	24.6	98	5.6	24.7	99	4.9	24.6	98	1.7
Cadmium	T	250	245	98	1.1	247	99	3.3	245	98	5.5	249	100	4.2	249	99	1.7
Tin		250	253	101	2.6	254	102	5.7	254	102	2.1	253	101	4.7	257	103	2.9
Antimony	T	50	48.1	96	2.4	48.7	97	3.2	48.6	97	6.5	49.8	100	4.3	49.8	100	1.3
Barium	T	500	493	99	2.1	489	98	2.3	487	97	7.7	496	99	6.2	519	104	5.6
Tungsten		25	24.2	97	2.1	24.3	97	2.3	23.2	93	2.9	25.2	101	3.5	24.2	97	0.4
Mercury		2.5	2.62	105	2.5	2.54	102	1.1	2.50	100	3.0	2.67	107	5.4	2.59	104	1.9
Thallium	T	250	259	103	2.7	249	100	0.8	242	97	4.9	261	104	2.1	250	100	4.8
Lead	T	250	253	101	4.1	251	101	1.8	244	98	4.9	259	104	5.7	256	102	2.9
Uranium		250	252	101	4.1	249	100	1.9	249	99	5.2	264	106	5.0	256	103	0.7

Unit: ug/L
T: Target analyte
%Rec QC Limit: 90-110
RSD QC Limit: <5
CCV EV: CCV Expected Value ug/L
Comment:

CONTINUING CALIBRATION BLANK SUMMARY FORM

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L043
Method : SW6020A
Sequence : IH6L03
Instrument ID: H6

CB SampleID		: ICB	CCB1	CCB2	CCB3	CCB4
CB DataFileID		: H6L03009	H6L03016	H6L03024	H6L03035	H6L03046
CB DateTime		: 12/12/1910:54	12/12/1911:10	12/12/1911:29	12/12/1911:54	12/12/1912:19

PARAMETER		LOD	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >
Lithium		0	0.3	>0	0.3	>0	1.0	>0	0.04	>0	0.5	>0
Beryllium	T	0.10	0.003	<0.10	0.004	<0.10	0.003	<0.10	0.006	<0.10	0.005	<0.10
Boron		5.0	0.5	<5.0	0.4	<5.0	0.3	<5.0	0.3	<5.0	0.2	<5.0
Sodium	T	25	5	<25	7	<25	3	<25	5	<25	7	<25
Magnesium	T	25	2	<25	1	<25	2	<25	4	<25	7	<25
Aluminum	T	25	1	<25	1	<25	2	<25	4	<25	6	<25
Silicon		20	1	<20	0.04	<20	0.01	<20	0.6	<20	0.7	<20
Phosphorus		25	0.1	<25	4	<25	2	<25	1	<25	0.09	<25
Potassium	T	25	0.1	<25	0.3	<25	1	<25	2	<25	8	<25
Calcium	T	25	0.9	<25	0.3	<25	0.7	<25	2	<25	4	<25
Titanium		0.5	0.005	<0.5	0.0006	<0.5	0.007	<0.5	0.03	<0.5	0.06	<0.5
Vanadium	T	0.25	0.1	<0.25	0.1	<0.25	0.1	<0.25	0.1	<0.25	0.08	<0.25
Chromium	T	0.1	0.004	<0.1	0.03	<0.1	0.02	<0.1	0.02	<0.1	0.004	<0.1
Manganese	T	0.25	0.2	<0.25	0.1	<0.25	0.2	<0.25	0.2	<0.25	0.4	>0.25
Iron	T	25	0.8	<25	0.8	<25	1	<25	2	<25	5	<25
Cobalt	T	0.1	0.01	<0.1	0.009	<0.1	0.02	<0.1	0.03	<0.1	0.06	<0.1
Nickel	T	0.25	0.003	<0.25	0.003	<0.25	0.005	<0.25	0.02	<0.25	0.05	<0.25
Copper	T	0.50	0.02	<0.50	0.2	<0.50	0.2	<0.50	0.2	<0.50	0.2	<0.50
Zinc	T	5	0.1	<5	0.07	<5	0.08	<5	0.10	<5	0.10	<5
Arsenic	T	0.125	0.004	<0.125	0.02	<0.125	0.01	<0.125	0.02	<0.125	0.03	<0.125
Selenium	T	0.15	0.06	<0.15	0.03	<0.15	0.04	<0.15	0.05	<0.15	0.08	<0.15
Strontium		1.0	0.01	<1.0	0.008	<1.0	0.02	<1.0	0.04	<1.0	0.06	<1.0
Zirconium		2.0	0.004	<2.0	0.002	<2.0	0.003	<2.0	0.003	<2.0	0.007	<2.0
Molybdenum		0.5	0.03	<0.5	0.03	<0.5	0.03	<0.5	0.04	<0.5	0.07	<0.5
Silver	T	0.1	0.002	<0.1	0.0005	<0.1	0.002	<0.1	0.002	<0.1	0.0004	<0.1
Cadmium	T	0.1	0.06	<0.1	0.03	<0.1	0.04	<0.1	0.06	<0.1	0.09	<0.1
Tin		0.2	0.2	>0.2	0.2	<0.2	0.1	<0.2	0.01	<0.2	0.01	<0.2
Antimony	T	0.25	0.009	<0.25	0.01	<0.25	0.01	<0.25	0.01	<0.25	0.01	<0.25
Barium	T	0.25	0.01	<0.25	0.02	<0.25	0.03	<0.25	0.06	<0.25	0.1	<0.25
Tungsten		1.0	0.02	<1.0	0.010	<1.0	0.006	<1.0	0.005	<1.0	0.008	<1.0
Mercury		0.1	0.02	<0.1	0.01	<0.1	0.01	<0.1	0.007	<0.1	0.005	<0.1
Thallium	T	0.1	0.2	>0.1	0.09	<0.1	0.09	<0.1	0.1	>0.1	0.2	>0.1
Lead	T	0.05	0.08	>0.05	0.06	>0.05	0.04	<0.05	0.06	>0.05	0.08	>0.05
Uranium		0.1	0.01	<0.1	0.01	<0.1	0.02	<0.1	0.03	<0.1	0.06	<0.1

CB SampleID		: CCB5
CB DataFileID		: H6L03057
CB DateTime		: 12/12/1912:49

PARAMETER		LOD	RESULT	< LOD >
Lithium		0	0.004	>0
Beryllium	T	0.10	0.007	<0.10
Boron		5.0	1	<5.0
Sodium	T	25	60	>25
Magnesium	T	25	6	<25
Aluminum	T	25	5	<25
Silicon		20	0.6	<20
Phosphorus		25	1	<25

Potassium	T	25	20	<25
Calcium	T	25	5	<25
Titanium		0.5	0.06	<0.5
Vanadium	T	0.25	0.010	<0.25
Chromium	T	0.1	0.01	<0.1
Manganese	T	0.25	0.4	>0.25
Iron	T	25	5	<25
Cobalt	T	0.1	0.06	<0.1
Nickel	T	0.25	0.05	<0.25
Copper	T	0.50	0.05	<0.50
Zinc	T	5	0.1	<5
Arsenic	T	0.125	0.07	<0.125
Selenium	T	0.15	0.08	<0.15
Strontium		1.0	0.06	<1.0
Zirconium		2.0	0.006	<2.0
Molybdenum		0.5	0.06	<0.5
Silver	T	0.1	0.007	<0.1
Cadmium	T	0.1	0.07	<0.1
Tin		0.2	0.09	<0.2
Antimony	T	0.25	0.02	<0.25
Barium	T	0.25	0.1	<0.25
Tungsten		1.0	0.002	<1.0
Mercury		0.1	0.009	<0.1
Thallium	T	0.1	0.1	>0.1
Lead	T	0.05	0.09	>0.05
Uranium		0.1	0.05	<0.1

Unit: ug/L
CB: Calibration Blank
T: Target analyte
Acceptance Criteria: CCB Result <LOD
Comment:

Sample List

Acq/Data Batch D:\Agilent\ICPMH\1\DATA\L\IH6L03.b

Block List

Acquisition Order

Sequence Order	Block Name
1	Calibration Standards
2	Unknown Samples

Blocks

Calibration Standards

#	Skip	Sample Type	Sample Name	Comment	Vial#	File Name	Replicates	Level	Total Dil.
1		CalBlk	BLANK		1101	H6L03001.d		1	
2		CalBlk	BLANK		1101	H6L03002.d		1	
3		CalBlk	S0		1102	H6L03003.d		1	
4		CalStd	S1		1104	H6L03004.d		2	
5		CalStd	S2		1105	H6L03005.d		3	
6		CalStd	S3		1106	H6L03006.d		4	
7		CalStd	S4		1107	H6L03007.d		5	
8		ICV	ICV		1204	H6L03008.d			1
9		ICB	ICB		1102	H6L03009.d			1
10		LLCCV	MRLL1201 ✓	1/100/10 ppb	1306	H6L03010.d			1
11		LLCCV2	MRLL1202	0.4/40/4 ppb Be Co Tl v	1307	H6L03011.d			1
12		ICS-A	ICSA		1304	H6L03012.d			1
13		ICSB	ICSAB		1305	H6L03013.d			1
14		Sample	MRLL1203	0.1 ppb Hg	1207	H6L03014.d			1
15		CCV	CCV1		1206	H6L03015.d			1
16		CCB	CCB1		1102	H6L03016.d			1

Unknown Samples

#	Skip	Sample Type	Sample Name	Comment	Vial#	File Name	Replicates	Level	Total Dil.
1		Blank	IML008WB		2101	H6L03017.d			1
2		LCSW	IML008WL		2102	H6L03018.d			1
3		LCSW	IML008WC		2103	H6L03019.d			1
4		Sample	K165-09		2104	H6L03020.d			1
5		Sample	L018-02		2105	H6L03021.d			1
6		Sample	L019-09 ✓	Cu >LOQ, verify bottle	2106	H6L03022.d			1
7		CCV	CCV2		1206	H6L03023.d			1
8		CCB	CCB2		1102	H6L03024.d			1
9		Sample	L043-01I		2107	H6L03025.d			10
10		Sample	L043-02I		2108	H6L03026.d			10
11		Sample	L043-04I		2109	H6L03027.d			10
12		Sample	L043-05I		2110	H6L03028.d			10
13		Sample	L043-07M		2111	H6L03029.d			10
14		Sample	L043-07S		2112	H6L03030.d			10
15		Sample	L043-07A		2201	H6L03031.d			10
16		Sample	L043-07I		2202	H6L03032.d			10
17		Sample	L043-07J		2203	H6L03033.d			50
18		CCV	CCV3		1206	H6L03034.d			1
19		CCB	CCB3		1102	H6L03035.d			1
20		Sample	L057-01I		2204	H6L03036.d			10

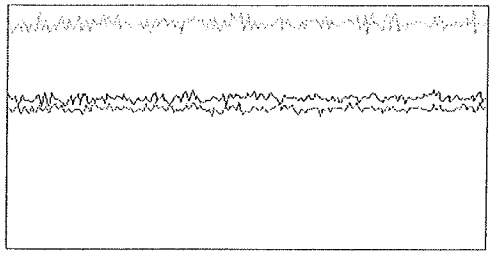
Sample List

#	Skip	Sample Type	Sample Name	Comment	Vial#	File Name	Replicates	Level	Total Dil.
21		Sample	L057-02I		2205	H6L03037.d			10
22		Sample	L057-03I		2206	H6L03038.d			10
23		Sample	L057-04I		2207	H6L03039.d			10
24		Sample	L057-05I		2208	H6L03040.d			10
25		Sample	L057-07I		2209	H6L03041.d			10
26		Sample	L057-08I		2210	H6L03042.d			10
27		Sample	L057-09I		2211	H6L03043.d			10
28		Sample	L057-10I		2212	H6L03044.d			10
29		CCV	CCV4		1206	H6L03045.d			1
30		CCB	CCB4		1102	H6L03046.d			1
31		Sample	L043-01	Na Ca↑	2301	H6L03047.d			1
32		Sample	L043-02	Ca↑	2302	H6L03048.d			1
33		Sample	L043-04	Na mg Ca↑	2303	H6L03049.d			1
34		Sample	L043-05	↓	2304	H6L03050.d			1
35		Sample	L043-07M		2305	H6L03051.d			1
36		Sample	L043-07S		2306	H6L03052.d			1
37		Sample	L043-07A		2307	H6L03053.d			1
38		Sample	L043-07		2308	H6L03054.d			1
39		Sample	L043-07J		2309	H6L03055.d			5
40		CCV	CCV5		1206	H6L03056.d			1
41		CCB	CCB5		1102	H6L03057.d			1
42		Sample	L057-01	Na mg Ca↑	2310	H6L03058.d			1
43		Sample	L057-02	↓	2311	H6L03059.d			1
44		Sample	L057-03		2312	H6L03060.d			1
45		Sample	L057-04	Ca↑	2401	H6L03061.d			1
46		Sample	L057-05	Na Ca↑	2402	H6L03062.d			1
47		Sample	L057-07	Ca↑	2403	H6L03063.d			1
48		Sample	L057-08	Na mg Ca↑	2404	H6L03064.d			1
49		Sample	L057-09	Na mg Ca↑	2405	H6L03065.d			1
50		Sample	L057-10	Na Ca↑	2406	H6L03066.d			1
51		CCV	CCV6		1206	H6L03067.d			1
52		CCB	CCB6		1102	H6L03068.d			1
53		LLCCV	MRLL1204	Na↑ 1/100/10 ppb	1306	H6L03069.d			1
54		LLCCV2	MRLL1205	↓ 0.4/40/4 ppb	1307	H6L03070.d			1
55		LLCCV2	MRLL1206	Na↑ 500 ppb CAT	1207	H6L03071.d			1
56		Sample	L019-09N	bottle Cu↑ MQ	2407	H6L03072.d			1
57		CCV	CCV7		1206	H6L03073.d			1
58		CCB	CCB7		1102	H6L03074.d			1

Performance Report

Operator Name	LVicto
Acq. Date-Time	2019-12-12 09:20:40
Instrument Name	G8421A SG19253823
Sample Introduction	ISIS
Nebulizer Type	MicroMist
Ion Lens Model	x-Lens
Tune Parameters	Standard Tune

Sensitivity



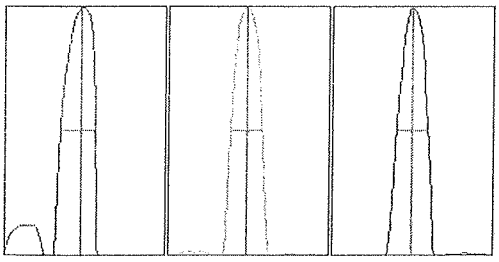
Mass	Range	Count	RSD%	Background
7	10000	5791	2.117	0.150
89	20000	18595	2.211	0.800
205	20000	12453	2.290	2.850

Sampling Period [sec]	0.311
Integration Time [sec]	0.1

Oxide/Doubly Charged Ratio

Oxide	156 / 140 1.028 %
Doubly Charged	70 / 140 1.889 %

Resolution/Axis



Mass	Peak Height	Axis	W-50%	W-10%
7	5815.72	6.95	0.64	0.76
89	18580.69	89.00	0.59	0.75
205	12435.13	205.00	0.59	0.78

Integration Time [sec]	0.1
Acquisition Time [sec]	22.74

Tune Parameters

Plasma Parameters

RF Power	1550 W	Option Gas	---	Makeup Gas	0.00 L/min
RF Matching	1.20 V	Nebulizer Pump	0.10 rps	Auxiliary Gas	0.90 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C	Plasma Gas	15.0 L/min
Nebulizer Gas	1.08 L/min				

Lens Parameters

Extract 1	0.0 V	Omega Lens	9.6 V	Deflect	12.8 V
Extract 2	-190.0 V	Cell Entrance	-30 V	Plate Bias	-35 V
Omega Bias	-100 V	Cell Exit	-50 V		

Performance Report

Cell Parameters					
Use Gas	No	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	0.0 mL/min	OctP RF	200 V		
QP Parameters					
QP Bias	-3.0 V				
Hardware Settings					
Torch					
Torch H	0.5 mm	Torch H (Hot)	---	Torch H (Cool)	---
Torch V	-0.2 mm	Torch V (Hot)	---	Torch V (Cool)	---
Plasma Correction					
Nebulizer Gas Offset	0.03 L/min	Makeup Gas (Hot)	---	Makeup Gas (Cool)	---
		Sample Depth (Hot)	---		
Resolution/Axis					
Mass Gain	123	Axis Gain	0.9997		
Mass Offset	124	Axis Offset	-0.04		
EM					
Discriminator	4.1 mV	Analog HV	2147 V	Pulse HV	1212 V

Performance Report

Meter

Name	Value	Unit
Nebulizer Gas	1.08	L/min
MU./Dil. Gas	0.00	L/min
Plasma Gas	14.99	L/min
Aux Gas	0.90	L/min
Ar Gas Tank Press	7.19E+2	kPa
+5V (Press Gage)	5.0	V
Ar AMFC Temp	31.0	°C
Nebulizer Gas(DP)	6.34E+0	kPa
MU./Dil. Gas(DP)	-1.23E-1	kPa
Aux Gas(DP)	1.23E+1	kPa
Plasma Gas(DP)	1.11E+1	kPa
Nebulizer Gas(BP)	3.44E+2	kPa
MU./Dil. Gas(BP)	-1.23E+0	kPa
Aux Gas(BP)	5.93E+1	kPa
Plasma Gas(BP)	4.00E+1	kPa
S/C Temp (H)	16.2	°C
S/C Temp (L)	2.0	°C
Peltier Voltage	2.6	V
IF/BK Press	2.42E+2	Pa
Analyzer Press	7.47E-5	Pa
IG HV	178	V
IG Emission	4.98	µA
TMP Revolution	100.0	%
TMP Rev (RAW)	100.2	%
TMP Current	2.83	A
PWR AMP Drain I	0.3	A
PWR AMP Bias	4.12	V
OctP RF (Avg)	203.8	V
OctP RF Set	4.0	V
OctP FET Bias Set	3.97	V
OctP RF(+)	176.5	V
OctP RF(-)	231.5	V
OctP Bias	-8.0	V
Cell Temp.	65.0	°C
Cell Heater Volt.	3.7	V
+U Voltage	9.0	V

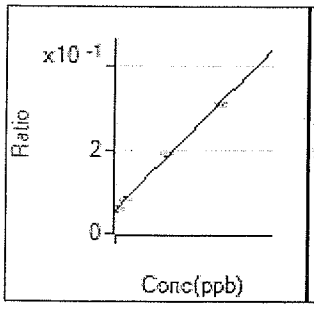
Name	Value	Unit
-U Voltage	-14.6	V
V Voltage	42.1	V
QPRF Fader	0.0	V
Pickup Temp	55.0	°C
PWR Amp Temp	0.1	V
+600V	609.1	V
-120V	-133.7	V
-720V	-738.4	V
Prefilter Bias	-4.99	V
Pickup Heater I	0.08	A
QP PS +48V	47.5	V
QP PS +48V I	0.00	A
Analog HV	-2152	V
Pulse HV	1219	V
EM Gate	-30.1	V
Pulse Gate	268.2	V
EM Entrance	0.1	V
EM HV Gain	-782.9	V
Inner Pole	-300.2	V
Outer Pole	20.1	V
Analog -5V	-5.1	V
Analog +15V	14.5	V
Analog -15V	-14.4	V
Analog +5V	5.2	V
Shunt C Pos	1.2	V
Drain Volt.(max)	62.6	V
RF PS +48V	47.5	V
Forward Power	1552	W
Reflected Power	3	W
Plasma Freq.	26.74	MHz
Drain I 1	11.35	A
Drain I 2	10.94	A
Drain I 3	10.84	A
Drain I 4	10.13	A
Temp Sensor	2.8	V
Driver I	5.58	A

Name	Value	Unit
Igniter	0.0	V
Driver Voltage Set	6.5	V
Unbalance Current	0.44	A
PWM Threshold Set	0.2	V
Driver Voltage	5.1	V
PWM Threshold	0.2	V
Phase Detector	-2.0	mV
H2 Gas	0.00	mL/min
He Gas	0.00	mL/min
H2 Gas Press	1.71E+2	kPa
He Gas Press	6.80E-1	kPa
ORS AMFC Temp	30.9	°C
Atmospheric Press	1.02E+2	kPa
Extract 1	-0.1	V
Extract 2	-190.3	V
Omega Bias	-100.1	V
Omega Lens	9.5	V
Cell Entrance	-29.9	V
Cell Exit	-50.2	V
Deflect	12.7	V
Plate Bias	-35.0	V
HV+530V	524	V
HV+240V	238	V
HV-360V	-357	V
Inlet Temp	28.6	°C
Internal Temp	33.6	°C
+24V	23.6	V
Water Temp	18.6	°C
Water RF/WC/IF	1.47	L/min
ISIS 3 Pump Speed	0.0	%
Valve Position		
Tune/ISTD Valve		

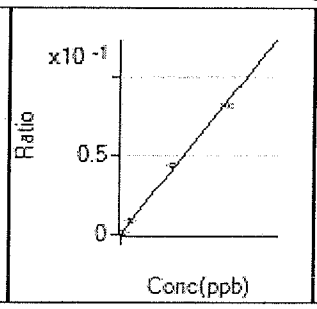
Performance Report History

Sensitivity

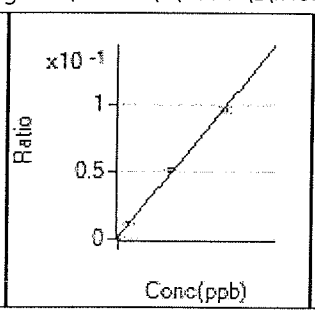
Calibration for D:\Agilent\ICPMH\1\DATA\L\IH6L03.b\H6L03015.d



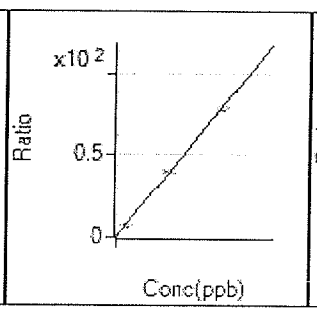
7 Li [No Gas]
ISTD: 6 Li
y = 5.122E-3 x + 5.624E-2
R 0.9997
DL 1.072
BEC 10.98



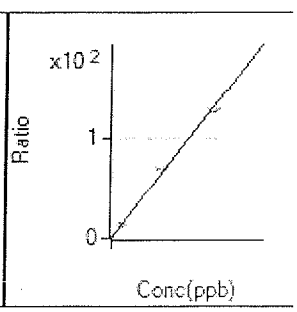
9 Be [No Gas]
ISTD: 6 Li
y = 1.670E-3 x + 9.154E-6
R 0.9993
DL 0.00559
BEC 0.005482



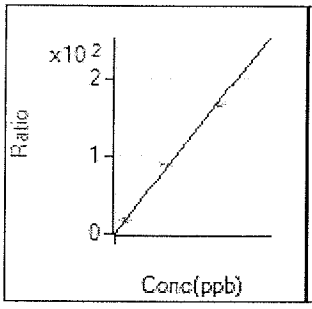
11 B [No Gas]
ISTD: 6 Li
y = 9.662E-4 x + 1.303E-3
R 0.9996
DL 0.2746
BEC 1.349



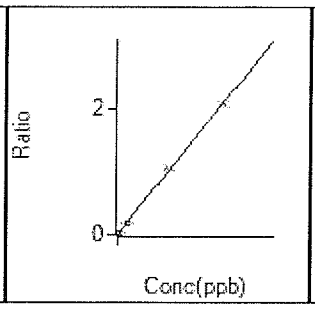
23 Na [H2]
ISTD: 45 Sc
y = 1.580E-3 x + 1.094E-1
R 0.9999
DL 3.575
BEC 69.27



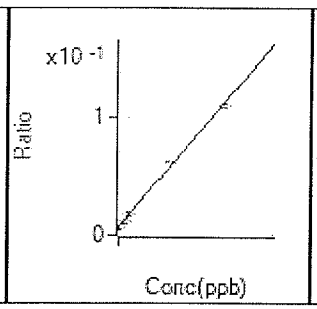
24 Mg [No Gas]
ISTD: 45 Sc
y = 2.648E-3 x + 1.127E-3
R 0.9995
DL 0.05106
BEC 0.4257



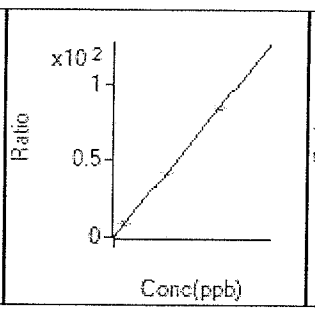
27 Al [No Gas]
ISTD: 45 Sc
y = 3.399E-3 x + 1.862E-3
R 0.9993
DL 0.05209
BEC 0.5477



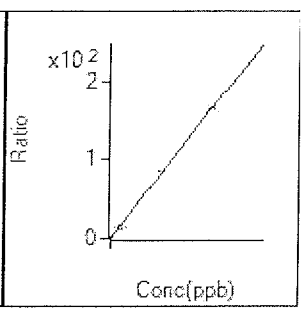
28 Si [H2]
ISTD: 45 Sc
y = 4.178E-4 x + 2.039E-3
R 0.9999
DL 0.2281
BEC 4.881



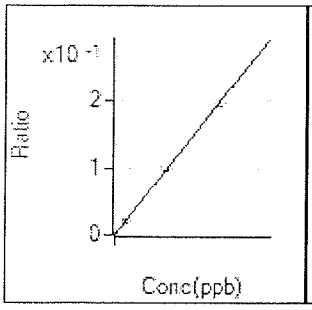
31 P [No Gas]
ISTD: 45 Sc
y = 2.097E-4 x + 7.419E-3
R 0.9996
DL 2.019
BEC 35.38



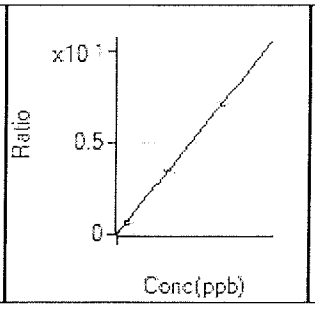
39 K [He]
ISTD: 45 Sc
y = 1.686E-3 x + 2.216E-1
R 1.0000
DL 15.49
BEC 131.4



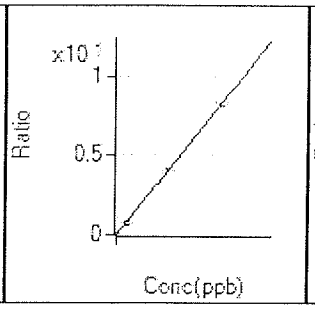
40 Ca [H2]
ISTD: 45 Sc
y = 3.313E-3 x + 2.160E-2
R 0.9999
DL 0.4986
BEC 6.52



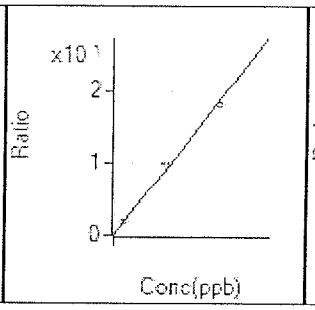
47 Ti [No Gas]
ISTD: 45 Sc
y = 3.938E-4 x + 5.386E-5
R 0.9999
DL 0.007224
BEC 0.1368



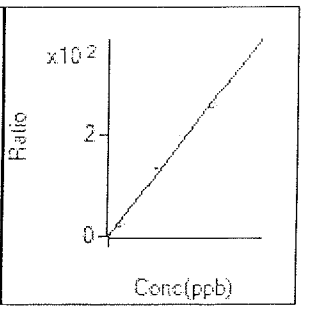
51 V [He]
ISTD: 45 Sc
y = 1.422E-2 x + 4.839E-3
R 0.9999
DL 0.02805
BEC 0.3403



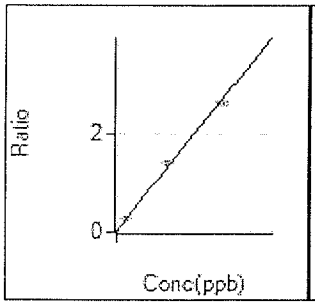
52 Cr [He]
ISTD: 45 Sc
y = 1.643E-2 x + 3.629E-3
R 0.9999
DL 0.03577
BEC 0.2209



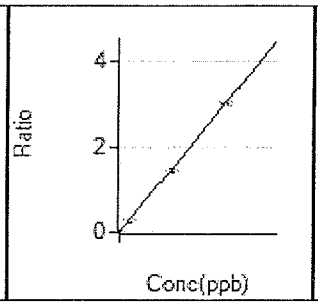
55 Mn [No Gas]
ISTD: 45 Sc
y = 6.163E-3 x + 2.241E-3
R 0.9990
DL 0.008955
BEC 0.3636



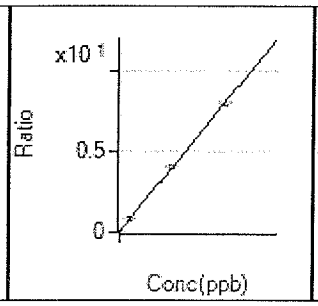
56 Fe [H2]
ISTD: 45 Sc
y = 5.256E-3 x + 3.013E-3
R 0.9998
DL 0.04809
BEC 0.5733



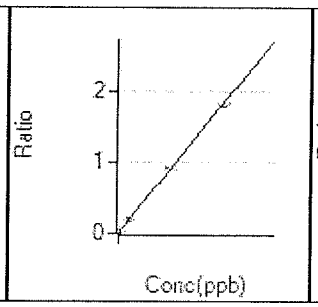
59 Co [No Gas]
ISTD: 45 Sc
y = 5.388E-3 x + 4.157E-5
R 0.9995
DL 0.004654
BEC 0.007716



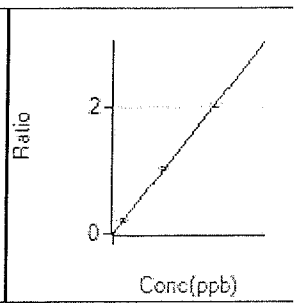
60 Ni [He]
ISTD: 45 Sc
y = 6.000E-3 x + 1.663E-4
R 0.9998
DL 0.01257
BEC 0.02771



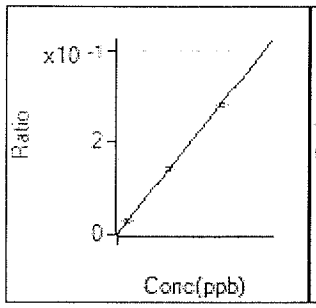
63 Cu [He]
ISTD: 45 Sc
y = 1.593E-2 x + 1.164E-2
R 1.0000
DL 0.04779
BEC 0.7305



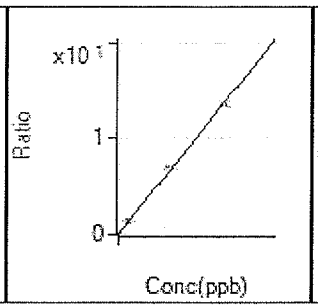
66 Zn [No Gas]
ISTD: 72 Ge
y = 3.634E-3 x + 1.325E-3
R 1.0000
DL 0.04601
BEC 0.3647



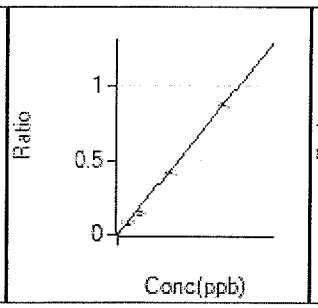
75 As [He]
ISTD: 72 Ge
y = 4.088E-3 x + 5.088E-4
R 1.0000
DL 0.05467
BEC 0.1245



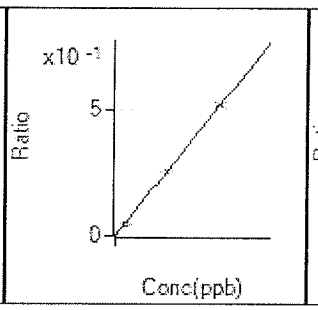
78 Se [H2]
ISTD: 72 Ge
y = 5.668E-4 x + 1.301E-5
R 1.0000
DL 0.01813
BEC 0.02295



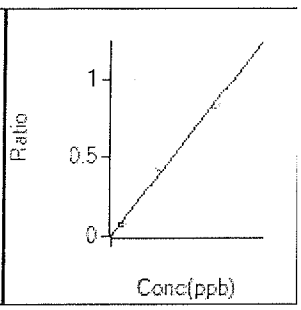
88 Sr [No Gas]
ISTD: 72 Ge
y = 2.723E-2 x + 4.384E-4
R 0.9999
DL 0.002496
BEC 0.0161



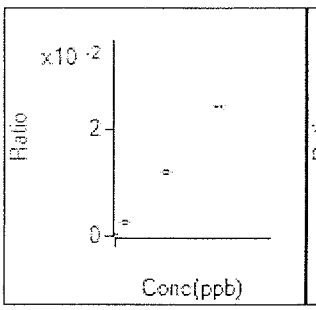
90 Zr [No Gas]
ISTD: 72 Ge
y = 1.731E-2 x + 6.921E-5
R 0.9991
DL 0.00414
BEC 0.003999



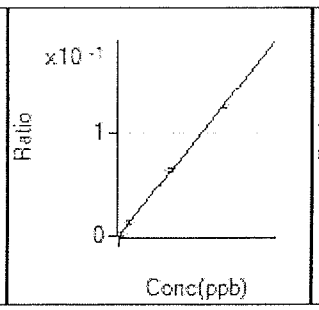
95 Mo [No Gas]
ISTD: 115 In
y = 1.035E-3 x + 3.606E-6
R 0.9999
DL 0.001953
BEC 0.003483



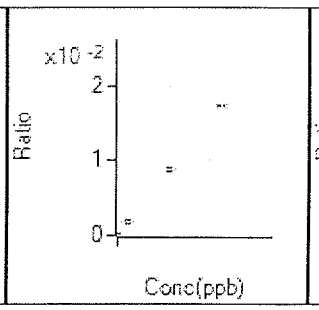
98 Mo [No Gas]
ISTD: 115 In
y = 1.657E-3 x + 2.092E-5
R 0.9999
DL 0.006182
BEC 0.01262



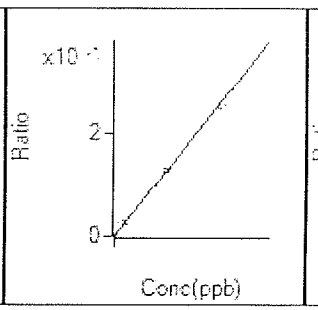
106 [Cd] [No Gas]
ISTD: 115 In
Excluded
R
DL
BEC



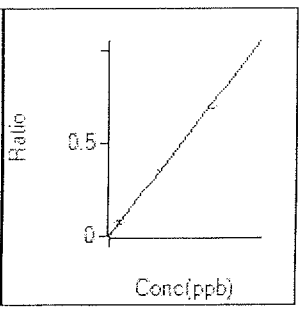
107 Ag [No Gas]
ISTD: 115 In
y = 2.539E-3 x + 1.891E-4
R 1.0000
DL 0.02546
BEC 0.07447



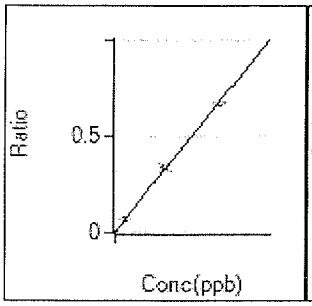
108 [Cd] [No Gas]
ISTD: 115 In
Excluded
R
DL
BEC



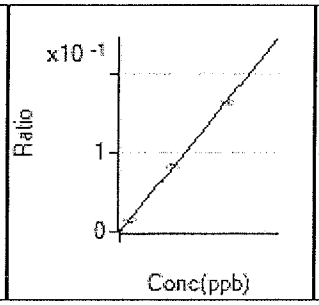
111 Cd [No Gas]
ISTD: 115 In
y = 5.093E-4 x - 2.737E-6
R 1.0000
DL 0.02061
BEC -0.005374



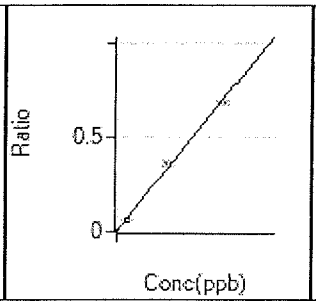
118 Sn [No Gas]
ISTD: 115 In
y = 1.420E-3 x + 7.076E-4
R 0.9997
DL 0.05052
BEC 0.4982



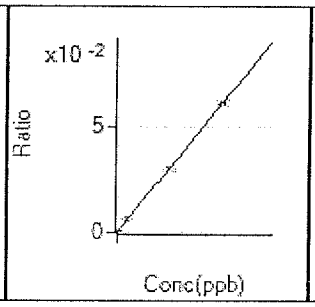
118 Sn [H2]
ISTD: 115 In
y = 1.350E-3 x + 6.217E-4
R 1.0000
DL 0.04305
BEC 0.4605



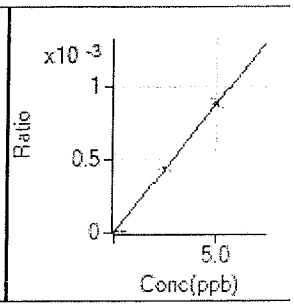
123 Sb [No Gas]
ISTD: 115 In
y = 1.631E-3 x + 3.079E-5
R 1.0000
DL 0.001608
BEC 0.01887



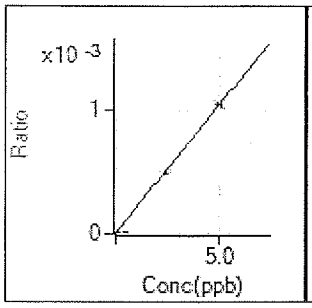
137 Ba [No Gas]
ISTD: 115 In
y = 6.920E-4 x + 1.100E-5
R 0.9995
DL 0.008031
BEC 0.0159



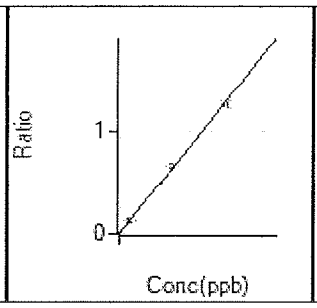
182 W [No Gas]
ISTD: 159 Tb
y = 1.214E-3 x + 7.033E-6
R 0.9999
DL 0.01156
BEC 0.005795



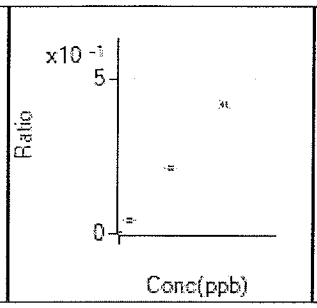
201 Hg [No Gas]
ISTD: 159 Tb
y = 1.753E-4 x + 1.571E-6
R 0.9960
DL 0.008665
BEC 0.008964



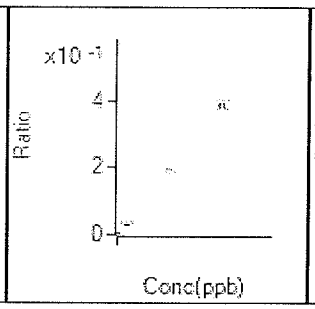
201 Hg [He]
ISTD: 159 Tb
y = 2.061E-4 x + 2.273E-6
R 0.9960
DL 0.001898
BEC 0.01103



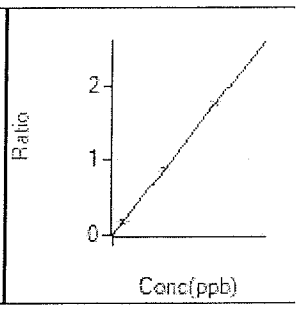
205 Tl [No Gas]
ISTD: 159 Tb
y = 2.567E-3 x + 4.334E-6
R 0.9998
DL 0.0003819
BEC 0.001688



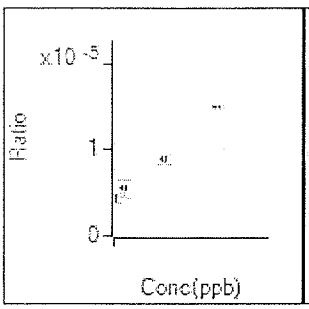
206 Pb [No Gas]
ISTD: 159 Tb
Excluded
R
DL
BEC



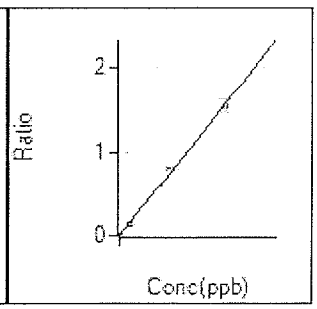
207 Pb [No Gas]
ISTD: 159 Tb
Excluded
R
DL
BEC



208 Pb [No Gas]
ISTD: 159 Tb
y = 3.475E-3 x + 1.691E-4
R 1.0000
DL 0.01514
BEC 0.04866



232 Th [No Gas]
ISTD: 159 Tb
Excluded
R
DL
BEC



238 U [No Gas]
ISTD: 159 Tb
y = 3.138E-3 x + 2.170E-6
R 0.9999
DL 0.001817
BEC 0.0006914

US EPA Tune Check Report

Operator Name	LVicto
Acq/Data Batch	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq. Date-Time	2019-12-12 10:09:26
Report Comment	---
Instrument Name	G8421A SG19253823

[No Gas]

Sensitivity

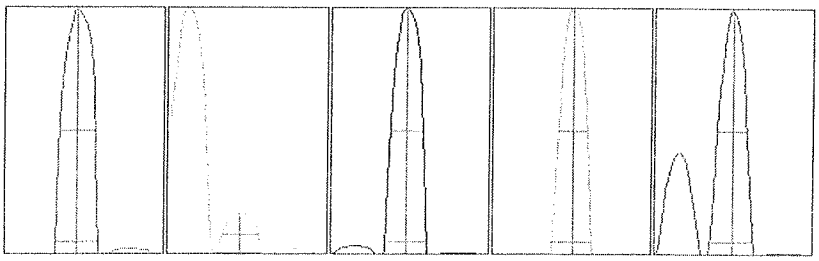
Mass	Conc. [ug/l]	Count	CPS	Resp (Required) [cps/ug/l]	Resp (Flag)	RSD%	RSD% (Required)
9	10.00	2055	20552.72			1.565	5.000
24	10.00	8424	84240.12			1.084	5.000
59	10.00	14808	148083.50			1.520	5.000
115	10.00	16741	167413.98			0.645	5.000
208	10.00	5586	55859.47			1.023	5.000

Mass	RSD% (Flag)
9	
24	
59	
115	
208	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
9	2029	2085	2021	2092	2049
24	8437	8463	8265	8494	8462
59	14678	14855	14489	15007	15014
115	16776	16640	16661	16910	16721
208	5609	5530	5520	5626	5644

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
9	3297.37	8.90	8.90 - 9.10	
24	13509.81	23.90	23.90 - 24.10	
59	24638.61	58.95	58.90 - 59.10	
115	31816.38	115.05	114.90 - 115.10	
208	10419.96	208.00	207.90 - 208.10	

US EPA Tune Check Report

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
9	0.66	0.788	0.900	
24	0.67	0.829	0.900	
59	0.63	0.787	0.900	
115	0.55	0.734	0.900	
208	0.57	0.803	0.900	

Integration Time [sec]	0.1
Acquisition Time [sec]	153.699999999999
Y Axis	Linear

Tune Parameters

Plasma Parameters

Plasma Mode	HMI	Nebulizer Gas	0.62 L/min	Dilution Gas	0.36 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.10 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	10.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	8.5 V	Deflect	12.0 V
Extract 2	-200.0 V	Cell Entrance	-30 V	Plate Bias	-35 V
Omega Bias	-90 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	No	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	0.0 mL/min	OctP RF	190 V		

QP Parameters

Mass Gain	124	Axis Gain	0.9995	QP Bias	-3.0 V
Mass Offset	123	Axis Offset	0.00		

Hardware Settings

Torch

Torch H	0.5 mm	Torch V	-0.2 mm

EM

Discriminator	4.1 mV	Analog HV	2147 V	Pulse HV	1212 V

Calibration Blank Report

Sample Name	BLANK
File Name	H6L03001.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:31:06
Sample Type	CalBlk
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03001.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	132733.38	1.2
Na	23	45	H2	337126.23	0.4
K	39	45	He	112002.52	3.2

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD
Li	6	No Gas	2376203.06	10.5
Sc	45	No Gas	5513814.50	3.0
Sc	45	H2	2955480.83	0.7
Sc	45	He	501333.58	1.2
Ge	72	No Gas	1258615.37	3.1
Ge	72	H2	770176.73	0.7
Ge	72	He	297255.19	1.1
In	115	No Gas	6527036.56	2.3
Tb	159	No Gas	6939886.39	4.1
Tb	159	He	4396030.17	3.8

Calibration Blank Report

Sample Name	BLANK
File Name	H6L03002.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:34:19
Sample Type	CalBlk
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03002.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	129791.46	0.7
Na	23	45	H2	333375.43	0.5
K	39	45	He	112261.99	3.7

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD
Li	6	No Gas	2148744.95	4.8
Sc	45	No Gas	5439292.00	1.4
Sc	45	H2	2960680.92	4.8
Sc	45	He	501302.74	0.9
Ge	72	No Gas	1248696.04	3.8
Ge	72	H2	760237.02	0.8
Ge	72	He	296469.69	0.7
In	115	No Gas	6212994.72	2.4
Tb	159	No Gas	7075283.61	3.1
Tb	159	He	4488335.00	3.4

Calibration Blank Report

Sample Name	S0
File Name	H6L03003.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 10:36:58
Sample Type	CalBlk
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	129868.16	0.3
Na	23	45	H2	334503.76	0.3
K	39	45	He	111963.10	3.5

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD
Li	6	No Gas	2310764.06	3.5
Sc	45	No Gas	5435407.83	2.4
Sc	45	H2	3057879.58	1.5
Sc	45	He	505273.24	0.5
Ge	72	No Gas	1203548.54	0.7
Ge	72	H2	768618.71	0.2
Ge	72	He	296718.72	0.4
In	115	No Gas	6172829.62	2.0
Tb	159	No Gas	6668814.32	1.1
Tb	159	He	4400215.83	1.1

Calibration Standard Report

Sample Name	S1
File Name	H6L03004.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:39:38
Sample Type	CalStd
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	141738.26	0.6
Na	23	45	H2	569602.65	0.7
Mg	24	45	No Gas	779228.17	0.8
Al	27	45	No Gas	1021207.85	1.5
Si	28	45	H2	131600.53	0.5
K	39	45	He	154175.13	2.4
Ca	40	45	H2	545199.37	0.4
Fe	56	45	H2	802929.27	0.5
Zr	90	72	No Gas	106959.34	1.4

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2396504.02	6.1	2310764.06	103.71	60	120	
Sc	45	No Gas	5422347.17	2.3	5435407.83	99.76	60	120	
Sc	45	H2	3024729.00	2.9	3057879.58	98.92	60	120	
Sc	45	He	519088.60	2.0	505273.24	102.73	60	120	
Ge	72	No Gas	1266556.00	3.4	1203548.54	105.24	60	120	
Ge	72	H2	825379.42	0.2	768618.71	107.38	60	120	
Ge	72	He	319614.75	0.8	296718.72	107.72	60	120	
In	115	No Gas	6424333.22	3.2	6172829.62	104.07	60	120	
Tb	159	No Gas	6806320.29	4.6	6668814.32	102.06	60	120	
Tb	159	He	4453734.50	1.6	4400215.83	101.22	60	120	

Calibration Standard Report

Sample Name	S2
File Name	H6L03005.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:42:17
Sample Type	CalStd
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	198355.17	0.6
Na	23	45	H2	23258509.33	2.5
Mg	24	45	No Gas	74071562.67	2.1
Al	27	45	No Gas	92957171.95	1.6
Si	28	45	H2	625972.06	0.8
K	39	45	He	4432987.33	4.3
Ca	40	45	H2	47684616.00	2.6
Ti	47	45	No Gas	106230.47	1.0
V	51	45	He	333929.27	0.6
Cr	52	45	He	396028.20	0.6
Mn	55	45	No Gas	10357807.67	2.9
Fe	56	45	H2	77923914.67	3.5
Co	59	45	No Gas	1582161.21	0.9
Ni	60	45	He	148839.06	0.1
Cu	63	45	He	405036.82	1.0
Zn	66	72	No Gas	236045.85	0.5
Sr	88	72	No Gas	1684287.43	3.7
Zr	90	72	No Gas	177698.29	1.4
Mo	95	115	No Gas	317278.82	1.4
Mo	98	115	No Gas	504702.72	0.5
Cd	111	115	No Gas	163222.80	1.2
Sn	118	115	No Gas	454011.84	1.1
Sn	118	115	H2	433187.08	0.4
Sb	123	115	No Gas	102304.78	0.4
Ba	137	115	No Gas	421501.65	0.6
Tl	205	159	No Gas	885901.60	0.4
Pb	206	159	No Gas	304350.11	0.4
Pb	207	159	No Gas	265363.19	1.9
Pb	208	159	No Gas	1208399.04	0.5
U	238	159	No Gas	1045184.47	0.5

QC ISTD Table

Calibration Standard Report

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2451526.96	4.3	2310764.06	106.09	60	120	
Sc	45	No Gas	5470492.50	1.7	5435407.83	100.65	60	120	
Sc	45	H2	3205432.67	1.6	3057879.58	104.83	60	120	
Sc	45	He	509254.19	0.7	505273.24	100.79	60	120	
Ge	72	No Gas	1260304.87	6.2	1203548.54	104.72	60	120	
Ge	72	H2	828267.23	0.8	768618.71	107.76	60	120	
Ge	72	He	313612.20	0.5	296718.72	105.69	60	120	
In	115	No Gas	6553924.44	3.6	6172829.62	106.17	60	120	
Tb	159	No Gas	7067736.80	2.5	6668814.32	105.98	60	120	
Tb	159	He	4445977.50	1.0	4400215.83	101.04	60	120	

Calibration Standard Report

Sample Name	S3
File Name	H6L03006.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:45:16
Sample Type	CalStd
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	425390.07	0.5
B	11	6	No Gas	116497.59	0.5
Na	23	45	H2	110884770.67	3.4
Mg	24	45	No Gas	356929173.33	1.2
Al	27	45	No Gas	461528979.79	2.1
Si	28	45	H2	2923632.17	11.0
P	31	45	No Gas	318605.75	1.2
K	39	45	He	20853811.33	1.8
Ca	40	45	H2	228636506.67	3.5
Ti	47	45	No Gas	513469.23	1.1
V	51	45	He	1723436.87	5.8
Cr	52	45	He	1997905.58	3.1
Mn	55	45	No Gas	50849661.33	1.9
Fe	56	45	H2	373272682.67	2.6
Co	59	45	No Gas	7277162.83	5.4
Ni	60	45	He	719401.56	0.9
Cu	63	45	He	1990892.92	0.2
Zn	66	72	No Gas	1128786.62	1.1
As	75	72	He	313305.99	0.8
Se	78	72	H2	114323.93	0.2
Sr	88	72	No Gas	8526299.11	3.6
Zr	90	72	No Gas	515369.15	1.5
Mo	95	115	No Gas	1558624.04	2.4
Mo	98	115	No Gas	2562333.72	3.8
Ag	107	115	No Gas	390503.50	0.7
Cd	111	115	No Gas	784432.10	0.6
Sn	118	115	No Gas	2257281.72	1.3
Sn	118	115	H2	2129191.23	5.9
Sb	123	115	No Gas	498619.03	0.6
Ba	137	115	No Gas	2217132.83	6.3
W	182	159	No Gas	205944.33	2.3
Tl	205	159	No Gas	4617475.37	3.6
Pb	206	159	No Gas	1493830.13	2.1
Pb	207	159	No Gas	1310790.37	2.4
Pb	208	159	No Gas	6035891.98	1.2

Calibration Standard Report

Name	Mass	ISTD	Tune	CPS	RSD
U	238	159	No Gas	5563386.17	2.8

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2248273.96	2.0	2310764.06	97.3	60	120	
Sc	45	No Gas	5133988.50	4.5	5435407.83	94.45	60	120	
Sc	45	H2	2760043.50	2.3	3057879.58	90.26	60	120	
Sc	45	He	497230.19	0.7	505273.24	98.41	60	120	
Ge	72	No Gas	1226280.04	4.1	1203548.54	101.89	60	120	
Ge	72	H2	802037.73	1.0	768618.71	104.35	60	120	
Ge	72	He	306077.12	0.4	296718.72	103.15	60	120	
In	115	No Gas	6118575.05	1.3	6172829.62	99.12	60	120	
Tb	159	No Gas	6971238.47	3.0	6668814.32	104.53	60	120	
Tb	159	He	4566241.83	2.9	4400215.83	103.77	60	120	

Calibration Standard Report

Sample Name	S4
File Name	H6L03007.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:47:32
Sample Type	CalStd
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	733149.69	0.9
Be	9	6	No Gas	194612.15	0.0
B	11	6	No Gas	228990.78	0.2
Na	23	45	H2	221033530.67	2.2
Mg	24	45	No Gas	714440896.00	0.6
Al	27	45	No Gas	915698599.69	2.3
Si	28	45	H2	5846641.67	2.2
P	31	45	No Gas	607760.40	0.5
K	39	45	He	41757074.67	1.6
Ca	40	45	H2	464767733.33	2.1
Ti	47	45	No Gas	1072663.54	1.9
V	51	45	He	3531770.83	0.9
Cr	52	45	He	4074055.58	1.5
Mn	55	45	No Gas	99268125.33	0.8
Fe	56	45	H2	731642325.33	1.0
Co	59	45	No Gas	14528439.33	2.8
Ni	60	45	He	1491874.00	2.5
Cu	63	45	He	3927691.42	2.1
Zn	66	72	No Gas	2292164.92	0.8
As	75	72	He	621143.65	0.9
Se	78	72	H2	228486.52	0.5
Sr	88	72	No Gas	17140339.87	4.7
Zr	90	72	No Gas	1110469.80	3.1
Mo	95	115	No Gas	3202737.93	3.3
Mo	98	115	No Gas	5096085.63	2.5
[Cd]	106	115	No Gas	150714.82	0.2
Ag	107	115	No Gas	782728.16	0.6
[Cd]	108	115	No Gas	107445.82	1.1
Cd	111	115	No Gas	1566557.71	1.9
Sn	118	115	No Gas	4340410.52	1.5
Sn	118	115	H2	4161766.78	2.8
Sb	123	115	No Gas	1005832.43	1.5
Ba	137	115	No Gas	4215989.69	3.0
W	182	159	No Gas	431731.99	1.6
Tl	205	159	No Gas	8999530.47	0.6

Calibration Standard Report

Name	Mass	ISTD	Tune	CPS	RSD
Pb	206	159	No Gas	2976576.83	0.5
Pb	207	159	No Gas	2750655.27	1.5
Pb	208	159	No Gas	12294557.26	0.5
U	238	159	No Gas	10941469.57	4.8

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2366818.24	3.3	2310764.06	102.43	60	120	
Sc	45	No Gas	5468827.67	0.5	5435407.83	100.61	60	120	
Sc	45	H2	2803291.00	2.0	3057879.58	91.67	60	120	
Sc	45	He	492740.31	0.2	505273.24	97.52	60	120	
Ge	72	No Gas	1265235.00	1.1	1203548.54	105.13	60	120	
Ge	72	H2	807527.19	0.3	768618.71	105.06	60	120	
Ge	72	He	303889.18	0.7	296718.72	102.42	60	120	
In	115	No Gas	6162424.57	2.5	6172829.62	99.83	60	120	
Tb	159	No Gas	7083440.55	5.8	6668814.32	106.22	60	120	
Tb	159	He	4504016.83	5.1	4400215.83	102.36	60	120	

Initial Calibration Verification (ICV) Report

Sample Name	ICV
File Name	H6L03008.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 10:52:02
Sample Type	ICV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	29.471	ppb	2.8	482050.15	30	98.24	90	110	
Be	9	6	No Gas	30.260	ppb	3.3	117589.04	30	100.87	90	110	
B	11	6	No Gas	29.505	ppb	4.8	69366.68	30	98.35	90	110	
Na	23	45	H2	29879.414	ppb	4.1	132142050.67	30000	99.6	90	110	
Mg	24	45	No Gas	30642.934	ppb	7.6	434037696.00	30000	102.14	90	110	
Al	27	45	No Gas	29494.911	ppb	4.1	536269205.34	30000	98.32	90	110	
Si	28	45	H2	3061.307	ppb	4.4	3577853.92	3000	102.04	90	110	
P	31	45	No Gas	295.688	ppb	2.8	371282.38	300	98.56	90	110	
K	39	45	He	28789.502	ppb	1.6	23685937.33	30000	95.97	90	110	
Ca	40	45	H2	30016.611	ppb	1.2	278033002.67	30000	100.06	90	110	
Ti	47	45	No Gas	298.158	ppb	3.4	628261.52	300	99.39	90	110	
V	51	45	He	321.116	ppb	3.3	2220742.17	300	107.04	90	110	
Cr	52	45	He	317.421	ppb	1.4	2534373.00	300	105.81	90	110	
Mn	55	45	No Gas	1951.814	ppb	2.5	64347028.00	2000	97.59	90	110	
Fe	56	45	H2	30408.350	ppb	4.2	446408394.67	30000	101.36	90	110	
Co	59	45	No Gas	303.254	ppb	1.9	8736953.00	300	101.08	90	110	
Ni	60	45	He	303.201	ppb	1.3	883688.96	300	101.07	90	110	
Cu	63	45	He	323.324	ppb	0.9	2506946.42	300	107.77	90	110	
Zn	66	72	No Gas	301.125	ppb	7.0	1402947.42	300	100.37	90	110	
As	75	72	He	314.994	ppb	0.4	387161.95	300	105	90	110	
Se	78	72	H2	310.161	ppb	1.1	142847.77	300	103.39	90	110	
Sr	88	72	No Gas	292.864	ppb	6.9	10214490.98	300	97.62	90	110	
Zr	90	72	No Gas	29.614	ppb	4.9	656583.71	30	98.71	90	110	
Mo	95	115	No Gas	301.063	ppb	3.5	1976568.95	300	100.35	90	110	
Ag	107	115	No Gas	28.433	ppb	1.1	458953.59	30	94.78	90	110	
Cd	111	115	No Gas	303.823	ppb	1.8	981123.78	300	101.27	90	110	
Sn	118	115	No Gas	316.053	ppb	4.0	2852322.25	300	105.35	90	110	
Sb	123	115	No Gas	57.447	ppb	1.6	594418.62	60	95.74	90	110	
Ba	137	115	No Gas	308.759	ppb	1.7	1355280.57	300	102.92	90	110	
W	182	159	No Gas	29.625	ppb	1.1	255048.74	30	98.75	90	110	
Hg	201	159	He	3.028	ppb	1.9	2870.33	3	100.93	90	110	
Tl	205	159	No Gas	323.838	ppb	5.2	5898939.49	300	107.95	90	110	
Pb	208	159	No Gas	312.031	ppb	2.9	7694432.09	300	104.01	90	110	
U	238	159	No Gas	324.236	ppb	5.7	7220159.44	300	108.08	90	110	

Initial Calibration Verification (ICV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2326320.33	2.0	2310764.06	100.67	60	120	
Sc	45	No Gas	5347611.33	1.1	5435407.83	98.38	60	120	
Sc	45	H2	2794754.25	2.1	3057879.58	91.4	60	120	
Sc	45	He	485725.03	0.9	505273.24	96.13	60	120	
Ge	72	No Gas	1281673.79	1.8	1203548.54	106.49	60	120	
Ge	72	H2	812588.33	0.6	768618.71	105.72	60	120	
Ge	72	He	300543.30	0.6	296718.72	101.29	60	120	
In	115	No Gas	6342223.84	3.1	6172829.62	102.74	60	120	
Tb	159	No Gas	7092818.61	2.1	6668814.32	106.36	60	120	
Tb	159	He	4581811.83	0.5	4400215.83	104.13	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	ICB
File Name	H6L03009.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 10:54:17
Sample Type	ICB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	<0.000	ppb	N/A	130522.98	0.8	
Be	9	6	No Gas	0.003	ppb	78.9	34.44	0.08	
B	11	6	No Gas	0.513	ppb	15.1	4297.33	4	
Na	23	45	H2	5.258	ppb	89.8	346313.02	50	
Mg	24	45	No Gas	1.698	ppb	35.7	29464.83	20	
Al	27	45	No Gas	1.494	ppb	38.3	36374.42	15	
Si	28	45	H2	1.100	ppb	47.1	7344.61	8	
P	31	45	No Gas	0.145	ppb	271.0	39049.43	40	
K	39	45	He	<0.000	ppb	N/A	107222.47	25	
Ca	40	45	H2	0.906	ppb	48.7	72397.77	60	
Ti	47	45	No Gas	0.005	ppb	227.8	293.33	0.5	
V	51	45	He	<0.000	ppb	N/A	1380.07	0.5	
Cr	52	45	He	0.004	ppb	300.2	1785.45	0.25	
Mn	55	45	No Gas	0.184	ppb	29.0	17670.16	0.5	
Fe	56	45	H2	0.792	ppb	10.8	21106.94	25	
Co	59	45	No Gas	0.014	ppb	42.5	620.68	0.15	
Ni	60	45	He	0.003	ppb	46.1	88.67	0.5	
Cu	63	45	He	<0.000	ppb	N/A	5465.10	1	
Zn	66	72	No Gas	0.110	ppb	40.4	2119.50	10	
As	75	72	He	0.004	ppb	212.0	154.00	0.25	
Se	78	72	H2	0.056	ppb	35.6	34.33	0.2	
Sr	88	72	No Gas	0.013	ppb	52.8	986.71	0.3	
Zr	90	72	No Gas	0.004	ppb	51.6	166.67	5	
Mo	95	115	No Gas	0.033	ppb	28.6	244.45	0.2	
Ag	107	115	No Gas	<0.000	ppb	N/A	1198.94	0.08	
Cd	111	115	No Gas	0.058	ppb	36.8	176.97	0.2	
Sn	118	115	No Gas	0.211	ppb	4.6	6578.32	0.2	>LOD
Sb	123	115	No Gas	0.009	ppb	29.8	302.23	0.4	
Ba	137	115	No Gas	0.015	ppb	16.9	138.89	0.25	
W	182	159	No Gas	0.019	ppb	17.8	210.00	0.3	
Hg	201	159	He	0.010	ppb	22.0	19.67	0.1	
Tl	205	159	No Gas	0.155	ppb	27.6	2791.44	0.1	~~>LOD~~
Pb	208	159	No Gas	0.081	ppb	24.0	3142.38	0.1	
U	238	159	No Gas	0.014	ppb	33.1	326.67	0.05	

<1/2 LOQ
LV 12/12/19

Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2389247.06	1.3	2310764.06	103.4	60	120	
Sc	45	No Gas	5242357.67	1.0	5435407.83	96.45	60	120	
Sc	45	H2	2949587.42	6.1	3057879.58	96.46	60	120	
Sc	45	He	484263.93	0.9	505273.24	95.84	60	120	
Ge	72	No Gas	1229575.83	1.1	1203548.54	102.16	60	120	
Ge	72	H2	770640.92	0.9	768618.71	100.26	60	120	
Ge	72	He	293809.13	0.8	296718.72	99.02	60	120	
In	115	No Gas	6533255.46	2.4	6172829.62	105.84	60	120	
Tb	159	No Gas	7022622.92	7.5	6668814.32	105.31	60	120	
Tb	159	He	4584267.33	2.5	4400215.83	104.18	60	120	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	MRLL1201
File Name	H6L03010.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:56:41
Sample Type	LLCCV
Total Dilution	1.0000
Comment	1/100/10 ppb
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Li	7	6	No Gas	0.808	ppb	41.6	144892.54	1	80.8	80	120	
Be	9	6	No Gas	1.028	ppb	2.0	4143.95	1	102.8	80	120	
B	11	6	No Gas	9.706	ppb	1.5	25647.88	10	97.06	80	120	
Na	23	45	H2	101.946	ppb	7.3	815152.11	100	101.95	80	120	
Mg	24	45	No Gas	110.057	ppb	9.0	1557921.09	100	110.06	80	120	
Al	27	45	No Gas	113.694	ppb	2.2	2067218.61	100	113.69	80	120	
Si	28	45	H2	98.922	ppb	1.8	130760.02	100	98.92	80	120	
P	31	45	No Gas	50.702	ppb	2.6	96088.29	50	101.4	80	120	
K	39	45	He	88.199	ppb	4.9	182114.12	100	88.2	80	120	
Ca	40	45	H2	101.805	ppb	3.5	1082177.71	100	101.8	80	120	
Ti	47	45	No Gas	1.054	ppb	4.1	2496.23	1	105.4	80	120	
V	51	45	He	0.803	ppb	3.7	7992.33	1	80.3	80	120	
Cr	52	45	He	0.960	ppb	2.5	9535.98	1	96	80	120	
Mn	55	45	No Gas	1.101	ppb	1.7	48054.90	1	110.1	80	120	
Fe	56	45	H2	103.592	ppb	4.2	1650595.50	100	103.59	80	120	
Co	59	45	No Gas	1.036	ppb	2.7	29946.17	1	103.6	80	120	
Ni	60	45	He	1.011	ppb	2.6	3065.01	1	101.1	80	120	
Cu	63	45	He	0.922	ppb	3.7	12938.15	1	92.2	80	120	
Zn	66	72	No Gas	10.994	ppb	0.7	51174.91	10	109.94	80	120	
As	75	72	He	0.984	ppb	0.1	1395.74	1	98.4	80	120	
Se	78	72	H2	1.090	ppb	3.1	516.68	1	109	80	120	
Sr	88	72	No Gas	2.087	ppb	2.6	71018.90	2	104.35	80	120	
Zr	90	72	No Gas	4.906	ppb	0.8	105360.61	5	98.12	80	120	
Mo	95	115	No Gas	0.983	ppb	5.9	6616.10	1	98.3	80	120	
Ag	107	115	No Gas	1.035	ppb	4.2	18235.90	1	103.5	80	120	
Cd	111	115	No Gas	1.035	ppb	0.3	3395.26	1	103.5	80	120	
Sn	118	115	No Gas	0.882	ppb	4.1	12696.13	1	88.2	80	120	
Sb	123	115	No Gas	0.988	ppb	3.7	10641.00	1	98.8	80	120	
Ba	137	115	No Gas	0.992	ppb	0.4	4519.68	1	99.2	80	120	
W	182	159	No Gas	1.914	ppb	5.8	16901.39	2	95.7	80	120	
Hg	201	159	He	0.102	ppb	3.0	108.50	0.1	102	80	120	
Tl	205	159	No Gas	1.050	ppb	0.6	19584.26	1	105	80	120	
Pb	208	159	No Gas	1.032	ppb	2.1	27239.51	1	103.2	80	120	
U	238	159	No Gas	0.963	ppb	3.7	21942.96	1	96.3	80	120	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2401554.10	5.0	2310764.06	103.93	60	120	
Sc	45	No Gas	5324179.00	1.7	5435407.83	97.95	60	120	
Sc	45	H2	3016062.08	2.1	3057879.58	98.63	60	120	
Sc	45	He	491718.24	0.8	505273.24	97.32	60	120	
Ge	72	No Gas	1239863.62	2.2	1203548.54	103.02	60	120	
Ge	72	H2	818934.08	0.4	768618.71	106.55	60	120	
Ge	72	He	307961.63	1.0	296718.72	103.79	60	120	
In	115	No Gas	6476848.97	1.4	6172829.62	104.93	60	120	
Tb	159	No Gas	7255073.32	0.8	6668814.32	108.79	60	120	
Tb	159	He	4656928.00	1.1	4400215.83	105.83	60	120	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	MRLL1202
File Name	H6L03011.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:58:59
Sample Type	LLCCV2
Total Dilution	1.0000
Comment	0.4/40/4 ppb
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Li	7	6	No Gas	0.373	ppb	59.0	134496.72	0.4	93.25	80	120	
Be	9	6	No Gas	0.404	ppb	6.4	1577.87	0.4	101	80	120	
B	11	6	No Gas	0.701	ppb	14.8	4578.53	0.4	175.25	80	120	> +/- 20%
Na	23	45	H2	35.388	ppb	5.4	502681.46	40	88.47	80	120	
Mg	24	45	No Gas	39.282	ppb	2.3	571271.62	40	98.2	80	120	
Al	27	45	No Gas	38.483	ppb	2.0	720995.82	40	96.21	80	120	
K	39	45	He	37.156	ppb	14.9	137606.53	40	92.89	80	120	
Ca	40	45	H2	33.968	ppb	2.8	407939.24	40	84.92	80	120	
Ti	47	45	No Gas	0.362	ppb	9.9	1068.71	0.4	90.5	80	120	
V	51	45	He	0.226	ppb	5.6	3898.55	0.4	56.5	80	120	> +/- 20%
Cr	52	45	He	0.348	ppb	7.3	4520.08	0.4	87	80	120	
Mn	55	45	No Gas	0.397	ppb	4.8	25479.04	0.4	99.25	80	120	
Fe	56	45	H2	36.915	ppb	2.2	599141.23	40	92.29	80	120	
Co	59	45	No Gas	0.380	ppb	2.0	11367.42	0.4	95	80	120	
Ni	60	45	He	0.385	ppb	1.5	1197.39	0.4	96.25	80	120	
Cu	63	45	He	0.465	ppb	6.9	9211.12	0.4	116.25	80	120	
Zn	66	72	No Gas	4.107	ppb	4.0	20560.21	4	102.68	80	120	
As	75	72	He	0.392	ppb	4.8	622.68	0.4	98	80	120	
Se	78	72	H2	0.422	ppb	7.0	197.00	0.4	105.5	80	120	
Sr	88	72	No Gas	0.382	ppb	2.0	13710.37	0.4	95.5	80	120	
Mo	95	115	No Gas	0.353	ppb	1.8	2440.23	0.4	88.25	80	120	
Ag	107	115	No Gas	0.381	ppb	1.6	7643.33	0.4	95.25	80	120	
Cd	111	115	No Gas	0.365	ppb	3.5	1211.69	0.4	91.25	80	120	
Sn	118	115	No Gas	0.398	ppb	11.1	8410.48	0.4	99.5	80	120	
Sb	123	115	No Gas	0.365	ppb	2.9	4137.32	0.4	91.25	80	120	
Ba	137	115	No Gas	0.384	ppb	1.3	1827.91	0.4	96	80	120	
Tl	205	159	No Gas	0.416	ppb	9.4	7634.57	0.4	104	80	120	
Pb	208	159	No Gas	0.406	ppb	6.9	11265.36	0.4	101.5	80	120	
U	238	159	No Gas	0.366	ppb	6.9	8202.76	0.4	91.5	80	120	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2314021.85	4.5	2310764.06	100.14	60	120	
Sc	45	No Gas	5435706.67	4.0	5435407.83	100.01	60	120	

Low Level Continuing Calibration Verification (LLCCV) Report

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	H2	3041672.67	2.0	3057879.58	99.47	60	120	
Sc	45	He	483976.89	1.6	505273.24	95.79	60	120	
Ge	72	No Gas	1266799.17	4.8	1203548.54	105.26	60	120	
Ge	72	H2	782014.85	1.0	768618.71	101.74	60	120	
Ge	72	He	295088.50	0.4	296718.72	99.45	60	120	
In	115	No Gas	6612797.12	1.2	6172829.62	107.13	60	120	
Tb	159	No Gas	7138320.83	4.9	6668814.32	107.04	60	120	
Tb	159	He	4529632.17	1.1	4400215.83	102.94	60	120	

Interference Check Solution A (ICS-A) Report

Sample Name	ICSA
File Name	H6L03012.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:01:22
Sample Type	ICS-A
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Low	%High	QC Flag
Na	23	45	H2	103052.476	ppb	1.0	435208917.33	100000	80	120	
Mg	24	45	No Gas	98873.795	ppb	2.0	1394273365.33	100000	80	120	
Al	27	45	No Gas	100864.732	ppb	5.1	1825739706.13	100000	80	120	
P	31	45	No Gas	94245.875	ppb	2.9	105254376.00	100000	80	120	
K	39	45	He	99478.389	ppb	0.9	81837032.00	100000	80	120	
Ca	40	45	H2	106208.026	ppb	3.3	940120810.67	100000	80	120	
Ti	47	45	No Gas	2083.080	ppb	0.2	4367403.50	2000	80	120	
Fe	56	45	H2	107527.695	ppb	2.3	1509809621.33	100000	80	120	
Mo	95	115	No Gas	1998.463	ppb	3.3	12456085.34	2000	80	120	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2251566.69	3.1	2310764.06	97.44	60	120	
Sc	45	No Gas	5324307.00	3.1	5435407.83	97.96	60	120	
Sc	45	H2	2672161.67	1.5	3057879.58	87.39	60	120	
Sc	45	He	487232.46	0.8	505273.24	96.43	60	120	
Ge	72	No Gas	1246510.17	1.9	1203548.54	103.57	60	120	
Ge	72	H2	781487.98	1.0	768618.71	101.67	60	120	
Ge	72	He	296746.27	0.7	296718.72	100.01	60	120	
In	115	No Gas	6019033.48	0.6	6172829.62	97.51	60	120	
Tb	159	No Gas	7183712.35	5.3	6668814.32	107.72	60	120	
Tb	159	He	4497710.50	3.8	4400215.83	102.22	60	120	

Interference Check Solution AB (ICS-AB) Report

Sample Name	ICSAB
File Name	H6L03013.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 11:03:37
Sample Type	ICSB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Low	%High	QC Flag
Li	7	6	No Gas	21.658	ppb	4.9	348247.54	20	80	120	
Be	9	6	No Gas	21.431	ppb	3.5	74583.04	20	80	120	
B	11	6	No Gas	21.424	ppb	4.0	45842.44	20	80	120	
Na	23	45	H2	98598.007	ppb	1.0	430959893.33	100000	80	120	
Mg	24	45	No Gas	94733.913	ppb	5.9	1343526442.67	100000	80	120	
Al	27	45	No Gas	95493.235	ppb	6.0	1738640507.43	100000	80	120	
Si	28	45	H2	196.911	ppb	2.1	233024.72	200	80	120	
P	31	45	No Gas	93728.988	ppb	4.9	105344173.33	100000	80	120	
K	39	45	He	98314.069	ppb	2.3	79637074.67	100000	80	120	
Ca	40	45	H2	101926.853	ppb	1.2	934052608.00	100000	80	120	
Ti	47	45	No Gas	2003.084	ppb	6.7	4225065.67	2000	80	120	
V	51	45	He	18.397	ppb	0.8	127833.61	20	80	120	
Cr	52	45	He	19.014	ppb	0.8	151598.21	20	80	120	
Mn	55	45	No Gas	19.230	ppb	5.6	646864.00	20	80	120	
Fe	56	45	H2	101422.627	ppb	3.8	1473024426.67	100000	80	120	
Co	59	45	No Gas	19.021	ppb	6.1	549120.67	20	80	120	
Ni	60	45	He	19.231	ppb	1.4	55439.00	20	80	120	
Cu	63	45	He	19.200	ppb	1.1	152303.22	20	80	120	
Zn	66	72	No Gas	19.867	ppb	1.4	91194.50	20	80	120	
As	75	72	He	19.398	ppb	2.7	23934.50	20	80	120	
Se	78	72	H2	20.375	ppb	0.9	9039.69	20	80	120	
Sr	88	72	No Gas	19.928	ppb	0.8	673838.36	20	80	120	
Zr	90	72	No Gas	3.826	ppb	1.8	82225.83	20	80	120	> +/- 20%
Mo	95	115	No Gas	2030.752	ppb	3.1	12633813.11	2000	80	120	
Ag	107	115	No Gas	19.602	ppb	2.4	300144.72	20	80	120	
Cd	111	115	No Gas	19.728	ppb	1.1	60354.88	20	80	120	
Sn	118	115	No Gas	20.775	ppb	2.5	181534.79	20	80	120	
Sb	123	115	No Gas	20.169	ppb	2.2	197861.39	20	80	120	
Ba	137	115	No Gas	19.839	ppb	1.6	82546.86	20	80	120	
W	182	159	No Gas	20.015	ppb	1.2	166407.65	20	80	120	
Hg	201	159	He	1.935	ppb	0.7	1856.14	2	80	120	
Tl	205	159	No Gas	19.488	ppb	1.9	342673.03	20	80	120	
Pb	208	159	No Gas	19.547	ppb	2.0	466362.15	20	80	120	
U	238	159	No Gas	19.663	ppb	2.1	422648.80	20	80	120	

Interference Check Solution AB (ICS-AB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2083579.75	1.8	2310764.06	90.17	60	120	
Sc	45	No Gas	5363232.83	3.5	5435407.83	98.67	60	120	
Sc	45	H2	2765243.58	2.8	3057879.58	90.43	60	120	
Sc	45	He	479760.76	0.4	505273.24	94.95	60	120	
Ge	72	No Gas	1240729.04	3.1	1203548.54	103.09	60	120	
Ge	72	H2	781958.10	0.5	768618.71	101.74	60	120	
Ge	72	He	299997.41	1.7	296718.72	101.1	60	120	
In	115	No Gas	6008352.56	1.7	6172829.62	97.34	60	120	
Tb	159	No Gas	6849270.14	0.3	6668814.32	102.71	60	120	
Tb	159	He	4627908.33	1.7	4400215.83	105.17	60	120	

Sample Report

Sample Name	MRLL1203
File Name	H6L03014.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:05:52
Sample Type	Sample
Total Dilution	1.0000
Comment	0.1 ppb Hg
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	0.057	0.057	ppb	536.8	123548.64	50	
Be	9	6	No Gas	0.001	0.001	ppb	433.2	22.22	50	
B	11	6	No Gas	0.142	0.142	ppb	50.6	3147.02	100	
Na	23	45	H2	13.400	13.400	ppb	22.7	413463.90	50000	
Mg	24	45	No Gas	7.326	7.326	ppb	14.1	110540.57	50000	
Al	27	45	No Gas	6.813	6.813	ppb	15.1	134749.37	50000	
Si	28	45	H2	<0.000	<0.000	ppb	N/A	6279.42	5000	
P	31	45	No Gas	2.291	2.291	ppb	45.3	42539.73	500	
K	39	45	He	6.429	6.429	ppb	79.9	116242.27	50000	
Ca	40	45	H2	4.920	4.920	ppb	6.4	120054.97	50000	
Ti	47	45	No Gas	0.125	0.125	ppb	27.1	554.68	500	
V	51	45	He	<0.000	<0.000	ppb	N/A	1298.73	500	
Cr	52	45	He	<0.000	<0.000	ppb	N/A	1594.09	500	
Mn	55	45	No Gas	0.068	0.068	ppb	13.1	14318.82	3000	
Fe	56	45	H2	5.565	5.565	ppb	3.1	102180.08	50000	
Co	59	45	No Gas	<0.000	<0.000	ppb	N/A	183.33	500	
Ni	60	45	He	<0.000	<0.000	ppb	N/A	65.33	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	3941.24	500	
Zn	66	72	No Gas	0.733	0.733	ppb	7.6	4886.88	500	
As	75	72	He	<0.000	<0.000	ppb	N/A	117.00	500	
Se	78	72	H2	0.018	0.018	ppb	45.8	18.67	500	
Sr	88	72	No Gas	0.003	0.003	ppb	43.7	633.35	500	
Zr	90	72	No Gas	0.002	0.002	ppb	50.7	133.33	50	
Mo	95	115	No Gas	0.176	0.176	ppb	17.7	1253.40	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	1132.27	50	
Cd	111	115	No Gas	0.008	0.008	ppb	27.1	8.60	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	4182.90	500	
Sb	123	115	No Gas	0.006	0.006	ppb	8.9	274.45	100	
Ba	137	115	No Gas	0.011	0.011	ppb	64.5	123.33	1000	
W	182	159	No Gas	0.010	0.010	ppb	31.4	140.00	50	
Hg	201	159	He	0.106	0.106	ppb	2.9	111.33	5	
Tl	205	159	No Gas	0.023	0.023	ppb	17.1	443.34	500	
Pb	208	159	No Gas	0.036	0.036	ppb	9.8	2114.52	500	
U	238	159	No Gas	0.001	0.001	ppb	19.0	33.33	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2186526.66	3.5	2310764.06	94.62	60	120	
Sc	45	No Gas	5385171.33	0.8	5435407.83	99.08	60	120	
Sc	45	H2	3168728.50	2.9	3057879.58	103.63	60	120	
Sc	45	He	499948.14	1.0	505273.24	98.95	60	120	
Ge	72	No Gas	1225432.96	0.8	1203548.54	101.82	60	120	
Ge	72	H2	799229.44	1.4	768618.71	103.98	60	120	
Ge	72	He	301908.35	0.9	296718.72	101.75	60	120	
In	115	No Gas	6734558.64	0.5	6172829.62	109.1	60	120	
Tb	159	No Gas	7149197.22	2.1	6668814.32	107.2	60	120	
Tb	159	He	4634772.67	1.7	4400215.83	105.33	60	120	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV1
File Name	H6L03015.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:08:16
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	24.510	ppb	2.8	402951.39	25	98.04	90	110	
Be	9	6	No Gas	25.171	ppb	3.3	93198.62	25	100.68	90	110	
B	11	6	No Gas	48.734	ppb	4.6	107286.08	50	97.47	90	110	
Na	23	45	H2	25246.448	ppb	5.9	115228146.67	25000	100.99	90	110	
Mg	24	45	No Gas	25400.595	ppb	6.5	358093088.00	25000	101.6	90	110	
Al	27	45	No Gas	24697.372	ppb	8.0	446803846.68	25000	98.79	90	110	
Si	28	45	H2	2517.680	ppb	7.9	3035900.67	2500	100.71	90	110	
P	31	45	No Gas	240.187	ppb	6.8	307685.66	250	96.07	90	110	
K	39	45	He	25029.798	ppb	2.4	21194888.00	25000	100.12	90	110	
Ca	40	45	H2	24941.709	ppb	2.5	238342842.67	25000	99.77	90	110	
Ti	47	45	No Gas	241.635	ppb	6.1	506909.06	250	96.65	90	110	
V	51	45	He	258.476	ppb	2.5	1838616.00	250	103.39	90	110	
Cr	52	45	He	252.682	ppb	3.4	2076288.21	250	101.07	90	110	
Mn	55	45	No Gas	1564.370	ppb	4.8	51364888.00	1500	104.29	90	110	
Fe	56	45	H2	25063.636	ppb	3.5	379767040.00	25000	100.25	90	110	
Co	59	45	No Gas	250.133	ppb	8.1	7171867.67	250	100.05	90	110	
Ni	60	45	He	242.633	ppb	1.8	727403.89	250	97.05	90	110	
Cu	63	45	He	261.467	ppb	5.7	2085727.04	250	104.59	90	110	
Zn	66	72	No Gas	240.455	ppb	4.0	1131244.41	250	96.18	90	110	
As	75	72	He	248.155	ppb	0.7	313980.57	250	99.26	90	110	
Se	78	72	H2	255.865	ppb	1.1	117494.11	250	102.35	90	110	
Sr	88	72	No Gas	243.646	ppb	2.8	8579444.94	250	97.46	90	110	
Zr	90	72	No Gas	23.922	ppb	2.5	535369.64	25	95.69	90	110	
Mo	95	115	No Gas	239.743	ppb	3.8	1602297.30	250	95.9	90	110	
Ag	107	115	No Gas	24.000	ppb	0.5	394477.70	25	96	90	110	
Cd	111	115	No Gas	245.286	ppb	1.1	806264.72	250	98.11	90	110	
Sn	118	115	No Gas	253.360	ppb	2.6	2327375.60	250	101.34	90	110	
Sb	123	115	No Gas	48.117	ppb	2.4	506708.70	50	96.23	90	110	
Ba	137	115	No Gas	492.643	ppb	2.1	2200652.48	500	98.53	90	110	
W	182	159	No Gas	24.205	ppb	2.1	208519.54	25	96.82	90	110	
Hg	201	159	He	2.538	ppb	3.1	2436.90	2.5	101.52	90	110	
Tl	205	159	No Gas	258.536	ppb	2.7	4710003.56	250	103.41	90	110	
Pb	208	159	No Gas	252.752	ppb	4.1	6235160.23	250	101.1	90	110	
U	238	159	No Gas	251.531	ppb	4.1	5599454.22	250	100.61	90	110	

Continuing Calibration Verification (CCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2216586.91	2.1	2310764.06	95.92	60	120	
Sc	45	No Gas	5333483.67	4.1	5435407.83	98.12	60	120	
Sc	45	H2	2883979.42	2.1	3057879.58	94.31	60	120	
Sc	45	He	499640.25	1.1	505273.24	98.89	60	120	
Ge	72	No Gas	1293174.96	1.3	1203548.54	107.45	60	120	
Ge	72	H2	810164.46	0.3	768618.71	105.41	60	120	
Ge	72	He	309359.08	0.7	296718.72	104.26	60	120	
In	115	No Gas	6454271.73	1.6	6172829.62	104.56	60	120	
Tb	159	No Gas	7100809.30	3.7	6668814.32	106.48	60	120	
Tb	159	He	4641692.67	3.9	4400215.83	105.49	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB1
File Name	H6L03016.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:10:31
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	<0.000	ppb	N/A	125165.15	0.8	
Be	9	6	No Gas	0.004	ppb	93.3	34.44	0.08	
B	11	6	No Gas	0.394	ppb	28.9	3853.86	4	
Na	23	45	H2	7.176	ppb	14.5	372044.36	50	
Mg	24	45	No Gas	1.354	ppb	31.6	26090.19	20	
Al	27	45	No Gas	1.161	ppb	37.6	32159.05	15	
Si	28	45	H2	0.043	ppb	87.4	6338.78	8	
P	31	45	No Gas	<0.000	ppb	N/A	36637.53	40	
K	39	45	He	0.282	ppb	1701.6	110305.63	25	
Ca	40	45	H2	0.341	ppb	23.9	70043.67	60	
Ti	47	45	No Gas	0.001	ppb	3006.9	300.00	0.5	
V	51	45	He	<0.000	ppb	N/A	1408.74	0.5	
Cr	52	45	He	<0.000	ppb	N/A	1590.76	0.25	
Mn	55	45	No Gas	0.117	ppb	31.3	16444.57	0.5	
Fe	56	45	H2	0.792	ppb	5.4	22112.54	25	
Co	59	45	No Gas	0.009	ppb	52.0	485.34	0.15	
Ni	60	45	He	<0.000	ppb	N/A	74.00	0.5	
Cu	63	45	He	<0.000	ppb	N/A	4492.74	1	
Zn	66	72	No Gas	0.074	ppb	80.8	1990.82	10	
As	75	72	He	<0.000	ppb	N/A	125.00	0.25	
Se	78	72	H2	0.034	ppb	14.7	25.33	0.2	
Sr	88	72	No Gas	0.008	ppb	42.8	830.02	0.3	
Zr	90	72	No Gas	0.002	ppb	65.4	140.00	5	
Mo	95	115	No Gas	0.028	ppb	29.1	214.45	0.2	
Ag	107	115	No Gas	<0.000	ppb	N/A	1242.28	0.08	
Cd	111	115	No Gas	0.033	ppb	25.6	92.69	0.2	
Sn	118	115	No Gas	0.153	ppb	17.1	6118.10	0.2	
Sb	123	115	No Gas	0.011	ppb	10.6	327.78	0.4	
Ba	137	115	No Gas	0.021	ppb	47.6	170.00	0.25	
W	182	159	No Gas	0.010	ppb	23.3	130.00	0.3	
Hg	201	159	He	0.007	ppb	57.8	17.33	0.1	
Tl	205	159	No Gas	0.088	ppb	22.5	1585.66	0.1	
Pb	208	159	No Gas	0.057	ppb	15.4	2525.67	0.1	
U	238	159	No Gas	0.011	ppb	38.8	255.56	0.05	

Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2288440.93	0.5	2310764.06	99.03	60	120	
Sc	45	No Gas	5553935.50	1.9	5435407.83	102.18	60	120	
Sc	45	H2	3081496.75	0.9	3057879.58	100.77	60	120	
Sc	45	He	496674.56	0.1	505273.24	98.3	60	120	
Ge	72	No Gas	1249148.08	1.0	1203548.54	103.79	60	120	
Ge	72	H2	784823.17	1.2	768618.71	102.11	60	120	
Ge	72	He	298252.92	0.5	296718.72	100.52	60	120	
In	115	No Gas	6621367.13	3.1	6172829.62	107.27	60	120	
Tb	159	No Gas	6898989.73	3.4	6668814.32	103.45	60	120	
Tb	159	He	4608599.17	0.6	4400215.83	104.74	60	120	

Blank Report

Sample Name	IML008WB
File Name	H6L03017.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 11:12:54
Sample Type	Blank
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	<0.000	ppb	N/A	130749.90	0.8	
Be	9	6	No Gas	0.001	ppb	346.3	26.67	0.08	
B	11	6	No Gas	0.271	ppb	33.5	3713.83	4	
Na	23	45	H2	41.434	ppb	7.8	555901.75	50	
Mg	24	45	No Gas	11.700	ppb	3.2	174903.40	20	
Al	27	45	No Gas	2.225	ppb	2.0	51327.95	15	
Si	28	45	H2	1.887	ppb	25.6	8985.71	8	
P	31	45	No Gas	<0.000	ppb	N/A	35416.39	40	
K	39	45	He	1.707	ppb	387.7	113611.08	25	
Ca	40	45	H2	51.807	ppb	3.1	614444.38	60	
Ti	47	45	No Gas	0.069	ppb	3.0	442.01	0.5	
V	51	45	He	<0.000	ppb	N/A	1078.04	0.5	
Cr	52	45	He	0.022	ppb	9.6	2018.82	0.25	
Mn	55	45	No Gas	0.129	ppb	7.0	16515.96	0.5	
Fe	56	45	H2	3.056	ppb	4.7	60622.74	25	
Co	59	45	No Gas	0.003	ppb	36.7	306.67	0.15	
Ni	60	45	He	0.070	ppb	7.0	297.33	0.5	
Cu	63	45	He	<0.000	ppb	N/A	4084.61	1	
Zn	66	72	No Gas	5.134	ppb	3.4	25356.32	10	
As	75	72	He	<0.000	ppb	N/A	93.00	0.25	
Se	78	72	H2	0.029	ppb	16.7	24.33	0.2	
Sr	88	72	No Gas	0.309	ppb	4.1	11243.62	0.3	>1/2LOQ
Zr	90	72	No Gas	0.007	ppb	34.3	233.33	5	
Mo	95	115	No Gas	0.023	ppb	17.5	181.11	0.2	
Mo	98	115	No Gas	0.014	ppb	4.7	288.89	0.2	
Ag	107	115	No Gas	<0.000	ppb	N/A	82.22	0.08	
Cd	111	115	No Gas	0.020	ppb	8.3	49.52	0.2	
Sn	118	115	No Gas	<0.000	ppb	N/A	2520.25	0.2	
Sb	123	115	No Gas	0.020	ppb	7.5	423.34	0.4	
Ba	137	115	No Gas	0.202	ppb	5.4	993.37	0.25	
W	182	159	No Gas	0.003	ppb	155.1	73.33	0.3	
Hg	201	159	No Gas	0.009	ppb	17.5	22.33	0.1	
Hg	201	159	He	0.006	ppb	37.5	16.33	0.1	
Tl	205	159	No Gas	0.032	ppb	12.9	616.68	0.1	

Blank Report

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Pb	208	159	No Gas	0.057	ppb	18.2	2606.78	0.1	
U	238	159	No Gas	0.002	ppb	31.7	58.89	0.05	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2376107.10	4.8	2310764.06	102.83	60	120	
Sc	45	No Gas	5446761.33	1.4	5435407.83	100.21	60	120	
Sc	45	H2	3180948.83	2.8	3057879.58	104.02	60	120	
Sc	45	He	506242.19	1.9	505273.24	100.19	60	120	
Ge	72	No Gas	1269900.67	4.3	1203548.54	105.51	60	120	
Ge	72	H2	832420.29	0.3	768618.71	108.3	60	120	
Ge	72	He	312427.29	0.6	296718.72	105.29	60	120	
In	115	No Gas	6597835.80	3.2	6172829.62	106.89	60	120	
Tb	159	No Gas	7099865.83	5.1	6668814.32	106.46	60	120	
Tb	159	He	4786288.50	3.0	4400215.83	108.77	60	120	

Laboratory Control Sample (LCS) Report

Sample Name	IML008WL
File Name	H6L03018.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 11:15:17
Sample Type	LCSW
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	28.194	ppb	5.2	469195.42	30	93.98	85	115	
Be	9	6	No Gas	28.546	ppb	4.0	111489.44	30	95.15	83	121	
B	11	6	No Gas	27.197	ppb	6.0	64474.55	30	90.66	85	115	
Na	23	45	H2	2769.214	ppb	2.8	14108263.67	3000	92.31	85	117	
Mg	24	45	No Gas	2741.759	ppb	3.0	41989198.67	3000	91.39	83	118	
Al	27	45	No Gas	2687.752	ppb	3.5	52776787.55	3000	89.59	84	117	
Si	28	45	H2	0.809	ppb	9.5	7480.68	3000	0.03	85	115	DOD LIMIT
P	31	45	No Gas	<0.000	ppb	N/A	35866.22	300	-1.93	85	115	DOD LIMIT
K	39	45	He	3161.886	ppb	2.2	2813169.42	3000	105.4	87	115	
Ca	40	45	H2	2772.992	ppb	1.9	28979070.67	3000	92.43	87	118	
Ti	47	45	No Gas	26.336	ppb	2.3	60247.28	30	87.79	85	115	
V	51	45	He	26.275	ppb	0.2	191727.46	30	87.58	86	115	
Cr	52	45	He	27.672	ppb	0.2	232115.03	30	92.24	85	116	
Mn	55	45	No Gas	28.156	ppb	1.8	1015863.10	30	93.85	87	115	
Fe	56	45	H2	2810.752	ppb	3.5	46480513.33	3000	93.69	87	118	
Co	59	45	No Gas	27.357	ppb	1.8	851991.69	30	91.19	86	115	
Ni	60	45	He	28.304	ppb	0.6	86116.22	30	94.35	85	117	
Cu	63	45	He	28.681	ppb	0.1	237303.68	30	95.6	85	118	
Zn	66	72	No Gas	59.299	ppb	1.0	280822.53	60	98.83	83	119	
As	75	72	He	28.690	ppb	1.2	36992.87	30	95.63	84	116	
Se	78	72	H2	29.262	ppb	0.6	13826.08	30	97.54	80	120	
Sr	88	72	No Gas	27.614	ppb	1.0	974777.53	30	92.05	85	115	
Zr	90	72	No Gas	0.015	ppb	25.3	423.34	30	0.05	85	115	DOD LIMIT
Mo	95	115	No Gas	26.341	ppb	0.8	180455.35	30	87.8	85	115	
Ag	107	115	No Gas	27.815	ppb	0.8	468435.08	30	92.72	85	117	
Cd	111	115	No Gas	27.458	ppb	0.7	92507.73	30	91.53	87	115	
Sn	118	115	No Gas	27.734	ppb	1.4	265308.33	30	92.45	85	115	
Sb	123	115	No Gas	27.314	ppb	0.7	294987.54	30	91.05	85	117	
Ba	137	115	No Gas	26.753	ppb	0.6	122556.03	30	89.18	86	114	
W	182	159	No Gas	0.009	ppb	65.2	126.67	30	0.03	85	115	DOD LIMIT
Hg	201	159	He	0.005	ppb	58.4	15.50	2.5	0.2	82	119	DOD LIMIT
Tl	205	159	No Gas	28.914	ppb	2.0	519760.15	30	96.38	82	116	
Pb	208	159	No Gas	28.802	ppb	1.6	702000.32	30	96.01	88	115	
U	238	159	No Gas	27.926	ppb	0.8	613696.24	30	93.09	85	115	

Laboratory Control Sample (LCS) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2339200.57	3.9	2310764.06	101.23	60	120	
Sc	45	No Gas	5780021.33	3.2	5435407.83	106.34	60	120	
Sc	45	H2	3146671.50	2.0	3057879.58	102.9	60	120	
Sc	45	He	506573.56	0.1	505273.24	100.26	60	120	
Ge	72	No Gas	1295461.75	2.9	1203548.54	107.64	60	120	
Ge	72	H2	832987.00	0.8	768618.71	108.37	60	120	
Ge	72	He	314069.76	0.7	296718.72	105.85	60	120	
In	115	No Gas	6615535.08	1.7	6172829.62	107.17	60	120	
Tb	159	No Gas	7002979.17	2.0	6668814.32	105.01	60	120	
Tb	159	He	4791478.83	2.7	4400215.83	108.89	60	120	

Laboratory Control Sample (LCS) Report

Sample Name	IML008WC
File Name	H6L03019.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 11:17:32
Sample Type	LCSW
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	26.062	ppb	9.2	467217.93	30	86.87	85	115	
Be	9	6	No Gas	27.017	ppb	6.7	111117.48	30	90.06	83	121	
B	11	6	No Gas	25.754	ppb	8.9	64457.84	30	85.85	85	115	
Na	23	45	H2	2816.357	ppb	5.1	14248284.00	3000	93.88	85	117	
Mg	24	45	No Gas	2965.056	ppb	2.4	43485630.67	3000	98.84	83	118	
Al	27	45	No Gas	2902.064	ppb	2.9	54650589.19	3000	96.74	84	117	
Si	28	45	H2	1.012	ppb	40.3	7688.79	3000	0.03	85	115	DOD LIMIT
P	31	45	No Gas	<0.000	ppb	N/A	35628.94	300	-1.57	85	115	DOD LIMIT
K	39	45	He	3051.110	ppb	1.7	2739495.33	3000	101.7	87	115	
Ca	40	45	H2	2794.785	ppb	6.1	29002129.33	3000	93.16	87	118	
Ti	47	45	No Gas	27.245	ppb	2.4	59733.09	30	90.82	85	115	
V	51	45	He	26.110	ppb	1.5	192012.52	30	87.03	86	115	
Cr	52	45	He	27.381	ppb	1.6	231463.07	30	91.27	85	116	
Mn	55	45	No Gas	30.439	ppb	2.9	1051479.44	30	101.46	87	115	
Fe	56	45	H2	2898.137	ppb	2.9	47647542.67	3000	96.6	87	118	
Co	59	45	No Gas	28.475	ppb	1.9	850181.08	30	94.92	86	115	
Ni	60	45	He	27.986	ppb	1.2	85810.98	30	93.29	85	117	
Cu	63	45	He	28.181	ppb	1.3	235072.11	30	93.94	85	118	
Zn	66	72	No Gas	61.054	ppb	4.9	282137.81	60	101.76	83	119	
As	75	72	He	28.394	ppb	1.3	36786.95	30	94.65	84	116	
Se	78	72	H2	28.979	ppb	2.1	13804.73	30	96.6	80	120	
Sr	88	72	No Gas	28.046	ppb	5.1	965890.62	30	93.49	85	115	
Zr	90	72	No Gas	0.010	ppb	17.9	310.00	30	0.03	85	115	DOD LIMIT
Mo	95	115	No Gas	26.545	ppb	1.5	178747.05	30	88.48	85	115	
Ag	107	115	No Gas	28.397	ppb	1.1	470025.82	30	94.66	85	117	
Cd	111	115	No Gas	27.603	ppb	1.2	91402.60	30	92.01	87	115	
Sn	118	115	No Gas	28.055	ppb	1.4	263670.54	30	93.52	85	115	
Sb	123	115	No Gas	27.831	ppb	1.2	295399.72	30	92.77	85	117	
Ba	137	115	No Gas	27.056	ppb	1.2	121812.56	30	90.19	86	114	
W	182	159	No Gas	0.012	ppb	36.2	153.33	30	0.04	85	115	DOD LIMIT
Hg	201	159	He	0.007	ppb	75.2	17.17	2.5	0.28	82	119	DOD LIMIT
Tl	205	159	No Gas	27.742	ppb	1.0	514014.41	30	92.47	82	116	
Pb	208	159	No Gas	27.640	ppb	2.2	694442.24	30	92.13	88	115	
U	238	159	No Gas	26.689	ppb	1.7	604510.84	30	88.96	85	115	

Laboratory Control Sample (LCS) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2466331.47	3.7	2310764.06	106.73	60	120	
Sc	45	No Gas	5539466.33	1.6	5435407.83	101.91	60	120	
Sc	45	H2	3130161.17	5.0	3057879.58	102.36	60	120	
Sc	45	He	510533.81	1.2	505273.24	101.04	60	120	
Ge	72	No Gas	1265767.04	5.0	1203548.54	105.17	60	120	
Ge	72	H2	839939.77	1.1	768618.71	109.28	60	120	
Ge	72	He	315575.94	1.2	296718.72	106.36	60	120	
In	115	No Gas	6501965.87	1.5	6172829.62	105.33	60	120	
Tb	159	No Gas	7218005.82	2.1	6668814.32	108.24	60	120	
Tb	159	He	4573273.33	2.6	4400215.83	103.93	60	120	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV2
File Name	H6L03023.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:26:52
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	23.750	ppb	10.0	412850.53	25	95	90	110	
Be	9	6	No Gas	24.912	ppb	6.9	96577.04	25	99.65	90	110	
B	11	6	No Gas	47.680	ppb	4.5	110120.23	50	95.36	90	110	
Na	23	45	H2	24986.047	ppb	5.4	112181664.00	25000	99.94	90	110	
Mg	24	45	No Gas	24655.008	ppb	3.1	356181034.67	25000	98.62	90	110	
Al	27	45	No Gas	24947.327	ppb	7.4	461993019.78	25000	99.79	90	110	
Si	28	45	H2	2476.959	ppb	6.4	2938413.08	2500	99.08	90	110	
P	31	45	No Gas	239.095	ppb	4.8	313965.40	250	95.64	90	110	
K	39	45	He	25075.180	ppb	2.0	21326484.00	25000	100.3	90	110	
Ca	40	45	H2	25777.818	ppb	3.8	242302197.33	25000	103.11	90	110	
Ti	47	45	No Gas	238.399	ppb	4.1	512363.05	250	95.36	90	110	
V	51	45	He	258.669	ppb	4.1	1848188.12	250	103.47	90	110	
Cr	52	45	He	256.387	ppb	0.9	2115318.29	250	102.55	90	110	
Mn	55	45	No Gas	1569.576	ppb	4.1	52811486.67	1500	104.64	90	110	
Fe	56	45	H2	25979.789	ppb	3.5	387198880.00	25000	103.92	90	110	
Co	59	45	No Gas	253.138	ppb	3.6	7441677.33	250	101.26	90	110	
Ni	60	45	He	240.399	ppb	0.0	723883.67	250	96.16	90	110	
Cu	63	45	He	263.332	ppb	2.2	2110253.96	250	105.33	90	110	
Zn	66	72	No Gas	248.532	ppb	0.6	1156554.58	250	99.41	90	110	
As	75	72	He	248.169	ppb	1.1	316363.63	250	99.27	90	110	
Se	78	72	H2	251.791	ppb	1.6	118027.99	250	100.72	90	110	
Sr	88	72	No Gas	248.702	ppb	3.8	8656915.21	250	99.48	90	110	
Zr	90	72	No Gas	24.038	ppb	2.7	532056.32	25	96.15	90	110	
Mo	95	115	No Gas	238.579	ppb	1.4	1579082.30	250	95.43	90	110	
Ag	107	115	No Gas	24.557	ppb	3.0	399286.93	25	98.23	90	110	
Cd	111	115	No Gas	246.541	ppb	3.3	801723.25	250	98.62	90	110	
Sn	118	115	No Gas	254.274	ppb	5.7	2310014.35	250	101.71	90	110	
Sb	123	115	No Gas	48.727	ppb	3.2	507756.28	50	97.45	90	110	
Ba	137	115	No Gas	488.808	ppb	2.3	2161086.03	500	97.76	90	110	
W	182	159	No Gas	24.257	ppb	2.3	210002.02	25	97.03	90	110	
Hg	201	159	He	2.494	ppb	2.6	2484.75	2.5	99.76	90	110	
Tl	205	159	No Gas	249.005	ppb	0.8	4561317.18	250	99.6	90	110	
Pb	208	159	No Gas	251.444	ppb	1.8	6236975.47	250	100.58	90	110	
U	238	159	No Gas	249.311	ppb	1.9	5584022.42	250	99.72	90	110	

Continuing Calibration Verification (CCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2331399.60	10.2	2310764.06	100.89	60	120	
Sc	45	No Gas	5462596.17	5.4	5435407.83	100.5	60	120	
Sc	45	H2	2837525.08	2.9	3057879.58	92.79	60	120	
Sc	45	He	501780.65	0.7	505273.24	99.31	60	120	
Ge	72	No Gas	1278644.58	2.5	1203548.54	106.24	60	120	
Ge	72	H2	827150.08	1.7	768618.71	107.62	60	120	
Ge	72	He	311702.59	1.1	296718.72	105.05	60	120	
In	115	No Gas	6390142.71	4.1	6172829.62	103.52	60	120	
Tb	159	No Gas	7135324.58	3.8	6668814.32	107	60	120	
Tb	159	He	4813913.17	1.7	4400215.83	109.4	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB2
File Name	H6L03024.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 11:29:07
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	<0.000	ppb	N/A	128414.98	0.8	
Be	9	6	No Gas	0.003	ppb	71.9	35.56	0.08	
B	11	6	No Gas	0.251	ppb	32.3	3882.77	4	
Na	23	45	H2	3.077	ppb	39.7	352990.54	50	
Mg	24	45	No Gas	2.306	ppb	26.9	38683.00	20	
Al	27	45	No Gas	2.122	ppb	29.7	48525.26	15	
Si	28	45	H2	<0.000	ppb	N/A	6283.42	8	
P	31	45	No Gas	<0.000	ppb	N/A	37447.71	40	
K	39	45	He	1.433	ppb	368.6	111281.59	25	
Ca	40	45	H2	0.691	ppb	21.7	73809.23	60	
Ti	47	45	No Gas	0.007	ppb	189.5	303.33	0.5	
V	51	45	He	<0.000	ppb	N/A	1552.09	0.5	
Cr	52	45	He	<0.000	ppb	N/A	1605.43	0.25	
Mn	55	45	No Gas	0.165	ppb	34.0	17456.63	0.5	
Fe	56	45	H2	1.331	ppb	6.2	30912.32	25	
Co	59	45	No Gas	0.020	ppb	34.0	805.36	0.15	
Ni	60	45	He	0.005	ppb	59.3	96.67	0.5	
Cu	63	45	He	<0.000	ppb	N/A	4107.29	1	
Zn	66	72	No Gas	0.080	ppb	88.7	1986.15	10	
As	75	72	He	<0.000	ppb	N/A	140.00	0.25	
Se	78	72	H2	0.041	ppb	40.5	28.67	0.2	
Sr	88	72	No Gas	0.019	ppb	9.6	1173.39	0.3	
Zr	90	72	No Gas	0.003	ppb	84.9	143.33	5	
Mo	95	115	No Gas	0.029	ppb	11.2	222.23	0.2	
Ag	107	115	No Gas	<0.000	ppb	N/A	1214.50	0.08	
Cd	111	115	No Gas	0.040	ppb	16.7	115.66	0.2	
Sn	118	115	No Gas	0.114	ppb	19.5	5704.58	0.2	
Sb	123	115	No Gas	0.011	ppb	32.0	317.78	0.4	
Ba	137	115	No Gas	0.029	ppb	35.6	203.33	0.25	
W	182	159	No Gas	0.006	ppb	62.3	100.00	0.3	
Hg	201	159	He	0.006	ppb	90.9	15.83	0.1	
Tl	205	159	No Gas	0.092	ppb	27.5	1691.23	0.1	
Pb	208	159	No Gas	0.041	ppb	36.1	2206.75	0.1	
U	238	159	No Gas	0.019	ppb	13.1	435.57	0.05	

Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2511435.87	6.0	2310764.06	108.68	60	120	
Sc	45	No Gas	5367373.00	3.8	5435407.83	98.75	60	120	
Sc	45	H2	3089687.00	1.6	3057879.58	101.04	60	120	
Sc	45	He	496692.09	0.4	505273.24	98.3	60	120	
Ge	72	No Gas	1226906.91	0.8	1203548.54	101.94	60	120	
Ge	72	H2	793259.46	0.8	768618.71	103.21	60	120	
Ge	72	He	299720.76	0.6	296718.72	101.01	60	120	
In	115	No Gas	6562999.85	0.2	6172829.62	106.32	60	120	
Tb	159	No Gas	7096591.94	4.9	6668814.32	106.41	60	120	
Tb	159	He	4572213.00	2.1	4400215.83	103.91	60	120	

Sample Report

Sample Name	L043-01I
File Name	H6L03025.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 11:31:30
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	11.973	1.197	ppb	60.6	149467.68	50	
Be	9	6	No Gas	<0.000	<0.000	ppb	N/A	14.44	50	
B	11	6	No Gas	129.366	12.937	ppb	6.4	33106.91	100	
Na	23	45	H2	96208.247	9620.825	ppb	3.5	47392921.33	50000	
Mg	24	45	No Gas	34120.557	3412.056	ppb	4.4	49484014.67	50000	
Al	27	45	No Gas	16.196	1.620	ppb	16.3	40276.86	50000	
Si	28	45	H2	8554.277	855.428	ppb	1.3	1112481.08	5000	
P	31	45	No Gas	<0.000	<0.000	ppb	N/A	38838.17	500	
K	39	45	He	2094.592	209.459	ppb	2.2	285013.37	50000	
Ca	40	45	H2	95983.167	9598.317	ppb	2.6	98458133.33	50000	
Ti	47	45	No Gas	0.383	0.038	ppb	20.1	378.01	500	
V	51	45	He	0.350	0.035	ppb	16.7	2646.26	500	
Cr	52	45	He	1.214	0.121	ppb	6.7	2788.28	500	
Mn	55	45	No Gas	2.169	0.217	ppb	5.7	19590.01	3000	
Fe	56	45	H2	30.746	3.075	ppb	7.3	59297.76	50000	
Co	59	45	No Gas	0.130	0.013	ppb	12.3	610.02	500	
Ni	60	45	He	1.430	0.143	ppb	3.8	508.01	500	
Cu	63	45	He	0.584	0.058	ppb	27.7	6229.43	500	
Zn	66	72	No Gas	12.136	1.214	ppb	2.7	7353.33	500	
As	75	72	He	0.416	0.042	ppb	14.4	211.00	500	
Se	78	72	H2	0.910	0.091	ppb	1.4	53.00	500	
Sr	88	72	No Gas	808.638	80.864	ppb	7.2	2823771.34	500	
Zr	90	72	No Gas	0.052	0.005	ppb	65.7	203.33	50	
Mo	95	115	No Gas	0.559	0.056	ppb	14.9	390.00	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	82.22	50	
Cd	111	115	No Gas	0.167	0.017	ppb	23.4	36.87	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	4320.72	500	
Sb	123	115	No Gas	0.159	0.016	ppb	17.2	360.01	100	
Ba	137	115	No Gas	46.175	4.617	ppb	5.0	20380.42	1000	
W	182	159	No Gas	0.037	0.004	ppb	108.0	80.00	50	
Hg	201	159	He	0.030	0.003	ppb	57.9	13.33	5	
Tl	205	159	No Gas	0.260	0.026	ppb	24.6	497.79	500	
Pb	208	159	No Gas	0.163	0.016	ppb	26.0	1588.93	500	
U	238	159	No Gas	1.570	0.157	ppb	2.4	3486.06	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2403240.40	7.4	2310764.06	104	60	120	
Sc	45	No Gas	5478004.33	2.6	5435407.83	100.78	60	120	
Sc	45	H2	3095190.42	2.8	3057879.58	101.22	60	120	
Sc	45	He	495835.96	0.8	505273.24	98.13	60	120	
Ge	72	No Gas	1282081.04	0.2	1203548.54	106.53	60	120	
Ge	72	H2	820826.77	1.3	768618.71	106.79	60	120	
Ge	72	He	310764.20	0.7	296718.72	104.73	60	120	
In	115	No Gas	6363387.70	4.0	6172829.62	103.09	60	120	
Tb	159	No Gas	7047371.80	4.8	6668814.32	105.68	60	120	
Tb	159	He	4610050.17	2.2	4400215.83	104.77	60	120	

Sample Report

Sample Name	L043-02I
File Name	H6L03026.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:33:47
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	9.480	0.948	ppb	80.7	145274.77	50	
Be	9	6	No Gas	<0.000	<0.000	ppb	N/A	12.22	50	
B	11	6	No Gas	61.146	6.115	ppb	9.1	17149.38	100	
Na	23	45	H2	39755.981	3975.598	ppb	6.3	19206672.00	50000	
Mg	24	45	No Gas	33144.650	3314.465	ppb	0.1	47705817.33	50000	
Al	27	45	No Gas	10.003	1.000	ppb	3.3	28609.49	50000	
Si	28	45	H2	7298.407	729.841	ppb	4.7	922834.10	5000	
P	31	45	No Gas	<0.000	<0.000	ppb	N/A	38661.71	500	
K	39	45	He	1769.579	176.958	ppb	2.8	258288.22	50000	
Ca	40	45	H2	94558.580	9455.858	ppb	1.8	94275792.00	50000	
Ti	47	45	No Gas	0.510	0.051	ppb	36.9	401.34	500	
V	51	45	He	0.091	0.009	ppb	11.2	2467.56	500	
Cr	52	45	He	1.753	0.175	ppb	4.1	3233.05	500	
Mn	55	45	No Gas	1.964	0.196	ppb	5.4	18757.52	3000	
Fe	56	45	H2	26.846	2.685	ppb	0.8	51485.40	50000	
Co	59	45	No Gas	0.087	0.009	ppb	23.1	482.01	500	
Ni	60	45	He	0.388	0.039	ppb	27.2	198.00	500	
Cu	63	45	He	0.057	0.006	ppb	329.5	5823.25	500	
Zn	66	72	No Gas	8.912	0.891	ppb	8.3	6052.02	500	
As	75	72	He	0.308	0.031	ppb	27.2	199.00	500	
Se	78	72	H2	0.623	0.062	ppb	24.2	40.00	500	
Sr	88	72	No Gas	725.307	72.531	ppb	3.1	2622277.81	500	
Zr	90	72	No Gas	0.033	0.003	ppb	25.8	166.67	50	
Mo	95	115	No Gas	0.469	0.047	ppb	8.0	330.01	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	66.67	50	
Cd	111	115	No Gas	0.123	0.012	ppb	14.1	22.07	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	3869.46	500	
Sb	123	115	No Gas	0.129	0.013	ppb	38.9	326.67	100	
Ba	137	115	No Gas	37.938	3.794	ppb	5.7	16588.38	1000	
W	182	159	No Gas	0.036	0.004	ppb	149.8	80.00	50	
Hg	201	159	He	0.058	0.006	ppb	14.1	16.00	5	
Tl	205	159	No Gas	0.147	0.015	ppb	18.1	294.45	500	
Pb	208	159	No Gas	0.118	0.012	ppb	18.9	1476.71	500	
U	238	159	No Gas	1.173	0.117	ppb	2.5	2604.72	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2381004.62	3.4	2310764.06	103.04	60	120	
Sc	45	No Gas	5435792.00	2.2	5435407.83	100.01	60	120	
Sc	45	H2	3006961.92	0.7	3057879.58	98.33	60	120	
Sc	45	He	496664.45	0.8	505273.24	98.3	60	120	
Ge	72	No Gas	1327646.67	3.0	1203548.54	110.31	60	120	
Ge	72	H2	827659.77	0.2	768618.71	107.68	60	120	
Ge	72	He	313369.24	1.5	296718.72	105.61	60	120	
In	115	No Gas	6307521.31	6.6	6172829.62	102.18	60	120	
Tb	159	No Gas	7036773.05	3.1	6668814.32	105.52	60	120	
Tb	159	He	4619202.50	2.0	4400215.83	104.98	60	120	

Sample Report

Sample Name	L043-04I
File Name	H6L03027.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 11:36:04
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	28.753	2.875	ppb	29.5	162291.02	50	
Be	9	6	No Gas	<0.000	<0.000	ppb	N/A	20.00	50	
B	11	6	No Gas	95.888	9.589	ppb	6.8	24167.46	100	
Na	23	45	H2	89156.720	8915.672	ppb	1.7	40519668.00	50000	
Mg	24	45	No Gas	68724.562	6872.456	ppb	2.4	96167410.67	50000	
Al	27	45	No Gas	8.791	0.879	ppb	30.1	25627.71	50000	
Si	28	45	H2	8974.989	897.499	ppb	3.5	1075832.63	5000	
P	31	45	No Gas	<0.000	<0.000	ppb	N/A	38964.52	500	
K	39	45	He	2701.598	270.160	ppb	1.2	336880.85	50000	
Ca	40	45	H2	165030.315	16503.032	ppb	4.8	156066490.67	50000	
Ti	47	45	No Gas	0.586	0.059	ppb	25.1	406.68	500	
V	51	45	He	0.159	0.016	ppb	87.4	2518.90	500	
Cr	52	45	He	0.639	0.064	ppb	6.8	2328.20	500	
Mn	55	45	No Gas	12.329	1.233	ppb	2.1	52004.63	3000	
Fe	56	45	H2	27.105	2.710	ppb	4.6	49244.50	50000	
Co	59	45	No Gas	0.194	0.019	ppb	8.0	771.36	500	
Ni	60	45	He	1.184	0.118	ppb	0.6	436.01	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	4824.19	500	
Zn	66	72	No Gas	7.509	0.751	ppb	0.5	5413.74	500	
As	75	72	He	0.468	0.047	ppb	25.2	217.67	500	
Se	78	72	H2	1.088	0.109	ppb	14.5	61.00	500	
Sr	88	72	No Gas	1175.616	117.562	ppb	5.1	4275874.00	500	
Zr	90	72	No Gas	0.022	0.002	ppb	28.9	143.33	50	
Mo	95	115	No Gas	0.309	0.031	ppb	15.5	234.45	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	87.78	50	
Cd	111	115	No Gas	0.129	0.013	ppb	10.8	25.35	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	3694.97	500	
Sb	123	115	No Gas	0.094	0.009	ppb	27.4	303.33	100	
Ba	137	115	No Gas	85.280	8.528	ppb	1.2	38919.24	1000	
W	182	159	No Gas	0.009	0.001	ppb	442.6	56.67	50	
Hg	201	159	He	0.015	0.002	ppb	226.4	12.00	5	
Tl	205	159	No Gas	0.125	0.013	ppb	28.2	256.67	500	
Pb	208	159	No Gas	0.038	0.004	ppb	210.4	1284.47	500	
U	238	159	No Gas	1.927	0.193	ppb	4.8	4285.20	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2290986.48	4.6	2310764.06	99.14	60	120	
Sc	45	No Gas	5285808.00	0.9	5435407.83	97.25	60	120	
Sc	45	H2	2854555.50	1.8	3057879.58	93.35	60	120	
Sc	45	He	497504.65	0.9	505273.24	98.46	60	120	
Ge	72	No Gas	1335479.04	0.9	1203548.54	110.96	60	120	
Ge	72	H2	816866.75	0.3	768618.71	106.28	60	120	
Ge	72	He	311050.43	1.4	296718.72	104.83	60	120	
In	115	No Gas	6582326.87	0.8	6172829.62	106.63	60	120	
Tb	159	No Gas	7065628.19	2.5	6668814.32	105.95	60	120	
Tb	159	He	4636502.67	2.5	4400215.83	105.37	60	120	

Sample Report

Sample Name	L043-05I
File Name	H6L03028.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 11:38:22
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	25.700	2.570	ppb	19.4	160835.75	50	
Be	9	6	No Gas	<0.000	<0.000	ppb	N/A	14.45	50	
B	11	6	No Gas	87.050	8.705	ppb	2.7	22520.26	100	
Na	23	45	H2	79012.886	7901.289	ppb	9.4	36895312.00	50000	
Mg	24	45	No Gas	56284.596	5628.460	ppb	5.5	81082642.67	50000	
Al	27	45	No Gas	5.363	0.536	ppb	1.1	20047.84	50000	
Si	28	45	H2	8714.899	871.490	ppb	6.4	1074685.77	5000	
P	31	45	No Gas	<0.000	<0.000	ppb	N/A	39133.03	500	
K	39	45	He	2586.086	258.609	ppb	2.2	326934.59	50000	
Ca	40	45	H2	148036.980	14803.698	ppb	11.0	143596160.00	50000	
Ti	47	45	No Gas	0.447	0.045	ppb	13.7	388.68	500	
V	51	45	He	0.045	0.004	ppb	161.5	2436.89	500	
Cr	52	45	He	2.026	0.203	ppb	4.9	3458.44	500	
Mn	55	45	No Gas	13.466	1.347	ppb	1.9	57331.16	3000	
Fe	56	45	H2	28.479	2.848	ppb	11.2	52676.59	50000	
Co	59	45	No Gas	0.352	0.035	ppb	7.8	1258.06	500	
Ni	60	45	He	7.559	0.756	ppb	6.9	2337.54	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	4410.72	500	
Zn	66	72	No Gas	4.631	0.463	ppb	9.7	3926.57	500	
As	75	72	He	0.462	0.046	ppb	15.8	218.33	500	
Se	78	72	H2	1.086	0.109	ppb	25.8	61.33	500	
Sr	88	72	No Gas	1065.434	106.543	ppb	1.0	3789489.02	500	
Zr	90	72	No Gas	0.026	0.003	ppb	34.5	150.00	50	
Mo	95	115	No Gas	0.765	0.077	ppb	7.3	550.01	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	63.34	50	
Cd	111	115	No Gas	0.110	0.011	ppb	15.3	19.03	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	3612.72	500	
Sb	123	115	No Gas	0.084	0.008	ppb	38.1	296.67	100	
Ba	137	115	No Gas	66.214	6.621	ppb	2.9	30491.25	1000	
W	182	159	No Gas	0.007	0.001	ppb	236.2	56.67	50	
Hg	201	159	He	<0.000	<0.000	ppb	N/A	9.17	5	
Tl	205	159	No Gas	0.099	0.010	ppb	9.7	212.22	500	
Pb	208	159	No Gas	0.030	0.003	ppb	253.4	1281.14	500	
U	238	159	No Gas	1.580	0.158	ppb	1.9	3557.19	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2319792.01	4.6	2310764.06	100.39	60	120	
Sc	45	No Gas	5440657.83	2.2	5435407.83	100.1	60	120	
Sc	45	H2	2946684.00	9.5	3057879.58	96.36	60	120	
Sc	45	He	497074.92	0.4	505273.24	98.38	60	120	
Ge	72	No Gas	1305680.83	1.7	1203548.54	108.49	60	120	
Ge	72	H2	823588.67	1.5	768618.71	107.15	60	120	
Ge	72	He	312993.80	0.4	296718.72	105.49	60	120	
In	115	No Gas	6641680.40	3.4	6172829.62	107.6	60	120	
Tb	159	No Gas	7144369.44	0.4	6668814.32	107.13	60	120	
Tb	159	He	4611501.17	1.1	4400215.83	104.8	60	120	

Sample Report

Sample Name	L043-07M
File Name	H6L03029.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:40:39
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	65.318	6.532	ppb	14.3	206089.27	50	
Be	9	6	No Gas	28.828	2.883	ppb	3.9	11091.05	50	
B	11	6	No Gas	142.059	14.206	ppb	3.2	34575.90	100	
Na	23	45	H2	271998.167	27199.817	ppb	2.9	119024784.00	50000	
Mg	24	45	No Gas	79703.700	7970.370	ppb	1.8	112763621.33	50000	
Al	27	45	No Gas	2864.937	286.494	ppb	1.6	5212562.32	50000	
Si	28	45	H2	7506.958	750.696	ppb	2.8	872254.71	5000	
P	31	45	No Gas	<0.000	<0.000	ppb	N/A	39457.23	500	
K	39	45	He	5041.682	504.168	ppb	2.8	539188.08	50000	
Ca	40	45	H2	201940.160	20194.016	ppb	1.6	185003733.33	50000	
Ti	47	45	No Gas	27.316	2.732	ppb	0.6	6033.33	500	
V	51	45	He	26.967	2.697	ppb	2.9	21725.85	500	
Cr	52	45	He	26.851	2.685	ppb	2.9	24015.01	500	
Mn	55	45	No Gas	28.817	2.882	ppb	1.0	106831.44	3000	
Fe	56	45	H2	3112.834	311.283	ppb	0.7	4531543.50	50000	
Co	59	45	No Gas	28.565	2.856	ppb	0.6	82432.36	500	
Ni	60	45	He	27.988	2.799	ppb	2.4	8532.00	500	
Cu	63	45	He	26.200	2.620	ppb	2.7	26848.44	500	
Zn	66	72	No Gas	58.516	5.852	ppb	3.0	29497.31	500	
As	75	72	He	29.053	2.905	ppb	2.8	3877.56	500	
Se	78	72	H2	28.936	2.894	ppb	2.4	1356.74	500	
Sr	88	72	No Gas	1415.128	141.513	ppb	3.1	5034681.33	500	
Zr	90	72	No Gas	0.066	0.007	ppb	15.1	240.00	50	
Mo	95	115	No Gas	26.884	2.688	ppb	6.0	18070.04	500	
Ag	107	115	No Gas	27.029	2.703	ppb	6.0	45714.34	50	
Cd	111	115	No Gas	27.318	2.732	ppb	5.0	9003.80	500	
Sn	118	115	No Gas	27.218	2.722	ppb	5.0	29661.18	500	
Sb	123	115	No Gas	27.799	2.780	ppb	6.1	29593.38	100	
Ba	137	115	No Gas	107.597	10.760	ppb	4.4	48359.83	1000	
W	182	159	No Gas	<0.000	<0.000	ppb	N/A	43.33	50	
Hg	201	159	He	0.005	0.001	ppb	493.9	11.00	5	
Tl	205	159	No Gas	28.368	2.837	ppb	2.0	51750.26	500	
Pb	208	159	No Gas	27.763	2.776	ppb	2.2	69715.79	500	
U	238	159	No Gas	29.190	2.919	ppb	1.1	65081.14	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2303602.42	7.4	2310764.06	99.69	60	120	
Sc	45	No Gas	5342233.33	2.7	5435407.83	98.29	60	120	
Sc	45	H2	2764853.58	3.0	3057879.58	90.42	60	120	
Sc	45	He	503224.04	1.9	505273.24	99.59	60	120	
Ge	72	No Gas	1306606.75	3.1	1203548.54	108.56	60	120	
Ge	72	H2	820871.23	0.8	768618.71	106.8	60	120	
Ge	72	He	313107.44	0.7	296718.72	105.52	60	120	
In	115	No Gas	6495220.16	5.3	6172829.62	105.22	60	120	
Tb	159	No Gas	7103472.91	1.8	6668814.32	106.52	60	120	
Tb	159	He	4630140.67	2.5	4400215.83	105.23	60	120	

Sample Report

Sample Name	L043-07S
File Name	H6L03030.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:42:57
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	70.134	7.013	ppb	6.5	211719.73	50	
Be	9	6	No Gas	29.266	2.927	ppb	4.4	11247.84	50	
B	11	6	No Gas	145.420	14.542	ppb	6.9	35260.90	100	
Na	23	45	H2	265780.261	26578.026	ppb	4.2	119391786.67	50000	
Mg	24	45	No Gas	78366.066	7836.607	ppb	2.3	112360560.00	50000	
Al	27	45	No Gas	2922.220	292.222	ppb	3.5	5392412.11	50000	
Si	28	45	H2	7451.737	745.174	ppb	2.4	888976.75	5000	
P	31	45	No Gas	<0.000	<0.000	ppb	N/A	39647.79	500	
K	39	45	He	5173.086	517.309	ppb	1.9	542478.98	50000	
Ca	40	45	H2	200274.137	20027.414	ppb	5.7	188270586.67	50000	
Ti	47	45	No Gas	28.324	2.832	ppb	2.5	6330.80	500	
V	51	45	He	28.942	2.894	ppb	0.9	22809.61	500	
Cr	52	45	He	28.902	2.890	ppb	2.2	25344.75	500	
Mn	55	45	No Gas	29.429	2.943	ppb	2.7	110343.05	3000	
Fe	56	45	H2	3027.554	302.755	ppb	2.8	4522853.83	50000	
Co	59	45	No Gas	29.047	2.905	ppb	2.6	84960.40	500	
Ni	60	45	He	28.690	2.869	ppb	3.2	8619.39	500	
Cu	63	45	He	27.169	2.717	ppb	1.3	27229.86	500	
Zn	66	72	No Gas	59.490	5.949	ppb	1.6	30367.89	500	
As	75	72	He	29.480	2.948	ppb	1.2	3922.24	500	
Se	78	72	H2	29.598	2.960	ppb	4.3	1396.74	500	
Sr	88	72	No Gas	1461.559	146.156	ppb	0.7	5269339.79	500	
Zr	90	72	No Gas	0.011	0.001	ppb	140.2	116.67	50	
Mo	95	115	No Gas	27.571	2.757	ppb	3.7	18773.21	500	
Ag	107	115	No Gas	27.648	2.765	ppb	1.5	47365.70	50	
Cd	111	115	No Gas	27.631	2.763	ppb	2.2	9228.58	500	
Sn	118	115	No Gas	27.781	2.778	ppb	2.7	30571.04	500	
Sb	123	115	No Gas	28.068	2.807	ppb	2.8	30289.44	100	
Ba	137	115	No Gas	108.846	10.885	ppb	2.0	49563.18	1000	
W	182	159	No Gas	0.004	0.000	ppb	544.3	53.33	50	
Hg	201	159	He	0.011	0.001	ppb	273.2	11.50	5	
Tl	205	159	No Gas	29.607	2.961	ppb	8.1	53439.59	500	
Pb	208	159	No Gas	28.846	2.885	ppb	9.0	71596.23	500	
U	238	159	No Gas	30.687	3.069	ppb	7.7	67700.87	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2297484.45	1.3	2310764.06	99.43	60	120	
Sc	45	No Gas	5418420.33	4.2	5435407.83	99.69	60	120	
Sc	45	H2	2837698.42	1.4	3057879.58	92.8	60	120	
Sc	45	He	495913.80	0.2	505273.24	98.15	60	120	
Ge	72	No Gas	1323705.09	0.4	1203548.54	109.98	60	120	
Ge	72	H2	826125.88	0.8	768618.71	107.48	60	120	
Ge	72	He	312260.46	0.7	296718.72	105.24	60	120	
In	115	No Gas	6572657.13	3.0	6172829.62	106.48	60	120	
Tb	159	No Gas	7058414.30	8.2	6668814.32	105.84	60	120	
Tb	159	He	4637395.67	5.2	4400215.83	105.39	60	120	

Sample Report

Sample Name	L043-07A
File Name	H6L03031.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:45:12
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	348.932	34.893	ppb	1.1	535148.66	50	
Be	9	6	No Gas	315.666	31.567	ppb	1.3	120061.52	50	
B	11	6	No Gas	426.395	42.639	ppb	2.8	96836.51	100	
Na	23	45	H2	288400.699	28840.070	ppb	4.7	127340229.33	50000	
Mg	24	45	No Gas	101991.749	10199.175	ppb	3.0	147904133.33	50000	
Al	27	45	No Gas	30006.099	3000.610	ppb	2.0	55856167.50	50000	
Si	28	45	H2	7329.918	732.992	ppb	2.9	859884.02	5000	
P	31	45	No Gas	<0.000	<0.000	ppb	N/A	40022.20	500	
K	39	45	He	34471.114	3447.111	ppb	0.4	3004704.08	50000	
Ca	40	45	H2	221587.046	22158.705	ppb	3.4	204857893.33	50000	
Ti	47	45	No Gas	291.951	29.195	ppb	1.3	63227.32	500	
V	51	45	He	286.413	28.641	ppb	1.7	205200.64	500	
Cr	52	45	He	295.210	29.521	ppb	1.5	243264.97	500	
Mn	55	45	No Gas	314.325	31.433	ppb	0.7	1072826.13	3000	
Fe	56	45	H2	32474.497	3247.450	ppb	1.8	47641370.67	50000	
Co	59	45	No Gas	299.890	29.989	ppb	1.0	884717.87	500	
Ni	60	45	He	299.746	29.975	ppb	1.9	89631.99	500	
Cu	63	45	He	300.236	30.024	ppb	1.5	243885.98	500	
Zn	66	72	No Gas	586.094	58.609	ppb	1.2	277478.84	500	
As	75	72	He	302.468	30.247	ppb	1.6	38790.23	500	
Se	78	72	H2	312.007	31.201	ppb	1.1	14267.20	500	
Sr	88	72	No Gas	1656.345	165.635	ppb	1.3	5842188.52	500	
Zr	90	72	No Gas	0.107	0.011	ppb	19.8	330.00	50	
Mo	95	115	No Gas	285.223	28.522	ppb	1.2	190281.74	500	
Ag	107	115	No Gas	293.971	29.397	ppb	1.1	482026.82	50	
Cd	111	115	No Gas	292.343	29.234	ppb	1.4	95919.23	500	
Sn	118	115	No Gas	294.493	29.449	ppb	0.4	273998.99	500	
Sb	123	115	No Gas	290.020	29.002	ppb	0.4	304989.33	100	
Ba	137	115	No Gas	365.106	36.511	ppb	1.2	162853.66	1000	
W	182	159	No Gas	0.064	0.006	ppb	57.8	106.67	50	
Hg	201	159	He	0.010	0.001	ppb	170.2	11.67	5	
Tl	205	159	No Gas	290.052	29.005	ppb	3.6	538904.48	500	
Pb	208	159	No Gas	290.215	29.022	ppb	3.0	731230.44	500	
U	238	159	No Gas	291.349	29.135	ppb	3.1	661929.47	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2277203.71	3.0	2310764.06	98.55	60	120	
Sc	45	No Gas	5474162.83	3.0	5435407.83	100.71	60	120	
Sc	45	H2	2790767.50	2.4	3057879.58	91.26	60	120	
Sc	45	He	497942.23	1.0	505273.24	98.55	60	120	
Ge	72	No Gas	1294958.87	3.2	1203548.54	107.6	60	120	
Ge	72	H2	806254.15	1.3	768618.71	104.9	60	120	
Ge	72	He	312444.06	1.1	296718.72	105.3	60	120	
In	115	No Gas	6441796.32	2.0	6172829.62	104.36	60	120	
Tb	159	No Gas	7243642.35	4.7	6668814.32	108.62	60	120	
Tb	159	He	4681427.33	1.8	4400215.83	106.39	60	120	

Sample Report

Sample Name	L043-07I
File Name	H6L03032.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:47:26
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	33.058	3.306	ppb	16.4	174117.91	50	
Be	9	6	No Gas	0.022	0.002	ppb	112.3	31.11	50	
B	11	6	No Gas	110.421	11.042	ppb	2.9	28502.22	100	
Na	23	45	H2	255294.071	25529.407	ppb	3.7	115610056.00	50000	
Mg	24	45	No Gas	72098.597	7209.860	ppb	2.7	103205192.00	50000	
Al	27	45	No Gas	6.990	0.699	ppb	22.8	22825.54	50000	
Si	28	45	H2	7015.809	701.581	ppb	4.0	843834.96	5000	
P	31	45	No Gas	0.097	0.010	ppb	23258.9	40066.32	500	
K	39	45	He	2507.134	250.713	ppb	1.8	322940.52	50000	
Ca	40	45	H2	188713.278	18871.328	ppb	3.5	178845189.33	50000	
Ti	47	45	No Gas	0.389	0.039	ppb	41.2	373.34	500	
V	51	45	He	1.282	0.128	ppb	5.8	3339.07	500	
Cr	52	45	He	0.349	0.035	ppb	51.8	2106.16	500	
Mn	55	45	No Gas	0.148	0.015	ppb	158.6	12588.45	3000	
Fe	56	45	H2	25.272	2.527	ppb	4.6	46585.85	50000	
Co	59	45	No Gas	0.152	0.015	ppb	13.0	667.35	500	
Ni	60	45	He	0.645	0.065	ppb	10.4	277.33	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	3541.80	500	
Zn	66	72	No Gas	6.485	0.648	ppb	12.3	4764.17	500	
As	75	72	He	0.894	0.089	ppb	17.7	272.33	500	
Se	78	72	H2	0.703	0.070	ppb	12.4	43.33	500	
Sr	88	72	No Gas	1362.926	136.293	ppb	1.9	4809323.42	500	
Zr	90	72	No Gas	0.014	0.001	ppb	64.3	120.00	50	
Mo	95	115	No Gas	0.378	0.038	ppb	7.3	283.34	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	188.89	50	
Cd	111	115	No Gas	0.166	0.017	ppb	24.7	37.52	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	3630.51	500	
Sb	123	115	No Gas	0.240	0.024	ppb	35.4	462.23	100	
Ba	137	115	No Gas	76.044	7.604	ppb	2.2	35030.50	1000	
W	182	159	No Gas	<0.000	<0.000	ppb	N/A	30.00	50	
Hg	201	159	He	<0.000	<0.000	ppb	N/A	10.50	5	
Tl	205	159	No Gas	0.142	0.014	ppb	10.1	282.23	500	
Pb	208	159	No Gas	0.017	0.002	ppb	216.9	1214.47	500	
U	238	159	No Gas	1.580	0.158	ppb	5.1	3457.16	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2383033.49	6.0	2310764.06	103.13	60	120	
Sc	45	No Gas	5411463.33	5.5	5435407.83	99.56	60	120	
Sc	45	H2	2861402.25	3.7	3057879.58	93.57	60	120	
Sc	45	He	501154.45	0.4	505273.24	99.18	60	120	
Ge	72	No Gas	1295672.12	2.5	1203548.54	107.65	60	120	
Ge	72	H2	820147.56	0.7	768618.71	106.7	60	120	
Ge	72	He	311692.21	1.0	296718.72	105.05	60	120	
In	115	No Gas	6647278.31	4.7	6172829.62	107.69	60	120	
Tb	159	No Gas	6944658.61	3.6	6668814.32	104.14	60	120	
Tb	159	He	4715693.00	2.4	4400215.83	107.17	60	120	

Sample Report

Sample Name	L043-07J
File Name	H6L03033.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:49:44
Sample Type	Sample
Total Dilution	50.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	50.976	1.020	ppb	30.5	138503.88	50	
Be	9	6	No Gas	0.273	0.005	ppb	51.0	41.11	50	
B	11	6	No Gas	128.243	2.565	ppb	2.6	8519.25	100	
Na	23	45	H2	234035.566	4680.711	ppb	0.7	23329406.67	50000	
Mg	24	45	No Gas	73658.251	1473.165	ppb	3.8	21095789.33	50000	
Al	27	45	No Gas	32.491	0.650	ppb	5.7	21990.75	50000	
Si	28	45	H2	6420.779	128.416	ppb	3.0	173075.96	5000	
P	31	45	No Gas	<0.000	<0.000	ppb	N/A	39866.40	500	
K	39	45	He	2460.161	49.203	ppb	10.3	152126.82	50000	
Ca	40	45	H2	176876.884	3537.538	ppb	2.8	36499474.67	50000	
Ti	47	45	No Gas	0.830	0.017	ppb	76.6	326.67	500	
V	51	45	He	<0.000	<0.000	ppb	N/A	2112.16	500	
Cr	52	45	He	<0.000	<0.000	ppb	N/A	1558.76	500	
Mn	55	45	No Gas	<0.000	<0.000	ppb	N/A	11789.75	3000	
Fe	56	45	H2	56.121	1.122	ppb	1.3	27707.36	50000	
Co	59	45	No Gas	0.039	0.001	ppb	228.8	247.33	500	
Ni	60	45	He	0.261	0.005	ppb	110.9	98.67	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	4608.12	500	
Zn	66	72	No Gas	26.950	0.539	ppb	10.4	4130.64	500	
As	75	72	He	0.156	0.003	ppb	162.3	162.33	500	
Se	78	72	H2	1.169	0.023	ppb	64.7	21.67	500	
Sr	88	72	No Gas	1314.399	26.288	ppb	2.5	901738.68	500	
Zr	90	72	No Gas	0.022	0.000	ppb	305.2	96.67	50	
Mo	95	115	No Gas	0.475	0.010	ppb	30.1	87.78	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	106.67	50	
Cd	111	115	No Gas	0.590	0.012	ppb	8.5	21.33	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	3807.23	500	
Sb	123	115	No Gas	0.637	0.013	ppb	18.5	335.56	100	
Ba	137	115	No Gas	77.753	1.555	ppb	2.4	7068.60	1000	
W	182	159	No Gas	<0.000	<0.000	ppb	N/A	33.33	50	
Hg	201	159	He	0.074	0.001	ppb	37.4	11.83	5	
Tl	205	159	No Gas	0.370	0.007	ppb	24.6	163.33	500	
Pb	208	159	No Gas	0.367	0.007	ppb	27.0	1361.14	500	
U	238	159	No Gas	1.523	0.030	ppb	5.4	683.35	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2253041.14	1.1	2310764.06	97.5	60	120	
Sc	45	No Gas	5404549.00	2.0	5435407.83	99.43	60	120	
Sc	45	H2	3109317.33	2.2	3057879.58	101.68	60	120	
Sc	45	He	499480.21	0.3	505273.24	98.85	60	120	
Ge	72	No Gas	1258584.59	1.6	1203548.54	104.57	60	120	
Ge	72	H2	825063.50	0.8	768618.71	107.34	60	120	
Ge	72	He	311192.97	0.6	296718.72	104.88	60	120	
In	115	No Gas	6502536.60	2.9	6172829.62	105.34	60	120	
Tb	159	No Gas	6990826.94	3.4	6668814.32	104.83	60	120	
Tb	159	He	4589066.67	2.4	4400215.83	104.29	60	120	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV3
File Name	H6L03034.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:52:03
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	25.666	ppb	3.8	422553.76	25	102.66	90	110	
Be	9	6	No Gas	25.662	ppb	3.6	96484.17	25	102.65	90	110	
B	11	6	No Gas	50.826	ppb	4.1	113502.75	50	101.65	90	110	
Na	23	45	H2	25124.846	ppb	3.4	112730304.00	25000	100.5	90	110	
Mg	24	45	No Gas	25136.755	ppb	3.3	357504725.33	25000	100.55	90	110	
Al	27	45	No Gas	25508.791	ppb	4.8	465578339.73	25000	102.04	90	110	
Si	28	45	H2	2542.623	ppb	7.9	3011611.83	2500	101.7	90	110	
P	31	45	No Gas	240.503	ppb	2.5	310754.36	250	96.2	90	110	
K	39	45	He	25420.950	ppb	2.4	21443643.33	25000	101.68	90	110	
Ca	40	45	H2	24772.554	ppb	5.3	232408261.33	25000	99.09	90	110	
Ti	47	45	No Gas	240.508	ppb	3.2	508967.94	250	96.2	90	110	
V	51	45	He	267.617	ppb	1.1	1896317.38	250	107.05	90	110	
Cr	52	45	He	261.079	ppb	1.3	2136284.83	250	104.43	90	110	
Mn	55	45	No Gas	1583.680	ppb	5.0	52437540.00	1500	105.58	90	110	
Fe	56	45	H2	26055.632	ppb	3.9	387910506.67	25000	104.22	90	110	
Co	59	45	No Gas	259.034	ppb	6.6	7490401.83	250	103.61	90	110	
Ni	60	45	He	243.361	ppb	0.4	726786.00	250	97.34	90	110	
Cu	63	45	He	265.055	ppb	1.2	2106720.46	250	106.02	90	110	
Zn	66	72	No Gas	236.373	ppb	2.5	1139304.71	250	94.55	90	110	
As	75	72	He	248.254	ppb	0.4	313737.53	250	99.3	90	110	
Se	78	72	H2	250.855	ppb	0.4	115866.81	250	100.34	90	110	
Sr	88	72	No Gas	242.188	ppb	5.7	8728201.60	250	96.88	90	110	
Zr	90	72	No Gas	23.549	ppb	3.9	539350.28	25	94.2	90	110	
Mo	95	115	No Gas	246.322	ppb	9.9	1621292.82	250	98.53	90	110	
Ag	107	115	No Gas	24.552	ppb	5.6	397901.02	25	98.21	90	110	
Cd	111	115	No Gas	244.555	ppb	5.5	792729.46	250	97.82	90	110	
Sn	118	115	No Gas	253.958	ppb	2.1	2302102.48	250	101.58	90	110	
Sb	123	115	No Gas	48.561	ppb	6.5	504267.29	50	97.12	90	110	
Ba	137	115	No Gas	487.321	ppb	7.7	2145186.23	500	97.46	90	110	
W	182	159	No Gas	23.230	ppb	2.9	209972.61	25	92.92	90	110	
Hg	201	159	He	2.531	ppb	3.2	2448.41	2.5	101.24	90	110	
Tl	205	159	No Gas	242.075	ppb	4.9	4626845.23	250	96.83	90	110	
Pb	208	159	No Gas	243.925	ppb	4.9	6311573.61	250	97.57	90	110	
U	238	159	No Gas	248.657	ppb	5.2	5810174.35	250	99.46	90	110	

Continuing Calibration Verification (CCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2251784.90	2.7	2310764.06	97.45	60	120	
Sc	45	No Gas	5373007.00	3.0	5435407.83	98.85	60	120	
Sc	45	H2	2836875.08	6.6	3057879.58	92.77	60	120	
Sc	45	He	497666.39	0.4	505273.24	98.49	60	120	
Ge	72	No Gas	1324147.54	3.6	1203548.54	110.02	60	120	
Ge	72	H2	814893.08	0.7	768618.71	106.02	60	120	
Ge	72	He	308991.13	0.5	296718.72	104.14	60	120	
In	115	No Gas	6373039.58	3.8	6172829.62	103.24	60	120	
Tb	159	No Gas	7447237.48	1.2	6668814.32	111.67	60	120	
Tb	159	He	4674116.50	2.0	4400215.83	106.22	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB3
File Name	H6L03035.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:54:18
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	<0.000	ppb	N/A	130259.15	0.8	
Be	9	6	No Gas	0.006	ppb	35.1	45.56	0.08	
B	11	6	No Gas	0.312	ppb	20.6	3728.27	4	
Na	23	45	H2	4.706	ppb	36.2	358634.34	50	
Mg	24	45	No Gas	3.731	ppb	42.3	58905.24	20	
Al	27	45	No Gas	3.569	ppb	41.3	74842.73	15	
Si	28	45	H2	<0.000	ppb	N/A	5436.40	8	
P	31	45	No Gas	<0.000	ppb	N/A	37931.68	40	
K	39	45	He	2.191	ppb	207.8	110830.01	25	
Ca	40	45	H2	1.550	ppb	9.4	82079.66	60	
Ti	47	45	No Gas	0.027	ppb	43.2	343.34	0.5	
V	51	45	He	<0.000	ppb	N/A	1557.42	0.5	
Cr	52	45	He	<0.000	ppb	N/A	1646.10	0.25	
Mn	55	45	No Gas	0.235	ppb	39.2	19638.49	0.5	
Fe	56	45	H2	2.158	ppb	3.5	44056.84	25	
Co	59	45	No Gas	0.034	ppb	51.4	1206.06	0.15	
Ni	60	45	He	0.017	ppb	46.2	131.33	0.5	
Cu	63	45	He	<0.000	ppb	N/A	3900.56	1	
Zn	66	72	No Gas	0.096	ppb	91.5	2048.83	10	
As	75	72	He	0.015	ppb	60.8	169.33	0.25	
Se	78	72	H2	0.052	ppb	20.2	33.67	0.2	
Sr	88	72	No Gas	0.036	ppb	49.1	1724.57	0.3	
Zr	90	72	No Gas	0.003	ppb	150.1	143.33	5	
Mo	95	115	No Gas	0.039	ppb	44.5	288.90	0.2	
Ag	107	115	No Gas	<0.000	ppb	N/A	1223.39	0.08	
Cd	111	115	No Gas	0.064	ppb	24.8	199.91	0.2	
Sn	118	115	No Gas	<0.000	ppb	N/A	4579.69	0.2	
Sb	123	115	No Gas	0.012	ppb	49.9	334.45	0.4	
Ba	137	115	No Gas	0.061	ppb	52.1	354.45	0.25	
W	182	159	No Gas	0.005	ppb	52.8	96.67	0.3	
Hg	201	159	He	0.000	ppb	262.7	11.17	0.1	
Tl	205	159	No Gas	0.143	ppb	35.0	2688.10	0.1	>~~LOD~~
Pb	208	159	No Gas	0.057	ppb	41.4	2657.90	0.1	
U	238	159	No Gas	0.033	ppb	46.4	773.36	0.05	

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Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2323628.66	0.8	2310764.06	100.56	60	120	
Sc	45	No Gas	5303008.83	3.7	5435407.83	97.56	60	120	
Sc	45	H2	3070403.17	2.2	3057879.58	100.41	60	120	
Sc	45	He	491905.37	0.2	505273.24	97.35	60	120	
Ge	72	No Gas	1225598.92	2.1	1203548.54	101.83	60	120	
Ge	72	H2	788612.02	0.0	768618.71	102.6	60	120	
Ge	72	He	296795.48	1.0	296718.72	100.03	60	120	
In	115	No Gas	6667427.71	1.4	6172829.62	108.01	60	120	
Tb	159	No Gas	7227328.04	1.7	6668814.32	108.38	60	120	
Tb	159	He	4710502.83	2.1	4400215.83	107.05	60	120	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV4
File Name	H6L03045.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 12:17:15
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	25.921	ppb	11.6	415987.09	25	103.68	90	110	
Be	9	6	No Gas	26.244	ppb	8.5	96461.58	25	104.98	90	110	
B	11	6	No Gas	51.518	ppb	10.4	112333.14	50	103.04	90	110	
Na	23	45	H2	25491.363	ppb	7.5	110207458.67	25000	101.97	90	110	
Mg	24	45	No Gas	25314.283	ppb	1.8	352234026.67	25000	101.26	90	110	
Al	27	45	No Gas	24725.091	ppb	3.6	441680193.42	25000	98.9	90	110	
Si	28	45	H2	2505.159	ppb	1.8	2873352.08	2500	100.21	90	110	
P	31	45	No Gas	243.301	ppb	0.9	307101.30	250	97.32	90	110	
K	39	45	He	25581.280	ppb	1.8	21388662.00	25000	102.33	90	110	
Ca	40	45	H2	25671.221	ppb	8.0	232190176.00	25000	102.68	90	110	
Ti	47	45	No Gas	242.106	ppb	2.1	501340.67	250	96.84	90	110	
V	51	45	He	259.975	ppb	5.3	1825510.17	250	103.99	90	110	
Cr	52	45	He	249.319	ppb	3.2	2022143.88	250	99.73	90	110	
Mn	55	45	No Gas	1541.791	ppb	2.4	49952917.33	1500	102.79	90	110	
Fe	56	45	H2	26697.187	ppb	8.2	382958912.00	25000	106.79	90	110	
Co	59	45	No Gas	255.272	ppb	1.6	7227888.50	250	102.11	90	110	
Ni	60	45	He	242.598	ppb	1.3	718122.31	250	97.04	90	110	
Cu	63	45	He	256.205	ppb	2.0	2018381.79	250	102.48	90	110	
Zn	66	72	No Gas	255.373	ppb	5.0	1141933.96	250	102.15	90	110	
As	75	72	He	249.432	ppb	0.6	312090.87	250	99.77	90	110	
Se	78	72	H2	253.291	ppb	2.8	114515.21	250	101.32	90	110	
Sr	88	72	No Gas	247.541	ppb	1.2	8283106.89	250	99.02	90	110	
Zr	90	72	No Gas	24.744	ppb	1.9	525958.12	25	98.98	90	110	
Mo	95	115	No Gas	251.686	ppb	3.6	1630640.24	250	100.67	90	110	
Ag	107	115	No Gas	24.732	ppb	4.9	393563.07	25	98.93	90	110	
Cd	111	115	No Gas	249.114	ppb	4.2	793113.43	250	99.65	90	110	
Sn	118	115	No Gas	253.291	ppb	4.7	2252781.51	250	101.32	90	110	
Sb	123	115	No Gas	49.848	ppb	4.3	508503.75	50	99.7	90	110	
Ba	137	115	No Gas	495.605	ppb	6.2	2142257.83	500	99.12	90	110	
W	182	159	No Gas	25.243	ppb	3.5	215106.84	25	100.97	90	110	
Hg	201	159	He	2.518	ppb	1.4	2465.74	2.5	100.72	90	110	
Tl	205	159	No Gas	260.753	ppb	2.1	4701065.09	250	104.3	90	110	
Pb	208	159	No Gas	259.306	ppb	5.7	6321391.89	250	103.72	90	110	
U	238	159	No Gas	264.389	ppb	5.0	5828208.38	250	105.76	90	110	

Continuing Calibration Verification (CCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2208130.16	6.2	2310764.06	95.56	60	120	
Sc	45	No Gas	5254949.00	1.5	5435407.83	96.68	60	120	
Sc	45	H2	2738809.75	6.8	3057879.58	89.57	60	120	
Sc	45	He	493258.50	0.9	505273.24	97.62	60	120	
Ge	72	No Gas	1228513.63	3.9	1203548.54	102.07	60	120	
Ge	72	H2	798140.52	3.4	768618.71	103.84	60	120	
Ge	72	He	305925.86	1.0	296718.72	103.1	60	120	
In	115	No Gas	6261374.97	6.1	6172829.62	101.43	60	120	
Tb	159	No Gas	7027894.58	5.1	6668814.32	105.38	60	120	
Tb	159	He	4730649.00	1.2	4400215.83	107.51	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB4
File Name	H6L03046.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:19:30
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	<0.000	ppb	N/A	128935.39	0.8	
Be	9	6	No Gas	0.005	ppb	103.0	40.00	0.08	
B	11	6	No Gas	0.250	ppb	72.8	3719.39	4	
Na	23	45	H2	7.471	ppb	29.0	363381.22	50	
Mg	24	45	No Gas	6.739	ppb	13.7	99351.57	20	
Al	27	45	No Gas	6.350	ppb	13.3	122819.37	15	
Si	28	45	H2	<0.000	ppb	N/A	5273.00	8	
P	31	45	No Gas	<0.000	ppb	N/A	38840.84	40	
K	39	45	He	8.069	ppb	83.7	114715.06	25	
Ca	40	45	H2	4.394	ppb	9.7	108400.72	60	
Ti	47	45	No Gas	0.063	ppb	32.1	412.01	0.5	
V	51	45	He	<0.000	ppb	N/A	1837.46	0.5	
Cr	52	45	He	0.004	ppb	95.8	1800.78	0.25	
Mn	55	45	No Gas	0.414	ppb	18.5	25102.40	0.5	
Fe	56	45	H2	4.975	ppb	5.4	87394.33	25	
Co	59	45	No Gas	0.064	ppb	11.6	2037.49	0.15	
Ni	60	45	He	0.050	ppb	26.4	226.00	0.5	
Cu	63	45	He	<0.000	ppb	N/A	3885.89	1	
Zn	66	72	No Gas	0.100	ppb	72.7	2090.17	10	
As	75	72	He	0.034	ppb	14.5	190.67	0.25	
Se	78	72	H2	0.080	ppb	24.7	45.00	0.2	
Sr	88	72	No Gas	0.064	ppb	10.2	2706.94	0.3	
Zr	90	72	No Gas	0.007	ppb	35.5	236.67	5	
Mo	95	115	No Gas	0.074	ppb	8.9	534.46	0.2	
Ag	107	115	No Gas	0.000	ppb	1177.9	1261.17	0.08	
Cd	111	115	No Gas	0.087	ppb	16.8	275.56	0.2	
Sn	118	115	No Gas	0.013	ppb	36.3	4825.34	0.2	
Sb	123	115	No Gas	0.014	ppb	57.4	357.78	0.4	
Ba	137	115	No Gas	0.119	ppb	10.5	621.13	0.25	
W	182	159	No Gas	0.008	ppb	46.8	123.33	0.3	
Hg	201	159	He	0.004	ppb	52.0	15.00	0.1	
Tl	205	159	No Gas	0.166	ppb	20.2	3138.18	0.1	~~>LOD~~
Pb	208	159	No Gas	0.077	ppb	21.2	3192.39	0.1	
U	238	159	No Gas	0.061	ppb	18.9	1404.53	0.05	>LOD

$< \frac{1}{2}$ LOQ
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Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2412982.04	3.5	2310764.06	104.42	60	120	
Sc	45	No Gas	5254564.83	3.7	5435407.83	96.67	60	120	
Sc	45	H2	2998988.42	1.9	3057879.58	98.07	60	120	
Sc	45	He	487738.01	0.3	505273.24	96.53	60	120	
Ge	72	No Gas	1241717.12	2.4	1203548.54	103.17	60	120	
Ge	72	H2	772037.25	1.0	768618.71	100.44	60	120	
Ge	72	He	294870.88	0.6	296718.72	99.38	60	120	
In	115	No Gas	6643400.31	3.4	6172829.62	107.62	60	120	
Tb	159	No Gas	7301907.49	3.2	6668814.32	109.49	60	120	
Tb	159	He	4707768.17	3.3	4400215.83	106.99	60	120	

Sample Report

Sample Name	L043-01
File Name	H6L03047.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:21:53
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	18.149	18.149	ppb	1.5	340059.61	50	
Be	9	6	No Gas	<0.000	<0.000	ppb	N/A	20.00	50	
B	11	6	No Gas	138.804	138.804	ppb	2.3	308728.14	100	>LDR
Na	23	45	H2	108325.752	108325.752	ppb	9.2	503671850.67	50000	>LDR
Mg	24	45	No Gas	33191.745	33191.745	ppb	0.9	484918261.33	50000	
Al	27	45	No Gas	8.835	8.835	ppb	10.5	176314.26	50000	
Si	28	45	H2	8402.073	8402.073	ppb	0.5	10325965.33	5000	>LDR
P	31	45	No Gas	13.044	13.044	ppb	10.7	56014.65	500	
K	39	45	He	2448.548	2448.548	ppb	2.1	2205128.75	50000	
Ca	40	45	H2	99874.576	99874.576	ppb	2.2	972862570.67	50000	>LDR
Ti	47	45	No Gas	0.504	0.504	ppb	11.0	1390.74	500	
V	51	45	He	1.612	1.612	ppb	1.7	14073.89	500	
Cr	52	45	He	1.466	1.466	ppb	1.9	14046.53	500	
Mn	55	45	No Gas	2.038	2.038	ppb	5.0	81664.21	3000	
Fe	56	45	H2	22.872	22.872	ppb	2.2	362298.65	50000	
Co	59	45	No Gas	0.130	0.130	ppb	7.3	4103.96	500	
Ni	60	45	He	1.400	1.400	ppb	1.4	4342.69	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	4725.49	500	
Zn	66	72	No Gas	8.094	8.094	ppb	1.9	38554.70	500	
As	75	72	He	0.777	0.777	ppb	1.8	1155.72	500	
Se	78	72	H2	0.803	0.803	ppb	5.7	383.68	500	
Sr	88	72	No Gas	816.557	816.557	ppb	1.5	27898143.33	500	>LDR
Zr	90	72	No Gas	0.051	0.051	ppb	10.7	1186.72	50	
Mo	95	115	No Gas	0.573	0.573	ppb	1.1	3721.64	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	183.34	50	
Cd	111	115	No Gas	0.027	0.027	ppb	17.5	68.43	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	2154.63	500	
Sb	123	115	No Gas	0.108	0.108	ppb	3.9	1291.18	100	
Ba	137	115	No Gas	47.971	47.971	ppb	4.8	206746.94	1000	
W	182	159	No Gas	0.013	0.013	ppb	19.3	166.67	50	
Hg	201	159	He	0.009	0.009	ppb	74.9	18.83	5	
Tl	205	159	No Gas	0.032	0.032	ppb	17.3	607.79	500	
Pb	208	159	No Gas	0.043	0.043	ppb	20.6	2271.20	500	
U	238	159	No Gas	1.512	1.512	ppb	4.5	33864.52	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2278945.91	2.9	2310764.06	98.62	60	120	
Sc	45	No Gas	5519235.17	3.2	5435407.83	101.54	60	120	
Sc	45	H2	2940270.50	1.7	3057879.58	96.15	60	120	
Sc	45	He	506868.51	0.1	505273.24	100.32	60	120	
Ge	72	No Gas	1255198.71	6.3	1203548.54	104.29	60	120	
Ge	72	H2	819971.44	0.6	768618.71	106.68	60	120	
Ge	72	He	313561.33	0.8	296718.72	105.68	60	120	
In	115	No Gas	6238304.44	6.6	6172829.62	101.06	60	120	
Tb	159	No Gas	7139597.35	3.9	6668814.32	107.06	60	120	
Tb	159	He	4619983.83	1.6	4400215.83	104.99	60	120	

Sample Report

Sample Name	L043-02
File Name	H6L03048.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:24:09
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	15.746	15.746	ppb	2.5	328146.08	50	
Be	9	6	No Gas	<0.000	<0.000	ppb	N/A	17.78	50	
B	11	6	No Gas	66.578	66.578	ppb	4.3	157339.83	100	
Na	23	45	H2	41566.243	41566.243	ppb	5.2	193324314.67	50000	
Mg	24	45	No Gas	35821.844	35821.844	ppb	3.0	508933610.67	50000	
Al	27	45	No Gas	5.724	5.724	ppb	1.8	114425.70	50000	
Si	28	45	H2	7707.147	7707.147	ppb	5.7	9469793.33	5000	>LDR
P	31	45	No Gas	8.869	8.869	ppb	13.8	49768.91	500	
K	39	45	He	2191.781	2191.781	ppb	2.9	2010434.66	50000	
Ca	40	45	H2	100679.600	100679.600	ppb	3.8	981145493.33	50000	>LDR
Ti	47	45	No Gas	0.490	0.490	ppb	4.1	1323.40	500	
V	51	45	He	1.527	1.527	ppb	2.5	13618.76	500	
Cr	52	45	He	2.191	2.191	ppb	2.4	20321.71	500	
Mn	55	45	No Gas	2.211	2.211	ppb	2.3	85141.15	3000	
Fe	56	45	H2	22.336	22.336	ppb	4.1	354059.18	50000	
Co	59	45	No Gas	0.109	0.109	ppb	0.3	3372.42	500	
Ni	60	45	He	0.495	0.495	ppb	4.2	1608.77	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	5542.46	500	
Zn	66	72	No Gas	5.561	5.561	ppb	2.6	28060.96	500	
As	75	72	He	0.704	0.704	ppb	3.0	1075.38	500	
Se	78	72	H2	0.723	0.723	ppb	7.4	353.00	500	
Sr	88	72	No Gas	753.400	753.400	ppb	6.2	26734713.38	500	>LDR
Zr	90	72	No Gas	0.020	0.020	ppb	20.2	540.01	50	
Mo	95	115	No Gas	0.492	0.492	ppb	6.3	3345.98	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	144.45	50	
Cd	111	115	No Gas	0.019	0.019	ppb	3.0	45.63	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	2249.08	500	
Sb	123	115	No Gas	0.076	0.076	ppb	12.2	1005.60	100	
Ba	137	115	No Gas	39.978	39.978	ppb	2.1	180293.47	1000	
W	182	159	No Gas	0.015	0.015	ppb	61.0	190.00	50	
Hg	201	159	He	0.003	0.003	ppb	34.2	14.17	5	
Tl	205	159	No Gas	0.017	0.017	ppb	5.4	361.12	500	
Pb	208	159	No Gas	0.041	0.041	ppb	14.3	2336.76	500	
U	238	159	No Gas	1.199	1.199	ppb	3.5	28311.55	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2396979.20	3.9	2310764.06	103.73	60	120	
Sc	45	No Gas	5366946.17	3.2	5435407.83	98.74	60	120	
Sc	45	H2	2943390.58	3.6	3057879.58	96.26	60	120	
Sc	45	He	513069.19	1.9	505273.24	101.54	60	120	
Ge	72	No Gas	1303321.83	1.8	1203548.54	108.29	60	120	
Ge	72	H2	834588.94	0.6	768618.71	108.58	60	120	
Ge	72	He	317367.44	0.5	296718.72	106.96	60	120	
In	115	No Gas	6515551.68	2.7	6172829.62	105.55	60	120	
Tb	159	No Gas	7525035.54	2.9	6668814.32	112.84	60	120	
Tb	159	He	4768821.17	3.3	4400215.83	108.38	60	120	

Sample Report

Sample Name	L043-04
File Name	H6L03049.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:26:25
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	30.997	30.997	ppb	3.9	504488.52	50	
Be	9	6	No Gas	<0.000	<0.000	ppb	N/A	20.00	50	
B	11	6	No Gas	99.476	99.476	ppb	2.0	228732.55	100	>LDR
Na	23	45	H2	88445.360	88445.360	ppb	1.9	405811082.67	50000	>LDR
Mg	24	45	No Gas	66702.678	66702.678	ppb	5.3	948450410.67	50000	>LDR
Al	27	45	No Gas	4.371	4.371	ppb	3.1	89851.61	50000	
Si	28	45	H2	8422.140	8422.140	ppb	3.9	10209752.33	5000	>LDR
P	31	45	No Gas	9.148	9.148	ppb	10.4	50161.02	500	
K	39	45	He	3203.050	3203.050	ppb	1.8	2807508.92	50000	
Ca	40	45	H2	160119.565	160119.565	ppb	4.0	1538642304.00	50000	>LDR
Ti	47	45	No Gas	0.482	0.482	ppb	6.6	1308.73	500	
V	51	45	He	1.384	1.384	ppb	1.9	12246.14	500	
Cr	52	45	He	0.935	0.935	ppb	1.3	9482.62	500	
Mn	55	45	No Gas	12.002	12.002	ppb	2.8	409443.96	3000	
Fe	56	45	H2	27.502	27.502	ppb	6.9	427433.99	50000	
Co	59	45	No Gas	0.202	0.202	ppb	0.9	6081.36	500	
Ni	60	45	He	1.169	1.169	ppb	3.0	3586.47	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	4237.99	500	
Zn	66	72	No Gas	7.032	7.032	ppb	3.0	34184.97	500	
As	75	72	He	0.648	0.648	ppb	3.9	976.37	500	
Se	78	72	H2	0.963	0.963	ppb	7.4	449.68	500	
Sr	88	72	No Gas	1170.736	1170.736	ppb	2.4	40553857.28	500	>LDR
Zr	90	72	No Gas	0.020	0.020	ppb	13.4	536.68	50	
Mo	95	115	No Gas	0.246	0.246	ppb	1.0	1618.99	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	142.22	50	
Cd	111	115	No Gas	0.019	0.019	ppb	18.1	43.82	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	2401.34	500	
Sb	123	115	No Gas	0.062	0.062	ppb	5.1	824.47	100	
Ba	137	115	No Gas	89.545	89.545	ppb	1.3	388829.03	1000	
W	182	159	No Gas	0.002	0.002	ppb	155.7	70.00	50	
Hg	201	159	He	0.004	0.004	ppb	73.1	14.50	5	
Tl	205	159	No Gas	0.013	0.013	ppb	14.9	274.45	500	
Pb	208	159	No Gas	0.050	0.050	ppb	10.8	2460.10	500	
U	238	159	No Gas	1.889	1.889	ppb	2.1	42480.19	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2349131.17	6.1	2310764.06	101.66	60	120	
Sc	45	No Gas	5373988.67	2.4	5435407.83	98.87	60	120	
Sc	45	H2	2904693.17	6.1	3057879.58	94.99	60	120	
Sc	45	He	499313.95	0.2	505273.24	98.82	60	120	
Ge	72	No Gas	1272182.41	1.8	1203548.54	105.7	60	120	
Ge	72	H2	804412.44	0.5	768618.71	104.66	60	120	
Ge	72	He	309081.50	0.2	296718.72	104.17	60	120	
In	115	No Gas	6272977.02	2.6	6172829.62	101.62	60	120	
Tb	159	No Gas	7166399.44	3.5	6668814.32	107.46	60	120	
Tb	159	He	4641413.67	4.3	4400215.83	105.48	60	120	

Sample Report

Sample Name	L043-05
File Name	H6L03050.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:28:41
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	26.775	26.775	ppb	3.4	470141.65	50	
Be	9	6	No Gas	0.001	0.001	ppb	592.8	24.44	50	
B	11	6	No Gas	89.690	89.690	ppb	5.4	213833.86	100	
Na	23	45	H2	79828.542	79828.542	ppb	2.2	353491125.33	50000	>LDR
Mg	24	45	No Gas	56972.815	56972.815	ppb	6.6	825076970.67	50000	>LDR
Al	27	45	No Gas	4.087	4.087	ppb	4.4	86177.08	50000	
Si	28	45	H2	8390.282	8390.282	ppb	2.1	9823912.33	5000	>LDR
P	31	45	No Gas	7.771	7.771	ppb	8.5	49495.94	500	
K	39	45	He	3044.921	3044.921	ppb	1.8	2666655.17	50000	
Ca	40	45	H2	146937.617	146937.617	ppb	1.2	1363942357.33	50000	>LDR
Ti	47	45	No Gas	0.474	0.474	ppb	13.5	1315.40	500	
V	51	45	He	1.314	1.314	ppb	2.5	11711.67	500	
Cr	52	45	He	2.409	2.409	ppb	1.4	21508.86	500	
Mn	55	45	No Gas	13.515	13.515	ppb	3.5	467834.38	3000	
Fe	56	45	H2	31.179	31.179	ppb	1.8	467459.29	50000	
Co	59	45	No Gas	0.378	0.378	ppb	5.5	11360.08	500	
Ni	60	45	He	7.352	7.352	ppb	1.2	22046.46	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	5084.29	500	
Zn	66	72	No Gas	6.141	6.141	ppb	3.6	29546.75	500	
As	75	72	He	0.511	0.511	ppb	8.2	808.69	500	
Se	78	72	H2	0.890	0.890	ppb	6.4	415.68	500	
Sr	88	72	No Gas	1138.498	1138.498	ppb	2.2	38757844.02	500	>LDR
Zr	90	72	No Gas	0.021	0.021	ppb	23.6	543.35	50	
Mo	95	115	No Gas	0.786	0.786	ppb	5.4	5176.57	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	168.89	50	
Cd	111	115	No Gas	0.016	0.016	ppb	11.3	33.66	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	2291.31	500	
Sb	123	115	No Gas	0.069	0.069	ppb	5.5	912.26	100	
Ba	137	115	No Gas	70.833	70.833	ppb	0.9	310558.62	1000	
W	182	159	No Gas	0.012	0.012	ppb	38.2	163.33	50	
Hg	201	159	He	0.004	0.004	ppb	59.3	14.50	5	
Tl	205	159	No Gas	0.011	0.011	ppb	9.5	251.11	500	
Pb	208	159	No Gas	0.069	0.069	ppb	5.9	3069.04	500	
U	238	159	No Gas	1.669	1.669	ppb	0.9	39190.32	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2431328.16	1.2	2310764.06	105.22	60	120	
Sc	45	No Gas	5470705.67	1.0	5435407.83	100.65	60	120	
Sc	45	H2	2801557.67	1.5	3057879.58	91.62	60	120	
Sc	45	He	497914.30	0.9	505273.24	98.54	60	120	
Ge	72	No Gas	1250378.71	2.5	1203548.54	103.89	60	120	
Ge	72	H2	803596.31	0.9	768618.71	104.55	60	120	
Ge	72	He	311149.36	0.3	296718.72	104.86	60	120	
In	115	No Gas	6334287.67	1.7	6172829.62	102.62	60	120	
Tb	159	No Gas	7481586.09	3.1	6668814.32	112.19	60	120	
Tb	159	He	4759222.17	2.7	4400215.83	108.16	60	120	

Sample Report

Sample Name	L043-07M
File Name	H6L03051.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:36:05
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	70.440	70.440	ppb	9.6	1007107.32	50	>LDR
Be	9	6	No Gas	28.705	28.705	ppb	5.9	115795.82	50	
B	11	6	No Gas	145.870	145.870	ppb	7.4	343519.52	100	>LDR
Na	23	45	H2	259479.722	259479.722	ppb	5.5	1133416789.33	50000	>LDR
Mg	24	45	No Gas	78314.454	78314.454	ppb	0.8	1102027413.33	50000	>LDR
Al	27	45	No Gas	2958.532	2958.532	ppb	4.6	53482415.87	50000	
Si	28	45	H2	7512.082	7512.082	ppb	4.3	8683705.67	5000	>LDR
P	31	45	No Gas	11.151	11.151	ppb	13.7	51821.08	500	
K	39	45	He	5736.707	5736.707	ppb	0.9	4829615.50	50000	
Ca	40	45	H2	197407.863	197407.863	ppb	1.1	1809404288.00	50000	>LDR
Ti	47	45	No Gas	27.514	27.514	ppb	0.8	57865.86	500	
V	51	45	He	27.974	27.974	ppb	1.6	196517.69	500	
Cr	52	45	He	27.048	27.048	ppb	0.5	218651.70	500	
Mn	55	45	No Gas	28.048	28.048	ppb	1.2	930511.61	3000	
Fe	56	45	H2	2947.087	2947.087	ppb	4.0	42838833.33	50000	
Co	59	45	No Gas	27.106	27.106	ppb	2.2	776218.62	500	
Ni	60	45	He	26.418	26.418	ppb	0.8	77449.14	500	
Cu	63	45	He	26.282	26.282	ppb	0.4	209996.52	500	
Zn	66	72	No Gas	54.383	54.383	ppb	3.5	257906.39	500	
As	75	72	He	28.662	28.662	ppb	0.8	35444.72	500	
Se	78	72	H2	28.533	28.533	ppb	0.8	12559.51	500	
Sr	88	72	No Gas	1402.593	1402.593	ppb	2.6	49511608.03	500	>LDR
Zr	90	72	No Gas	0.017	0.017	ppb	13.9	473.34	50	
Mo	95	115	No Gas	26.889	26.889	ppb	1.4	178070.70	500	
Ag	107	115	No Gas	26.631	26.631	ppb	1.4	433589.00	50	
Cd	111	115	No Gas	26.294	26.294	ppb	1.0	85629.56	500	
Sn	118	115	No Gas	27.298	27.298	ppb	1.0	252441.67	500	
Sb	123	115	No Gas	27.714	27.714	ppb	1.1	289294.23	100	
Ba	137	115	No Gas	107.768	107.768	ppb	2.0	476991.84	1000	
W	182	159	No Gas	0.007	0.007	ppb	42.0	116.67	50	
Hg	201	159	He	0.003	0.003	ppb	55.3	13.83	5	
Tl	205	159	No Gas	27.379	27.379	ppb	3.6	518177.81	500	
Pb	208	159	No Gas	27.174	27.174	ppb	4.3	697171.89	500	
U	238	159	No Gas	30.025	30.025	ppb	4.4	694344.21	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2416199.30	1.0	2310764.06	104.56	60	120	
Sc	45	No Gas	5314703.67	3.2	5435407.83	97.78	60	120	
Sc	45	H2	2766586.92	2.0	3057879.58	90.47	60	120	
Sc	45	He	488099.68	0.6	505273.24	96.6	60	120	
Ge	72	No Gas	1297142.63	4.3	1203548.54	107.78	60	120	
Ge	72	H2	776064.19	1.0	768618.71	100.97	60	120	
Ge	72	He	301192.44	0.4	296718.72	101.51	60	120	
In	115	No Gas	6395290.12	2.4	6172829.62	103.6	60	120	
Tb	159	No Gas	7380204.57	5.5	6668814.32	110.67	60	120	
Tb	159	He	4840030.83	7.0	4400215.83	110	60	120	

Sample Report

Sample Name	L043-07S
File Name	H6L03052.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:38:19
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	70.297	70.297	ppb	3.9	1031823.74	50	>LDR
Be	9	6	No Gas	29.164	29.164	ppb	5.7	120659.71	50	
B	11	6	No Gas	144.513	144.513	ppb	6.7	349073.01	100	>LDR
Na	23	45	H2	261702.874	261702.874	ppb	3.4	1169987968.00	50000	>LDR
Mg	24	45	No Gas	75231.163	75231.163	ppb	2.5	1135223168.00	50000	>LDR
Al	27	45	No Gas	2769.015	2769.015	ppb	3.9	53679730.87	50000	
Si	28	45	H2	7611.399	7611.399	ppb	1.3	9006602.67	5000	>LDR
P	31	45	No Gas	7.717	7.717	ppb	20.4	51465.07	500	
K	39	45	He	5676.137	5676.137	ppb	1.8	4783059.33	50000	
Ca	40	45	H2	193280.235	193280.235	ppb	4.9	1811783808.00	50000	>LDR
Ti	47	45	No Gas	27.003	27.003	ppb	1.1	60917.53	500	
V	51	45	He	29.036	29.036	ppb	1.3	204017.84	500	
Cr	52	45	He	27.993	27.993	ppb	1.2	226360.58	500	
Mn	55	45	No Gas	28.797	28.797	ppb	5.5	1023582.85	3000	
Fe	56	45	H2	2875.695	2875.695	ppb	2.7	42780852.00	50000	
Co	59	45	No Gas	26.418	26.418	ppb	0.9	811314.90	500	
Ni	60	45	He	27.362	27.362	ppb	0.6	80263.26	500	
Cu	63	45	He	27.290	27.290	ppb	1.1	217963.05	500	
Zn	66	72	No Gas	60.065	60.065	ppb	0.3	271457.81	500	
As	75	72	He	29.446	29.446	ppb	0.1	36454.41	500	
Se	78	72	H2	29.081	29.081	ppb	1.5	13138.39	500	
Sr	88	72	No Gas	1450.342	1450.342	ppb	1.5	48843610.28	500	>LDR
Zr	90	72	No Gas	0.019	0.019	ppb	2.2	500.01	50	
Mo	95	115	No Gas	27.711	27.711	ppb	1.6	187092.46	500	
Ag	107	115	No Gas	27.228	27.228	ppb	2.1	451932.26	50	
Cd	111	115	No Gas	26.943	26.943	ppb	1.1	89464.19	500	
Sn	118	115	No Gas	27.795	27.795	ppb	2.3	261974.00	500	
Sb	123	115	No Gas	28.200	28.200	ppb	1.4	300153.67	100	
Ba	137	115	No Gas	109.769	109.769	ppb	1.6	495352.46	1000	
W	182	159	No Gas	0.009	0.009	ppb	44.4	133.33	50	
Hg	201	159	He	0.003	0.003	ppb	45.7	14.17	5	
Tl	205	159	No Gas	28.557	28.557	ppb	4.6	543642.98	500	
Pb	208	159	No Gas	28.234	28.234	ppb	4.2	728858.35	500	
U	238	159	No Gas	31.217	31.217	ppb	4.0	726598.84	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2478671.93	1.9	2310764.06	107.27	60	120	
Sc	45	No Gas	5699438.00	3.4	5435407.83	104.86	60	120	
Sc	45	H2	2831068.25	2.3	3057879.58	92.58	60	120	
Sc	45	He	488395.21	0.6	505273.24	96.66	60	120	
Ge	72	No Gas	1236288.16	2.6	1203548.54	102.72	60	120	
Ge	72	H2	796538.25	0.3	768618.71	103.63	60	120	
Ge	72	He	301559.04	0.0	296718.72	101.63	60	120	
In	115	No Gas	6521885.80	3.1	6172829.62	105.65	60	120	
Tb	159	No Gas	7424985.82	4.3	6668814.32	111.34	60	120	
Tb	159	He	4822116.83	1.5	4400215.83	109.59	60	120	

Sample Report

Sample Name	L043-07A
File Name	H6L03053.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:40:33
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	76.142	76.142	ppb	4.6	1084010.09	50	>LDR
Be	9	6	No Gas	31.624	31.624	ppb	3.4	128354.42	50	
B	11	6	No Gas	146.884	146.884	ppb	5.2	348059.74	100	>LDR
Na	23	45	H2	249486.225	249486.225	ppb	5.3	1133726336.00	50000	>LDR
Mg	24	45	No Gas	76289.519	76289.519	ppb	7.9	1086564800.00	50000	>LDR
Al	27	45	No Gas	3084.451	3084.451	ppb	6.2	56454774.16	50000	
Si	28	45	H2	7136.585	7136.585	ppb	3.7	8585470.83	5000	>LDR
P	31	45	No Gas	10.504	10.504	ppb	22.1	51754.20	500	
K	39	45	He	5955.531	5955.531	ppb	1.5	5070207.83	50000	
Ca	40	45	H2	183903.803	183903.803	ppb	2.3	1754407253.33	50000	>LDR
Ti	47	45	No Gas	30.150	30.150	ppb	4.0	64180.38	500	
V	51	45	He	30.368	30.368	ppb	0.4	215732.37	500	
Cr	52	45	He	29.700	29.700	ppb	1.2	242808.05	500	
Mn	55	45	No Gas	32.156	32.156	ppb	1.0	1079188.46	3000	
Fe	56	45	H2	3058.462	3058.462	ppb	4.1	46252064.00	50000	
Co	59	45	No Gas	29.922	29.922	ppb	3.1	867799.69	500	
Ni	60	45	He	29.012	29.012	ppb	0.8	86077.90	500	
Cu	63	45	He	29.209	29.209	ppb	1.0	235570.72	500	
Zn	66	72	No Gas	62.669	62.669	ppb	1.6	295041.43	500	
As	75	72	He	31.049	31.049	ppb	0.8	39179.02	500	
Se	78	72	H2	30.043	30.043	ppb	0.6	13670.92	500	
Sr	88	72	No Gas	1400.694	1400.694	ppb	3.7	49122828.05	500	>LDR
Zr	90	72	No Gas	0.012	0.012	ppb	8.5	360.01	50	
Mo	95	115	No Gas	28.864	28.864	ppb	1.6	198057.28	500	
Ag	107	115	No Gas	28.184	28.184	ppb	1.9	475427.08	50	
Cd	111	115	No Gas	28.367	28.367	ppb	1.7	95725.13	500	
Sn	118	115	No Gas	29.206	29.206	ppb	1.1	279565.82	500	
Sb	123	115	No Gas	28.999	28.999	ppb	2.2	313687.39	100	
Ba	137	115	No Gas	107.816	107.816	ppb	1.7	494516.66	1000	
W	182	159	No Gas	0.008	0.008	ppb	58.6	130.00	50	
Hg	201	159	He	0.000	0.000	ppb	2150.2	11.17	5	
Tl	205	159	No Gas	28.725	28.725	ppb	1.4	580601.52	500	
Pb	208	159	No Gas	28.324	28.324	ppb	1.1	776215.44	500	
U	238	159	No Gas	31.071	31.071	ppb	0.9	767721.03	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2431398.28	4.2	2310764.06	105.22	60	120	
Sc	45	No Gas	5386238.33	4.6	5435407.83	99.1	60	120	
Sc	45	H2	2879862.67	3.9	3057879.58	94.18	60	120	
Sc	45	He	494022.26	0.9	505273.24	97.77	60	120	
Ge	72	No Gas	1288226.62	2.3	1203548.54	107.04	60	120	
Ge	72	H2	802303.56	1.6	768618.71	104.38	60	120	
Ge	72	He	307432.48	0.6	296718.72	103.61	60	120	
In	115	No Gas	6626666.54	0.7	6172829.62	107.35	60	120	
Tb	159	No Gas	7873128.85	0.3	6668814.32	118.06	60	120	
Tb	159	He	4879598.00	2.4	4400215.83	110.89	60	120	

Sample Report

Sample Name	L043-07
File Name	H6L03054.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:42:47
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	38.839	38.839	ppb	3.0	637635.98	50	
Be	9	6	No Gas	0.011	0.011	ppb	109.9	66.67	50	
B	11	6	No Gas	113.553	113.553	ppb	3.7	277586.48	100	>LDR
Na	23	45	H2	252460.690	252460.690	ppb	1.5	1141630421.33	50000	>LDR
Mg	24	45	No Gas	74309.437	74309.437	ppb	1.0	1065719786.67	50000	>LDR
Al	27	45	No Gas	2.314	2.314	ppb	4.6	52676.36	50000	
Si	28	45	H2	7412.912	7412.912	ppb	2.3	8868633.00	5000	>LDR
P	31	45	No Gas	9.726	9.726	ppb	8.2	51228.20	500	
K	39	45	He	3040.747	3040.747	ppb	4.1	2662486.58	50000	
Ca	40	45	H2	183905.118	183905.118	ppb	2.1	1744203989.33	50000	>LDR
Ti	47	45	No Gas	0.371	0.371	ppb	12.8	1085.37	500	
V	51	45	He	1.964	1.964	ppb	1.8	16308.35	500	
Cr	52	45	He	0.859	0.859	ppb	4.0	8828.18	500	
Mn	55	45	No Gas	0.460	0.460	ppb	4.7	27468.87	3000	
Fe	56	45	H2	25.648	25.648	ppb	1.6	394441.42	50000	
Co	59	45	No Gas	0.168	0.168	ppb	2.9	5122.30	500	
Ni	60	45	He	0.781	0.781	ppb	0.6	2414.88	500	
Cu	63	45	He	0.225	0.225	ppb	5.9	7574.78	500	
Zn	66	72	No Gas	6.765	6.765	ppb	3.8	33239.96	500	
As	75	72	He	0.999	0.999	ppb	5.2	1419.41	500	
Se	78	72	H2	0.704	0.704	ppb	2.7	327.00	500	
Sr	88	72	No Gas	1378.759	1378.759	ppb	4.0	48171878.09	500	>LDR
Zr	90	72	No Gas	0.006	0.006	ppb	45.2	216.67	50	
Mo	95	115	No Gas	0.391	0.391	ppb	2.2	2746.95	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	1224.50	50	
Cd	111	115	No Gas	0.019	0.019	ppb	17.3	46.40	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	2389.11	500	
Sb	123	115	No Gas	0.069	0.069	ppb	2.7	970.04	100	
Ba	137	115	No Gas	77.751	77.751	ppb	1.9	362024.93	1000	
W	182	159	No Gas	0.001	0.001	ppb	68.5	56.67	50	
Hg	201	159	He	0.003	0.003	ppb	117.3	14.17	5	
Tl	205	159	No Gas	0.014	0.014	ppb	18.3	296.67	500	
Pb	208	159	No Gas	0.069	0.069	ppb	3.7	3006.81	500	
U	238	159	No Gas	1.647	1.647	ppb	3.6	37900.73	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2499366.76	3.7	2310764.06	108.16	60	120	
Sc	45	No Gas	5417737.67	2.6	5435407.83	99.67	60	120	
Sc	45	H2	2862615.58	1.8	3057879.58	93.61	60	120	
Sc	45	He	497839.34	1.2	505273.24	98.53	60	120	
Ge	72	No Gas	1283418.96	1.5	1203548.54	106.64	60	120	
Ge	72	H2	793667.52	0.4	768618.71	103.26	60	120	
Ge	72	He	309155.91	1.0	296718.72	104.19	60	120	
In	115	No Gas	6729152.06	3.2	6172829.62	109.01	60	120	
Tb	159	No Gas	7337421.51	4.4	6668814.32	110.03	60	120	
Tb	159	He	4916263.17	0.8	4400215.83	111.73	60	120	

Sample Report

Sample Name	L043-07J
File Name	H6L03055.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:45:03
Sample Type	Sample
Total Dilution	5.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	37.457	7.491	ppb	11.8	248028.24	50	
Be	9	6	No Gas	0.003	0.001	ppb	342.3	26.67	50	
B	11	6	No Gas	117.163	23.433	ppb	5.8	62777.97	100	
Na	23	45	H2	269134.609	53826.922	ppb	4.4	236637189.33	50000	>LDR
Mg	24	45	No Gas	78037.851	15607.570	ppb	0.3	223009621.33	50000	
Al	27	45	No Gas	2.409	0.482	ppb	3.1	18882.88	50000	
Si	28	45	H2	7544.500	1508.900	ppb	3.5	1758638.50	5000	
P	31	45	No Gas	19.777	3.955	ppb	17.5	44505.12	500	
K	39	45	He	2504.873	500.975	ppb	1.6	529759.03	50000	
Ca	40	45	H2	191022.660	38204.532	ppb	3.1	352077760.00	50000	
Ti	47	45	No Gas	0.355	0.071	ppb	14.4	441.34	500	
V	51	45	He	2.448	0.490	ppb	4.8	5861.25	500	
Cr	52	45	He	0.533	0.107	ppb	4.1	2672.93	500	
Mn	55	45	No Gas	0.631	0.126	ppb	8.6	16283.68	3000	
Fe	56	45	H2	25.894	5.179	ppb	4.1	84054.78	50000	
Co	59	45	No Gas	0.159	0.032	ppb	4.5	1151.38	500	
Ni	60	45	He	0.727	0.145	ppb	2.1	516.01	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	5363.73	500	
Zn	66	72	No Gas	6.492	1.298	ppb	3.0	8025.04	500	
As	75	72	He	1.088	0.218	ppb	4.6	438.34	500	
Se	78	72	H2	0.690	0.138	ppb	23.4	74.67	500	
Sr	88	72	No Gas	1329.855	265.971	ppb	6.3	9622785.73	500	
Zr	90	72	No Gas	0.009	0.002	ppb	113.3	133.33	50	
Mo	95	115	No Gas	0.398	0.080	ppb	2.2	587.79	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	438.90	50	
Cd	111	115	No Gas	0.055	0.011	ppb	10.5	19.55	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	3581.61	500	
Sb	123	115	No Gas	0.113	0.023	ppb	19.3	461.12	100	
Ba	137	115	No Gas	77.359	15.472	ppb	3.7	73055.93	1000	
W	182	159	No Gas	<0.000	<0.000	ppb	N/A	16.67	50	
Hg	201	159	He	<0.000	<0.000	ppb	N/A	8.17	5	
Tl	205	159	No Gas	0.023	0.005	ppb	32.1	123.33	500	
Pb	208	159	No Gas	0.080	0.016	ppb	29.9	1728.95	500	
U	238	159	No Gas	1.575	0.315	ppb	2.4	7629.05	497	

Sample Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2626558.88	6.9	2310764.06	113.67	60	120	
Sc	45	No Gas	5396652.67	1.9	5435407.83	99.29	60	120	
Sc	45	H2	2783747.33	5.1	3057879.58	91.04	60	120	
Sc	45	He	496761.44	0.6	505273.24	98.32	60	120	
Ge	72	No Gas	1328069.08	1.1	1203548.54	110.35	60	120	
Ge	72	H2	817768.44	1.0	768618.71	106.39	60	120	
Ge	72	He	313447.71	0.9	296718.72	105.64	60	120	
In	115	No Gas	6824846.59	5.3	6172829.62	110.56	60	120	
Tb	159	No Gas	7699165.25	0.8	6668814.32	115.45	60	120	
Tb	159	He	4979325.17	2.2	4400215.83	113.16	60	120	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV5
File Name	H6L03056.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:47:21
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	24.480	ppb	2.4	460083.35	25	97.92	90	110	
Be	9	6	No Gas	24.493	ppb	2.5	103630.00	25	97.97	90	110	
B	11	6	No Gas	48.803	ppb	3.4	122748.37	50	97.61	90	110	
Na	23	45	H2	25377.382	ppb	2.9	115241285.33	25000	101.51	90	110	
Mg	24	45	No Gas	25684.454	ppb	2.4	371539712.00	25000	102.74	90	110	
Al	27	45	No Gas	24880.037	ppb	4.5	461829539.78	25000	99.52	90	110	
Si	28	45	H2	2473.577	ppb	2.2	2969511.17	2500	98.94	90	110	
P	31	45	No Gas	244.365	ppb	5.3	320194.63	250	97.75	90	110	
K	39	45	He	25669.200	ppb	0.4	21533288.67	25000	102.68	90	110	
Ca	40	45	H2	24813.485	ppb	2.1	235808544.00	25000	99.25	90	110	
Ti	47	45	No Gas	239.060	ppb	4.5	514147.86	250	95.62	90	110	
V	51	45	He	254.476	ppb	4.8	1792231.25	250	101.79	90	110	
Cr	52	45	He	264.824	ppb	3.0	2154210.17	250	105.93	90	110	
Mn	55	45	No Gas	1564.218	ppb	2.1	52685264.00	1500	104.28	90	110	
Fe	56	45	H2	25524.522	ppb	3.5	384566880.00	25000	102.1	90	110	
Co	59	45	No Gas	250.863	ppb	2.2	7386655.83	250	100.35	90	110	
Ni	60	45	He	246.599	ppb	2.0	732243.27	250	98.64	90	110	
Cu	63	45	He	267.415	ppb	1.3	2113579.71	250	106.97	90	110	
Zn	66	72	No Gas	249.433	ppb	7.1	1191945.21	250	99.77	90	110	
As	75	72	He	246.061	ppb	1.8	315062.93	250	98.42	90	110	
Se	78	72	H2	248.913	ppb	0.7	116604.01	250	99.57	90	110	
Sr	88	72	No Gas	250.417	ppb	9.3	8941652.98	250	100.17	90	110	
Zr	90	72	No Gas	24.289	ppb	5.5	551470.73	25	97.16	90	110	
Mo	95	115	No Gas	252.205	ppb	3.6	1730475.73	250	100.88	90	110	
Ag	107	115	No Gas	24.556	ppb	1.7	414229.56	25	98.22	90	110	
Cd	111	115	No Gas	248.681	ppb	1.7	839001.49	250	99.47	90	110	
Sn	118	115	No Gas	256.827	ppb	2.9	2420790.81	250	102.73	90	110	
Sb	123	115	No Gas	49.803	ppb	1.3	538387.37	50	99.61	90	110	
Ba	137	115	No Gas	519.029	ppb	5.6	2379088.38	500	103.81	90	110	
W	182	159	No Gas	24.221	ppb	0.4	231978.08	25	96.88	90	110	
Hg	201	159	He	2.530	ppb	2.7	2592.93	2.5	101.2	90	110	
Ti	205	159	No Gas	249.798	ppb	4.8	5060452.02	250	99.92	90	110	
Pb	208	159	No Gas	255.834	ppb	2.9	7016630.39	250	102.33	90	110	
U	238	159	No Gas	256.393	ppb	0.7	6348896.55	250	102.56	90	110	

Continuing Calibration Verification (CCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2533033.80	0.2	2310764.06	109.62	60	120	
Sc	45	No Gas	5468486.33	6.2	5435407.83	100.61	60	120	
Sc	45	H2	2869332.42	4.9	3057879.58	93.83	60	120	
Sc	45	He	494989.24	2.6	505273.24	97.96	60	120	
Ge	72	No Gas	1314059.42	5.4	1203548.54	109.18	60	120	
Ge	72	H2	826489.31	0.6	768618.71	107.53	60	120	
Ge	72	He	313133.02	2.1	296718.72	105.53	60	120	
In	115	No Gas	6624637.50	1.4	6172829.62	107.32	60	120	
Tb	159	No Gas	7890219.69	0.9	6668814.32	118.32	60	120	
Tb	159	He	4953542.33	3.5	4400215.83	112.57	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB5
File Name	H6L03057.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:49:35
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Fail
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	0.004	ppb	16206.3	141267.55	0.8	
Be	9	6	No Gas	0.007	ppb	58.8	52.22	0.08	
B	11	6	No Gas	1.302	ppb	23.1	6423.70	4	
Na	23	45	H2	63.274	ppb	4.1	657117.08	50	~~>LOD~~
Mg	24	45	No Gas	6.160	ppb	1.7	97994.97	20	
Al	27	45	No Gas	5.451	ppb	2.4	114593.88	15	
Si	28	45	H2	<0.000	ppb	N/A	5633.14	8	
P	31	45	No Gas	1.083	ppb	19.2	42968.28	40	
K	39	45	He	15.100	ppb	46.3	124583.78	25	
Ca	40	45	H2	5.177	ppb	8.5	121630.14	60	
Ti	47	45	No Gas	0.058	ppb	26.7	431.34	0.5	
V	51	45	He	0.010	ppb	74.7	2509.56	0.5	
Cr	52	45	He	<0.000	ppb	N/A	1731.44	0.25	
Mn	55	45	No Gas	0.412	ppb	2.5	26846.96	0.5	
Fe	56	45	H2	5.072	ppb	1.8	93133.14	25	
Co	59	45	No Gas	0.058	ppb	3.6	1979.48	0.15	
Ni	60	45	He	0.050	ppb	20.0	234.67	0.5	
Cu	63	45	He	<0.000	ppb	N/A	5445.09	1	
Zn	66	72	No Gas	0.103	ppb	60.1	2161.51	10	
As	75	72	He	0.070	ppb	9.3	244.00	0.25	
Se	78	72	H2	0.076	ppb	24.2	44.67	0.2	
Sr	88	72	No Gas	0.062	ppb	9.1	2722.50	0.3	
Zr	90	72	No Gas	0.006	ppb	45.9	230.00	5	
Mo	95	115	No Gas	0.062	ppb	10.1	472.23	0.2	
Ag	107	115	No Gas	0.007	ppb	30.7	1442.30	0.08	
Cd	111	115	No Gas	0.075	ppb	6.1	247.39	0.2	
Sn	118	115	No Gas	0.093	ppb	9.5	5874.65	0.2	
Sb	123	115	No Gas	0.018	ppb	25.0	421.12	0.4	
Ba	137	115	No Gas	0.109	ppb	6.5	603.35	0.25	
W	182	159	No Gas	0.002	ppb	80.3	76.67	0.3	
Hg	201	159	He	0.005	ppb	59.0	17.00	0.1	
Tl	205	159	No Gas	0.114	ppb	18.4	2412.46	0.1	~~>LOD~~
Pb	208	159	No Gas	0.088	ppb	6.9	3872.47	0.1	
U	238	159	No Gas	0.053	ppb	9.2	1377.85	0.05	>LOD

<LOQ
LV 12/12/19

<LOQ
LV 12/12/19

Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2516630.20	6.4	2310764.06	108.91	60	120	
Sc	45	No Gas	5619708.33	1.0	5435407.83	103.39	60	120	
Sc	45	H2	3139391.33	1.4	3057879.58	102.67	60	120	
Sc	45	He	504400.21	1.4	505273.24	99.83	60	120	
Ge	72	No Gas	1272488.04	0.3	1203548.54	105.73	60	120	
Ge	72	H2	797908.38	0.5	768618.71	103.81	60	120	
Ge	72	He	306397.82	0.5	296718.72	103.26	60	120	
In	115	No Gas	6995420.17	1.6	6172829.62	113.33	60	120	
Tb	159	No Gas	8173000.23	3.9	6668814.32	122.56	60	120	~~ISTD Failed~~
Tb	159	He	5061975.17	4.6	4400215.83	115.04	60	120	

IS ok
LV 12/12/19

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	MRLL1204
File Name	H6L03069.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 13:16:54
Sample Type	LLCCV
Total Dilution	1.0000
Comment	1/100/10 ppb
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Li	7	6	No Gas	0.382	ppb	156.6	155561.89	1	38.2	80	120	> +/- 20%
Be	9	6	No Gas	0.910	ppb	4.6	4092.82	1	91	80	120	
B	11	6	No Gas	9.748	ppb	6.0	28680.44	10	97.48	80	120	
Na	23	45	H2	150.852	ppb	3.5	1100786.63	100	150.85	80	120	> +/- 20%
Mg	24	45	No Gas	109.479	ppb	6.8	1635085.38	100	109.48	80	120	
Al	27	45	No Gas	107.907	ppb	3.5	2073635.96	100	107.91	80	120	
Si	28	45	H2	92.253	ppb	0.3	128497.37	100	92.25	80	120	
P	31	45	No Gas	48.987	ppb	6.2	99511.13	50	97.97	80	120	
K	39	45	He	95.170	ppb	3.9	193788.95	100	95.17	80	120	
Ca	40	45	H2	102.511	ppb	3.8	1144248.92	100	102.51	80	120	
Ti	47	45	No Gas	0.973	ppb	2.4	2460.22	1	97.3	80	120	
V	51	45	He	0.864	ppb	1.2	8685.42	1	86.4	80	120	
Cr	52	45	He	0.918	ppb	1.0	9491.29	1	91.8	80	120	
Mn	55	45	No Gas	1.065	ppb	4.0	49539.52	1	106.5	80	120	
Fe	56	45	H2	100.124	ppb	5.4	1676488.71	100	100.12	80	120	
Co	59	45	No Gas	1.002	ppb	3.1	30602.99	1	100.2	80	120	
Ni	60	45	He	0.979	ppb	4.0	3062.35	1	97.9	80	120	
Cu	63	45	He	0.757	ppb	5.3	12017.30	1	75.7	80	120	> +/- 20%
Zn	66	72	No Gas	10.400	ppb	0.5	51508.15	10	104	80	120	
As	75	72	He	0.994	ppb	3.4	1451.41	1	99.4	80	120	
Se	78	72	H2	1.020	ppb	3.3	497.01	1	102	80	120	
Sr	88	72	No Gas	2.055	ppb	0.7	74294.41	2	102.75	80	120	
Zr	90	72	No Gas	4.765	ppb	2.3	108670.47	5	95.3	80	120	
Mo	95	115	No Gas	0.910	ppb	4.3	6611.64	1	91	80	120	
Ag	107	115	No Gas	0.971	ppb	3.8	18563.03	1	97.1	80	120	
Cd	111	115	No Gas	0.971	ppb	3.3	3439.50	1	97.1	80	120	
Sn	118	115	No Gas	0.728	ppb	8.5	12174.53	1	72.8	80	120	> +/- 20%
Sb	123	115	No Gas	0.969	ppb	5.8	11263.74	1	96.9	80	120	
Ba	137	115	No Gas	0.993	ppb	2.9	4882.03	1	99.3	80	120	
W	182	159	No Gas	1.924	ppb	4.9	18082.95	2	96.2	80	120	
Hg	201	159	He	0.100	ppb	11.1	108.83	0.1	100	80	120	
Tl	205	159	No Gas	1.043	ppb	2.7	20718.30	1	104.3	80	120	
Pb	208	159	No Gas	1.014	ppb	3.0	28517.19	1	101.4	80	120	
U	238	159	No Gas	0.965	ppb	2.1	23395.66	1	96.5	80	120	

OK @ 30%. LV 12/12/19

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2679358.55	7.3	2310764.06	115.95	60	120	
Sc	45	No Gas	5631232.33	4.7	5435407.83	103.6	60	120	
Sc	45	H2	3166561.83	1.0	3057879.58	103.55	60	120	
Sc	45	He	507120.68	1.0	505273.24	100.37	60	120	
Ge	72	No Gas	1316864.13	2.0	1203548.54	109.42	60	120	
Ge	72	H2	840677.67	1.2	768618.71	109.38	60	120	
Ge	72	He	317320.00	1.3	296718.72	106.94	60	120	
In	115	No Gas	6995699.65	2.6	6172829.62	113.33	60	120	
Tb	159	No Gas	7725800.53	2.3	6668814.32	115.85	60	120	
Tb	159	He	4762180.00	0.7	4400215.83	108.23	60	120	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	MRLL1205
File Name	H6L03070.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 13:19:12
Sample Type	LLCCV2
Total Dilution	1.0000
Comment	0.4/40/4 ppb
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Li	7	6	No Gas	0.085	ppb	305.4	145693.65	0.4	21.25	80	120	> +/- 20%
Be	9	6	No Gas	0.347	ppb	5.9	1512.31	0.4	86.75	80	120	
B	11	6	No Gas	1.296	ppb	5.5	6568.21	0.4	324	80	120	> +/- 20%
Na	23	45	H2	65.274	ppb	11.6	684722.04	40	163.18	80	120	> +/- 20%
Mg	24	45	No Gas	38.665	ppb	6.4	593789.94	40	96.66	80	120	
Al	27	45	No Gas	37.285	ppb	7.2	737673.35	40	93.21	80	120	
K	39	45	He	42.950	ppb	12.3	146654.21	40	107.38	80	120	
Ca	40	45	H2	31.787	ppb	5.8	409089.29	40	79.47	80	120	> +/- 20%
Ti	47	45	No Gas	0.346	ppb	7.0	1092.04	0.4	86.5	80	120	
V	51	45	He	0.344	ppb	4.8	4855.53	0.4	86	80	120	
Cr	52	45	He	0.307	ppb	8.5	4327.35	0.4	76.75	80	120	> +/- 20%
Mn	55	45	No Gas	0.388	ppb	10.1	26587.12	0.4	97	80	120	
Fe	56	45	H2	35.331	ppb	5.2	608142.87	40	88.33	80	120	
Co	59	45	No Gas	0.366	ppb	6.6	11536.88	0.4	91.5	80	120	
Ni	60	45	He	0.386	ppb	3.8	1239.39	0.4	96.5	80	120	
Cu	63	45	He	0.226	ppb	10.0	7600.12	0.4	56.5	80	120	> +/- 20%
Zn	66	72	No Gas	3.953	ppb	0.6	20507.47	4	98.82	80	120	
As	75	72	He	0.412	ppb	5.6	668.69	0.4	103	80	120	
Se	78	72	H2	0.384	ppb	6.0	184.00	0.4	96	80	120	
Sr	88	72	No Gas	0.376	ppb	2.3	13953.94	0.4	94	80	120	
Mo	95	115	No Gas	0.343	ppb	6.5	2436.89	0.4	85.75	80	120	
Ag	107	115	No Gas	0.396	ppb	3.4	8115.83	0.4	99	80	120	
Cd	111	115	No Gas	0.368	ppb	1.3	1256.84	0.4	92	80	120	
Sn	118	115	No Gas	0.311	ppb	10.6	7811.21	0.4	77.75	80	120	> +/- 20%
Sb	123	115	No Gas	0.385	ppb	2.3	4482.99	0.4	96.25	80	120	
Ba	137	115	No Gas	0.410	ppb	2.1	2003.49	0.4	102.5	80	120	
Tl	205	159	No Gas	0.379	ppb	1.6	7697.94	0.4	94.75	80	120	
Pb	208	159	No Gas	0.372	ppb	6.0	11505.42	0.4	93	80	120	
U	238	159	No Gas	0.356	ppb	5.3	8816.52	0.4	89	80	120	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2571393.62	2.5	2310764.06	111.28	60	120	
Sc	45	No Gas	5748223.50	4.9	5435407.83	105.76	60	120	

Low Level Continuing Calibration Verification (LLCCV) Report

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	H2	3228616.50	5.4	3057879.58	105.58	60	120	
Sc	45	He	498813.22	0.6	505273.24	98.72	60	120	
Ge	72	No Gas	1306975.71	1.4	1203548.54	108.59	60	120	
Ge	72	H2	798803.65	0.6	768618.71	103.93	60	120	
Ge	72	He	304769.50	0.9	296718.72	102.71	60	120	
In	115	No Gas	6804451.28	3.4	6172829.62	110.23	60	120	
Tb	159	No Gas	7880731.08	4.1	6668814.32	118.17	60	120	
Tb	159	He	4977595.17	2.5	4400215.83	113.12	60	120	

Sample Report

Sample Name	MRLL1206
File Name	H6L03071.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 13:21:36
Sample Type	Sample
Total Dilution	1.0000
Comment	500 ppb CAT
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	<0.000	<0.000	ppb	N/A	143689.01	50	
Be	9	6	No Gas	0.001	0.001	ppb	245.8	28.89	50	
B	11	6	No Gas	0.793	0.793	ppb	10.7	5306.56	100	
Na	23	45	H2	539.256	539.256	ppb	1.8	3052161.83	50000	
Mg	24	45	No Gas	511.372	511.372	ppb	5.5	7873145.50	50000	
Al	27	45	No Gas	498.983	498.983	ppb	5.6	9869449.64	50000	
Si	28	45	H2	<0.000	<0.000	ppb	N/A	5101.60	5000	
P	31	45	No Gas	1.492	1.492	ppb	164.8	44886.34	500	
K	39	45	He	455.953	455.953	ppb	2.0	501467.49	50000	
Ca	40	45	H2	485.251	485.251	ppb	7.9	5170065.17	50000	
Ti	47	45	No Gas	0.006	0.006	ppb	304.0	326.67	500	
V	51	45	He	<0.000	<0.000	ppb	N/A	1922.80	500	
Cr	52	45	He	<0.000	<0.000	ppb	N/A	1262.06	500	
Mn	55	45	No Gas	0.059	0.059	ppb	50.7	15117.68	3000	
Fe	56	45	H2	496.434	496.434	ppb	2.3	8293885.00	50000	
Co	59	45	No Gas	0.005	0.005	ppb	11.6	402.01	500	
Ni	60	45	He	0.006	0.006	ppb	72.0	102.00	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	3024.34	500	
Zn	66	72	No Gas	1.031	1.031	ppb	4.5	6628.95	500	
As	75	72	He	<0.000	<0.000	ppb	N/A	134.33	500	
Se	78	72	H2	0.007	0.007	ppb	134.9	13.67	500	
Sr	88	72	No Gas	0.029	0.029	ppb	6.3	1600.10	500	
Zr	90	72	No Gas	0.012	0.012	ppb	19.8	366.68	50	
Mo	95	115	No Gas	0.006	0.006	ppb	61.8	65.56	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	106.67	50	
Cd	111	115	No Gas	0.015	0.015	ppb	11.5	35.50	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	2461.34	500	
Sb	123	115	No Gas	0.006	0.006	ppb	75.6	276.67	100	
Ba	137	115	No Gas	0.066	0.066	ppb	11.5	392.23	1000	
W	182	159	No Gas	<0.000	<0.000	ppb	N/A	40.00	50	
Hg	201	159	He	0.003	0.003	ppb	79.4	14.17	5	
Tl	205	159	No Gas	0.013	0.013	ppb	14.1	283.34	500	
Pb	208	159	No Gas	0.003	0.003	ppb	74.4	1382.26	500	
U	238	159	No Gas	0.002	0.002	ppb	45.2	57.78	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2564449.02	1.6	2310764.06	110.98	60	120	
Sc	45	No Gas	5823087.33	6.8	5435407.83	107.13	60	120	
Sc	45	H2	3176052.08	2.0	3057879.58	103.86	60	120	
Sc	45	He	506338.47	0.8	505273.24	100.21	60	120	
Ge	72	No Gas	1307642.54	3.1	1203548.54	108.65	60	120	
Ge	72	H2	818047.02	0.4	768618.71	106.43	60	120	
Ge	72	He	310180.98	0.3	296718.72	104.54	60	120	
In	115	No Gas	6932698.54	2.4	6172829.62	112.31	60	120	
Tb	159	No Gas	7714369.69	2.4	6668814.32	115.68	60	120	
Tb	159	He	4886908.67	1.3	4400215.83	111.06	60	120	

MRL ID: _____

Analytes	True Values
	Water (µg/L)
Aluminum	100
Antimony	1.0
Arsenic	1.0
Barium	1.0
Beryllium	1.0
Boron	10
Cadmium	1.0
Calcium	100
Chromium	1.0
Cobalt	1.0
Copper	1.0
Iron	100
Lead	1.0
Magnesium	100
Manganese	1.0
Molybdenum	1.0
Nickel	1.0
Potassium	100
Selenium	1.0
Silver	1.0
Sodium	100
Strontium	2.0
Thallium	1.0
Tin	1.0
Titanium	1.0
Vanadium	1.0
Zinc	10
Lithium	1.0
Phosphorus	50
Zirconium	5.0

EMAX LABORATORIES, INC.

DIGESTION LOG
for
ICP-MS METALS

Note: For samples, relevant QCs/Standards digested, refer to attached digestion sequence.

Comments:

Digestion Vessel Lot # 19022443

All samples pH<2

Book #: EIM-078
Batch: IML008W
Matrix: water
Digestor ID: E

SOP #	Rev. #
☐ EMAX-200.8	6
☑ EMAX-6020	11
☐ EMAX-6020CA	1
☐ EMAX-	

Start	Temp	End	Temp
	92.7 °C		93.4 °C

Standards	ID	Amount Added (ml/g)
LCS-1	SMGA-007-06-15	0.1S
LCS-2	↓ -06-16	0.1S
MS	same spike solution vol. as LCS 1 and 2	
Blank Soil (Bead)	N/A	N/A
Reagent	**Lot# / ID**	**Amount Added (ml)**
HNO_3	SWA-08-18-09	0.5 + 1.6
HCl	↓ -17-08	0.25+0.25
H_2O_2	N/A	N/A
HNO_3(1:1)	↓	↓
pH Strip (0-14)	HC863463	↓
Digestate Location	Metals	
Extract Location	N/A	
☑ Reagent Water ID:	SMGA-CMCM-08	
☑ Thermometer ID:	181292128/E30	
☑ Pipette ID:	74276633	
☐ Pipette ID:		
☐ Pipette ID:		
☐ HNO_3 dispenser checked @ 5.0 ml with Class A volumetric flask		
☐ HCl dispenser checked @ 5.0 ml with Class A volumetric flask		

Prepared By: MC
Standard Added By: MC Witnessed By: LY
Extract Rcvd By: LY Checked By: MC

EMAX LABORATORIES, INC.

DIGESTION LOG FOR METALS

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Vd(ml)	ExpAmt	ExpVd(ml)	PrepFctr	Comments
19IML008W01	IML008WB	50	ml	12/11/19 9:20	50	50	50	1	
19IML008W02	IML008WL	50	ml	12/11/19 9:20	50	50	50	1	
19IML008W03	IML008WC	50	ml	12/11/19 9:20	50	50	50	1	
19IML008W04	K165-09	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W05	L018-02	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W06	L019-09	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W07	L043-01	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W08	L043-02	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W09	L043-04	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W10	L043-05	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W11	L043-07	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W12	L043-07M	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W13	L043-07S	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W14	L057-01	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W15	L057-02	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W16	L057-03	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W17	L057-04	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W18	L057-05	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W19	L057-07	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W20	L057-08	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W21	L057-09	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W22	L057-10	50	ml	12/11/19 9:20	50	50	50	1	TOTAL

MC
12/11/19

Vd=digestate volume PrepFctr=(ExpAmt/Aliquot)*(Vd/ExpVd)

☑ Digestion Started @ 12/11/19 9:46 Prepared By: MCande

☑ Digestion Ended @ 12/11/19 12:12 Checked By: LY

Comments: Date 12/11/19

SOP EMAX-6020 Rev. 11

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L043

METHOD SW7470A
MERCURY BY COLD VAPOR

A total of five(5) water samples were received on 12/06/19 to be analyzed for Mercury by Cold Vapor in accordance with Method SW7470A and project specific requirements.

Holding Time
Samples were digested and analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Mercury was not detected in HGL005WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. HGL005WL/HGL005WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. Mercury was within MS QC limits in L043-07M/L043-07S. Refer to Matrix QC summary form for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
MERCURY BY COLD VAPOR

Client : CDM SMITH
Project : VA SALT LAKE CITY

SDG NO. : 19L043
Instrument ID : 47

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	HGL005WB	1	NA	12/12/1919:26	12/12/1912:30	M47L005013	M47L005	19HGL005W	Method Blank
LCS1W	HGL005WL	1	NA	12/12/1919:29	12/12/1912:30	M47L005014	M47L005	19HGL005W	Lab Control Sample (LCS)
LCD1W	HGL005WC	1	NA	12/12/1919:31	12/12/1912:30	M47L005015	M47L005	19HGL005W	LCS Duplicate
OU2-MW20S-GW120419	L043-01	1	NA	12/12/1919:34	12/12/1912:30	M47L005016	M47L005	19HGL005W	Field Sample
OU2-MW19-GW120519	L043-05	1	NA	12/12/1919:42	12/12/1912:30	M47L005019	M47L005	19HGL005W	Field Sample
OU2-MW02-GW120519	L043-07	1	NA	12/12/1919:46	12/12/1912:30	M47L005021	M47L005	19HGL005W	Field Sample
OU2-MW02-GW120519MS	L043-07M	1	NA	12/12/1919:57	12/12/1912:30	M47L005025	M47L005	19HGL005W	Matrix Spike Sample (MS)
OU2-MW02-GW120519MSD	L043-07S	1	NA	12/12/1919:59	12/12/1912:30	M47L005026	M47L005	19HGL005W	MS Duplicate (MSD)
OU2-MW20D-GW120519	L043-02N	1	NA	12/13/1914:22	12/12/1912:30	M47L006018	M47L006	19HGL005W	Field Sample
OU2-MW18-GW120519	L043-04N	1	NA	12/13/1914:24	12/12/1912:30	M47L006019	M47L006	19HGL005W	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD SW7470A
MERCURY BY COLD VAPOR

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L043
Matrix : WATER
InstrumentID : 47

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DILT'N FACTOR	MOIST (%)	RL (ug/L)	MDL (ug/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	HGL005WB	ND	1	NA	0.500	0.100	12/12/1919:26	12/12/1912:30	M47L005013	M47L005	19HGL005W	NA	NA
LCS1W	HGL005WL	2.39	1	NA	0.500	0.100	12/12/1919:29	12/12/1912:30	M47L005014	M47L005	19HGL005W	NA	NA
LCD1W	HGL005WC	2.29	1	NA	0.500	0.100	12/12/1919:31	12/12/1912:30	M47L005015	M47L005	19HGL005W	NA	NA
OU2-MW20S-GW120419	L043-01	ND	1	NA	0.500	0.100	12/12/1919:34	12/12/1912:30	M47L005016	M47L005	19HGL005W	12/04/1916:10	12/06/19
OU2-MW19-GW120519	L043-05	ND	1	NA	0.500	0.100	12/12/1919:42	12/12/1912:30	M47L005019	M47L005	19HGL005W	12/05/1910:00	12/06/19
OU2-MW02-GW120519	L043-07	ND	1	NA	0.500	0.100	12/12/1919:46	12/12/1912:30	M47L005021	M47L005	19HGL005W	12/05/1912:15	12/06/19
OU2-MW02-GW120519MS	L043-07M	2.24	1	NA	0.500	0.100	12/12/1919:57	12/12/1912:30	M47L005025	M47L005	19HGL005W	12/05/1912:15	12/06/19
OU2-MW02-GW120519MSD	L043-07S	2.37	1	NA	0.500	0.100	12/12/1919:59	12/12/1912:30	M47L005026	M47L005	19HGL005W	12/05/1912:15	12/06/19
OU2-MW20D-GW120519	L043-02N	ND	1	NA	0.500	0.100	12/13/1914:22	12/12/1912:30	M47L006018	M47L006	19HGL005W	12/05/1911:50	12/06/19
OU2-MW18-GW120519	L043-04N	0.234J	1	NA	0.500	0.100	12/13/1914:24	12/12/1912:30	M47L006019	M47L006	19HGL005W	12/05/1909:55	12/06/19

Note: Detection limits are reported relative to sample result significant figures.

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : METHOD SW7470A

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: HGL005WB	HGL005WL	HGL005WC
LAB FILE ID	: M47L005013	M47L005014	M47L005015
DATE PREPARED	: 12/12/1912:30	12/12/1912:30	12/12/1912:30
DATE ANALYZED	: 12/12/1919:26	12/12/1919:29	12/12/1919:31
PREP BATCH	: 19HGL005W	19HGL005W	19HGL005W
CALIBRATION REF	: M47L005	M47L005	M47L005

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Mercury	ND	2.50	2.39	96	2.50	2.29	92	4	80-120	20

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : METHOD SW7470A

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: OU2-MW02-GW120519	OU2-MW02-GW120519MS	OU2-MW02-GW120519MSD
LAB SAMPLE ID	: L043-07	L043-07M	L043-07S
LAB FILE ID	: M47L005021	M47L005025	M47L005026
DATE PREPARED	: 12/12/1912:30	12/12/1912:30	12/12/1912:30
DATE ANALYZED	: 12/12/1919:46	12/12/1919:57	12/12/1919:59
PREP BATCH	: 19HGL005W	19HGL005W	19HGL005W
CALIBRATION REF	: M47L005	M47L005	M47L005

ACCESSION:

PARAMETERS	PSResult (ug/L)	SpikeAmt (ug/L)	MSResult (ug/L)	MSRec (%)	SpikeAmt (ug/L)	MSDResult (ug/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Mercury	ND	2.50	2.24	90	2.50	2.37	95	6	80-120	20

PS: Parent Sample MS: Matrix Spike MSD: Matrix Spike Duplicate

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 12/12/19 **Start Time:** 18:57

End Date: 12/12/19 **End Time:** 20:33

Comments: QC

Book #: A47-118

Instrument No.: 47

Analytical Sequence/Batch: M47L005

Method File: HG1

Micropipette ID: ☐ 339342032

Micropipette ID: ☑ HG-03

Micropipette ID: ☑ 742781062

Micropipette ID: ☐ HG-06

Micropipette ID: ☐

SOP #	Rev. #
☑ EMAX-7470	8
☐ EMAX-7471	9
☐ EMAX-245.1	4
☐ EMAX-	

STANDARDS ID	
S1	BLANK
S2	SM3B-18-38-04
S3	
S4	
S5	
S6	
CCV	
ICV	SM3B-18-38-05
LCS	
Analytical Spike	
	SM3B-18-38-06 TV 3 µg/L

Analyzed By: [signature]

Date: 12/12/19

Disposed By:

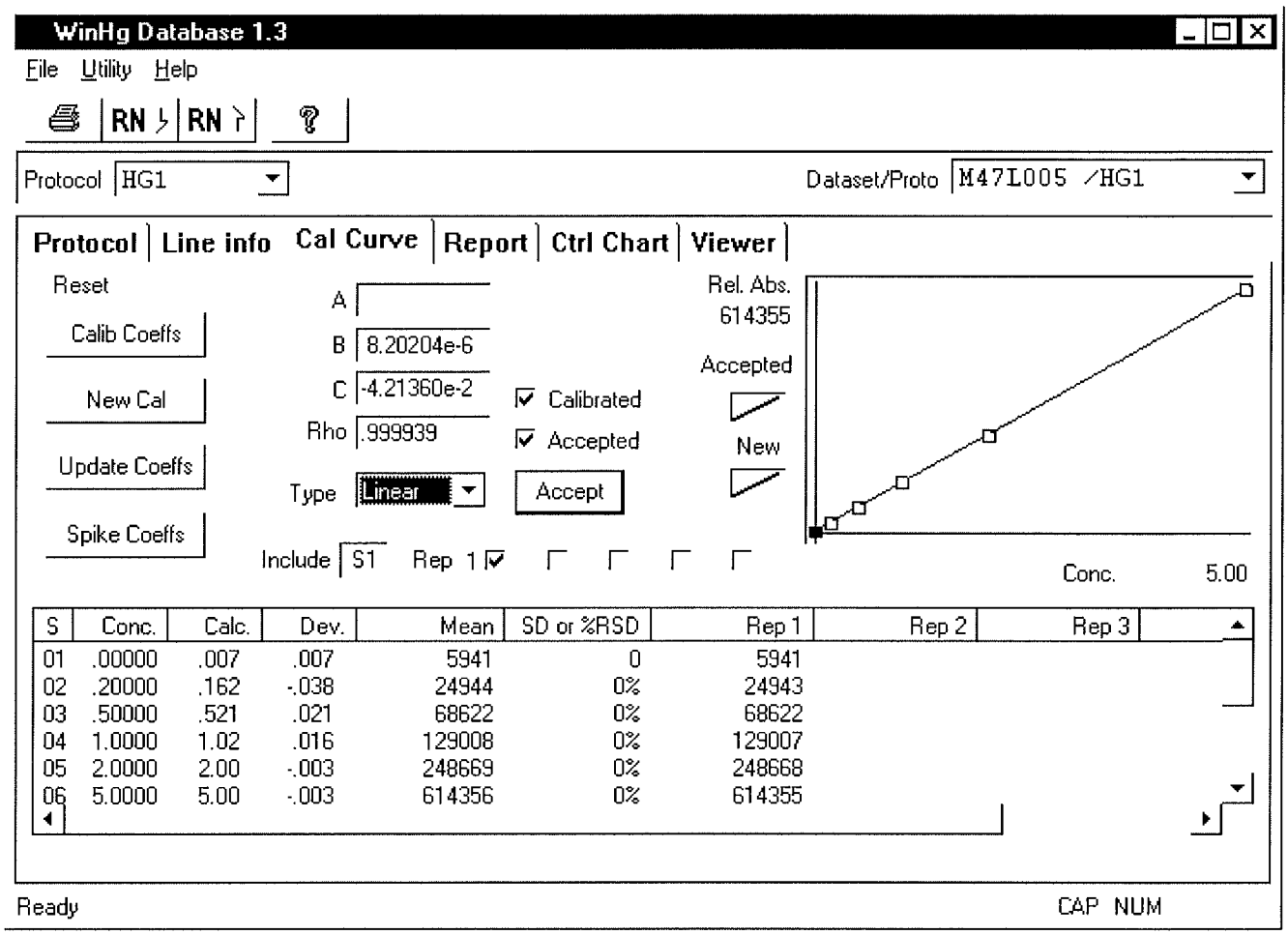
Date:

"M47L005"

EMAXlfid	EMAXlsid	conc	Raw_resp	rsd/rf	adatetime	DF
M47L005001	STD01REP1	0	5941		12/12/1918:57	1
M47L005002	STD02REP1	.2	24943		12/12/1919:00	1
M47L005003	STD03REP1	.5	68622		12/12/1919:02	1
M47L005004	STD04REP1	1	129007		12/12/1919:04	1
M47L005005	STD05REP1	2	248668		12/12/1919:06	1
M47L005006	STD06REP1	5	614355		12/12/1919:09	1
M47L005007	ICV	2.15	266955	0	12/12/1919:12	1
M47L005008	ICB	.02	7627	0	12/12/1919:15	1
M47L005009	MRLL1201	.683	88401	0	12/12/1919:17	1
M47L005010	CCV1	1.99	247769	0	12/12/1919:19	1
M47L005011	CCB1	-.135	-11308	0	12/12/1919:21	1
M47L005012	CCB1	.001	5261	0	12/12/1919:24	1
M47L005013	HGL005WB	.007	5987	0	12/12/1919:26	1
M47L005014	HGL005WL	2.39	296986	0	12/12/1919:29	1
M47L005015	HGL005WC	2.29	283930	0	12/12/1919:31	1
M47L005016	L043-01	.034	9296	0	12/12/1919:34	1
M47L005017	L043-02	-.143	-12255	0	12/12/1919:36	1
M47L005018	L043-04	-.138	-11631	0	12/12/1919:38	1
M47L005019	L043-05	.062	12727	0	12/12/1919:42	1
M47L005020	L043-07A	2.79	344875	0	12/12/1919:44	1
M47L005021	L043-07	.013	6722	0	12/12/1919:46	1
M47L005022	L043-07J	.108	18321	0	12/12/1919:48	5
M47L005023	CCV2	2.09	259911	0	12/12/1919:51	1
M47L005024	CCB2	-.039	393	0	12/12/1919:54	1
M47L005025	L043-07M	2.24	277669	0	12/12/1919:57	1
M47L005026	L043-07S	2.37	293965	0	12/12/1919:59	1
M47L005027	L052-01	.092	16320	0	12/12/1920:02	1
M47L005028	L057-01	.028	8516	0	12/12/1920:05	1
M47L005029	L057-02	.02	7576	0	12/12/1920:07	1
M47L005030	L057-03	.032	9011	0	12/12/1920:10	1
M47L005031	L057-04	.03	8804	0	12/12/1920:12	1
M47L005032	L057-05	.049	11112	0	12/12/1920:14	1
M47L005033	L057-07	-.127	-10308	0	12/12/1920:17	1
M47L005034	L057-08	.013	6710	0	12/12/1920:19	1
M47L005035	CCV3	2.03	252828	0	12/12/1920:21	1
M47L005036	CCB3	-.021	2605	0	12/12/1920:24	1
M47L005037	L057-09	-.077	-4299	0	12/12/1920:26	1
M47L005038	L057-10	.003	5485	0	12/12/1920:29	1
M47L005039	CCV4	2.1	261741	0	12/12/1920:31	1
M47L005040	CCB4	.001	5318	0	12/12/1920:33	1
**********	**********	**********	**********	**********	**********	***
EMAXlfid	EMAXlsid	Xint	Yint	rrf	adatetime	DF
M47L005000		0	0	0	12/12/1920:33	1
M47L005001	BLANK	-4.231788E-02	5158.808	.999939	12/12/1920:33	1

* M47L005 *

cup	sample ID	extended ID	weight	volume	? A D F P S U SC UI US C1..7
1	ICV		1.0000	1.0000	
2	ICB		1.0000	1.0000	
3	MRLL1201	0.5	1.0000	1.0000	
4	CCV1		1.0000	1.0000	
5	CCB1		1.0000	1.0000	
6	HGL005WB		1.0000	1.0000	
7	HGL005WL		1.0000	1.0000	
8	HGL005WC		1.0000	1.0000	
9	L043-01		1.0000	1.0000	
10	L043-02		1.0000	1.0000	
11	L043-04		1.0000	1.0000	
12	L043-05		1.0000	1.0000	
13	L043-07A		1.0000	1.0000	
14	L043-07		1.0000	1.0000	
15	L043-07J	5X	1.0000	1.0000	
16	CCV2		1.0000	1.0000	
17	CCB2		1.0000	1.0000	
18	L043-07M		1.0000	1.0000	
19	L043-07S		1.0000	1.0000	
20	L052-01		1.0000	1.0000	
21	L057-01		1.0000	1.0000	
22	L057-02		1.0000	1.0000	
23	L057-03		1.0000	1.0000	
24	L057-04		1.0000	1.0000	
25	L057-05		1.0000	1.0000	
26	L057-07		1.0000	1.0000	
27	L057-08		1.0000	1.0000	
28	CCV3		1.0000	1.0000	
29	CCB3		1.0000	1.0000	
30	L057-09		1.0000	1.0000	
31	L057-10		1.0000	1.0000	
32	CCV4		1.0000	1.0000	
33	CCB4		1.0000	1.0000	
34			1.0000	1.0000	
35			1.0000	1.0000	
36			1.0000	1.0000	
37			1.0000	1.0000	
38			1.0000	1.0000	
39			1.0000	1.0000	
40			1.0000	1.0000	
41			1.0000	1.0000	
42			1.0000	1.0000	
43			1.0000	1.0000	
44			1.0000	1.0000	


WinHg Database 1.3
File Utility Help
RN
RN
Protocol HG1
Dataset/Proto M47L005 /HG1
Protocol
Line info
Cal Curve
Report
Ctrl Chart
Viewer
Reset
Calib Coeffs
New Cal
Update Coeffs
Spike Coeffs
A
B 8.20204e-6
C -4.21360e-2
Rho .999939
Type Linear
Calibrated
Accepted
Accept
Include S1 Rep 1
Rel. Abs.
614355
Accepted
New
Conc. 5.00
S Conc. Calc. Dev. Mean SD or %RSD Rep 1 Rep 2 Rep 3
01 .00000 .007 .007 5941 0 5941
02 .20000 .162 -.038 24944 0% 24943
03 .50000 .521 .021 68622 0% 68622
04 1.0000 1.02 .016 129008 0% 129007
05 2.0000 2.00 -.003 248669 0% 248668
06 5.0000 5.00 -.003 614356 0% 614355
Ready
CAP NUM

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 1 Rep: 1				Seq: 1	18:57:44 12 Dec 19	HG		
Hg	.000	ppb	5941					
*** Standard: 2 Rep: 1				Seq: 2	19:00:14 12 Dec 19	HG		
Hg	.200	ppb	24943					
*** Standard: 3 Rep: 1				Seq: 3	19:02:33 12 Dec 19	HG		
Hg	.500	ppb	68622					
*** Standard: 4 Rep: 1				Seq: 4	19:04:47 12 Dec 19	HG		
Hg	1.00	ppb	129007					
*** Standard: 5 Rep: 1				Seq: 5	19:06:58 12 Dec 19	HG		
Hg	2.00	ppb	248668					
*** Standard: 6 Rep: 1				Seq: 6	19:09:18 12 Dec 19	HG		
Hg	5.00	ppb	614355					
*** Sample ID: ICV				Seq: 7	19:12:56 12 Dec 19	HG		
Hg	2.15	ppb	266955					
*** Sample ID: ICB				Seq: 8	19:15:06 12 Dec 19	HG		
Hg	.020	ppb	7627					
*** Sample ID: MRLL1201				Seq: 9	19:17:16 12 Dec 19	HG		
			0.5					
Hg	.683	ppb	88401					
*** Sample ID: CCV1				Seq: 10	19:19:27 12 Dec 19	HG		
Hg	1.99	ppb	247769					
*** Sample ID: CCB1				Seq: 11	19:21:51 12 Dec 19	HG		
Hg	-.135	ppb	-11308					
*** Sample ID: CCB1				Seq: 12	19:24:13 12 Dec 19	HG		
Hg	.001	ppb	5261					
*** Sample ID: HGL005WB				Seq: 13	19:26:54 12 Dec 19	HG		
Hg	.007	ppb	5987					
*** Sample ID: HGL005WL				Seq: 14	19:29:19 12 Dec 19	HG		
Hg	2.39	ppb	296986					
*** Sample ID: HGL005WC				Seq: 15	19:31:49 12 Dec 19	HG		
Hg	2.29	ppb	283930					

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: L043-01				Seq: 16	19:34:00 12 Dec 19	HG		
Hg	.034	ppb	9296					
*** Sample ID: L043-02				Seq: 17	19:36:31 12 Dec 19	HG		
Hg	-.143	ppb	-12255					
*** Sample ID: L043-04				Seq: 18	19:38:43 12 Dec 19	HG		
Hg	-.138	ppb	-11631					
*** Sample ID: L043-05				Seq: 19	19:42:06 12 Dec 19	HG		
Hg	.062	ppb	12727					
*** Sample ID: L043-07A				Seq: 20	19:44:29 12 Dec 19	HG		
Hg	2.79	ppb	344875					
*** Sample ID: L043-07				Seq: 21	19:46:39 12 Dec 19	HG		
Hg	.013	ppb	6722					
*** Sample ID: L043-07J				Seq: 22	19:48:51 12 Dec 19	HG		
			5X					
Hg	.108	ppb	18321					
*** Sample ID: CCV2				Seq: 23	19:51:51 12 Dec 19	HG		
Hg	2.09	ppb	259911					
*** Sample ID: CCB2				Seq: 24	19:54:32 12 Dec 19	HG		
Hg	-.039	ppb	393					
*** Sample ID: L043-07M				Seq: 25	19:57:04 12 Dec 19	HG		
Hg	2.24	ppb	277669					
*** Sample ID: L043-07S				Seq: 26	19:59:24 12 Dec 19	HG		
Hg	2.37	ppb	293965					
*** Sample ID: L052-01				Seq: 27	20:02:30 12 Dec 19	HG		
Hg	.092	ppb	16320					
*** Sample ID: L057-01				Seq: 28	20:05:42 12 Dec 19	HG		
Hg	.028	ppb	8516					
*** Sample ID: L057-02				Seq: 29	20:07:54 12 Dec 19	HG		
Hg	.020	ppb	7576					
*** Sample ID: L057-03				Seq: 30	20:10:05 12 Dec 19	HG		
Hg	.032	ppb	9011					

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: L057-04				Seq: 31	20:12:36 12 Dec 19	HG		
Hg	.030	ppb	8804					
*** Sample ID: L057-05				Seq: 32	20:14:48 12 Dec 19	HG		
Hg	.049	ppb	11112					
*** Sample ID: L057-07				Seq: 33	20:17:04 12 Dec 19	HG		
Hg	-.127	ppb	-10308					
*** Sample ID: L057-08				Seq: 34	20:19:36 12 Dec 19	HG		
Hg	.013	ppb	6710					
*** Sample ID: CCV3				Seq: 35	20:21:51 12 Dec 19	HG		
Hg	2.03	ppb	252828					
*** Sample ID: CCB3				Seq: 36	20:24:28 12 Dec 19	HG		
Hg	-.021	ppb	2605					
*** Sample ID: L057-09				Seq: 37	20:26:59 12 Dec 19	HG		
Hg	-.077	ppb	-4299					
*** Sample ID: L057-10				Seq: 38	20:29:32 12 Dec 19	HG		
Hg	.003	ppb	5485					
*** Sample ID: CCV4				Seq: 39	20:31:45 12 Dec 19	HG		
Hg	2.10	ppb	261741					
*** Sample ID: CCB4				Seq: 40	20:33:56 12 Dec 19	HG		
Hg	.001	ppb	5318					

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
MERCURY

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 12/13/19 **Start Time:** 13:30

End Date: 12/13/19 **End Time:** 14:34

Comments: QC OK

Book #: A47-118

Instrument No.: 47

Analytical Sequence/Batch: M47L006

Method File: HG 1

Micropipette ID: ☐ 339342032

Micropipette ID: ☑ HG-03

Micropipette ID: ☑ 742781062

Micropipette ID: ☑ HG-06

Micropipette ID: ☐

SOP #	Rev. #
☑ EMAX-7470	8
☐ EMAX-7471	9
☐ EMAX-245.1	4
☐ EMAX-	

STANDARDS ID	
S1	BLANK
S2	SM3B-18-38-04
S3	
S4	
S5	
S6	
CCV	
ICV	SM3B-18-38-05
LCS	
Analytical Spike	
	SM3B-18-38-06 TV 3 µg/L

Analyzed By: JA

Date: 12/13/19

Disposed By:

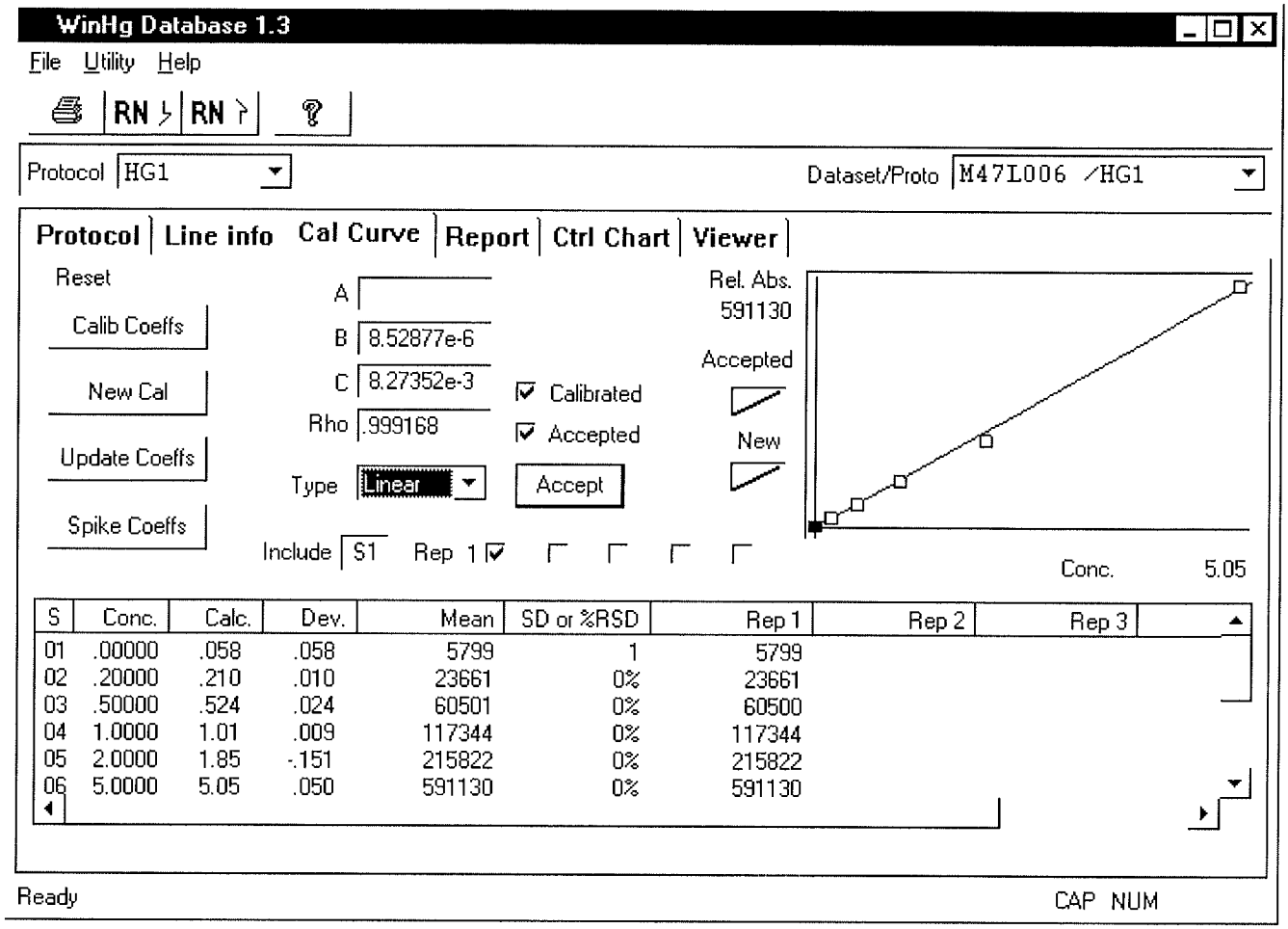
Date:

"M47L006"

EMAX1fid	EMAX1sid	conc	Raw_resp	rsd/rf	adatetime	DF
M47L006001	STD01REP1	0	5799		12/13/1913:30	1
M47L006002	STD02REP1	.2	23661		12/13/1913:32	1
M47L006003	STD03REP1	.5	60500		12/13/1913:34	1
M47L006004	STD04REP1	1	117344		12/13/1913:37	1
M47L006005	STD05REP1	2	215822		12/13/1913:39	1
M47L006006	STD06REP1	5	591130		12/13/1913:41	1
M47L006007	ICV	2.1	245317	0	12/13/1913:47	1
M47L006008	ICB	-.057	-7711	0	12/13/1913:49	1
M47L006009	MRLL1301	.51	58860	0	12/13/1913:52	1
M47L006010	CCV1	1.94	226916	0	12/13/1913:54	1
M47L006011	CCB1	-.137	-16984	0	12/13/1913:56	1
M47L006012	CCB1	.26	29540	0	12/13/1913:59	1
M47L006013	CCV2	2.13	248924	0	12/13/1914:09	1
M47L006014	CCB2	.071	7400	0	12/13/1914:11	1
M47L006015	HGL005WB	.028	2310	0	12/13/1914:14	1
M47L006016	HGL005WL	2.41	282174	0	12/13/1914:17	1
M47L006017	HGL005WC	2.51	293638	0	12/13/1914:19	1
M47L006018	L043-02N	-.095	-12098	0	12/13/1914:22	1
M47L006019	L043-04N	.234	26492	0	12/13/1914:24	1
M47L006020	L052-01N	.071	7302	0	12/13/1914:27	1
M47L006021	L057-07N	.099	10625	0	12/13/1914:30	1
M47L006022	CCV3	2.07	241450	0	12/13/1914:32	1
M47L006023	CCB3	.077	8109	0	12/13/1914:34	1
**********	**********	**********	**********	**********	**********	***
EMAX1fid	EMAX1sid	Xint	Yint	rrf	adatetime	DF
M47L006000		0	0	0	12/13/1914:34	1
M47L006001	BLANK	5.871098E-03	-687.242	.9991679	12/13/1914:34	1

* M47L006 *

cup	sample ID	extended ID	weight	volume	? A D F P S U SC UI US C1..7
1	ICV		1.0000	1.0000	
2	ICB		1.0000	1.0000	
3	MRLL1301	0.5	1.0000	1.0000	
4	CCV1		1.0000	1.0000	
5	CCB1		1.0000	1.0000	
6	CCV2		1.0000	1.0000	
7	CCB2		1.0000	1.0000	
8	HGL005WB		1.0000	1.0000	
9	HGL005WL		1.0000	1.0000	
10	HGL005WC		1.0000	1.0000	
11	L043-02N		1.0000	1.0000	
12	L043-04N		1.0000	1.0000	
13	L052-01N		1.0000	1.0000	
14	L057-07N		1.0000	1.0000	
15	CCV3		1.0000	1.0000	
16	CCB3		1.0000	1.0000	
17			1.0000	1.0000	
18			1.0000	1.0000	
19			1.0000	1.0000	
20			1.0000	1.0000	
21			1.0000	1.0000	
22			1.0000	1.0000	
23			1.0000	1.0000	
24			1.0000	1.0000	
25			1.0000	1.0000	
26			1.0000	1.0000	
27			1.0000	1.0000	
28			1.0000	1.0000	
29			1.0000	1.0000	
30			1.0000	1.0000	
31			1.0000	1.0000	
32			1.0000	1.0000	
33			1.0000	1.0000	
34			1.0000	1.0000	
35			1.0000	1.0000	
36			1.0000	1.0000	
37			1.0000	1.0000	
38			1.0000	1.0000	
39			1.0000	1.0000	
40			1.0000	1.0000	
41			1.0000	1.0000	
42			1.0000	1.0000	
43			1.0000	1.0000	
44			1.0000	1.0000	


WinHg Database 1.3
File Utility Help
RN
RN
Protocol HG1
Dataset/Proto M47L006 /HG1
Protocol
Line info
Cal Curve
Report
Ctrl Chart
Viewer
Reset
Calib Coeffs
New Cal
Update Coeffs
Spike Coeffs
A
B 8.52877e-6
C 8.27352e-3
Rho .999168
Type Linear
Calibrated
Accepted
Accept
Include S1
Rep 1
Rel. Abs.
591130
Accepted
New
Conc. 5.05
S Conc. Calc. Dev. Mean SD or %RSD Rep 1 Rep 2 Rep 3
01 .00000 .058 .058 5799 1 5799
02 .20000 .210 .010 23661 0% 23661
03 .50000 .524 .024 60501 0% 60500
04 1.0000 1.01 .009 117344 0% 117344
05 2.0000 1.85 -.151 215822 0% 215822
06 5.0000 5.05 .050 591130 0% 591130
Ready
CAP NUM

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 1 Rep: 1				Seq: 1	13:30:11 13 Dec 19	HG		
Hg	.000	ppb	5799					
*** Standard: 2 Rep: 1				Seq: 2	13:32:32 13 Dec 19	HG		
Hg	.200	ppb	23661					
*** Standard: 3 Rep: 1				Seq: 3	13:34:52 13 Dec 19	HG		
Hg	.500	ppb	60500					
*** Standard: 4 Rep: 1				Seq: 4	13:37:03 13 Dec 19	HG		
Hg	1.00	ppb	117344					
*** Standard: 5 Rep: 1				Seq: 5	13:39:14 13 Dec 19	HG		
Hg	2.00	ppb	215822					
*** Standard: 6 Rep: 1				Seq: 6	13:41:26 13 Dec 19	HG		
Hg	5.00	ppb	591130					
*** Sample ID: ICV				Seq: 7	13:47:27 13 Dec 19	HG		
Hg	2.10	ppb	245317					
*** Sample ID: ICB				Seq: 8	13:49:57 13 Dec 19	HG		
Hg	-.057	ppb	-7711					
*** Sample ID: MRLL1301				Seq: 9	13:52:27 13 Dec 19	HG		
Hg	.510	ppb	58860	0.5				
*** Sample ID: CCV1				Seq: 10	13:54:39 13 Dec 19	HG		
Hg	1.94	ppb	226916					
*** Sample ID: CCB1				Seq: 11	13:56:50 13 Dec 19	HG		
Hg	-.137	ppb	-16984					
*** Sample ID: CCB1				Seq: 12	13:59:49 13 Dec 19	HG		
Hg	.260	ppb	29540					
*** Sample ID: CCV2				Seq: 13	14:09:20 13 Dec 19	HG		
Hg	2.13	ppb	248924					
*** Sample ID: CCB2				Seq: 14	14:11:31 13 Dec 19	HG		
Hg	.071	ppb	7400					
*** Sample ID: HGL005WB				Seq: 15	14:14:57 13 Dec 19	HG		
Hg	.028	ppb	2310					

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: HGL005WL				Seq: 16	14:17:41 13 Dec 19	HG		
Hg	2.41	ppb	282174					
*** Sample ID: HGL005WC				Seq: 17	14:19:54 13 Dec 19	HG		
Hg	2.51	ppb	293638					
*** Sample ID: L043-02N				Seq: 18	14:22:07 13 Dec 19	HG		
Hg	-.095	ppb	-12098					
*** Sample ID: L043-04N				Seq: 19	14:24:30 13 Dec 19	HG		
Hg	.234	ppb	26492					
*** Sample ID: L052-01N				Seq: 20	14:27:43 13 Dec 19	HG		
Hg	.071	ppb	7302					
*** Sample ID: L057-07N				Seq: 21	14:30:05 13 Dec 19	HG		
Hg	.099	ppb	10625					
*** Sample ID: CCV3				Seq: 22	14:32:15 13 Dec 19	HG		
Hg	2.07	ppb	241450					
*** Sample ID: CCB3				Seq: 23	14:34:50 13 Dec 19	HG		
Hg	.077	ppb	8109					

EMAX LABORATORIES, INC.

DIGESTION LOG
for
MERCURY

Note: For samples, relevant QCs/Standards digested, refer to attached digestion sequence.

Comments: SAMPLES PH = <2

Digestion Vessel Lot #: 04119002

Aqua Regia Prep. Vessel Lot#: N/A

Book #: E47-113

Batch No.: HGL005 W

Matrix: WATER

SOP #	Rev. #
☑ EMAX-7470	8
☐ EMAX-7471	9
☐ EMAX-245.1	4
☐ EMAX-	

Standards	ID	Conc. (µg/L)	Amount Added (ml)
ICAL	SM3B-18-38-04	50	0.2, 0.5, 1, 2, 5
CCV	"	"	2
ICV	SM3B-18-38-05	"	2
LCS/MS	"	"	2.5

Reagent	ID / Lot #
HNO_3	SWA-08-18-09
HCl	N/A
H_2SO_4	SWA-08-16-04
$KMnO_4$	SM5B-04-11-03
$K_2S_2O_8$	SM5B-04-10-~~03~~01
$NH_2OH \cdot HCl \cdot NaCl$	SM5B-04-10-~~04~~03 JC 12/12/19
$SnCl_2$	SM5B-04-11-04
Silica Sand	N/A
Reagent Water	RWI-19-002
pH strip 0-14	HC857466

Digestor ID/ Temp (°C) A - 95.1 B - 95.2

Thermometer ID/LOC: 192272438 A-3

Thermometer ID/LOC: 192332031 B-9

Pipette ID: HG-03, HG-06, 339342032

☐ H_2SO_4 dispenser checked @ 2.5 ml with Class A graduated cylinder

☐ HCl dispenser checked @ ___ ml with Class A graduated cylinder

☐ HNO_3 dispenser checked @ ___ ml with Class A graduated cylinder

Prepared By: JC

Standard Added By: JC Witnessed By: MC

EMAX LABORATORIES, INC.

DIGESTION LOG FOR MERCURY

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Vd(ml)	ExpAmt	ExpVd(ml)	PrepFctr	Comments
19HGL005W01	HGL005WB	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W02	HGL005WL	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W03	HGL005WC	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W04	L043-01	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W05	L043-02	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W06	L043-04	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W07	L043-05	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W08	L043-07	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W09	L043-07M	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W10	L043-07S	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W11	L052-01	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W12	L057-01	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W13	L057-02	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W14	L057-03	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W15	L057-04	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W16	L057-05	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W17	L057-07	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W18	L057-08	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W19	L057-09	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W20	L057-10	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W21	S-0/CCB/ICB	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W22	S-0.2	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W23	S-0.5	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W24	S-1	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W25	S-2/CCV	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W26	S-5	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W27	ICV	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W28	PS H2O	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W29	MRL-0.5	50	ml	12/12/19 10:47	80	50	80	1	

JH 12/12/19

Vd=digestate volume PrepFctr=(ExpAmt/Aliquot)*(Vd/ExpVd)

☑ Digestion Started @ 12/12/19 12:30 Prepared By: JVille

☑ Digestion Ended @ 12/12/19 14:45 Checked By: JH

Comments: Date 12/12/19

SOP EMAX-7470 Rev. 8

LABORATORY REPORT FOR

CDM SMITH

VA SALT LAKE CITY

WET CHEMICAL ANALYSES

SDG#: 19L043

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L043

METHOD E300.0
CHLORIDE

A total of five(5) water samples were received on 12/06/19 to be analyzed for Chloride in accordance with Method E300.0 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Chloride was not detected in ICL005WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. ICL005WL/ICL005WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. Chloride was within MS QC limits in L043-07JM/L043-07JS. Sample duplicate was analyzed and RPD was within expected value. Refer to Matrix QC summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L043

METHOD E300.0
SULFATE

A total of five(5) water samples were received on 12/06/19 to be analyzed for Sulfate in accordance with Method E300.0 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Sulfate was not detected in ICL005WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. ICL005WL/ICL005WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. Sulfate was within MS QC limits in L043-07IM/L043-07IS. Sample duplicate was analyzed and RPD was within expected value. Refer to Matrix QC summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

SAMPLE RESULTS

METHOD E300.0
CHLORIDE

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L043

Matrix : WATER
InstrumentID : DO

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ICL005WB	ND	1	NA	0.2	0.05	12/06/1912:34	NA	AL05-03	AL05-01	ICL005W	NA	NA
LCS1W	ICL005WL	1.86	1	NA	0.2	0.05	12/06/1912:51	NA	AL05-04	AL05-01	ICL005W	NA	NA
LCD1W	ICL005WC	1.86	1	NA	0.2	0.05	12/06/1913:09	NA	AL05-05	AL05-01	ICL005W	NA	NA
OU2-MW02-GW120519	L043-07J	705	500	NA	100	25	12/06/1914:54	NA	AL05-11	AL05-01	ICL005W	12/05/1912:15	12/06/19
OU2-MW02-GW120519DUP	L043-07JD	705	500	NA	100	25	12/06/1915:12	NA	AL05-12	AL05-01	ICL005W	12/05/1912:15	12/06/19
OU2-MW18-GW120519	L043-04J	342	200	NA	40	10	12/06/1918:44	NA	AL05-23	AL05-13	ICL005W	12/05/1909:55	12/06/19
OU2-MW19-GW120519	L043-05J	302	200	NA	40	10	12/06/1919:01	NA	AL05-24	AL05-13	ICL005W	12/05/1910:00	12/06/19
OU2-MW02-GW120519MS	L043-07JM	1690	500	NA	100	25	12/06/1919:52	NA	AL05-27	AL05-25	ICL005W	12/05/1912:15	12/06/19
OU2-MW02-GW120519MSD	L043-07JS	1680	500	NA	100	25	12/06/1920:09	NA	AL05-28	AL05-25	ICL005W	12/05/1912:15	12/06/19
OU2-MW20S-GW120419	L043-01K	111	50	NA	10	2.5	12/06/1920:26	NA	AL05-29	AL05-25	ICL005W	12/04/1916:10	12/06/19
OU2-MW20D-GW120519	L043-02K	137	50	NA	10	2.5	12/06/1920:43	NA	AL05-30	AL05-25	ICL005W	12/05/1911:50	12/06/19

METHOD E300.0
SULFATE

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L043

Matrix : WATER
InstrumentID : DO

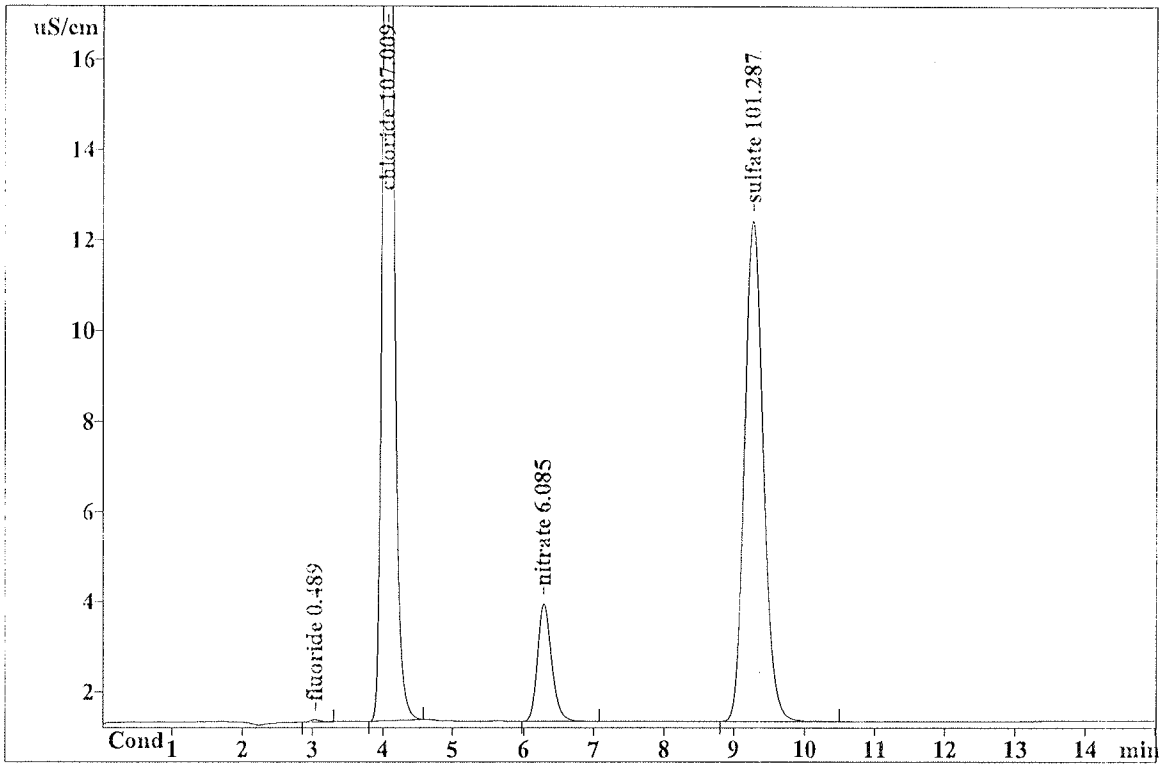
CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ICL005WB	ND	1	NA	0.5	0.13	12/06/1912:34	NA	AL05-03	AL05-01	ICL005W	NA	NA
LCS1W	ICL005WL	4.63	1	NA	0.5	0.13	12/06/1912:51	NA	AL05-04	AL05-01	ICL005W	NA	NA
LCD1W	ICL005WC	4.63	1	NA	0.5	0.13	12/06/1913:09	NA	AL05-05	AL05-01	ICL005W	NA	NA
OU2-MW02-GW120519	L043-07I	112	10	NA	5	1.3	12/06/1913:46	NA	AL05-07	AL05-01	ICL005W	12/05/1912:15	12/06/19
OU2-MW02-GW120519MS	L043-07IM	159	10	NA	5	1.3	12/06/1914:03	NA	AL05-08	AL05-01	ICL005W	12/05/1912:15	12/06/19
OU2-MW02-GW120519MSD	L043-07IS	158	10	NA	5	1.3	12/06/1914:20	NA	AL05-09	AL05-01	ICL005W	12/05/1912:15	12/06/19
OU2-MW02-GW120519DUP	L043-07ID	112	10	NA	5	1.3	12/06/1914:37	NA	AL05-10	AL05-01	ICL005W	12/05/1912:15	12/06/19
OU2-MW20S-GW120419	L043-01I	101	10	NA	5	1.3	12/06/1917:01	NA	AL05-17	AL05-13	ICL005W	12/04/1916:10	12/06/19
OU2-MW20D-GW120519	L043-02I	87.2	10	NA	5	1.3	12/06/1917:19	NA	AL05-18	AL05-13	ICL005W	12/05/1911:50	12/06/19
OU2-MW18-GW120519	L043-04I	110	10	NA	5	1.3	12/06/1917:36	NA	AL05-19	AL05-13	ICL005W	12/05/1909:55	12/06/19
OU2-MW19-GW120519	L043-05I	99.3	10	NA	5	1.3	12/06/1917:53	NA	AL05-20	AL05-13	ICL005W	12/05/1910:00	12/06/19

Report date: 12/9/2019 12:25:14 PM
Printed by: LDip

Ident: AL05-17 L043-01I DF=10
Analysis from: 12/6/2019 5:01:56 PM
File: _2019-12-06_17-01.chw Last save: 12/6/2019 7:10:13 PM

Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154119

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 17
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

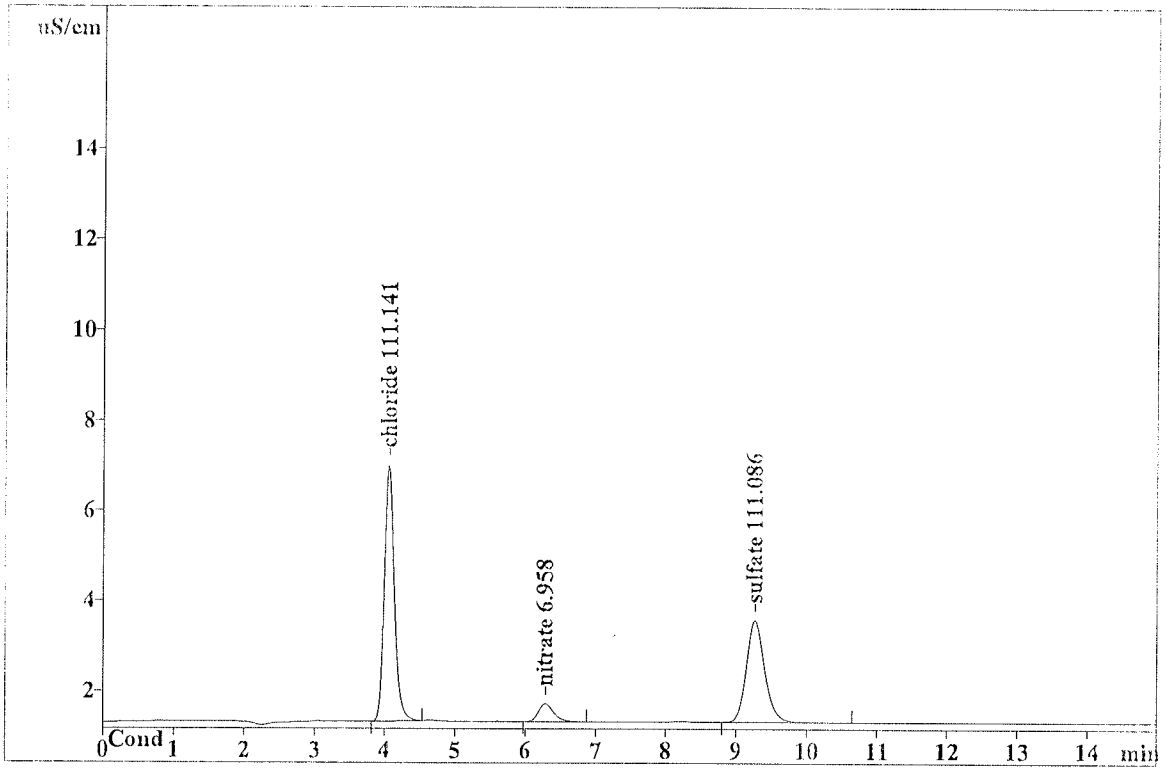
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	0.05	0.528	0.489	fluoride
2	4.06	27.49	276.746	107.009	chloride
3	6.28	2.61	36.540	6.085	nitrate
4	9.26	11.10	200.407	101.287	sulfate ✓
4	15.00	41.24	514.222	214.871	

This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:29:14 PM
Printed by: LDip

Ident: AL05-29 L043-01K DF=50
Analysis from: 12/6/2019 8:26:54 PM
File: _2019-12-06_20-26.chw Last save: 12/9/2019 12:24:25 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154131

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 29
Volume: 1.0 µL
Dilution: 50.00
Amount: 1.0000



Quantitation method: Custom

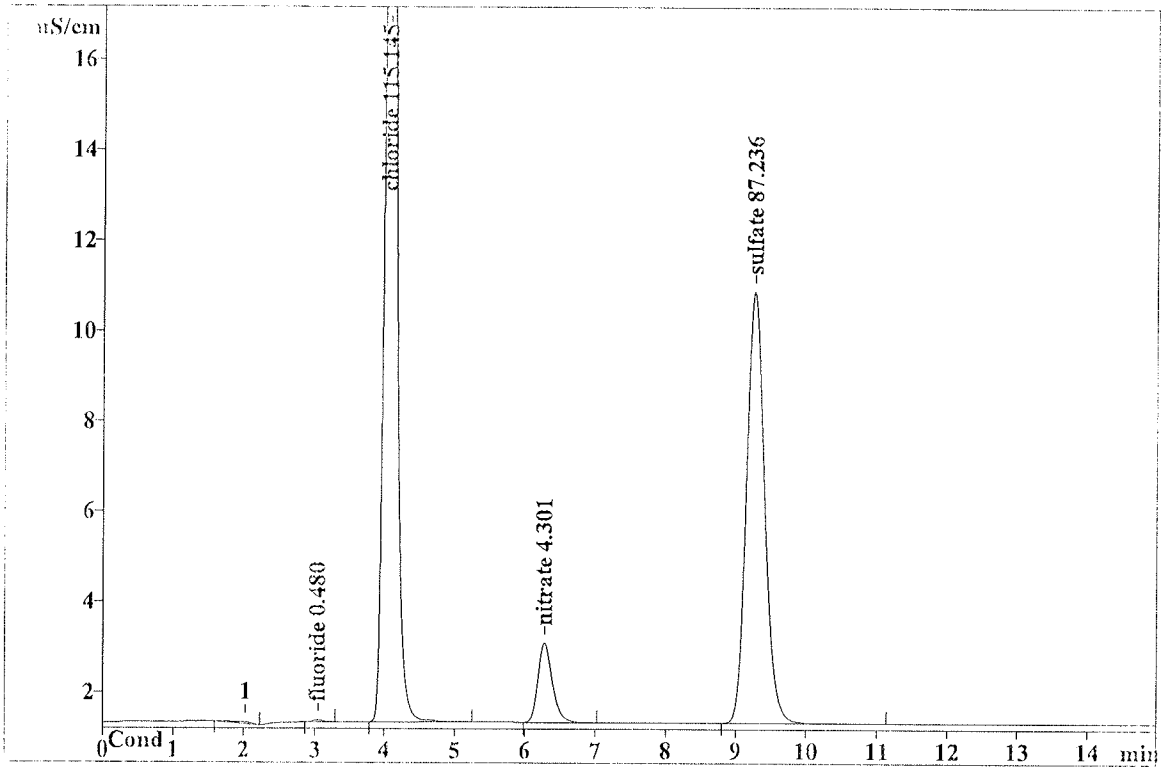
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.06	5.66	55.707	111.141	chloride
2	6.29	0.40	5.909	6.958	nitrate
3	9.26	2.24	40.666	111.086	sulfate
3	15.00	8.30	102.282	229.185	

This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:28:56 PM
Printed by: LDip

Ident: AL05-18 L043-02I DF=10
Analysis from: 12/6/2019 5:19:01 PM
File: _2019-12-06_17-19.chw Last save: 12/6/2019 7:09:51 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154120

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 18
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

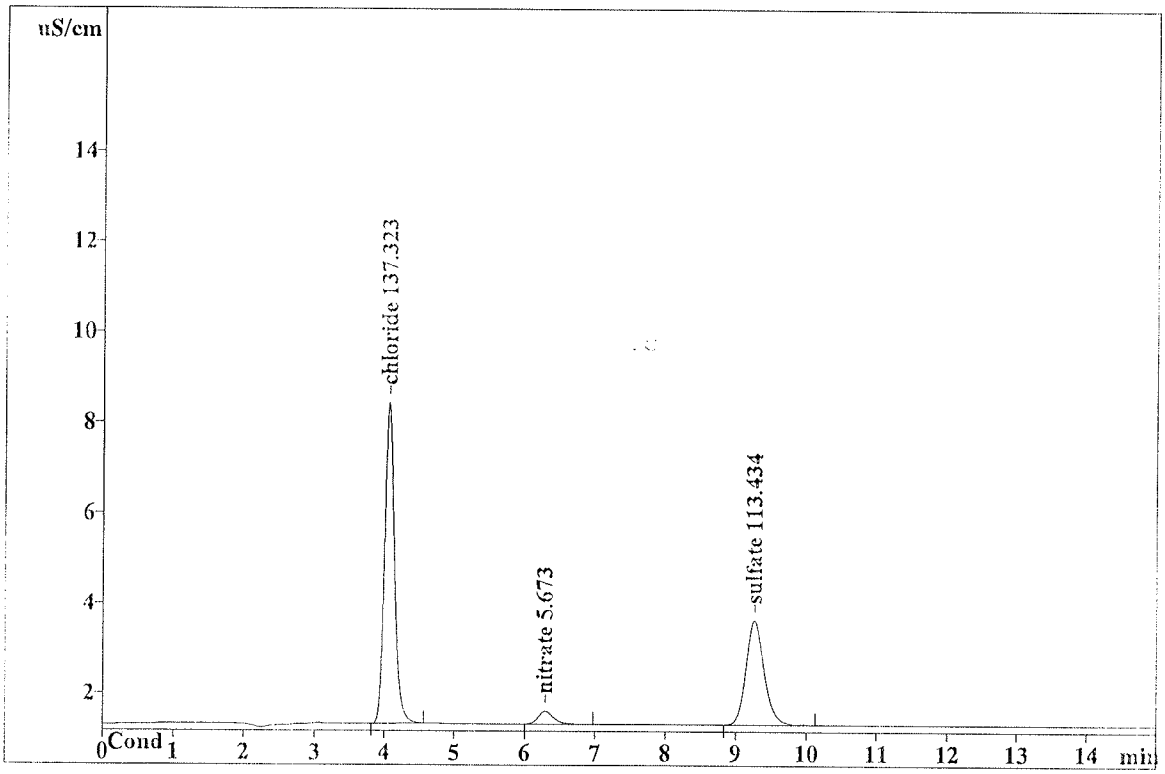
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.02	0.04	1.060	0.000	
2	3.04	0.05	0.488	0.480	fluoride
3	4.06	29.65	297.957	115.145	chloride
4	6.28	1.76	24.895	4.301	nitrate
5	9.26	9.55	172.022	87.236	sulfate ✓
5	15.00	41.05	496.420	207.162	

This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:29:25 PM
Printed by: LDip

Ident: AL05-30 L043-02K DF=50
Analysis from: 12/6/2019 8:43:59 PM
File: _2019-12-06_20-43.chw Last save: 12/9/2019 12:25:02 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154132

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 30
Volume: 1.0 µL
Dilution: 50.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.05	7.10	69.360	137.323	chloride ✓
2	6.29	0.28	4.231	5.673	nitrate
3	9.26	2.31	41.615	113.434	sulfate
3	15.00	9.69	115.206	256.431	

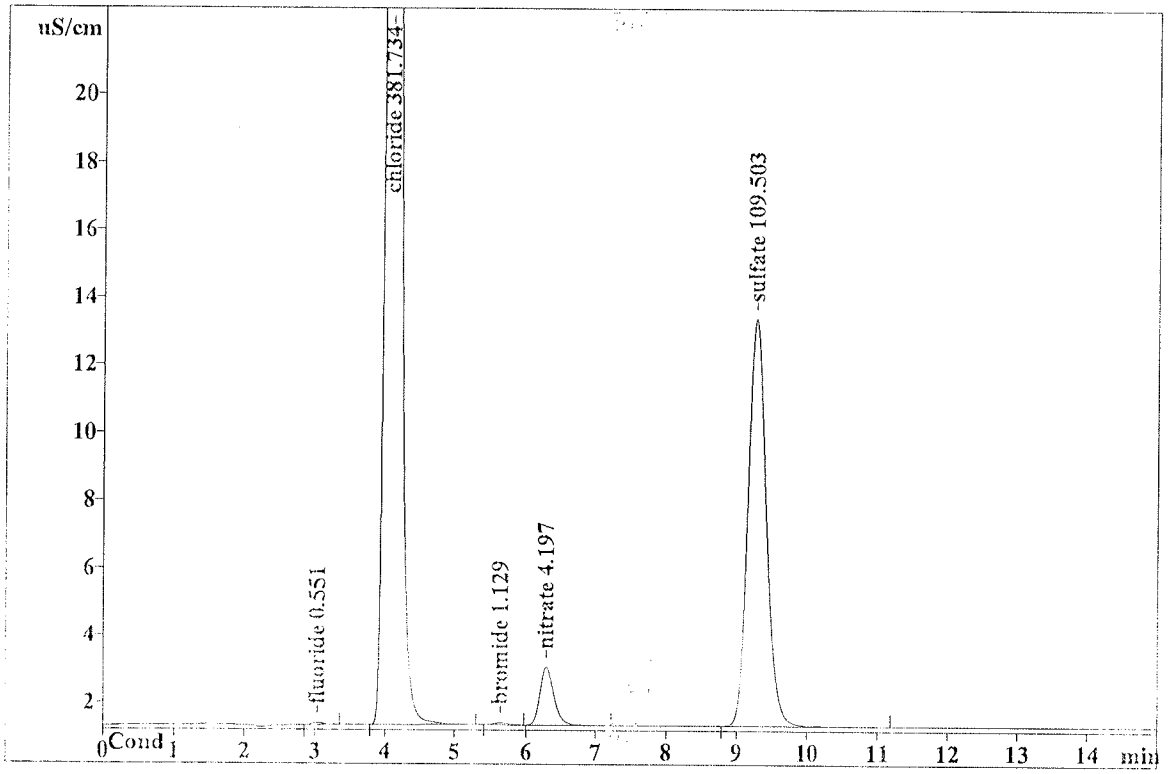
This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:25:37 PM
Printed by: LDip

Ident: AL05-19 L043-04I DF=10
Analysis from: 12/6/2019 5:36:06 PM
File: _2019-12-06_17-36.chw Last save: 12/6/2019 7:09:14 PM

Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154121

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 19
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

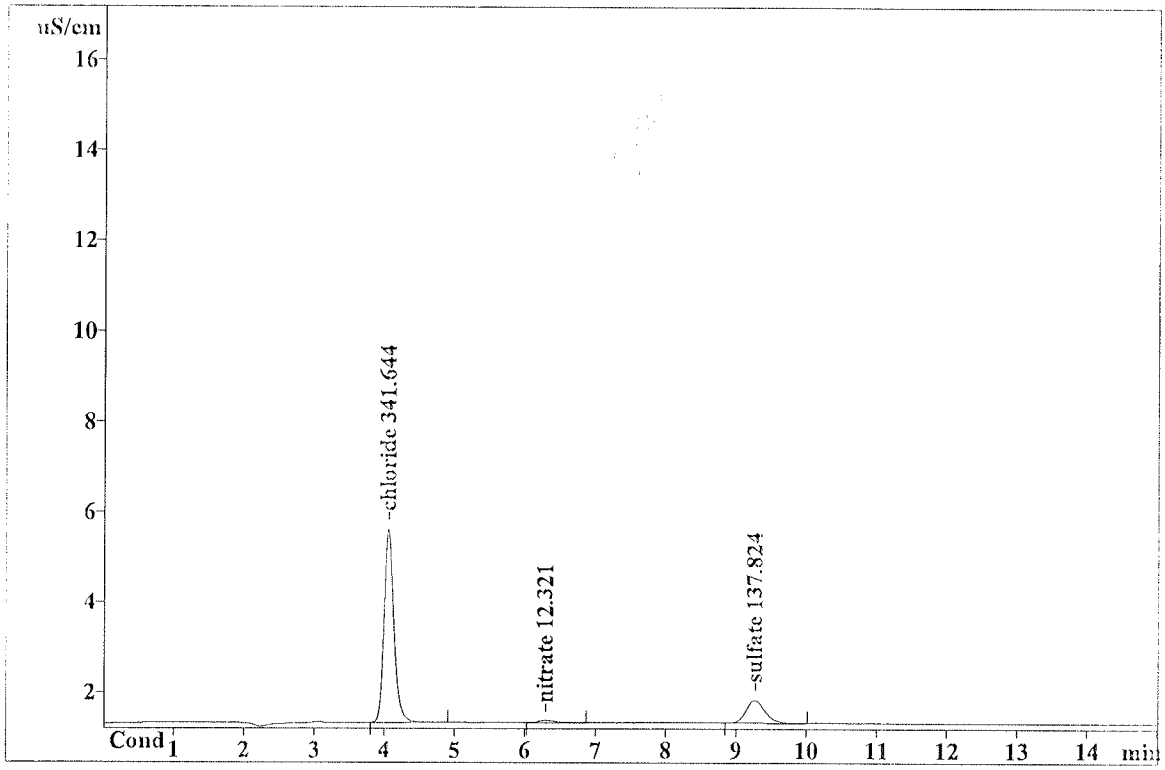
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	0.08	0.801	0.551	fluoride
2	4.07	97.05	993.000	381.734	chloride
3	5.64	0.06	0.804	1.129	bromide
4	6.29	1.73	24.218	4.197	nitrate
5	9.26	12.05	217.006	109.503	sulfate ✓
5	15.00	110.96	1235.828	497.114	

This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:30:55 PM
Printed by: LDip

Ident: AL05-23 L043-04J DF=200
Analysis from: 12/6/2019 6:44:26 PM
File: _2019-12-06_18-44.chw Last save: 12/6/2019 7:03:09 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154125

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 23
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.06	4.29	42.291	341.644	chloride ✓
2	6.30	0.05	0.847	12.321	nitrate
3	9.27	0.51	9.704	137.824	sulfate
3	15.00	4.85	52.841	491.789	

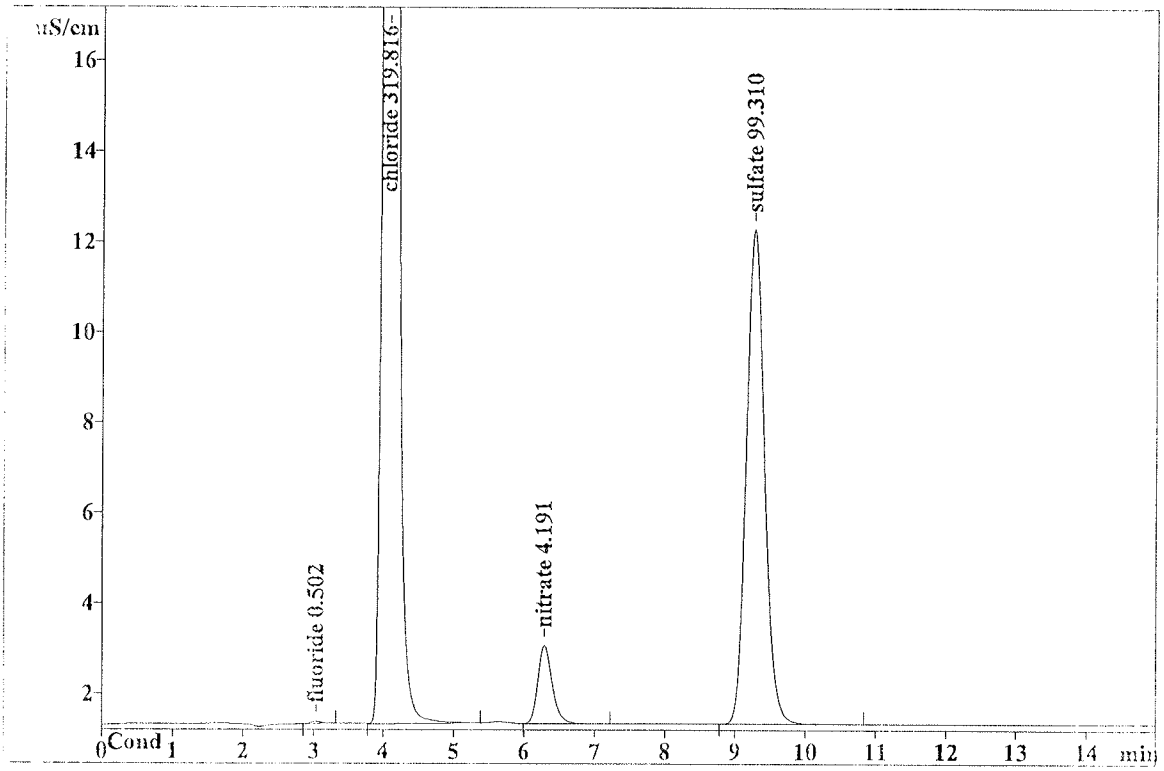
This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:25:45 PM
Printed by: LDip

Ident: AL05-20 L043-05I DF=10
Analysis from: 12/6/2019 5:53:11 PM
File: _2019-12-06_17-53.chw Last save: 12/6/2019 7:09:31 PM

Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154122

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 20
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

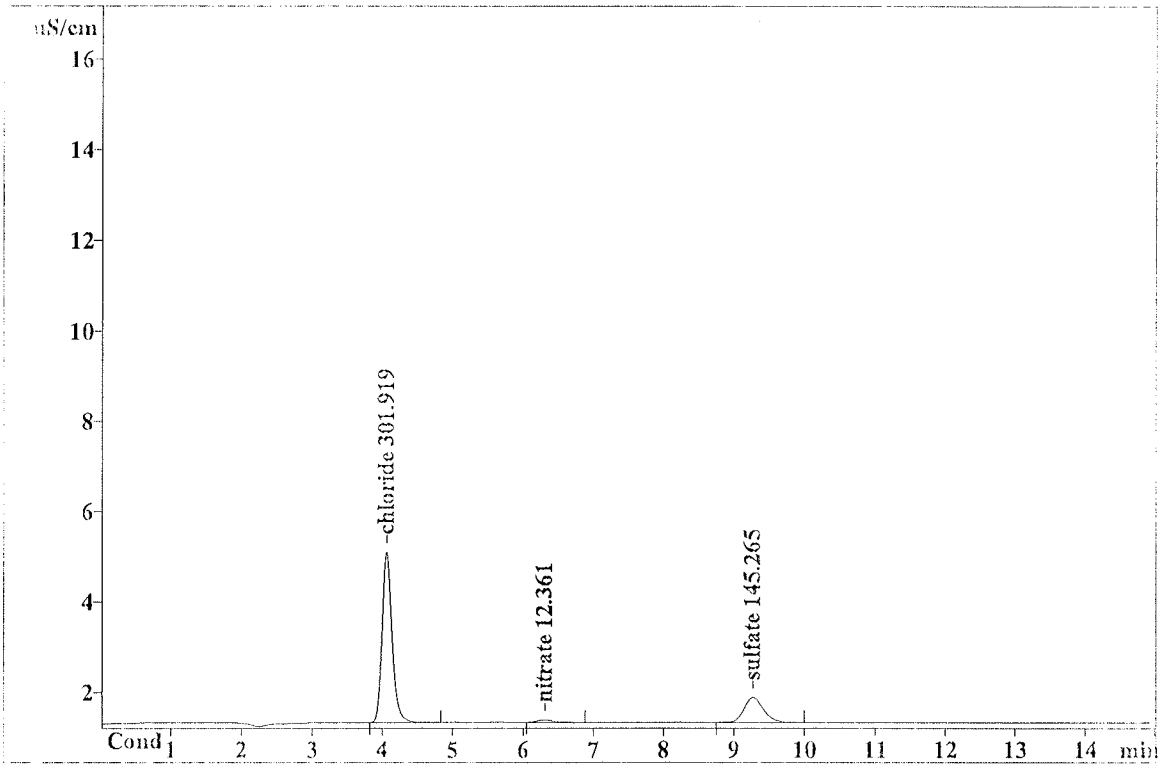
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	0.06	0.584	0.502	fluoride
2	4.07	81.89	831.570	319.816	chloride
3	6.29	1.72	24.180	4.191	nitrate
4	9.26	10.95	196.413	99.310	sulfate ✓
4	15.00	94.62	1052.747	423.819	

This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:26:32 PM
Printed by: LDip

Ident: AL05-24 L043-05J DF=200
Analysis from: 12/6/2019 7:01:30 PM
File: _2019-12-06_19-01.chw Last save: 12/6/2019 7:16:27 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154126

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 24
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.06	3.76	37.112	301.919	chloride
2	6.30	0.05	0.860	12.361	nitrate
3	9.27	0.55	10.455	145.265	sulfate
3	15.00	4.37	48.427	459.544	

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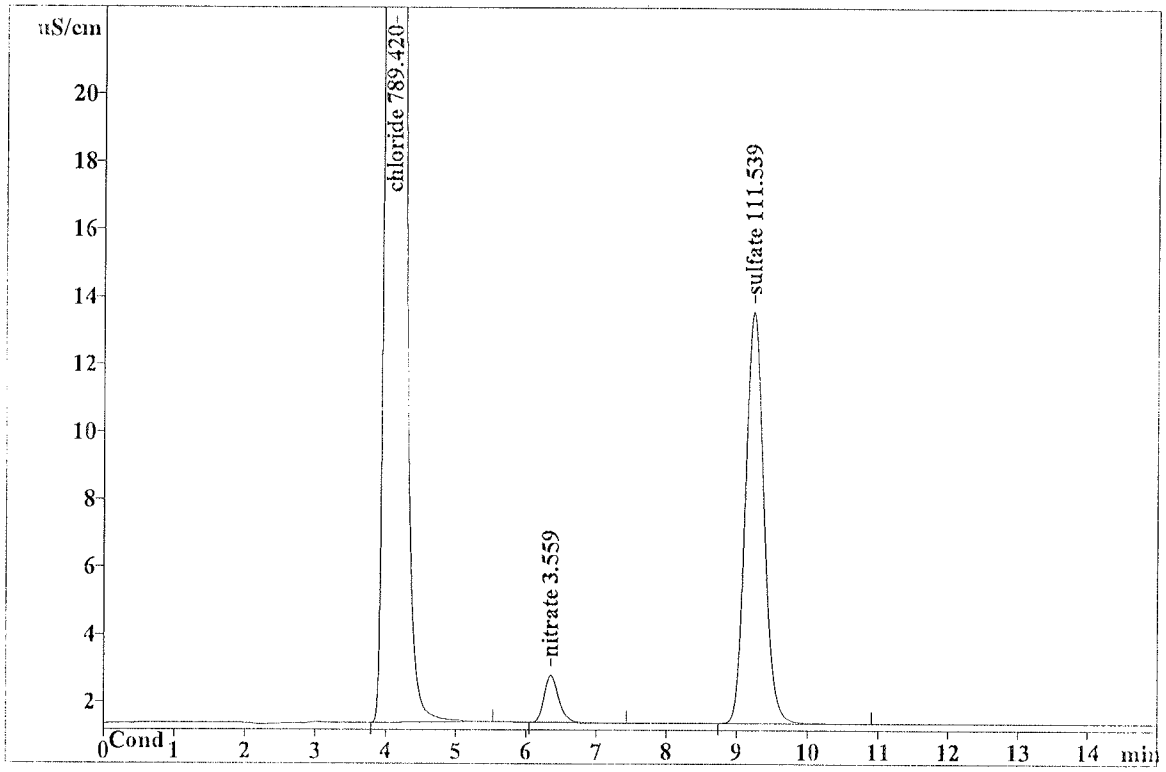
Report date: 12/9/2019 12:19:25 PM
Printed by: LDip

Ident: AL05-07 L043-07I DF=10
Analysis from: 12/6/2019 1:46:40 PM
File: _2019-12-06_13-46.chw Last save: 12/6/2019 3:16:05 PM

Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154109

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 7
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.10	191.61	2055.909	789.420	chloride
2	6.35	1.40	20.054	3.559	nitrate
3	9.23	12.20	221.119	111.539	sulfate ✓
3	15.00	205.22	2297.082	904.518	

This report has been created by IC Net
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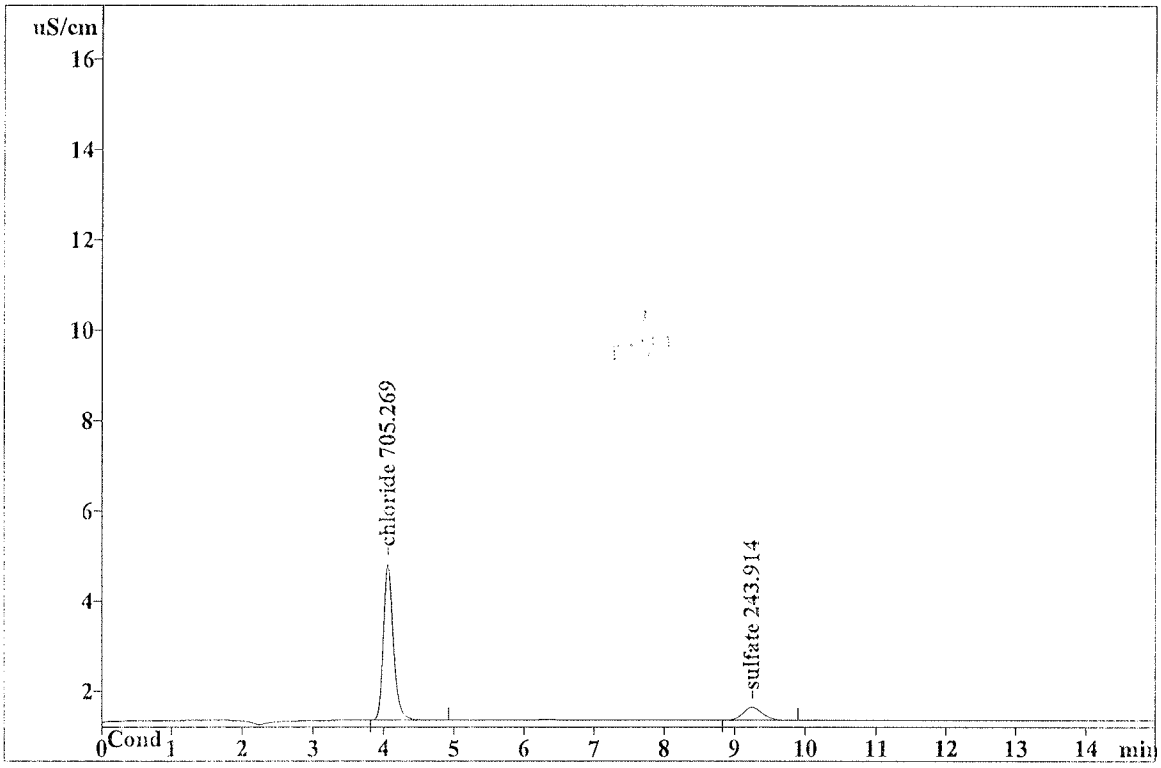
Report date: 12/9/2019 12:20:38 PM
Printed by: LDip

Ident: AL05-11 L043-07J DF=500
Analysis from: 12/6/2019 2:54:58 PM
File: _2019-12-06_14-54.chw Last save: 12/6/2019 3:16:24 PM

Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154113

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 11
Volume: 1.0 µL
Dilution: 500.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.06	3.46	34.530	705.269	chloride ✓
2	9.24	0.29	5.637	243.914	sulfate
2	15.00	3.75	40.167	949.182	

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QC SUMMARIES

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : E300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ICL005WB	ICL005WL	ICL005WC
LAB FILE ID :	AL05-03	AL05-04	AL05-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/06/1912:34	12/06/1912:51	12/06/1913:09
PREP BATCH :	ICL005W	ICL005W	ICL005W
CALIBRATION REF:	AL05-01	AL05-01	AL05-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride	ND	2	1.86	93	2	1.86	93	0	87-111	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : E300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	500	500	500
SAMPLE ID :	OU2-MW02-GW120519	OU2-MW02-GW120519MS	OU2-MW02-GW120519MSD
LAB SAMPLE ID :	L043-07J	L043-07JM	L043-07JS
LAB FILE ID :	AL05-11	AL05-27	AL05-28
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/06/1914:54	12/06/1919:52	12/06/1920:09
PREP BATCH :	ICL005W	ICL005W	ICL005W
CALIBRATION REF:	AL05-01	AL05-25	AL05-25

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	SPIKE AMT (mg/L)	MS RESULT (mg/L)	MS REC (%)	SPIKE AMT (mg/L)	MSD RESULT (mg/L)	MSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride	705	1000	1690	98	1000	1680	98	1	87-111	20

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : E300.0

MATRIX :	WATER	
DILUTION FACTOR:	500	500
SAMPLE ID :	OU2-MW02-GW120519	OU2-MW02-GW120519DUP
LAB SAMPLE ID :	L043-07J	L043-07JD
LAB FILE ID :	AL05-11	AL05-12
DATE PREPARED :	NA	NA
DATE ANALYZED :	12/06/1914:54	12/06/1915:12
PREP BATCH :	ICL005W	ICL005W
CALIBRATION REF:	AL05-01	AL05-01

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	RPD (%)	MAX RPD (%)
Chloride	705	705	0	20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : E300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ICL005WB	ICL005WL	ICL005WC
LAB FILE ID :	AL05-03	AL05-04	AL05-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/06/1912:34	12/06/1912:51	12/06/1913:09
PREP BATCH :	ICL005W	ICL005W	ICL005W
CALIBRATION REF:	AL05-01	AL05-01	AL05-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	5	4.63	93	5	4.63	93	0	87-112	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : E300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	10	10	10
SAMPLE ID :	OU2-MW02-GW120519	OU2-MW02-GW120519MS	OU2-MW02-GW120519MSD
LAB SAMPLE ID :	L043-07I	L043-07IM	L043-07IS
LAB FILE ID :	AL05-07	AL05-08	AL05-09
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/06/1913:46	12/06/1914:03	12/06/1914:20
PREP BATCH :	ICL005W	ICL005W	ICL005W
CALIBRATION REF:	AL05-01	AL05-01	AL05-01

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	SPIKE AMT (mg/L)	MS RESULT (mg/L)	MS REC (%)	SPIKE AMT (mg/L)	MSD RESULT (mg/L)	MSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	112	50	159	94	50	158	92	1	87-112	20

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : E300.0

MATRIX : WATER

DILUTION FACTOR:	10	10
SAMPLE ID :	OU2-MW02-GW120519	OU2-MW02-GW120519DUP
LAB SAMPLE ID :	L043-07I	L043-07ID
LAB FILE ID :	AL05-07	AL05-10
DATE PREPARED :	NA	NA
DATE ANALYZED :	12/06/1913:46	12/06/1914:37
PREP BATCH :	ICL005W	ICL005W
CALIBRATION REF:	AL05-01	AL05-01

ACCESSION:

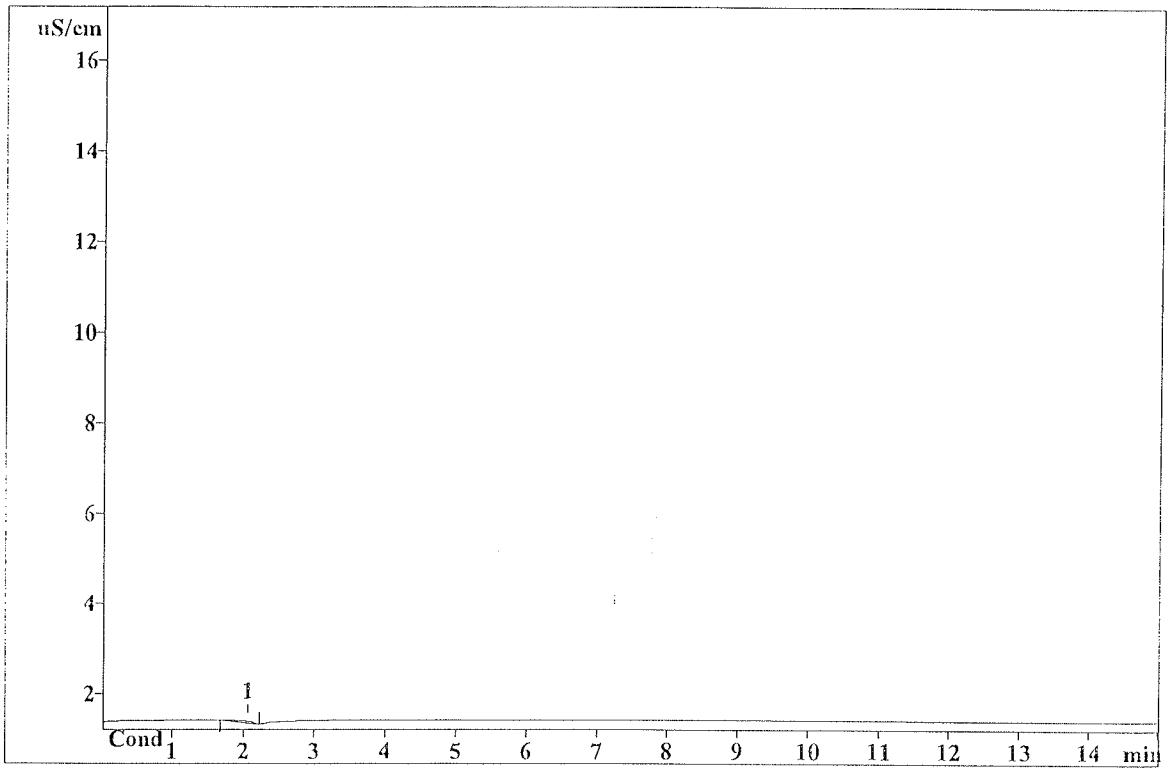
PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	RPD (%)	MAX RPD (%)
Sulfate	112	112	0	20

QC DATA

Report date: 12/9/2019 12:10:50 PM
Printed by: LDip

Ident: AL05-03 ICL005WB
Analysis from: 12/6/2019 12:34:54 PM
File: _2019-12-06_12-34.chw Last save: 12/9/2019 12:02:08 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154105

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 3
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.05	0.04	0.842	0.000	

This report has been created by IC Net
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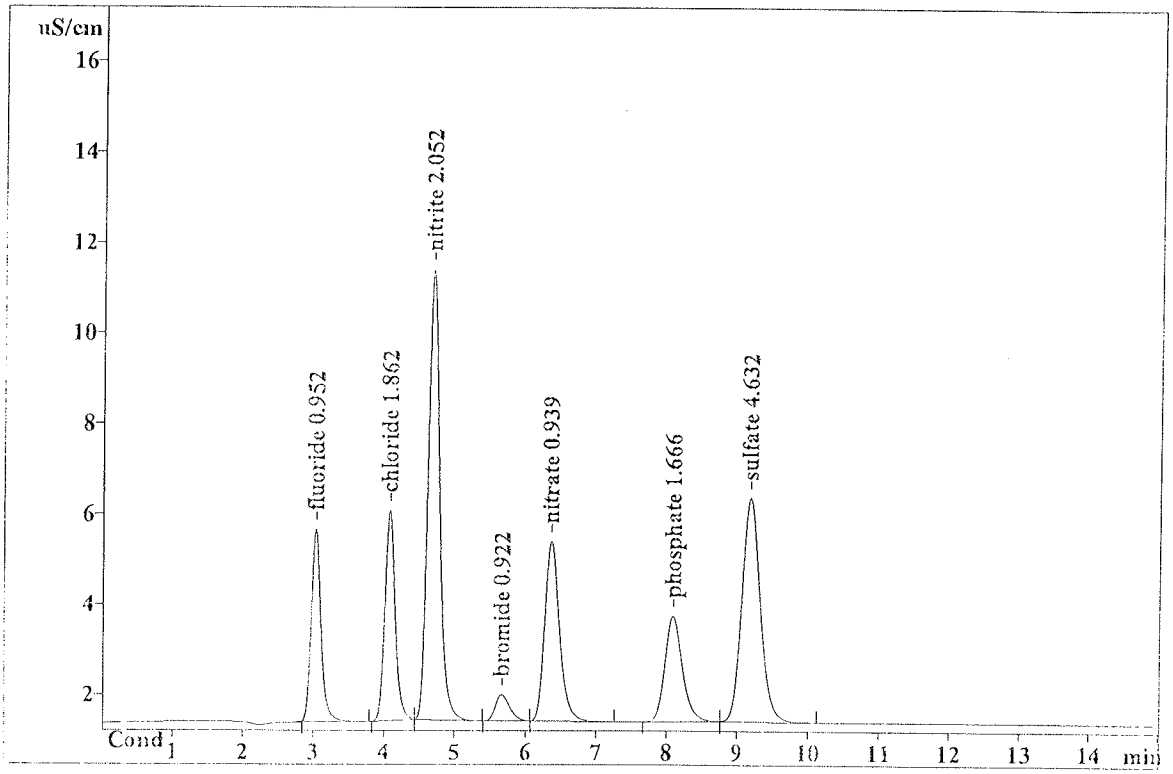
Report date: 12/9/2019 12:02:17 PM
Printed by: LDip

Ident: AL05-04 ICL005WL
Analysis from: 12/6/2019 12:51:59 PM
File: _2019-12-06_12-51.chw Last save: 12/6/2019 1:09:09 PM

Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154106

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 4
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

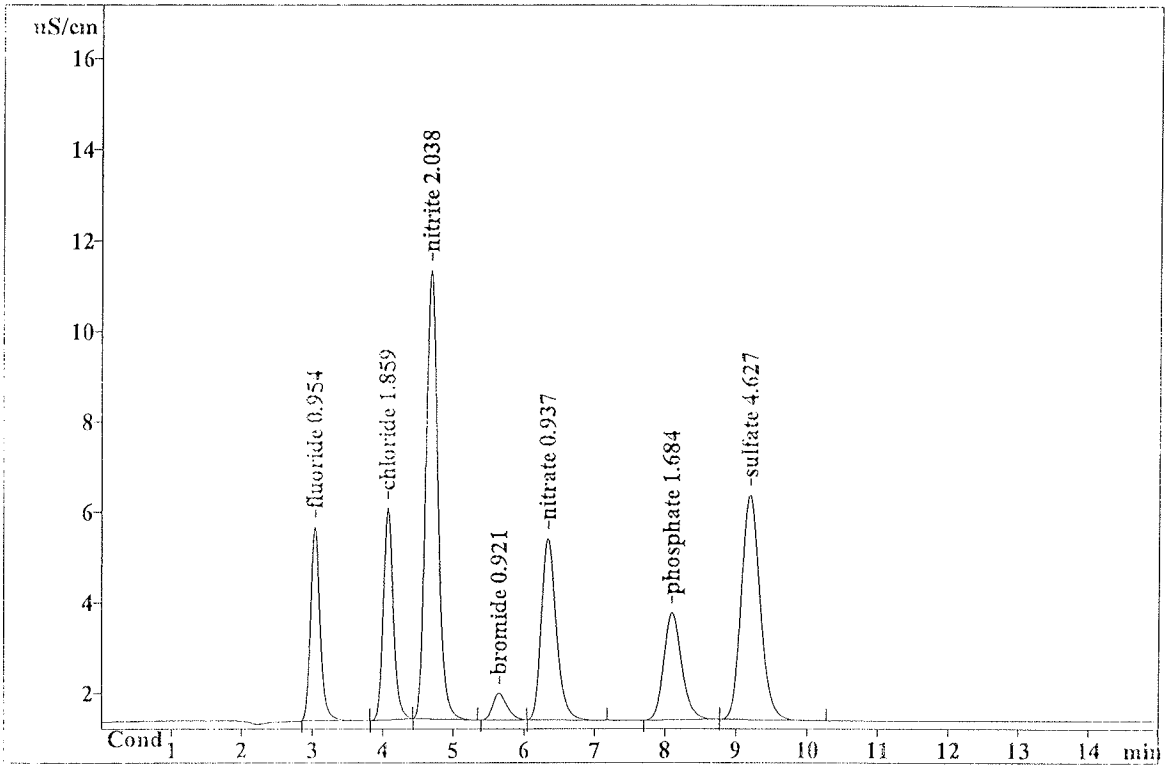
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	4.27	39.960	0.952	fluoride
2	4.07	4.66	46.296	1.862	chloride
3	4.68	9.97	117.295	2.052	nitrite
4	5.66	0.59	8.212	0.922	bromide
5	6.35	3.99	58.138	0.939	nitrate
6	8.08	2.34	40.655	1.666	phosphate
7	9.17	4.96	89.351	4.632	sulfate
7	15.00	30.77	399.908	13.024	

This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:02:47 PM
Printed by: LDip

Ident: AL05-05 ICL005WC
Analysis from: 12/6/2019 1:09:04 PM
File: _2019-12-06_13-09.chw Last save: 12/6/2019 1:24:00 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154107

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 5
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	4.28	40.046	0.954	fluoride
2	4.06	4.66	46.212	1.859	chloride
3	4.67	9.93	116.498	2.038	nitrite
4	5.65	0.59	8.211	0.921	bromide
5	6.33	4.01	58.000	0.937	nitrate
6	8.09	2.37	41.143	1.684	phosphate
7	9.18	4.96	89.256	4.627	sulfate
7	15.00	30.81	399.364	13.020	

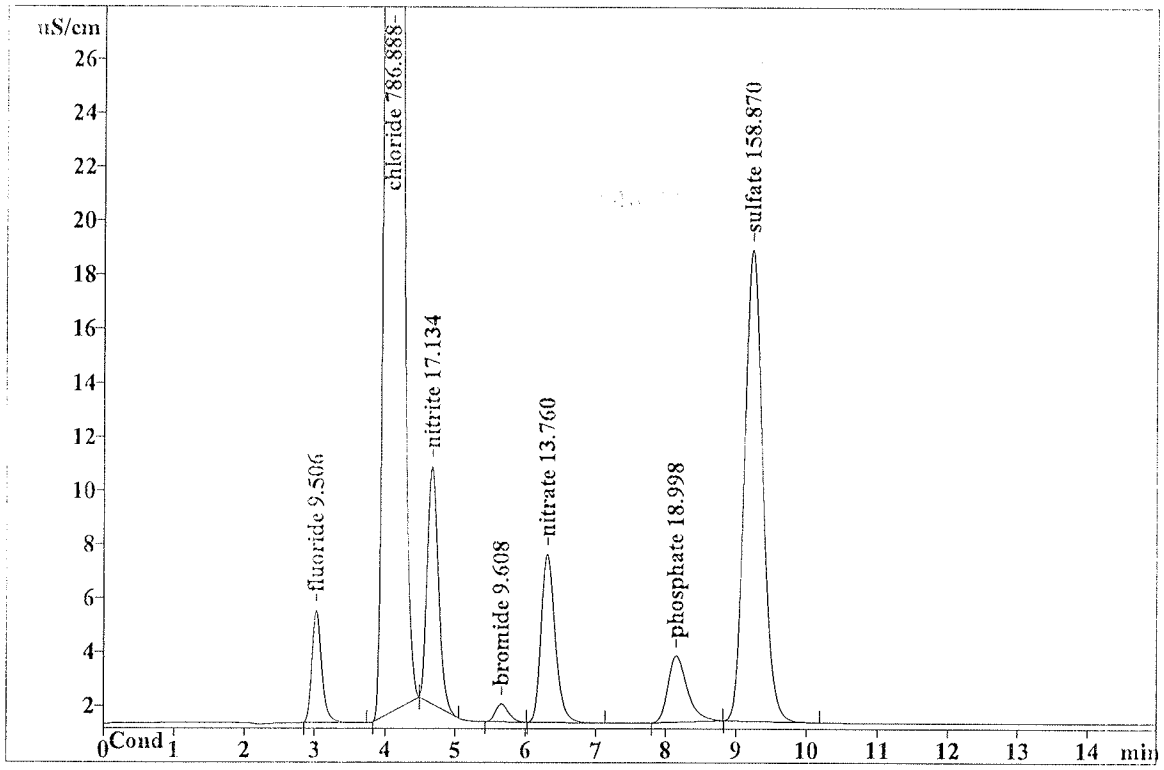
This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:19:48 PM
Printed by: LDip

Ident: AL05-08 L043-07IM DF=10
Analysis from: 12/6/2019 2:03:45 PM
File: _2019-12-06_14-03.chw Last save: 12/6/2019 3:16:02 PM

Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154110

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 8
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	4.16	39.908	9.506	fluoride
2	4.10	193.62	2049.307	786.888	chloride
3	4.67	8.83	97.694	17.134	nitrite
4	5.66	0.67	8.570	9.608	bromide
5	6.31	6.24	86.627	13.760	nitrate
6	8.15	2.47	47.089	18.998	phosphate
7	9.22	17.48	316.739	158.870	sulfate✓
7	15.00	233.47	2645.934	1014.762	

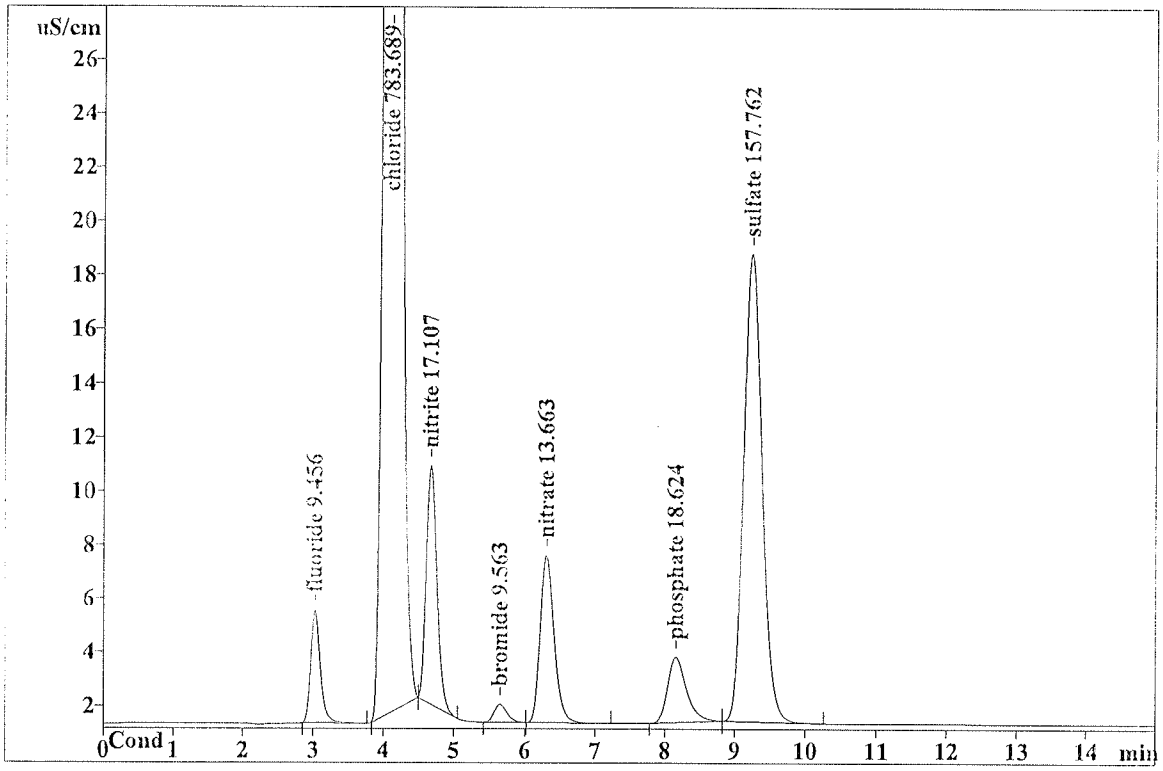
This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:19:57 PM
Printed by: LDip

Ident: AL05-09 L043-07IS DF=10
Analysis from: 12/6/2019 2:20:49 PM
File: _2019-12-06_14-20.chw Last save: 12/6/2019 3:15:20 PM

Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154111

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 9
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	4.16	39.690	9.456	fluoride
2	4.10	193.71	2040.968	783.689	chloride
3	4.66	8.87	97.540	17.107	nitrite
4	5.65	0.67	8.530	9.563	bromide
5	6.30	6.22	85.996	13.663	nitrate
6	8.15	2.43	46.062	18.624	phosphate
7	9.23	17.37	314.501	157.762	sulfate
7	15.00	233.42	2633.286	1009.865	

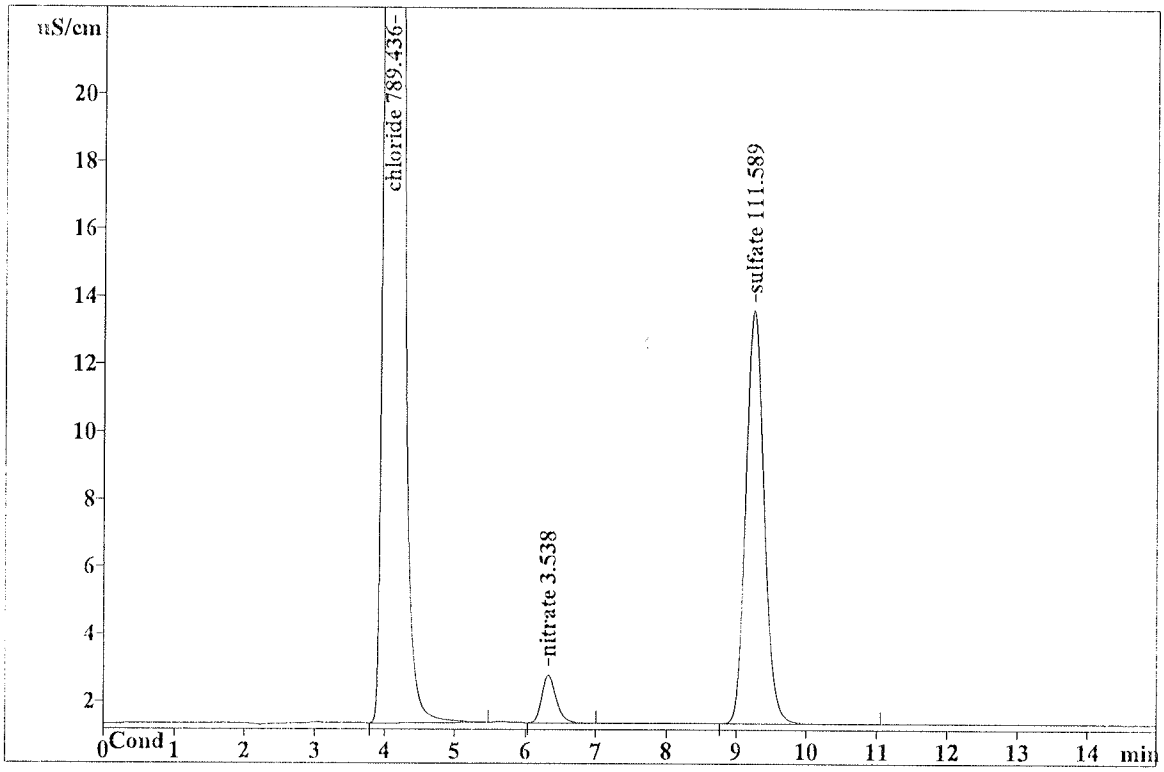
This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:19:39 PM
Printed by: LDip

Ident: AL05-10 L043-07ID DF=10
Analysis from: 12/6/2019 2:37:54 PM
File: _2019-12-06_14-37.chw Last save: 12/6/2019 3:13:41 PM

Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154112

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 10
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

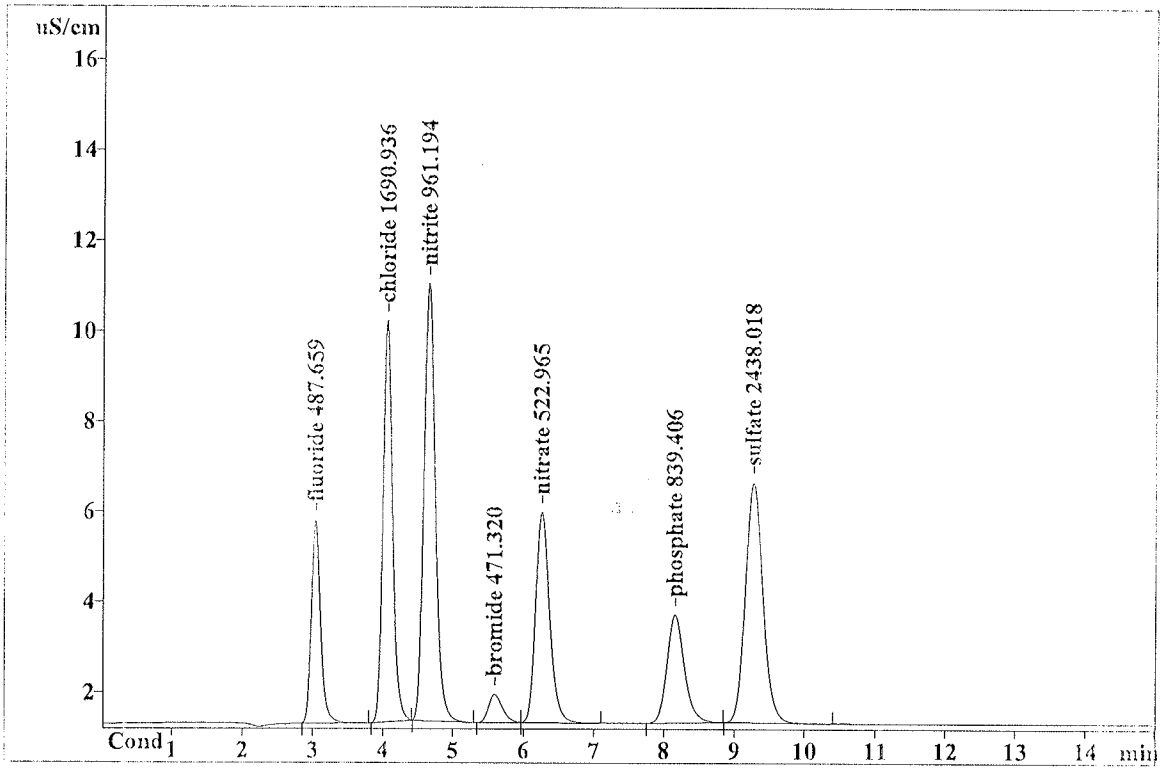
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.10	192.43	2055.950	789.436	chloride
2	6.32	1.41	19.916	3.538	nitrate
3	9.24	12.24	221.221	111.589	sulfate ✓
3	15.00	206.09	2297.086	904.563	

This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:21:46 PM
Printed by: LDip

Ident: AL05-27 L043-07JM DF=500
Analysis from: 12/6/2019 7:52:45 PM
File: _2019-12-06_19-52.chw Last save: 12/6/2019 8:07:42 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154129

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 27
Volume: 1.0 µL
Dilution: 500.00
Amount: 1.0000



Quantitation method: Custom

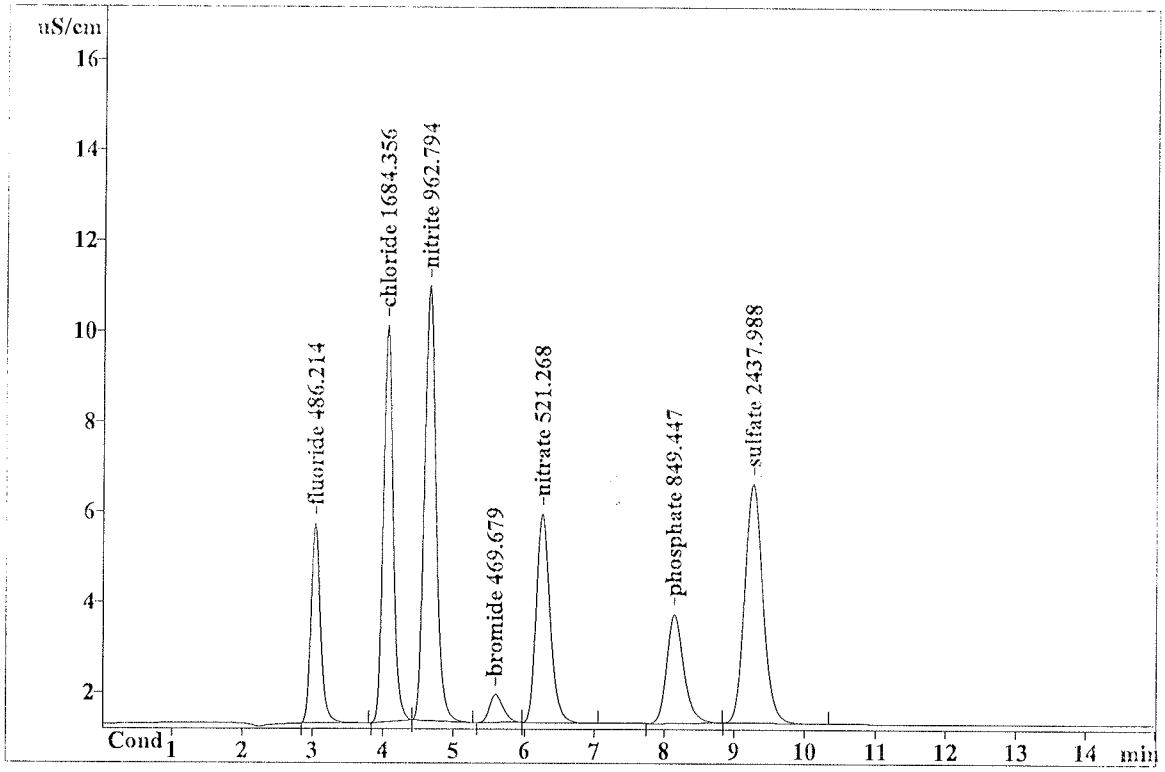
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.04	4.48	40.989	487.659	fluoride
2	4.05	8.87	85.926	1690.936	chloride
3	4.65	9.68	109.802	961.194	nitrite
4	5.59	0.62	8.404	471.320	bromide
5	6.26	4.65	65.086	522.965	nitrate
6	8.15	2.38	41.009	839.406	phosphate
7	9.26	5.30	94.290	2438.018	sulfate
7	15.00	35.99	445.506	7411.497	

This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:31:07 PM
Printed by: LDip

Ident: AL05-28 L043-07JS DF=500
Analysis from: 12/6/2019 8:09:50 PM
File: _2019-12-06_20-09.chw Last save: 12/9/2019 12:21:54 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154130

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 28
Volume: 1.0 µL
Dilution: 500.00
Amount: 1.0000



Quantitation method: Custom

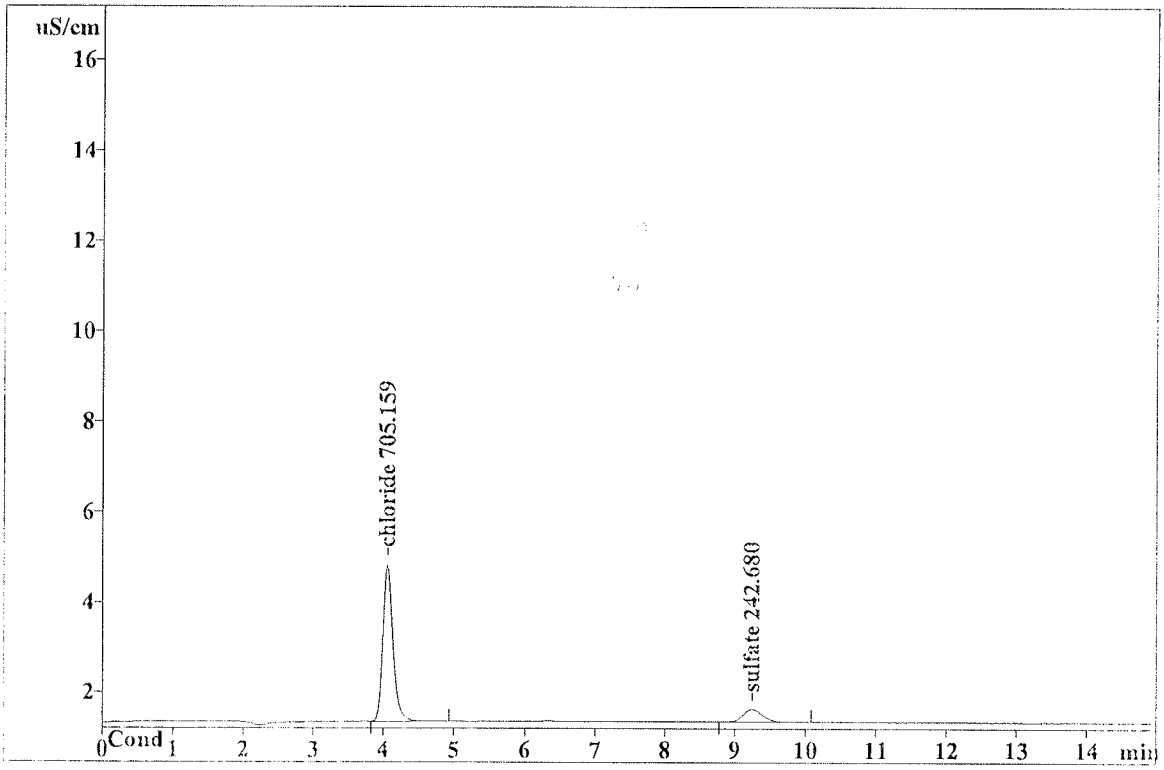
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.04	4.42	40.863	486.214	fluoride
2	4.05	8.77	85.583	1684.356	chloride ✓
3	4.64	9.62	109.987	962.794	nitrite
4	5.59	0.62	8.374	469.679	bromide
5	6.25	4.62	64.864	521.268	nitrate
6	8.15	2.40	41.562	849.447	phosphate
7	9.26	5.28	94.289	2437.988	sulfate
7	15.00	35.72	445.522	7411.747	

This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:30:37 PM
Printed by: LDip

Ident: AL05-12 L043-07JD DF=500
Analysis from: 12/6/2019 3:12:03 PM
File: _2019-12-06_15-12.chw Last save: 12/6/2019 5:08:30 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154114

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 12
Volume: 1.0 µL
Dilution: 500.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.06	3.47	34.524	705.159	chloride
2	9.24	0.29	5.587	242.680	sulfate
2	15.00	3.76	40.111	947.839	

This report has been created by IC Net
METROHM LTD

INITIAL CALIBRATION(S)

IC Result Check FormVersion : H26/AH23(2019)

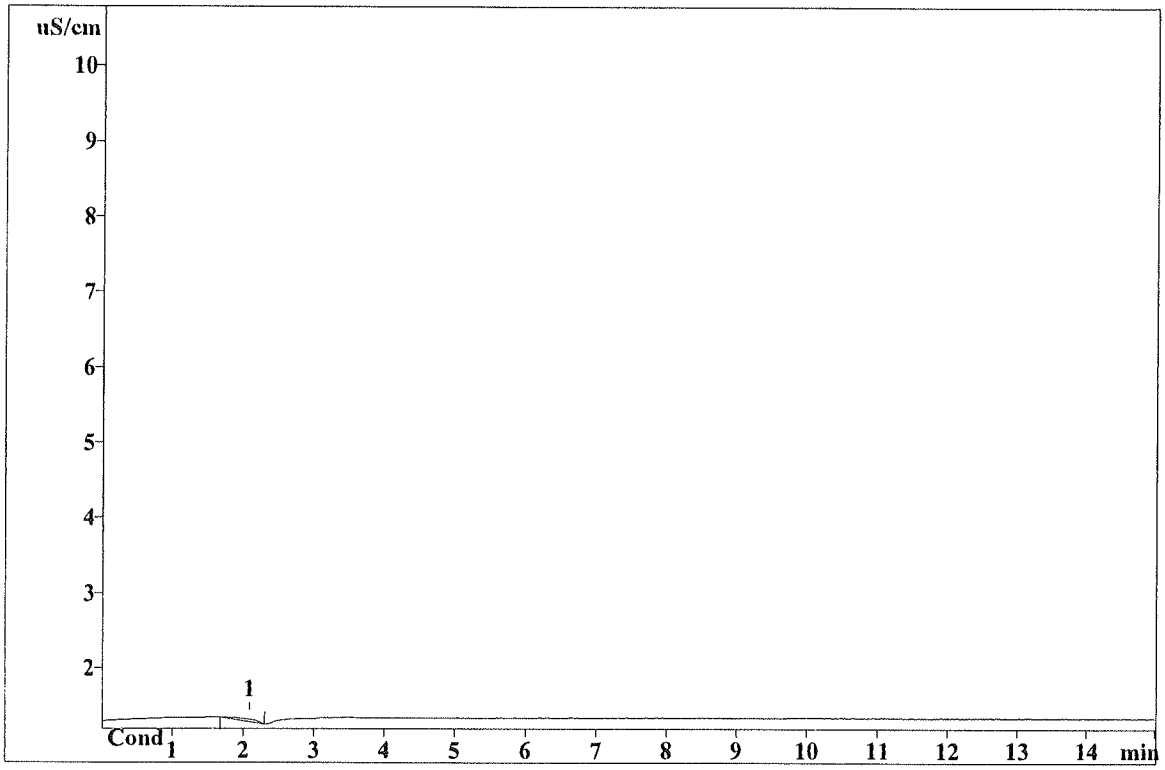
LFID	LSID	Selection	iodide	chloride	fluoride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH23-01	IB	OCFIBNPS	0	0	0	0	0	0	0	0	_2019-08-26_16-58	1
AH23-02	S0	OCFIBNPS	0	0	0	0	0	0	0	0	_2019-08-26_17-15	1
AH23-03	S1	OCFIBNPS	0	0.122926	0.0729115	0.0621884	0.0715218	0.0830175	0.219566	0.249228	_2019-08-26_17-32	1
AH23-04	S2	OCFIBNPS	0	0.157548	0.109866	0.0981438	0.116351	0.11867	0.253794	0.285689	_2019-08-26_17-49	1
AH23-05	S3	OCFIBNPS	0	0.22767	0.197892	0.178646	0.200404	0.196142	0.320261	0.352025	_2019-08-26_18-07	1
AH23-06	S4	OCFIBNPS	0	0.478707	0.477942	0.458922	0.482834	0.470745	0.542934	0.577414	_2019-08-26_18-24	1
AH23-07	S5	OCFIBNPS	0	0.91309	0.97287	0.953088	0.955536	0.955878	0.934155	0.95798	_2019-08-26_18-41	1
AH23-08	S6	OCFIBNPS	0	1.89927	2.01946	2.03599	2.02335	2.02555	1.83242	1.81849	_2019-08-26_18-58	1
AH23-09	S7	OCFIBNPS	0	5.05079	4.99906	5.13176	5.62802	5.3309	4.75924	4.66788	_2019-08-26_19-15	1
AH23-10	S8	OCFIBNPS	0	10.3733	9.50029	9.93126	12.0423	10.8293	9.84223	9.72306	_2019-08-26_19-32	1
AH23-11	S9	OCFIBNPS	0	21.1998	17.5315	18.5971	25.4225	21.9492	20.1454	20.2182	_2019-08-26_19-49	1
AH23-12	ICV	OCFIBNPS	0%*	91.9%	97.8%	100.1%	95.7%	95.6%	90.5%	94.1%	_2019-08-26_20-06	1
AH23-13	ICV1	OCFIBNPS	0%*	91%	98.2%	97.5%	93.4%	94.9%	93%	94.6%	_2019-08-26_20-23	1
AH23-14	ICB	OCFIBNPS	0	0	0	0	0	0	0	0	_2019-08-26_20-40	1

Report date: 8/27/2019 1:35:07 PM
Printed by: LDip

Ident: AH23-02 S0
Analysis from: 8/26/2019 5:15:48 PM
File: _2019-08-26_17-15.chw Last save: 8/27/2019 1:33:08 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150958

SAMPLE: METHOD 300
:
Vial number: 2
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.09	0.03	0.769	0.000	

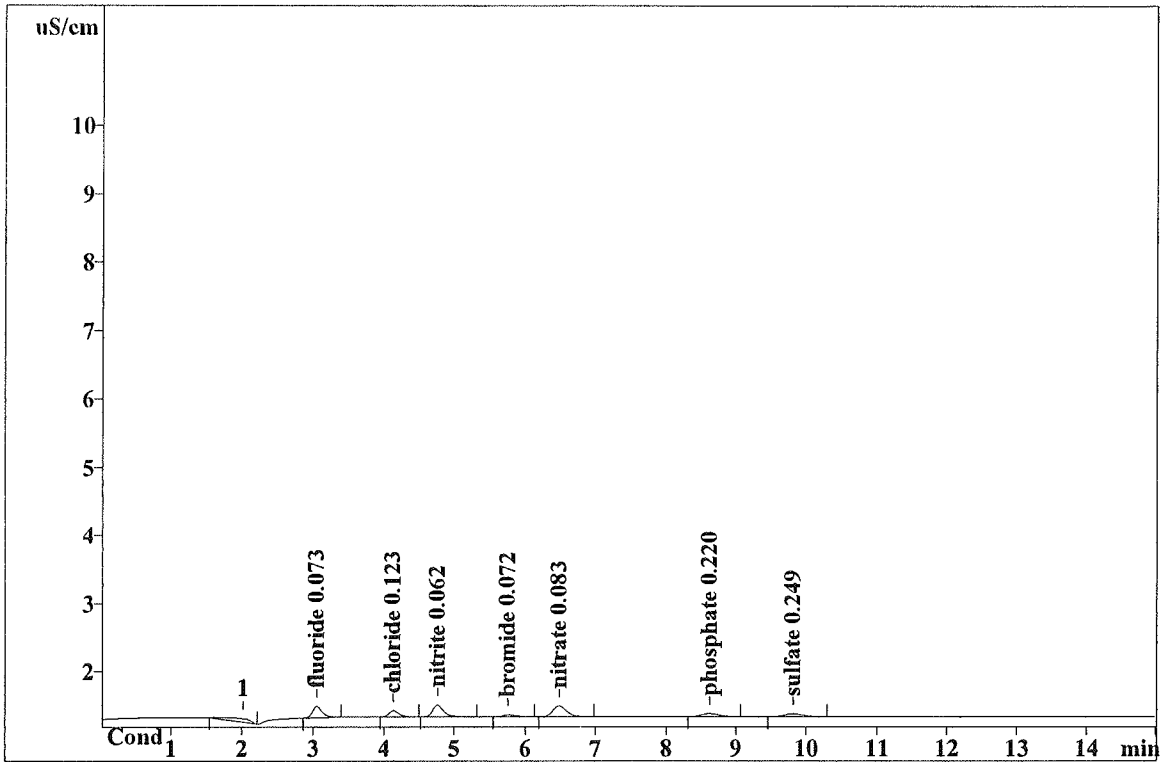
This report has been created by IC Net
METROHM LTD

Report date: 8/27/2019 1:35:20 PM
Printed by: LDip

Ident: AH23-03 S1
Analysis from: 8/26/2019 5:32:53 PM
File: _2019-08-26_17-32.chw Last save: 8/27/2019 1:33:08 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150959

SAMPLE: METHOD 300
: 0.05 PPM
Vial number: 3
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.02	0.05	1.338	0.000	
2	3.05	0.17	1.577	0.073	fluoride
3	4.13	0.09	0.960	0.123	chloride
4	4.76	0.18	2.040	0.062	nitrite
5	5.76	0.03	0.425	0.072	bromide
6	6.49	0.16	2.244	0.083	nitrate
7	8.62	0.05	0.852	0.220	phosphate
8	9.82	0.04	0.817	0.249	sulfate
8	15.00	0.78	10.252	0.881	

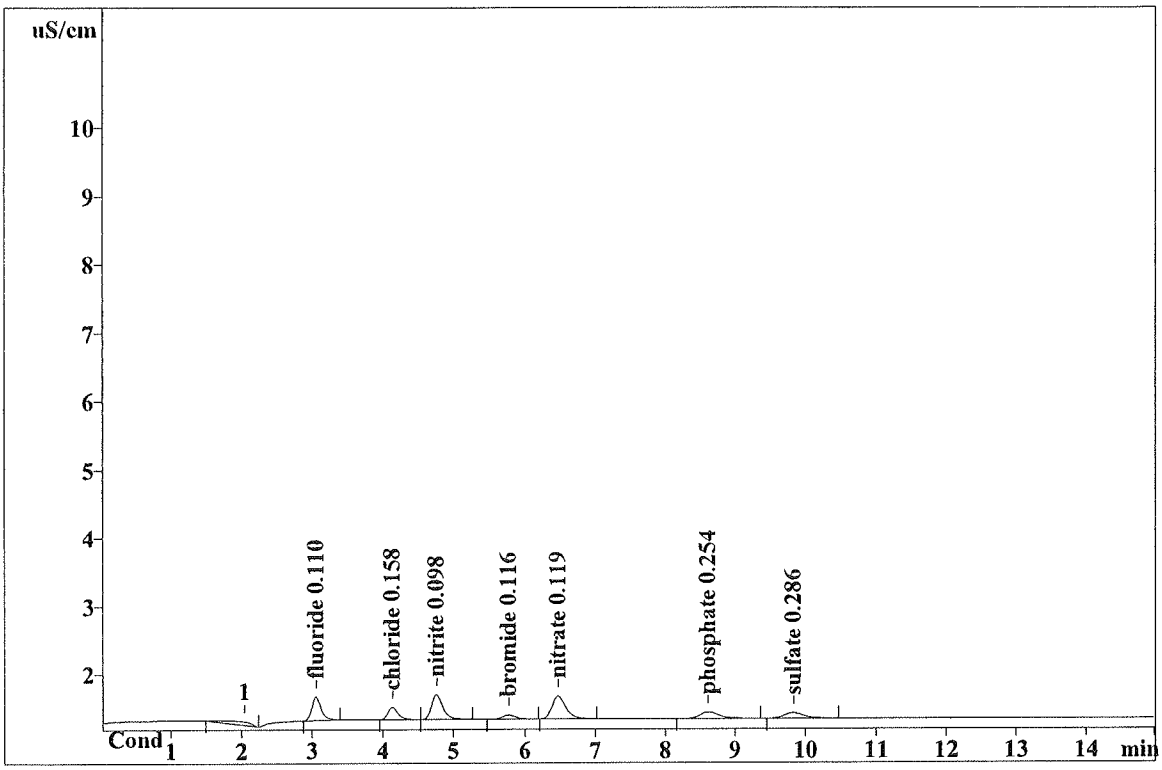
This report has been created by IC Net
METROHM LTD

Report date: 8/27/2019 1:35:27 PM
Printed by: LDip

Ident: AH23-04 S2
Analysis from: 8/26/2019 5:49:58 PM
File: _2019-08-26_17-49.chw Last save: 8/27/2019 1:33:08 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150960

SAMPLE: METHOD 300
: 0.1 PPM
Vial number: 4
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.03	0.05	1.405	0.000	
2	3.06	0.35	3.191	0.110	fluoride
3	4.13	0.19	1.862	0.158	chloride
4	4.76	0.37	4.123	0.098	nitrite
5	5.77	0.06	0.836	0.116	bromide
6	6.48	0.34	4.571	0.119	nitrate
7	8.62	0.10	1.794	0.254	phosphate
8	9.82	0.08	1.553	0.286	sulfate
8	15.00	1.53	19.335	1.140	

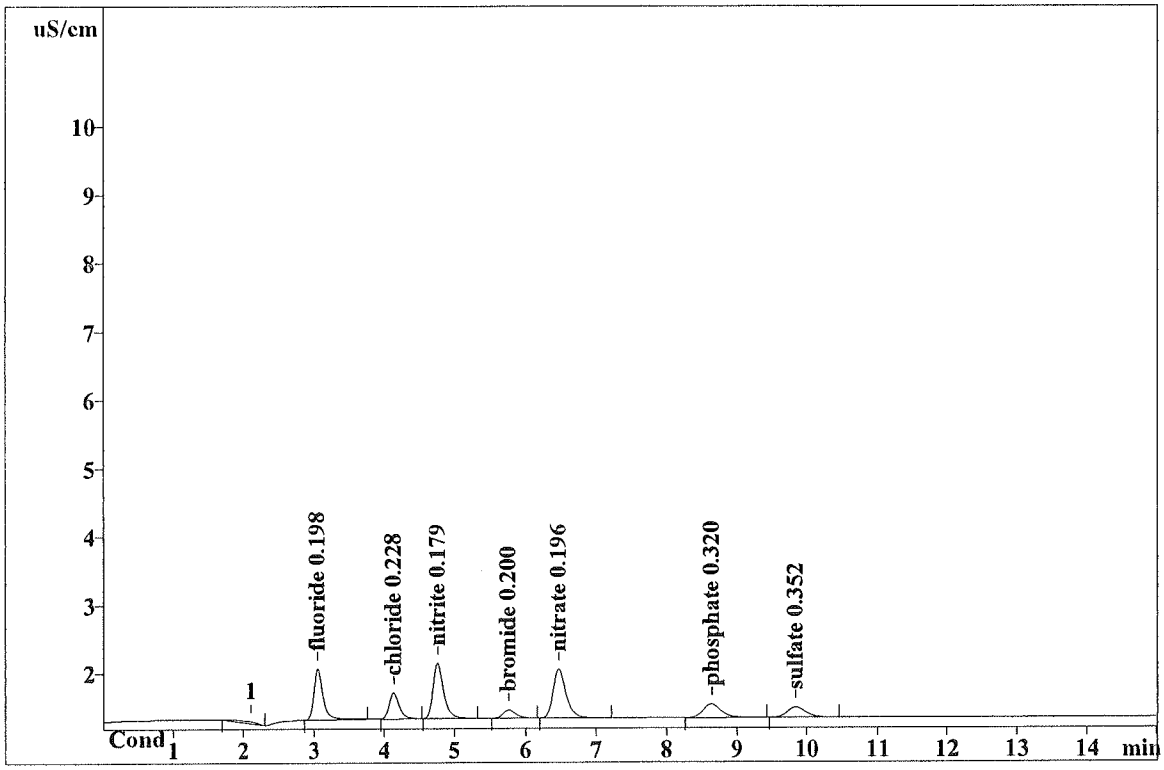
This report has been created by IC Net
METROHM LTD

Report date: 8/27/2019 1:35:33 PM
Printed by: LDip

Ident: AH23-05 S3
Analysis from: 8/26/2019 6:07:03 PM
File: _2019-08-26_18-07.chw Last save: 8/27/2019 1:33:08 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150961

SAMPLE: METHOD 300
: 0.2 PPM
Vial number: 5
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.11	0.03	0.743	0.000	
2	3.06	0.75	7.036	0.198	fluoride
3	4.13	0.38	3.690	0.228	chloride
4	4.76	0.81	8.786	0.179	nitrite
5	5.76	0.12	1.605	0.200	bromide
6	6.47	0.72	9.627	0.196	nitrate
7	8.62	0.20	3.623	0.320	phosphate
8	9.84	0.15	2.893	0.352	sulfate
8	15.00	3.17	38.004	1.673	

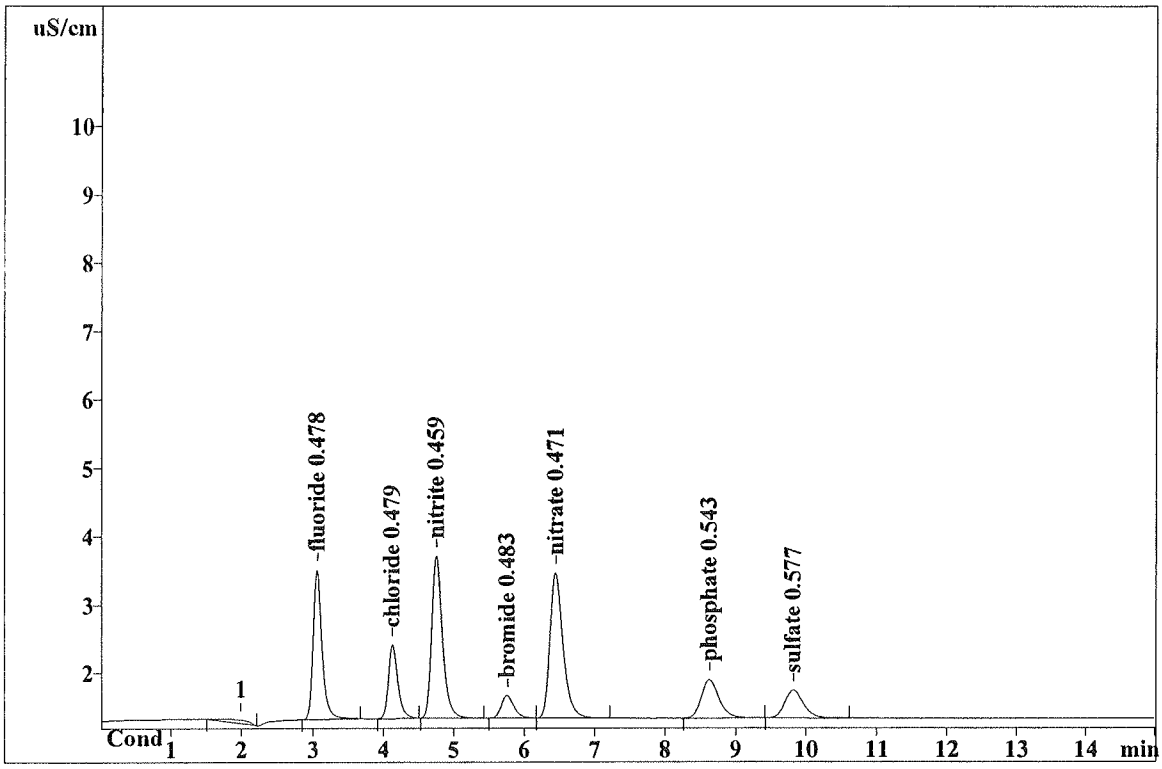
This report has been created by IC Net
METROHM LTD

Report date: 8/27/2019 1:35:41 PM
Printed by: LDip

Ident: AH23-06 S4
Analysis from: 8/26/2019 6:24:08 PM
File: _2019-08-26_18-24.chw Last save: 8/27/2019 1:33:08 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150962

SAMPLE: METHOD 300
: 0.5 PPM
Vial number: 6
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.00	0.05	1.443	0.000	
2	3.06	2.19	19.266	0.478	fluoride
3	4.13	1.08	10.235	0.479	chloride
4	4.75	2.38	25.023	0.459	nitrite
5	5.75	0.34	4.192	0.483	bromide
6	6.45	2.13	27.548	0.471	nitrate
7	8.62	0.56	9.751	0.543	phosphate
8	9.82	0.41	7.447	0.577	sulfate
8	15.00	9.15	104.906	3.489	

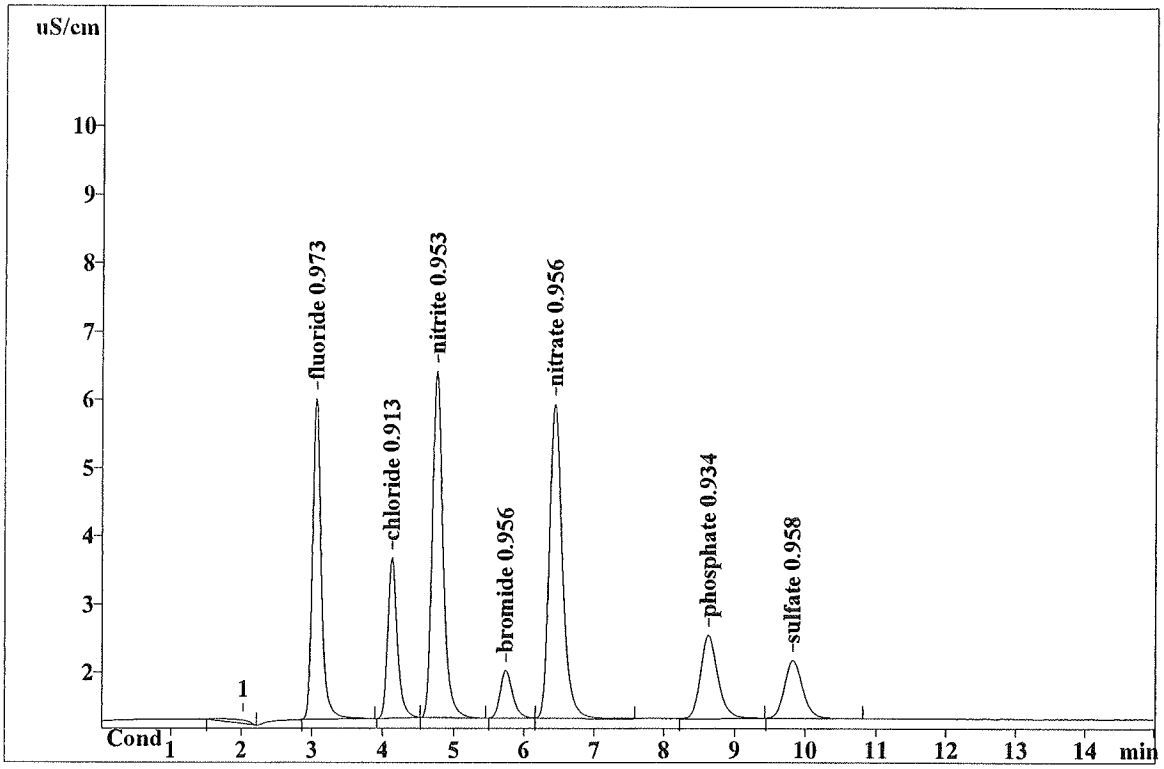
This report has been created by IC Net
METROHM LTD

Report date: 8/27/2019 1:35:47 PM
Printed by: LDip

Ident: AH23-07 S5
Analysis from: 8/26/2019 6:41:13 PM
File: _2019-08-26_18-41.chw Last save: 8/27/2019 1:33:08 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150963

SAMPLE: METHOD 300
: 1.0 PPM
Vial number: 7
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.03	0.05	1.313	0.000	
2	3.06	4.71	40.882	0.973	fluoride
3	4.13	2.34	21.560	0.913	chloride
4	4.75	5.07	53.650	0.953	nitrite
5	5.74	0.69	8.522	0.956	bromide
6	6.43	4.60	59.209	0.956	nitrate
7	8.62	1.21	20.517	0.934	phosphate
8	9.82	0.85	15.135	0.958	sulfate
8	15.00	19.53	220.789	6.643	

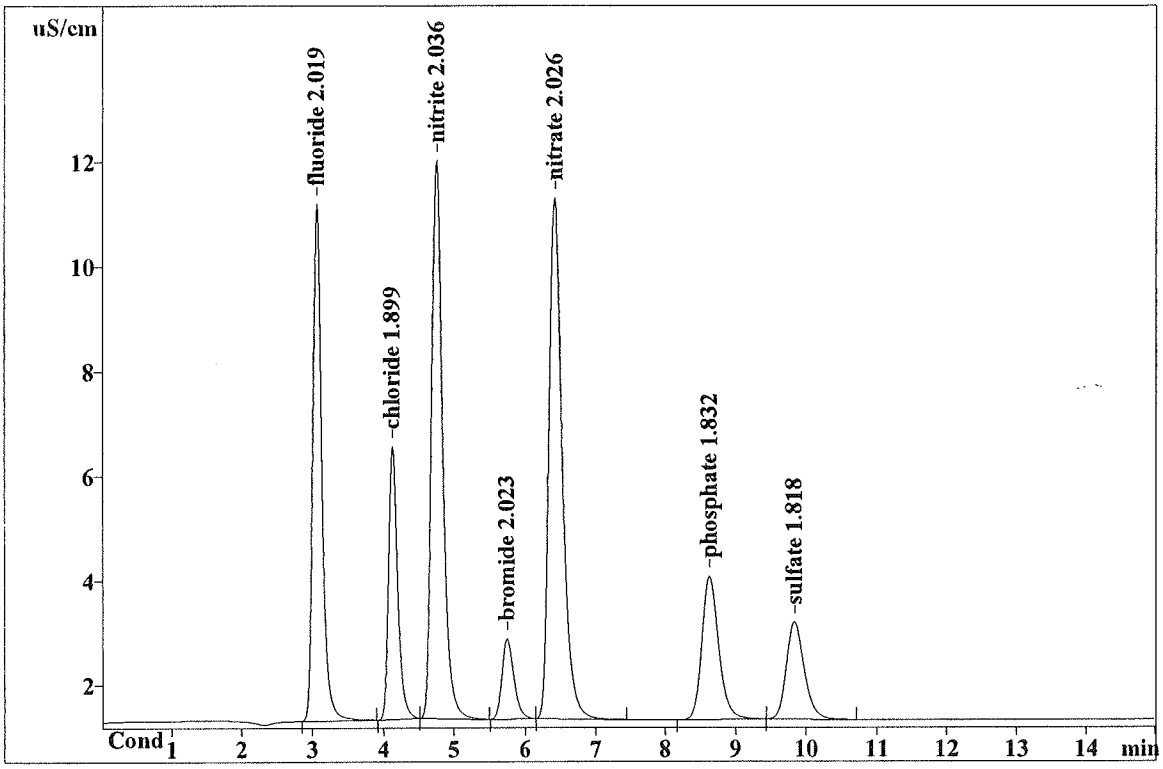
This report has been created by IC Net
METROHM LTD

Report date: 8/27/2019 1:35:58 PM
Printed by: LDip

Ident: AH23-08 S6
Analysis from: 8/26/2019 6:58:17 PM
File: _2019-08-26_18-58.chw Last save: 8/27/2019 1:33:08 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150964

SAMPLE: METHOD 300
: 2.0 PPM
Vial number: 8
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.06	9.88	86.591	2.019	fluoride
2	4.13	5.22	47.272	1.899	chloride
3	4.75	10.67	116.383	2.036	nitrite
4	5.74	1.54	18.303	2.023	bromide
5	6.42	9.96	129.018	2.026	nitrate
6	8.62	2.74	45.236	1.832	phosphate
7	9.83	1.86	32.520	1.818	sulfate
7	15.00	41.87	475.322	13.655	

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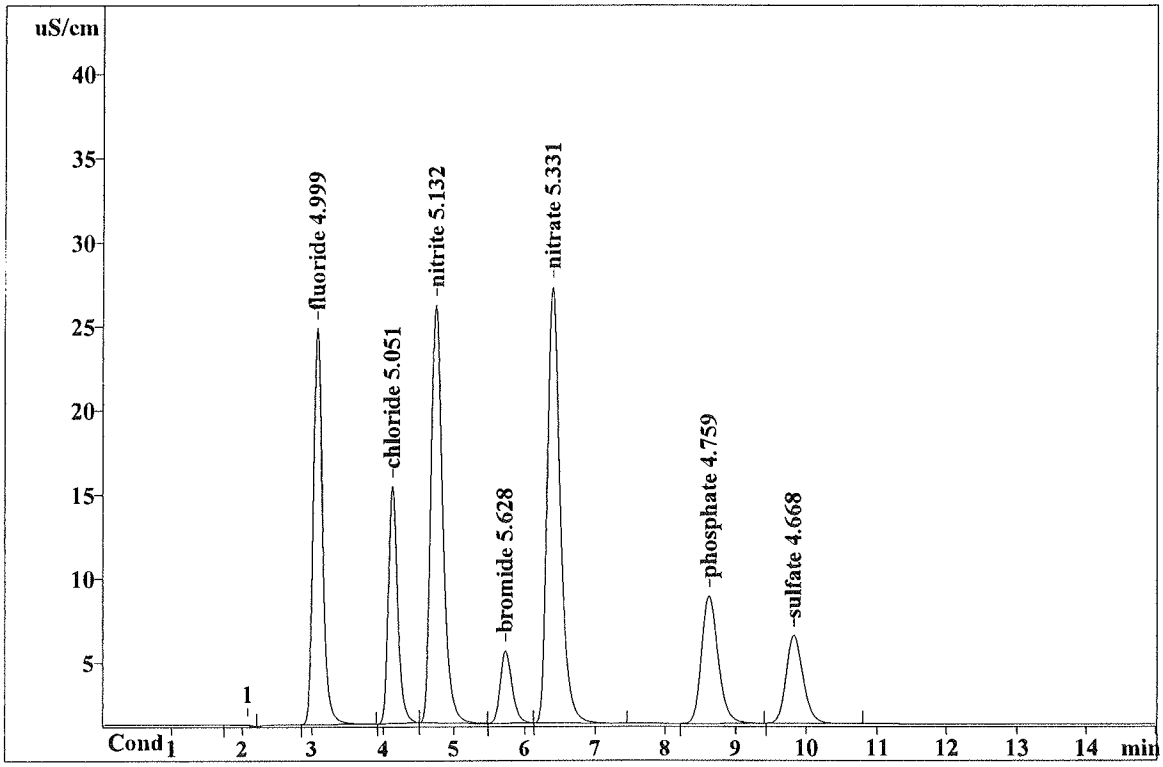
8/27/19

Report date: 8/27/2019 1:36:19 PM
Printed by: LDip

Ident: AH23-09 S7
Analysis from: 8/26/2019 7:15:22 PM
File: _2019-08-26_19-15.chw Last save: 8/27/2019 1:33:08 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150965

SAMPLE: METHOD 300
: 5.0 PPM
Vial number: 9
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.06	0.04	0.593	0.000	
2	3.07	23.59	216.722	4.999	fluoride
3	4.12	14.16	129.437	5.051	chloride
4	4.74	24.88	295.722	5.132	nitrite
5	5.72	4.32	51.322	5.628	bromide
6	6.39	25.98	344.731	5.331	nitrate
7	8.61	7.60	125.779	4.759	phosphate
8	9.82	5.24	90.085	4.668	sulfate
8	15.00	105.80	1254.391	35.568	

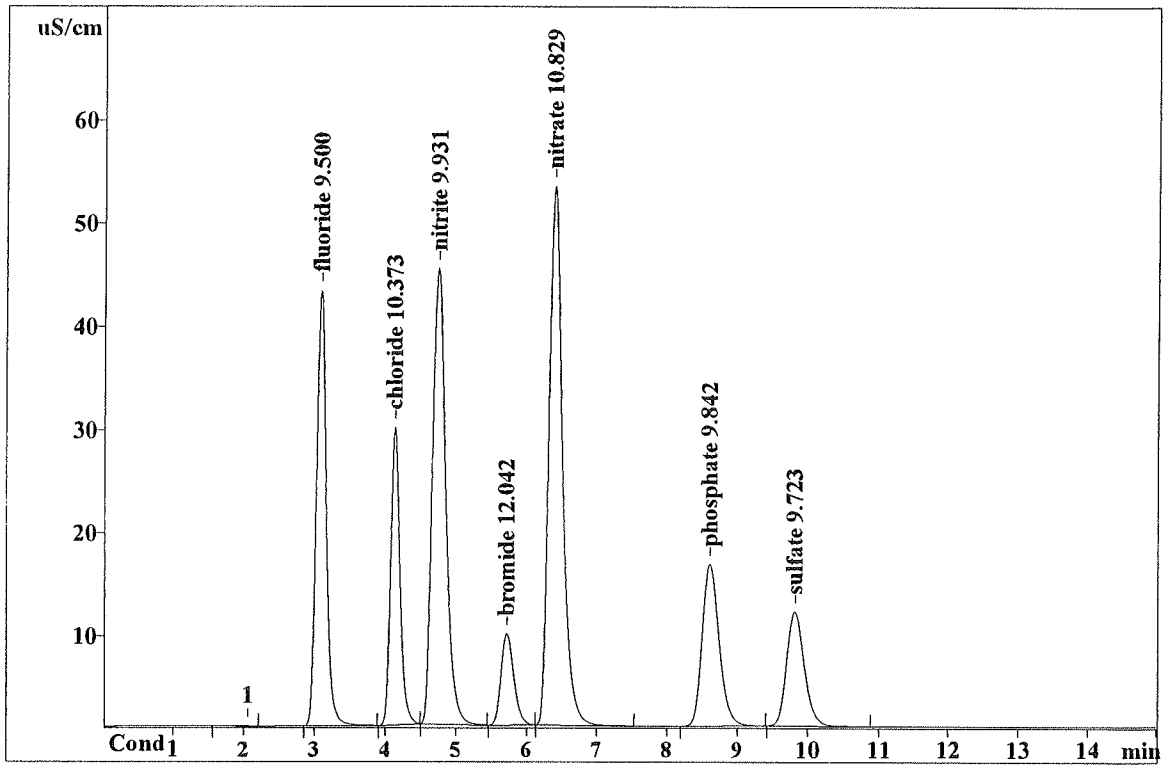
This report has been created by IC Net
METROHM LTD

Report date: 8/27/2019 1:36:33 PM
Printed by: LDip

Ident: AH23-10 S8
Analysis from: 8/26/2019 7:32:27 PM
File: _2019-08-26_19-32.chw Last save: 8/27/2019 1:33:09 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150966

SAMPLE: METHOD 300
: 10.0 PPM
Vial number: 10
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.03	0.03	0.753	0.000	
2	3.09	42.21	413.310	9.500	fluoride
3	4.12	28.90	268.205	10.373	chloride
4	4.74	44.18	573.758	9.931	nitrite
5	5.72	8.85	110.075	12.042	bromide
6	6.39	52.22	703.570	10.829	nitrate
7	8.60	15.70	265.658	9.842	phosphate
8	9.81	11.06	192.212	9.723	sulfate
8	15.00	203.16	2527.542	72.242	

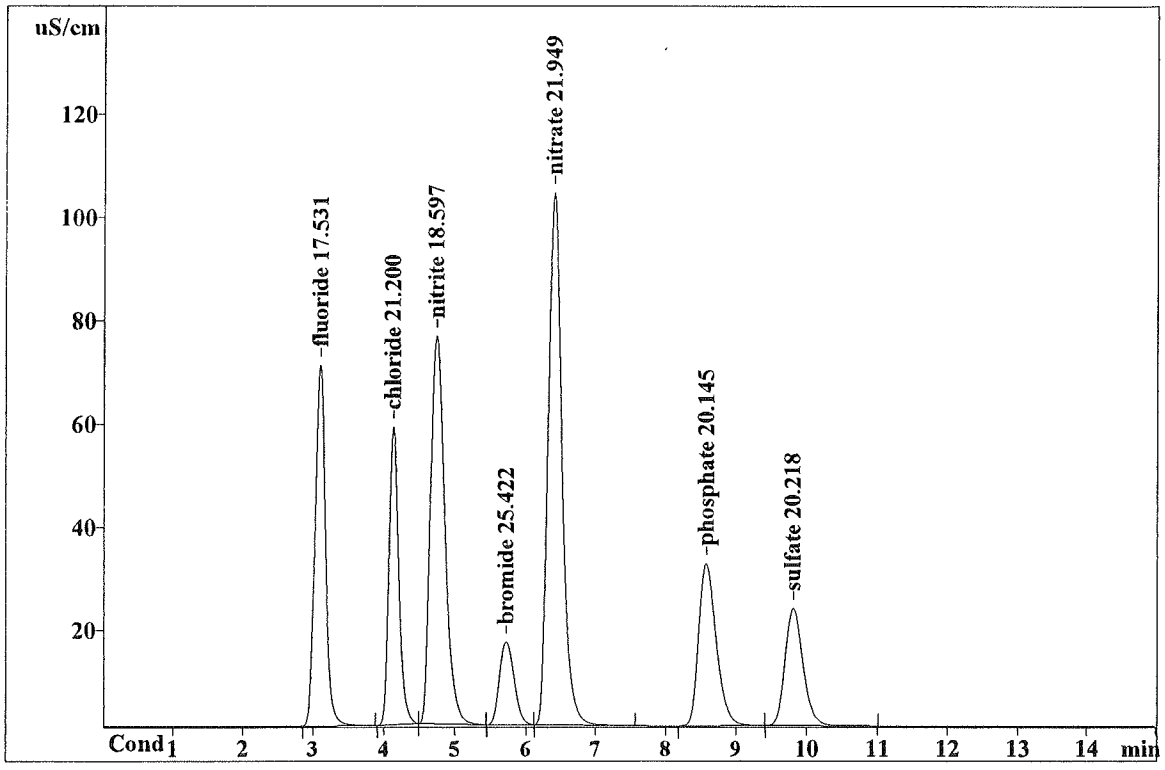
This report has been created by IC Net
METROHM LTD

Report date: 8/27/2019 1:36:53 PM
Printed by: LDip

Ident: AH23-11 S9
Analysis from: 8/26/2019 7:49:31 PM
File: _2019-08-26_19-49.chw Last save: 8/27/2019 1:33:09 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150967

SAMPLE: METHOD 300
: 20.0 PPM
Vial number: 11
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.10	70.11	764.065	17.531	fluoride
2	4.13	57.85	550.471	21.200	chloride
3	4.74	75.28	1075.773	18.597	nitrite
4	5.72	16.08	232.636	25.422	bromide
5	6.40	103.31	1429.276	21.949	nitrate
6	8.57	31.51	549.191	20.145	phosphate
7	9.80	22.77	404.242	20.218	sulfate
7	15.00	376.91	5005.653	145.064	

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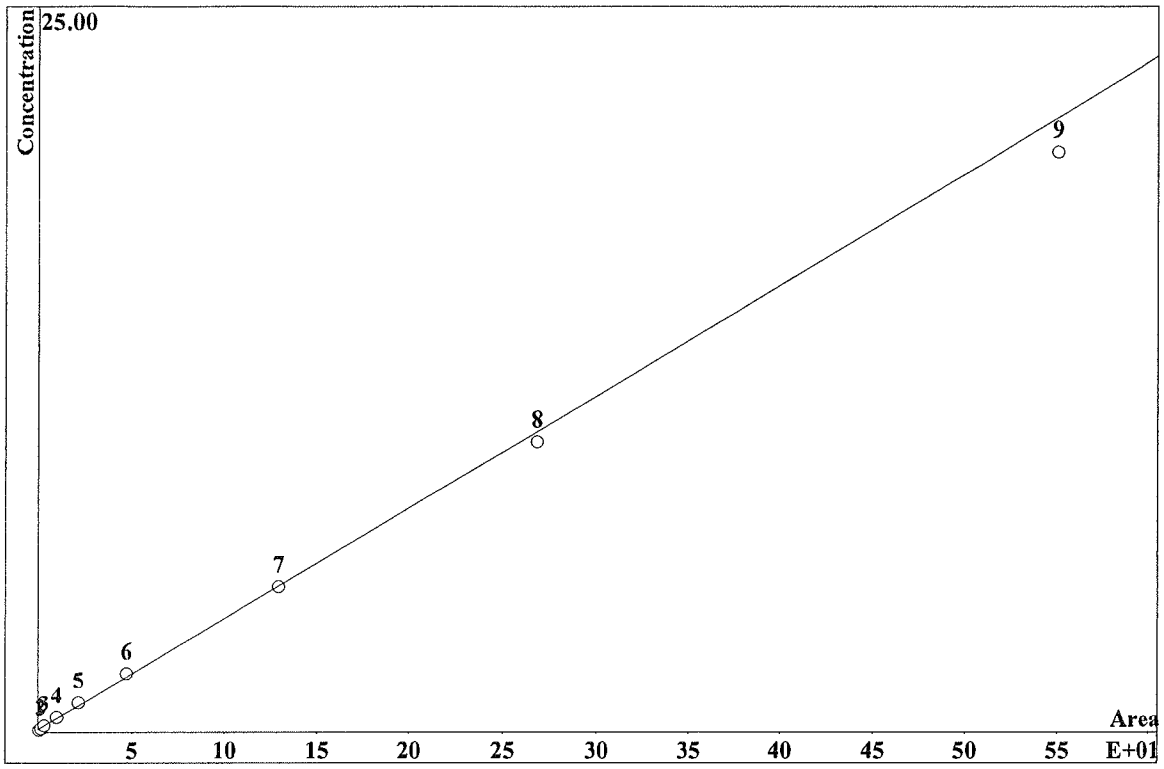
CALIBRATION OF COMPONENT chloride

Method: ICD0-H26.mtw
Equation: Q = 0.0383557·A + 0.0861225
RSD: 6.140 %
Correlation coefficient: 0.999212

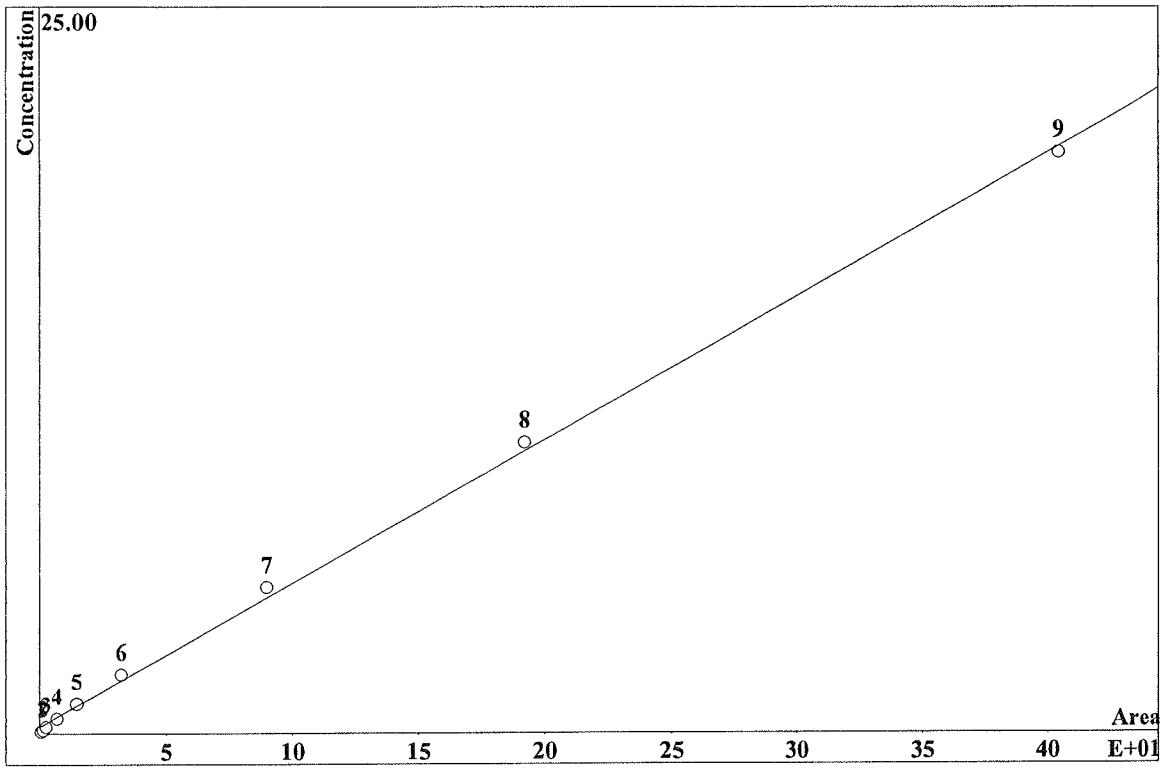


K3 = 0 K2 = 0 K1 = 0.0383557 K0 = 0.0861225
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.09513	0.9595	0.05	1	4.13	Yes	_2019-08-26_1□
2	0.1858	1.862	0.1	1	4.13	Yes	_2019-08-26_1□
3	0.3776	3.69	0.2	1	4.13	Yes	_2019-08-26_1□
4	1.083	10.24	0.5	1	4.13	Yes	_2019-08-26_1□
5	2.342	21.56	1	1	4.13	Yes	_2019-08-26_1□
6	5.223	47.27	2	1	4.13	Yes	_2019-08-26_1□
7	14.16	129.4	5	1	4.13	Yes	_2019-08-26_1□
8	28.9	268.2	10	1	4.13	No	_2019-08-26_1
9	57.85	550.5	20	1	4.13	No	_2019-08-26_1

CALIBRATION OF COMPONENT sulfate

Method: ICD0-H26.mtw
Equation: Q = 0.0494987·A + 0.208807
RSD: 5.345 %
Correlation coefficient: 0.999486



K3 = 0 K2 = 0 K1 = 0.0494987 K0 = 0.208807
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.044	0.8166	0.05	1	9.82	Yes	_2019-08-26_1□
2	0.08097	1.553	0.1	1	9.82	Yes	_2019-08-26_1□
3	0.1547	2.893	0.2	1	9.82	Yes	_2019-08-26_1□
4	0.4101	7.447	0.5	1	9.82	Yes	_2019-08-26_1□
5	0.8475	15.14	1	1	9.82	Yes	_2019-08-26_1□
6	1.859	32.52	2	1	9.82	Yes	_2019-08-26_1□
7	5.239	90.08	5	1	9.82	Yes	_2019-08-26_1□
8	11.06	192.2	10	1	9.82	Yes	_2019-08-26_1
9	22.77	404.2	20	1	9.82	Yes	_2019-08-26_1

SECOND SOURCE VERIFICATION

IC Result Check FormVersion : H26/AH23(2019)

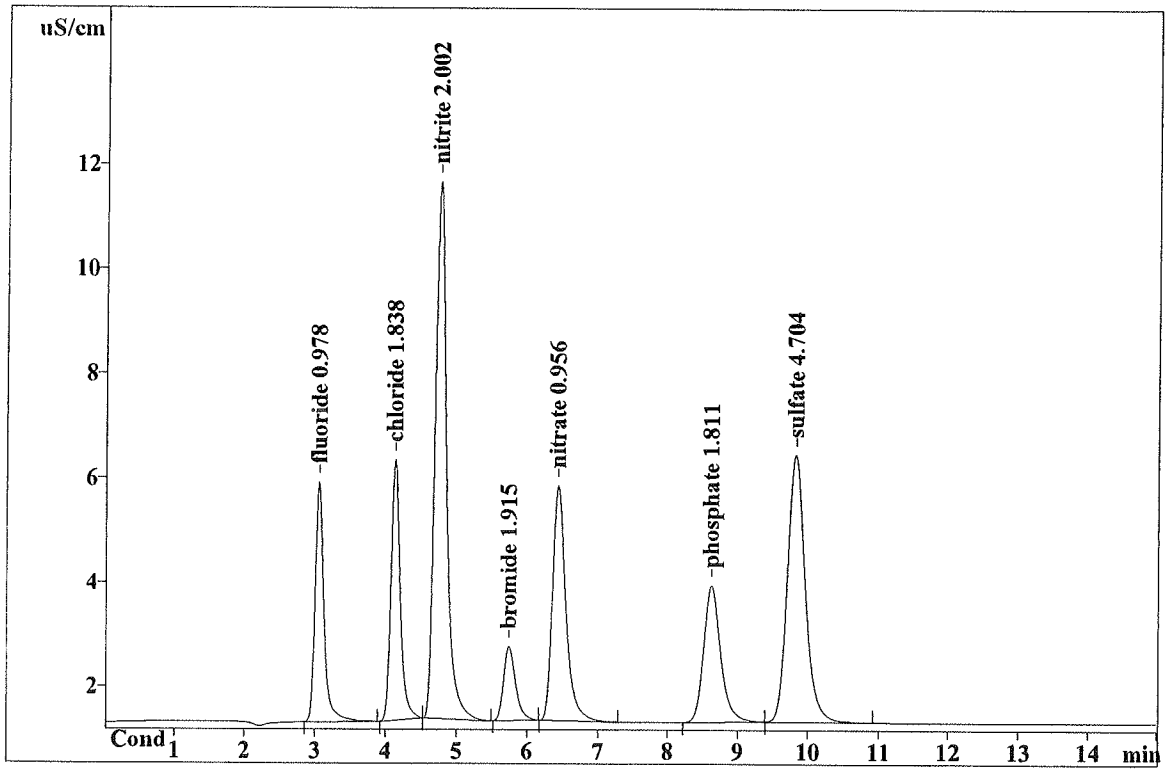
LFID	LSID	Selection	phosphate	nitrite	nitrate	iodide	fluoride	chloride	bromide	sulfate	RawNetID	DF
AH23-01	IB	PINOFCBS	0	0	0	0	0	0	0	0	_2019-08-26_16-58	1
AH23-12	ICV	PINOFCBS	90.5%	100.1%	95.6%	0%*	97.8%	91.9%	95.7%	94.1%	_2019-08-26_20-06	1
AH23-13	ICV1	PINOFCBS	93%	97.5%	94.9%	0%*	98.2%	91%	93.4%	94.6%	_2019-08-26_20-23	1
AH23-14	ICB	PINOFCBS	0	0	0	0	0	0	0	0	_2019-08-26_20-40	1

Report date: 8/27/2019 1:37:06 PM
Printed by: LDip

Ident: AH23-12 ICV
Analysis from: 8/26/2019 8:06:36 PM
File: _2019-08-26_20-06.chw Last save: 8/27/2019 1:33:09 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150968

SAMPLE: METHOD 300
:
Vial number: 12
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.06	4.61	41.090	0.978	fluoride
2	4.12	4.99	45.665	1.838	chloride
3	4.75	10.29	114.386	2.002	nitrite
4	5.74	1.43	17.308	1.915	bromide
5	6.44	4.51	59.217	0.956	nitrate
6	8.62	2.63	44.640	1.811	phosphate
7	9.81	5.12	90.824	4.704	sulfate
7	15.00	33.59	413.130	14.203	

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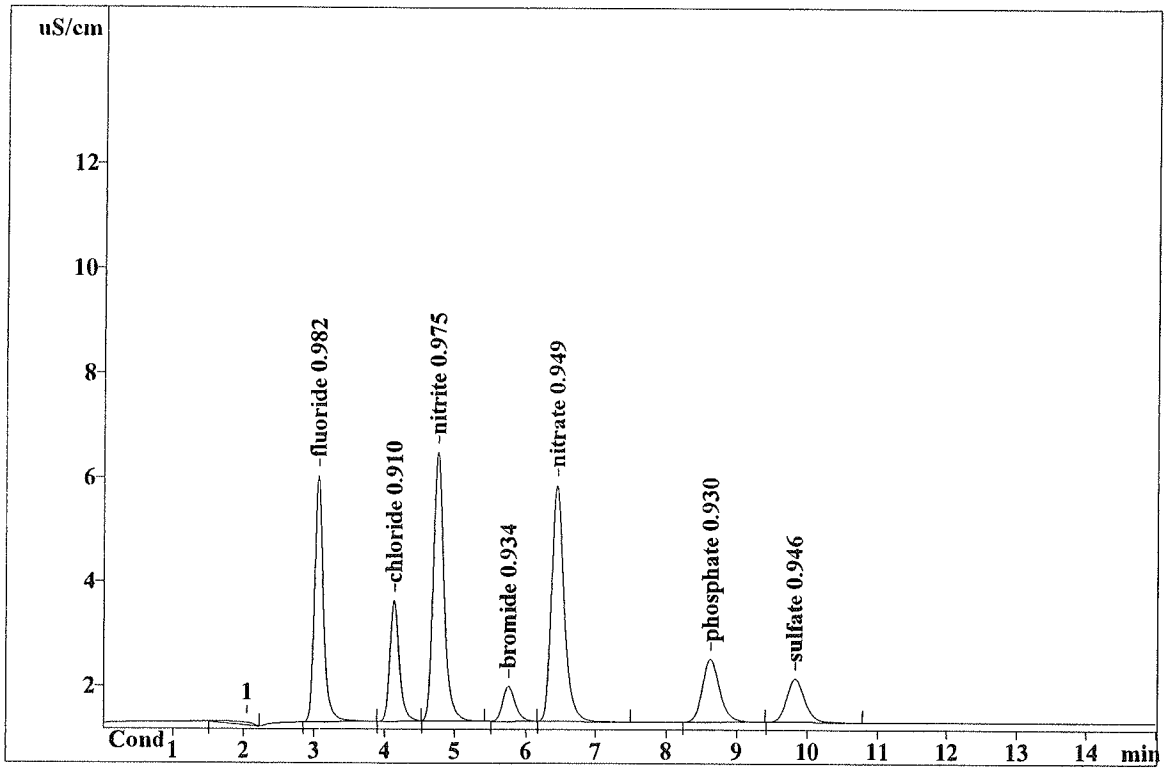
Report date: 8/27/2019 1:37:13 PM
Printed by: LDip

Ident: AH23-13 ICV1
Analysis from: 8/26/2019 8:23:41 PM
File: _2019-08-26_20-23.chw Last save: 8/27/2019 1:33:09 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150969

SAMPLE: METHOD 300
: 1.0 PPM
Vial number: 13
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.03	0.05	1.298	0.000	
2	3.06	4.72	41.271	0.982	fluoride
3	4.13	2.31	21.467	0.910	chloride
4	4.75	5.15	54.925	0.975	nitrite
5	5.75	0.67	8.323	0.934	bromide
6	6.44	4.52	58.756	0.949	nitrate
7	8.62	1.20	20.389	0.930	phosphate
8	9.82	0.82	14.887	0.946	sulfate
8	15.00	19.45	221.317	6.624	

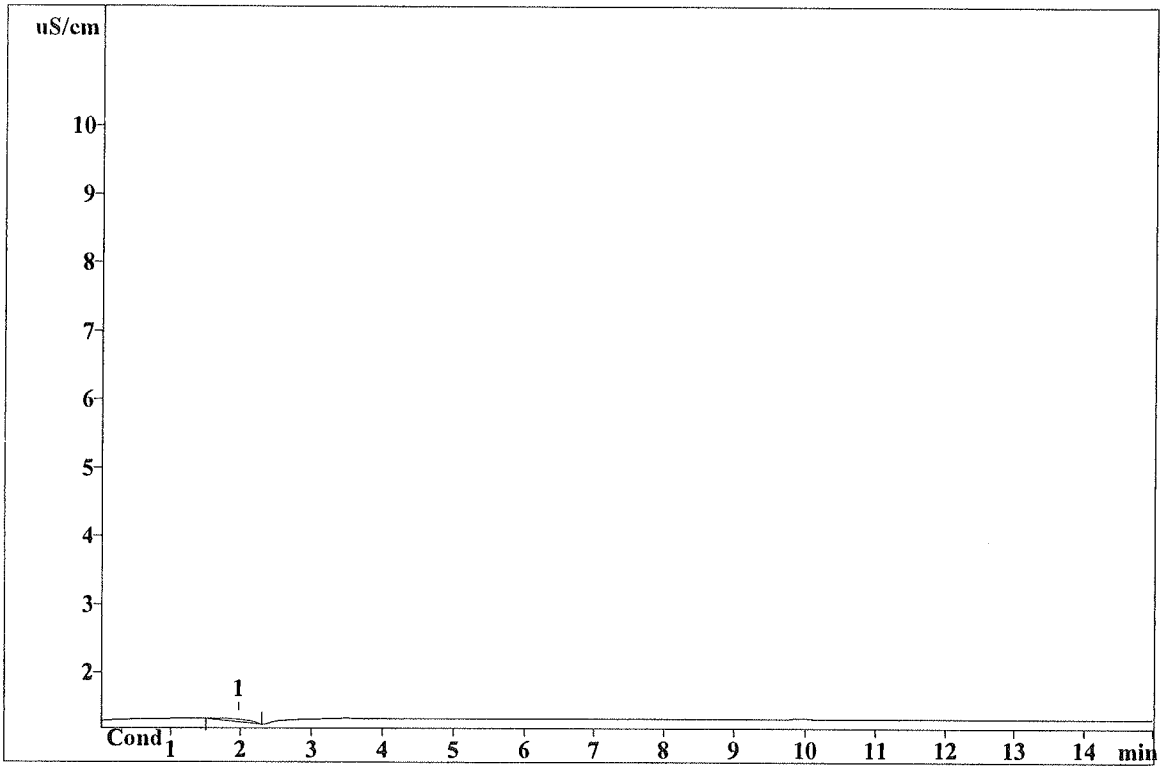
This report has been created by IC Net
METROHM LTD

Report date: 8/27/2019 1:37:19 PM
Printed by: LDip

Ident: AH23-14 ICB
Analysis from: 8/26/2019 8:40:46 PM
File: _2019-08-26_20-40.chw Last save: 8/27/2019 1:33:09 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150970

SAMPLE: METHOD 300
:
Vial number: 14
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	1.96	0.04	1.196	0.000	

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DAILY CALIBRATION(S)

Continuing Calibration Summary Form

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG : 19L043
Method : E300.0
ICAL Ref. : 19AH23
InstrumentID: DO
Parameter : CHLORIDE

LFID	LSID	Recovery (%)	AnalysisDateTime
AL05-01	CCV643	92.1	12/06/1912:00
AL05-13	CCV645	94.9	12/06/1915:29
AL05-25	CCV647	94	12/06/1919:18
AL05-31	CCV649	95.3	12/06/1921:01

CCV Acceptance Criteria: 90-110%

Continuing Calibration Summary Form

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG : 19L043
Method : E300.0
ICAL Ref. : 19AH23
InstrumentID: DO
Parameter : SULFATE

LFID	LSID	Recovery (%)	AnalysisDateTime
AL05-01	CCV643	92.3	12/06/1912:00
AL05-13	CCV645	93.4	12/06/1915:29
AL05-25	CCV647	92.8	12/06/1919:18

CCV Acceptance Criteria: 90-110%

IC Result Check FormVersion : H26/AH23(2019)

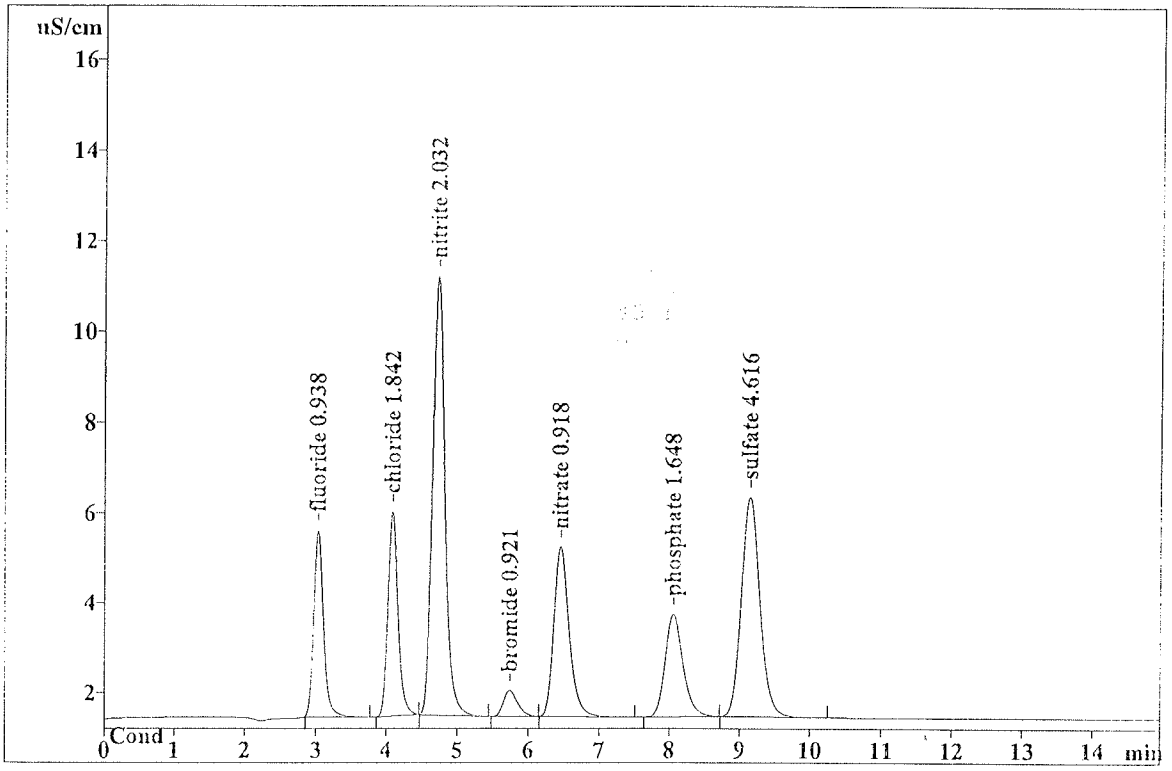
LFID	LSID	Selection	bromide	chloride	nitrite	iodide	phosphate	fluoride	nitrate	sulfate	RawNetID	DF
AL05-01	CCV643	BCIOPFNS	92.1%	92.1%	101.6%	0%*	82.4%*	93.8%	91.8%	92.3%	_2019-12-06_12-00	1
AL05-02	CCB643	BCIOPFNS	0	0	0	0	0	0	0	0	_2019-12-06_12-17	1
AL05-13	CCV645	BCIOPFNS	93.6%	94.9%	102.9%	0%*	83.7%*	95.6%	91.6%	93.4%	_2019-12-06_15-29	1
AL05-14	CCB645	BCIOPFNS	0	0	0	0	0	0	0	0	_2019-12-06_16-10	1
AL05-25	CCV647	BCIOPFNS	93.5%	94%	103.4%	0%*	82.6%*	95.8%	91.7%	92.8%	_2019-12-06_19-18	1
AL05-26	CCB647	BCIOPFNS	0	0	0	0	0	0	0	0	_2019-12-06_19-35	1
AL05-31	CCV649	BCIOPFNS	94.2%	95.3%	104.5%	0%*	84.6%*	96.3%	91.8%	94%	_2019-12-06_21-01	1
AL05-32	CCB649	BCIOPFNS	0	0	0	0	0	0	0	0	_2019-12-06_21-18	1

Report date: 12/9/2019 12:01:48 PM
Printed by: LDip

Ident: AL05-01 CCV643
Analysis from: 12/6/2019 12:00:45 PM
File: _2019-12-06_12-00.chw Last save: 12/6/2019 12:16:14 PM

Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154103

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 1
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	4.16	39.340	0.938	fluoride
2	4.08	4.56	45.768	1.842	chloride
3	4.71	9.72	116.171	2.032	nitrite
4	5.74	0.58	8.209	0.921	bromide
5	6.45	3.78	56.747	0.918	nitrate
6	8.05	2.28	40.154	1.648	phosphate
7	9.13	4.89	89.039	4.616	sulfate
7	15.00	29.96	395.428	12.915	

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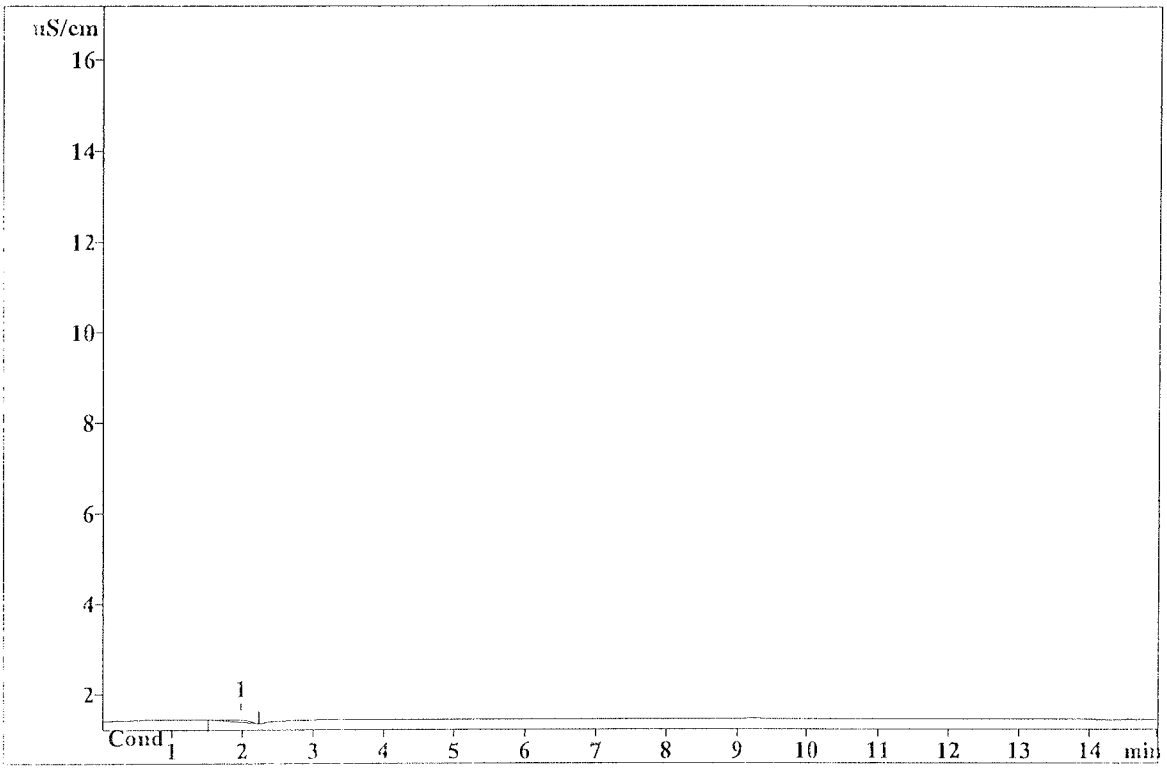
Report date: 12/9/2019 12:10:34 PM
Printed by: LDip

Ident: AL05-02 CCB643
Analysis from: 12/6/2019 12:17:50 PM
File: _2019-12-06_12-17.chw Last save: 12/6/2019 12:32:47 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154104

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 2
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

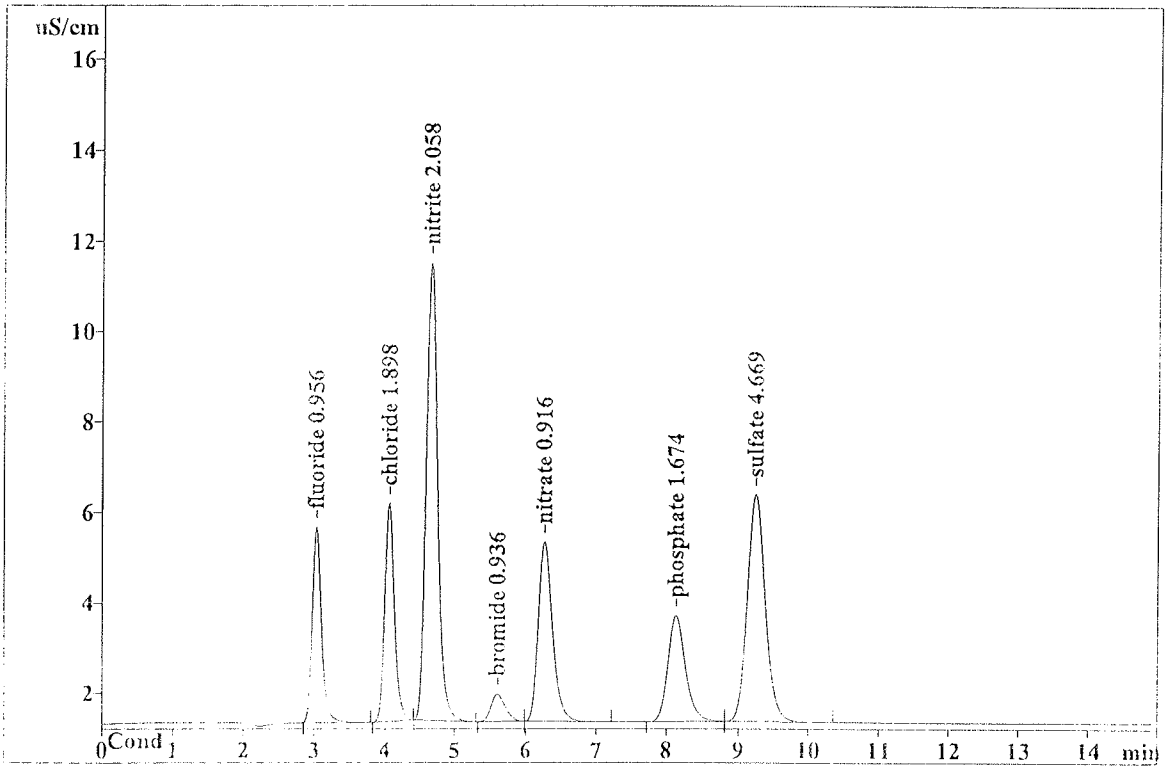
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	1.99	0.05	1.279	0.000	

This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:03:11 PM
Printed by: LDip

Ident: AL05-13 CCV645
Analysis from: 12/6/2019 3:29:08 PM
File: _2019-12-06_15-29.chw Last save: 12/6/2019 3:44:38 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154115

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 13
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

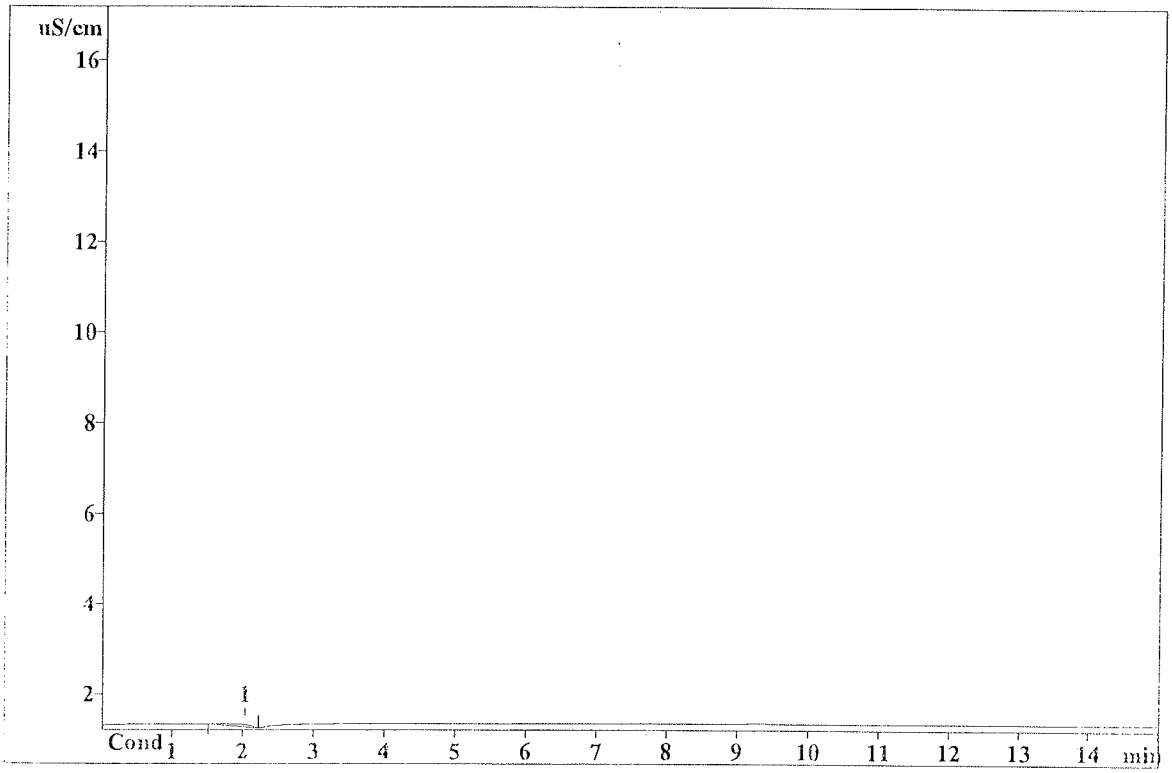
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	4.32	40.162	0.956	fluoride
2	4.05	4.82	47.246	1.898	chloride
3	4.65	10.14	117.644	2.058	nitrite
4	5.60	0.61	8.345	0.936	bromide
5	6.27	3.98	56.615	0.916	nitrate
6	8.13	2.36	40.877	1.674	phosphate
7	9.23	5.02	90.115	4.669	sulfate
7	15.00	31.24	401.004	13.108	

This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:11:06 PM
Printed by: LDip

Ident: AL05-14 CCB645
Analysis from: 12/6/2019 4:10:38 PM
File: _2019-12-06_16-10.chw Last save: 12/9/2019 12:03:39 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154116

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 14
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

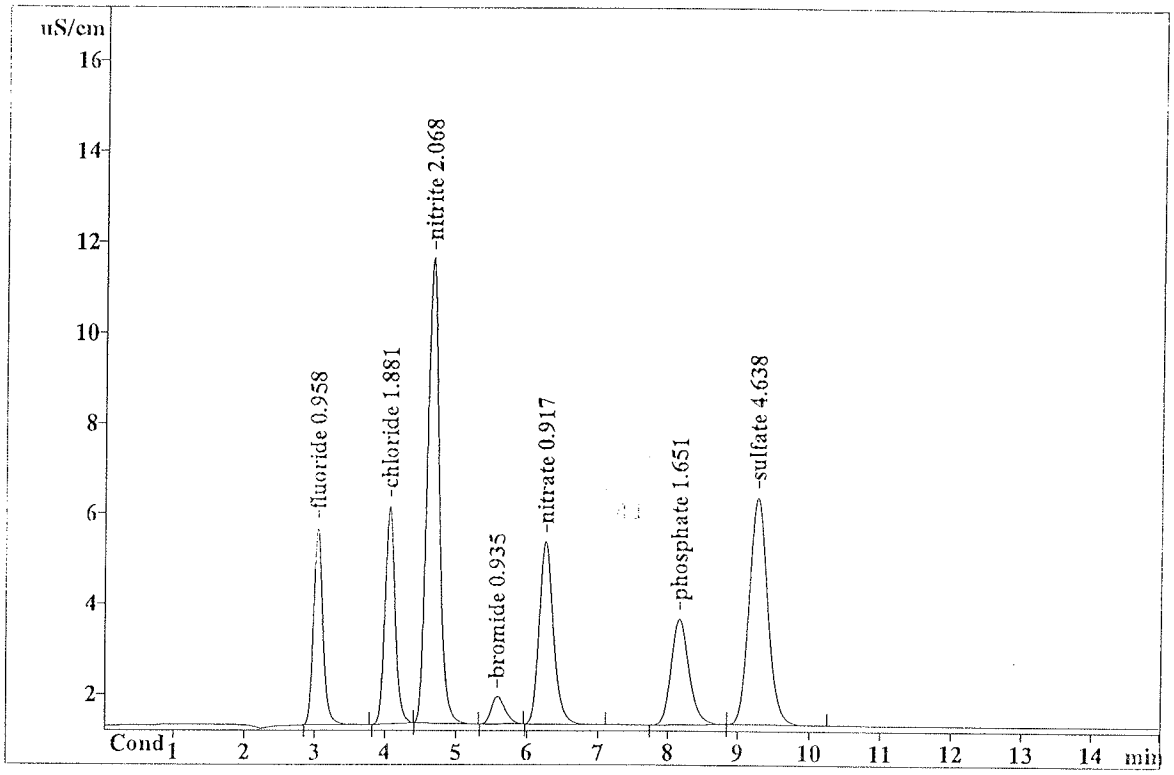
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.03	0.05	1.305	0.000	

This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:08:55 PM
Printed by: LDip

Ident: AL05-25 CCV647
Analysis from: 12/6/2019 7:18:35 PM
File: _2019-12-06_19-18.chw Last save: 12/6/2019 7:33:32 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154127

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 25
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

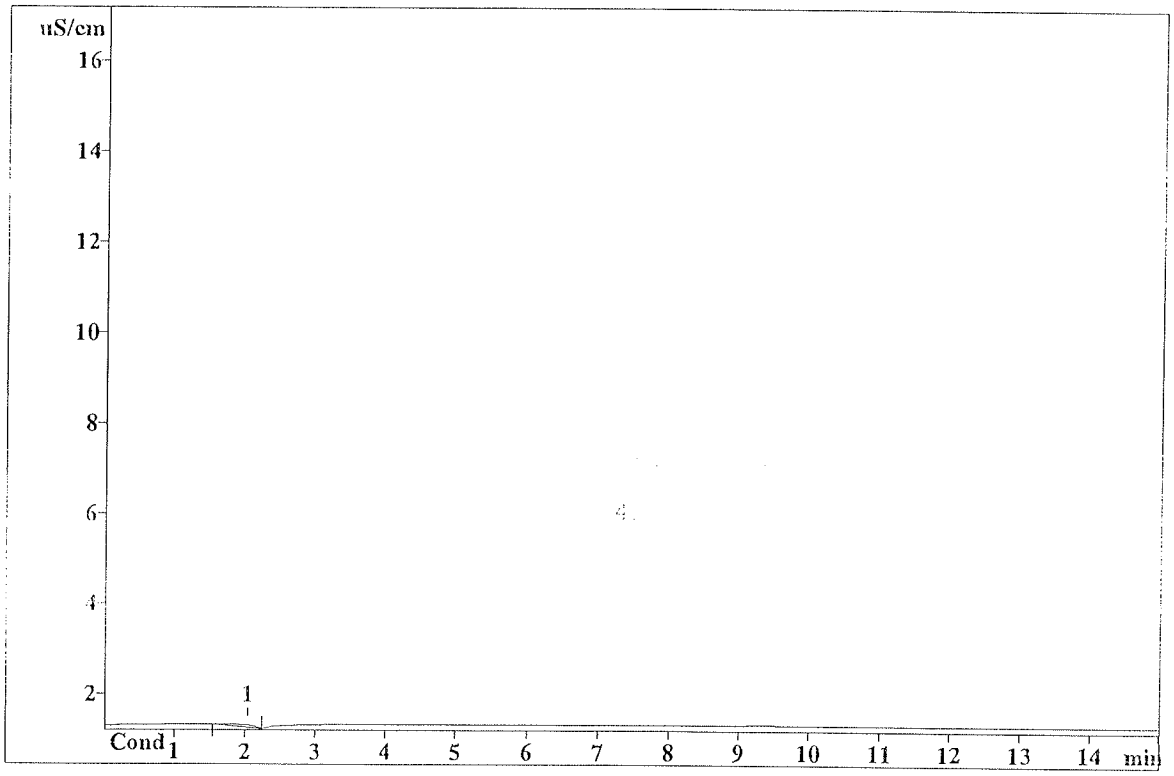
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.04	4.36	40.219	0.958	fluoride
2	4.05	4.81	46.787	1.881	chloride
3	4.64	10.29	118.248	2.068	nitrite
4	5.59	0.61	8.339	0.935	bromide
5	6.25	4.04	56.689	0.917	nitrate
6	8.15	2.33	40.244	1.651	phosphate
7	9.26	5.02	89.478	4.638	sulfate
7	15.00	31.45	400.004	13.048	

This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:09:26 PM
Printed by: LDip

Ident: AL05-26 CCB647
Analysis from: 12/6/2019 7:35:40 PM
File: _2019-12-06_19-35.chw Last save: 12/6/2019 7:50:37 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154128

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 26
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

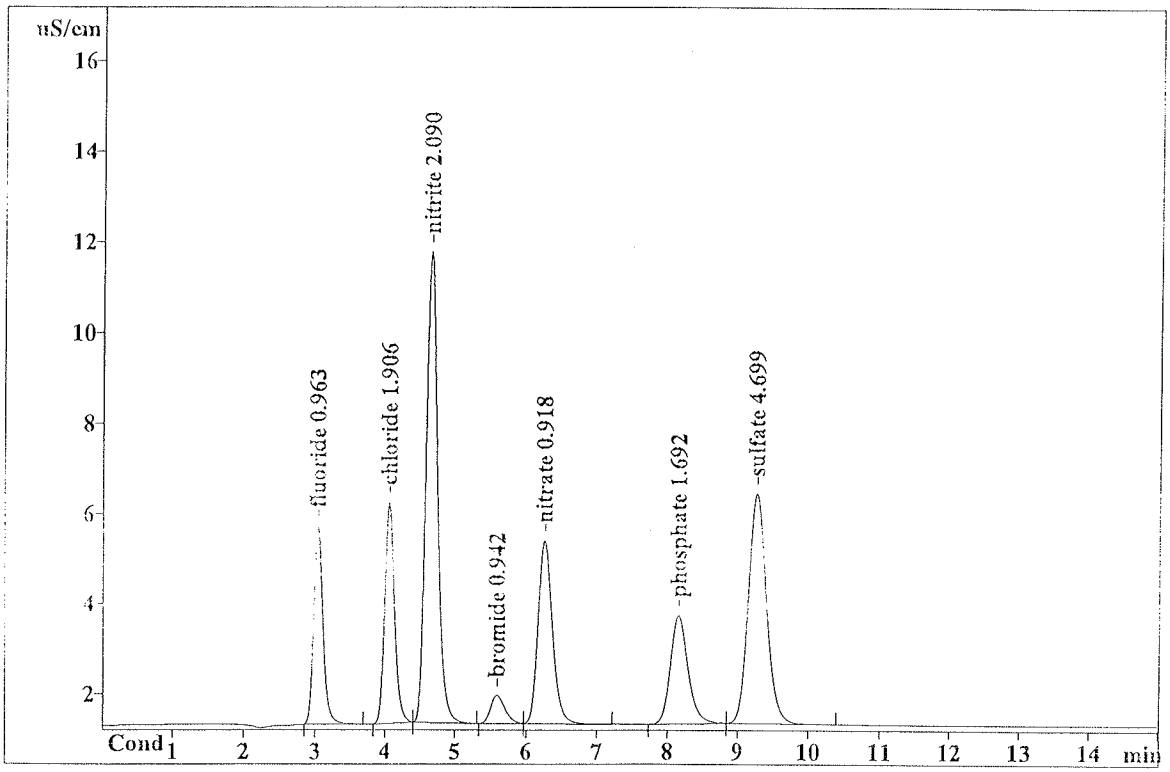
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.04	0.05	1.227	0.000	

This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:09:43 PM
Printed by: LDip

Ident: AL05-31 CCV649
Analysis from: 12/6/2019 9:01:04 PM
File: _2019-12-06_21-01.chw Last save: 12/6/2019 9:16:01 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154133

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 31
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

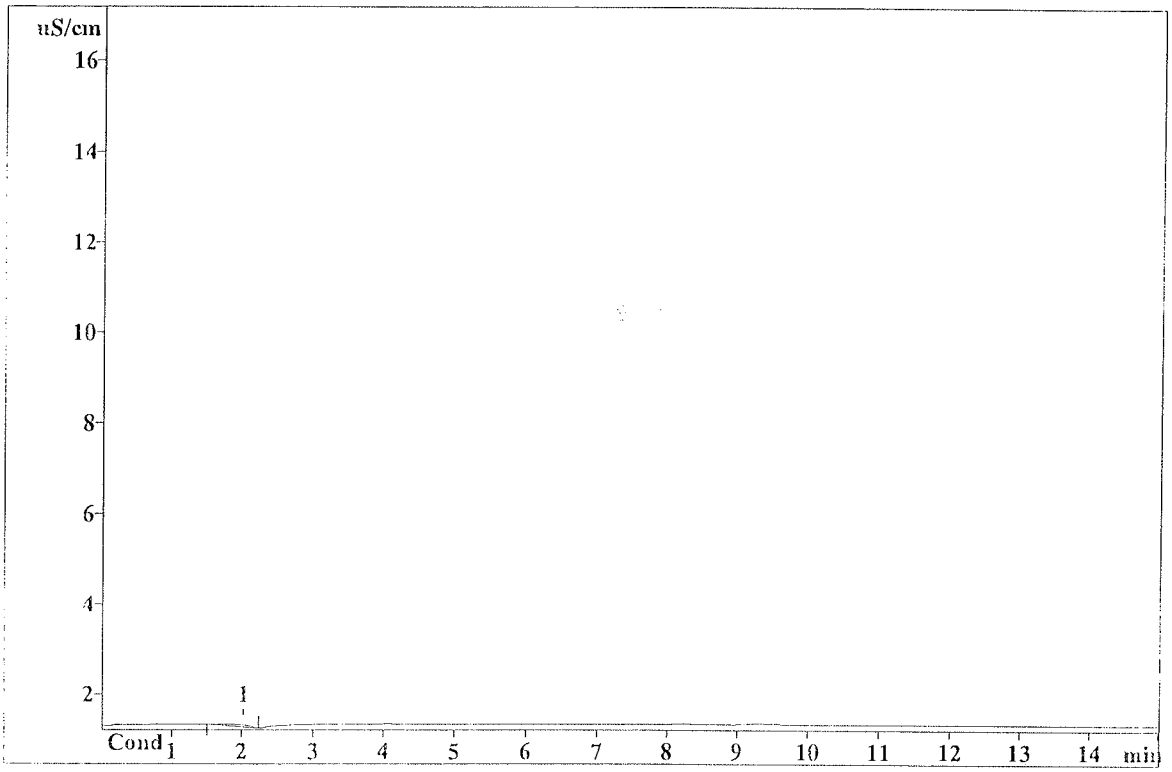
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.04	4.40	40.471	0.963	fluoride
2	4.05	4.89	47.442	1.906	chloride
3	4.64	10.41	119.517	2.090	nitrite
4	5.59	0.62	8.395	0.942	bromide
5	6.25	4.05	56.743	0.918	nitrate
6	8.15	2.39	41.363	1.692	phosphate
7	9.26	5.10	90.722	4.699	sulfate
7	15.00	31.85	404.654	13.210	

This report has been created by IC Net
METROHM LTD

Report date: 12/9/2019 12:10:01 PM
Printed by: LDip

Ident: AL05-32 CCB649
Analysis from: 12/6/2019 9:18:09 PM
File: _2019-12-06_21-18.chw Last save: 12/6/2019 9:33:05 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/6/2019 12:09:28 PM
Run operator: LDip
Analysis number: 154134

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 32
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.03	0.05	1.332	0.000	

This report has been created by IC Net
METROHM LTD

ANALYTICAL LOG(S)

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

	CONCENTRATIONS (PPM)
S_1	0.05
S_2	0.1
S_3	0.2
S_4	0.5
S_5	1.0
S_6	2.0
S_7	5.0
S_8	10.0
S_9	20.0

	LINEARITY (PPM)
F	5
Cl	5
NO_2	10
Br	2
NO_3	2
PO_4	20
SO_4	20

Book #: AD0-065
Instrument No.: D0
Pipette ID's: 039380124
SW3-02-02-02
439350100
Analytical Sequence: AH23
Method File: ICD0-H26.mtw
Analytical Batch: N/A

SOP #	Rev. #
☑ EMAX-300.0	12
☑ EMAX-4110B	5
☑ EMAX-9056	8
☐ EMAX-	
STANDARDS ID	
ICAL	SW3B-09-38-01
ICV	SW3B-09-37-02
~~CCV~~ LD 8/26/19 ICV1	SW3B-09-38-02
LCS	—
MS	—

Filters Lot #:
0.45 µm: —
0.2 µm: —

Snap Seal Containers Lot #:
4 oz: 04119002
1.5 oz: —

Column: Metrosep A Supp 5-100

Flow Rate: 0.70 ml/min

IC ELUENT PREPARATION — Expiration Date: 9/23/19

Std ID	Aliquot	Final Vol*
SW4-04-31-01	20 mL	2 L

IC REGENERANT PREPARATION — Expiration Date: 9/26/19

Std ID	Aliquot	Final Vol*
SP2-01-12-02	100 mL	1 L

* Reagent Water ID: SMSA-04-03-10

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC-METROHM	
☐ External Hard Drive	

Analyzed By: LD
Date: 8/26/19

File Name	Method	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Calibration Level	Sample Info 1	Sample Info 2
_2019-08-26_16-58.chw	ICD0-H26.mtw	AH23-01 IB	1	1.0	1.0	1.0	100.0	0	METHOD 300	
_2019-08-26_17-15.chw	ICD0-H26.mtw	AH23-02 S0	2	1.0	1.0	1.0	100.0	0	METHOD 300	
_2019-08-26_17-32.chw	ICD0-H26.mtw	AH23-03 S1	3	1.0	1.0	1.0	100.0	1	METHOD 300	0.05 PPM
_2019-08-26_17-49.chw	ICD0-H26.mtw	AH23-04 S2	4	1.0	1.0	1.0	100.0	2	METHOD 300	0.1 PPM
_2019-08-26_18-07.chw	ICD0-H26.mtw	AH23-05 S3	5	1.0	1.0	1.0	100.0	3	METHOD 300	0.2 PPM
_2019-08-26_18-24.chw	ICD0-H26.mtw	AH23-06 S4	6	1.0	1.0	1.0	100.0	4	METHOD 300	0.5 PPM
_2019-08-26_18-41.chw	ICD0-H26.mtw	AH23-07 S5	7	1.0	1.0	1.0	100.0	5	METHOD 300	1.0 PPM
_2019-08-26_18-58.chw	ICD0-H26.mtw	AH23-08 S6	8	1.0	1.0	1.0	100.0	6	METHOD 300	2.0 PPM
_2019-08-26_19-15.chw	ICD0-H26.mtw	AH23-09 S7	9	1.0	1.0	1.0	100.0	7	METHOD 300	5.0 PPM
_2019-08-26_19-32.chw	ICD0-H26.mtw	AH23-10 S8	10	1.0	1.0	1.0	100.0	8	METHOD 300	10.0 PPM
_2019-08-26_19-49.chw	ICD0-H26.mtw	AH23-11 S9	11	1.0	1.0	1.0	100.0	9	METHOD 300	20.0 PPM
_2019-08-26_20-06.chw	ICD0-H26.mtw	AH23-12 ICV	12	1.0	1.0	1.0	100.0	0	METHOD 300	
_2019-08-26_20-23.chw	ICD0-H26.mtw	AH23-13 ICV1	13	1.0	1.0	1.0	100.0	0	METHOD 300	1.0 PPM
_2019-08-26_20-40.chw	ICD0-H26.mtw	AH23-14 ICB	14	1.0	1.0	1.0	100.0	0	METHOD 300	

FINAL L° 8/27/19

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ION CHROMATOGRAPHY

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

Book #:	AD0-066
Instrument No.:	D0
Pipette ID's:	039380124
	SW3-02-02-02
	439350100
Analytical Sequence:	ALOS
Method File:	ICD0 - H26.mtw
Analytical Batch:	ICL005W

SOP #	Rev. #
☑ EMAX-300.0	13
☐ EMAX-4110B	6
☑ EMAX-9056	9
☐ EMAX-	

STANDARDS ID	
ICAL	—
ICV	—
CCV	SW3B-10-47-01
LCS	SW3B-10-47-02
MS	SCP refer to LCS Parent ID

Filters Lot #:	Snap Seal Containers Lot #:
0.45 µm:	4 oz:
0.2 µm: 90060103	1.5 oz: 10419004

Column: Metrosep A Supp 5-100

Flow Rate: 0.70 ml/min

IC ELUENT PREPARATION Expiration Date: 01/3/20

Std ID	Aliquot	Final Vol*
SP2-01-07-01	20 mL	2 L

IC REGENERANT PREPARATION Expiration Date: 01/3/20

Std ID	Aliquot	Final Vol*
SP2-01-16-04	100 mL	1 L

* Reagent Water ID: GMSA-04-04-08

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC-METROHM	
☐ External Hard Drive	

Analyzed By: LO /TW

Date: 12/6/19

File Name	Method	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Calibration Level	Sample Info 1	Sample Info 2
_2019-12-06_12-00.chw	ICD0-H26.mtw	AL05-01 CCV645	1	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_12-17.chw	ICD0-H26.mtw	AL05-02 CCB643	2	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_12-34.chw	ICD0-H26.mtw	AL05-03 ICL005WB	3	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_12-51.chw	ICD0-H26.mtw	AL05-04 ICL005WL	4	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_13-09.chw	ICD0-H26.mtw	AL05-05 ICL005WC	5	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_13-26.chw	ICD0-H26.mtw	AL05-06 L043-07	6	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_13-46.chw	ICD0-H26.mtw	AL05-07 L043-07I DF=10	7	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_14-03.chw	ICD0-H26.mtw	AL05-08 L043-07IM DF=10	8	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_14-20.chw	ICD0-H26.mtw	AL05-09 L043-07IS DF=10	9	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_14-37.chw	ICD0-H26.mtw	AL05-10 L043-07ID DF=10	10	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_14-54.chw	ICD0-H26.mtw	AL05-11 L043-07J DF=500	11	1.0	500.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_15-12.chw	ICD0-H26.mtw	AL05-12 L043-07JD DF=500	12	1.0	500.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_15-29.chw	ICD0-H26.mtw	AL05-13 CCV645	13	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_16-10.chw	ICD0-H26.mtw	AL05-14 CCB645	14	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_16-27.chw	ICD0-H26.mtw	AL05-15 L437-01	15	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_16-44.chw	ICD0-H26.mtw	AL05-16 L437-02	16	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_17-01.chw	ICD0-H26.mtw	AL05-17 L043-01I DF=10	17	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_17-19.chw	ICD0-H26.mtw	AL05-18 L043-02I DF=10	18	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_17-36.chw	ICD0-H26.mtw	AL05-19 L043-04I DF=10	19	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_17-53.chw	ICD0-H26.mtw	AL05-20 L043-05I DF=10	20	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_18-10.chw	ICD0-H26.mtw	AL05-21 L043-01J DF=200	21	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_18-27.chw	ICD0-H26.mtw	AL05-22 L043-02J DF=200	22	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_18-44.chw	ICD0-H26.mtw	AL05-23 L043-04J DF=200	23	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_19-01.chw	ICD0-H26.mtw	AL05-24 L043-05J DF=200	24	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_19-18.chw	ICD0-H26.mtw	AL05-25 CCV647	25	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_19-35.chw	ICD0-H26.mtw	AL05-26 CCB647	26	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_19-52.chw	ICD0-H26.mtw	AL05-27 L043-07JM DF=500	27	1.0	500.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_20-09.chw	ICD0-H26.mtw	AL05-28 L043-07JS DF=500	28	1.0	500.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_20-26.chw	ICD0-H26.mtw	AL05-29 L043-01K DF=50	29	1.0	50.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_20-43.chw	ICD0-H26.mtw	AL05-30 L043-02K DF=50	30	1.0	50.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_21-01.chw	ICD0-H26.mtw	AL05-31 CCV649	31	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-06_21-18.chw	ICD0-H26.mtw	AL05-32 CCB649	32	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	

FINAL Lo 12/9/19

RETENTION TIME WINDOW

RETENTION TIME WINDOW
METHOD 300.0

Lab name:	**EMAX**	**Method:**	**EMAX-300.0**
Instrument ID:	D0 (761 IC)	IC column:	METROSEP A SUPP 5
		Column size:	100X4.0mm

Compound		Retention time Window
FLUORIDE	(+/-)	0.090
CHLORIDE	(+/-)	0.104
NITRITE	(+/-)	0.159
BROMIDE	(+/-)	0.329
NITRATE	(+/-)	0.420
PHOSPHATE	(+/-)	0.528
SULFATE	(+/-)	0.797
IODIDE	(+/-)	0.652

AA
06/03/14

RETENTION TIME WINDOW
METHOD 300.0

Lab name: **EMAX** **Method:** **EMAX-300.0**

Instrument ID: D0 (761 IC) IC column: METROSEP A SUPP 5
Column size: 100X4.0mm

Compound	ICAL Mean RT	from	to	RTW
FLUORIDE	**3.07**	2.98	3.16	**0.090**
CHLORIDE	**4.13**	4.02	4.23	**0.104**
NITRITE	**4.75**	4.59	4.91	**0.159**
BROMIDE	**5.74**	5.41	6.07	**0.329**
NITRATE	**6.44**	6.02	6.86	**0.420**
PHOSPHATE	**8.61**	8.08	9.14	**0.528**
SULFATE	**9.82**	9.02	10.62	**0.797**

ICD0-H26.mtw

 08/27/19

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L043

METHOD SM2320B
TOTAL ALKALINITY

A total of five(5) water samples were received on 12/06/19 to be analyzed for Total Alkalinity in accordance with Method SM2320B and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Alkalinity was not detected in ALL001WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. ALL001WL/ALL001WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Sample duplicate was analyzed and RPD was within expected value.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SM2320B
TOTAL ALKALINITY

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L043

Matrix : WATER
InstrumentID : E5

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	PREP. FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ALL001WB	ND	1	NA	5	5	12/06/1918:44	NA	19E5L0103	19E5L01	ALL001W	NA	NA
LCS1W	ALL001WL	96.1	1	NA	5	5	12/06/1918:51	NA	19E5L0104	19E5L01	ALL001W	NA	NA
LCD1W	ALL001WC	98.0	1	NA	5	5	12/06/1918:58	NA	19E5L0105	19E5L01	ALL001W	NA	NA
OU2-MW20S-GW120419	L043-01	351	1	NA	5	5	12/06/1919:33	NA	19E5L0110	19E5L01	ALL001W	12/04/1916:10	12/06/19
OU2-MW20D-GW120519	L043-02	248	1	NA	5	5	12/06/1919:42	NA	19E5L0111	19E5L01	ALL001W	12/05/1911:50	12/06/19
OU2-MW18-GW120519	L043-04	276	1	NA	5	5	12/06/1919:49	NA	19E5L0112	19E5L01	ALL001W	12/05/1909:55	12/06/19
OU2-MW19-GW120519	L043-05	263	1	NA	5	5	12/06/1919:56	NA	19E5L0113	19E5L01	ALL001W	12/05/1910:00	12/06/19
OU2-MW02-GW120519	L043-07	295	1	NA	5	5	12/06/1920:03	NA	19E5L0114	19E5L01	ALL001W	12/05/1912:15	12/06/19
OU2-MW02-GW120519DUP	L043-07D	300	1	NA	5	5	12/06/1920:12	NA	19E5L0115	19E5L01	ALL001W	12/05/1912:15	12/06/19

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : METHOD SM2320B

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ALL001WB	ALL001WL	ALL001WC
LAB FILE ID :	19E5L0103	19E5L0104	19E5L0105
DATE EXTRACTED :	NA	NA	NA
DATE ANALYZED :	12/06/1918:44	12/06/1918:51	12/06/1918:58
PREP BATCH :	ALL001W	ALL001W	ALL001W
CALIBRATION REF:	19E5L01	19E5L01	19E5L01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
ALKALINITY	ND	98.8	96.1	97	98.8	98.0	99	2	80-120	20

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : METHOD SM2320B

MATRIX : WATER
DILUTION FACTOR: 1 1
SAMPLE ID : OU2-MW02-GW120519 OU2-MW02-GW120519DUP
LAB SAMPLE ID : L043-07 L043-07D
LAB FILE ID : 19E5L0114 19E5L0115
DATE PREPARED : NA NA
DATE ANALYZED : 12/06/1920:03 12/06/1920:12
PREP BATCH : ALL001W ALL001W
CALIBRATION REF: 19E5L011 19E5L011

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	RPD (%)	MAX RPD (%)
ALKALINITY	295	300	2	20

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ALKALINITY

Note: For samples and relevent QCs/Standards analyzed, refer to attached analytical sequence.

☑ Titration end point: pH 4.5 ± 0.04

☑ Low alkalinity: pH 4.2 ± 0.04

Micropipette ID: NA

MS/MSD amount of spike: NA

Comments:

Reagent Water: RWI-19-003

Book#: AAL-042

Instrument No.: ☐ 53 ☐ 97 ☑ E5

Analytical Batch: 19E5L01

Analytical Sequence: ALL001

SOP #	Rev. #
☑ EMAX-2320B	5
☐ EMAX-	

STANDARDS ID		Conc. (mg/L)
0.02N HCL	SWRI-02-20-03	0.02N
LCS	SWI-02-02-30	98.8
MS/MSD	NA	NA
ICV	NA	NA

pH Buffer	ID
pH 4	SWI-02-04-21
pH 7	SWI-02-04-22
pH 10	SWI-02-04-23
pH 7.96 ~~pH 8.0~~ (Check)	SWI-02-04-28
~~12/06/19~~ pH Strip	HC863463

Analyzed By: TK

Date: 12/06/19

PC-TitratION PLUS

pH and Alkalinity In-Run Report

Run Number 1121 **Analytical Batch#** 19E5L01

Seq. #	SampleID	Data File Name	RunDate	RunTime	pH	Volume @pH 8.3	Volume @pH 4.5	Volume @pH 4.2	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	Review Notes
1	ICV PH8	19E5L01	12/06/19	6:30 PM	7.93	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
2	ICB	19E5L01	12/06/19	6:38 PM	7.36	.00	.75	-1.00	.00	29.87	29.87	.00	.00	
3	ALL001WB	19E5L01	12/06/19	6:44 PM	5.87	.00	.05	.08	.00	.62	.62	.00	.00	
4	ALL001WL	19E5L01	12/06/19	6:51 PM	8.66	.89	2.40	-1.00	35.51	96.13	25.11	71.03	.00	
5	ALL001WC	19E5L01	12/06/19	6:58 PM	8.69	.94	2.45	-1.00	37.74	98.04	22.57	75.48	.00	
6	K888-01	19E5L01	12/06/19	7:05 PM	7.07	.00	.73	-1.00	.00	29.05	29.05	.00	.00	
7	K888-02	19E5L01	12/06/19	7:12 PM	7.31	.00	.89	-1.00	.00	35.77	35.77	.00	.00	
8	K888-03	19E5L01	12/06/19	7:18 PM	7.18	.00	.71	-1.00	.00	28.20	28.20	.00	.00	
9	L039-01	19E5L01	12/06/19	7:25 PM	7.84	.00	3.83	-1.00	.00	153.36	153.36	.00	.00	
10	L043-01	19E5L01	12/06/19	7:33 PM	7.19	.00	8.79	-1.00	.00	351.43	351.43	.00	.00	
11	L043-02	19E5L01	12/06/19	7:42 PM	7.30	.00	6.21	-1.00	.00	248.50	248.50	.00	.00	
12	L043-04	19E5L01	12/06/19	7:49 PM	7.15	.00	6.91	-1.00	.00	276.25	276.25	.00	.00	
13	L043-05	19E5L01	12/06/19	7:56 PM	7.24	.00	6.57	-1.00	.00	262.83	262.83	.00	.00	
14	L043-07	19E5L01	12/06/19	8:03 PM	7.13	.00	7.38	-1.00	.00	295.06	295.06	.00	.00	
15	L043-07D	19E5L01	12/06/19	8:12 PM	7.16	.00	7.50	-1.00	.00	300.13	300.13	.00	.00	
16	RINSE	19E5L01	12/06/19	8:19 PM	6.35	.00	.07	.11	.00	1.15	1.15	.00	.00	

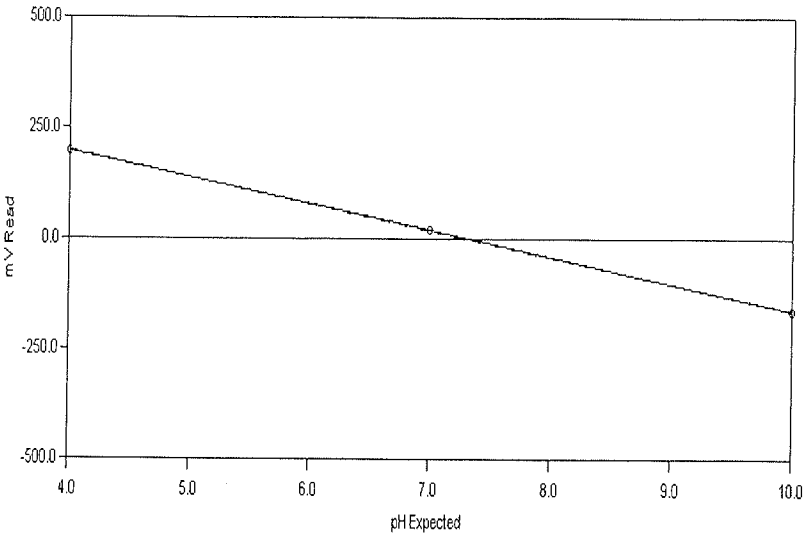
Analyzed by: JK Reviewed by: TK Date: 12/09/19

PC-TitratION PLUS by Man-Tech Associates, Inc.

pH AND ALKALINITY IN-RUN REPORT.SRW

PC-TitratION PLUS
Calibration Report

Calibration Record # 780



Calibration Settings

Calibration ID	PH CAL 4-7-10	Date	12/06/2019
Channel	1	Time	6:27 PM
Probe Type	pH	Temperature	298.65 K 25.50 C
Probe ID	PH ELECTRODE	Analysis Type	Single Line Fit

Calibration Results

Slope	-60.383	CorrCoeff	0.9999
Intercept	17.047	Equation: Y = (-60.383) X + (17.047)	

Calibration Validity True Operator

	Result	Minimum	Maximum
Slope	-60.383	-65.00	-53.00
Intercept	17.047	-40.00	40.00
Correlation Coefficient	0.9999	0.99	1.00

Note: "True" means the calibration was within the specified ranges
"False" means the calibration was NOT within the specified ranges

Calibration Data	**Standard**	**Reading**
	4.00	197.02
	7.00	19.40
	10.00	-165.28

PC-Titrate For Windows

Running List Report

Order Number - 19E5L01

	Schedule	Sample Id	Vial	Weight	Volume
1	PH CAL	CAL	1	.00	25.00
2	PH ONLY	ICV PH8	4	.00	25.00
3	PH-ALK	ICB	5	.00	25.00
4	PH-ALK	ALL001WB	6	.00	25.00
5	PH-ALK	ALL001WL	7	.00	25.00
6	PH-ALK	ALL001WC	8	.00	25.00
7	PH-ALK	K888-01	9	.00	25.00
8	PH-ALK	K888-02	10	.00	25.00
9	PH-ALK	K888-03	11	.00	25.00
10	PH-ALK	L039-01	12	.00	25.00
11	PH-ALK	L043-01	13	.00	25.00
12	PH-ALK	L043-02	14	.00	25.00
13	PH-ALK	L043-04	15	.00	25.00
14	PH-ALK	L043-05	16	.00	25.00
15	PH-ALK	L043-07	17	.00	25.00
16	PH-ALK	L043-07D	18	.00	25.00
17	PH-ALK	RINSE	19	.00	25.00

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L043

METHOD SM2540C
TOTAL DISSOLVED SOLIDS

A total of five(5) water samples were received on 12/06/19 to be analyzed for Total Dissolved Solids in accordance with Method SM2540C and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Balance calibration verifications were carried out on a frequency specified by the method. All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Total Dissolved Solids was not detected in TDL002WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) LCS was analyzed. Percent recovery for Total Dissolved Solids was within LCS QC limits in TDL002WL. Refer to LCS summary form for details.

Matrix QC Sample
Sample duplicate was analyzed and RPD was within expected value.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SM2540C
TOTAL DISSOLVED SOLIDS

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L043

Matrix : WATER
InstrumentID : 402426

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	TDL002WB	ND	1	NA	10	10	12/09/1915:41	NA	19TDL00201	19TDL002	TDL002W	NA	NA
LCS1W	TDL002WL	968	1	NA	10	10	12/09/1915:41	NA	19TDL00202	19TDL002	TDL002W	NA	NA
OU2-MW20S-GW120419	L043-01	713	1	NA	10	10	12/09/1915:41	NA	19TDL00206	19TDL002	TDL002W	12/04/1916:10	12/06/19
OU2-MW20D-GW120519	L043-02	593	1	NA	10	10	12/09/1915:41	NA	19TDL00207	19TDL002	TDL002W	12/05/1911:50	12/06/19
OU2-MW18-GW120519	L043-04	1170	1	NA	10	10	12/09/1915:41	NA	19TDL00208	19TDL002	TDL002W	12/05/1909:55	12/06/19
OU2-MW19-GW120519	L043-05	962	1	NA	10	10	12/09/1915:41	NA	19TDL00209	19TDL002	TDL002W	12/05/1910:00	12/06/19
OU2-MW02-GW120519	L043-07	1560	1	NA	10	10	12/09/1915:41	NA	19TDL00210	19TDL002	TDL002W	12/05/1912:15	12/06/19
OU2-MW02-GW120519DUP	L043-07D	1530	1	NA	10	10	12/09/1915:41	NA	19TDL00211	19TDL002	TDL002W	12/05/1912:15	12/06/19

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : SM2540C

MATRIX : WATER
DILUTION FACTOR: 1 1
SAMPLE ID : MBLK1W LCS1W
LAB SAMPLE ID : TDL002WB TDL002WL
LAB FILE ID : 19TDL00201 19TDL00202
DATE PREPARED : NA NA
DATE ANALYZED : 12/09/1915:41 12/09/1915:41
PREP BATCH : TDL002W TDL002W
CALIBRATION REF: 19TDL002 19TDL002

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	QC LIMIT (%)
Total Dissolved Solids	ND	1000	968	97	80-120

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : SM2540C

MATRIX : WATER

DILUTION FACTOR:	1	1
SAMPLE ID :	OU2-MW02-GW120519	OU2-MW02-GW120519DUP
LAB SAMPLE ID :	L043-07	L043-07D
LAB FILE ID :	19TDL00210	19TDL00211
DATE PREPARED :	NA	NA
DATE ANALYZED :	12/09/1915:41	12/09/1915:41
PREP BATCH :	TDL002W	TDL002W
CALIBRATION REF:	19TDL002	19TDL002

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	RPD (%)	MAX RPD (%)
Total Dissolved Solids	1560	1530	2	20

DataFileID	Sample ID	Sample Amt(ml)	Dish #	Dish (g)	1stDry Wt+Dish(g)	DateTime	2ndDry Wt+Dish(g)	DateTime	FinalDry Wt+Dish(g)	DateTime	Rdgs(<0.5mg)	Solids (mg)	TDS (mg/L)	Result (mg/L)
19TDL00201	TDL002WB	100	B	84.3874	84.3873	12/10/19 15:28	84.3874	12/10/19 17:29			0.1	0	0	ND
19TDL00202	TDL002WL	20	L	21.33016	21.3496	12/10/19 15:28	21.34952	12/10/19 17:29			0.08	19.36	968	968
19TDL00203	L017-01	100	1	89.5198	89.5629	12/10/19 15:28	89.5627	12/10/19 17:29			0.2	42.9	429	429
19TDL00204	L017-04	100	2	87.2886	87.3286	12/10/19 15:28	87.3288	12/10/19 17:30			0.2	40.2	402	402
19TDL00205	L039-01	100	3	88.4209	88.4633	12/10/19 15:29	88.463	12/10/19 17:30			0.3	42.1	421	421
19TDL00206	L043-01	20	4	21.37252	21.38683	12/10/19 15:29	21.38679	12/10/19 17:30			0.04	14.27	713.5	713
19TDL00207	L043-02	50	5	42.54822	42.57787	12/10/19 15:29	42.57788	12/10/19 17:30			0.01	29.66	593.2	593
19TDL00208	L043-04	20	6	21.1875	21.21077	12/10/19 15:29	21.21087	12/10/19 17:30			0.1	23.37	1168.5	1170
19TDL00209	L043-05	20	7	21.01648	21.03584	12/10/19 15:30	21.03573	12/10/19 17:31			0.11	19.25	962.5	962
19TDL00210	L043-07	20	8	21.24045	21.27133	12/10/19 15:30	21.27158	12/10/19 17:31			0.25	31.13	1556.5	1560
19TDL00211	L043-07D	20	9	21.23591	21.26625	12/10/19 15:30	21.26656	12/10/19 17:31			0.31	30.65	1532.5	1530

UA 12/12/19

UA 12/12/19

Beginning Balance Check			
Std. Wt. (g)	Balance Rdg (g)	Date	Comments
0.1	0.1001	12/9/19 15:40	PASSED
5	5.0000	12/9/19 15:41	PASSED
100	100.0014	12/9/19 15:41	PASSED
Ending Balance Check			
Std. Wt (g)	Balance Rdg (g)	Date	Comments
0.1	0.1000	12/9/19 15:47	PASSED
5	4.9999	12/9/19 15:49	PASSED
100	100.0014	12/9/19 15:49	PASSED
Beginning Balance Check			
Std. Wt (g)	Balance Rdg (g)	Date	Comments
0.1	0.1001	12/10/19 15:26	PASSED
5	4.9998	12/10/19 15:27	PASSED
100	100.0009	12/10/19 15:27	PASSED
Ending Balance Check			
Std. Wt (g)	Balance Rdg (g)	Date	Comments
0.1	0.1001	12/10/19 17:33	PASSED
5	4.9998	12/10/19 17:33	PASSED
100	100.0008	12/10/19 17:33	PASSED

Balance ID: 402426 Weight ID: HN4977 / 62785

Acceptance Criteria: +/- 0.1% or +/- 0.5 mg whichever is greater

StandardID	Desc.	Conc. (mg/L)	ExpDate
RW1-19-003	MB	ND	NA
SW2B-28-08-09	LCS	1000	08/07/20
HC863463	pH strip	0-14	08/09/29

QC Check

LabSampleID	Result	Expected Value	QC Result
TDL002WB	0	ND	MB Passed
TDL002WL	968	1000	%R=97
#N/A	#N/A	#N/A	#N/A
L043-07D	1532.5	1556.5	%D=2

Oven Drying		Thermometer ID: 3078	
Evaporating			
☑ Start	12/9/2019 16:00	Temp	94 °C
☑ End	12/10/2019 12:55	Temp	94 °C
1st Drying			
☑ Start	12/10/19 13:38	Temp	180 °C
☑ End	12/10/19 14:38	Temp	180 °C
2nd Drying			
☑ Start	12/10/19 15:33	Temp	180 °C
☑ End	12/10/19 16:33	Temp	180 °C
Final Drying			
☐ Start		Temp	°C
☐ End		Temp	°C

Notes:

Samples were evaporated at 90°C (±5°C) and dried at 180°C (±2°C).

SOP

☑ EMAX-2540C Rev. 9

Analyzedby: YAquin

Checked by: UA

Date: 12/12/19

LOQ: 10 mg/L

0.45 micron

Filter Lot#: J341342-20190515PZ79M-070

Micropipette ID: NA

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L043

METHOD SM4500-NO3E
NITRATE/NITRITE-N

A total of five(5) water samples were received on 12/06/19 to be analyzed for Nitrate/Nitrite-N in accordance with Method SM4500-NO3E and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Nitrogen, Nitrate-Nitrite was not detected in NAL002WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. NAL002WL/NAL002WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) MS was analyzed and the following was noted: L043-07IM - Nitrogen, Nitrate-Nitrite was out of MS QC limits. Presence of matrix interference was suspected. Sample duplicate was analyzed and RPD was within expected value. Refer to Matrix QC summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met with the exception of those that were discussed within the associated QC parameter.

METHOD SM4500-NO3E
NITRATE/NITRITE-N

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L043

Matrix : WATER
InstrumentID : 70

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	NAL002WB	ND	1	NA	0.05	0.01	12/12/1918:40	NA	19NAL00210	19NAL002	NAL002W	NA	NA
LCS1W	NAL002WL	0.479	1	NA	0.05	0.01	12/12/1918:40	NA	19NAL00211	19NAL002	NAL002W	NA	NA
LCD1W	NAL002WC	0.522	1	NA	0.05	0.01	12/12/1918:40	NA	19NAL00212	19NAL002	NAL002W	NA	NA
OU2-MW20S-GW120419	L043-01I	4.65	10	NA	0.5	0.1	12/12/1918:41	NA	19NAL00215	19NAL002	NAL002W	12/04/1916:10	12/06/19
OU2-MW20D-GW120519	L043-02I	3.10	5	NA	0.25	0.05	12/12/1918:41	NA	19NAL00216	19NAL002	NAL002W	12/05/1911:50	12/06/19
OU2-MW18-GW120519	L043-04I	3.64	10	NA	0.5	0.1	12/12/1919:22	NA	19NAL00217	19NAL002	NAL002W	12/05/1909:55	12/06/19
OU2-MW19-GW120519	L043-05I	3.21	10	NA	0.5	0.1	12/12/1919:22	NA	19NAL00218	19NAL002	NAL002W	12/05/1910:00	12/06/19
OU2-MW02-GW120519	L043-07I	3.13	10	NA	0.5	0.1	12/12/1919:22	NA	19NAL00219	19NAL002	NAL002W	12/05/1912:15	12/06/19
OU2-MW02-GW120519DUP	L043-07ID	3.11	10	NA	0.5	0.1	12/12/1919:23	NA	19NAL00222	19NAL002	NAL002W	12/05/1912:15	12/06/19
OU2-MW02-GW120519MS	L043-07IM	6.13	10	NA	0.5	0.1	12/12/1919:33	NA	19NAL00223	19NAL002	NAL002W	12/05/1912:15	12/06/19

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : SM4500-NO3E

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: NAL002WB	NAL002WL	NAL002WC
LAB FILE ID	: 19NAL00210	19NAL00211	19NAL00212
DATE PREPARED	: NA	NA	NA
DATE ANALYZED	: 12/12/1918:40	12/12/1918:40	12/12/1918:40
PREP BATCH	: NAL002W	NAL002W	NAL002W
CALIBRATION REF	: 19NAL002	19NAL002	19NAL002

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Nitrogen, Nitrate-Nitrite	ND	0.500	0.479	96	0.500	0.522	104	9	80-120	10

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : SM4500-NO3E

MATRIX : WATER

DILUTION FACTOR:	10	10
SAMPLE ID :	OU2-MW02-GW120519	OU2-MW02-GW120519DUP
LAB SAMPLE ID :	L043-07I	L043-07ID
LAB FILE ID :	19NAL00219	19NAL00222
DATE PREPARED :	NA	NA
DATE ANALYZED :	12/12/1919:22	12/12/1919:23
PREP BATCH :	NAL002W	NAL002W
CALIBRATION REF:	19NAL002	19NAL002

ACCESSION:

PARAMETER	PSResult (mg/L)	DUPResult (mg/L)	RPD (%)	QCLimit (%)
Nitrogen, Nitrate-Nitrite	3.13	3.11	1	10

PS: Parent Sample DUP: Sample Duplicate

EMAX QUALITY CONTROL DATA
MATRIX SPIKE SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L043
METHOD : SM4500-NO3E

MATRIX	WATER	% Moisture: NA
DILUTION FACTOR	10	10
SAMPLE ID	OU2-MW02-GW120519	OU2-MW02-GW120519MS
LAB SAMPLE ID	L043-07I	L043-07IM
LAB FILE ID	19NAL00219	19NAL00223
DATE PREPARED	NA	NA
DATE ANALYZED	12/12/1919:22	12/12/1919:33
PREP BATCH	NAL002W	NAL002W
CALIBRATION REF	19NAL002	19NAL002

ACCESSION:

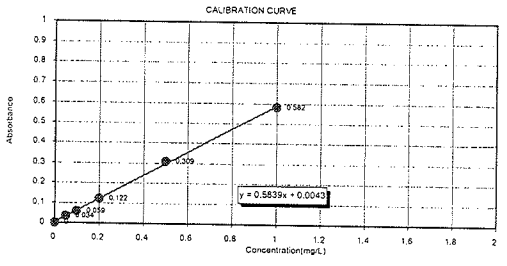
PARAMETER	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	QCLimit (%)
Nitrogen, Nitrate-Nitrite	3.13	5.00	6.13	60.0*	75-125

PS: Parent Sample MS: Matrix Spike
* Out of QC limits

Data File Name	Calibration ID	Conc. mg/L	WL	Abs	CalDate	FC	%Rec
19NAL00201	S0	0	543nm	0	12/12/19 18:21	-0.007345316	ND
19NAL00202	S1	0.05	543nm	0.034	12/12/19 18:21	0.050881126	102
19NAL00203	S2	0.1	543nm	0.059	12/12/19 18:21	0.093694686	94
19NAL00204	S3	0.2	543nm	0.122	12/12/19 18:21	0.201584857	101
19NAL00205	S4	0.5	543nm	0.309	12/12/19 18:22	0.521830286	104
19NAL00206	S5	1	543nm	0.582	12/12/19 18:22	0.989354361	99
19NAL00207	NO2-N Std Check	0.5	543nm	0.321	12/12/19 18:22	0.542380795	108
19NAL00208	ICV	0.5	544nm	0.287	12/12/19 18:22	0.484154353	97
19NAL00209	ICB	0	543nm	0.004	12/12/19 18:22	-0.000495146	ND
19NAL00220	CCV1	0.5	543nm	0.29	12/12/19 19:22	0.48929198	98
19NAL00221	CCB1	0	543nm	0	12/12/19 19:22	-0.007345316	ND
19NAL00232	CCV2	0.5	543nm	0.315	12/12/19 20:26	0.53210554	106
19NAL00233	CCB2	0	543nm	0	12/12/19 20:26	-0.007345316	ND
19NAL00239	CCV3	0.5	543nm	0.295	12/12/19 20:59	0.497854692	100
19NAL00240	CCB3	0	543nm	0	12/12/19 20:59	-0.007345316	ND

Reduction Time	Coloring Time
12/12/19 17:04	12/12/19 17:06
12/12/19 17:09	12/12/19 17:10
12/12/19 17:12	12/12/19 17:14
12/12/19 17:16	12/12/19 17:18
12/12/19 17:20	12/12/19 17:23
12/12/19 17:24	12/12/19 17:26
NA	12/12/19 17:26
12/12/19 17:29	12/12/19 17:31
12/12/19 17:38	12/12/19 17:40

InstrumentID: 70



$$FC = [(A * CF) - Y] * DF$$

CF= 1.712542399 Y= 0.00735 r= 0.999531

DL Water(mg/L) 0.01 DL Soil(mg/Kg) 0.1

LOD Water(mg/L) 0.02 LOD Soil(mg/Kg) 0.2

LOQ Water(mg/L) 0.05 LOQ Soil(mg/Kg) 0.5

SOP

☑ EMAX-4500-NO3E Rev. 3

Standard / Reagent ID	Description	Conc.	Exp.Date
SW2B-29-14-03	ICAL CCV (mg/L)	10	12/12/19
SW2B-29-14-04	ICV LCS MS Std (mg/L)	10	12/12/19
SW2B-29-14-05	NO2 CHK	10	12/12/19
SM5A-04-04-08	Reagent Water	N/A	03/31/20
N/A	Sand	N/A	N/A
SWP1-51-47-03	Coloring Reagent	**	12/19/19
SWP1-54-06-01	NH4Cl-EDTA Soln	**	06/12/20
SWP1-47-45-01	HCl	1N	03/04/20
SWR1-01-819	NH4OH	CONC	04/30/25
N/A	Extraction Solvent	N/A	N/A
N/A	ZnSO4	N/A	N/A
SWP1-46-39-01	NaOH	10N	03/01/20
SWP1-47-44-03	NaOH	1N	03/01/20
SWP1-48-33-02	Cadmium Reduction Column	N/A	08/01/22
22319008	Snap Seal	1.5 OZ	N/A

Standard Prep	Intermediate Std Aliquot (ml)	Final Vol (ml)	DateTime
S0	0	20	12/12/19 10:42
S1	0.1	20	12/12/19 10:42
S2	0.2	20	12/12/19 10:42
S3	0.4	20	12/12/19 10:42
S4	1	20	12/12/19 10:42
S5	2	20	12/12/19 10:42
ICV	1	20	12/12/19 10:42
CCV	1	20	12/12/19 10:42
NO2 CHK	1	20	12/12/19 10:42
LCS EV	1	20	12/12/19 10:42
MS EV	1	20	12/12/19 10:42

MicropipetteID: 842750082 239360174 342780143

Expected Sample Amount: 20

Notes: **Concentration can be found in Reagent Log SWP1-51 and SWP1-54

LAB QC CHECK

DataFileID	LabSampleID	Result	Expected Value	QC Result
19NAL00210	NAL002WB	ND	ND	MB Passed
19NAL00211	NAL002WL	0.479	0.5	%R=96
19NAL00212	NAL002WC	0.522	0.5	%R=104

MS CHECK

DataFileID	LabSampleID	Result	Expected Value	QC Result
19NAL00219	L043-07I	3.13		
19NAL00223	L043-07IM	6.13	5	%R=60

DUP CHECK

DataFileID	LabSampleID	Result	Expected Value	RPD
19NAL00219	L043-07I	3.13		1
19NAL00222	L043-07ID	3.11	3.13	

CALIBRATION CHECK pH Meter ID: 53

Buffer ID	Buffer	Rdg	Date
SW1-02-04-12	0.99	0.98	12/12/19 13:28
SW1-02-04-22	7.01	7	12/12/19 13:30
SW1-02-04-23	10.02	10.02	12/12/19 13:32
SW1-02-04-28	Check Std (7.96)	7.96	12/12/19 13:34

☐ Leaching Date Time Start: ☐ End:

Filter: 0.45 µm 90941103

Blank and LCS were filtered Analyzed by: NCrist

The following samples were filtered: L030-01, L037-01, L046-01, L086-01

Reviewed by: NNC

Date: 12/19/19

DataFileID	LabSampleID	Result	Flag	RUnit	Sample Amt	SUnit	PDateTime	FinalVol (ml)	WL	Abs	ADateTime	Sample Bkgnd	DF	%M	Conc.	DFxPrep Factor	Notes	Analyst	Sample pH	Sample pH Adj	Reduction Time	Coloring Time
19NAL00210	NAL002WB	ND		mg/L	20	ml	NA	20	543nm	0.002 a	12/12/19 18:40	0	1		-0.00392	1		NCrist	5.65	8.68	12/12/19 17:42	12/12/19 17:43
19NAL00211	NAL002WL	0.479		mg/L	20	ml	NA	20	543nm	0.284 a	12/12/19 18:40	0	1		0.479017	1		NCrist	5.65	8.68	12/12/19 17:47	12/12/19 17:48
19NAL00212	NAL002WC	0.522		mg/L	20	ml	NA	20	543nm	0.309 a	12/12/19 18:40	0	1		0.52183	1		NCrist	5.65	8.68	12/12/19 17:51	12/12/19 17:52
19NAL00213	L030-01	0.0954		mg/L	20	ml	NA	20	543nm	0.06 a	12/12/19 18:41	0	1		0.095407	1		NCrist	1.45	8.7	12/12/19 17:58	12/12/19 18:00
19NAL00214	L037-01	0.172		mg/L	20	ml	NA	20	543nm	0.105 a	12/12/19 18:41	0	1		0.172472	1		NCrist	1.52	8.86	12/12/19 18:03	12/12/19 18:05
19NAL00215	L043-01I	4.653		mg/L	20	ml	NA	20	543nm	0.276 a	12/12/19 18:41	0	10		4.653164	10		NCrist	1.48	8.38	12/12/19 18:16	12/12/19 18:19
19NAL00216	L043-02I	3.097		mg/L	20	ml	NA	20	543nm	0.366 a	12/12/19 18:41	0	5		3.097226	5		NCrist	1.42	8.39	12/12/19 18:23	12/12/19 18:25
19NAL00217	L043-04I	3.643		mg/L	20	ml	NA	20	543nm	0.217 a	12/12/19 19:22	0	10		3.642764	10		NCrist	1.43	8.58	12/12/19 18:31	12/12/19 18:32
19NAL00218	L043-05I	3.215		mg/L	20	ml	NA	20	543nm	0.192 a	12/12/19 19:22	0	10		3.214628	10		NCrist	1.48	8.54	12/12/19 18:37	12/12/19 18:38
19NAL00219	L043-07I	3.129		mg/L	20	ml	NA	20	543nm	0.187 a	12/12/19 19:22	0	10		3.129001	10		NCrist	1.43	8.33	12/12/19 18:41	12/12/19 18:43
19NAL00220	CCV1	0.489		mg/L	20	ml	NA	20	543nm	0.29 a	12/12/19 19:22	0	1		0.489292	1		NCrist			12/12/19 18:45	12/12/19 18:47
19NAL00221	CCB1	ND		mg/L	20	ml	NA	20	543nm	0 a	12/12/19 19:22	0	1		-0.00735	1		NCrist			12/12/19 18:51	12/12/19 18:52
19NAL00222	L043-07ID	3.112		mg/L	20	ml	NA	20	543nm	0.186 a	12/12/19 19:23	0	10		3.111876	10		NCrist	1.43	8.33	12/12/19 18:55	12/12/19 18:56
19NAL00223	L043-07IM	6.126		mg/L	20	ml	NA	20	543nm	0.362 a	12/12/19 19:33	0	10		6.12595	10		NCrist	1.43	8.33	12/12/19 19:06	12/12/19 19:08
19NAL00224	L046-01	0.212		mg/L	20	ml	NA	20	543nm	0.128 a	12/12/19 20:01	0	1		0.21186	1		NCrist	1.43	8.65	12/12/19 19:12	12/12/19 19:14
19NAL00225	L057-01I	2.341		mg/L	20	ml	NA	20	543nm	0.141 a	12/12/19 20:01	0	10		2.341232	10		NCrist	1.38	8.39	12/12/19 19:17	12/12/19 19:19
19NAL00226	L057-02I	2.267		mg/L	20	ml	NA	20	543nm	0.269 a	12/12/19 20:01	0	5		2.266643	5		NCrist	1.63	8.58	12/12/19 19:22	12/12/19 19:24
19NAL00227	L057-03I	2.975		mg/L	20	ml	NA	20	543nm	0.178 a	12/12/19 20:01	0	10		2.974872	10		NCrist	1.6	8.37	12/12/19 19:35	12/12/19 19:36
19NAL00228	L057-04I	3.249		mg/L	20	ml	NA	20	543nm	0.194 a	12/12/19 20:02	0	10		3.248879	10		NCrist	1.43	8.53	12/12/19 19:45	12/12/19 19:46
19NAL00229	L057-05	0.849		mg/L	20	ml	NA	20	543nm	0.5 a	12/12/19 20:10	0	1		0.848926	1		NCrist	1.52	8.59	12/12/19 19:50	12/12/19 19:52
19NAL00230	L057-07I	3.746		mg/L	20	ml	NA	20	543nm	0.223 a	12/12/19 20:25	0	10		3.745516	10		NCrist	1.63	8.75	12/12/19 19:56	12/12/19 19:57
19NAL00231	L057-08	0.678		mg/L	20	ml	NA	20	543nm	0.4 a	12/12/19 20:26	0	1		0.677672	1		NCrist	1.42	8.46	12/12/19 20:00	12/12/19 20:02
19NAL00232	CCV2	0.532		mg/L	20	ml	NA	20	543nm	0.315 a	12/12/19 20:26	0	1		0.532106	1		NCrist			12/12/19 20:05	12/12/19 20:07
19NAL00233	CCB2	ND		mg/L	20	ml	NA	20	543nm	0 a	12/12/19 20:26	0	1		-0.00735	1		NCrist			12/12/19 20:11	12/12/19 20:12
19NAL00234	L057-09I	3.18		mg/L	20	ml	NA	20	543nm	0.19 a	12/12/19 20:32	0	10		3.180377	10		NCrist	1.45	8.67	12/12/19 20:15	12/12/19 20:17
19NAL00235	L057-10I	1.445		mg/L	20	ml	NA	20	543nm	0.173 a	12/12/19 20:39	0	5		1.444623	5		NCrist	1.41	8.79	12/12/19 20:20	12/12/19 20:22
19NAL00236	L086-01	0.558		mg/L	20	ml	NA	20	543nm	0.33 a	12/12/19 20:59	0	1		0.557794	1		NCrist	1.46	8.39	12/12/19 20:24	12/12/19 20:26
19NAL00237	L412-01	0.092		mg/L	20	ml	NA	20	543nm	0.058 a	12/12/19 20:59	0	1		0.091982	1		NCrist	1.26	8.81	12/12/19 20:30	12/12/19 20:31
19NAL00238	L412-02	0.0612		mg/L	20	ml	NA	20	543nm	0.04 a	12/12/19 20:59	0	1		0.061156	1		NCrist	1.22	8.24	12/12/19 20:35	12/12/19 20:36
19NAL00239	CCV3	0.498		mg/L	20	ml	NA	20	543nm	0.295 a	12/12/19 20:59	0	1		0.497855	1		NCrist			12/12/19 20:39	12/12/19 20:40
19NAL00240	CCB3	ND		mg/L	20	ml	NA	20	543nm	0 a	12/12/19 20:59	0	1		-0.00735	1		NCrist			12/12/19 20:45	12/12/19 20:46

Reviewed by: NNC

Date: 12/19/19

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L043

METHOD SW9060
TOC

A total of five(5) water samples were received on 12/06/19 to be analyzed for TOC in accordance with Method SW9060 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Total Organic Carbon was not detected in TCL002WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. TCL002WL/TCL002WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. Total Organic Carbon was within MS QC limits in L043-07M/L043-07S. Sample duplicate was analyzed and RPD was within expected value. Refer to Matrix QC summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SW9060
TOC

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L043

Matrix : WATER
Instrument ID : I62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCL002WB	ND	1	NA	1.00	0.250	12/13/1920:58	NA	TCL002-05	TCL002-02	TCL002W	NA	NA
LCS1W	TCL002WL	25.8	1	NA	1.00	0.250	12/13/1921:14	NA	TCL002-06	TCL002-02	TCL002W	NA	NA
LCD1W	TCL002WC	25.8	1	NA	1.00	0.250	12/13/1921:30	NA	TCL002-07	TCL002-02	TCL002W	NA	NA
OU2-MW20S-GW120419	L043-01	0.643J	1	NA	1.00	0.250	12/13/1922:00	NA	TCL002-09	TCL002-02	TCL002W	12/04/1916:10	12/06/19
OU2-MW20D-GW120519	L043-02	0.406J	1	NA	1.00	0.250	12/13/1922:15	NA	TCL002-10	TCL002-02	TCL002W	12/05/1911:50	12/06/19
OU2-MW18-GW120519	L043-04	0.478J	1	NA	1.00	0.250	12/13/1922:30	NA	TCL002-11	TCL002-02	TCL002W	12/05/1909:55	12/06/19
OU2-MW19-GW120519	L043-05	0.539J	1	NA	1.00	0.250	12/13/1922:45	NA	TCL002-12	TCL002-02	TCL002W	12/05/1910:00	12/06/19
OU2-MW02-GW120519	L043-07	0.576J	1	NA	1.00	0.250	12/13/1923:00	NA	TCL002-13	TCL002-02	TCL002W	12/05/1912:15	12/06/19
OU2-MW02-GW120519DUP	L043-07D	0.505J	1	NA	1.00	0.250	12/13/1923:59	NA	TCL002-16	TCL002-14	TCL002W	12/05/1912:15	12/06/19
OU2-MW02-GW120519MS	L043-07M	24.5	1	NA	1.00	0.250	12/14/1900:14	NA	TCL002-17	TCL002-14	TCL002W	12/05/1912:15	12/06/19
OU2-MW02-GW120519MSD	L043-07S	25.1	1	NA	1.00	0.250	12/14/1900:29	NA	TCL002-18	TCL002-14	TCL002W	12/05/1912:15	12/06/19

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L043
METHOD: SW9060

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCL002WB	TCL002WL	TCL002WC		
LAB FILE ID:	TCL002-05	TCL002-06	TCL002-07		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	12/13/1920:58	12/13/1921:14	12/13/1921:30	DATE RECEIVED:	NA
PREP. BATCH:	TCL002W	TCL002W	TCL002W		
CALIB. REF:	TCL002-02	TCL002-02	TCL002-02		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Total Organic Carbon	ND	25	25.8	103	25	25.8	103	0	80-120	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L043
METHOD: SW9060

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: OU2-MW02-GW120519
LAB SAMP ID: L043-07 L043-07M L043-07S
LAB FILE ID: TCL002-13 TCL002-17 TCL002-18
DATE EXTRACTED: NA NA NA DATE COLLECTED: 12/05/19 12:15
DATE ANALYZED: 12/13/1923:00 12/14/1900:14 12/14/1900:29 DATE RECEIVED: 12/06/19
PREP. BATCH: TCL002W TCL002W TCL002W
CALIB. REF: TCL002-02 TCL002-14 TCL002-14

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Total Organic Carbon	.576J	25	24.5	96	25	25.1	98	2	80-120	20

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L043
METHOD: SW9060

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1
SAMPLE ID: OU2-MW02-GW120519
EMAX SAMP ID: L043-07 L043-07D
LAB FILE ID: TCL002-13 TCL002-16
DATE EXTRACTED: NA NA DATE COLLECTED: 12/05/19 12:15
DATE ANALYZED: 12/13/1923:00 12/13/1923:59 DATE RECEIVED: 12/06/19
PREP. BATCH: TCL002W TCL002W
CALIB. REF: TCL002-02 TCL002-14

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
Total Organic Carbon	0.576J	0.505J	NA	20

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
TOC

	Date	Time
Start	12/13/19	18:06
End	12/14/19	13:33

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

☐ Sample was filtered. Filter ID: N/A

Comments: TCL002W: 19L014
19L043
19L057
19L071
TCL003W: 19L071

Reagent Water ID #: RW1-19-003

pH Strips Lot #: HC863463

2 M HCl SWP1-50-38-02

Book #: A62-038

Instrument No.: 62

Micropipette ID: ☑ 439350020

Micropipette ID: ☑ 539360056

Micropipette ID: ☑ 642780221

Micropipette ID: ☐

Analytical Sequence: TCL002

Method File: TCL002

Analytical Batch: TCL002W/TCL003W

SOP #	Rev. #
☑ EMAX-5310B	4
☑ EMAX-9060	4
☐ EMAX-	

STANDARDS ID	CONC. (mg/L)
S0 RW1-19-003	0
S1 SW7B-01-14-05	1
S2 ↓	5
S3	10
S4	40
S5	80
S6 —	—
ICV/LCS SW7B-01-14-07	25
CCV SW7B-01-14-04	25
—	—

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ TOC	
☐	

Analyzed By: YA

Date: ~~0~~ 12/13/19

YA 12/13/19

	Type	Analysis	Sample Name	Sample ID	Dilutio	Result	Comment
1	Standard	NPOC	ICAL - Instrument	TCL002-01	1.000		TOC METHOD 9060/5130B
2	Control	NPOC	ICV	TCL002-02	1.000	NPOC:26.10 mg/L	
3	Unknown	NPOC	ICB	TCL002-03	1.000	NPOC:0.05792 mg/L	
4	Unknown	NPOC	HCO3/CO3	TCL002-04	1.000	NPOC:0.03730 mg/L	
5	Unknown	NPOC	TCL002WB	TCL002-05	1.000	NPOC:0.03444 mg/L	
6	Unknown	NPOC	TCL002WL	TCL002-06	1.000	NPOC:25.84 mg/L	
7	Unknown	NPOC	TCL002WC	TCL002-07	1.000	NPOC:25.84 mg/L	
8	Unknown	NPOC	L014-01I	TCL002-08	20.00	NPOC:14.05 mg/L	DF=20, ODOR, PH<2
9	Unknown	NPOC	L043-01	TCL002-09	1.000	NPOC:0.6428 mg/L	PH<2
10	Unknown	NPOC	L043-02	TCL002-10	1.000	NPOC:0.4063 mg/L	PH<2
11	Unknown	NPOC	L043-04	TCL002-11	1.000	NPOC:0.4775 mg/L	PH<2
12	Unknown	NPOC	L043-05	TCL002-12	1.000	NPOC:0.5392 mg/L	PH<2
13	Unknown	NPOC	L043-07	TCL002-13	1.000	NPOC:0.5760 mg/L	PH<2
14	Control	NPOC	CCV1	TCL002-14	1.000	NPOC:24.89 mg/L	
15	Unknown	NPOC	CCB1	TCL002-15	1.000	NPOC:0.06506 mg/L	
16	Unknown	NPOC	L043-07D	TCL002-16	1.000	NPOC:0.5050 mg/L	PH<2
17	Unknown	NPOC	L043-07M	TCL002-17	1.000	NPOC:24.53 mg/L	PH<2
18	Unknown	NPOC	L043-07S	TCL002-18	1.000	NPOC:25.11 mg/L	PH<2
19	Unknown	NPOC	L057-01	TCL002-19	1.000	NPOC:0.6732 mg/L	PH<2
20	Unknown	NPOC	L057-02	TCL002-20	1.000	NPOC:0.5309 mg/L	PH<2
21	Unknown	NPOC	L057-03	TCL002-21	1.000	NPOC:0.5614 mg/L	PH<2
22	Unknown	NPOC	L057-04	TCL002-22	1.000	NPOC:0.7097 mg/L	PH<2
23	Unknown	NPOC	L057-05	TCL002-23	1.000	NPOC:0.4979 mg/L	PH<2
24	Unknown	NPOC	L057-07	TCL002-24	1.000	NPOC:0.4876 mg/L	PH<2
25	Unknown	NPOC	L057-08	TCL002-25	1.000	NPOC:1.128 mg/L	PH<2
26	Control	NPOC	CCV2	TCL002-26	1.000	NPOC:24.81 mg/L	
27	Unknown	NPOC	CCB2	TCL002-27	1.000	NPOC:0.08285 mg/L	
28	Unknown	NPOC	L057-09	TCL002-28	1.000	NPOC:0.3817 mg/L	PH<2
29	Unknown	NPOC	L057-10	TCL002-29	1.000	NPOC:0.4724 mg/L	PH<2
30	Unknown	NPOC	L071-02I	TCL002-30	3.000	NPOC:7.349 mg/L	DF=3, ODOR, PH<2
31	Unknown	NPOC	L071-03	TCL002-31	1.000	NPOC:1.070 mg/L	PH<2
32	Unknown	NPOC	L071-04	TCL002-32	1.000	NPOC:1.169 mg/L	PH<2
33	Unknown	NPOC	L071-05	TCL002-33	1.000	NPOC:1.859 mg/L	PH<2
34	Unknown	NPOC	L071-06	TCL002-34	1.000	NPOC:1.724 mg/L	PH<2
35	Unknown	NPOC	L071-06D	TCL002-35	1.000	NPOC:1.767 mg/L	PH<2
36	Unknown	NPOC	L071-06M	TCL002-36	1.000	NPOC:26.04 mg/L	PH<2
37	Unknown	NPOC	L071-06S	TCL002-37	1.000	NPOC:25.82 mg/L	PH<2
38	Control	NPOC	CCV3	TCL002-38	1.000	NPOC:24.56 mg/L	
39	Unknown	NPOC	CCB3	TCL002-39	1.000	NPOC:0.07116 mg/L	
40	Unknown	NPOC	TCL003WB	TCL002-40	1.000	NPOC:0.08938 mg/L	
41	Unknown	NPOC	TCL003WL	TCL002-41	1.000	NPOC:25.94 mg/L	
42	Unknown	NPOC	TCL004WC	TCL002-42	1.000	NPOC:26.15 mg/L	
43	Unknown	NPOC	L071-07	TCL002-43	1.000	NPOC:1.967 mg/L	PH<2
44	Unknown	NPOC	L071-08	TCL002-44	1.000	NPOC:1.750 mg/L	PH<2
45	Unknown	NPOC	L071-09	TCL002-45	1.000	NPOC:1.698 mg/L	PH<2
46	Unknown	NPOC	L071-10	TCL002-46	1.000	NPOC:0.7356 mg/L	PH<2
47	Unknown	NPOC	L071-11	TCL002-47	1.000	NPOC:5.086 mg/L	PH<2
48	Unknown	NPOC	L071-12	TCL002-48	1.000	NPOC:1.325 mg/L	PH<2
49	Unknown	NPOC	L071-12D	TCL002-49	1.000	NPOC:1.248 mg/L	PH<2
50	Control	NPOC	CCV4	TCL002-50	1.000	NPOC:24.55 mg/L	
51	Unknown	NPOC	CCB4	TCL002-51	1.000	NPOC:0.09612 mg/L	
52	Unknown	NPOC	L071-12M	TCL002-52	1.000	NPOC:24.38 mg/L	PH<2
53	Unknown	NPOC	L071-12S	TCL002-53	1.000	NPOC:25.01 mg/L	PH<2
54	Unknown	NPOC	L071-13	TCL002-54	1.000	NPOC:1.272 mg/L	PH<2
55	Unknown	NPOC	L071-14	TCL002-55	1.000	NPOC:1.481 mg/L	PH<2
56	Unknown	NPOC	L071-15	TCL002-56	1.000	NPOC:1.271 mg/L	PH<2
57	Unknown	NPOC	L071-16	TCL002-57	1.000	NPOC:1.525 mg/L	PH<2
58	Unknown	NPOC	L071-17	TCL002-58	1.000	NPOC:3.266 mg/L	PH<2
59	Unknown	NPOC	L071-18	TCL002-59	1.000	NPOC:7.340 mg/L	PH<2
60	Unknown	NPOC	L071-18D	TCL002-60	1.000	NPOC:7.330 mg/L	PH<2
61	Unknown	NPOC	L071-18M	TCL002-61	1.000	NPOC:31.03 mg/L	PH<2
62	Control	NPOC	CCV5	TCL002-62	1.000	NPOC:24.57 mg/L	
63	Unknown	NPOC	CCB5	TCL002-63	1.000	NPOC:0.1155 mg/L	
64	Unknown	NPOC	L071-18S	TCL002-64	1.000	NPOC:31.51 mg/L	PH<2
65	Control	NPOC	CCV6	TCL002-65	1.000	NPOC:24.44 mg/L	
66	Unknown	NPOC	CCB6	TCL002-66	1.000	NPOC:0.1266 mg/L	FINAL
67							

4A 12/19/19

Instr.Information

System	TOC-9060/415.1/5310B
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

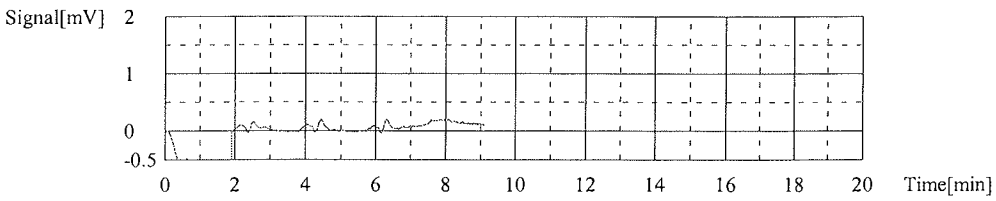
Sample Name:	ICAL - Instrument 62
Sample ID:	TCL002-01
Cal. Curve:	TCL002.2019_12_13_17_58_16.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.1991	50uL	1	*******		12/13/19 06:06:50 PM
2	0.2906	50uL	1	*******		12/13/19 06:08:54 PM
3	0.2830	50uL	1	*******		12/13/19 06:10:58 PM
4	1.037	50uL	1	*******		12/13/19 06:14:32 PM

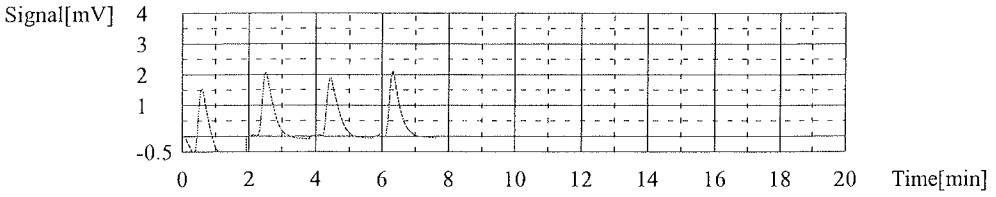
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 0.4524



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	4.164	50uL	1	*******		12/13/19 06:23:29 PM
2	4.577	50uL	1	*******		12/13/19 06:25:33 PM
3	4.352	50uL	1	*******		12/13/19 06:27:38 PM
4	4.107	50uL	1	*******		12/13/19 06:29:42 PM

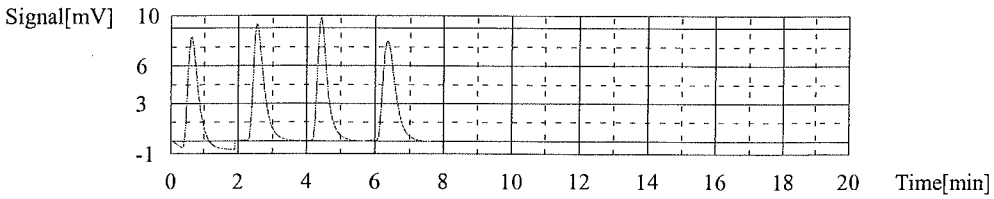
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 4.300



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	20.00	50uL	1	*******		12/13/19 06:38:28 PM
2	21.02	50uL	1	*******		12/13/19 06:40:32 PM
3	20.36	50uL	1	*******		12/13/19 06:42:37 PM
4	20.80	50uL	1	*******		12/13/19 06:44:42 PM

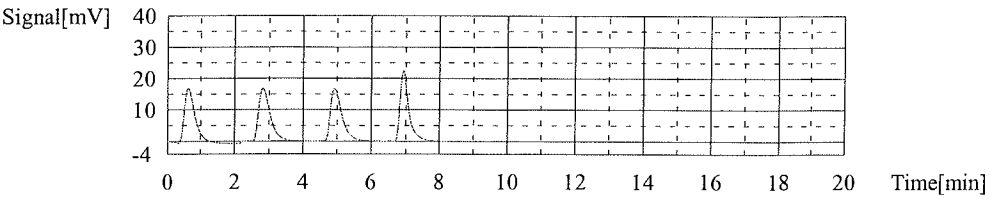
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 20.54



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	39.27	50uL	1	*******		12/13/19 06:53:45 PM
2	41.35	50uL	1	*******		12/13/19 06:56:03 PM
3	41.02	50uL	1	*******		12/13/19 06:58:14 PM
4	41.13	50uL	1	*******		12/13/19 07:00:19 PM

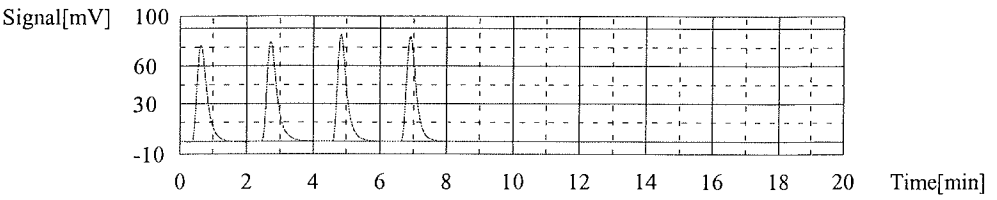
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 40.69



Conc: 40.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	168.9	50uL	1	*******		12/13/19 07:09:20 PM
2	172.6	50uL	1	*******		12/13/19 07:11:36 PM
3	172.1	50uL	1	*******		12/13/19 07:13:51 PM
4	173.7	50uL	1	*******		12/13/19 07:16:01 PM

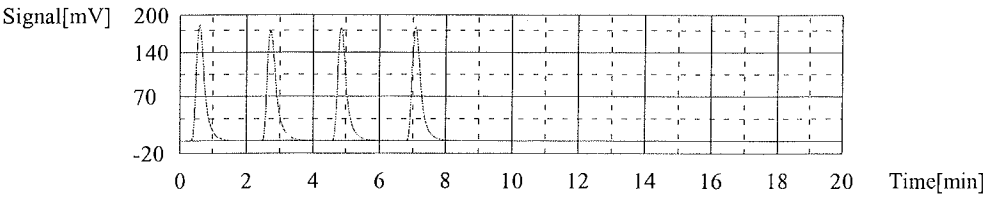
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 171.8



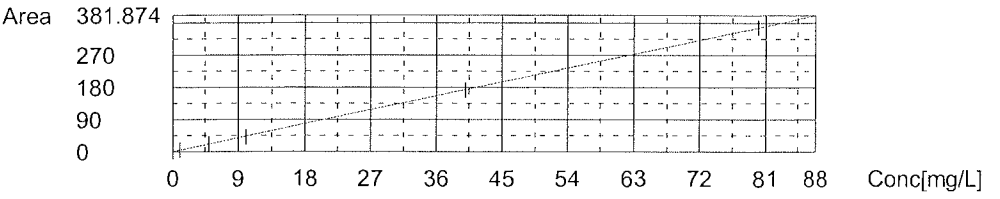
Conc: 80.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	343.1	50uL	1	*******		12/13/19 07:25:02 PM
2	347.3	50uL	1	*******		12/13/19 07:27:20 PM
3	347.1	50uL	1	*******		12/13/19 07:29:45 PM
4	350.1	50uL	1	*******		12/13/19 07:32:01 PM

Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 346.9



Slope: 4.339
Intercept 0.000
r^2 0.999926



Control Sample

Sample Name: ICV
Sample ID: TCL002-02
Method: TCL002.tpl
Chk. Result Control value: 26.10 / Control exceeds range!

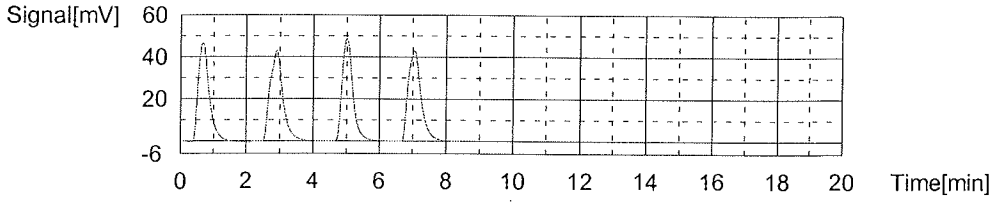
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:26.10 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	111.9	25.79mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 07:41:12 PM
2	114.2	26.32mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 07:43:31 PM
3	113.3	26.11mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 07:45:43 PM
4	113.7	26.20mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 07:48:00 PM

Mean Area 113.3
Mean Conc. 26.10mg/L



Sample

Sample Name: ICB
Sample ID: TCL002-03
Origin: TCL002.cal
Chk. Result

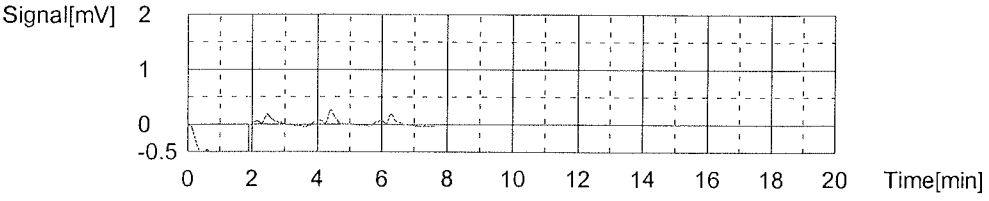
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.05792 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.1386	0.03194mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 07:56:43 PM
2	0.3531	0.08137mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 07:58:47 PM
3	0.2896	0.06674mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:00:51 PM
4	0.2240	0.05162mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:02:56 PM

Mean Area 0.2513
Mean Conc. 0.05792mg/L



Sample

Sample Name: HCO3/CO3
Sample ID: TCL002-04
Origin: TCL002.cal
Chk. Result

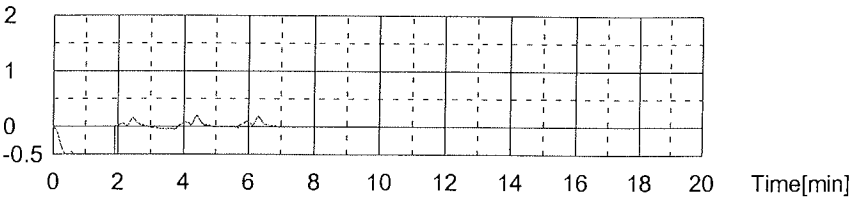
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.03730 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.000	0.000mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:24:45 PM
2	0.1819	0.04192mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:26:49 PM
3	0.2880	0.06637mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:28:53 PM
4	0.1775	0.04090mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:30:58 PM

Mean Area 0.1619
Mean Conc. 0.03730mg/L



Sample

Sample Name: TCL002WB
Sample ID: TCL002-05
Origin: TCL002.cal
Chk. Result

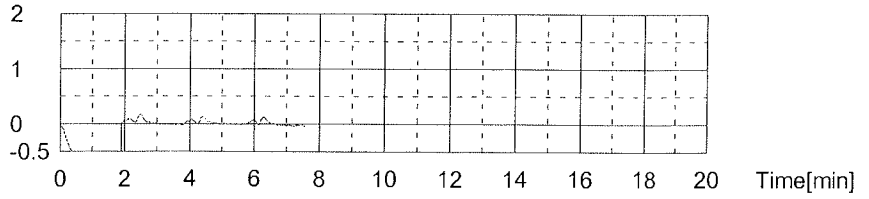
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.03444 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.000	0.000mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:52:32 PM
2	0.2032	0.04683mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:54:37 PM
3	0.1860	0.04286mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:56:41 PM
4	0.2086	0.04807mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:58:46 PM

Mean Area 0.1495
Mean Conc. 0.03444mg/L



Sample

Sample Name: TCL002WL
Sample ID: TCL002-06
Origin: TCL002.cal
Chk. Result

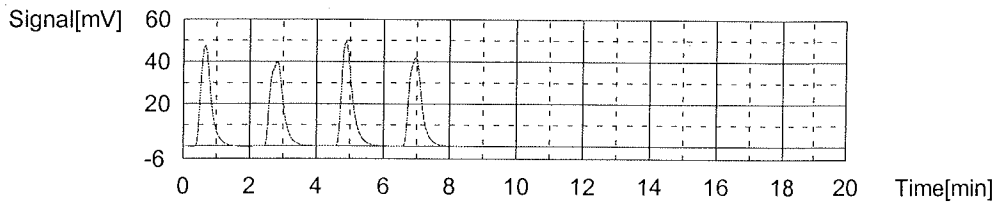
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:25.84 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	108.9	25.10mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:07:42 PM
2	113.1	26.06mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:10:02 PM
3	113.0	26.04mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:12:12 PM
4	113.5	26.16mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:14:34 PM

Mean Area 112.1
Mean Conc. 25.84mg/L



Sample

Sample Name: TCL002WC
Sample ID: TCL002-07
Origin: TCL002.cal
Chk. Result

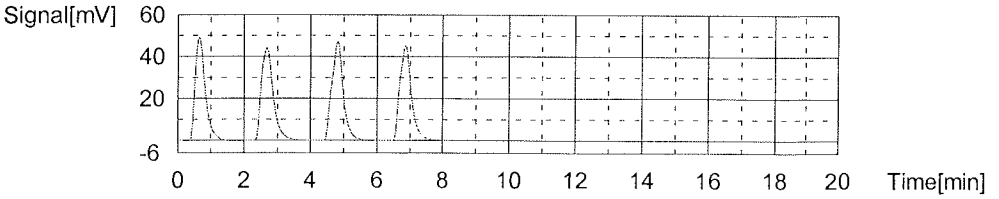
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:25.84 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	109.1	25.14mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:23:24 PM
2	112.6	25.95mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:25:39 PM
3	113.8	26.22mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:27:54 PM
4	113.0	26.04mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:30:06 PM

Mean Area 112.1
Mean Conc. 25.84mg/L



Sample

Sample Name: L014-011
Sample ID: TCL002-08
Origin: TCL002.cal
Chk. Result

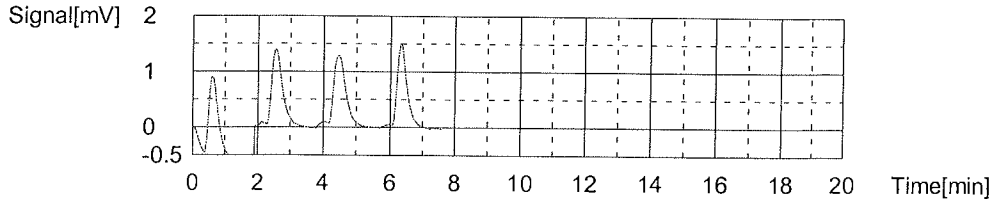
Type	Anal.	Dil.	Result
Unknown	NPOC	20.00	NPOC:14.05 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.663	12.27mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:38:52 PM
2	3.299	15.20mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:40:57 PM
3	3.277	15.10mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:43:01 PM
4	2.957	13.63mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:45:06 PM

Mean Area 3.049
Mean Conc. 14.05mg/L



Sample

Sample Name: L043-01
Sample ID: TCL002-09
Origin: TCL002.cal
Chk. Result

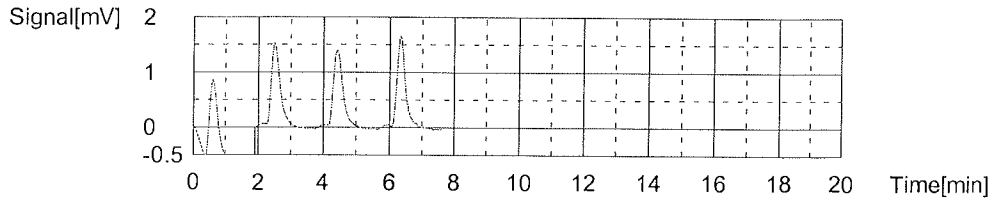
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.6428 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.400	0.5531mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:53:51 PM
2	2.939	0.6773mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:55:56 PM
3	2.967	0.6837mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:58:00 PM
4	2.852	0.6572mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:00:04 PM

Mean Area 2.790
Mean Conc. 0.6428mg/L



Sample

Sample Name: L043-02
Sample ID: TCL002-10
Origin: TCL002.cal
Chk. Result

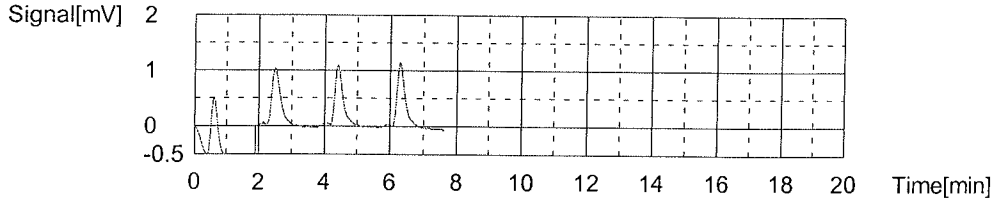
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.4063 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.578	0.3636mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:08:50 PM
2	1.792	0.4130mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:10:55 PM
3	1.798	0.4143mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:12:59 PM
4	1.884	0.4342mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:15:03 PM

Mean Area 1.763
Mean Conc. 0.4063mg/L



Sample

Sample Name: L043-04
Sample ID: TCL002-11
Origin: TCL002.cal
Chk. Result

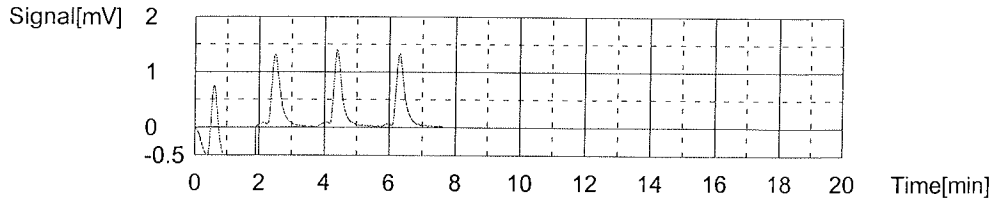
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.4775 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.853	0.4270mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:23:55 PM
2	2.156	0.4968mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:26:00 PM
3	2.144	0.4941mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:28:04 PM
4	2.136	0.4922mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:30:08 PM

Mean Area 2.072
Mean Conc. 0.4775mg/L



Sample

Sample Name: L043-05
Sample ID: TCL002-12
Origin: TCL002.cal
Chk. Result

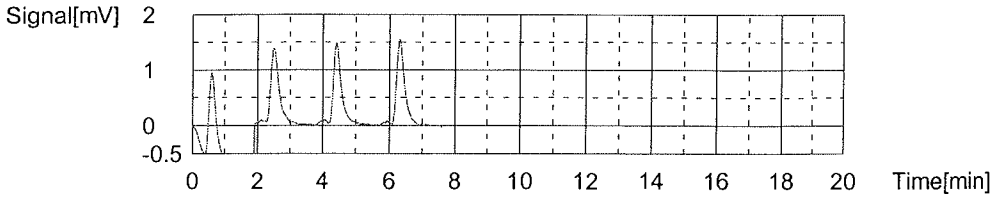
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.5392 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.258	0.5203mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:39:00 PM
2	2.399	0.5528mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:41:04 PM
3	2.238	0.5157mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:43:09 PM
4	2.465	0.5680mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:45:13 PM

Mean Area 2.340
Mean Conc. 0.5392mg/L



Sample

Sample Name: L043-07
Sample ID: TCL002-13
Origin: TCL002.cal
Chk. Result

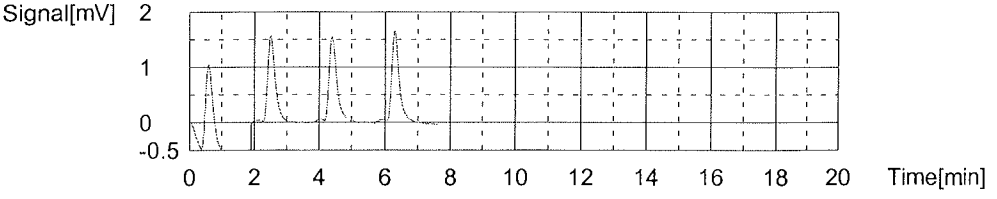
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.5760 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.538	0.5849mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:54:05 PM
2	2.504	0.5770mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:56:09 PM
3	2.442	0.5627mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:58:14 PM
4	2.514	0.5793mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:00:18 PM

Mean Area 2.500
Mean Conc. 0.5760mg/L



Control Sample

Sample Name: CCV1
Sample ID: TCL002-14
Method: TCL002.tpl
Chk. Result Control value: 24.89 / Control exceeds range!

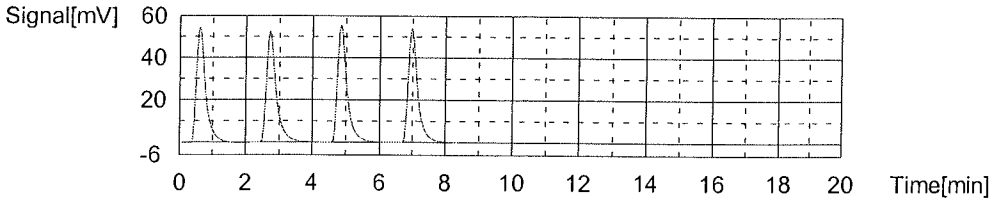
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.89 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	107.4	24.75mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:09:22 PM
2	107.9	24.86mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:11:41 PM
3	108.6	25.03mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:13:59 PM
4	108.2	24.93mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:16:11 PM

Mean Area 108.0
Mean Conc. 24.89mg/L



Sample

Sample Name: CCB1
Sample ID: TCL002-15
Origin: TCL002.cal
Chk. Result

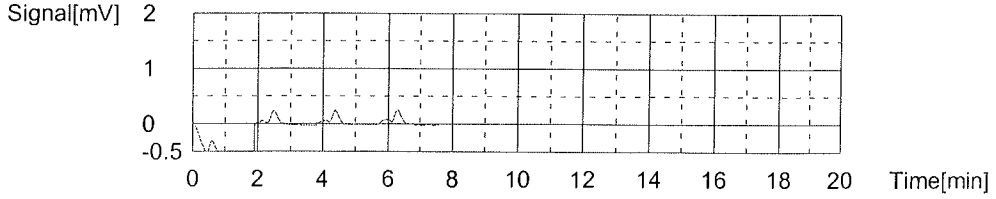
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.06506 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.2046	0.04715mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:24:57 PM
2	0.4022	0.09268mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:27:01 PM
3	0.2490	0.05738mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:29:06 PM
4	0.2735	0.06303mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:31:10 PM

Mean Area 0.2823
Mean Conc. 0.06506mg/L



Sample

Sample Name: L043-07D
Sample ID: TCL002-16
Origin: TCL002.cal
Chk. Result

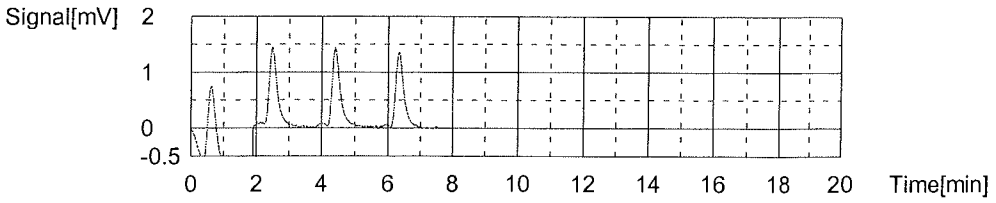
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.5050 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.160	0.4978mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:52:52 PM
2	2.160	0.4978mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:54:56 PM
3	2.223	0.5123mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:57:01 PM
4	2.222	0.5120mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:59:05 PM

Mean Area 2.191
Mean Conc. 0.5050mg/L



Sample

Sample Name: L043-07M
Sample ID: TCL002-17
Origin: TCL002.cal
Chk. Result

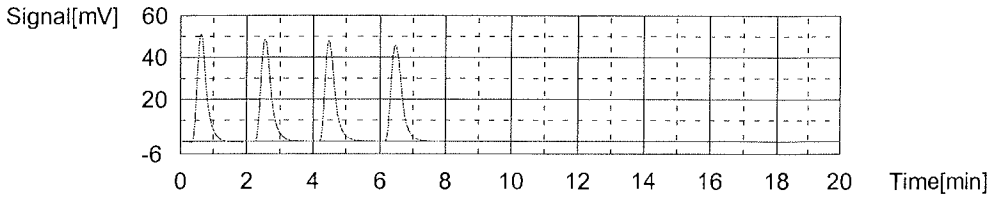
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:24.53 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	105.1	24.22mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:07:57 AM
2	106.6	24.57mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:10:04 AM
3	106.4	24.52mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:12:12 AM
4	107.7	24.82mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:14:23 AM

Mean Area 106.5
Mean Conc. 24.53mg/L



Sample

Sample Name: L043-07S
Sample ID: TCL002-18
Origin: TCL002.cal
Chk. Result

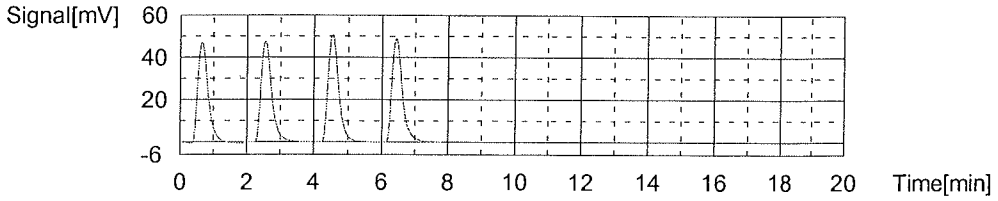
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:25.11 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	108.3	24.96mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:23:10 AM
2	109.1	25.14mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:25:19 AM
3	108.6	25.03mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:27:23 AM
4	109.8	25.30mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:29:34 AM

Mean Area 109.0
Mean Conc. 25.11mg/L



Sample

Sample Name: L057-01
Sample ID: TCL002-19
Origin: TCL002.cal
Chk. Result

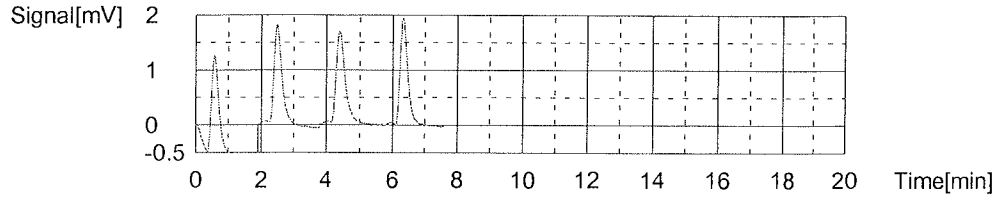
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.6732 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.534	0.5839mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:38:26 AM
2	3.041	0.7008mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:40:30 AM
3	3.010	0.6936mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:42:34 AM
4	3.101	0.7146mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:44:39 AM

Mean Area 2.922
Mean Conc. 0.6732mg/L



Sample

Sample Name: L057-02
Sample ID: TCL002-20
Origin: TCL002.cal
Chk. Result

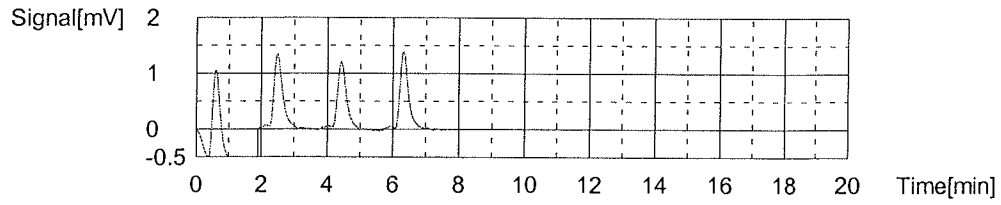
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.5309 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.498	0.5756mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:53:26 AM
2	2.273	0.5238mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:55:30 AM
3	2.102	0.4844mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:57:34 AM
4	2.343	0.5399mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:59:39 AM

Mean Area 2.304
Mean Conc. 0.5309mg/L



Sample

Sample Name: L057-03
Sample ID: TCL002-21
Origin: TCL002.cal
Chk. Result

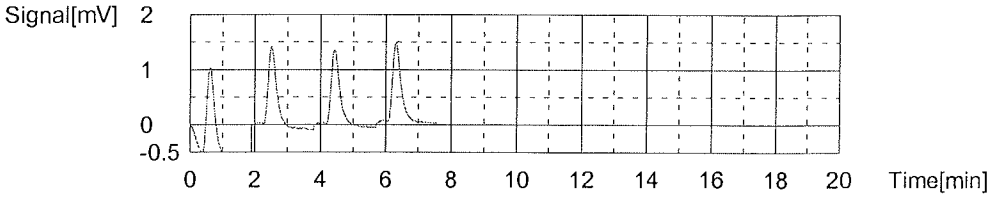
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.5614 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.563	0.5906mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:08:26 AM
2	2.327	0.5362mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:10:30 AM
3	2.329	0.5367mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:12:34 AM
4	2.526	0.5821mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:14:39 AM

Mean Area 2.436
Mean Conc. 0.5614mg/L



Sample

Sample Name: L057-04
Sample ID: TCL002-22
Origin: TCL002.cal
Chk. Result

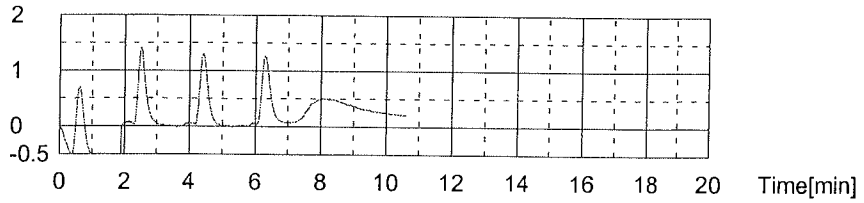
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.7097 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.089	0.4814mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:23:26 AM
2	2.104	0.4849mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:25:30 AM
3	2.144	0.4941mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:27:34 AM
4	5.982	1.379mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:32:39 AM

Mean Area 3.080
Mean Conc. 0.7097mg/L



Sample

Sample Name: L057-05
Sample ID: TCL002-23
Origin: TCL002.cal
Chk. Result

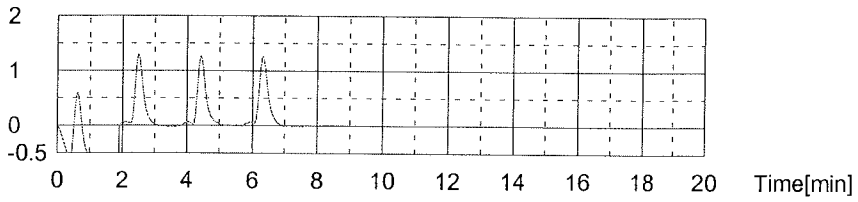
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.4979 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.895	0.4367mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:41:25 AM
2	2.197	0.5063mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:43:30 AM
3	2.285	0.5266mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:45:34 AM
4	2.265	0.5220mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:47:39 AM

Mean Area 2.161
Mean Conc. 0.4979mg/L



Sample

Sample Name: L057-07
Sample ID: TCL002-24
Origin: TCL002.cal
Chk. Result

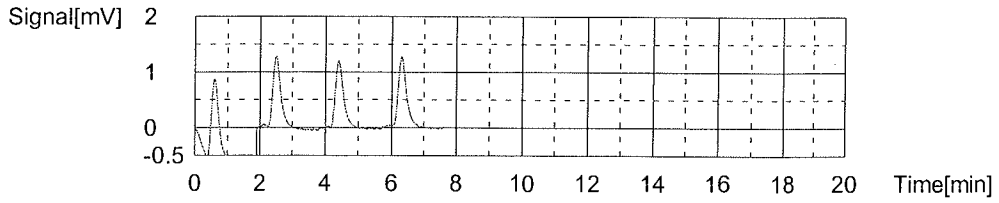
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.4876 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.163	0.4984mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:56:30 AM
2	2.067	0.4763mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:58:35 AM
3	2.053	0.4731mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:00:39 AM
4	2.181	0.5026mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:02:44 AM

Mean Area 2.116
Mean Conc. 0.4876mg/L



Sample

Sample Name: L057-08
Sample ID: TCL002-25
Origin: TCL002.cal
Chk. Result

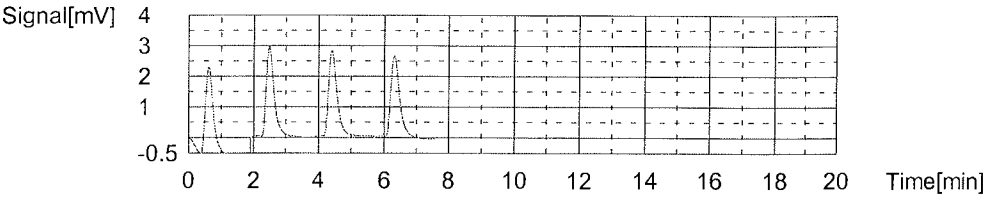
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.128 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4.650	1.072mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:11:30 AM
2	4.864	1.121mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:13:35 AM
3	4.998	1.152mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:15:39 AM
4	5.075	1.169mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:17:44 AM

Mean Area 4.897
Mean Conc. 1.128mg/L



Control Sample

Sample Name: CCV2
Sample ID: TCL002-26
Method: TCL002.tpl
Chk. Result Control value: 24.81 / Control exceeds range!

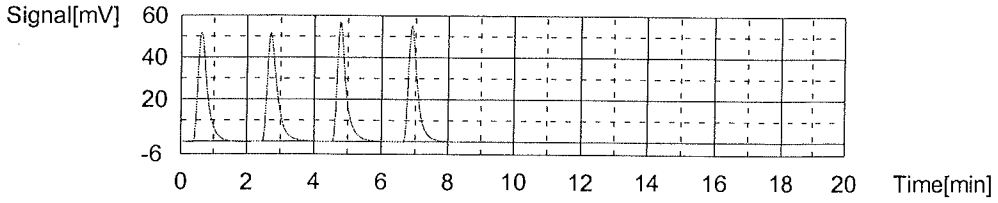
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.81 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	107.8	24.84mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:26:48 AM
2	107.3	24.73mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:29:03 AM
3	107.2	24.70mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:31:19 AM
4	108.3	24.96mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:33:32 AM

Mean Area 107.7
Mean Conc. 24.81mg/L



Sample

Sample Name: CCB2
Sample ID: TCL002-27
Origin: TCL002.cal
Chk. Result

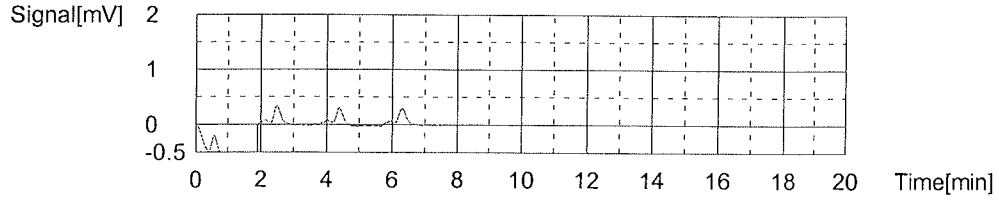
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.08285 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.3003	0.06920mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:42:12 AM
2	0.4097	0.09441mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:44:17 AM
3	0.3618	0.08337mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:46:21 AM
4	0.3663	0.08441mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:48:25 AM

Mean Area 0.3595
Mean Conc. 0.08285mg/L



Sample

Sample Name: L057-09
Sample ID: TCL002-28
Origin: TCL002.cal
Chk. Result

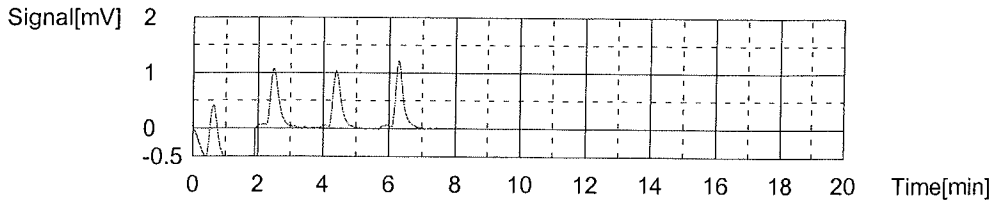
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.3817 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.457	0.3358mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:10:07 AM
2	1.686	0.3885mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:12:11 AM
3	1.696	0.3908mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:14:16 AM
4	1.786	0.4116mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:16:20 AM

Mean Area 1.656
Mean Conc. 0.3817mg/L



Sample

Sample Name: L057-10
Sample ID: TCL002-29
Origin: TCL002.cal
Chk. Result

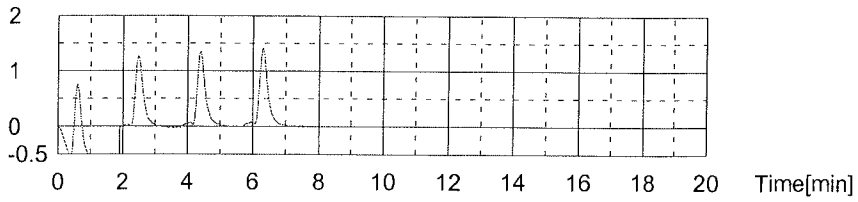
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.4724 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.845	0.4252mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:25:12 AM
2	2.041	0.4703mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:27:16 AM
3	2.135	0.4920mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:29:21 AM
4	2.179	0.5021mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:31:25 AM

Mean Area 2.050
Mean Conc. 0.4724mg/L



Sample

Sample Name: L071-021
Sample ID: TCL002-30
Origin: TCL002.cal
Chk. Result

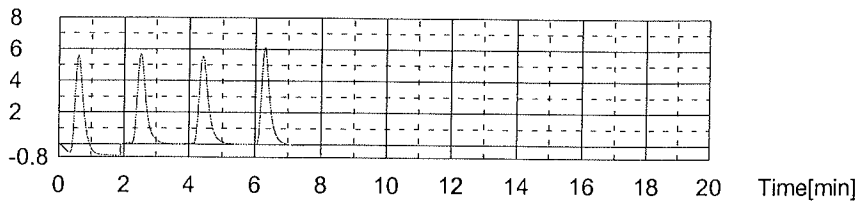
Type	Anal.	Dil.	Result
Unknown	NPOC	3.000	NPOC:7.349 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	10.35	7.155mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:40:12 AM
2	10.65	7.363mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:42:16 AM
3	10.72	7.411mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:44:21 AM
4	10.80	7.466mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:46:25 AM

Mean Area 10.63
Mean Conc. 7.349mg/L



Sample

Sample Name: L071-03
Sample ID: TCL002-31
Origin: TCL002.cal
Chk. Result

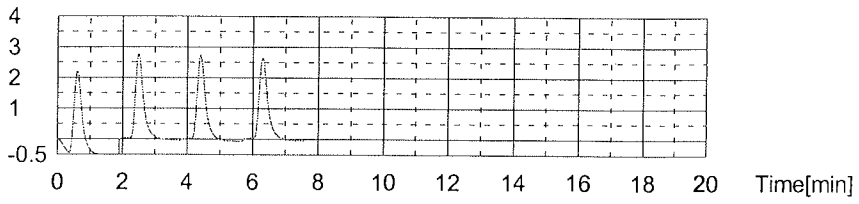
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.070 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4.467	1.029mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:55:17 AM
2	4.620	1.065mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:57:21 AM
3	4.758	1.096mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:59:26 AM
4	4.735	1.091mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:01:30 AM

Mean Area 4.645
Mean Conc. 1.070mg/L



Sample

Sample Name: L071-04
Sample ID: TCL002-32
Origin: TCL002.cal
Chk. Result

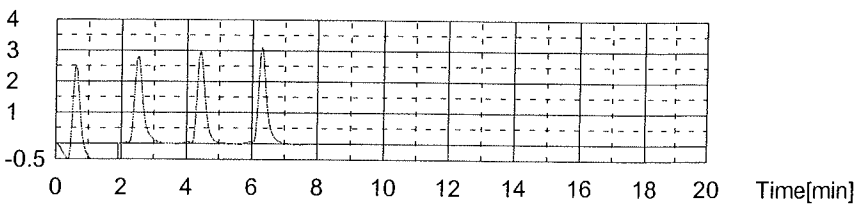
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.169 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4.941	1.139mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:10:43 AM
2	5.052	1.164mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:12:47 AM
3	5.070	1.168mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:14:52 AM
4	5.235	1.206mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:16:56 AM

Mean Area 5.075
Mean Conc. 1.169mg/L



Sample

Sample Name: L071-05
Sample ID: TCL002-33
Origin: TCL002.cal
Chk. Result

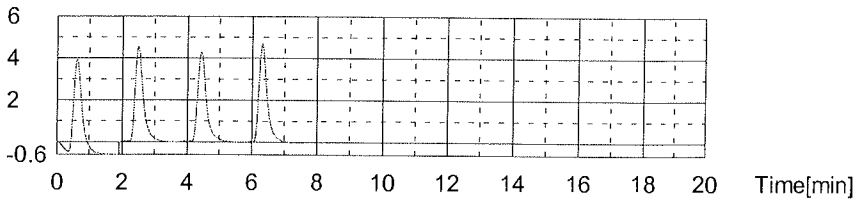
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.859 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.836	1.806mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:26:00 AM
2	8.003	1.844mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:28:04 AM
3	8.199	1.889mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:30:09 AM
4	8.235	1.898mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:32:13 AM

Mean Area 8.068
Mean Conc. 1.859mg/L



Sample

Sample Name: L071-06
Sample ID: TCL002-34
Origin: TCL002.cal
Chk. Result

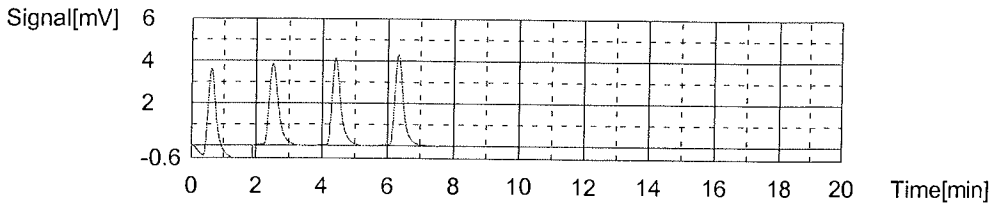
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.724 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.070	1.629mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:41:06 AM
2	7.375	1.700mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:43:10 AM
3	7.572	1.745mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:45:15 AM
4	7.914	1.824mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:47:19 AM

Mean Area 7.483
Mean Conc. 1.724mg/L



Sample

Sample Name: L071-06D
Sample ID: TCL002-35
Origin: TCL002.cal
Chk. Result

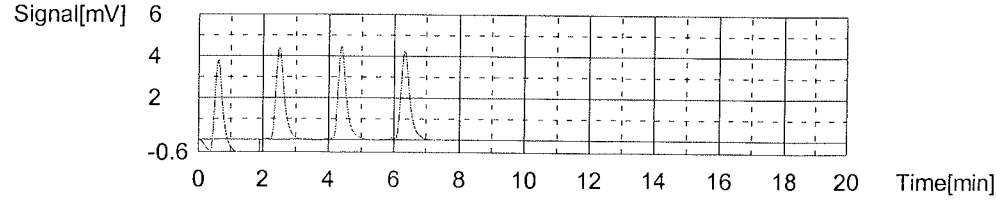
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.767 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.297	1.682mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:56:12 AM
2	7.675	1.769mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:58:16 AM
3	7.571	1.745mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:00:20 AM
4	8.126	1.873mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:02:25 AM

Mean Area 7.667
Mean Conc. 1.767mg/L



Sample

Sample Name: L071-06M
Sample ID: TCL002-36
Origin: TCL002.cal
Chk. Result

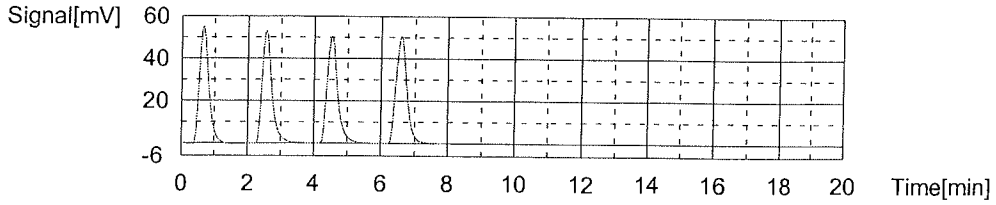
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:26.04 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	113.4	26.13mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:11:29 AM
2	111.9	25.79mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:13:37 AM
3	113.2	26.09mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:15:48 AM
4	113.5	26.16mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:17:56 AM

Mean Area 113.0
Mean Conc. 26.04mg/L



Sample

Sample Name: L071-06S
Sample ID: TCL002-37
Origin: TCL002.cal
Chk. Result

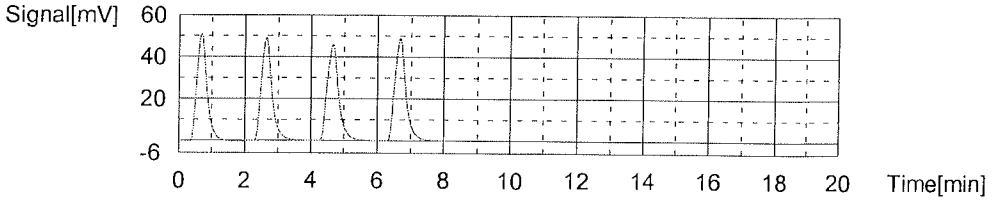
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:25.82 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	112.2	25.86mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:26:54 AM
2	111.4	25.67mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:29:05 AM
3	111.9	25.79mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:31:17 AM
4	112.6	25.95mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:33:33 AM

Mean Area 112.0
Mean Conc. 25.82mg/L



Control Sample

Sample Name: CCV3
Sample ID: TCL002-38
Method: TCL002.tpl
Chk. Result Control value: 24.56 / Control exceeds range!

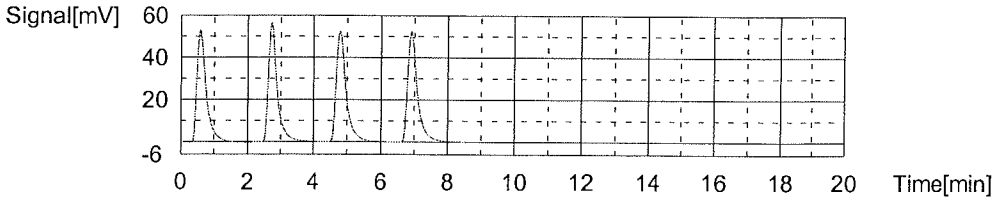
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.56 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	105.5	24.31mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:42:34 AM
2	106.5	24.54mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:44:48 AM
3	106.7	24.59mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:47:04 AM
4	107.6	24.80mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:49:27 AM

Mean Area 106.6
Mean Conc. 24.56mg/L



Sample

Sample Name: CCB3
Sample ID: TCL002-39
Origin: TCL002.cal
Chk. Result

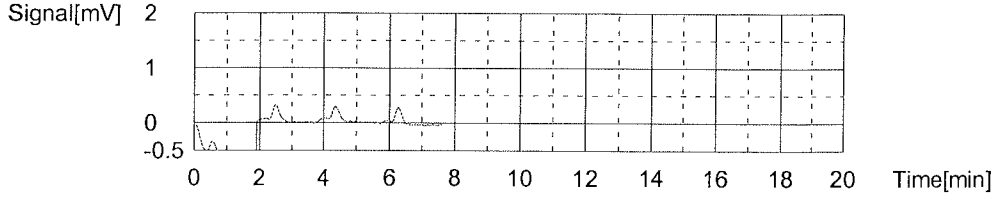
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.07116 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.2261	0.05210mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:58:13 AM
2	0.3810	0.08780mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 06:00:18 AM
3	0.2993	0.06897mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 06:02:22 AM
4	0.3288	0.07577mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 06:04:27 AM

Mean Area 0.3088
Mean Conc. 0.07116mg/L



Sample

Sample Name: TCL003WB
Sample ID: TCL002-40
Origin: TCL002.cal
Chk. Result

Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.08938 mg/L

1. Det

Anal.: NPOC

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889

Date: 01-13-2020
EMAX Batch No.: 19L057

Attn: Cherie Zakowski

CDM Smith
555 17th Street, Suite 500
Denver, CO 80202

Subject: Laboratory Report
Project: VA SALT LAKE CITY

Enclosed is the Laboratory report for samples received on 12/07/19.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
OU2-MW12S-GW120619	L057-01	12/06/19	WATER	1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON VOCS BY 8260C
OU2-MW12D-GW120619	L057-02	12/06/19	WATER	1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON VOCS BY 8260C
OU2-MW16S-GW120619	L057-03	12/06/19	WATER	DISSOLVED GAS VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON
OU2-MW16D-GW120619	L057-04	12/06/19	WATER	DISSOLVED GAS VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON
OU2-MW06-GW120619	L057-05	12/06/19	WATER	1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON VOCS BY 8260C
OU2-TB05-GW120619	L057-06	12/06/19	WATER	VOCS BY 8260C

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889

Sample ID	Control #	Col Date	Matrix	Analysis
OU2-FD01-GW120519	L057-07	12/05/19	WATER	1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON VOCS BY 8260C
OU2-MW13S-GW120519	L057-08	12/05/19	WATER	1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON VOCS BY 8260C
OU2-MW13D-GW120519	L057-09	12/05/19	WATER	1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON VOCS BY 8260C
OU2-MW04-GW120519	L057-10	12/05/19	WATER	1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON VOCS BY 8260C
OU2-TB04-GW120619	L057-11	12/06/19	WATER	VOCS BY 8260C

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Caspar J. Pang
Laboratory Director

EMAX certifies that results included in this report meets all TNI & DOD requirements unless noted in the Case Narrative.

NELAP Accredited Certificate Number CA002912018-15
ANAB Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing
California ELAP Accredited Certificate Number 2672

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. * 19L043 / 19L057

PROJECT CODE:

CLIENT CDM Smith

PROJECT 700 South 1600 East PCE Plume

COORDINATOR Cherie Zakowski zakowskic@cdmsmith.com
TEL 720-264-1109 FAX EMAIL

SEND REPORT TO

COMPANY CDM Smith

ADDRESS 555 17th St Suite 500
Denver, CO 80201

EMAX PM Ramon Sinjn

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs 8260C; 1,4-Dioxane 8270D SIM; Gases (MEE) RSK-175; Metals-Aerqy 6020A 7470; Chloride Sulfate 300; Nitrate-N Nitrite 4500; Alkalinity TDS; TOC 9060

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	PRESERVATIVE CODE HC	IC	HC	HN	IC	HS	IC	HS	COMMENTS
1	OU2-MW02-GW120519		12/5/19	12:15	13			GW	MS/MSD	X	X	X	X	X	X	X	X	MS/MSD in other cooler 19L043-7
2	OU2-FD01-GW120519		12/5/19	1300	13			GW		X	X	X	X	X	X	X	X	
3	OU2-MW13S-GW120519		12/5/19	1440	6			GW		X		X						
4	OU2-MW13D-GW120519		12/5/19	1655	6			GW		X		X						
5	OU2-MW04-GW120519		12/5/19	1605	6			GW		X		X						
6	OU2-TB04-GW120619		12/6/19	915	3			GW		X								
7																		
8																		
9																		
10																		

19L057

(7) 7 8 9 10 11 12 & 12/9/19

Instructions

Cooler #	Temp. (°C)	Sample #s
3	5.4	
4	3.0	

SAMPLER Kala Leswe 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
[signature]	12/6/19	1000	Fedex
Fedex	12/07/19	1057	Jenessa Nakagawa

NOTICE: Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepancies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associated with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. * 19L057

PROJECT CODE:

CLIENT CDM Smith
PROJECT 700 South 1600 East PCE Plume
COORDINATOR Cherie Zakowski
TEL 720-264-1109 FAX EMAIL zakowskica@cdmsmith.com
SEND REPORT TO
COMPANY CDM Smith
ADDRESS 555 17th St Suite 500
Denver, CO 80201
EMAX PM Raman Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs 8260C; 1,4-Dioxane 8270D SIM; Gases (RSK-175/EE); metals: Energy/6020A+7470; Chloride, Sulfate / 300; Nitrate, Nitrite / 353.2; Alkalinity / 2320; TOC / 9060

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	PRESERVATIVE CODE HC	IC	HC	HN	IC	HS	IC	HS	COMMENTS
1	~~KH 12/6/19 Add~~ OU2-MW13SGW120519		12/5/19	1440	7			GW			X		X	X	X	X	X	
2	OU2-MW13DGW120519		12/5/19	1655	7			GW			X		X	X	X	X	X	
3	OU2-MW04-GW120519		12/5/19	1005	7			GW			X		X	X	X	X	X	
4																		
5																		
6																		
7																		
8																		
9																		
10																		

9 8:12 & 12/9/19
10 9:12
11 10:14

Instructions

Cooler #	Temp. (°C)	Sample #s
3	5.6	
2	3.6	

SAMPLER

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/6/19	1000	Fedex
Fedex	12/07/19	1057	Jenessa Nakagawa

NOTICE: Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

Type of Delivery	Airbill / Tracking Number	ECN 19L057
☑ Fedex ☐ UPS ☐ GSO ☐ Others	7786 7759 0782	Recipient Senesso N.
☐ EMAX Courier ☐ Client Delivery	7786 7759 0793	Date 12/7/19 Time 1057

COC INSPECTION

☑ Client Name	☑ Client PM/FC	☑ Sampler Name	☑ Sampling Date/Time	☑ Sample ID	☑ Matrix
☑ Address	☑ Tel # / Fax #	☑ Courier Signature	☑ Analysis Required	☑ Preservative (if any)	☑ TAT
Safety Issues (if any)	☐ High concentrations expected	☐ From Superfund Site	☐ Rad screening required		

Note: _____

PACKAGING INSPECTION

Container	☑ Cooler	☐ Box	☐ Other		
Condition	☑ Custody Seal	☐ Intact	☐ Damaged		
Packaging	☑ Bubble Pack	☐ Styrofoam	☐ Popcorn	☐ Sufficient	☐ _____
Temperatures (Cool, ≤6 °C but not frozen)	☑ Cooler 1 2.7 °C	☑ Cooler 2 3.8 °C	☑ Cooler 3 5.4 °C	☑ Cooler 4 3.4 °C	☐ Cooler 5 _____ °C
	☐ Cooler 6 _____ °C	☐ Cooler 7 _____ °C	☐ Cooler 8 _____ °C	☐ Cooler 9 _____ °C	☐ Cooler 10 _____ °C
Thermometer:	A - S/N 192381464	B - S/N _____	(C) S/N 192381462	D - S/N _____	

Comments: ☐ **Temperature is out of range. PM was informed IMMEDIATELY.**

Note: _____

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
4	40-51	D7	label Reads 10:10	R1 - label, R2
4		D5	label Reads, DW2 - MW16D - 12/06/19	R2
			Analysis TOC	
3, 4, 5		D11	Received 13 cont per sample.	R1
5	58-64	D1	ICE - (1) HDPE - H_2SO_4 - TOC/TDS,	R2
			(1) 125 HDPE unp! / Anions	↓
			(1) 250 amber H_2SO_4 / TOC	
			(1) 250 - HNO_3 / Metals	
			(1) 1L HDPE / TDS, AK.	
			(2) 1L Amber / 1,4 Dioxane	
9	100	D6		R1
			CD 12/10/19	

☐ pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.

NOTES/OBSERVATIONS:

LEGEND:

☐ **Continue to next page.**

Code	Description- Sample Management
D1	Analysis is not indicated in COC
D2	Analysis mismatch COC vs label
D3	Sample ID mismatch COC vs label
D4	Sample ID is not indicated in _____
(D5)	Container -[improper] [leaking] [broken]
D6	Date/Time is not indicated in Label
(D7)	Date/Time mismatch COC vs label
D8	Sample listed in COC is not received
D9	Sample received is not listed in COC
D10	No initial/date on corrections in COC/label
(D11)	Container count mismatch COC vs received
D12	Container size mismatch COC vs received

Code	Description-Sample Management
D13	Out of Holding Time
D14	Bubble is >6mm
D15	No trip blank in cooler
D16	Preservation not indicated in _____
D17	Preservation mismatch COC vs label
D18	Insufficient chemical preservative
D19	Insufficient Sample
D20	No filtration info for dissolved analysis
D21	No sample for moisture determination
D22	_____
D23	_____
D24	_____

Code	Description-Sample Management
(R1)	Proceed as indicated in ☐ COC ☐ Label
(R2)	Refer to attached instruction
R3	Cancel the analysis
R4	Use vial with smallest bubble first
R5	Log-in with latest sampling date and time+1 min
R6	Adjust pH as necessary
R7	Filter and preserved as necessary
R8	_____
R9	_____
R10	_____
R11	_____
R12	_____

REVIEWS:

Sample Labeling Rosemarie / Cynthia
Date 12/10/19 12/9/19

SRF Cynthia
Date 12/10/19

PM
Date 12/10/19

Raman Singh

From: Raman Singh
Sent: Tuesday, December 10, 2019 9:01 AM
To: Leslie, Karla L.; Zakowski, Cherie
Cc: Cecilia Chavez
Subject: RE: VA SLC; 19L057 discrepancies

Hi Karla,

We will proceed as below. Per our phone conversation, we will proceed to take an aliquot from the preserved 4500 bottle. Let me know if you have any questions.

Thanks!

Raman Singh
Project Manager
EMAX Laboratories, Inc.
1835 W 205th St
Torrance, CA 90501
Tel: 310-618-8889 ext. 119
RSingh@emaxlabs.com

EMAX is interested in your feedback; please provide your comments to: customerservice@emaxlabs.com.

Note:
EMAX will be closed for the following holidays. Please contact me in advance if you will have short hold samples including BOD.

Company Day Off- 12/14 (Saturday)
Christmas- 12/23 to 12/25
New Year- 12/30 to 1/1

From: Leslie, Karla L. [mailto:lesliekl@cdmsmith.com]
Sent: Tuesday, December 10, 2019 8:40 AM
To: Raman Singh <RSingh@emaxlabs.com>; Zakowski, Cherie <ZakowskiCA@cdmsmith.com>
Cc: Cecilia Chavez <CChavez@emaxlabs.com>
Subject: RE: VA SLC; 19L057 discrepancies

Hi Raman,

My apologies for the delay in my response, I was travelling yesterday. Please see responses below in red.

Karla

From: Raman Singh <RSingh@emaxlabs.com>
Sent: Monday, December 09, 2019 12:51 PM
To: Zakowski, Cherie <ZakowskiCA@cdmsmith.com>; Leslie, Karla L. <lesliekl@cdmsmith.com>
Cc: Cecilia Chavez <CChavez@emaxlabs.com>
Subject: VA SLC; 19L057 discrepancies

Hi Cherie/Karla,

Attached is the COC and SRFs for SDG 19L057 received Saturday. We found the following discrepancies; please let us know how to proceed;

- For minor discrepancies, we plan to follow the COC. Concur.
- Please confirm the collection time for sample #4 (OU2-MW16D-GW120619): COC= 10:19 vs. Label= 10:10 Sample was collected at 10:10. Please revise the COC.
- The bottle for TOC was received broken for sample #4. We can take an aliquot for TOC from the preserved SM4500 Nitrate/Nitrite bottle; however an MS/MSD cannot be run on this sample for both analyses. Would you like us to proceed for taking an aliquot from the preserved 4500 bottle? Please proceed with running an MS/MSD for the TOC analysis.
- Sample #5 (OU2-MW06-GW120619) was not marked on the COC for SM4500/Anions/TOC/Metals/TDS/Alkanility/1,4-Dioxane, however, bottles were received. We plan to proceed with analysis of this sample for the above analyses suite. Please proceed with the analysis.

Please let us know how to proceed as soon as possible.

Thanks,

Raman Singh
Project Manager
EMAX Laboratories, Inc.
1835 W 205th St
Torrance, CA 90501
Tel: 310-618-8889 ext. 119
RSingh@emaxlabs.com

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Company Day Off- 12/14 (Saturday)
Christmas- 12/23 to 12/25
New Year- 12/30 to 1/1

ORIGIN ID:NPHA (785) 727-0107
CDM SMITH

555 17TH ST STE 1100

DENVER, CO 80202
UNITED STATES US

SHIP DATE: 06DEC19
ACTWGT: 49.90 LB
CAD: 6998084/SSFO2021
DIMS: 24x14x14 IN

BILL THIRD PARTY

TO ATTN: SAMPLE RECEIVING
EMAX LABORATORIES INC
1835 W 205TH ST

TORRANCE CA 90501

(310) 618-8889 REF:
INV:
PO: DEPT:

#1

FedEx Express

REL# 3785346

1 of 2

TRK# 0201 7786 7759 0782

SATURDAY 12:00P
PRIORITY OVERNIGHT

MASTER

WO HHRA

90501
CA-US LAX

Part # 158297-650/0819 ESP 08/20

ORIGIN ID:NPHA (785) 727-0107
CDM SMITH

555 17TH ST STE 1100

DENVER, CO 80202
UNITED STATES US

SHIP DATE: 06DEC19
ACTWGT: 53.60 LB
CAD: 6998084/SSF02021
DIMS: 24x14x14

BILL THIRD PAR

TO ATTN: SAMPLE RECEIVING
EMAX LABORATORIES INC
1835 W 205TH ST

TORRANCE CA 90501

(310) 618-8889 REF:
INV:
PO: DEPT:

FedEx
Express

REL#
3785346

2 of 2
MPS# 0263 7786 7759 0793
Mstr# 7786 7759 0782 0201

SATURDAY 12:00P
PRIORITY OVERNIGHT

WO HHRA

90501
CA-US LAX

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range or estimated value.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

CDM SMITH

VA SALT LAKE CITY

METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

SDG#: 19L057

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L057

METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

A total of eleven(11) water samples were received on 12/07/19 to be analyzed for Volatile Organics by GC/MS in accordance with Method SW5030B/8260C and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Instrument Performance and Calibration
Instrument tune check was performed prior to calibration. Result was within acceptance criteria. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried out at a frequency required by the project. All calibration requirements were satisfied. Average response factors for all analytes were within method recommended response factors with the exception of Acetone and 2-Butanone. However, percent recoveries for all target analytes were within 70-130% on all calibration points. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. VO67L09B - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. VO67L09L/VO67L09C were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Surrogate
Surrogates were added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH
Project : VA SALT LAKE CITY

SDG NO. : 19L057
Instrument ID : 67

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	V067L09B	1	NA	12/12/1913:16	12/12/1913:16	RLC160	RKC205	V067L09	Method Blank
LCS1W	V067L09L	1	NA	12/12/1911:58	12/12/1911:58	RLC157	RKC205	V067L09	Lab Control Sample (LCS)
LCD1W	V067L09C	1	NA	12/12/1912:24	12/12/1912:24	RLC158	RKC205	V067L09	LCS Duplicate
OU2-TB05-GW120619	L057-06	1	NA	12/12/1915:00	12/12/1915:00	RLC164	RKC205	V067L09	Field Sample
OU2-TB04-GW120619	L057-11	1	NA	12/12/1915:26	12/12/1915:26	RLC165	RKC205	V067L09	Field Sample
OU2-MW12S-GW120619	L057-01	1	NA	12/12/1918:25	12/12/1918:25	RLC172	RKC205	V067L09	Field Sample
OU2-MW12D-GW120619	L057-02	1	NA	12/12/1918:51	12/12/1918:51	RLC173	RKC205	V067L09	Field Sample
OU2-MW16S-GW120619	L057-03	1	NA	12/12/1919:16	12/12/1919:16	RLC174	RKC205	V067L09	Field Sample
OU2-MW16D-GW120619	L057-04	1	NA	12/12/1919:42	12/12/1919:42	RLC175	RKC205	V067L09	Field Sample
OU2-MW06-GW120619	L057-05	1	NA	12/12/1920:07	12/12/1920:07	RLC176	RKC205	V067L09	Field Sample
OU2-FD01-GW120519	L057-07	1	NA	12/12/1920:33	12/12/1920:33	RLC177	RKC205	V067L09	Field Sample
OU2-MW13S-GW120519	L057-08	1	NA	12/12/1920:59	12/12/1920:59	RLC178	RKC205	V067L09	Field Sample
OU2-MW13D-GW120519	L057-09	1	NA	12/12/1921:24	12/12/1921:24	RLC179	RKC205	V067L09	Field Sample
OU2-MW04-GW120519	L057-10	1	NA	12/12/1921:50	12/12/1921:50	RLC180	RKC205	V067L09	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected	: 12/06/19
Project	: VA SALT LAKE CITY	Date Received	: 12/07/19
Batch No.	: 19L057	Date Extracted	: 12/12/19 18:25
Sample ID	: OU2-MW12S-GW120619	Date Analyzed	: 12/12/19 18:25
Lab Samp ID	: L057-01	Dilution Factor	: 1
Lab File ID	: RLC172	Matrix	: WATER
Ext Btch ID	: V067L09	% Moisture	: NA
Calib. Ref.	: RKC205	Instrument ID	: 67

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.21J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	1.5	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	1.4	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	0.13J	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.91	10.00	89.1	70-130
BROMOFLUOROBENZENE	9.53	10.00	95.3	70-130
TOLUENE-D8	10.0	10.00	100	70-130
DIBROMOFLUOROMETHANE	9.92	10.00	99.2	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLC172.D Vial: 18
Acq On : 12 Dec 2019 6:25 pm Operator: RMinam
Sample : 19L057-01 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:29 2019 Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

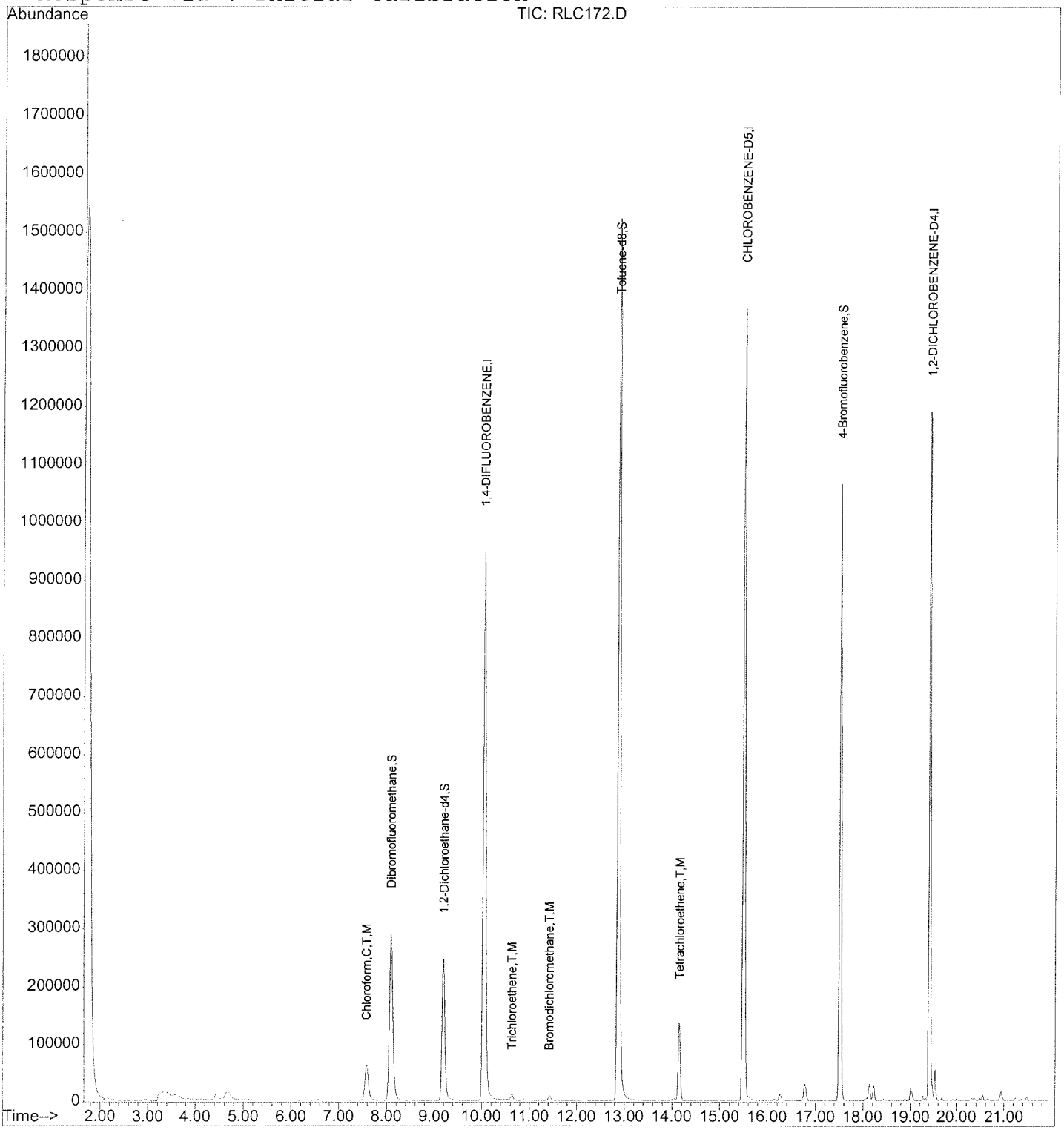
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.05	114	1657586	10.00	ug/l	-0.06
55) CHLOROBENZENE-D5	15.50	117	1345297	10.00	ug/l	-0.04
74) 1,2-DICHLOROBENZENE-D4	19.42	152	479522	10.00	ug/l	-0.03
System Monitoring Compounds						
35) Dibromofluoromethane	8.09	111	468415	9.92	ug/l	-0.06
Spiked Amount 10.000			Recovery =	99.20%		
43) 1,2-Dichloroethane-d4	9.20	65	363131	8.91	ug/l	-0.04
Spiked Amount 10.000			Recovery =	89.10%		
56) Toluene-d8	12.87	98	1890901	10.02	ug/l	-0.06
Spiked Amount 10.000			Recovery =	100.20%		
77) 4-Bromofluorobenzene	17.52	95	579203	9.53	ug/l	-0.04
Spiked Amount 10.000			Recovery =	95.30%		
Target Compounds						Qvalue
32) Chloroform	7.58	83	139012	1.55	ug/l	97
46) Trichloroethene	10.64	130	6685	0.13	ug/l	94
49) Bromodichloromethane	11.42	83	12091	0.21	ug/l	100
63) Tetrachloroethene	14.16	164	61592	1.36	ug/l	99

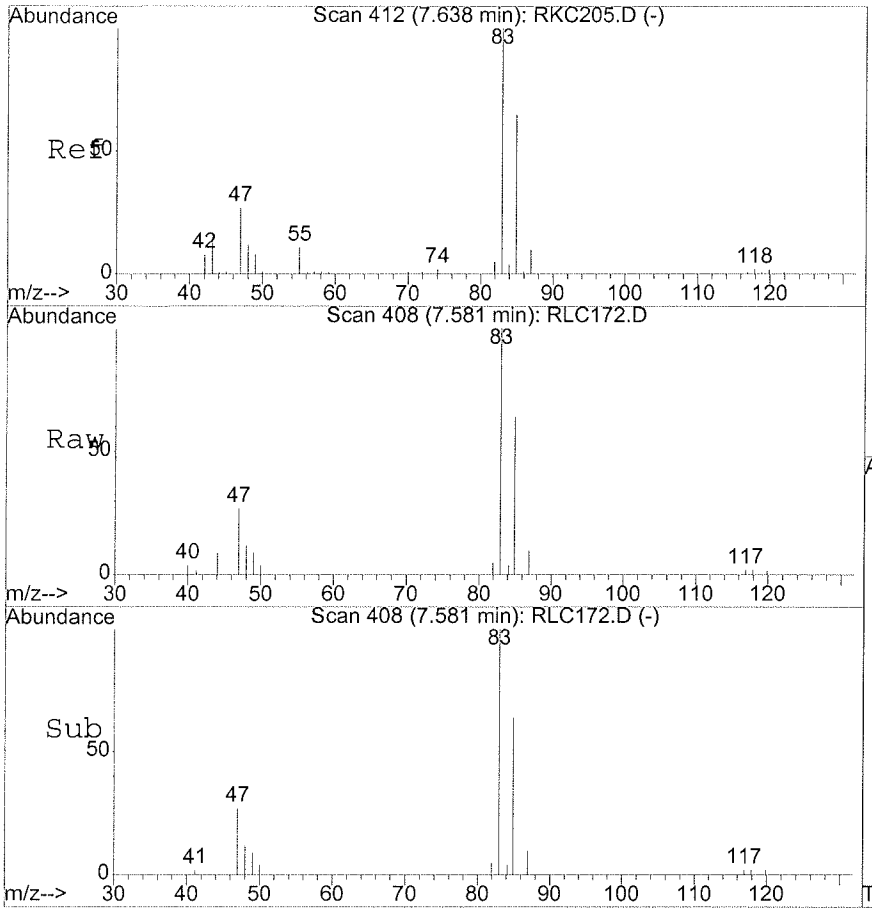
(#) = qualifier out of range (m) = manual integration
RLC172.D VO67K19.M Fri Dec 13 12:30:10 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLC172.D Vial: 18
Acq On : 12 Dec 2019 6:25 pm Operator: RMinam
Sample : 19L057-01 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:29 2019 Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration

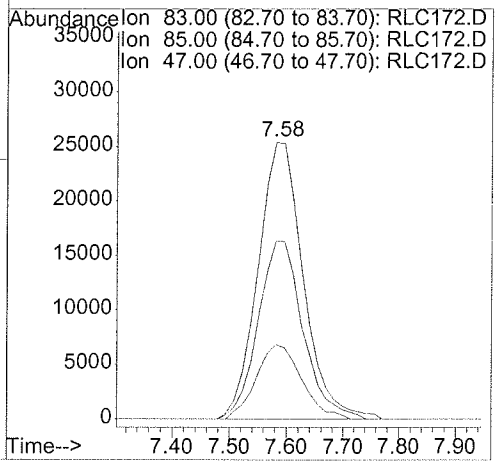


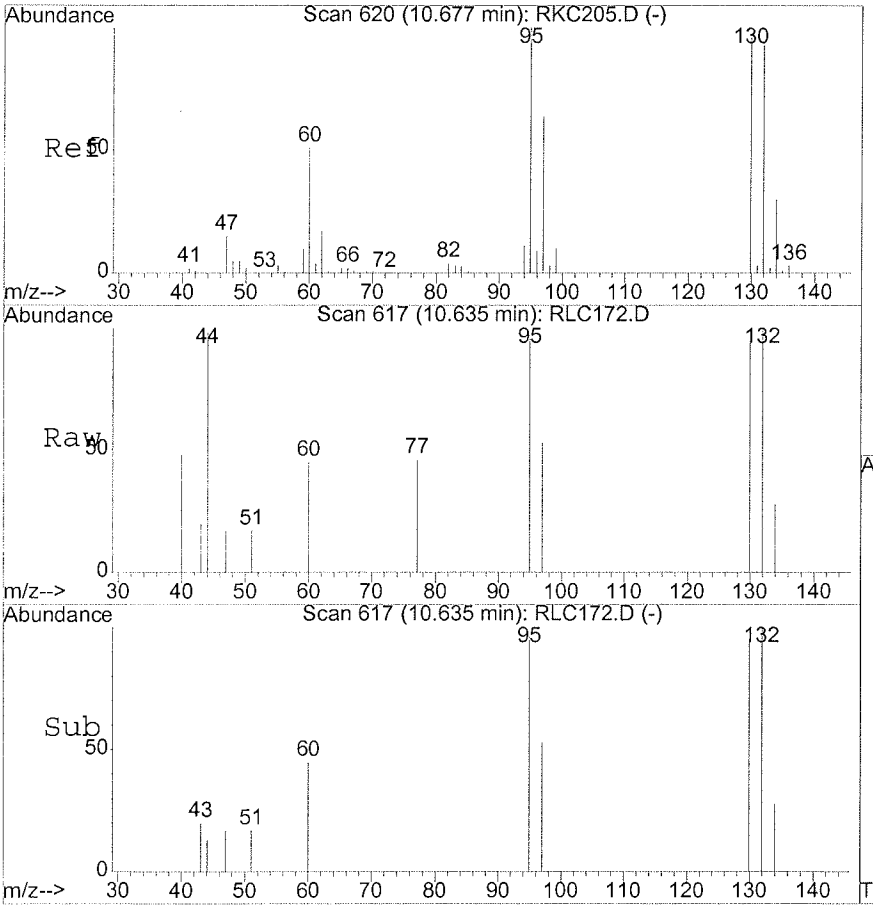


#32
Chloroform
Concen: 1.55 ug/l
RT: 7.58 min Scan# 408
Delta R.T. -0.06 min
Lab File: RLC172.D
Acq: 12 Dec 2019 6:25 pm

Tgt Ion: 83 Resp: 139012

Ion	Ratio	Lower	Upper
83	100		
85	63.7	37.3	97.3
47	26.9	0.0	57.5

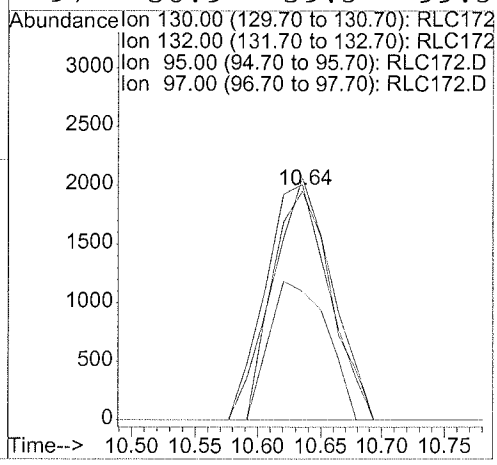


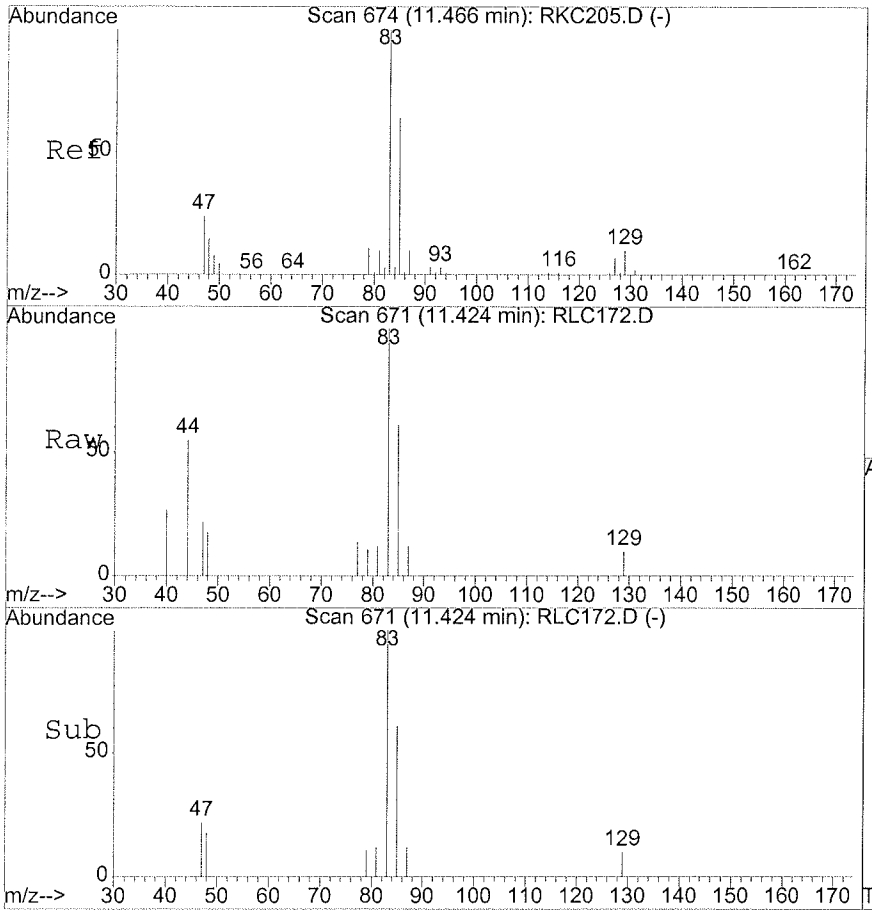


#46
Trichloroethene
Concen: 0.13 ug/l
RT: 10.64 min Scan# 617
Delta R.T. -0.04 min
Lab File: RLC172.D
Acq: 12 Dec 2019 6:25 pm

Tgt Ion:130 Resp: 6685

Ion	Ratio	Lower	Upper
130	100		
132	98.3	66.1	126.1
95	105.5	71.8	131.8
97	56.9	39.3	99.3

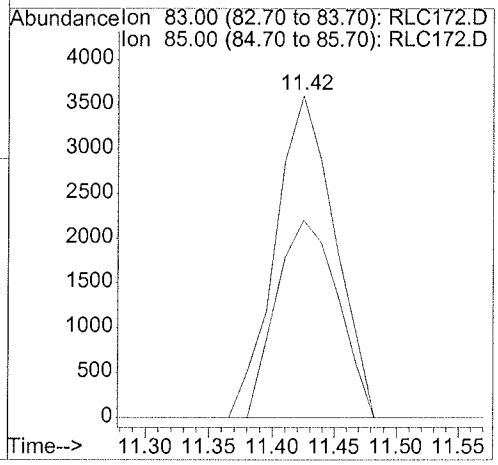


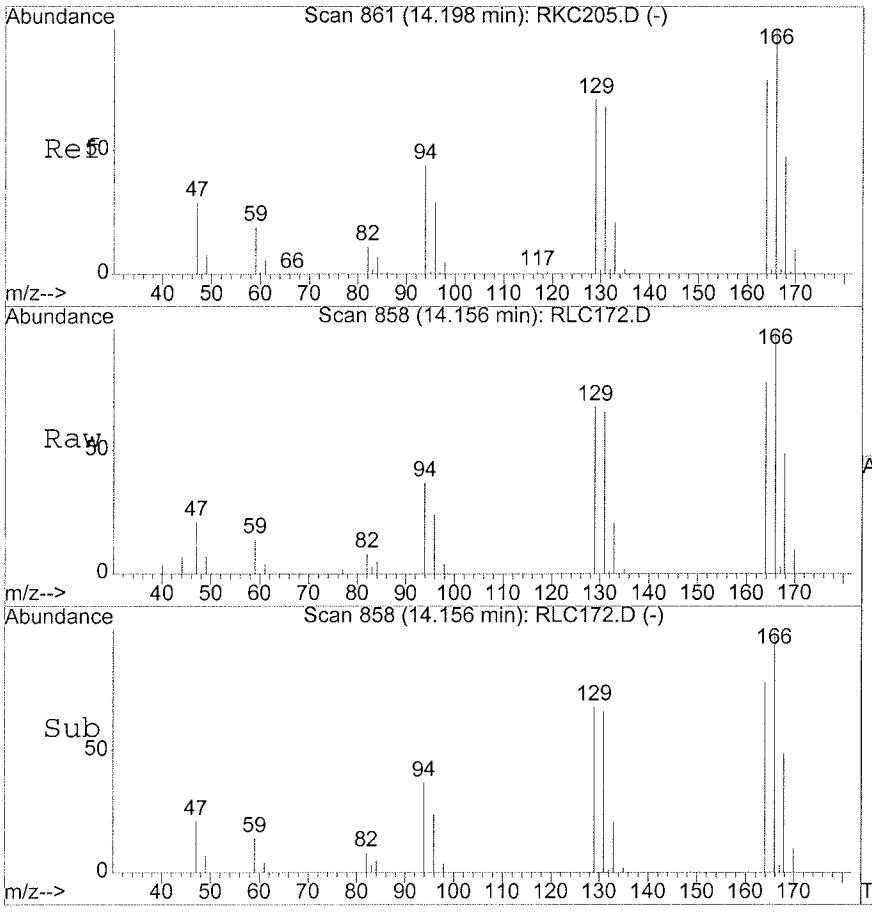


#49
Bromodichloromethane
Concen: 0.21 ug/l
RT: 11.42 min Scan# 671
Delta R.T. -0.04 min
Lab File: RLC172.D
Acq: 12 Dec 2019 6:25 pm

Tgt Ion: 83 Resp: 12091

Ion	Ratio	Lower	Upper
83	100		
85	63.4	33.5	93.5

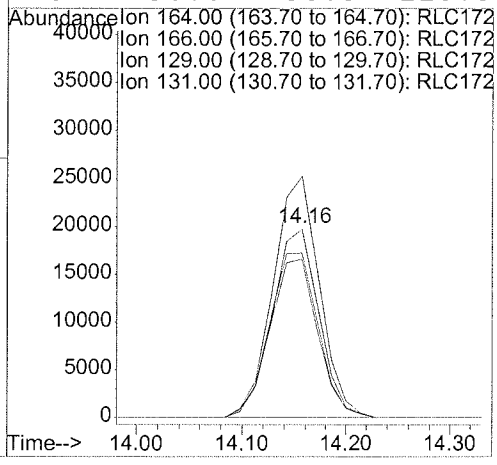




#63
Tetrachloroethene
Concen: 1.36 ug/l
RT: 14.16 min Scan# 858
Delta R.T. -0.04 min
Lab File: RLC172.D
Acq: 12 Dec 2019 6:25 pm

Tgt Ion:164 Resp: 61592

Ion	Ratio	Lower	Upper
164	100		
166	127.6	97.2	157.2
129	91.5	62.3	122.3
131	86.6	58.5	118.5



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/06/19
Project : VA SALT LAKE CITY	Date Received: 12/07/19
Batch No. : 19L057	Date Extracted: 12/12/19 18:51
Sample ID: OU2-MW12D-GW120619	Date Analyzed: 12/12/19 18:51
Lab Samp ID: L057-02	Dilution Factor: 1
Lab File ID: RLC173	Matrix : WATER
Ext Btch ID: V067L09	% Moisture : NA
Calib. Ref.: RKC205	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.34J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	4.3	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.89	10.00	88.9	70-130
BROMOFLUOROBENZENE	9.49	10.00	94.9	70-130
TOLUENE-D8	9.99	10.00	99.9	70-130
DIBROMOFLUOROMETHANE	9.78	10.00	97.8	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLC173.D Vial: 19
Acq On : 12 Dec 2019 6:51 pm Operator: RMinam
Sample : 19L057-02 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:31 2019 Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

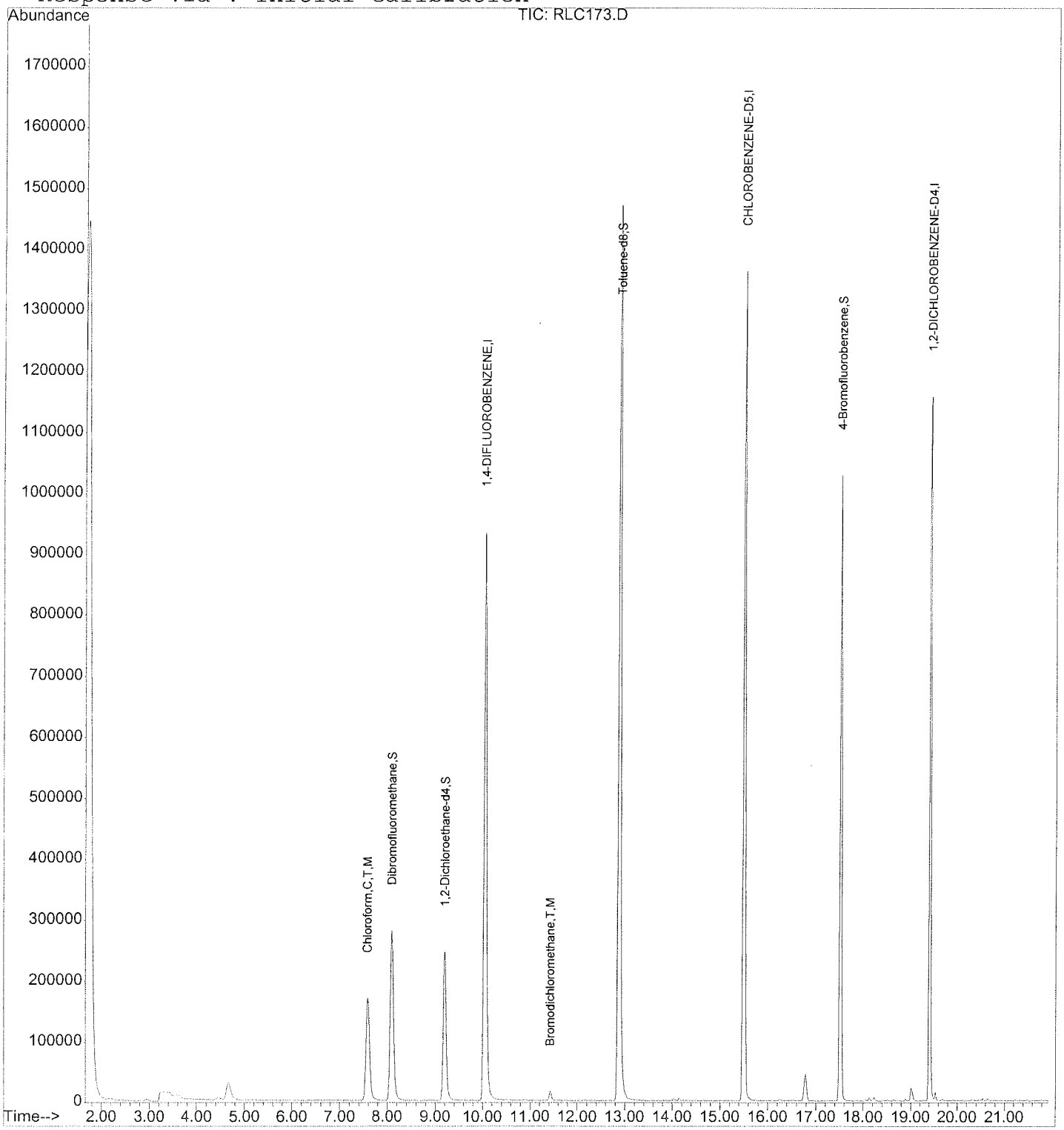
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.05	114	1637789	10.00	ug/l	-0.06
55) CHLOROBENZENE-D5	15.50	117	1335065	10.00	ug/l	-0.04
74) 1,2-DICHLOROBENZENE-D4	19.41	152	467818	10.00	ug/l	-0.03
System Monitoring Compounds						
35) Dibromofluoromethane	8.09	111	456077	9.78	ug/l	-0.06
Spiked Amount 10.000			Recovery =	97.80%		
43) 1,2-Dichloroethane-d4	9.20	65	357915	8.89	ug/l	-0.04
Spiked Amount 10.000			Recovery =	88.90%		
56) Toluene-d8	12.88	98	1871170	9.99	ug/l	-0.04
Spiked Amount 10.000			Recovery =	99.90%		
77) 4-Bromofluorobenzene	17.52	95	562937	9.49	ug/l	-0.04
Spiked Amount 10.000			Recovery =	94.90%		
Target Compounds						Qvalue
32) Chloroform	7.58	83	378845	4.27	ug/l	97
49) Bromodichloromethane	11.42	83	19664	0.34	ug/l	97

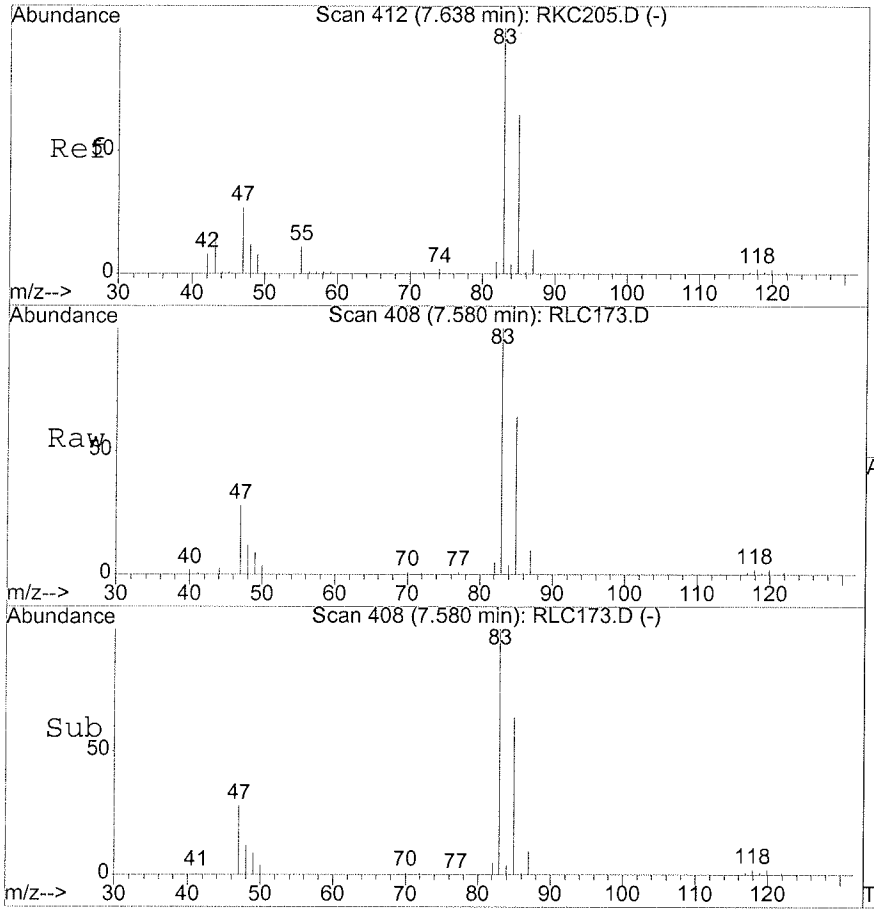
(#) = qualifier out of range (m) = manual integration
RLC173.D VO67K19.M Fri Dec 13 12:32:38 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLC173.D Vial: 19
Acq On : 12 Dec 2019 6:51 pm Operator: RMinam
Sample : 19L057-02 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:31 2019 Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration

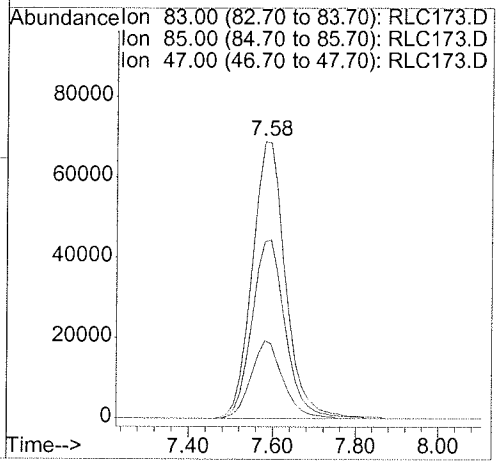


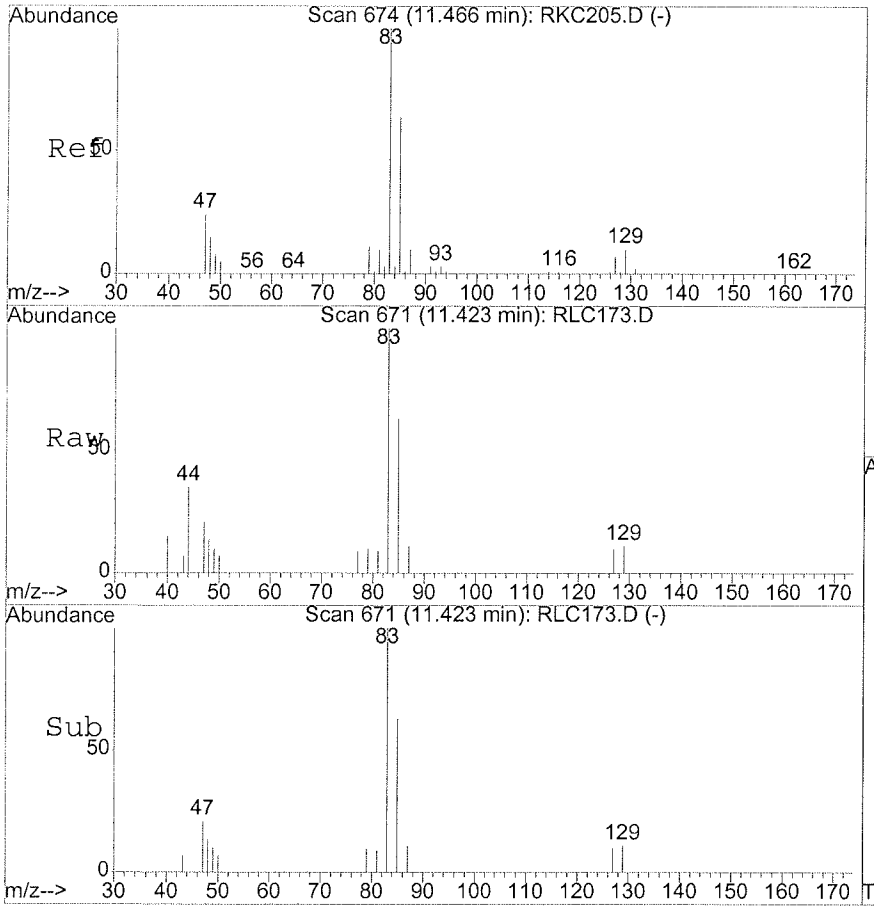


#32
Chloroform
Concen: 4.27 ug/l
RT: 7.58 min Scan# 408
Delta R.T. -0.06 min
Lab File: RLC173.D
Acq: 12 Dec 2019 6:51 pm

Tgt Ion: 83 Resp: 378845

Ion	Ratio	Lower	Upper
83	100		
85	64.5	37.3	97.3
47	26.8	0.0	57.5

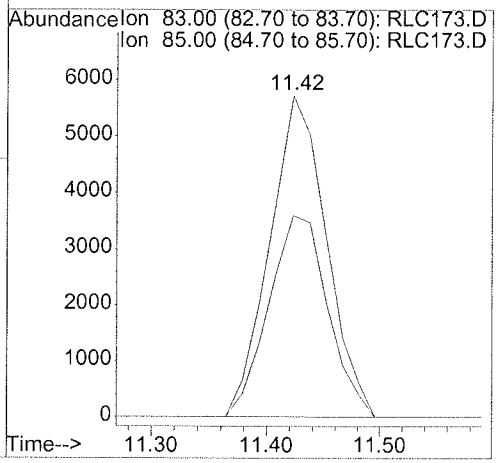




#49
Bromodichloromethane
Concen: 0.34 ug/l
RT: 11.42 min Scan# 671
Delta R.T. -0.04 min
Lab File: RLC173.D
Acq: 12 Dec 2019 6:51 pm

Tgt Ion: 83 Resp: 19664

Ion	Ratio	Lower	Upper
83	100		
85	65.6	33.5	93.5



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/06/19
Project : VA SALT LAKE CITY	Date Received: 12/07/19
Batch No. : 19L057	Date Extracted: 12/12/19 19:16
Sample ID: OU2-MW16S-GW120619	Date Analyzed: 12/12/19 19:16
Lab Samp ID: L057-03	Dilution Factor: 1
Lab File ID: RLC174	Matrix : WATER
Ext Btch ID: V067L09	% Moisture : NA
Calib. Ref.: RKC205	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	0.33J	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.18J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	4.6	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	24	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	0.20J	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.97	10.00	89.7	70-130
BROMOFLUOROBENZENE	9.61	10.00	96.1	70-130
TOLUENE-D8	10.0	10.00	100	70-130
DIBROMOFLUOROMETHANE	9.98	10.00	99.8	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLC174.D Vial: 20
Acq On : 12 Dec 2019 7:16 pm Operator: RMinam
Sample : 19L057-03 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:33 2019 Quant Results File: VO67K19.RES

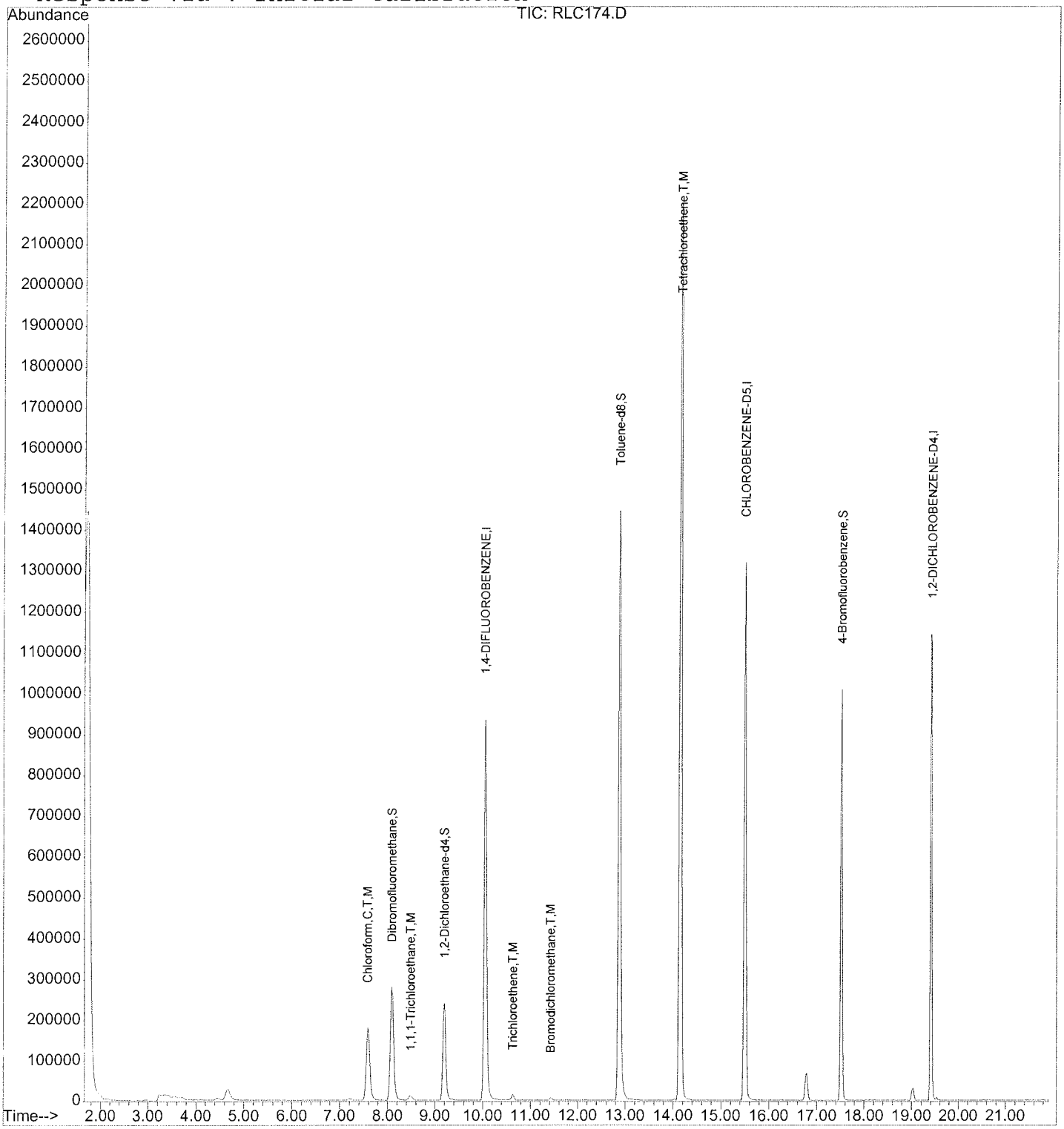
Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

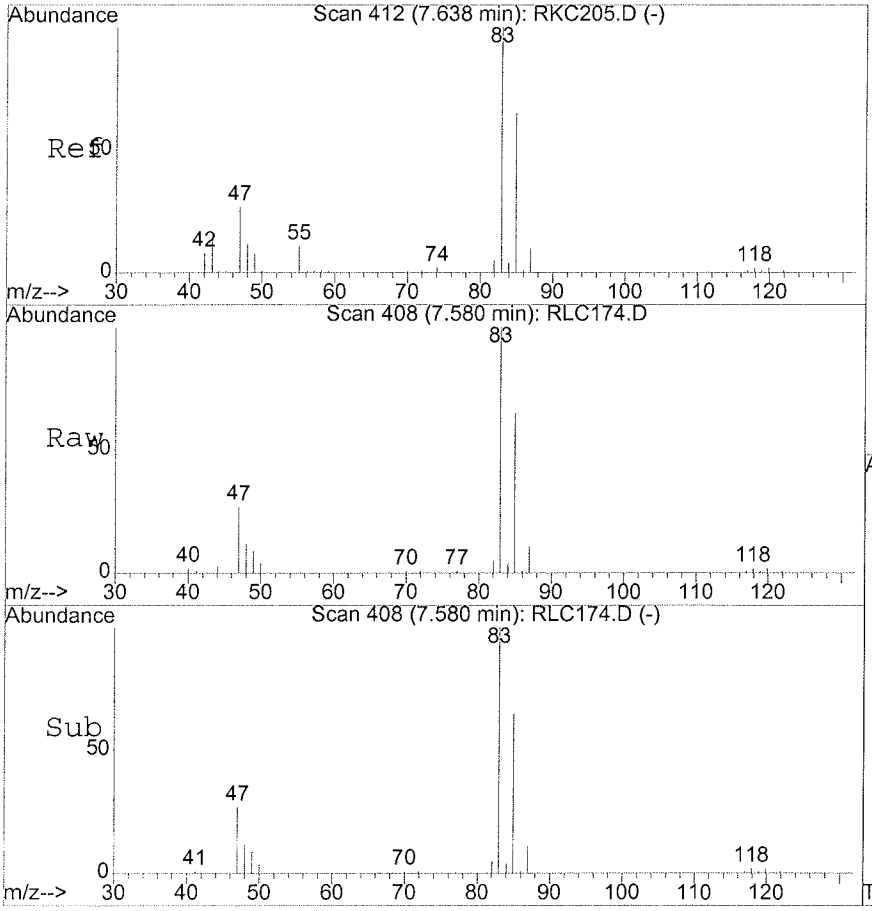
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.05	114	1593867	10.00	ug/l	-0.06
55) CHLOROBENZENE-D5	15.50	117	1292951	10.00	ug/l	-0.04
74) 1,2-DICHLOROBENZENE-D4	19.42	152	457396	10.00	ug/l	-0.03
System Monitoring Compounds						
35) Dibromofluoromethane	8.09	111	452820	9.97	ug/l	-0.06
Spiked Amount 10.000			Recovery =	99.70%		
43) 1,2-Dichloroethane-d4	9.20	65	351537	8.97	ug/l	-0.04
Spiked Amount 10.000			Recovery =	89.70%		
56) Toluene-d8	12.87	98	1822372	10.04	ug/l	-0.06
Spiked Amount 10.000			Recovery =	100.40%		
77) 4-Bromofluorobenzene	17.52	95	557534	9.61	ug/l	-0.04
Spiked Amount 10.000			Recovery =	96.10%		
Target Compounds						Qvalue
32) Chloroform	7.58	83	394778	4.57	ug/l	96
37) 1,1,1-Trichloroethane	8.49	97	25124	0.33	ug/l	96
46) Trichloroethene	10.63	130	10422	0.20	ug/l	92
49) Bromodichloromethane	11.42	83	9851	0.18	ug/l	98
63) Tetrachloroethene	14.16	164	1031045	23.77	ug/l	98

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

Data File : D:\HPCHEM\1\DATA\19L12\RLC174.D Vial: 20
Acq On : 12 Dec 2019 7:16 pm Operator: RMinam
Sample : 19L057-03 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:33 2019 Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration

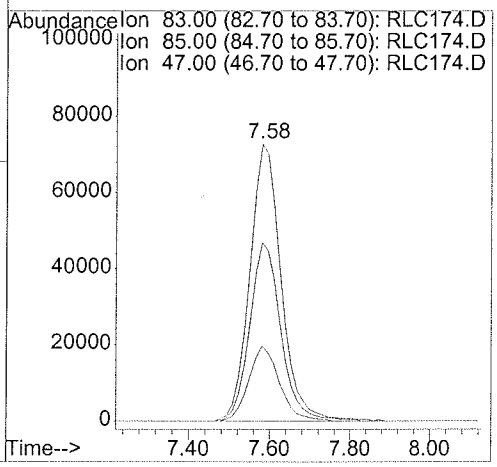


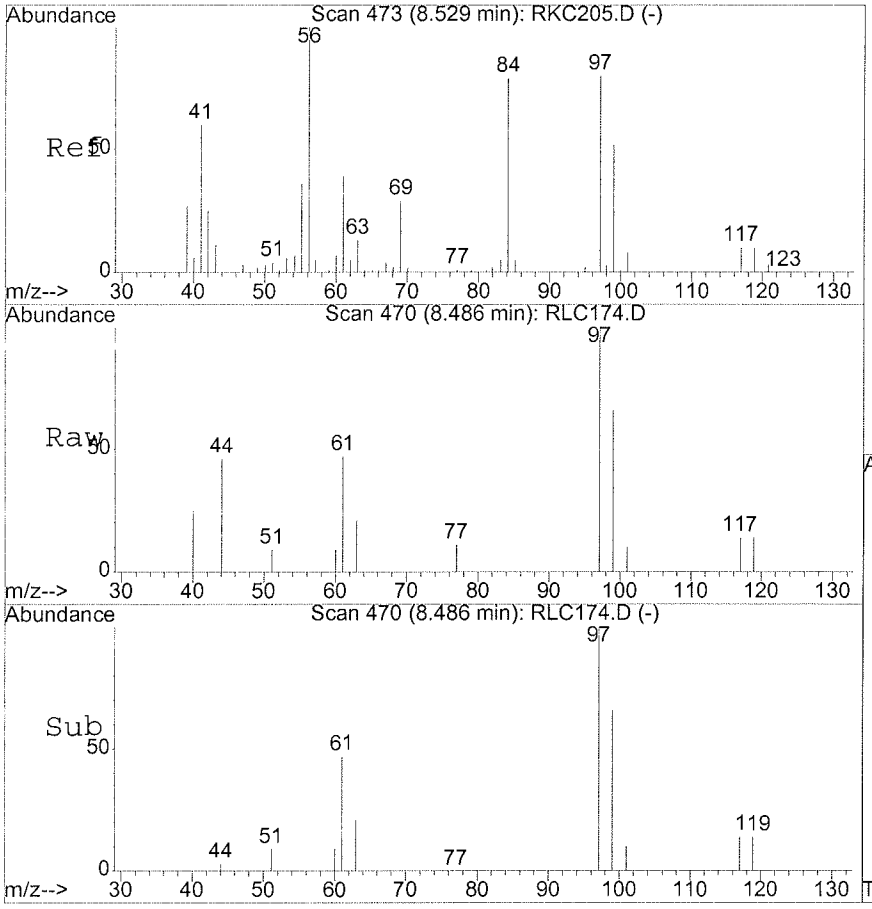


#32
Chloroform
Concen: 4.57 ug/l
RT: 7.58 min Scan# 408
Delta R.T. -0.06 min
Lab File: RLC174.D
Acq: 12 Dec 2019 7:16 pm

Tgt Ion: 83 Resp: 394778

Ion	Ratio	Lower	Upper
83	100		
85	63.9	37.3	97.3
47	26.4	0.0	57.5

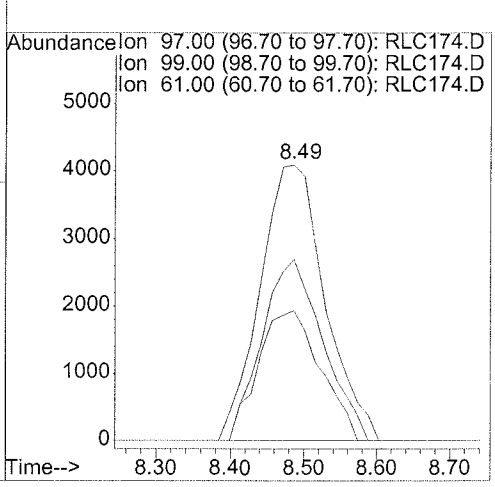


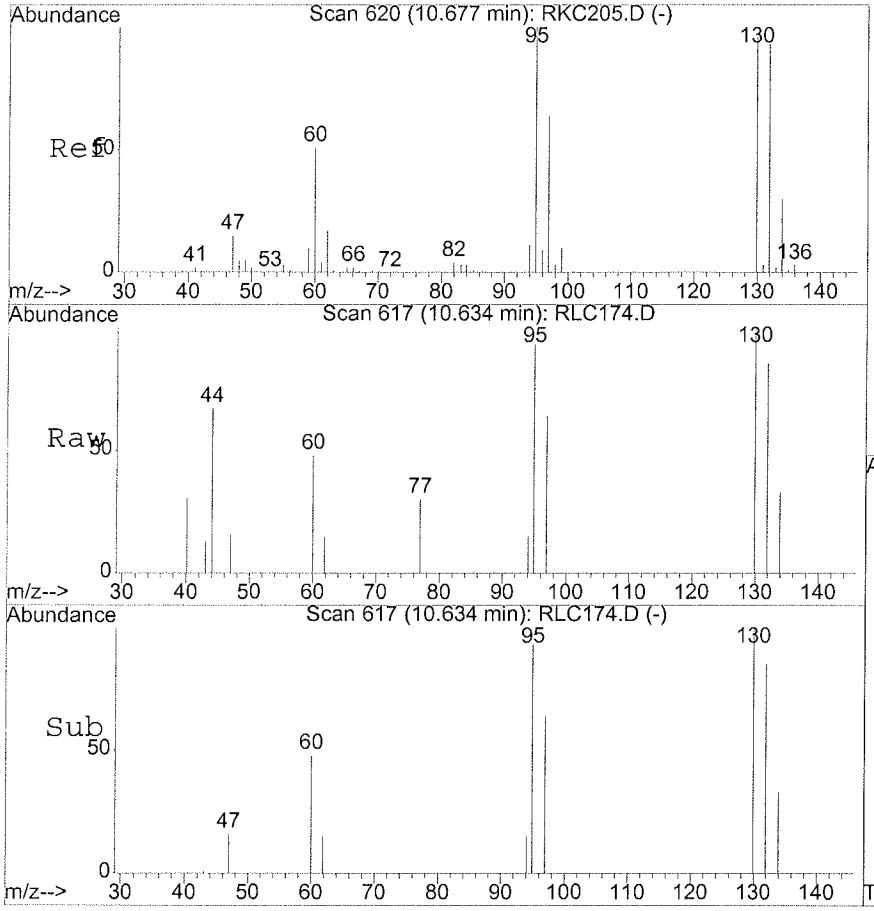


#37
1,1,1-Trichloroethane
Concen: 0.33 ug/l
RT: 8.49 min Scan# 470
Delta R.T. -0.04 min
Lab File: RLC174.D
Acq: 12 Dec 2019 7:16 pm

Tgt Ion: 97 Resp: 25124

Ion	Ratio	Lower	Upper
97	100		
99	61.8	34.6	94.6
61	45.3	18.6	78.6

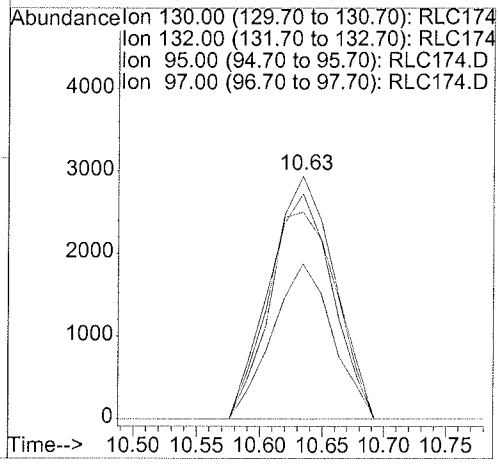


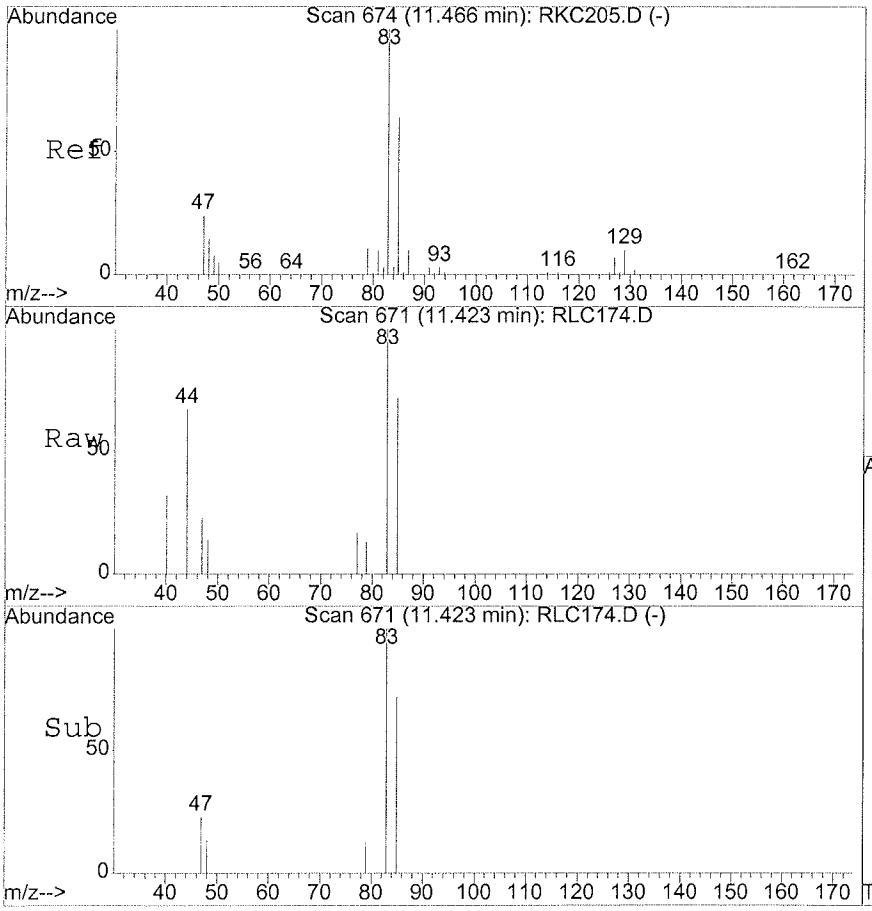


#46
Trichloroethene
Concen: 0.20 ug/l
RT: 10.63 min Scan# 617
Delta R.T. -0.04 min
Lab File: RLC174.D
Acq: 12 Dec 2019 7:16 pm

Tgt Ion:130 Resp: 10422

Ion	Ratio	Lower	Upper
130	100		
132	90.6	66.1	126.1
95	93.6	71.8	131.8
97	60.5	39.3	99.3

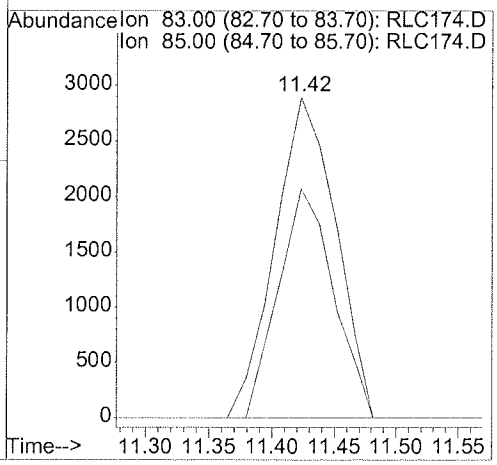


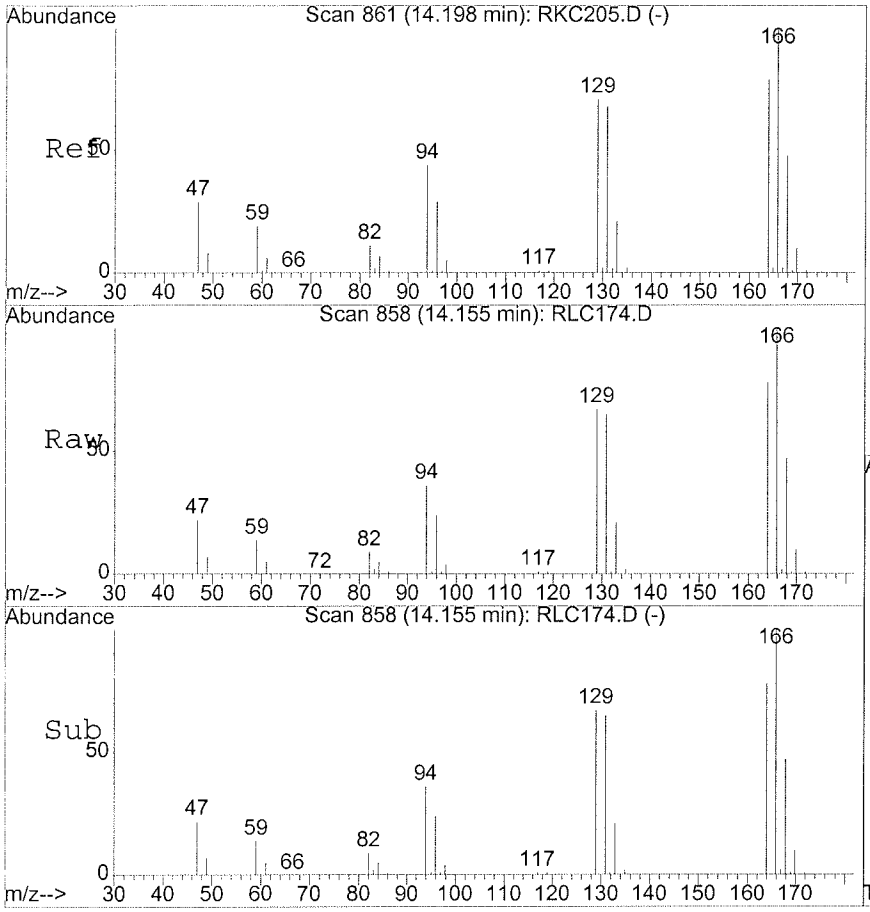


#49
Bromodichloromethane
Concen: 0.18 ug/l
RT: 11.42 min Scan# 671
Delta R.T. -0.04 min
Lab File: RLC174.D
Acq: 12 Dec 2019 7:16 pm

Tgt Ion: 83 Resp: 9851

Ion	Ratio	Lower	Upper
83	100		
85	64.8	33.5	93.5

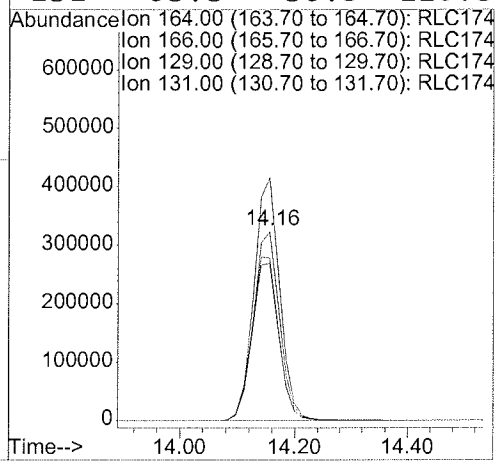




#63
Tetrachloroethene
Concen: 23.77 ug/l
RT: 14.16 min Scan# 858
Delta R.T. -0.04 min
Lab File: RLC174.D
Acq: 12 Dec 2019 7:16 pm

Tgt Ion:164 Resp: 1031045

Ion	Ratio	Lower	Upper
164	100		
166	127.1	97.2	157.2
129	89.0	62.3	122.3
131	85.5	58.5	118.5



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/06/19
Project : VA SALT LAKE CITY	Date Received: 12/07/19
Batch No. : 19L057	Date Extracted: 12/12/19 19:42
Sample ID: OU2-MW16D-GW120619	Date Analyzed: 12/12/19 19:42
Lab Samp ID: L057-04	Dilution Factor: 1
Lab File ID: RLC175	Matrix : WATER
Ext Btch ID: V067L09	% Moisture : NA
Calib. Ref.: RKC205	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	1.8	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.68	10.00	86.8	70-130
BROMOFLUOROBENZENE	9.56	10.00	95.6	70-130
TOLUENE-D8	10.0	10.00	100	70-130
DIBROMOFLUOROMETHANE	9.76	10.00	97.6	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLC175.D Vial: 21
Acq On : 12 Dec 2019 7:42 pm Operator: RMinam
Sample : 19L057-04 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:35 2019 Quant Results File: VO67K19.RES

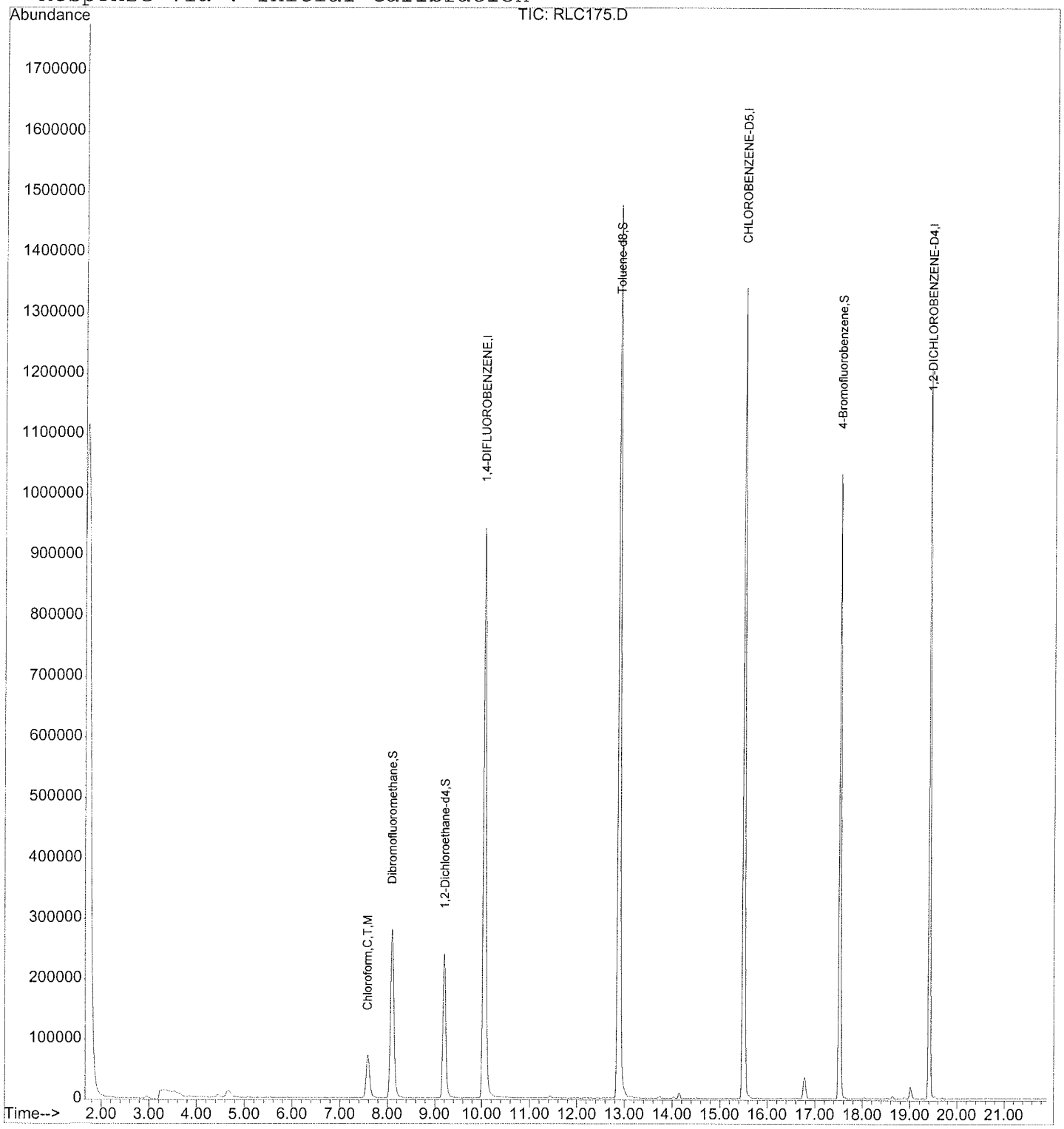
Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

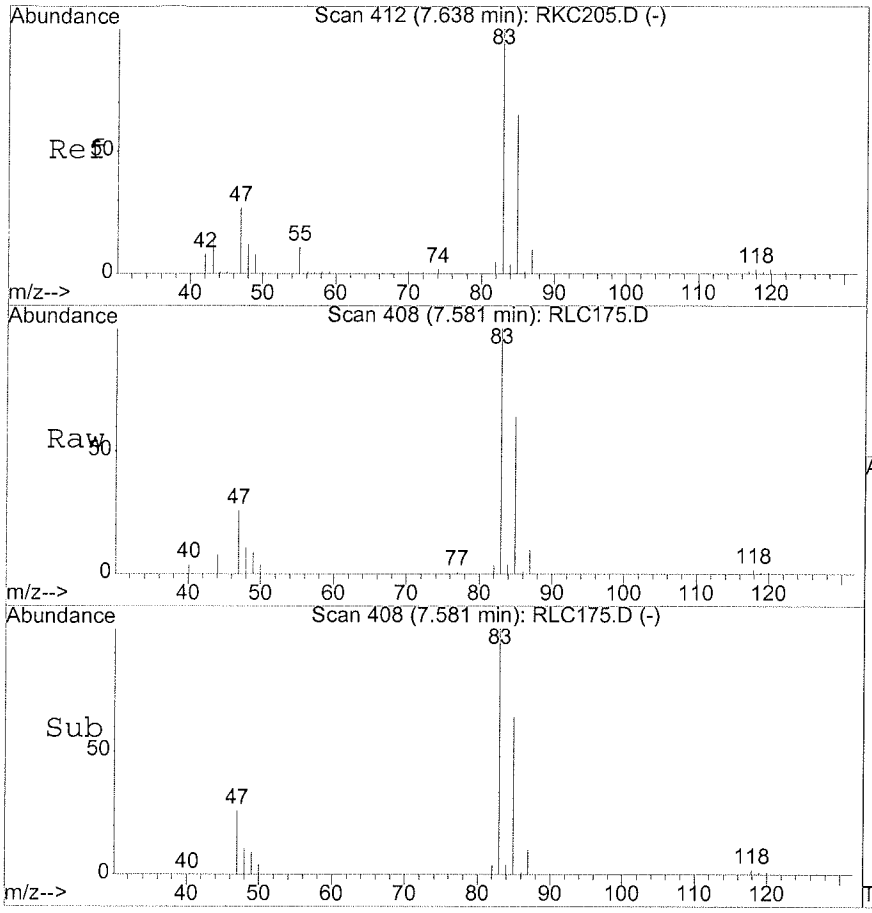
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.05	114	1647400	10.00	ug/l	-0.06
55) CHLOROBENZENE-D5	15.50	117	1325569	10.00	ug/l	-0.04
74) 1,2-DICHLOROBENZENE-D4	19.42	152	467866	10.00	ug/l	-0.03
System Monitoring Compounds						
35) Dibromofluoromethane	8.09	111	458105	9.76	ug/l	-0.06
Spiked Amount 10.000			Recovery =	97.60%		
43) 1,2-Dichloroethane-d4	9.20	65	351720	8.68	ug/l	-0.04
Spiked Amount 10.000			Recovery =	86.80%		
56) Toluene-d8	12.87	98	1866050	10.03	ug/l	-0.06
Spiked Amount 10.000			Recovery =	100.30%		
77) 4-Bromofluorobenzene	17.52	95	566818	9.56	ug/l	-0.04
Spiked Amount 10.000			Recovery =	95.60%		
Target Compounds						Qvalue
32) Chloroform	7.58	83	157258	1.76	ug/l	97

(#) = qualifier out of range (m) = manual integration
RLC175.D VO67K19.M Fri Dec 13 12:35:29 2019 Page 1

Data File : D:\HPCHEM\1\DATA\19L12\RLC175.D Vial: 21
Acq On : 12 Dec 2019 7:42 pm Operator: RMinam
Sample : 19L057-04 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:35 2019 Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration

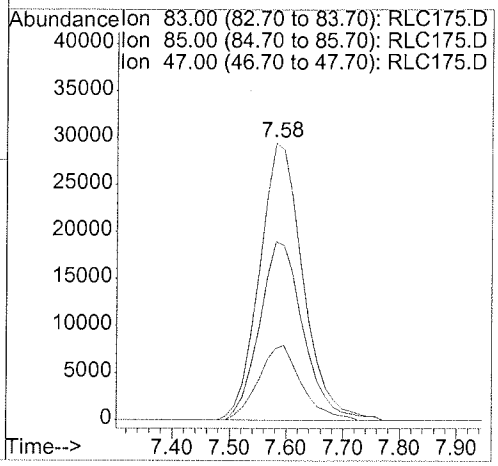




#32
Chloroform
Concen: 1.76 ug/l
RT: 7.58 min Scan# 408
Delta R.T. -0.06 min
Lab File: RLC175.D
Acq: 12 Dec 2019 7:42 pm

Tgt Ion: 83 Resp: 157258

Ion	Ratio	Lower	Upper
83	100		
85	64.8	37.3	97.3
47	26.6	0.0	57.5



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/06/19
Project : VA SALT LAKE CITY	Date Received: 12/07/19
Batch No. : 19L057	Date Extracted: 12/12/19 20:07
Sample ID: OU2-MW06-GW120619	Date Analyzed: 12/12/19 20:07
Lab Samp ID: L057-05	Dilution Factor: 1
Lab File ID: RLC176	Matrix : WATER
Ext Btch ID: VO67L09	% Moisture : NA
Calib. Ref.: RKC205	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.37J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	3.0	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	0.29J	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.92	10.00	89.2	70-130
BROMOFLUOROBENZENE	9.66	10.00	96.6	70-130
TOLUENE-D8	10.1	10.00	101	70-130
DIBROMOFLUOROMETHANE	9.88	10.00	98.8	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLC176.D Vial: 22
Acq On : 12 Dec 2019 8:07 pm Operator: RMinam
Sample : 19L057-05 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:36 2019 Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

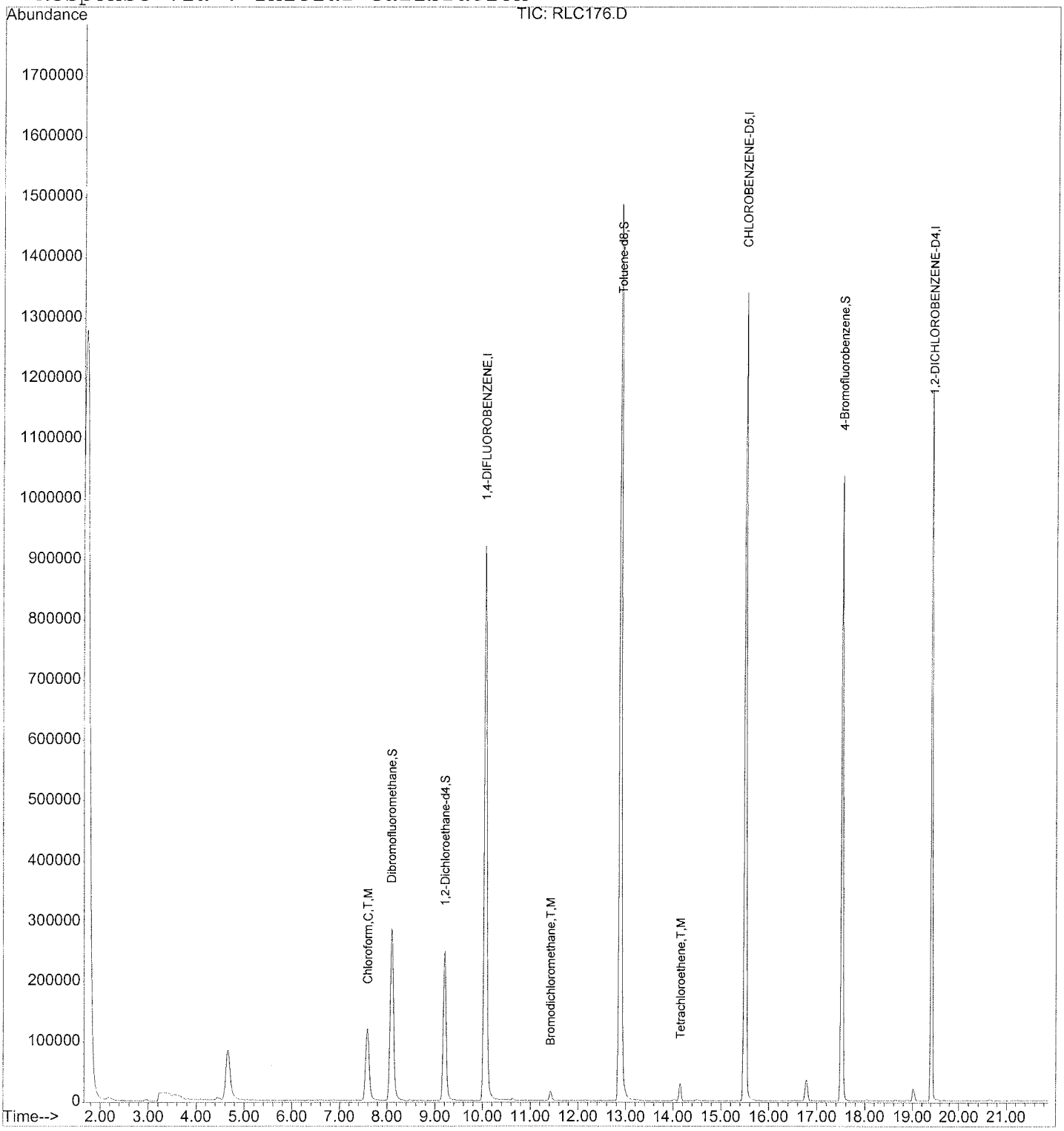
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.05	114	1632275	10.00	ug/l	-0.06
55) CHLOROBENZENE-D5	15.50	117	1319923	10.00	ug/l	-0.04
74) 1,2-DICHLOROBENZENE-D4	19.41	152	462210	10.00	ug/l	-0.03
System Monitoring Compounds						
35) Dibromofluoromethane	8.09	111	459294	9.88	ug/l	-0.06
Spiked Amount 10.000			Recovery =	98.80%		
43) 1,2-Dichloroethane-d4	9.20	65	358241	8.92	ug/l	-0.04
Spiked Amount 10.000			Recovery =	89.20%		
56) Toluene-d8	12.88	98	1874932	10.12	ug/l	-0.04
Spiked Amount 10.000			Recovery =	101.20%		
77) 4-Bromofluorobenzene	17.52	95	566100	9.66	ug/l	-0.04
Spiked Amount 10.000			Recovery =	96.60%		
Target Compounds						Qvalue
32) Chloroform	7.59	83	265853	3.01	ug/l	96
49) Bromodichloromethane	11.42	83	20919	0.37	ug/l	97
63) Tetrachloroethene	14.15	164	12956	0.29	ug/l	98

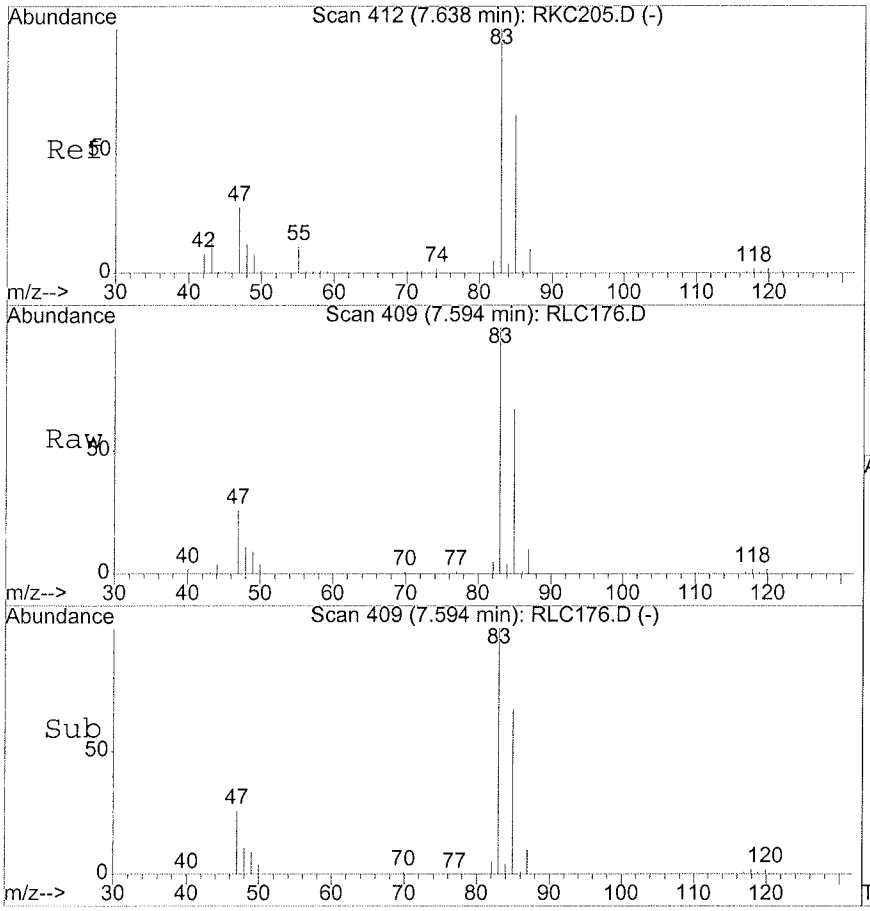
(#) = qualifier out of range (m) = manual integration
RLC176.D VO67K19.M Fri Dec 13 12:37:38 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLC176.D Vial: 22
Acq On : 12 Dec 2019 8:07 pm Operator: RMinam
Sample : 19L057-05 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:36 2019 Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration

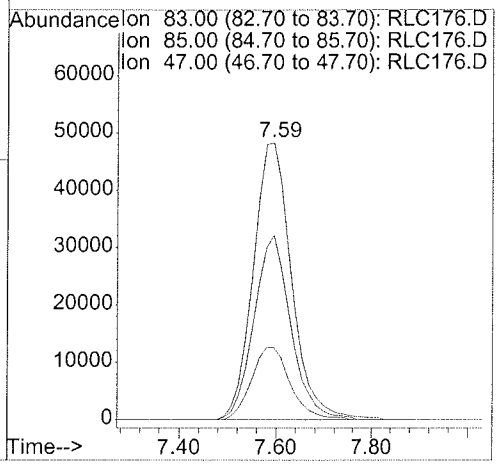


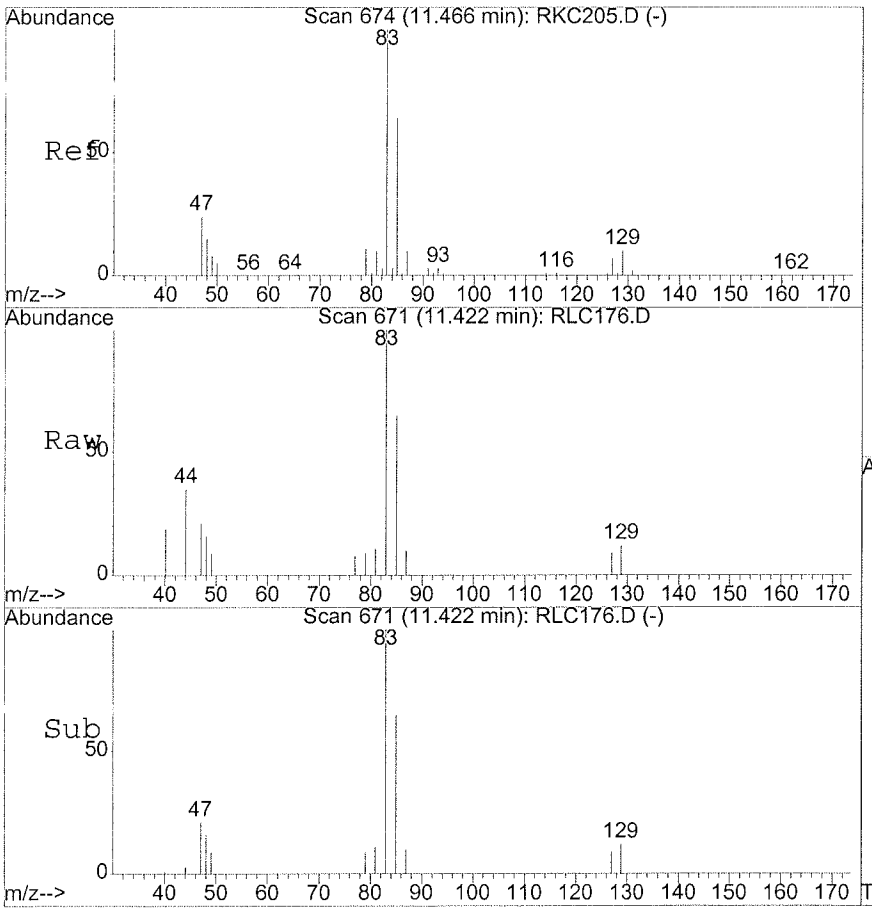


#32
Chloroform
Concen: 3.01 ug/l
RT: 7.59 min Scan# 409
Delta R.T. -0.04 min
Lab File: RLC176.D
Acq: 12 Dec 2019 8:07 pm

Tgt Ion: 83 Resp: 265853

Ion	Ratio	Lower	Upper
83	100		
85	63.9	37.3	97.3
47	26.5	0.0	57.5

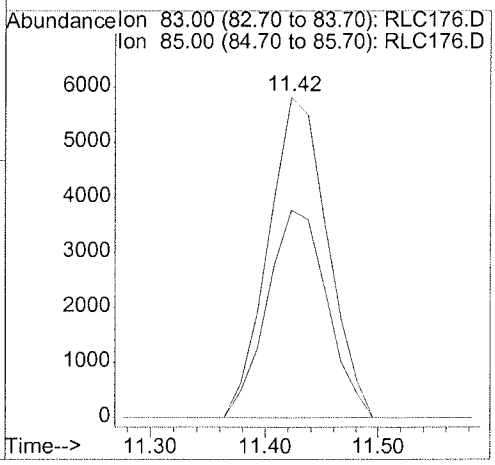


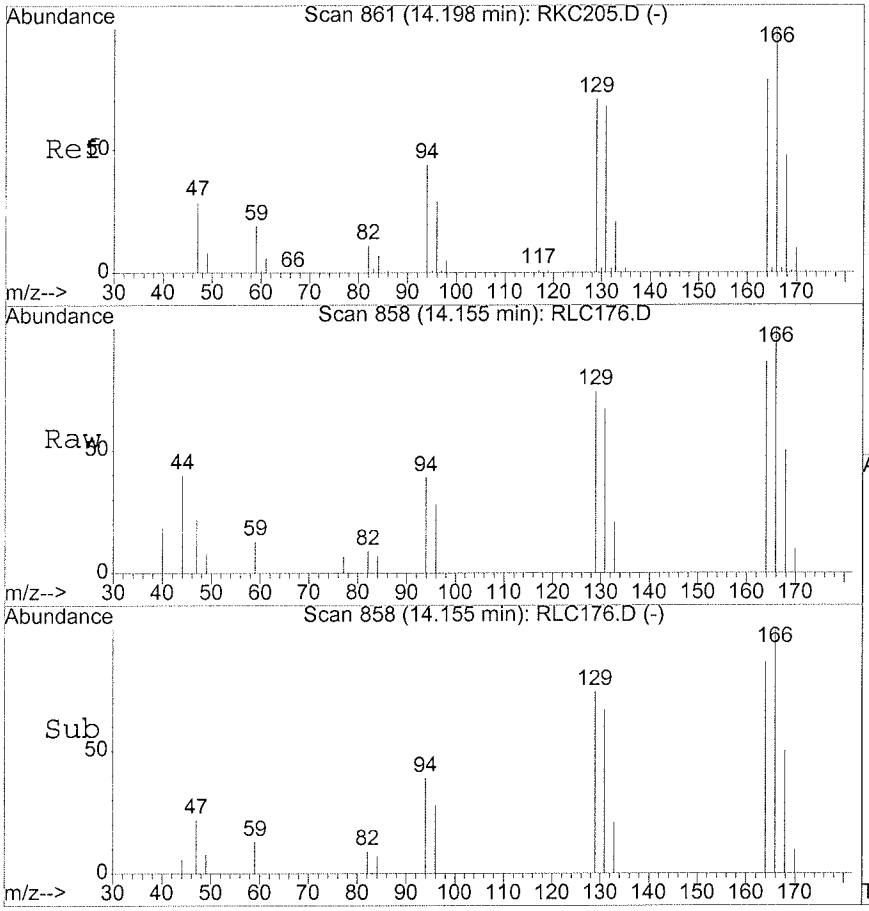


#49
Bromodichloromethane
Concen: 0.37 ug/l
RT: 11.42 min Scan# 671
Delta R.T. -0.04 min
Lab File: RLC176.D
Acq: 12 Dec 2019 8:07 pm

Tgt Ion: 83 Resp: 20919

Ion	Ratio	Lower	Upper
83	100		
85	65.8	33.5	93.5

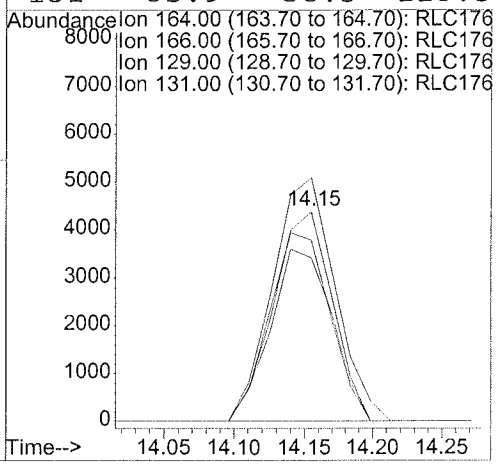




#63
Tetrachloroethene
Concen: 0.29 ug/l
RT: 14.15 min Scan# 858
Delta R.T. -0.04 min
Lab File: RLC176.D
Acq: 12 Dec 2019 8:07 pm

Tgt Ion:164 Resp: 12956

Ion	Ratio	Lower	Upper
164	100		
166	123.3	97.2	157.2
129	92.2	62.3	122.3
131	85.9	58.5	118.5



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/06/19
Project : VA SALT LAKE CITY	Date Received: 12/07/19
Batch No. : 19L057	Date Extracted: 12/12/19 15:00
Sample ID: OU2-TB05-GW120619	Date Analyzed: 12/12/19 15:00
Lab Samp ID: L057-06	Dilution Factor: 1
Lab File ID: RLC164	Matrix : WATER
Ext Btch ID: V067L09	% Moisture : NA
Calib. Ref.: RKC205	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	ND	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.83	10.00	88.3	70-130
BROMOFLUOROBENZENE	9.62	10.00	96.2	70-130
TOLUENE-D8	10.1	10.00	101	70-130
DIBROMOFLUOROMETHANE	9.84	10.00	98.4	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLC164.D Vial: 10
Acq On : 12 Dec 2019 3:00 pm Operator: RMinam
Sample : 19L057-06 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 11:59 2019 Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

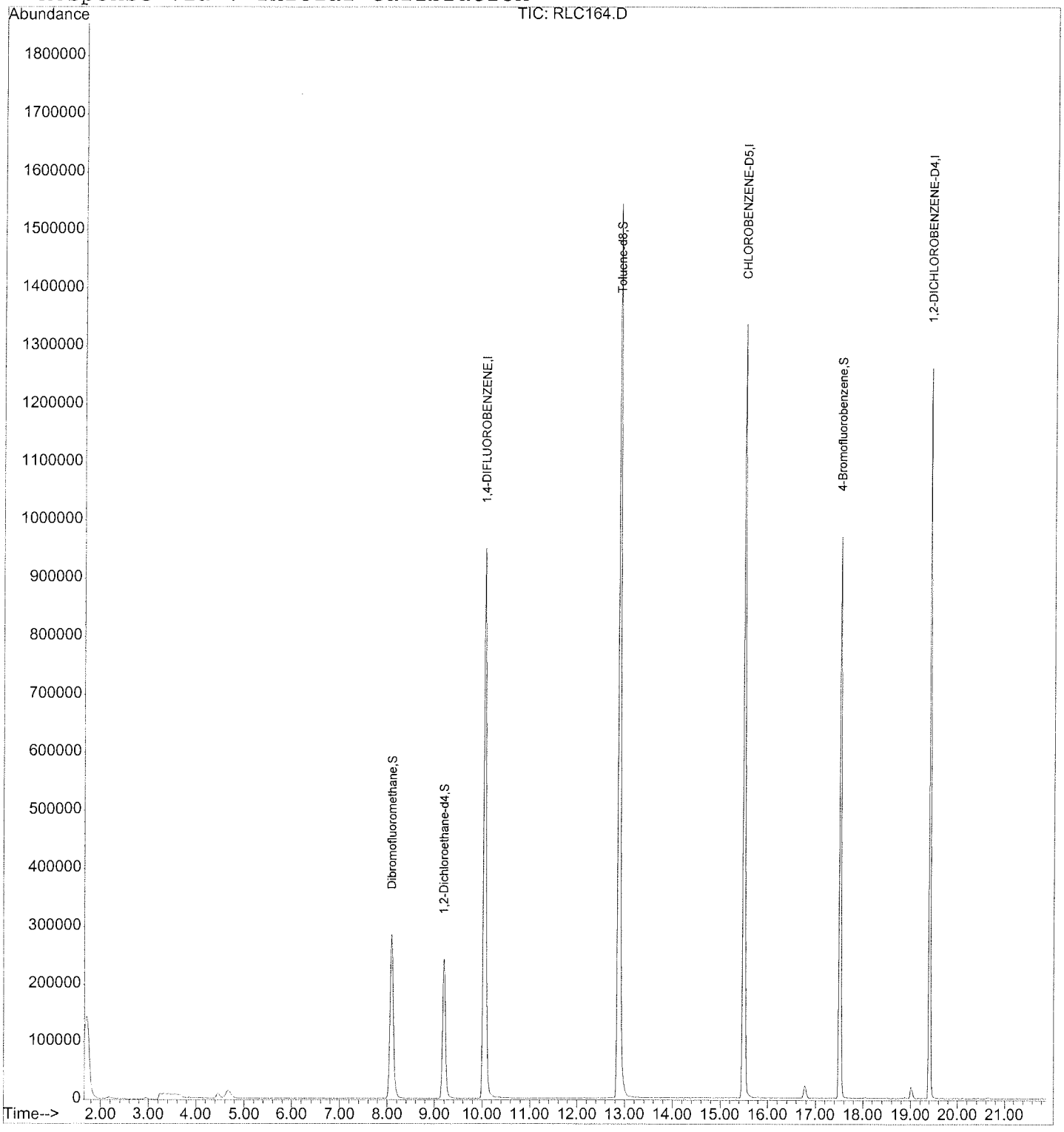
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.05	114	1642614	10.00	ug/l	-0.06
55) CHLOROBENZENE-D5	15.50	117	1311400	10.00	ug/l	-0.04
74) 1,2-DICHLOROBENZENE-D4	19.40	152	458251	10.00	ug/l	-0.04
System Monitoring Compounds						
35) Dibromofluoromethane	8.09	111	460368	9.84	ug/l	-0.06
Spiked Amount 10.000			Recovery =	98.40%		
43) 1,2-Dichloroethane-d4	9.19	65	356635	8.83	ug/l	-0.06
Spiked Amount 10.000			Recovery =	88.30%		
56) Toluene-d8	12.87	98	1865485	10.14	ug/l	-0.06
Spiked Amount 10.000			Recovery =	101.40%		
77) 4-Bromofluorobenzene	17.52	95	558956	9.62	ug/l	-0.04
Spiked Amount 10.000			Recovery =	96.20%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLC164.D VO67K19.M Fri Dec 13 11:59:56 2019 Page 1

Data File : D:\HPCHEM\1\DATA\19L12\RLC164.D Vial: 10
Acq On : 12 Dec 2019 3:00 pm Operator: RMinam
Sample : 19L057-06 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 11:59 2019 Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/05/19
Project : VA SALT LAKE CITY	Date Received: 12/07/19
Batch No. : 19L057	Date Extracted: 12/12/19 20:33
Sample ID: OU2-FD01-GW120519	Date Analyzed: 12/12/19 20:33
Lab Samp ID: L057-07	Dilution Factor: 1
Lab File ID: RLC177	Matrix : WATER
Ext Btch ID: V067L09	% Moisture : NA
Calib. Ref.: RKC205	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.23J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	1.8	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	0.12J	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	11	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	0.28J	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.01	10.00	90.1	70-130
BROMOFLUOROBENZENE	9.61	10.00	96.1	70-130
TOLUENE-D8	9.90	10.00	99.0	70-130
DIBROMOFLUOROMETHANE	9.91	10.00	99.1	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLC177.D Vial: 23
Acq On : 12 Dec 2019 8:33 pm Operator: RMinam
Sample : 19L057-07 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:43 2019 Quant Results File: VO67K19.RES

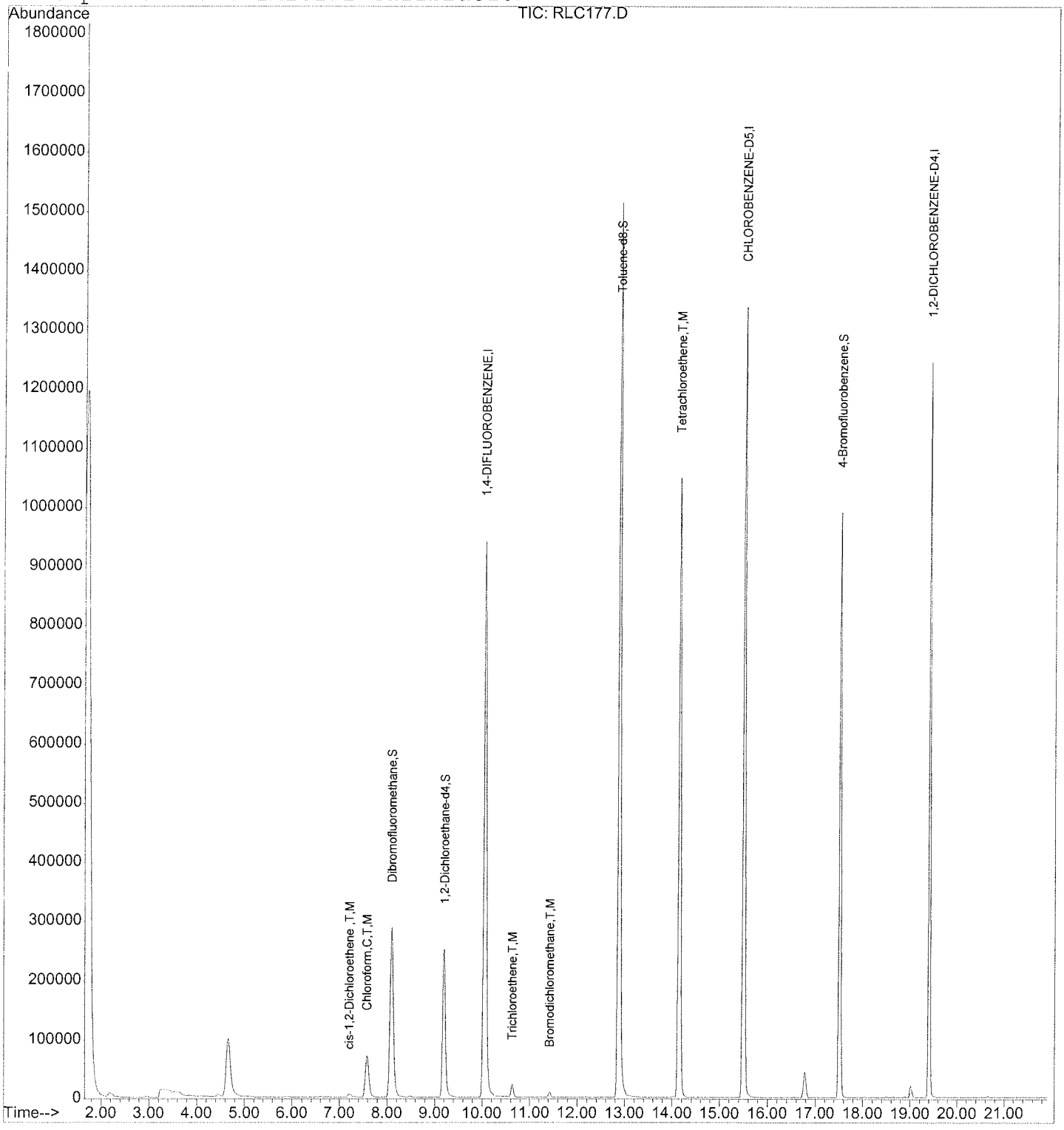
Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

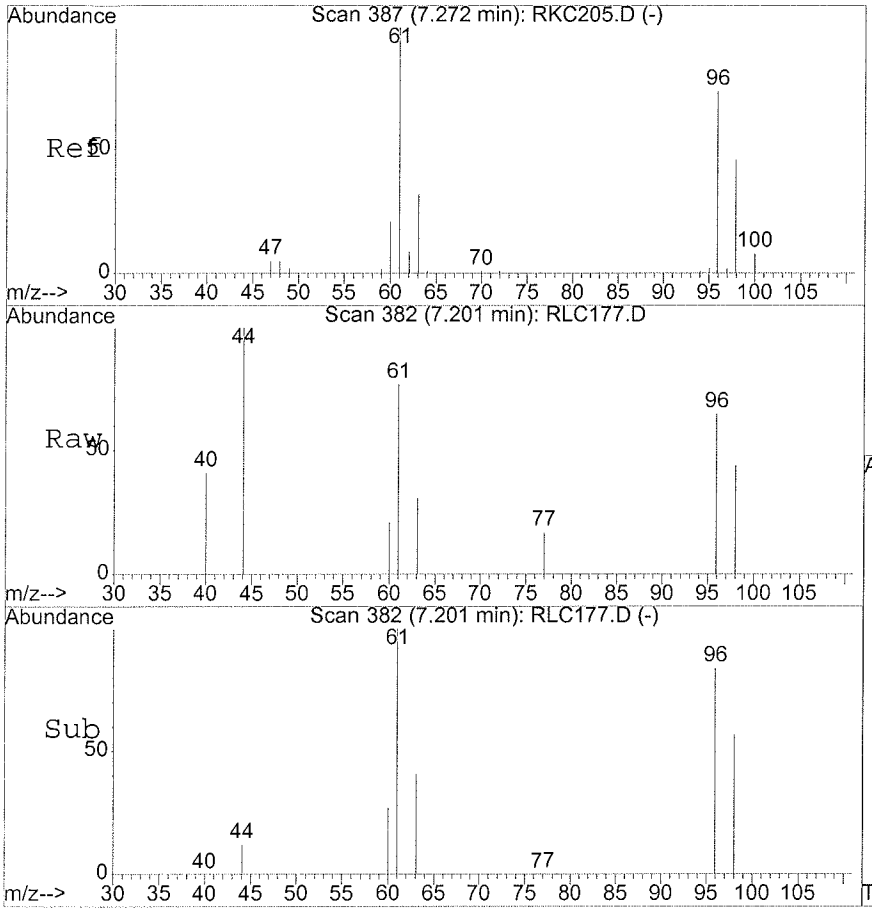
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.05	114	1630680	10.00	ug/l	-0.06
55) CHLOROBENZENE-D5	15.50	117	1327292	10.00	ug/l	-0.04
74) 1,2-DICHLOROBENZENE-D4	19.40	152	459166	10.00	ug/l	-0.04
System Monitoring Compounds						
35) Dibromofluoromethane	8.09	111	460254	9.91	ug/l	-0.06
Spiked Amount 10.000			Recovery =	99.10%		
43) 1,2-Dichloroethane-d4	9.20	65	361232	9.01	ug/l	-0.04
Spiked Amount 10.000			Recovery =	90.10%		
56) Toluene-d8	12.87	98	1844584	9.90	ug/l	-0.06
Spiked Amount 10.000			Recovery =	99.00%		
77) 4-Bromofluorobenzene	17.52	95	559179	9.61	ug/l	-0.04
Spiked Amount 10.000			Recovery =	96.10%		
Target Compounds						Qvalue
31) cis-1,2-Dichloroethene	7.20	96	6502	0.12	ug/l	90
32) Chloroform	7.58	83	157718	1.79	ug/l	97
46) Trichloroethene	10.64	130	14934	0.28	ug/l	96
49) Bromodichloromethane	11.42	83	12924	0.23	ug/l	99
63) Tetrachloroethene	14.14	164	467932	10.51	ug/l	98

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

Data File : D:\HPCHEM\1\DATA\19L12\RLC177.D Vial: 23
Acq On : 12 Dec 2019 8:33 pm Operator: RMinam
Sample : 19L057-07 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:43 2019 Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration

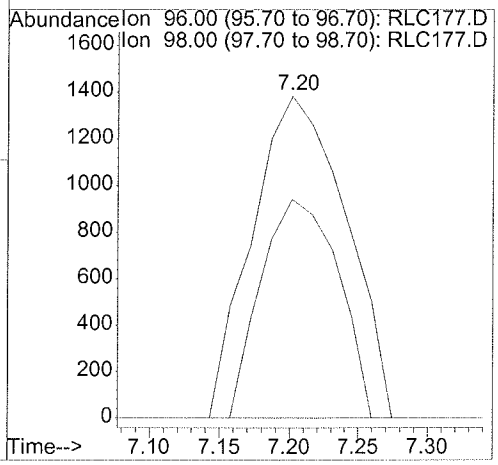


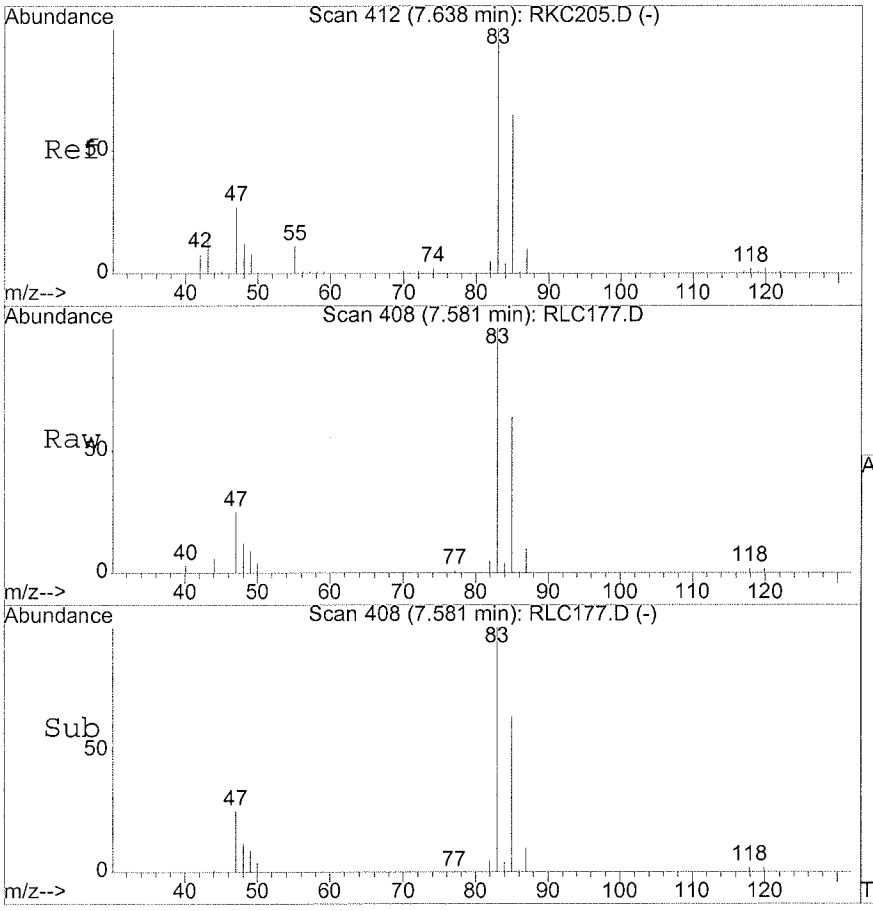


#31
cis-1,2-Dichloroethene
Concen: 0.12 ug/l
RT: 7.20 min Scan# 382
Delta R.T. -0.07 min
Lab File: RLC177.D
Acq: 12 Dec 2019 8:33 pm

Tgt Ion: 96 Resp: 6502

Ion	Ratio	Lower	Upper
96	100		
98	56.3	33.8	93.8

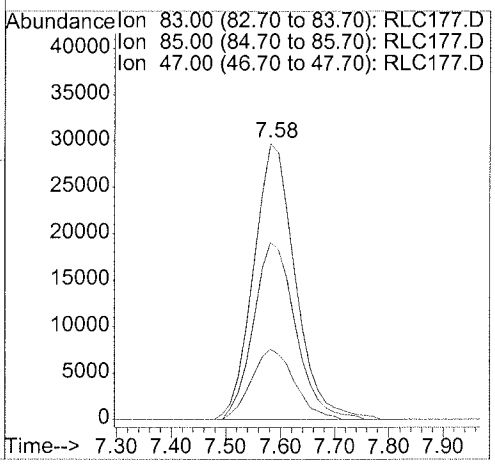


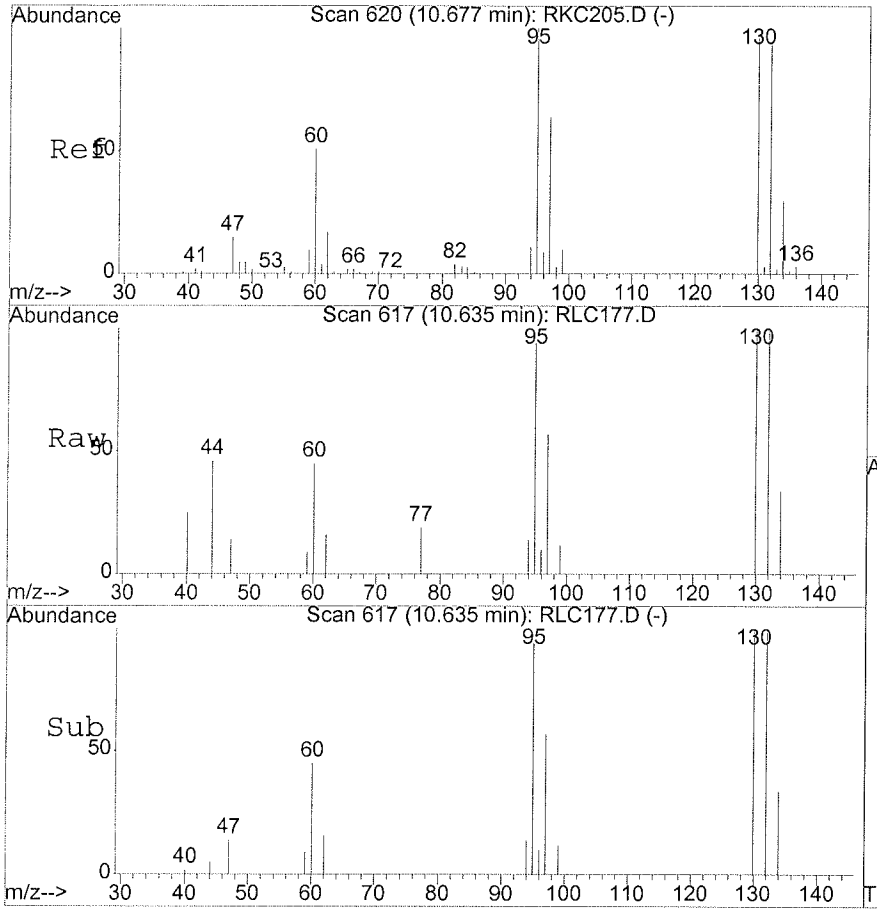


#32
Chloroform
Concen: 1.79 ug/l
RT: 7.58 min Scan# 408
Delta R.T. -0.06 min
Lab File: RLC177.D
Acq: 12 Dec 2019 8:33 pm

Tgt Ion: 83 Resp: 157718

Ion	Ratio	Lower	Upper
83	100		
85	64.7	37.3	97.3
47	26.2	0.0	57.5

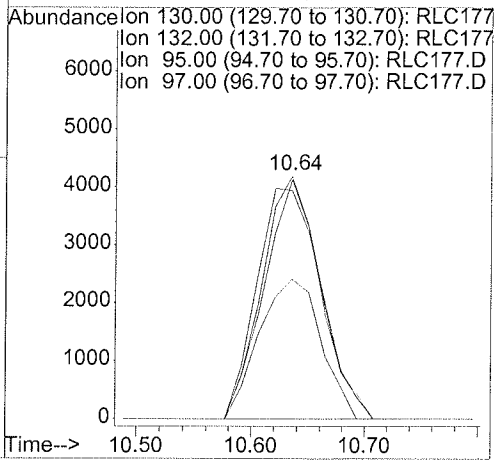


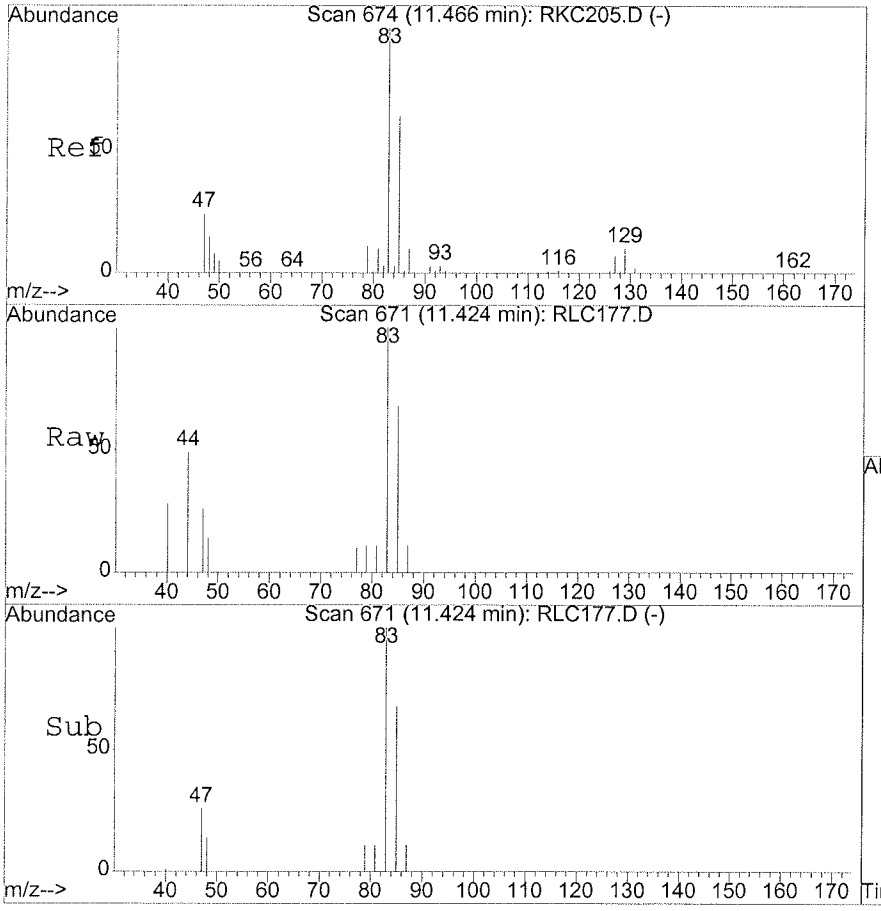


#46
Trichloroethene
Concen: 0.28 ug/l
RT: 10.64 min Scan# 617
Delta R.T. -0.04 min
Lab File: RLC177.D
Acq: 12 Dec 2019 8:33 pm

Tgt Ion:130 Resp: 14934

Ion	Ratio	Lower	Upper
130	100		
132	95.0	66.1	126.1
95	104.3	71.8	131.8
97	60.6	39.3	99.3

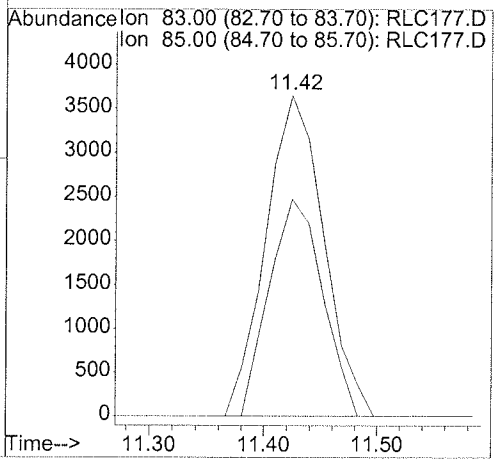


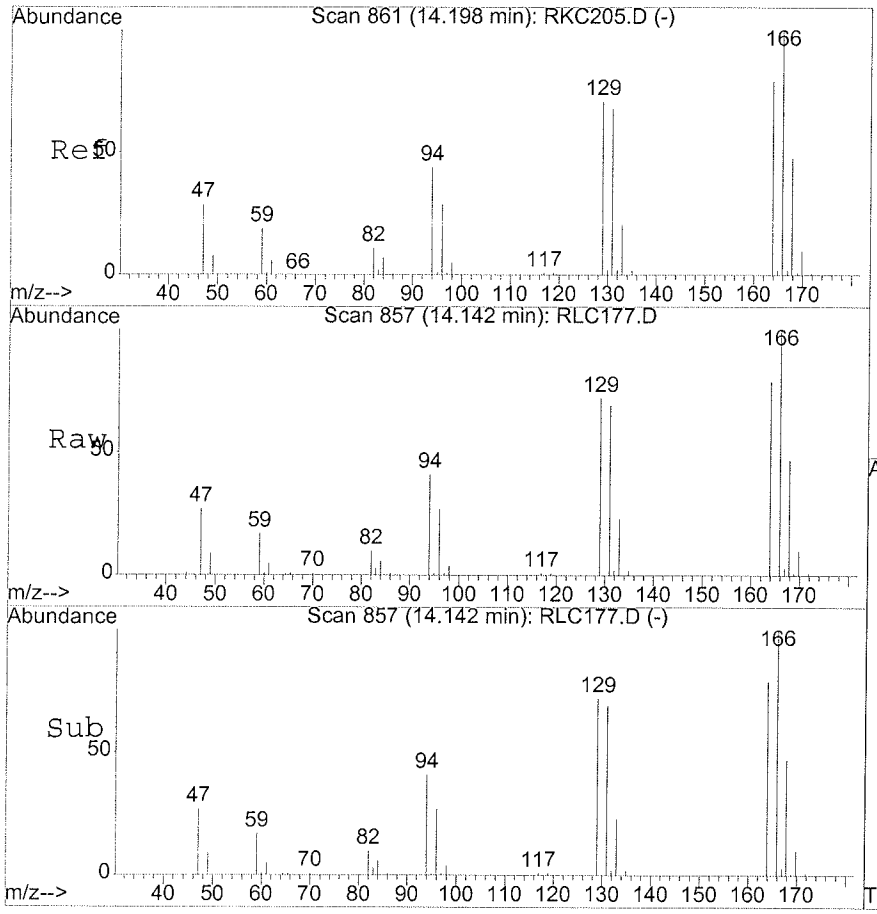


#49
Bromodichloromethane
Concen: 0.23 ug/l
RT: 11.42 min Scan# 671
Delta R.T. -0.04 min
Lab File: RLC177.D
Acq: 12 Dec 2019 8:33 pm

Tgt Ion: 83 Resp: 12924

Ion	Ratio	Lower	Upper
83	100		
85	62.3	33.5	93.5

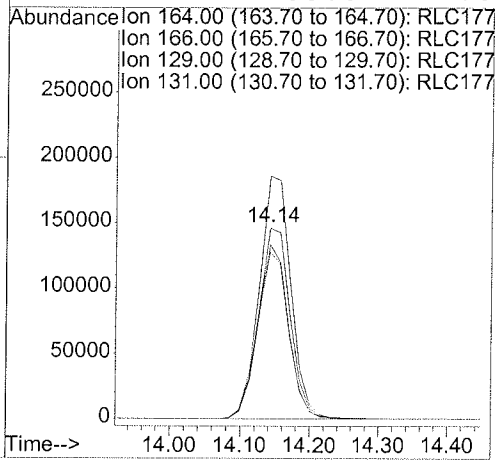




#63
Tetrachloroethene
Concen: 10.51 ug/l
RT: 14.14 min Scan# 857
Delta R.T. -0.06 min
Lab File: RLC177.D
Acq: 12 Dec 2019 8:33 pm

Tgt Ion:164 Resp: 467932

Ion	Ratio	Lower	Upper
164	100		
166	127.4	97.2	157.2
129	88.8	62.3	122.3
131	85.8	58.5	118.5



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/05/19
Project : VA SALT LAKE CITY	Date Received: 12/07/19
Batch No. : 19L057	Date Extracted: 12/12/19 20:59
Sample ID: OU2-MW13S-GW120519	Date Analyzed: 12/12/19 20:59
Lab Samp ID: L057-08	Dilution Factor: 1
Lab File ID: RLC178	Matrix : WATER
Ext Btch ID: V067L09	% Moisture : NA
Calib. Ref.: RKC205	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	0.49J	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	14	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	0.31J	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.96	10.00	89.6	70-130
BROMOFLUOROBENZENE	9.57	10.00	95.7	70-130
TOLUENE-D8	10.0	10.00	100	70-130
DIBROMOFLUOROMETHANE	9.87	10.00	98.7	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLC178.D Vial: 24
Acq On : 12 Dec 2019 8:59 pm Operator: RMinam
Sample : 19L057-08 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:46 2019 Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

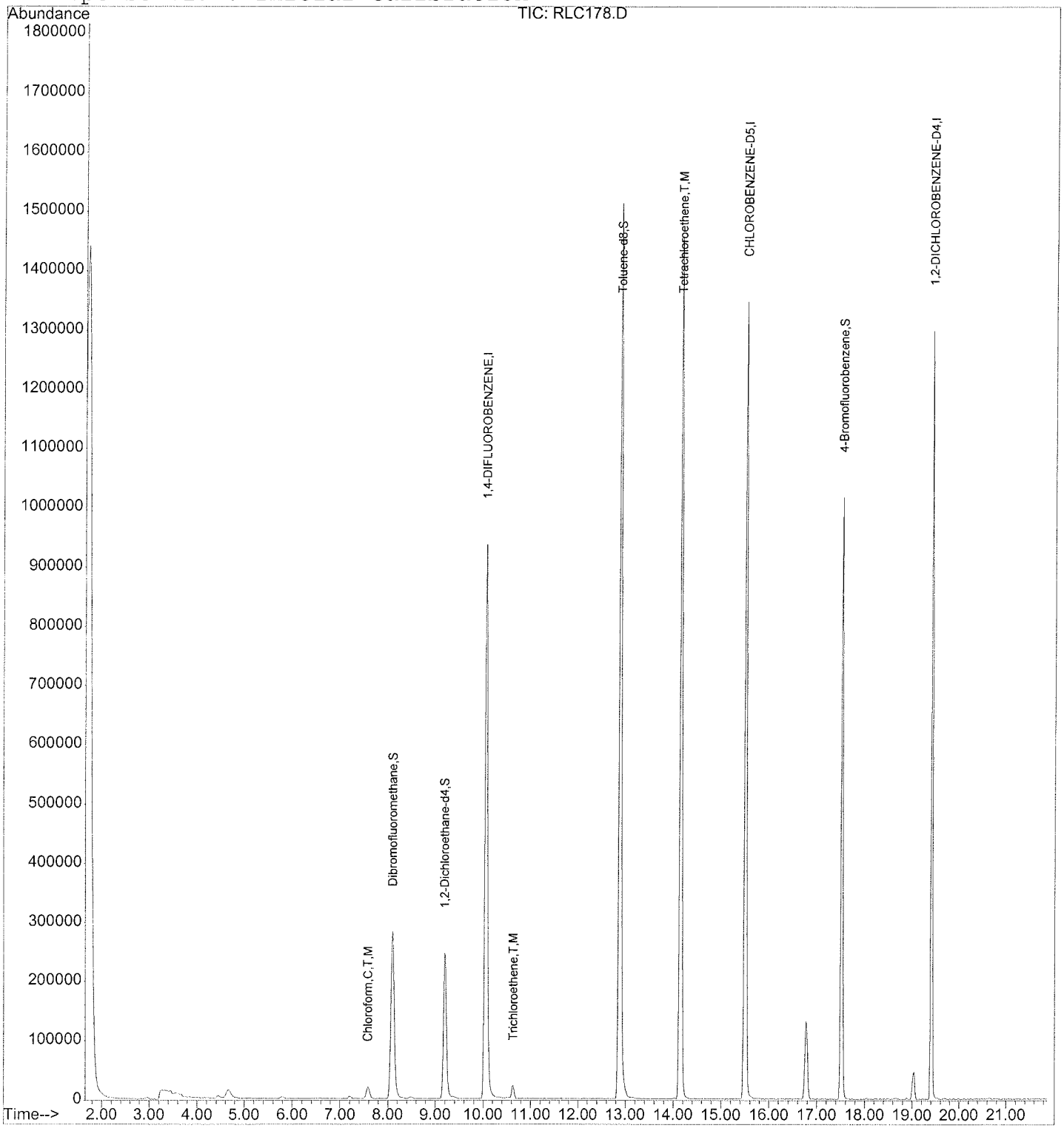
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.05	114	1643567	10.00	ug/l	-0.06
55) CHLOROBENZENE-D5	15.50	117	1329068	10.00	ug/l	-0.04
74) 1,2-DICHLOROBENZENE-D4	19.40	152	474236	10.00	ug/l	-0.04
System Monitoring Compounds						
35) Dibromofluoromethane	8.09	111	462082	9.87	ug/l	-0.06
Spiked Amount 10.000			Recovery =	98.70%		
43) 1,2-Dichloroethane-d4	9.19	65	362000	8.96	ug/l	-0.06
Spiked Amount 10.000			Recovery =	89.60%		
56) Toluene-d8	12.87	98	1865804	10.00	ug/l	-0.06
Spiked Amount 10.000			Recovery =	100.00%		
77) 4-Bromofluorobenzene	17.52	95	575292	9.57	ug/l	-0.04
Spiked Amount 10.000			Recovery =	95.70%		
Target Compounds						Qvalue
32) Chloroform	7.58	83	43550	0.49	ug/l	95
46) Trichloroethene	10.63	130	16306	0.31	ug/l	96
63) Tetrachloroethene	14.14	164	643074	14.42	ug/l	98

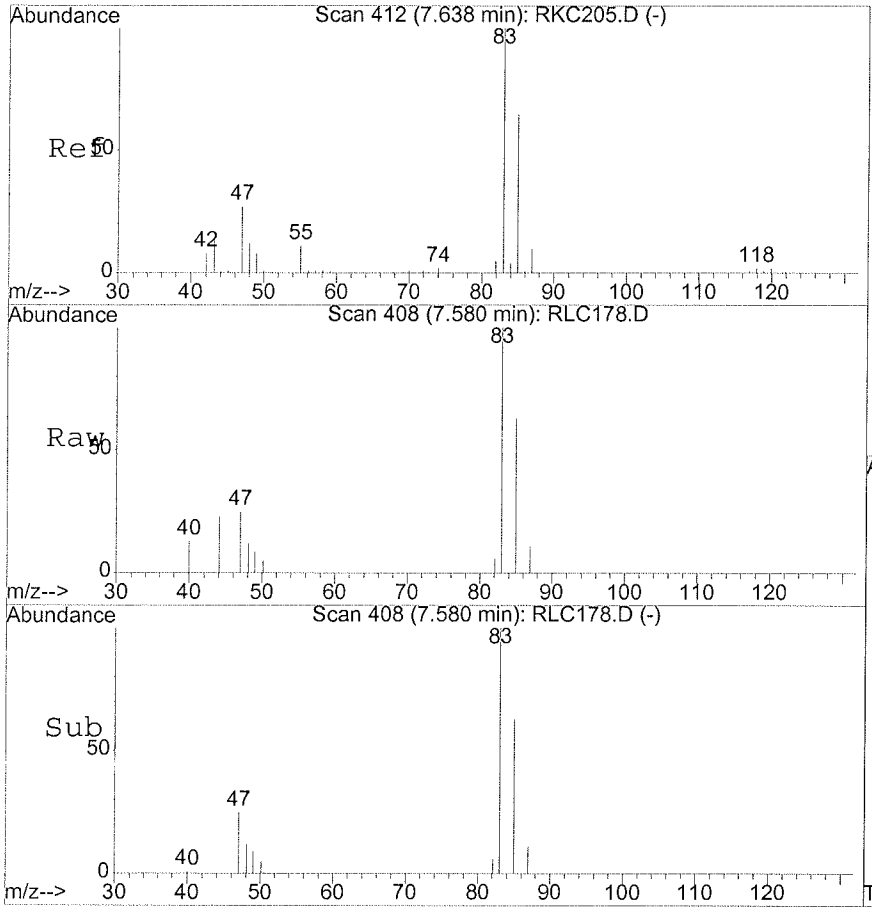
(#) = qualifier out of range (m) = manual integration
RLC178.D VO67K19.M Fri Dec 13 12:46:33 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLC178.D Vial: 24
Acq On : 12 Dec 2019 8:59 pm Operator: RMinam
Sample : 19L057-08 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:46 2019 Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration

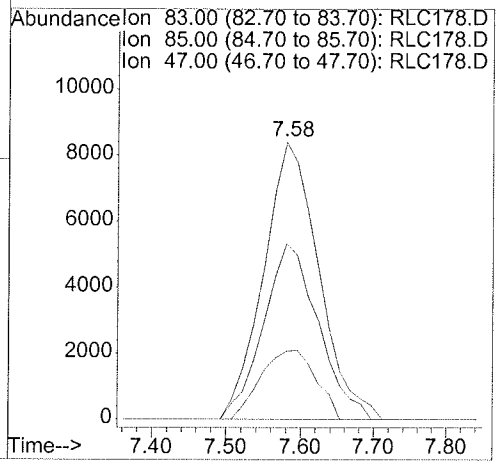


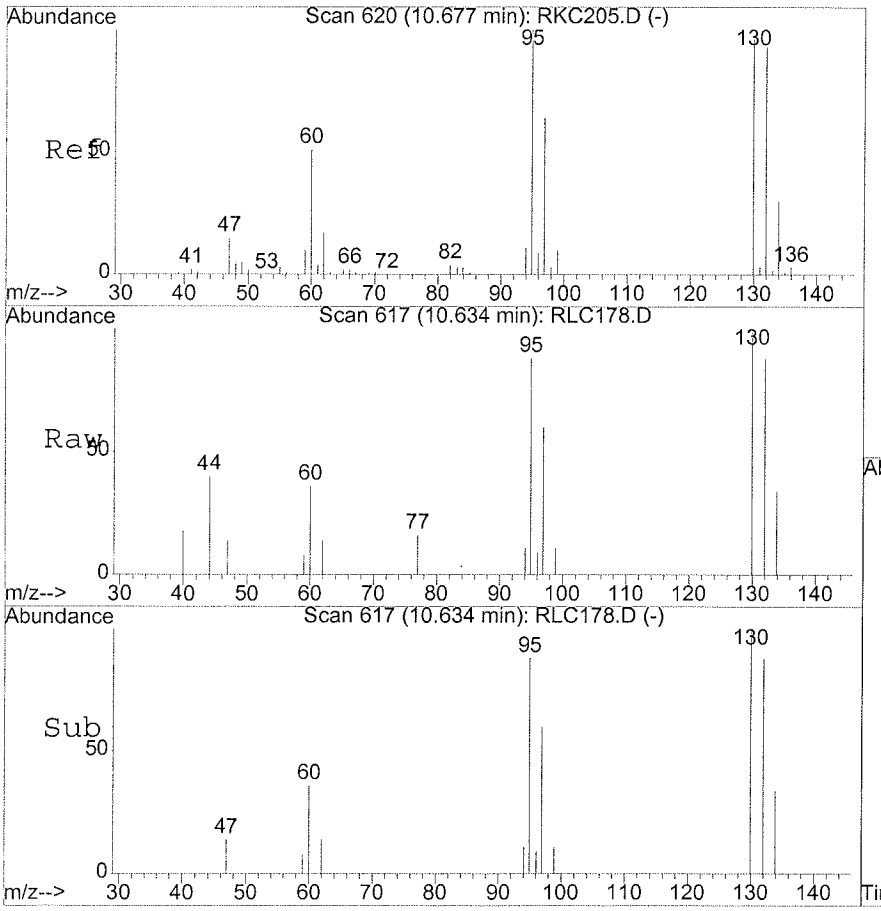


#32
Chloroform
Concen: 0.49 ug/l
RT: 7.58 min Scan# 408
Delta R.T. -0.06 min
Lab File: RLC178.D
Acq: 12 Dec 2019 8:59 pm

Tgt Ion: 83 Resp: 43550

Ion	Ratio	Lower	Upper
83	100		
85	63.2	37.3	97.3
47	24.9	0.0	57.5

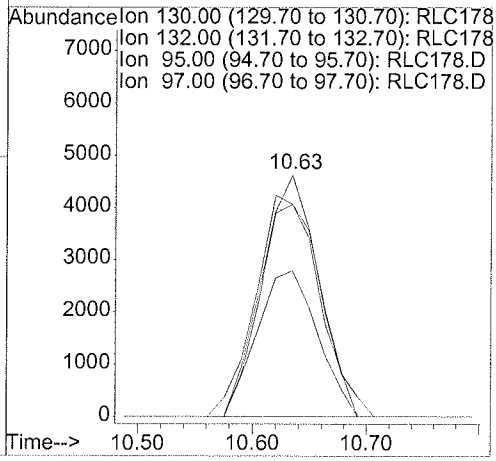


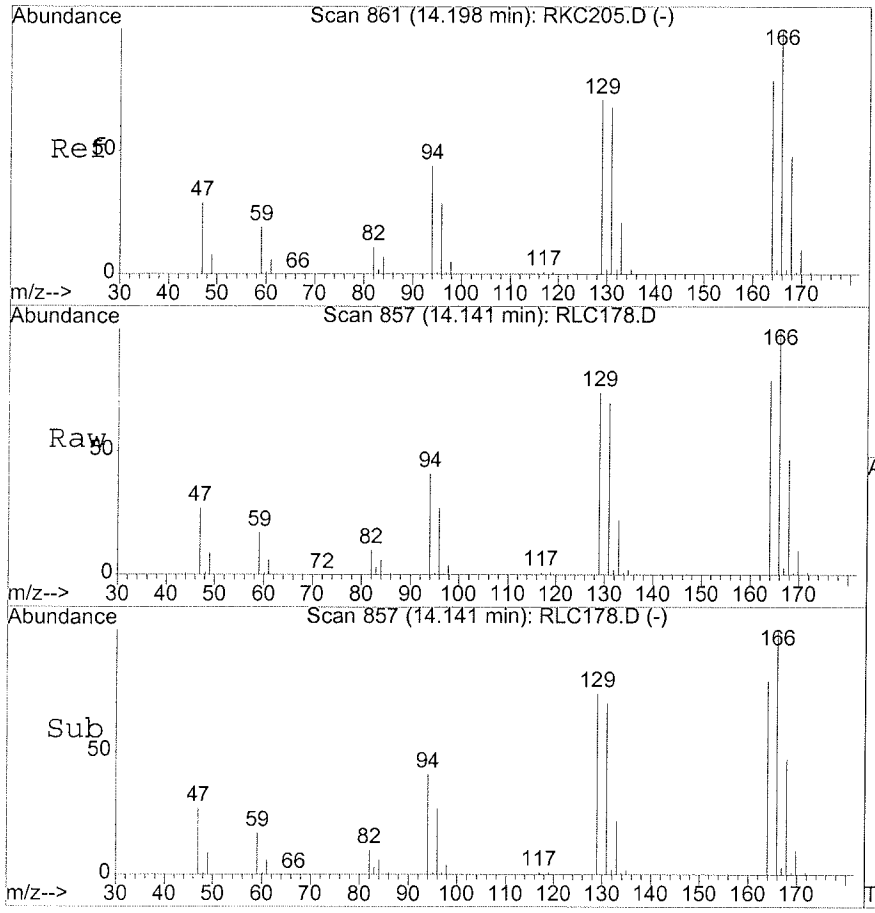


#46
Trichloroethene
Concen: 0.31 ug/l
RT: 10.63 min Scan# 617
Delta R.T. -0.04 min
Lab File: RLC178.D
Acq: 12 Dec 2019 8:59 pm

Tgt Ion:130 Resp: 16306

Ion	Ratio	Lower	Upper
130	100		
132	93.4	66.1	126.1
95	100.3	71.8	131.8
97	62.9	39.3	99.3

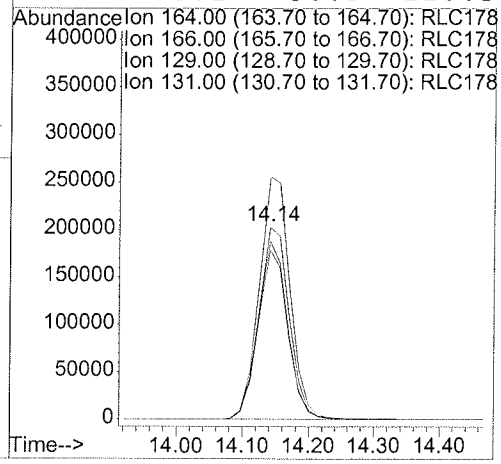




#63
Tetrachloroethene
Concen: 14.42 ug/l
RT: 14.14 min Scan# 857
Delta R.T. -0.06 min
Lab File: RLC178.D
Acq: 12 Dec 2019 8:59 pm

Tgt Ion:164 Resp: 643074

Ion	Ratio	Lower	Upper
164	100		
166	128.0	97.2	157.2
129	90.1	62.3	122.3
131	86.1	58.5	118.5



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/05/19
Project : VA SALT LAKE CITY	Date Received: 12/07/19
Batch No. : 19L057	Date Extracted: 12/12/19 21:24
Sample ID: OU2-MW13D-GW120519	Date Analyzed: 12/12/19 21:24
Lab Samp ID: L057-09	Dilution Factor: 1
Lab File ID: RLC179	Matrix : WATER
Ext Btch ID: V067L09	% Moisture : NA
Calib. Ref.: RKC205	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	0.53J	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	0.17J	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.27J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	2.1	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	0.38J	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	62	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	0.56J	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.02	10.00	90.2	70-130
BROMOFLUOROBENZENE	9.53	10.00	95.3	70-130
TOLUENE-D8	10.1	10.00	101	70-130
DIBROMOFLUOROMETHANE	9.92	10.00	99.2	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLC179.D Vial: 25
Acq On : 12 Dec 2019 9:24 pm Operator: RMinam
Sample : 19L057-09 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:47 2019 Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

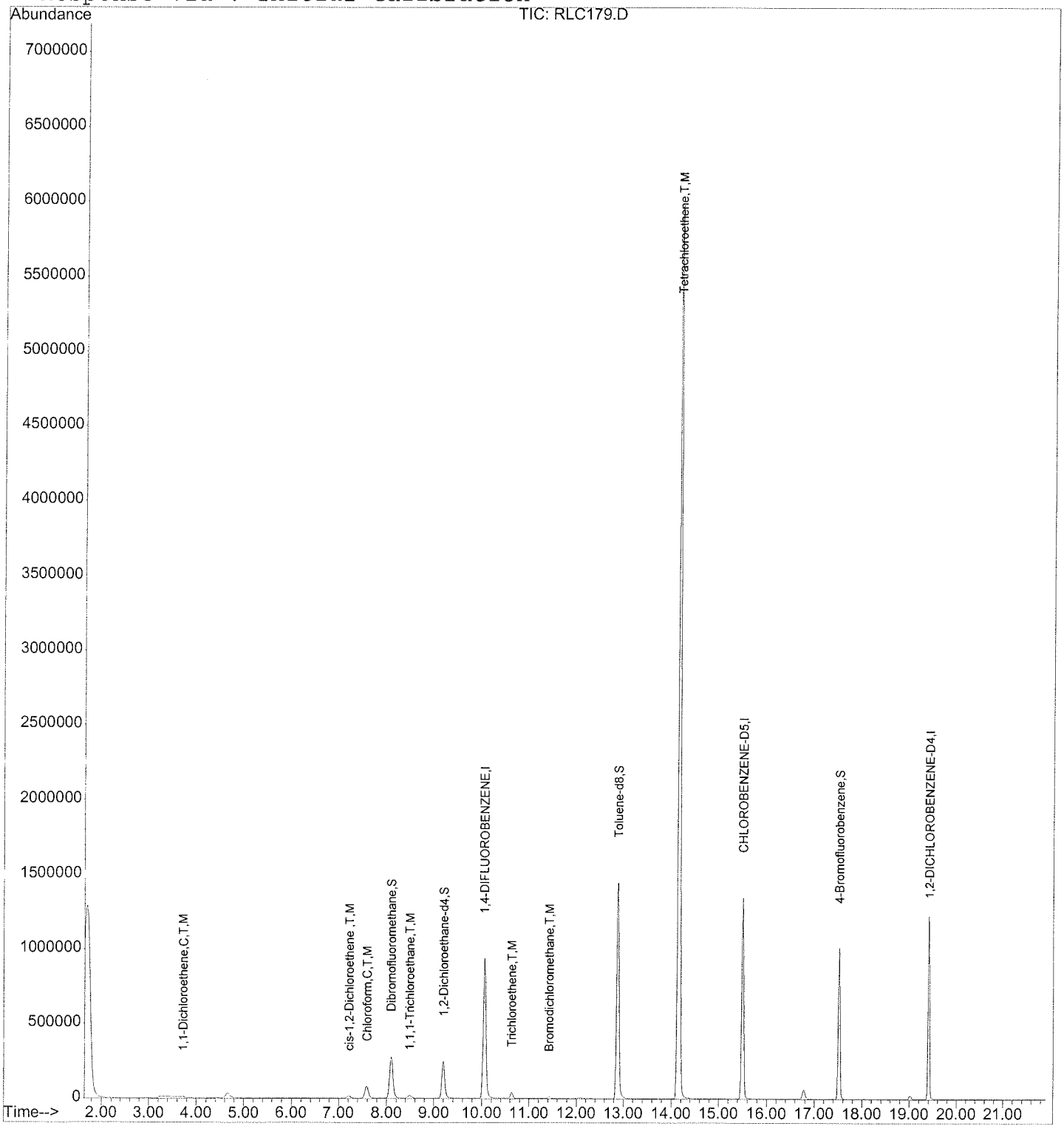
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.05	114	1621789	10.00	ug/l	-0.06
55) CHLOROBENZENE-D5	15.50	117	1317901	10.00	ug/l	-0.04
74) 1,2-DICHLOROBENZENE-D4	19.41	152	471274	10.00	ug/l	-0.03
System Monitoring Compounds						
35) Dibromofluoromethane	8.09	111	458164	9.92	ug/l	-0.06
Spiked Amount 10.000			Recovery =	99.20%		
43) 1,2-Dichloroethane-d4	9.20	65	359604	9.02	ug/l	-0.04
Spiked Amount 10.000			Recovery =	90.20%		
56) Toluene-d8	12.88	98	1859669	10.06	ug/l	-0.04
Spiked Amount 10.000			Recovery =	100.60%		
77) 4-Bromofluorobenzene	17.52	95	569302	9.53	ug/l	-0.04
Spiked Amount 10.000			Recovery =	95.30%		
Target Compounds						Qvalue
14) 1,1-Dichloroethene	3.72	61	15683	0.17	ug/l	97
31) cis-1,2-Dichloroethene	7.21	96	20032	0.38	ug/l	97
32) Chloroform	7.59	83	181935	2.07	ug/l	96
37) 1,1,1-Trichloroethane	8.49	97	41444	0.53	ug/l	96
46) Trichloroethene	10.63	130	29007	0.56	ug/l	97
49) Bromodichloromethane	11.42	83	15479	0.27	ug/l	97
63) Tetrachloroethene	14.15	164	2738495	61.95	ug/l	98

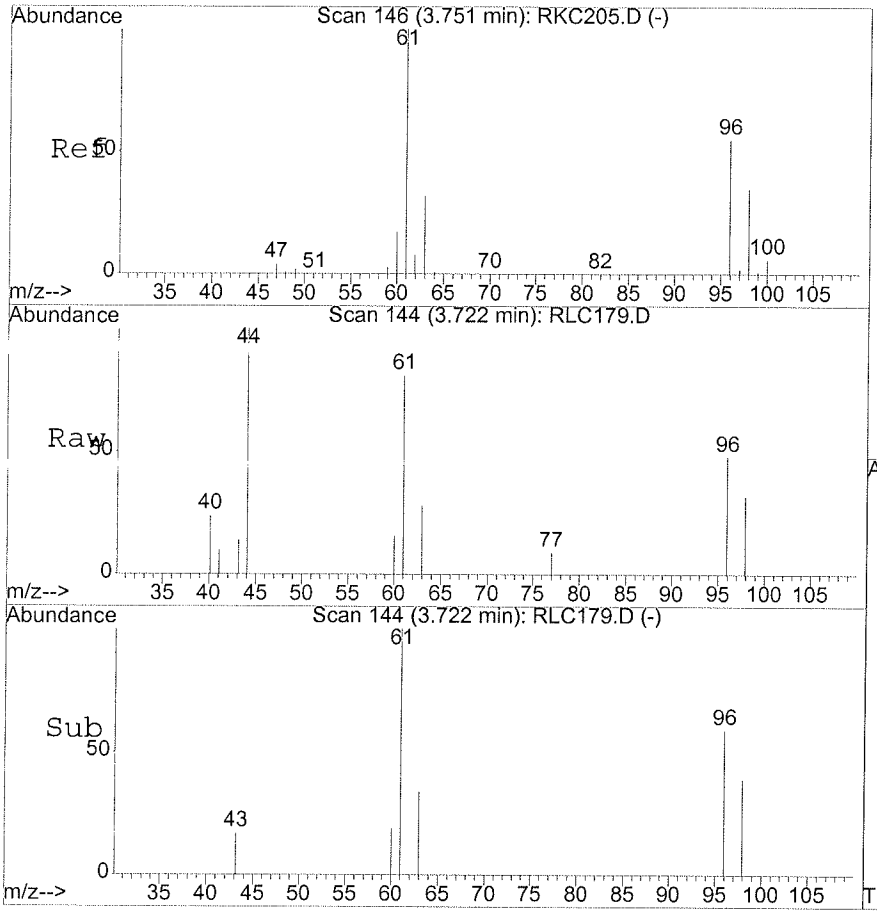
(#) = qualifier out of range (m) = manual integration
RLC179.D VO67K19.M Fri Dec 13 12:49:12 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLC179.D Vial: 25
Acq On : 12 Dec 2019 9:24 pm Operator: RMinam
Sample : 19L057-09 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:47 2019 Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration

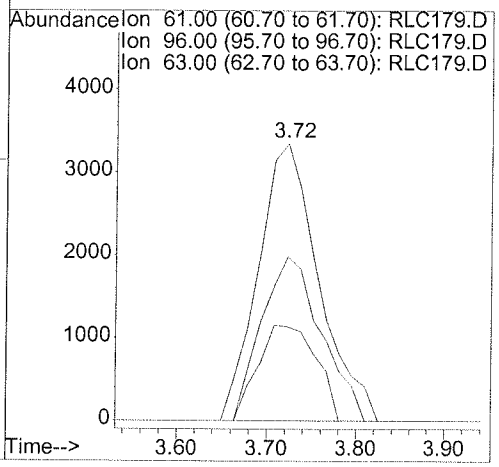


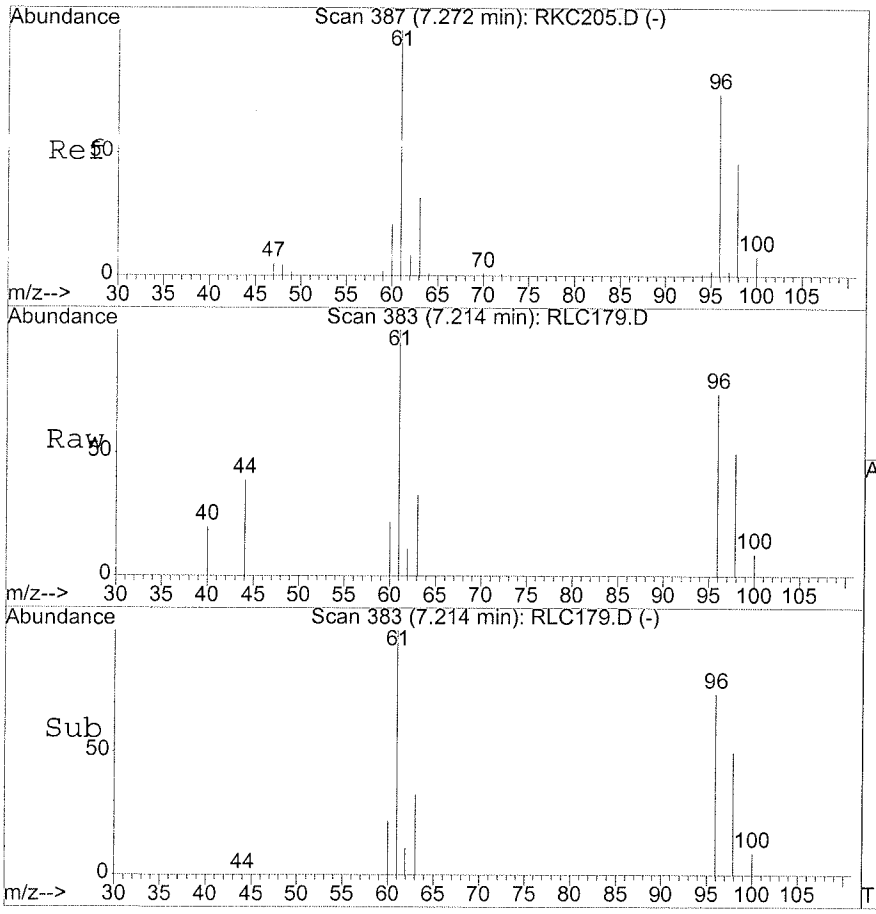


#14
1,1-Dichloroethene
Concen: 0.17 ug/l
RT: 3.72 min Scan# 144
Delta R.T. -0.03 min
Lab File: RLC179.D
Acq: 12 Dec 2019 9:24 pm

Tgt Ion: 61 Resp: 15683

Ion	Ratio	Lower	Upper
61	100		
96	58.5	25.3	85.3
63	33.1	2.4	62.4

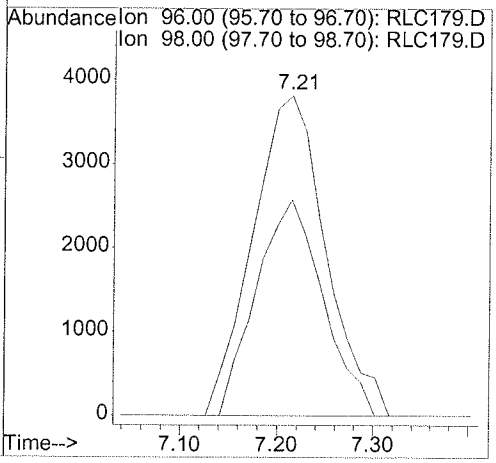


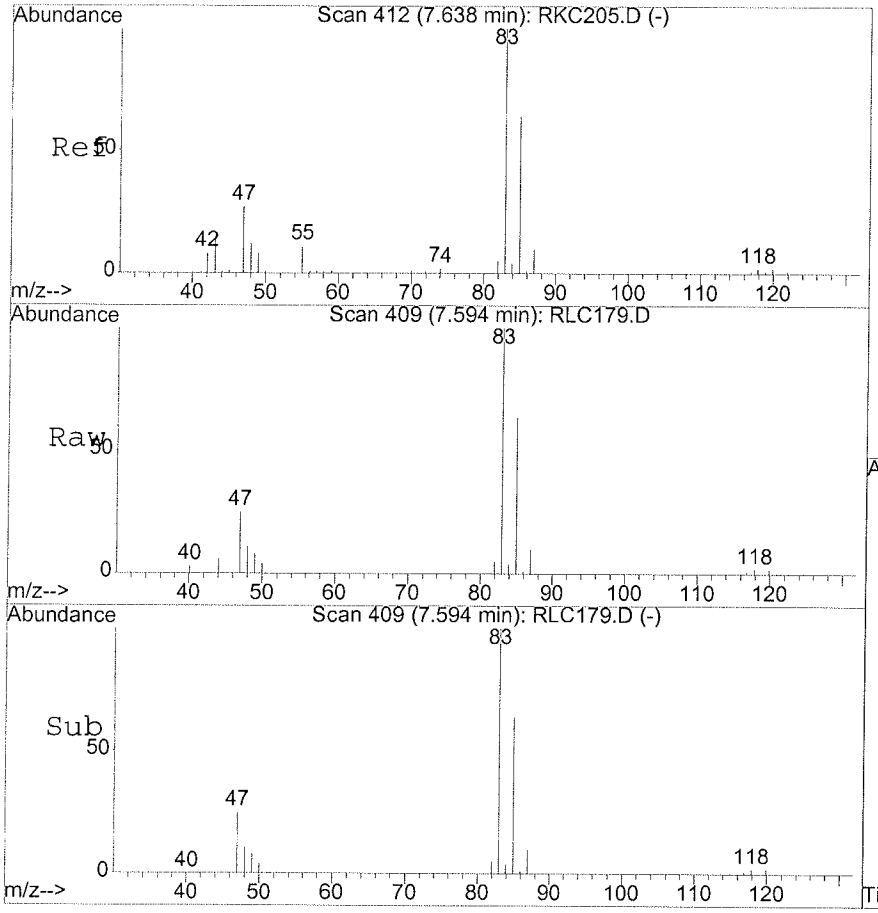


#31
cis-1,2-Dichloroethene
Concen: 0.38 ug/l
RT: 7.21 min Scan# 383
Delta R.T. -0.06 min
Lab File: RLC179.D
Acq: 12 Dec 2019 9:24 pm

Tgt Ion: 96 Resp: 20032

Ion	Ratio	Lower	Upper
96	100		
98	61.7	33.8	93.8

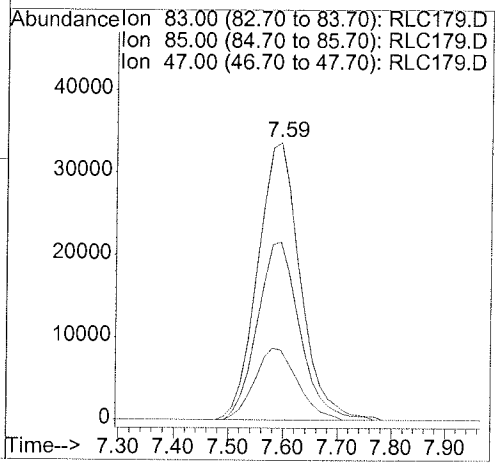


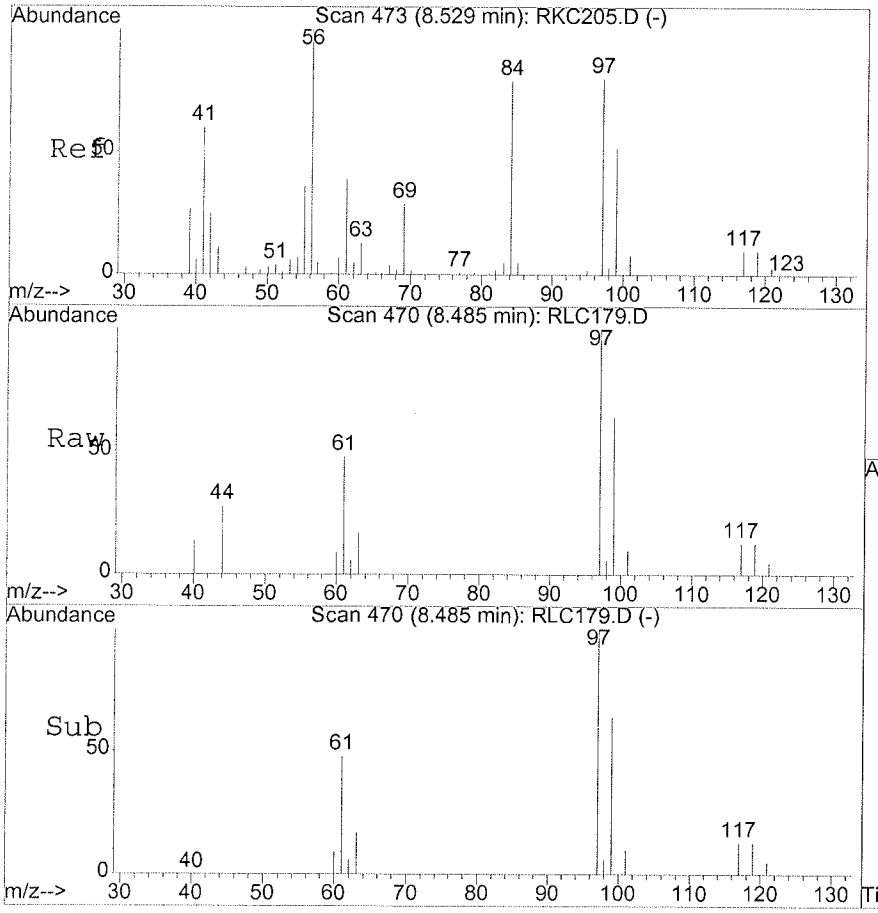


#32
Chloroform
Concen: 2.07 ug/l
RT: 7.59 min Scan# 409
Delta R.T. -0.04 min
Lab File: RLC179.D
Acq: 12 Dec 2019 9:24 pm

Tgt Ion: 83 Resp: 181935

Ion	Ratio	Lower	Upper
83	100		
85	63.7	37.3	97.3
47	26.1	0.0	57.5

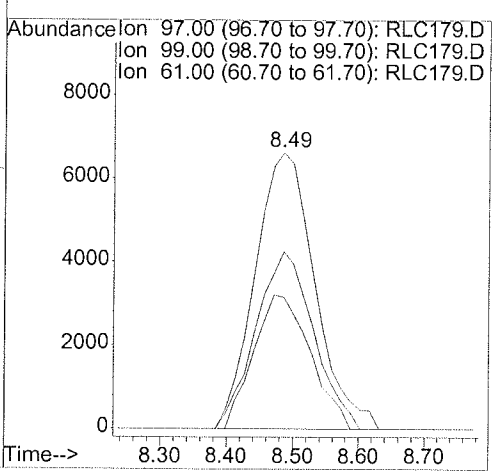


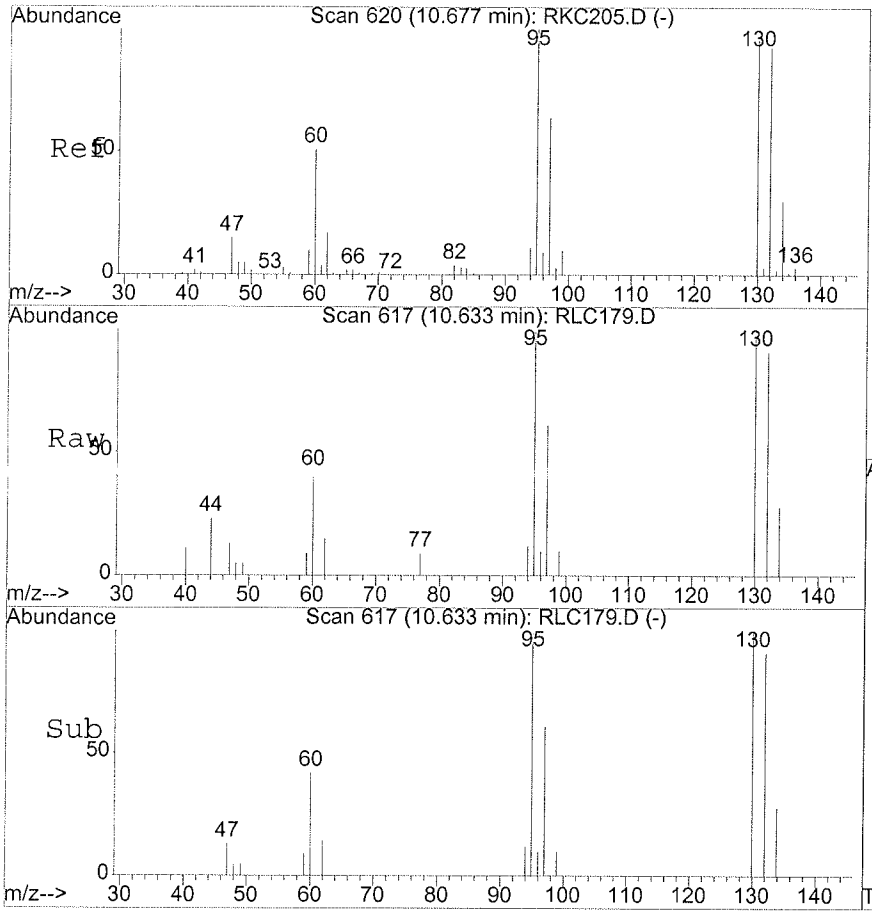


#37
1,1,1-Trichloroethane
Concen: 0.53 ug/l
RT: 8.49 min Scan# 470
Delta R.T. -0.04 min
Lab File: RLC179.D
Acq: 12 Dec 2019 9:24 pm

Tgt Ion: 97 Resp: 41444

Ion	Ratio	Lower	Upper
97	100		
99	61.9	34.6	94.6
61	45.9	18.6	78.6

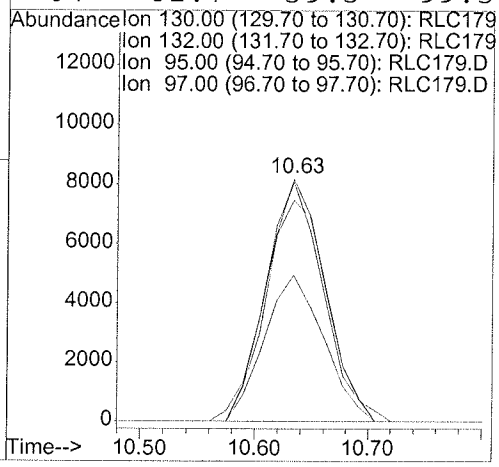


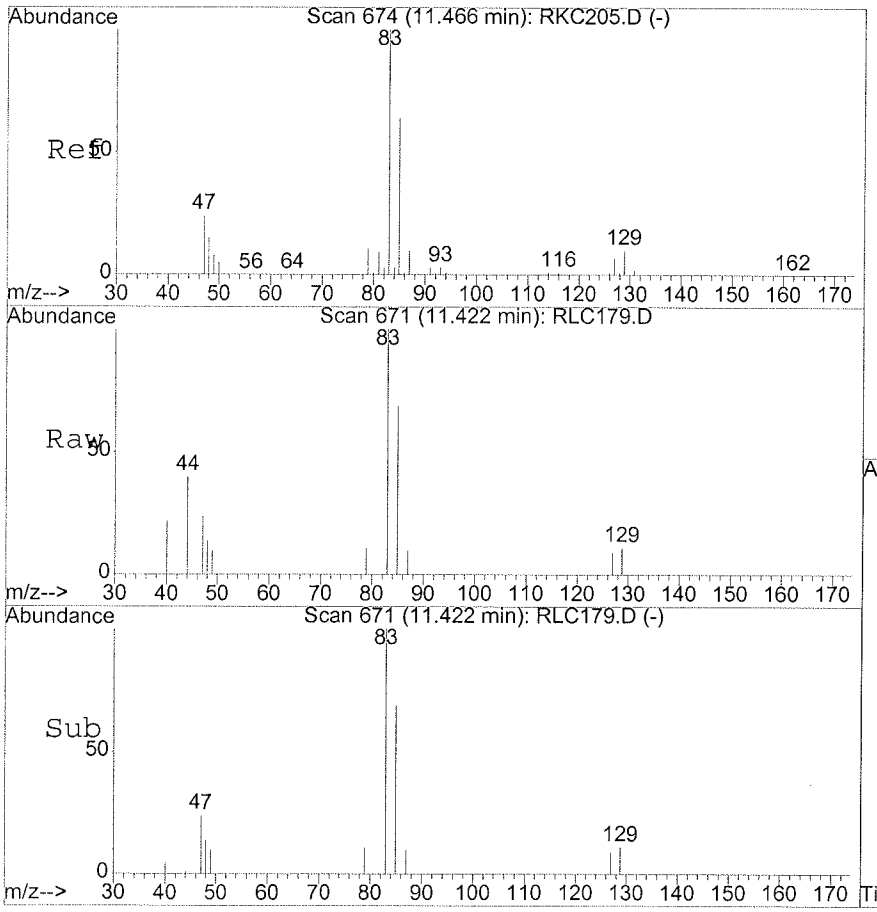


#46
Trichloroethene
Concen: 0.56 ug/l
RT: 10.63 min Scan# 617
Delta R.T. -0.04 min
Lab File: RLC179.D
Acq: 12 Dec 2019 9:24 pm

Tgt Ion:130 Resp: 29007

Ion	Ratio	Lower	Upper
130	100		
132	96.2	66.1	126.1
95	99.2	71.8	131.8
97	61.7	39.3	99.3

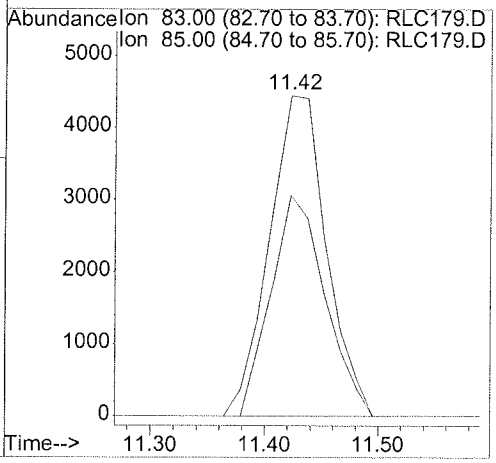


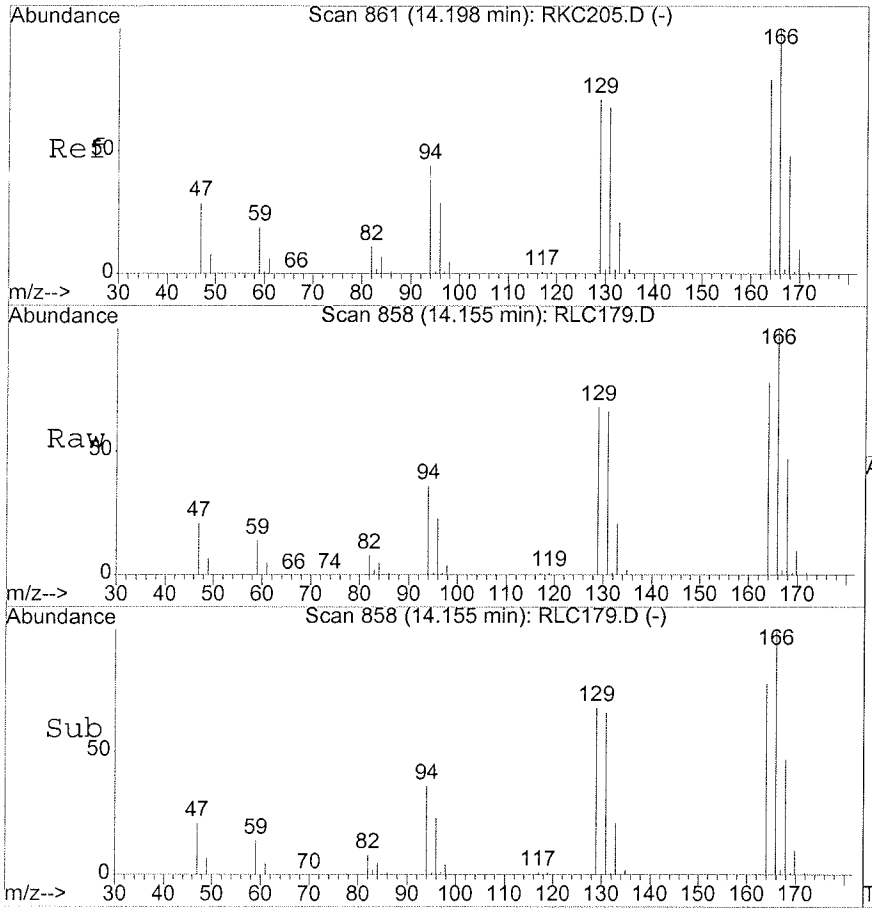


#49
Bromodichloromethane
Concen: 0.27 ug/l
RT: 11.42 min Scan# 671
Delta R.T. -0.04 min
Lab File: RLC179.D
Acq: 12 Dec 2019 9:24 pm

Tgt Ion: 83 Resp: 15479

Ion	Ratio	Lower	Upper
83	100		
85	65.7	33.5	93.5

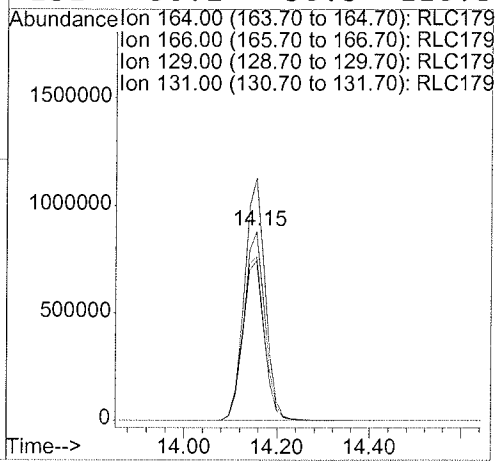




#63
Tetrachloroethene
Concen: 61.95 ug/l
RT: 14.15 min Scan# 858
Delta R.T. -0.04 min
Lab File: RLC179.D
Acq: 12 Dec 2019 9:24 pm

Tgt Ion:164 Resp: 2738495

Ion	Ratio	Lower	Upper
164	100		
166	127.8	97.2	157.2
129	89.3	62.3	122.3
131	86.1	58.5	118.5



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/05/19
Project : VA SALT LAKE CITY	Date Received: 12/07/19
Batch No. : 19L057	Date Extracted: 12/12/19 21:50
Sample ID: OU2-MW04-GW120519	Date Analyzed: 12/12/19 21:50
Lab Samp ID: L057-10	Dilution Factor: 1
Lab File ID: RLC180	Matrix : WATER
Ext Btch ID: VO67L09	% Moisture : NA
Calib. Ref.: RKC205	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.36J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	4.1	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	0.10J	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	55	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	0.28J	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.13	10.00	91.3	70-130
BROMOFLUOROBENZENE	9.55	10.00	95.5	70-130
TOLUENE-D8	9.97	10.00	99.7	70-130
DIBROMOFLUOROMETHANE	10.0	10.00	100	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLC180.D Vial: 26
Acq On : 12 Dec 2019 9:50 pm Operator: RMinam
Sample : 19L057-10 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:50 2019 Quant Results File: VO67K19.RES

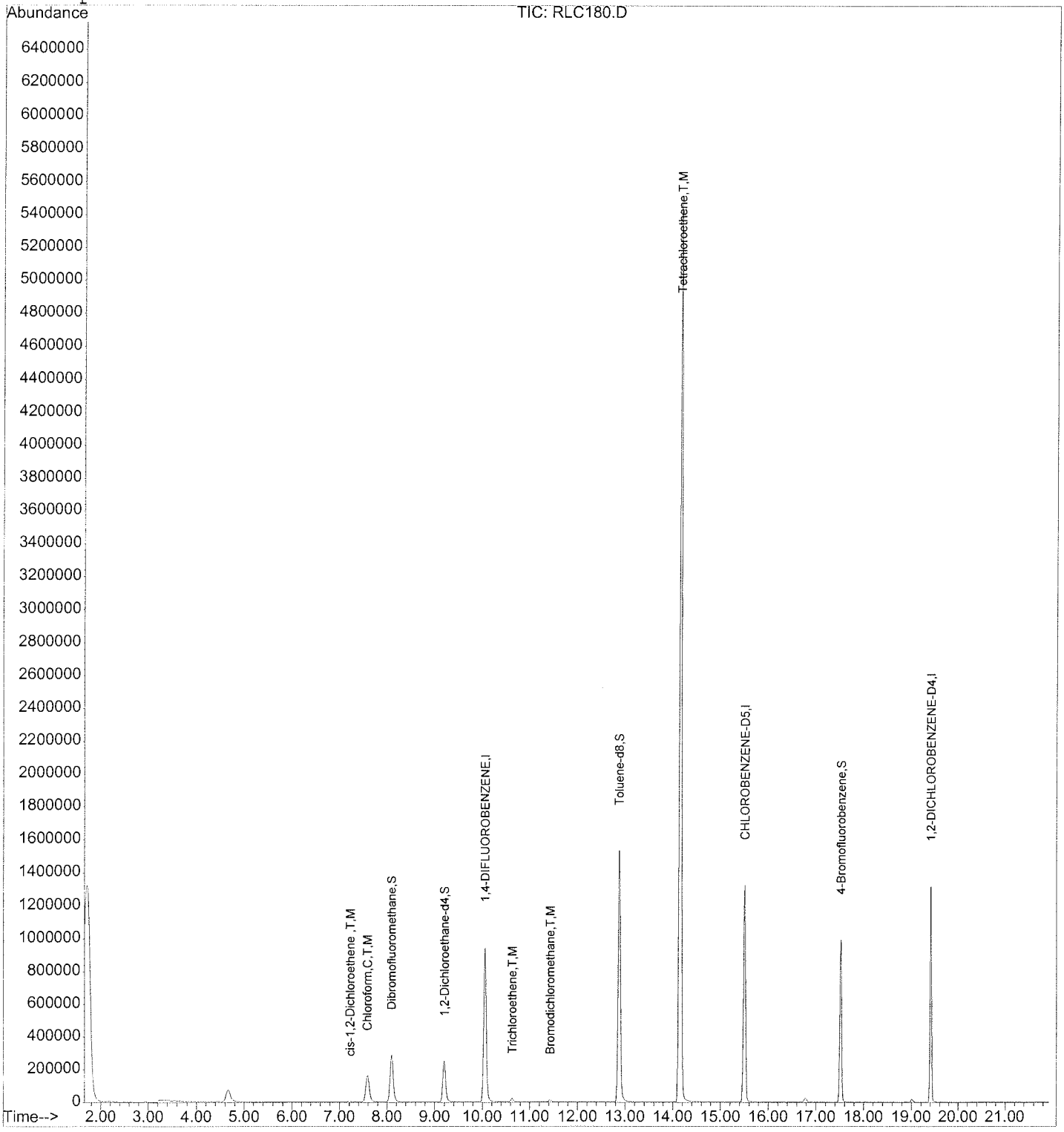
Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

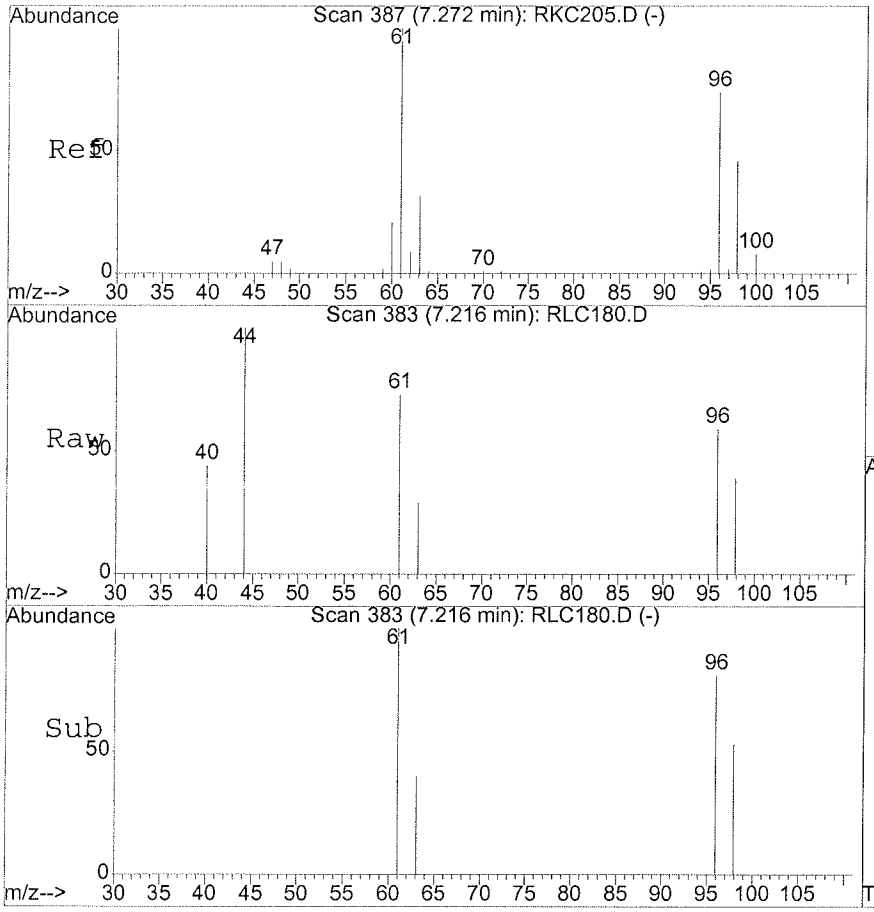
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.05	114	1633080	10.00	ug/l	-0.06
55) CHLOROBENZENE-D5	15.50	117	1334777	10.00	ug/l	-0.04
74) 1,2-DICHLOROBENZENE-D4	19.40	152	477607	10.00	ug/l	-0.04
System Monitoring Compounds						
35) Dibromofluoromethane	8.09	111	466018	10.02	ug/l	-0.06
Spiked Amount 10.000			Recovery =	100.20%		
43) 1,2-Dichloroethane-d4	9.20	65	366569	9.13	ug/l	-0.04
Spiked Amount 10.000			Recovery =	91.30%		
56) Toluene-d8	12.87	98	1867889	9.97	ug/l	-0.06
Spiked Amount 10.000			Recovery =	99.70%		
77) 4-Bromofluorobenzene	17.52	95	578178	9.55	ug/l	-0.04
Spiked Amount 10.000			Recovery =	95.50%		
Target Compounds						Qvalue
31) cis-1,2-Dichloroethene	7.22	96	5556	0.10	ug/l	89
32) Chloroform	7.58	83	364106	4.12	ug/l	97
46) Trichloroethene	10.63	130	14841	0.28	ug/l	96
49) Bromodichloromethane	11.42	83	20196	0.36	ug/l	99
63) Tetrachloroethene	14.14	164	2465133	55.06	ug/l	98

(#) = qualifier out of range (m) = manual integration
RLC180.D VO67K19.M Fri Dec 13 12:50:30 2019 Page 1

Data File : D:\HPCHEM\1\DATA\19L12\RLC180.D Vial: 26
Acq On : 12 Dec 2019 9:50 pm Operator: RMinam
Sample : 19L057-10 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:50 2019 Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration

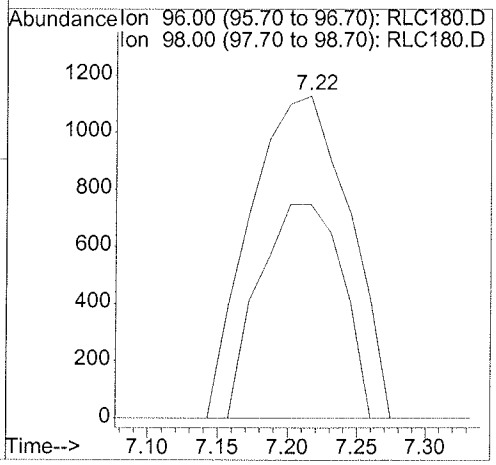


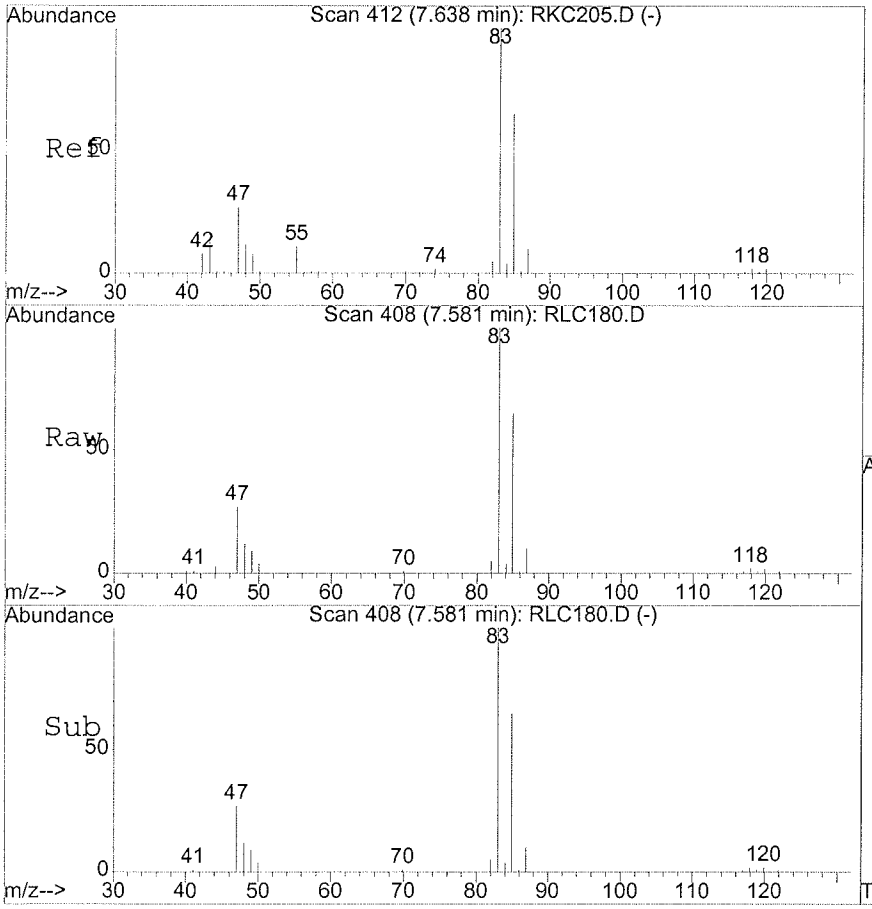


#31
cis-1,2-Dichloroethene
Concen: 0.10 ug/l
RT: 7.22 min Scan# 383
Delta R.T. -0.06 min
Lab File: RLC180.D
Acq: 12 Dec 2019 9:50 pm

Tgt Ion: 96 Resp: 5556

Ion	Ratio	Lower	Upper
96	100		
98	55.6	33.8	93.8

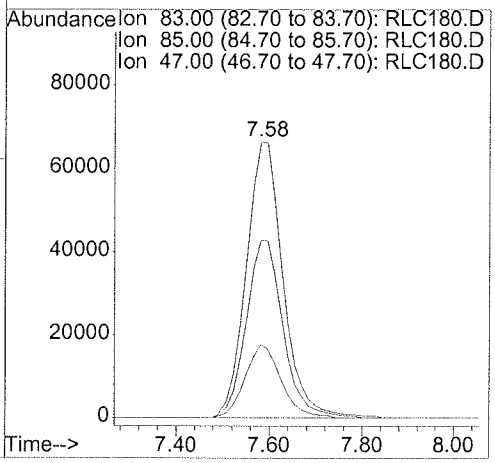


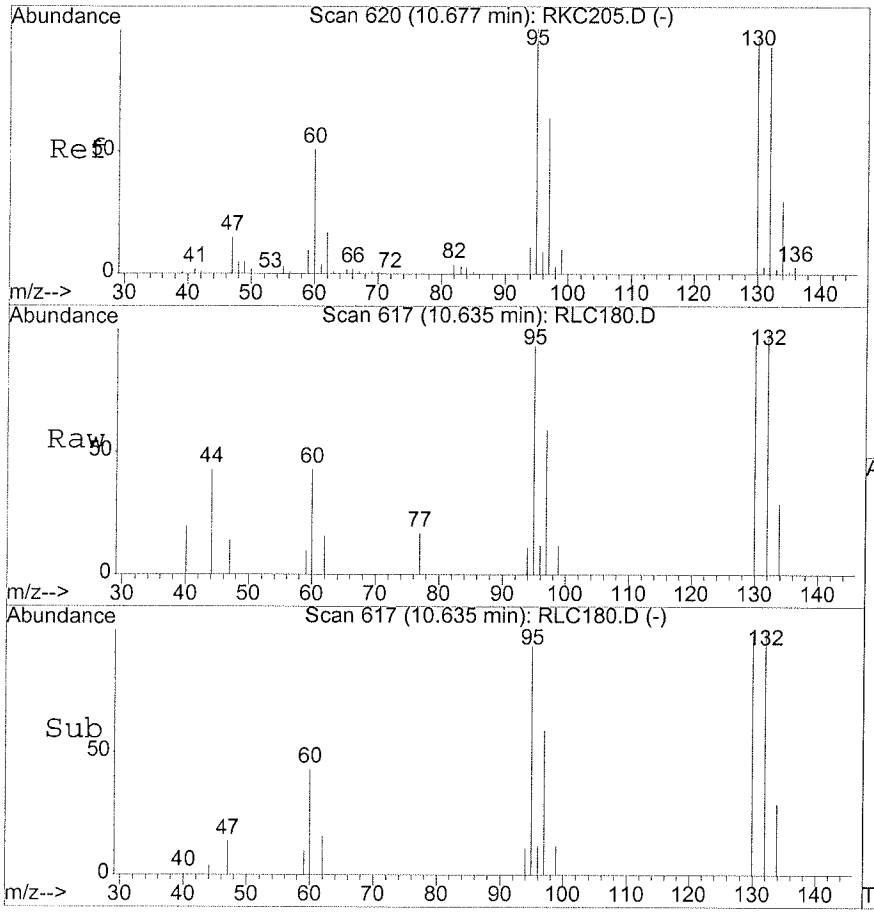


#32
Chloroform
Concen: 4.12 ug/l
RT: 7.58 min Scan# 408
Delta R.T. -0.06 min
Lab File: RLC180.D
Acq: 12 Dec 2019 9:50 pm

Tgt Ion: 83 Resp: 364106

Ion	Ratio	Lower	Upper
83	100		
85	64.4	37.3	97.3
47	25.9	0.0	57.5

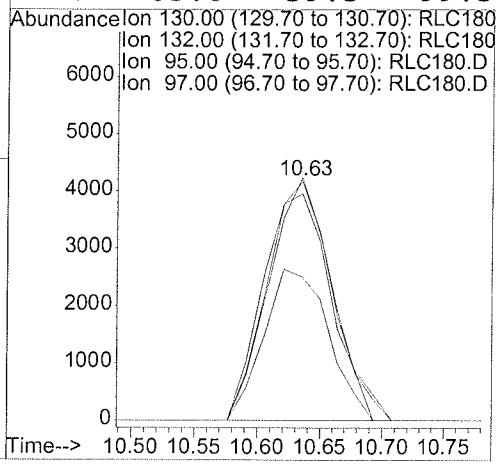


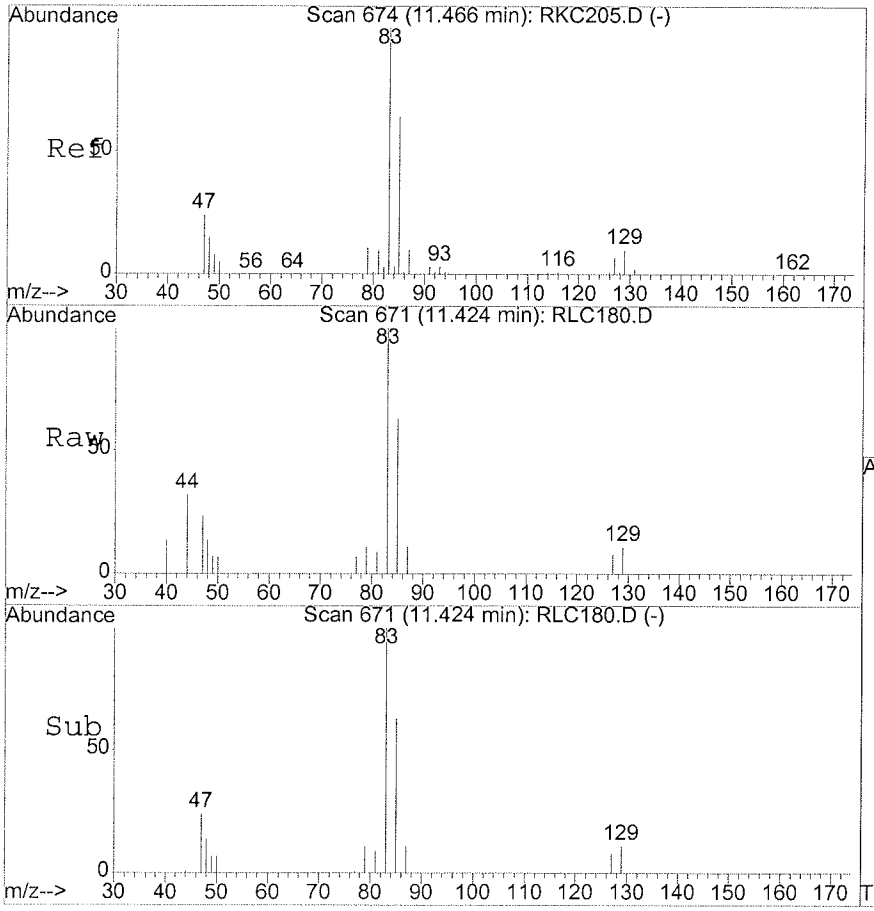


#46
Trichloroethene
Concen: 0.28 ug/l
RT: 10.63 min Scan# 617
Delta R.T. -0.04 min
Lab File: RLC180.D
Acq: 12 Dec 2019 9:50 pm

Tgt Ion:130 Resp: 14841

Ion	Ratio	Lower	Upper
130	100		
132	100.6	66.1	126.1
95	102.6	71.8	131.8
97	63.8	39.3	99.3

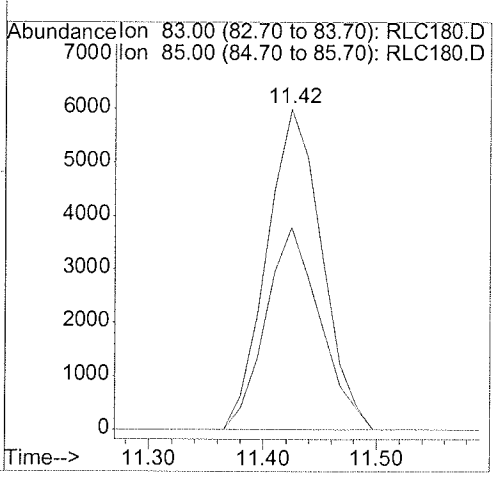


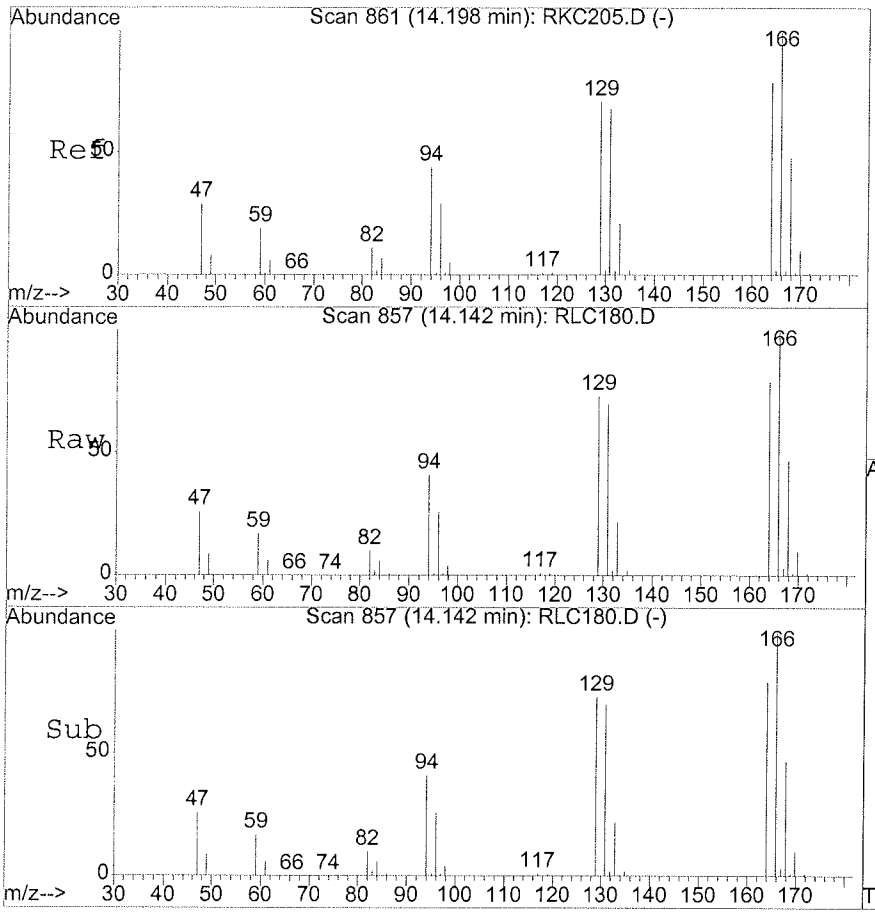


#49
Bromodichloromethane
Concen: 0.36 ug/l
RT: 11.42 min Scan# 671
Delta R.T. -0.04 min
Lab File: RLC180.D
Acq: 12 Dec 2019 9:50 pm

Tgt Ion: 83 Resp: 20196

Ion	Ratio	Lower	Upper
83	100		
85	62.3	33.5	93.5

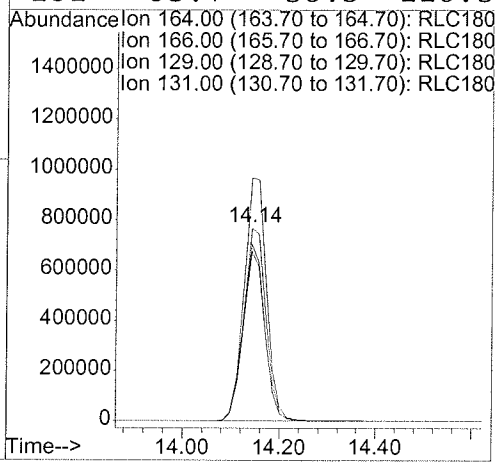




#63
Tetrachloroethene
Concen: 55.06 ug/l
RT: 14.14 min Scan# 857
Delta R.T. -0.06 min
Lab File: RLC180.D
Acq: 12 Dec 2019 9:50 pm

Tgt Ion:164 Resp: 2465133

Ion	Ratio	Lower	Upper
164	100		
166	127.6	97.2	157.2
129	88.8	62.3	122.3
131	85.7	58.5	118.5



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/06/19
Project : VA SALT LAKE CITY	Date Received: 12/07/19
Batch No. : 19L057	Date Extracted: 12/12/19 15:26
Sample ID: OU2-TB04-GW120619	Date Analyzed: 12/12/19 15:26
Lab Samp ID: L057-11	Dilution Factor: 1
Lab File ID: RLC165	Matrix : WATER
Ext Btch ID: V067L09	% Moisture : NA
Calib. Ref.: RKC205	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	ND	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.76	10.00	87.6	70-130
BROMOFLUOROBENZENE	9.66	10.00	96.6	70-130
TOLUENE-D8	10.1	10.00	101	70-130
DIBROMOFLUOROMETHANE	9.77	10.00	97.7	70-130

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLC165.D Vial: 11
Acq On : 12 Dec 2019 3:26 pm Operator: RMinam
Sample : 19L057-11 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:52 2019 Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.05	114	1731913	10.00	ug/l	-0.06
55) CHLOROBENZENE-D5	15.50	117	1388632	10.00	ug/l	-0.04
74) 1,2-DICHLOROBENZENE-D4	19.40	152	477708	10.00	ug/l	-0.04
System Monitoring Compounds						
35) Dibromofluoromethane	8.09	111	481815	9.77	ug/l	-0.06
Spiked Amount 10.000			Recovery =	97.70%		
43) 1,2-Dichloroethane-d4	9.19	65	373234	8.76	ug/l	-0.06
Spiked Amount 10.000			Recovery =	87.60%		
56) Toluene-d8	12.87	98	1972184	10.12	ug/l	-0.06
Spiked Amount 10.000			Recovery =	101.20%		
77) 4-Bromofluorobenzene	17.52	95	585100	9.66	ug/l	-0.04
Spiked Amount 10.000			Recovery =	96.60%		

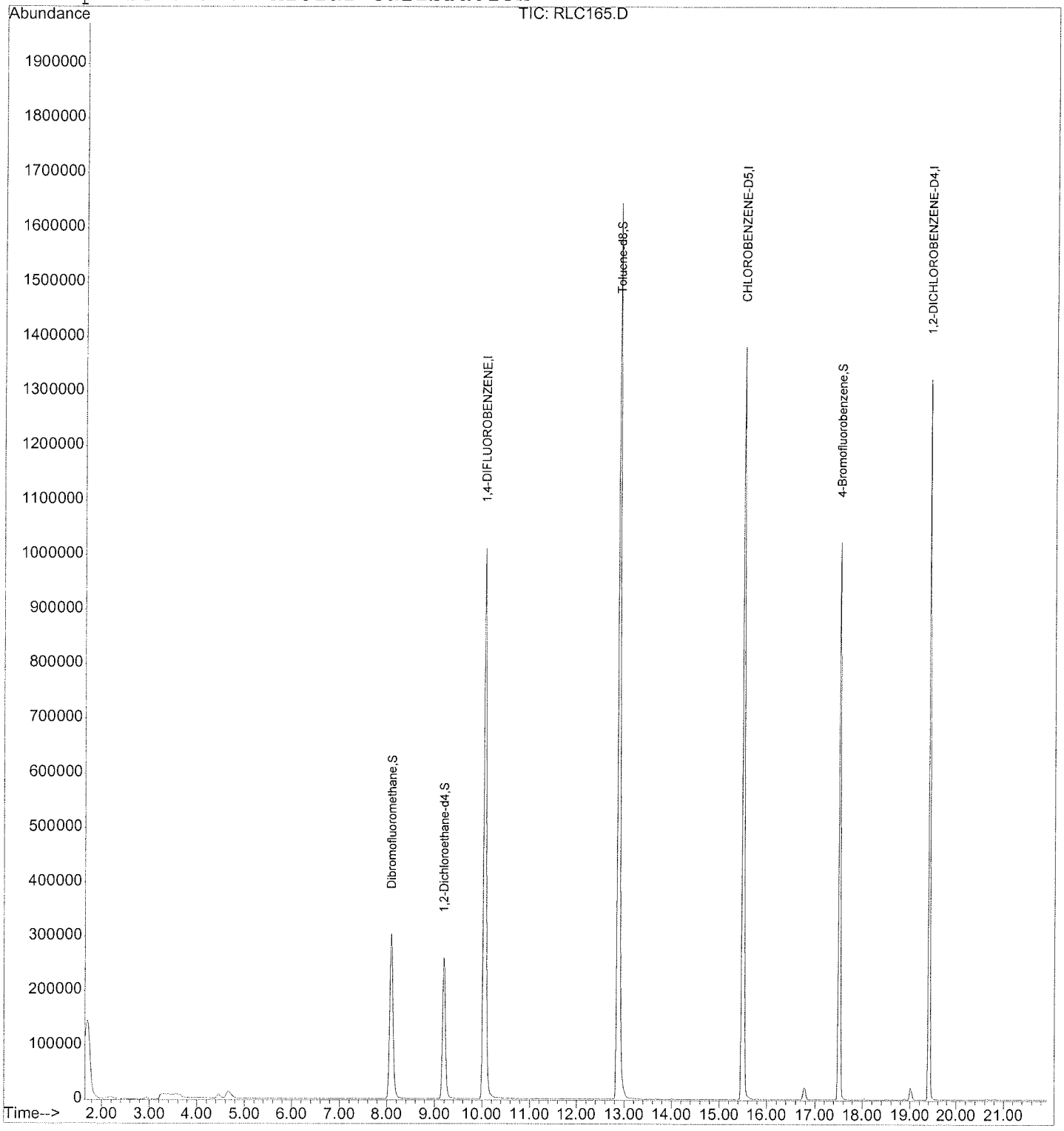
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLC165.D VO67K19.M Fri Dec 13 12:52:06 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLC165.D Vial: 11
Acq On : 12 Dec 2019 3:26 pm Operator: RMinam
Sample : 19L057-11 25mL Inst : 67
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 13 12:52 2019 Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration



QC SUMMARIES

METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: NA
Project : VA SALT LAKE CITY	Date Received: 12/12/19
Batch No. : 19L057	Date Extracted: 12/12/19 13:16
Sample ID: MBLK1W	Date Analyzed: 12/12/19 13:16
Lab Samp ID: V067L09B	Dilution Factor: 1
Lab File ID: RLC160	Matrix : WATER
Ext Btch ID: V067L09	% Moisture : NA
Calib. Ref.: RKC205	Instrument ID : 67

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	ND	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.67	10.00	86.7	70-130
BROMOFLUOROBENZENE	9.63	10.00	96.3	70-130
TOLUENE-D8	10.1	10.00	101	70-130
DIBROMOFLUOROMETHANE	9.77	10.00	97.7	70-130

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L057
METHOD: SW5030B/8260C

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1W
LAB SAMP ID: VO67L09B VO67L09L VO67L09C
LAB FILE ID: RLC160 RLC157 RLC158
DATE EXTRACTED: 12/12/1913:16 12/12/1911:58 12/12/1912:24 DATE COLLECTED: NA
DATE ANALYZED: 12/12/1913:16 12/12/1911:58 12/12/1912:24 DATE RECEIVED: 12/12/19
PREP. BATCH: VO67L09 VO67L09 VO67L09
CALIB. REF: RKC205 RKC205 RKC205

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1,1-Trichloroethane	ND	10.0	9.34	93	10.0	9.37	94	0	74-131	20
1,1,2,2-Tetrachloroethane	ND	10.0	10.3	103	10.0	10.6	106	3	71-121	20
1,1,2-Trichloroethane	ND	10.0	10.2	102	10.0	10.5	105	3	80-119	20
1,1-Dichloroethane	ND	10.0	10.1	101	10.0	10.2	102	1	77-125	20
1,1-Dichloroethene	ND	10.0	8.94	89	10.0	8.85	88	1	71-131	20
1,2,3-Trichlorobenzene	ND	10.0	12.0	120	10.0	12.3	123	3	69-129	20
1,2,4-Trichlorobenzene	ND	10.0	12.1	121	10.0	12.2	122	1	69-130	20
1,2,4-Trimethylbenzene	ND	10.0	10.6	106	10.0	10.7	107	1	76-124	20
1,2-Dibromo-3-chloropropane	ND	10.0	11.4	114	10.0	12.0	120	6	62-138	20
1,2-Dichlorobenzene	ND	10.0	11.0	110	10.0	11.0	110	0	80-119	20
1,2-Dichloroethane	ND	10.0	9.34	93	10.0	9.49	95	2	73-128	20
1,2-Dichloropropane	ND	10.0	11.1	111	10.0	11.2	112	1	78-122	20
1,3,5-Trimethylbenzene	ND	10.0	10.1	101	10.0	10.3	103	2	75-124	20
1,3-Dichlorobenzene	ND	10.0	10.9	109	10.0	10.9	109	0	80-119	20
1,4-Dichlorobenzene	ND	10.0	10.8	108	10.0	10.7	107	1	79-118	20
2-Butanone	ND	50.0	55.2	110	50.0	57.9	116	5	56-143	20
2-Hexanone	ND	50.0	51.7	103	50.0	55.0	110	6	57-139	20
Acetone	ND	50.0	50.1	100	50.0	52.5	105	5	39-160	20
Benzene	ND	10.0	11.4	114	10.0	11.5	115	0	79-120	20
Bromochloromethane	ND	10.0	11.0	110	10.0	11.2	112	2	78-120	20
Bromodichloromethane	ND	10.0	10.5	105	10.0	10.6	106	1	79-125	20
Bromoform	ND	10.0	9.99	100	10.0	10.3	103	3	66-130	20
Bromomethane	ND	10.0	9.58	96	10.0	9.35	94	2	53-141	20
Carbon Disulfide	ND	10.0	9.20	92	10.0	9.21	92	0	64-133	20
Carbon Tetrachloride	ND	10.0	9.35	94	10.0	9.41	94	1	72-136	20
Chlorobenzene	ND	10.0	10.9	109	10.0	10.8	108	1	82-118	20
Chloroethane	ND	10.0	9.67	97	10.0	9.31	93	4	60-138	20
Chloroform	ND	10.0	9.89	99	10.0	9.95	99	1	79-124	20
Chloromethane	ND	10.0	8.49	85	10.0	8.46	85	0	50-139	20
cis-1,2-Dichloroethylene	ND	10.0	10.2	102	10.0	10.5	105	2	78-123	20
Dibromochloromethane	ND	10.0	10.1	101	10.0	10.2	102	1	74-126	20
Dichlorodifluoromethane	ND	10.0	8.69	87	10.0	8.64	86	1	32-152	20
Ethylbenzene	ND	10.0	9.86	99	10.0	9.78	98	1	79-121	20
Isopropylbenzene	ND	10.0	10.5	105	10.0	10.4	104	1	72-131	20
m,p-Xylene	ND	20.0	20.1	101	20.0	20.0	100	1	80-121	20
4-Methyl-2-Pentanone	ND	50.0	56.3	113	50.0	60.8	122	8	67-130	20
Methylene Chloride	ND	10.0	9.99	100	10.0	10.0	100	1	74-124	20
tert-Butyl Methyl Ether	ND	10.0	10.3	103	10.0	10.6	106	3	71-124	20
o-Xylene	ND	10.0	10.2	102	10.0	10.3	103	0	78-122	20
Styrene	ND	10.0	11.1	111	10.0	11.1	111	0	78-123	20
Tetrachloroethene	ND	10.0	10.2	102	10.0	10.1	101	1	74-129	20
Toluene	ND	10.0	10.3	103	10.0	10.2	102	1	80-121	20
Trans-1,2-DCE	ND	10.0	9.94	99	10.0	9.83	98	1	75-124	20
cis-1,3-Dichloropropene	ND	10.0	11.4	114	10.0	11.6	116	2	75-124	20
Trans-1,3-Dichloropropene	ND	10.0	9.79	98	10.0	9.94	99	1	73-127	20
TCE	ND	10.0	11.1	111	10.0	11.0	110	0	79-123	20
Trichlorofluoromethane	ND	10.0	9.21	92	10.0	9.09	91	1	65-141	20
Vinyl Chloride	ND	10.0	9.04	90	10.0	9.07	91	0	58-137	20
1,2-Dibromoethane	ND	10.0	10.4	104	10.0	10.5	105	1	77-121	20
Vinyl Acetate	ND	10.0	11.1	111	10.0	11.1	111	0	54-146	20
Trichlorotrifluoroethane	ND	10.0	9.85	99	10.0	9.82	98	0	70-136	20
Methyl Acetate	ND	10.0	9.54	95	10.0	10.1	101	6	50-136	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	10.0	8.68	87	10.0	8.77	88	70-130
Bromofluorobenzene	10.0	9.40	94	10.0	9.28	93	70-130
Toluene-d8	10.0	9.97	100	10.0	9.86	99	70-130
Dibromofluoromethane	10.0	9.89	99	10.0	9.78	98	70-130

QC DATA

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLC160.D Vial: 6
Acq On : 12 Dec 2019 1:16 pm Operator: RMinam
Sample : VO67L09B 25mL Inst : 67
Misc : BLANK Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 12 17:27 2019 Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

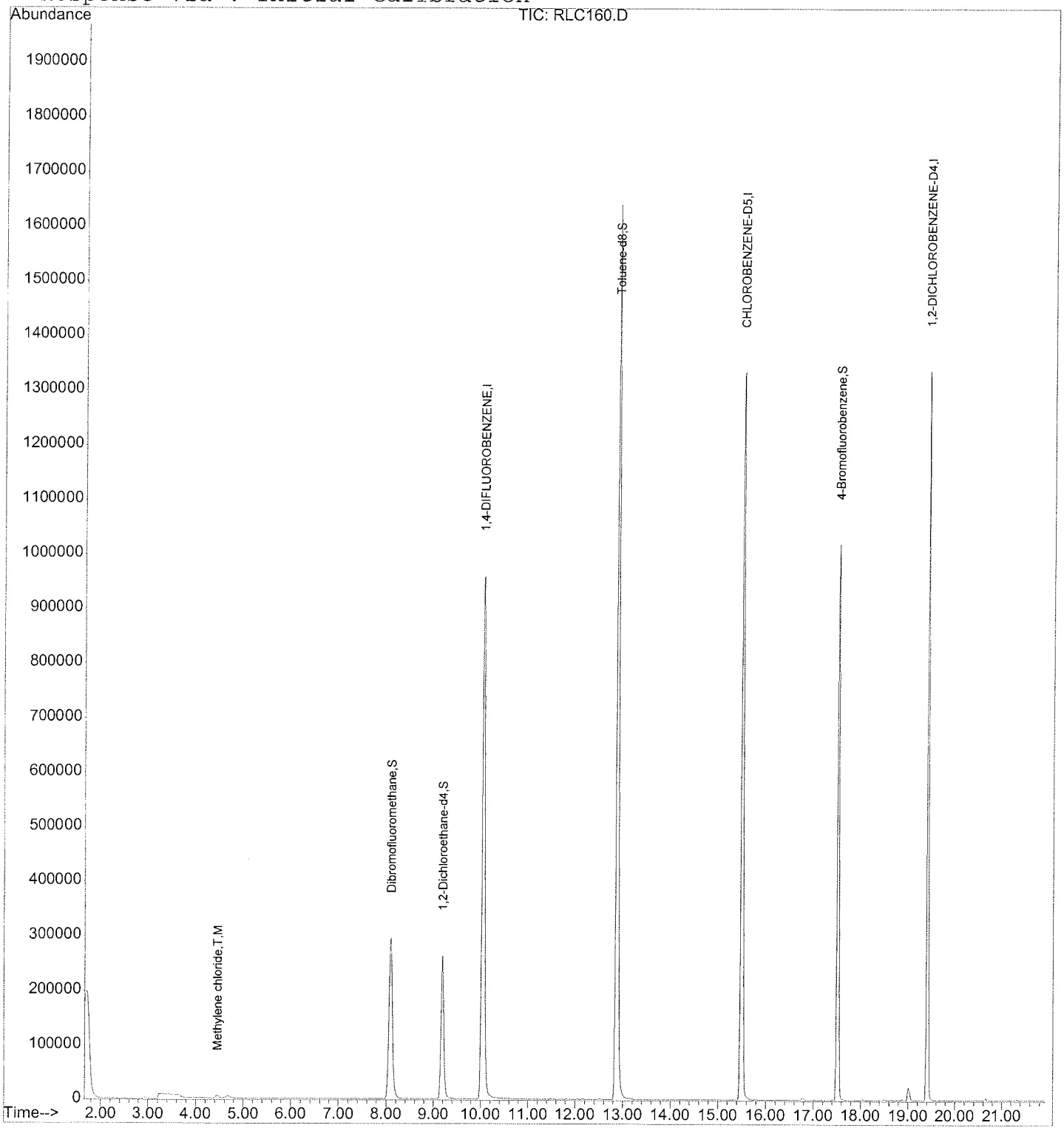
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.05	114	1730511	10.00	ug/l	-0.06
55) CHLOROBENZENE-D5	15.50	117	1395201	10.00	ug/l	-0.04
74) 1,2-DICHLOROBENZENE-D4	19.40	152	483100	10.00	ug/l	-0.04
System Monitoring Compounds						
35) Dibromofluoromethane	8.09	111	481657	9.77	ug/l	-0.06
Spiked Amount 10.000			Recovery =	97.70%		
43) 1,2-Dichloroethane-d4	9.19	65	369101	8.67	ug/l	-0.06
Spiked Amount 10.000			Recovery =	86.70%		
56) Toluene-d8	12.87	98	1976573	10.10	ug/l	-0.06
Spiked Amount 10.000			Recovery =	101.00%		
77) 4-Bromofluorobenzene	17.52	95	590047	9.63	ug/l	-0.04
Spiked Amount 10.000			Recovery =	96.30%		
Target Compounds						Qvalue
19) Methylene chloride	4.45	49	7763	0.11	ug/l	92

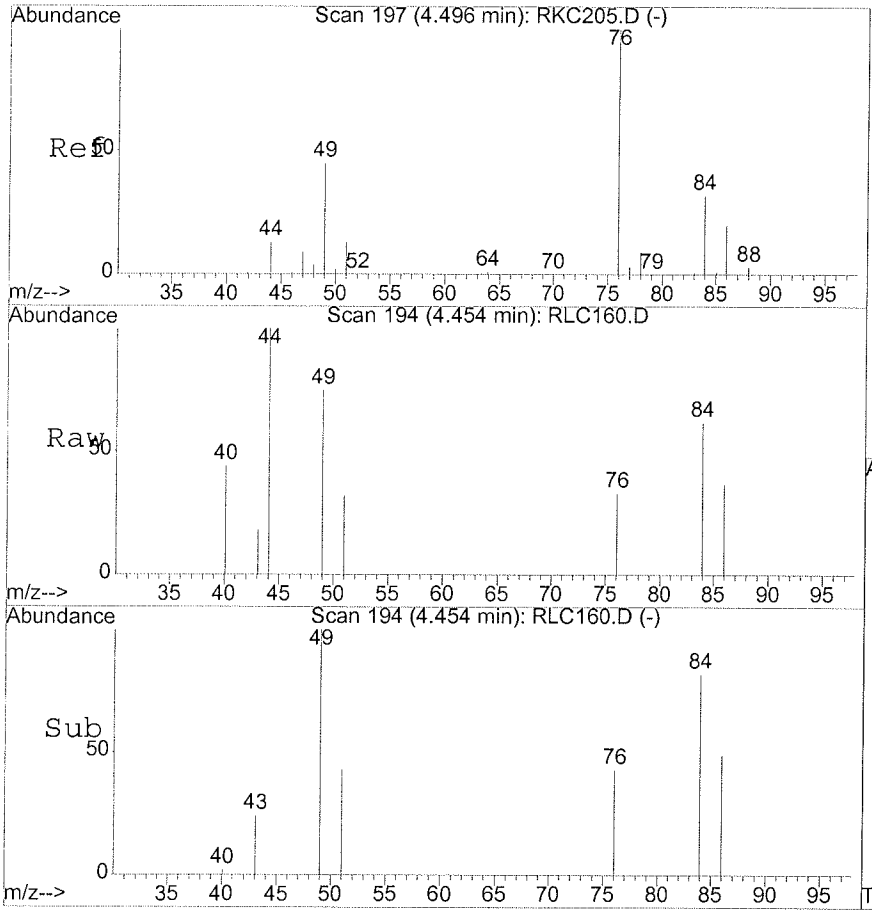
(#) = qualifier out of range (m) = manual integration
RLC160.D VO67K19.M Thu Dec 12 17:28:50 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLC160.D Vial: 6
Acq On : 12 Dec 2019 1:16 pm Operator: RMinam
Sample : VO67L09B 25mL Inst : 67
Misc : BLANK Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 12 17:27 2019 Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration

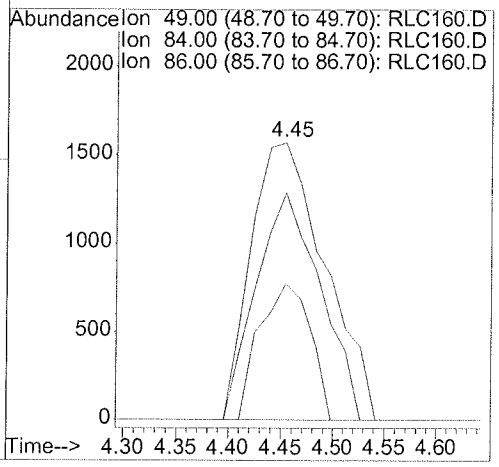




#19
Methylene chloride
Concen: 0.11 ug/l
RT: 4.45 min Scan# 194
Delta R.T. -0.04 min
Lab File: RLC160.D
Acq: 12 Dec 2019 1:16 pm

Tgt Ion: 49 Resp: 7763

Ion	Ratio	Lower	Upper
49	100		
84	71.3	39.6	99.6
86	33.7	14.2	74.2



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLC157.D Vial: 3
Acq On : 12 Dec 2019 11:58 am Operator: RMinam
Sample : VO67L09L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 12 17:30 2019 Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.03	114	1667579	10.00	ug/l	-0.07
55) CHLOROBENZENE-D5	15.48	117	1356121	10.00	ug/l	-0.06
74) 1,2-DICHLOROBENZENE-D4	19.40	152	500541	10.00	ug/l	-0.04
System Monitoring Compounds						
35) Dibromofluoromethane	8.06	111	469558	9.89	ug/l	-0.09
Spiked Amount 10.000			Recovery =	98.90%		
43) 1,2-Dichloroethane-d4	9.17	65	356008	8.68	ug/l	-0.07
Spiked Amount 10.000			Recovery =	86.80%		
56) Toluene-d8	12.85	98	1896996	9.97	ug/l	-0.07
Spiked Amount 10.000			Recovery =	99.70%		
77) 4-Bromofluorobenzene	17.50	95	596660	9.40	ug/l	-0.06
Spiked Amount 10.000			Recovery =	94.00%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	409111	8.69	ug/l	98
4) Chloromethane	2.09	50	708755	8.49	ug/l	98
5) Vinyl chloride	2.19	62	664406	9.04	ug/l	98
6) Bromomethane	2.59	94	521173	9.58	ug/l	100
7) Chloroethane	2.65	64	455810	9.67	ug/l	99
8) Dichlorofluoromethane	2.71	67	1074231	9.95	ug/l	100
9) Trichlorofluoromethane	2.90	101	734869	9.21	ug/l	99
11) Acrolein	3.44	56	168049	42.38	ug/l	90
12) 1,1,2-Trichloro-1,2,2-trif	3.49	151	353262	9.85	ug/l	99
13) Acetone	3.52	43	273995	50.13	ug/l	99
14) 1,1-Dichloroethene	3.69	61	831827	8.94	ug/l	96
15) tert-Butyl alcohol	3.82	59	468590	265.08	ug/l	98
16) Methyl acetate	4.19	43	160173	9.54	ug/l	100
17) Iodomethane	4.13	142	884144	10.93	ug/l	91
19) Methylene chloride	4.42	49	699129	9.99	ug/l	99
20) Carbon disulfide	4.41	76	1847024	9.20	ug/l	100
21) Acrylonitrile	4.66	53	391879	52.95	ug/l	98
22) tert-Butyl methyl ether (M	4.70	73	792451	10.33	ug/l	99
23) trans-1,2-Dichloroethene	4.92	96	560796	9.94	ug/l	100
24) Isopropyl ether (DIPE)	5.58	45	1909316	11.22	ug/l	98
25) 1,1-Dichloroethane	5.77	63	1032368	10.12	ug/l	99
26) Vinyl acetate	5.81	43	708703	11.11	ug/l	100
28) tert-Butyl ethyl ether (ET	6.50	59	1285837	10.01	ug/l	100
29) 2-Butanone	6.76	72	103017	55.15	ug/l	90
30) 2,2-Dichloropropane	7.05	77	664303	9.48	ug/l	98
31) cis-1,2-Dichloroethene	7.17	96	560181	10.22	ug/l	99
32) Chloroform	7.55	83	893013	9.89	ug/l	99

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

Data File : D:\HPCHEM\1\DATA\19L12\RLC157.D Vial: 3
Acq On : 12 Dec 2019 11:58 am Operator: RMinam
Sample : VO67L09L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 12 17:30 2019 Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
33)	Bromochloromethane	7.92	130	266867	10.98 ug/l	99
36)	Tetrahydrofuran	8.00	42	64520	10.02 ug/l	92
37)	1,1,1-Trichloroethane	8.46	97	752033	9.34 ug/l	99
38)	Cyclohexane	8.44	84	771689	9.11 ug/l	97
40)	1,1-Dichloropropene	8.79	110	276214	10.51 ug/l	100
41)	Carbon tetrachloride	8.98	119	631418	9.35 ug/l	100
42)	tert-Amyl methyl ether (TA	9.13	87	213122	10.72 ug/l	98
44)	1,2-Dichloroethane	9.36	62	446672	9.34 ug/l	100
45)	Benzene	9.35	78	2233430	11.41 ug/l	99
46)	Trichloroethene	10.60	130	593966	11.06 ug/l	97
47)	Methylcyclohexane	10.69	83	856019	8.79 ug/l	97
48)	1,2-Dichloropropane	10.97	63	538960	11.10 ug/l	90
49)	Bromodichloromethane	11.41	83	608038	10.48 ug/l	100
50)	1,4-Dioxane	11.50	88	37141	228.87 ug/l	98
51)	Dibromomethane	11.48	93	218530	10.49 ug/l	97
52)	2-Chloroethyl vinyl ether	12.08	63	149955	10.98 ug/l	100
53)	4-Methyl-2-pentanone	12.12	43	1352381	56.32 ug/l	99
54)	cis-1,3-Dichloropropene	12.46	75	774170	11.40 ug/l	95
57)	Toluene	13.00	91	2329572	10.28 ug/l	99
58)	Ethyl methacrylate	13.41	69	375999	10.15 ug/l	99
59)	trans-1,3-Dichloropropene	13.38	75	586937	9.79 ug/l	90
60)	1,1,2-Trichloroethane	13.63	97	270731	10.20 ug/l	99
61)	2-Hexanone	13.70	43	833340	51.73 ug/l	98
62)	1,3-Dichloropropane	14.08	76	536426	10.23 ug/l	99
63)	Tetrachloroethene	14.14	164	465141	10.23 ug/l	98
64)	Dibromochloromethane	14.49	129	363882	10.15 ug/l	100
65)	1,2-Dibromoethane	14.83	107	261491	10.40 ug/l	98
66)	1-Chlorohexane	15.16	91	999792	11.37 ug/l	100
67)	Chlorobenzene	15.56	112	1378102	10.90 ug/l	99
68)	1,1,1,2-Tetrachloroethane	15.64	131	449005	10.22 ug/l	99
69)	Ethylbenzene	15.66	91	2655379	9.86 ug/l	99
70)	m-Xylene & p-Xylene	15.79	91	4014486	20.13 ug/l	98
71)	o-Xylene	16.51	91	1931869	10.21 ug/l	98
72)	Styrene	16.58	104	1519791	11.12 ug/l	95
73)	Isopropylbenzene	17.12	105	2562175	10.51 ug/l	98
75)	Bromoform	17.12	173	182081	9.99 ug/l	100
76)	1,1,2,2-Tetrachloroethane	17.40	83	303423	10.29 ug/l	99
78)	1,2,3-Trichloropropane	17.62	110	78075	9.76 ug/l	96
79)	trans-1,4-Dichloro-2-buten	17.22	53	87853	8.59 ug/l	95
80)	n-Propylbenzene	17.72	91	3232468	10.15 ug/l	98
81)	Bromobenzene	17.76	156	487388	10.48 ug/l	100

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLC157.D Vial: 3
Acq On : 12 Dec 2019 11:58 am Operator: RMinam
Sample : VO67L09L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 12 17:30 2019 Quant Results File: VO67K19.RES

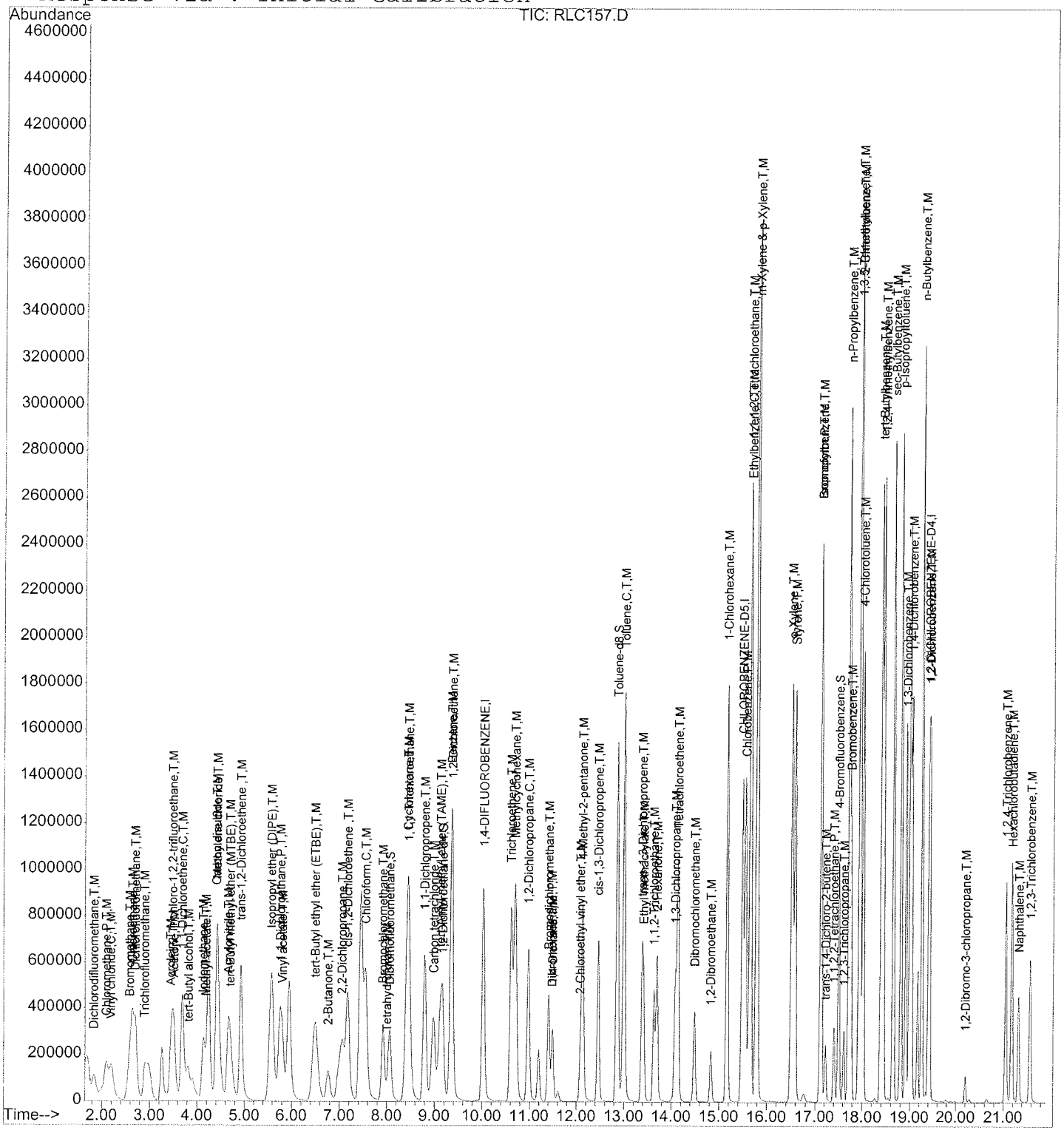
Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
82)	1,3,5-Trimethylbenzene	17.94	105	1994937	10.14	ug/l	98
83)	2-Chlorotoluene	17.95	91	1909471	9.83	ug/l	98
84)	4-Chlorotoluene	18.01	91	1703639	10.42	ug/l	99
85)	tert-Butylbenzene	18.39	134	470689	10.50	ug/l	94
86)	1,2,4-Trimethylbenzene	18.44	105	1976536	10.63	ug/l	97
87)	sec-Butylbenzene	18.64	105	2834255	10.55	ug/l	100
88)	p-Isopropyltoluene	18.80	119	2336668	10.73	ug/l	97
89)	1,3-Dichlorobenzene	18.92	146	995201	10.90	ug/l	99
90)	1,4-Dichlorobenzene	19.03	146	944194	10.82	ug/l	99
91)	n-Butylbenzene	19.25	91	2236660	10.82	ug/l	99
92)	1,2-Dichlorobenzene	19.43	146	798572	10.98	ug/l	99
93)	1,2-Dibromo-3-chloropropan	20.20	157	43824	11.37	ug/l	100
94)	1,2,4-Trichlorobenzene	21.05	180	473611	12.13	ug/l	100
95)	Hexachlorobutadiene	21.18	225	346469	10.88	ug/l	100
96)	Naphthalene	21.33	128	601712	12.05	ug/l	99
97)	1,2,3-Trichlorobenzene	21.58	180	349605	11.98	ug/l	100

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

Data File : D:\HPCHEM\1\DATA\19L12\RLC157.D Vial: 3
Acq On : 12 Dec 2019 11:58 am Operator: RMinam
Sample : VO67L09L Inst : 67
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 12 17:30 2019 Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLC158.D Vial: 4
Acq On : 12 Dec 2019 12:24 pm Operator: RMinam
Sample : VO67L09C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 12 17:32 2019 Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.05	114	1635951	10.00	ug/l	-0.06
55) CHLOROBENZENE-D5	15.48	117	1355237	10.00	ug/l	-0.06
74) 1,2-DICHLOROBENZENE-D4	19.40	152	501391	10.00	ug/l	-0.04
System Monitoring Compounds						
35) Dibromofluoromethane	8.08	111	455915	9.78	ug/l	-0.07
Spiked Amount 10.000			Recovery =	97.80%		
43) 1,2-Dichloroethane-d4	9.19	65	352778	8.77	ug/l	-0.06
Spiked Amount 10.000			Recovery =	87.70%		
56) Toluene-d8	12.87	98	1875247	9.86	ug/l	-0.06
Spiked Amount 10.000			Recovery =	98.60%		
77) 4-Bromofluorobenzene	17.50	95	590109	9.28	ug/l	-0.06
Spiked Amount 10.000			Recovery =	92.80%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.85	85	398919	8.64	ug/l	98
4) Chloromethane	2.09	50	692448	8.46	ug/l	99
5) Vinyl chloride	2.21	62	653437	9.07	ug/l	98
6) Bromomethane	2.61	94	499382	9.35	ug/l	100
7) Chloroethane	2.66	64	430376	9.31	ug/l	99
8) Dichlorofluoromethane	2.71	67	1054964	9.96	ug/l	100
9) Trichlorofluoromethane	2.93	101	711171	9.09	ug/l	100
11) Acrolein	3.46	56	170412	43.80	ug/l	86
12) 1,1,2-Trichloro-1,2,2-trif	3.50	151	345285	9.82	ug/l	99
13) Acetone	3.55	43	281748	52.54	ug/l	99
14) 1,1-Dichloroethene	3.71	61	807398	8.85	ug/l	96
15) tert-Butyl alcohol	3.84	59	490713	283.27	ug/l	98
16) Methyl acetate	4.22	43	166782	10.13	ug/l	100
17) Iodomethane	4.16	142	847100	10.67	ug/l	92
19) Methylene chloride	4.45	49	689732	10.05	ug/l	99
20) Carbon disulfide	4.42	76	1813248	9.21	ug/l	100
21) Acrylonitrile	4.67	53	397711	54.78	ug/l	99
22) tert-Butyl methyl ether (M	4.72	73	798923	10.61	ug/l	100
23) trans-1,2-Dichloroethene	4.95	96	543866	9.83	ug/l	100
24) Isopropyl ether (DIPE)	5.59	45	1924347	11.53	ug/l	99
25) 1,1-Dichloroethane	5.78	63	1019113	10.18	ug/l	99
26) Vinyl acetate	5.84	43	694893	11.11	ug/l	100
28) tert-Butyl ethyl ether (ET	6.51	59	1304118	10.35	ug/l	100
29) 2-Butanone	6.79	72	106187	57.95	ug/l	91
30) 2,2-Dichloropropane	7.08	77	632623	9.20	ug/l	98
31) cis-1,2-Dichloroethene	7.20	96	562969	10.47	ug/l	100
32) Chloroform	7.58	83	881149	9.95	ug/l	98

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLC158.D Vial: 4
Acq On : 12 Dec 2019 12:24 pm Operator: RMinam
Sample : VO67L09C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 12 17:32 2019 Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
33)	Bromochloromethane	7.94	130	266089	11.16	ug/l	100
36)	Tetrahydrofuran	8.03	42	65846	10.42	ug/l	93
37)	1,1,1-Trichloroethane	8.47	97	739993	9.37	ug/l	99
38)	Cyclohexane	8.46	84	770074	9.27	ug/l	97
40)	1,1-Dichloropropene	8.82	110	273893	10.62	ug/l	99
41)	Carbon tetrachloride	9.00	119	623570	9.42	ug/l	100
42)	tert-Amyl methyl ether (TA	9.14	87	218405	11.20	ug/l	100
44)	1,2-Dichloroethane	9.38	62	445279	9.49	ug/l	100
45)	Benzene	9.36	78	2199242	11.45	ug/l	98
46)	Trichloroethene	10.62	130	580009	11.01	ug/l	97
47)	Methylcyclohexane	10.71	83	845502	8.85	ug/l	98
48)	1,2-Dichloropropane	10.98	63	535562	11.24	ug/l	90
49)	Bromodichloromethane	11.42	83	601876	10.57	ug/l	100
50)	1,4-Dioxane	11.51	88	38062	239.08	ug/l	98
51)	Dibromomethane	11.50	93	217753	10.66	ug/l	97
52)	2-Chloroethyl vinyl ether	12.09	63	154602	11.54	ug/l	99
53)	4-Methyl-2-pentanone	12.14	43	1433327	60.85	ug/l	99
54)	cis-1,3-Dichloropropene	12.47	75	774321	11.62	ug/l	94
57)	Toluene	13.00	91	2305788	10.18	ug/l	99
58)	Ethyl methacrylate	13.42	69	393340	10.62	ug/l	100
59)	trans-1,3-Dichloropropene	13.38	75	595386	9.94	ug/l	90
60)	1,1,2-Trichloroethane	13.64	97	277895	10.48	ug/l	99
61)	2-Hexanone	13.70	43	886138	55.05	ug/l	99
62)	1,3-Dichloropropane	14.08	76	550799	10.51	ug/l	100
63)	Tetrachloroethene	14.14	164	459457	10.11	ug/l	98
64)	Dibromochloromethane	14.49	129	366744	10.23	ug/l	99
65)	1,2-Dibromoethane	14.84	107	264492	10.53	ug/l	99
66)	1-Chlorohexane	15.16	91	990441	11.27	ug/l	100
67)	Chlorobenzene	15.56	112	1366233	10.81	ug/l	99
68)	1,1,1,2-Tetrachloroethane	15.64	131	449748	10.25	ug/l	98
69)	Ethylbenzene	15.66	91	2633709	9.78	ug/l	99
70)	m-Xylene & p-Xylene	15.79	91	3986188	20.00	ug/l	98
71)	o-Xylene	16.52	91	1938923	10.25	ug/l	98
72)	Styrene	16.58	104	1514574	11.09	ug/l	95
73)	Isopropylbenzene	17.12	105	2542034	10.43	ug/l	99
75)	Bromoform	17.14	173	187419	10.26	ug/l	100
76)	1,1,2,2-Tetrachloroethane	17.41	83	312752	10.59	ug/l	100
78)	1,2,3-Trichloropropane	17.62	110	80294	10.02	ug/l	97
79)	trans-1,4-Dichloro-2-buten	17.22	53	91456	8.93	ug/l	95
80)	n-Propylbenzene	17.72	91	3237257	10.15	ug/l	98
81)	Bromobenzene	17.76	156	487093	10.45	ug/l	100

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

Data File : D:\HPCHEM\1\DATA\19L12\RLC158.D Vial: 4
Acq On : 12 Dec 2019 12:24 pm Operator: RMinam
Sample : VO67L09C Inst : 67
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 12 17:32 2019 Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
82)	1,3,5-Trimethylbenzene	17.94	105	2030095	10.30	ug/l	98
83)	2-Chlorotoluene	17.95	91	1907024	9.80	ug/l	98
84)	4-Chlorotoluene	18.01	91	1690432	10.32	ug/l	99
85)	tert-Butylbenzene	18.39	134	466571	10.39	ug/l	93
86)	1,2,4-Trimethylbenzene	18.44	105	1991416	10.69	ug/l	98
87)	sec-Butylbenzene	18.64	105	2819604	10.48	ug/l	100
88)	p-Isopropyltoluene	18.80	119	2348368	10.77	ug/l	97
89)	1,3-Dichlorobenzene	18.92	146	997327	10.90	ug/l	99
90)	1,4-Dichlorobenzene	19.03	146	937011	10.72	ug/l	99
91)	n-Butylbenzene	19.25	91	2204748	10.65	ug/l	99
92)	1,2-Dichlorobenzene	19.43	146	801613	11.00	ug/l	98
93)	1,2-Dibromo-3-chloropropan	20.20	157	46384	12.01	ug/l	100
94)	1,2,4-Trichlorobenzene	21.05	180	477908	12.22	ug/l	99
95)	Hexachlorobutadiene	21.18	225	341740	10.72	ug/l	100
96)	Naphthalene	21.33	128	621610	12.42	ug/l	99
97)	1,2,3-Trichlorobenzene	21.58	180	359107	12.29	ug/l	100

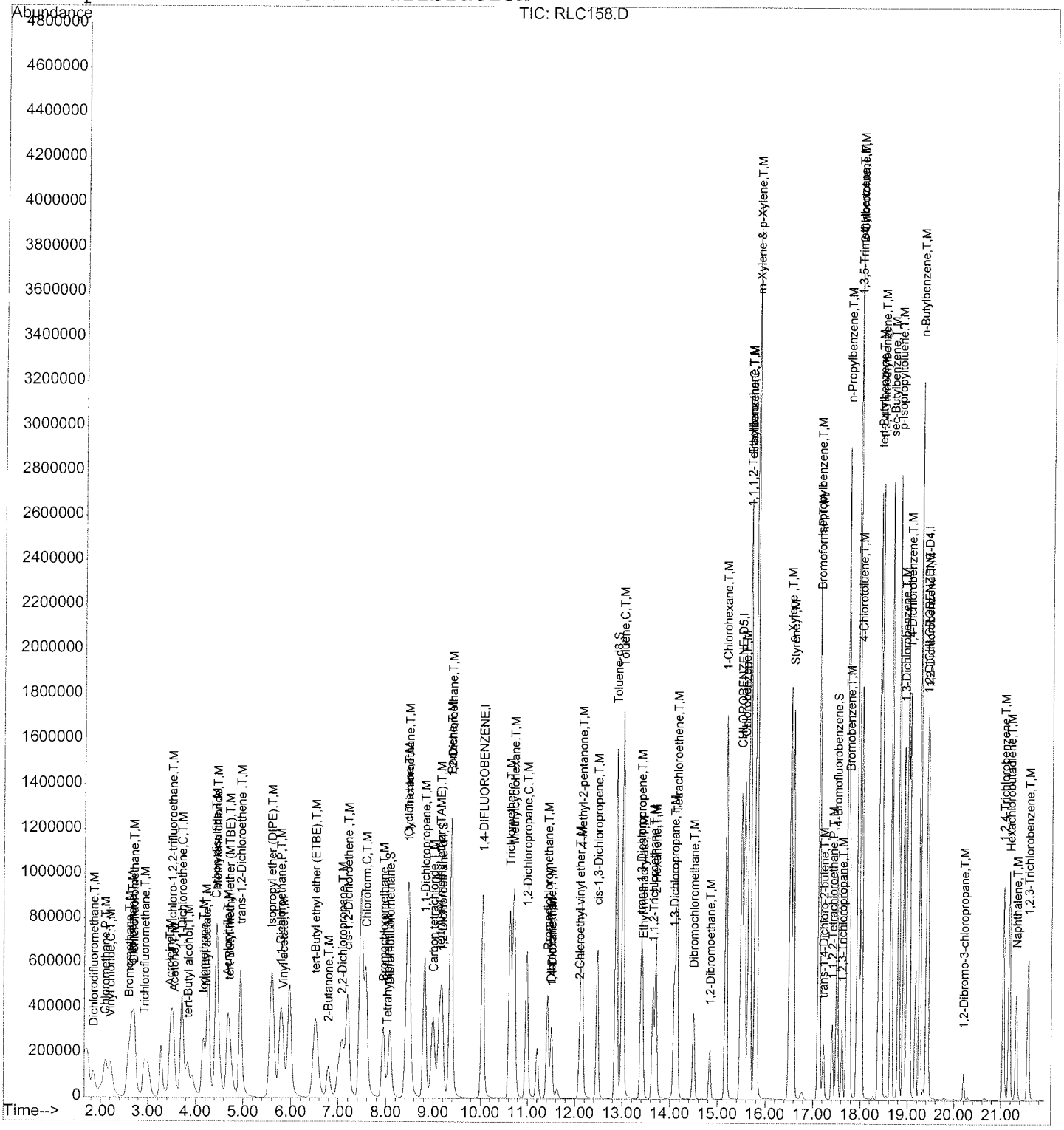
(#) = qualifier out of range (m) = manual integration

Data File : D:\HPCHEM\1\DATA\19L12\RLC158.D
Acq On : 12 Dec 2019 12:24 pm
Sample : VO67L09C
Misc : 10ppb 8260/50ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Dec 12 17:32 2019

Vial: 4
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration



INITIAL CALIBRATION

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc
Lab Code: EMXT Case No.:
Lab File ID: RKC199
Instrument ID: 67
GC Column:RTX502.2ID:0.25mm (mm)

Contract: VA SALT LAKE CITY
SAS No.: SDG No.: 19L057
BFB Injection Date : 11/19/19
BFB Injection Time : 12:44
Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	25.09
75	30.0 - 60.0% of mass 95	54.15
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.78
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	71.52
175	5.0 - 9.0% of mass 174	5.43(7.6)1
176	95.0 - 101.0% of mass 174	68.35(95.6)1
177	5.0 - 9.0% of mass 176	4.63(6.8)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD0.3	V067K191	RKC200	11/19/19	13:28
2	VSTD0.5	V067K192	RKC201	11/19/19	13:53
3	VSTD01	V067K193	RKC202	11/19/19	14:19
4	VSTD02	V067K194	RKC203	11/19/19	14:44
5	VSTD05	V067K195	RKC204	11/19/19	15:10
6	VSTD010	V067K196	RKC205	11/19/19	15:35
7	VSTD020	V067K197	RKC206	11/19/19	16:01
8	VSTD030	V067K198	RKC207	11/19/19	16:27
9	VSTD050	V067K199	RKC208	11/19/19	16:53
10	VSTD100	V067K1910	RKC209	11/19/19	17:18
11	VSTD010	IV067K1901	RKC212	11/19/19	18:35

INITIAL_CALIBRATION - RELATIVE_RESPONSE_FACTOR

Instrument ID :67
Beginning DateTime :11/19/19 13:28
Spike Units :PPB
IC File :RKC205

Column Spec :RTX502.2 ID :0.25MM
Ending DateTime :11/19/19 17:18
HPChem Method :V067K19

M	IDX	Parameters	.3 13:28 RKC200	.5 13:53 RKC201	1 14:19 RKC202	2 14:44 RKC203	5 15:10 RKC204	10 15:35 RKC205	20 16:01 RKC206	30 16:27 RKC207	50 16:53 RKC208	100 17:18 RKC209	Av_RRF	%_RSD	Av_Rt_M
	1	1,4-DIFLUOROBENZENE	1	1	1	1	1	1	1	1	1	1	1	0	10.0963
	2	Dichlorodifluoromethane	0.272	0.273	0.290	0.311	0.276	0.291	0.281	0.280	0.269	------	0.282	4.61	1.8665
	3	Dichlorotetrafluoroethane	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
	4	Chloromethane	0.590	0.541	0.512	0.529	0.471	0.489	0.467	0.469	0.436	------	0.500	9.43	2.1163
	5	Vinyl chloride	0.403	0.427	0.446	0.478	0.443	0.476	0.453	0.444	0.396	------	0.441	6.47	2.2301
	6	Bromomethane	0.284	0.297	0.315	0.348	0.316	0.346	0.342	0.355	0.354	0.308	0.326	7.84	2.6233
	7	Chloroethane	0.271	0.277	0.286	0.292	0.272	0.294	0.287	0.295	0.299	0.254	0.283	5.03	2.6759
	8	Dichlorofluoromethane	0.675	0.687	0.659	0.679	0.658	0.661	0.580	0.622	0.644	0.606	0.647	5.32	2.7371
	9	Trichlorofluoromethane	0.410	0.453	0.503	0.520	0.478	0.500	0.478	0.483	0.479	------	0.478	6.68	2.9589
	10	sec-Propyl alcohol	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
5	11	Acrolein	------	------	------	0.026	0.025	0.024	0.021	0.023	0.023	------	0.024	7.70	3.4937
	12	1,1,2-Trichloro-1,2,2-trifluoroethane	0.215	0.225	0.219	0.229	0.221	0.222	0.194	0.209	0.209	0.207	0.215	4.91	3.5313
5	13	Acetone	------	------	------	0.037	0.034	0.035	0.029	0.033	0.031	0.031	0.033	8.19	3.5787
	14	1,1-Dichloroethene	0.565	0.584	0.562	0.596	0.571	0.576	0.504	0.540	0.546	0.534	0.558	4.84	3.7505
25	15	tert-Butyl alcohol	0.019	0.012	0.012	0.012	0.011	0.011	0.009	0.011	0.011	0.010	0.012	23.43	3.8791
	16	Methyl acetate	------	------	0.102	0.099	0.106	0.108	0.098	0.105	0.097	0.091	0.101	5.61	4.2633
	17	Iodomethane	0.471	0.503	0.482	0.508	0.492	0.500	0.444	0.478	0.489	0.484	0.485	3.79	4.2020
10	18	Acetonitrile	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
	19	Methylene chloride	------	0.478	0.447	0.452	0.419	0.420	0.366	0.398	0.403	0.392	0.420	8.26	4.4972
	20	Carbon disulfide	1.119	1.180	1.217	1.248	1.176	1.210	1.227	1.275	1.236	1.154	1.204	3.91	4.4767
5	21	Acrylonitrile	------	0.041	0.043	0.043	0.045	0.046	0.041	0.047	0.046	0.047	0.044	5.74	4.7310
	22	tert-Butyl methyl ether (MTBE)	0.469	0.472	0.466	0.486	0.467	0.476	0.411	0.456	0.452	0.446	0.460	4.49	4.7646
	23	trans-1,2-Dichloroethene	0.320	0.340	0.334	0.352	0.344	0.349	0.314	0.337	0.349	0.342	0.338	3.69	4.9925
	24	Isopropyl ether (DIPE)	0.989	1.042	1.014	1.058	1.040	1.059	0.927	1.022	1.044	1.007	1.020	3.91	5.6559
	25	1,1-Dichloroethane	0.602	0.643	0.607	0.635	0.617	0.628	0.558	0.604	0.623	0.600	0.612	3.92	5.8400
	26	Vinyl acetate	------	0.299	0.380	0.385	0.370	0.402	0.397	0.429	0.413	0.366	0.382	9.76	5.9031
25	27	2-Butanol	------	0.009	0.009	0.009	0.010	0.010	0.009	0.011	0.010	0.009	0.010	6.79	6.3885
	28	tert-Butyl ethyl ether (ETBE)	------	0.932	0.827	0.816	0.771	0.767	0.667	0.729	0.725	0.702	0.771	10.32	6.5866
5	29	2-Butanone	------	0.009	0.011	0.011	0.012	0.012	0.011	0.012	0.012	0.012	0.011	8.93	6.8691
	30	2,2-Dichloropropane	0.410	0.523	0.455	0.462	0.423	0.410	0.352	0.376	0.371	------	0.420	12.71	7.1483
	31	cis-1,2-Dichloroethene	0.310	0.320	0.318	0.345	0.335	0.345	0.306	0.335	0.340	0.335	0.329	4.34	7.2602
	32	Chloroform	0.522	0.560	0.541	0.565	0.555	0.562	0.495	0.536	0.544	0.536	0.542	3.93	7.6386
	33	Bromochloromethane	0.131	0.139	0.142	0.152	0.151	0.153	0.136	0.151	0.150	0.150	0.146	5.40	8.0083
5	34	tert-Amyl alcohol	------	------	0.009	0.009	0.009	0.010	0.009	0.011	0.010	0.009	0.009	7.53	8.0988
	35	Dibromofluoromethane	0.276	0.286	0.280	0.292	0.291	0.293	0.264	0.301	0.279	0.285	0.285	3.64	8.1486
	36	Tetrahydrofuran	------	------	0.045	0.042	0.040	0.040	0.032	0.037	0.036	0.036	0.039	10.15	8.0915
	37	1,1,1-Trichloroethane	0.485	0.514	0.486	0.512	0.498	0.503	0.436	0.466	0.469	0.458	0.483	5.24	8.5314
	38	Cyclohexane	0.478	0.502	0.518	0.512	0.501	0.522	0.514	0.523	0.501	------	0.508	2.75	8.5136
	39	2,2,4-Trimethylpentane	1.108	1.321	1.374	1.416	1.267	1.458	1.348	1.424	1.363	1.324	1.340	7.39	8.6980
	40	1,1-Dichloropropene	0.149	0.159	0.156	0.165	0.160	0.163	0.146	0.158	0.161	0.159	0.158	3.86	8.8791
	41	Carbon tetrachloride	0.403	0.420	0.407	0.428	0.417	0.424	0.368	0.395	0.397	0.388	0.405	4.57	9.0545
	42	tert-Amyl methyl ether (TAME)	0.113	0.118	0.123	0.125	0.122	0.127	0.108	0.122	0.119	0.117	0.119	4.86	9.2020
	43	1,2-Dichloroethane-d4	0.246	0.257	0.256	0.252	0.254	0.255	0.221	0.252	0.230	0.236	0.246	5.01	9.2444
	44	1,2-Dichloroethane	0.289	0.286	0.295	0.301	0.301	0.305	0.262	0.284	0.275	0.271	0.287	4.99	9.4446
	45	Benzene	1.144	1.192	1.144	1.215	1.189	1.207	1.073	1.179	1.203	1.196	1.174	3.67	9.4227
	46	Trichloroethene	0.311	0.328	0.313	0.332	0.328	0.334	0.294	0.323	0.331	0.326	0.322	3.88	10.6778
	47	Methylcyclohexane	0.514	0.571	0.600	0.611	0.586	0.609	0.598	0.610	0.589	0.552	0.584	5.29	10.7640
	48	1,2-Dichloropropane	0.280	0.299	0.283	0.303	0.293	0.298	0.264	0.294	0.297	0.300	0.291	4.12	11.0372

SC
11/21/19

49	Bromodichloromethane	0.338	0.350	0.350	0.363	0.357	0.361	0.317	0.351	0.349	0.345	0.348	3.75	11.4683
50	1,4-Dioxane	------	------	------	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	6.64	11.5607
51	Dibromomethane	0.101	0.117	0.127	0.134	0.131	0.134	0.116	0.131	0.130	0.129	0.125	8.37	11.5545
52	2-Chloroethyl vinyl ether	0.070	0.073	0.076	0.081	0.082	0.086	0.077	0.089	0.090	0.093	0.082	9.62	12.1492
53	4-Methyl-2-pentanone	0.129	0.151	0.142	0.139	0.148	0.155	0.130	0.151	0.146	0.148	0.144	6.12	12.1915
54	cis-1,3-Dichloropropene	0.397	0.405	0.392	0.419	0.409	0.426	0.375	0.418	0.424	------	0.407	4.10	12.5187
55	CHLOROBENZENE-D5	1	1	1	1	1	1	1	1	1	1	1	0	15.5449
56	Toluene-d8	1.383	1.416	1.369	1.417	1.434	1.407	1.305	1.485	1.415	1.401	1.403	3.30	12.9206
57	Toluene	1.687	1.736	1.608	1.727	1.690	1.683	1.532	1.653	1.721	------	1.671	3.92	13.0594
58	Ethyl methacrylate	0.274	0.266	0.265	0.279	0.278	0.285	0.251	0.281	0.280	------	0.273	3.89	13.4685
59	trans-1,3-Dichloropropene	0.415	0.435	0.437	0.455	0.450	0.458	0.410	0.452	0.452	0.455	0.442	3.94	13.4394
60	1,1,2-Trichloroethane	0.190	0.203	0.190	0.206	0.196	0.198	0.177	0.199	0.198	0.199	0.196	4.22	13.6907
61	2-Hexanone	0.130	0.120	0.120	0.116	0.121	0.123	0.106	0.121	0.115	0.115	0.119	5.29	13.7506
62	1,3-Dichloropropane	0.381	0.374	0.384	0.399	0.389	0.394	0.351	0.395	0.396	0.402	0.387	3.89	14.1407
63	Tetrachloroethene	0.332	0.353	0.333	0.354	0.339	0.339	0.308	0.329	0.337	0.330	0.335	3.85	14.1933
64	Dibromochloromethane	0.249	0.261	0.264	0.277	0.268	0.273	0.244	0.273	0.267	0.268	0.264	4.00	14.5498
65	1,2-Dibromoethane	0.181	0.177	0.181	0.194	0.186	0.191	0.171	0.192	0.190	0.190	0.185	4.13	14.8873
66	1-Chlorohexane	0.627	0.668	0.643	0.679	0.654	0.659	0.592	0.642	0.666	0.655	0.648	3.82	15.2219
67	Chlorobenzene	0.924	0.952	0.893	0.964	0.939	0.953	0.864	0.927	0.965	0.944	0.932	3.46	15.6062
68	1,1,1,2-Tetrachloroethane	0.322	0.331	0.322	0.335	0.327	0.329	0.296	0.324	0.331	0.321	0.324	3.32	15.6983
69	Ethylbenzene	1.953	2.053	1.936	2.028	2.009	2.035	1.834	1.964	2.067	------	1.987	3.69	15.7121
70	m-Xylene & p-Xylene	1.466	1.533	1.407	1.515	1.492	1.509	1.364	1.482	------	------	1.471	3.93	15.8410
71	o-Xylene	1.434	1.472	1.372	1.430	1.419	1.416	1.281	1.377	1.438	1.315	1.395	4.26	16.5691
72	Styrene	0.965	0.960	0.940	1.028	1.023	1.042	0.946	1.044	1.074	1.056	1.008	4.95	16.6392
73	Isopropylbenzene	1.757	1.815	1.728	1.859	1.837	1.844	1.663	1.815	1.866	------	1.798	3.80	17.1765
74	1,2-DICHLOROBENZENE-D4	1	1	1	1	1	1	1	1	1	1	1	0	19.4461
75	Bromoform	0.376	0.342	0.356	0.373	0.362	0.370	0.325	0.363	0.381	0.396	0.364	5.53	17.1813
76	1,1,2,2-Tetrachloroethane	0.683	0.583	0.572	0.601	0.584	0.595	0.512	0.565	0.592	0.606	0.589	7.18	17.4575
77	4-Bromofluorobenzene	1.343	1.299	1.237	1.264	1.282	1.251	1.133	1.266	1.274	1.329	1.268	4.56	17.5524
78	1,2,3-Trichloropropane	0.158	0.143	0.164	0.172	0.167	0.168	0.141	0.159	0.165	------	0.160	6.85	17.6636
79	trans-1,4-Dichloro-2-butene	0.199	0.217	0.213	0.202	0.204	0.206	0.184	0.201	0.205	0.210	0.204	4.46	17.2704
80	n-Propylbenzene	6.369	6.662	6.238	6.544	6.503	6.458	5.886	6.136	6.447	------	6.360	3.74	17.7659
81	Bromobenzene	0.921	0.946	0.915	0.957	0.942	0.942	0.838	0.899	0.963	0.972	0.929	4.24	17.8184
82	1,3,5-Trimethylbenzene	3.933	4.081	3.790	4.026	4.014	3.977	3.610	3.801	4.143	------	3.930	4.26	17.9850
83	2-Chlorotoluene	3.975	4.169	3.841	4.000	3.914	3.864	3.489	3.682	3.996	------	3.881	5.12	17.9996
84	4-Chlorotoluene	3.209	3.406	3.206	3.371	3.377	3.413	3.005	3.201	3.537	2.933	3.266	5.85	18.0609
85	tert-Butylbenzene	0.881	0.922	0.883	0.938	0.911	0.904	0.813	0.857	0.933	0.911	0.895	4.26	18.4379
86	1,2,4-Trimethylbenzene	3.769	3.865	3.617	3.845	3.716	3.764	3.400	3.532	3.929	------	3.715	4.59	18.4802
87	sec-Butylbenzene	5.417	5.682	5.180	5.595	5.471	5.449	4.935	5.215	5.354	------	5.366	4.25	18.6864
88	p-Isopropyltoluene	4.337	4.485	4.232	4.536	4.450	4.451	3.971	4.205	4.488	------	4.351	4.23	18.8471
89	1,3-Dichlorobenzene	1.842	1.876	1.771	1.870	1.842	1.857	1.674	1.786	1.894	1.837	1.825	3.58	18.9508
90	1,4-Dichlorobenzene	1.773	1.747	1.676	1.799	1.773	1.768	1.592	1.741	1.811	1.754	1.743	3.71	19.0735
91	n-Butylbenzene	4.004	4.228	3.926	4.262	4.227	4.226	3.887	4.120	4.287	------	4.130	3.70	19.2887
92	1,2-Dichlorobenzene	1.505	1.480	1.419	1.506	1.474	1.485	1.328	1.432	1.479	1.424	1.453	3.73	19.4709
93	1,2-Dibromo-3-chloropropane	------	0.060	0.077	0.082	0.080	0.082	0.071	0.080	0.082	0.079	0.077	9.34	20.2482
94	1,2,4-Trichlorobenzene	0.754	0.752	0.728	0.807	0.821	0.845	0.739	0.799	0.799	0.755	0.780	5.03	21.0972
95	Hexachlorobutadiene	0.639	0.681	0.622	0.687	0.674	0.686	0.591	0.611	0.611	0.558	0.636	7.06	21.2199
96	Naphthalene	1.067	0.921	0.950	1.011	1.001	1.073	0.910	1.034	1.022	0.991	0.998	5.63	21.3748
97	1,2,3-Trichlorobenzene	0.572	0.571	0.560	0.607	0.606	0.634	0.546	0.595	0.583	0.555	0.583	4.73	21.6232

Spike Amount = Nominal Amount * M

Ave_%RSD : 5.5 Max_%RSD : 23.4

Use Least Square Linear Regression with weighting factor of inverse concentration for comps with %_RSD > 15

Resp_Ratio = xo + x1 * Amt_Ratio

IDX	Parameter	x0	x1	CCF
15	tert-Butyl alcohol	0.00478	0.01042	0.9990

SG
11/21/19

INITIAL_CALIBRATION - RELATIVE_RESPONSE_FACTOR(%REC)

Instrument ID :67
Beginning DateTime :11/19/19 13:28
Spike Units :PPB
IC File :RKC205

Column Spec :RTX502.2 ID :0.25MM
Ending DateTime :11/19/19 17:18
HPChem Method :V067K19

M	IDX	Parameters	.3 13:28 RKC200	.5 13:53 RKC201	1 14:19 RKC202	2 14:44 RKC203	5 15:10 RKC204	10 15:35 RKC205	20 16:01 RKC206	30 16:27 RKC207	50 16:53 RKC208	100 17:18 RKC209	AvDRec	%_RSD	Av_Rt_M
	1	1,4-DIFLUOROBENZENE	1	1	1	1	1	1	1	1	1	1	1	0	10.0963
	2	Dichlorodifluoromethane	96	97	103	110	98	103	100	99	95	------	3.4	4.61	1.8665
	3	Dichlorotetrafluoroethane	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
	4	Chloromethane	118	108	102	106	94	98	93	94	87	------	7.6	9.43	2.1163
	5	Vinyl chloride	91	97	101	108	100	108	103	101	90	------	4.8	6.47	2.2301
	6	Bromomethane	87	91	97	107	97	106	105	109	109	94	6.9	7.84	2.6233
	7	Chloroethane	96	98	101	103	96	104	101	104	106	90	4	5.03	2.6759
	8	Dichlorofluoromethane	104	106	102	105	102	102	90	96	100	94	4.2	5.32	2.7371
	9	Trichlorofluoromethane	86	95	105	109	100	105	100	101	100	------	4.4	6.68	2.9589
	10	sec-Propyl alcohol	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
5	11	Acrolein	------	------	------	108	104	100	88	96	96	------	5.6	7.70	3.4937
	12	1,1,2-Trichloro-1,2,2-trifluoroethane	100	105	102	107	103	103	90	97	97	96	3.8	4.91	3.5313
5	13	Acetone	------	------	------	112	103	106	88	100	94	94	6.5	8.19	3.5787
	14	1,1-Dichloroethene	101	105	101	107	102	103	90	97	98	96	3.8	4.84	3.7505
25	15	tert-Butyl alcohol	125	75	95	103	102	106	88	104	100	100	8.2	23.43	3.8791
	16	Methyl acetate	------	------	101	98	105	107	97	104	96	90	4.5	5.61	4.2633
	17	Iodomethane	97	104	99	105	101	103	92	99	101	100	2.7	3.79	4.2020
10	18	Acetonitrile	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
	19	Methylene chloride	------	114	106	108	100	100	87	95	96	93	6.3	8.26	4.4972
	20	Carbon disulfide	93	98	101	104	98	100	102	106	103	96	3.1	3.91	4.4767
5	21	Acrylonitrile	------	93	98	98	102	105	93	107	105	107	4.8	5.74	4.7310
	22	tert-Butyl methyl ether (MTBE)	102	103	101	106	102	103	89	99	98	97	3.3	4.49	4.7646
	23	trans-1,2-Dichloroethene	95	101	99	104	102	103	93	100	103	101	2.8	3.69	4.9925
	24	Isopropyl ether (DIPE)	97	102	99	104	102	104	91	100	102	99	2.8	3.91	5.6559
	25	1,1-Dichloroethane	98	105	99	104	101	103	91	99	102	98	2.9	3.92	5.8400
	26	Vinyl acetate	------	78	99	101	97	105	104	112	108	96	6.7	9.76	5.9031
25	27	2-Butanol	------	90	90	90	100	100	90	110	100	90	6.7	6.79	6.3885
	28	tert-Butyl ethyl ether (ETBE)	------	121	107	106	100	99	87	95	94	91	7.6	10.32	6.5866
5	29	2-Butanone	------	82	100	100	109	109	100	109	109	109	7.1	8.93	6.8691
	30	2,2-Dichloropropane	98	125	108	110	101	98	84	90	88	------	9.6	12.71	7.1483
	31	cis-1,2-Dichloroethene	94	97	97	105	102	105	93	102	103	102	3.7	4.34	7.2602
	32	Chloroform	96	103	100	104	102	104	91	99	100	99	2.9	3.93	7.6386
	33	Bromochloromethane	90	95	97	104	103	105	93	103	103	103	4.6	5.40	8.0083
5	34	tert-Amyl alcohol	------	------	100	100	100	111	100	122	111	100	5.6	7.53	8.0988
	35	Dibromofluoromethane	97	100	98	102	102	103	93	106	98	100	2.8	3.64	8.1486
	36	Tetrahydrofuran	------	------	115	108	103	103	82	95	92	92	8.3	10.15	8.0915
	37	1,1,1-Trichloroethane	100	106	101	106	103	104	90	96	97	95	4.2	5.24	8.5314
	38	Cyclohexane	94	99	102	101	99	103	101	103	99	------	2.2	2.75	8.5136
	39	2,2,4-Trimethylpentane	83	99	103	106	95	109	101	106	102	99	5.1	7.39	8.6980
	40	1,1-Dichloropropene	94	101	99	104	101	103	92	100	102	101	2.7	3.86	8.8791
	41	Carbon tetrachloride	100	104	100	106	103	105	91	98	98	96	3.6	4.57	9.0545
	42	tert-Amyl methyl ether (TAME)	95	99	103	105	103	107	91	103	100	98	3.7	4.86	9.2020
	43	1,2-Dichloroethane-d4	100	104	104	102	103	104	90	102	93	96	4.1	5.01	9.2444
	44	1,2-Dichloroethane	101	100	103	105	105	106	91	99	96	94	3.9	4.99	9.4446
	45	Benzene	97	102	97	103	101	103	91	100	102	102	2.8	3.67	9.4227
	46	Trichloroethene	97	102	97	103	102	104	91	100	103	101	3	3.88	10.6778
	47	Methylcyclohexane	88	98	103	105	100	104	102	104	101	95	3.9	5.29	10.7640
	48	1,2-Dichloropropane	96	103	97	104	101	102	91	101	102	103	3.2	4.12	11.0372

For 8260C
SM
11/21/19

	49	Bromodichloromethane	97	101	101	104	103	104	91	101	100	99	2.6	3.75	11.4683
20	50	1,4-Dioxane	------	------	------	100	100	100	100	100	100	100	0	6.64	11.5607
	51	Dibromomethane	81	94	102	107	105	107	93	105	104	103	6.6	8.37	11.5545
	52	2-Chloroethyl vinyl ether	85	89	93	99	100	105	94	109	110	113	7.7	9.62	12.1492
5	53	4-Methyl-2-pentanone	90	105	99	97	103	108	90	105	101	103	4.9	6.12	12.1915
	54	cis-1,3-Dichloropropene	98	100	96	103	100	105	92	103	104	------	3.3	4.10	12.5187
	55	CHLOROBENZENE-D5	1	1	1	1	1	1	1	1	1	1	1	0	15.5449
	56	Toluene-d8	99	101	98	101	102	100	93	106	101	100	2.2	3.30	12.9206
	57	Toluene	101	104	96	103	101	101	92	99	103	------	2.9	3.92	13.0594
	58	Ethyl methacrylate	100	97	97	102	102	104	92	103	103	------	3.1	3.89	13.4685
	59	trans-1,3-Dichloropropene	94	98	99	103	102	104	93	102	102	103	3.2	3.94	13.4394
	60	1,1,2-Trichloroethane	97	104	97	105	100	101	90	102	101	102	3	4.22	13.6907
5	61	2-Hexanone	109	101	101	97	102	103	89	102	97	97	3.8	5.29	13.7506
	62	1,3-Dichloropropane	98	97	99	103	101	102	91	102	102	104	2.9	3.89	14.1407
	63	Tetrachloroethene	99	105	99	106	101	101	92	98	101	99	2.7	3.85	14.1933
	64	Dibromochloromethane	94	99	100	105	102	103	92	103	101	102	3	4.00	14.5498
	65	1,2-Dibromoethane	98	96	98	105	101	103	92	104	103	103	3.4	4.13	14.8873
	66	1-Chlorohexane	97	103	99	105	101	102	91	99	103	101	2.8	3.82	15.2219
	67	Chlorobenzene	99	102	96	103	101	102	93	99	104	101	2.6	3.46	15.6062
	68	1,1,1,2-Tetrachloroethane	99	102	99	103	101	102	91	100	102	99	2.1	3.32	15.6983
	69	Ethylbenzene	98	103	97	102	101	102	92	99	104	------	2.9	3.69	15.7121
2	70	m-Xylene & p-Xylene	100	104	96	103	101	103	93	101	------	------	3	3.93	15.8410
	71	o-Xylene	103	106	98	103	102	102	92	99	103	94	3.4	4.26	16.5691
	72	Styrene	96	95	93	102	101	103	94	104	107	105	4.4	4.95	16.6392
	73	Isopropylbenzene	98	101	96	103	102	103	92	101	104	------	3.1	3.80	17.1765
	74	1,2-DICHLOROBENZENE-D4	1	1	1	1	1	1	1	1	1	1	1	0	19.4461
	75	Bromoform	103	94	98	102	99	102	89	100	105	109	4.1	5.53	17.1813
	76	1,1,2,2-Tetrachloroethane	116	99	97	102	99	101	87	96	101	103	4.4	7.18	17.4575
	77	4-Bromofluorobenzene	106	102	98	100	101	99	89	100	100	105	3	4.56	17.5524
	78	1,2,3-Trichloropropane	99	89	102	108	104	105	88	99	103	------	5.2	6.85	17.6636
	79	trans-1,4-Dichloro-2-butene	98	106	104	99	100	101	90	99	100	103	3	4.46	17.2704
	80	n-Propylbenzene	100	105	98	103	102	102	93	96	101	------	2.9	3.74	17.7659
	81	Bromobenzene	99	102	98	103	101	101	90	97	104	105	3.1	4.24	17.8184
	82	1,3,5-Trimethylbenzene	100	104	96	102	102	101	92	97	105	------	3.3	4.26	17.9850
	83	2-Chlorotoluene	102	107	99	103	101	100	90	95	103	------	3.7	5.12	17.9996
	84	4-Chlorotoluene	98	104	98	103	103	105	92	98	108	90	4.7	5.85	18.0609
	85	tert-Butylbenzene	98	103	99	105	102	101	91	96	104	102	3.3	4.26	18.4379
	86	1,2,4-Trimethylbenzene	101	104	97	103	100	101	92	95	106	------	3.6	4.59	18.4802
	87	sec-Butylbenzene	101	106	97	104	102	102	92	97	100	------	3.2	4.25	18.6864
	88	p-Isopropyltoluene	100	103	97	104	102	102	91	97	103	------	3.4	4.23	18.8471
	89	1,3-Dichlorobenzene	101	103	97	102	101	102	92	98	104	101	2.7	3.58	18.9508
	90	1,4-Dichlorobenzene	102	100	96	103	102	101	91	100	104	101	2.5	3.71	19.0735
	91	n-Butylbenzene	97	102	95	103	102	102	94	100	104	------	3.1	3.70	19.2887
	92	1,2-Dichlorobenzene	104	102	98	104	101	102	91	99	102	98	2.9	3.73	19.4709
	93	1,2-Dibromo-3-chloropropane	------	78	100	106	104	106	92	104	106	103	6.6	9.34	20.2482
	94	1,2,4-Trichlorobenzene	97	96	93	103	105	108	95	102	102	97	4.4	5.03	21.0972
	95	Hexachlorobutadiene	100	107	98	108	106	108	93	96	96	88	5.9	7.06	21.2199
	96	Naphthalene	107	92	95	101	100	108	91	104	102	99	4.4	5.63	21.3748
	97	1,2,3-Trichlorobenzene	98	98	96	104	104	109	94	102	100	95	3.8	4.73	21.6232

For 8260C
5 ea
11/21/19

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
Total Cpnds : 97

PK#		Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I	1,4-DIFLUOROBENZENE	114	10.11	1.000	A	1	A	B
2	T	Dichlorodifluoromethane	85	1.87	0.185	A	1	A	B
3	T	Dichlorotetrafluoroethane	85	0.00	0.000	A	2	A	B
4	T	Chloromethane	50	2.12	0.210	A	1	A	B
5	T	Vinyl chloride	62	2.24	0.221	A	1	A	B
6	T	Bromomethane	94	2.62	0.259	A	1	A	B
7	T	Chloroethane	64	2.68	0.265	A	1	A	B
8	T	Dichlorofluoromethane	67	2.74	0.271	A	1	A	B
9	T	Trichlorofluoromethane	101	2.96	0.293	A	1	A	B
10	T	sec-Propyl alcohol	45	0.00	0.000	A	1	A	B
11	T	Acrolein	56	3.50	0.346	A	1	A	B
12	T	1,1,2-Trichloro-1,2,2-trifluor	151	3.53	0.349	A	1	A	B
13	T	Acetone	43	3.58	0.354	A	1	A	B
14	T	1,1-Dichloroethene	61	3.75	0.371	A	2	A	B
15	T	tert-Butyl alcohol	59	3.87	0.383	L	1	A	B
16	T	Methyl acetate	43	4.26	0.422	A	1	A	B
17	T	Iodomethane	142	4.20	0.416	A	1	A	B
18	T	Acetonitrile	41	3.87	0.383	A	1	A	B
19	T	Methylene chloride	49	4.50	0.445	A	2	A	B
20	T	Carbon disulfide	76	4.48	0.443	A	1	A	B
21	T	Acrylonitrile	53	4.73	0.468	A	2	A	B
22	T	tert-Butyl methyl ether (MTBE)	73	4.76	0.471	A	1	A	B
23	T	trans-1,2-Dichloroethene	96	4.99	0.494	A	1	A	B
24	T	Isopropyl ether (DIPE)	45	5.65	0.559	A	1	A	B
25	T	1,1-Dichloroethane	63	5.84	0.578	A	2	A	B
26	T	Vinyl acetate	43	5.90	0.584	A	1	A	B
27	T	2-Butanol	45	6.38	0.631	A	1	A	B
28	T	tert-Butyl ethyl ether (ETBE)	59	6.59	0.652	A	1	A	B
29	T	2-Butanone	72	6.86	0.679	A	1	A	B
30	T	2,2-Dichloropropane	77	7.16	0.708	A	2	A	B
31	T	cis-1,2-Dichloroethene	96	7.27	0.720	A	1	A	B
32	T	Chloroform	83	7.64	0.756	A	2	A	B
33	T	Bromochloromethane	130	8.02	0.793	A	1	A	B
34	T	tert-Amyl alcohol	59	8.09	0.800	A	1	A	B
35	S	Dibromofluoromethane	111	8.15	0.806	A	1	A	B
36	T	Tetrahydrofuran	42	8.09	0.800	A	2	A	B
37	T	1,1,1-Trichloroethane	97	8.53	0.844	A	2	A	B
38	T	Cyclohexane	84	8.51	0.842	A	1	A	B
39	T	2,2,4-Trimethylpentane	57	8.70	0.861	A	1	A	B
40	T	1,1-Dichloropropene	110	8.88	0.879	A	1	A	B
41	T	Carbon tetrachloride	119	9.05	0.896	A	1	A	B
42	T	tert-Amyl methyl ether (TAME)	87	9.20	0.910	A	1	A	B
43	S	1,2-Dichloroethane-d4	65	9.24	0.915	A	1	A	B
44	T	1,2-Dichloroethane	62	9.45	0.935	A	1	A	B
45	T	Benzene	78	9.42	0.932	A	2	A	B
46	T	Trichloroethene	130	10.68	1.056	A	3	A	B
47	T	Methylcyclohexane	83	10.76	1.065	A	2	A	B
48	T	1,2-Dichloropropane	63	11.04	1.093	A	1	A	B
49	T	Bromodichloromethane	83	11.47	1.134	A	1	A	B
50	T	1,4-Dioxane	88	11.57	1.145	A	1	A	B
51	T	Dibromomethane	93	11.55	1.143	A	2	A	B
52	T	2-Chloroethyl vinyl ether	63	12.15	1.202	A	1	A	B
53	T	4-Methyl-2-pentanone	43	12.20	1.207	A	3	A	B

SA 11/21/19

54		T	cis-1,3-Dichloropropene	75	12.52	1.238	A	3	A	B
55	I		CHLOROBENZENE-D5	117	15.54	1.000	A	2	A	B
56		S	Toluene-d8	98	12.93	0.832	A	1	A	B
57		T	Toluene	91	13.06	0.840	A	1	A	B
58		T	Ethyl methacrylate	69	13.47	0.866	A	1	A	B
59		T	trans-1,3-Dichloropropene	75	13.44	0.865	A	1	A	B
60		T	1,1,2-Trichloroethane	97	13.69	0.881	A	2	A	B
61		T	2-Hexanone	43	13.75	0.884	A	1	A	B
62		T	1,3-Dichloropropane	76	14.14	0.910	A	1	A	B
63		T	Tetrachloroethene	164	14.20	0.914	A	3	A	B
64		T	Dibromochloromethane	129	14.55	0.936	A	1	A	B
65		T	1,2-Dibromoethane	107	14.88	0.958	A	1	A	B
66		T	1-Chlorohexane	91	15.22	0.979	A	1	A	B
67	P,M		Chlorobenzene	112	15.60	1.004	A	1	A	B
68		T	1,1,1,2-Tetrachloroethane	131	15.70	1.010	A	1	A	B
69		T	Ethylbenzene	91	15.72	1.011	A	1	A	B
70		T	m-Xylene & p-Xylene	91	15.83	1.019	A	1	A	B
71		T	o-Xylene	91	16.57	1.066	A	1	A	B
72		T	Styrene	104	16.64	1.071	A	2	A	B
73		T	Isopropylbenzene	105	17.18	1.105	A	3	A	B
74	I		1,2-DICHLOROBENZENE-D4	152	19.44	1.000	A	1	A	B
75		T	Bromoform	173	17.18	0.884	A	2	A	B
76		T	1,1,2,2-Tetrachloroethane	83	17.46	0.898	A	1	A	B
77		S	4-Bromofluorobenzene	95	17.56	0.903	A	2	A	B
78		T	1,2,3-Trichloropropane	110	17.66	0.908	A	1	A	B
79		T	trans-1,4-Dichloro-2-butene	53	17.27	0.888	A	1	A	B
80		T	n-Propylbenzene	91	17.76	0.914	A	2	A	B
81		T	Bromobenzene	156	17.82	0.917	A	1	A	B
82		T	1,3,5-Trimethylbenzene	105	17.98	0.925	A	2	A	B
83		T	2-Chlorotoluene	91	18.00	0.926	A	1	A	B
84		T	4-Chlorotoluene	91	18.06	0.929	A	1	A	B
85		T	tert-Butylbenzene	134	18.44	0.948	A	1	A	B
86		T	1,2,4-Trimethylbenzene	105	18.48	0.950	A	1	A	B
87		T	sec-Butylbenzene	105	18.68	0.961	A	1	A	B
88		T	p-Isopropyltoluene	119	18.84	0.969	A	2	A	B
89		T	1,3-Dichlorobenzene	146	18.95	0.974	A	2	A	B
90		T	1,4-Dichlorobenzene	146	19.08	0.981	A	2	A	B
91		T	n-Butylbenzene	91	19.30	0.992	A	2	A	B
92		T	1,2-Dichlorobenzene	146	19.47	1.002	A	1	A	B
93		T	1,2-Dibromo-3-chloropropane	157	20.25	1.041	A	1	A	B
94		T	1,2,4-Trichlorobenzene	180	21.09	1.085	A	2	A	B
95		T	Hexachlorobutadiene	225	21.23	1.092	A	2	A	B
96		T	Naphthalene	128	21.37	1.099	A	1	A	B
97		T	1,2,3-Trichlorobenzene	180	21.62	1.112	A	2	A	B

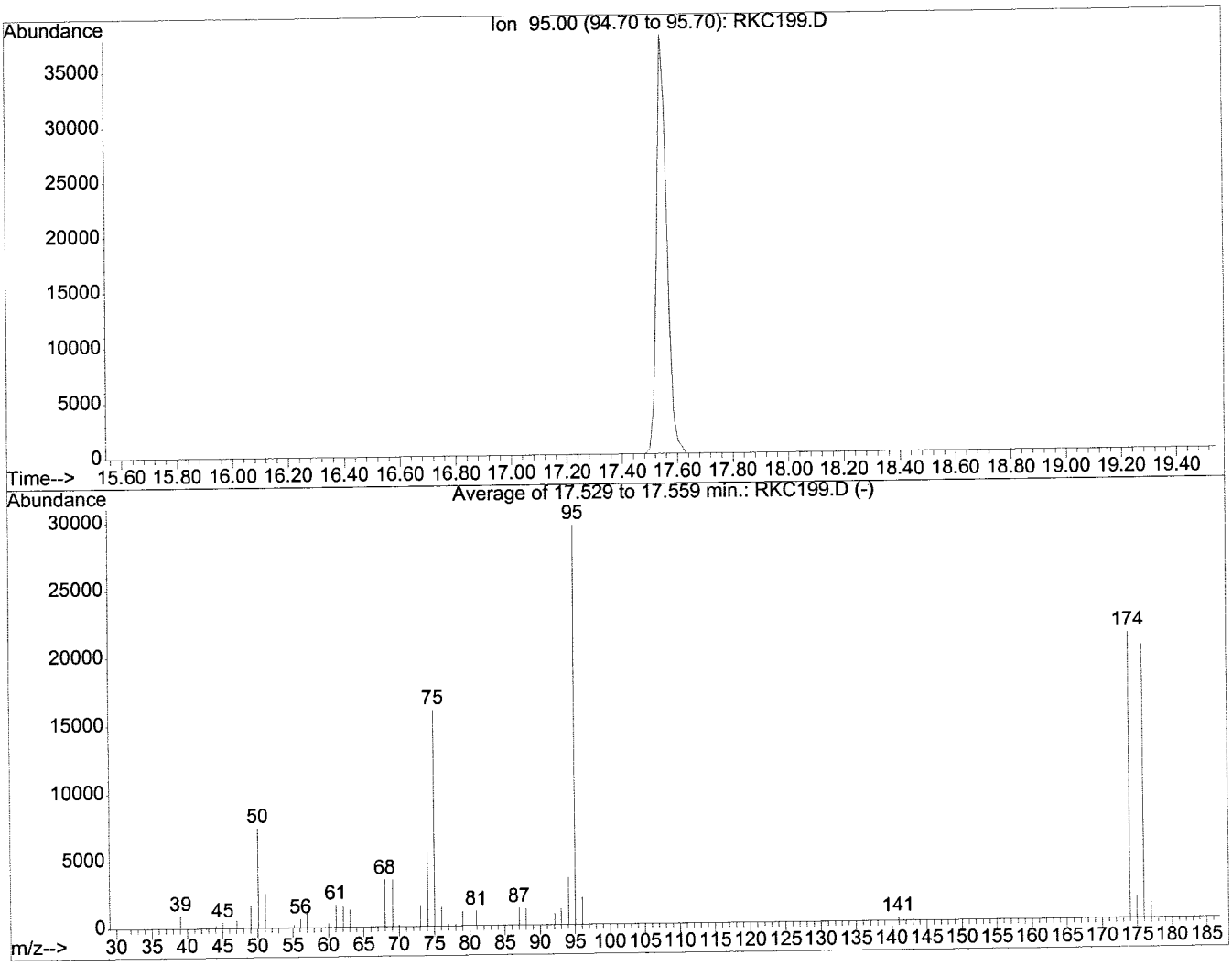
Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

VO67K19.M Wed Nov 20 17:48:13 2019

SM 11/21/19

Data File : D:\HPCHEM\1\DATA\19K19\RKC199.D
Acq On : 19 Nov 2019 12:44 pm
Sample : BFB67K14
Misc : T/CHECK
MS Integration Params: RTE.P
Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B

Vial: 1
Operator: RMinam
Inst : 67
Multiplr: 1.00



AutoFind: Scans 1089, 1090, 1091; Background Corrected with Scan 1084

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	25.1	7423	PASS
75	95	30	60	54.2	16019	PASS
95	95	100	100	100.0	29581	PASS
96	95	5	9	6.8	2006	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	71.5	21156	PASS
175	174	5	9	7.6	1606	PASS
176	174	95	101	95.6	20219	PASS
177	176	5	9	6.8	1368	PASS

RKC199.D VO67K19.M Wed Nov 20 16:41:04 2019 Sa 11/21/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC200.D
Acq On : 19 Nov 2019 1:28 pm
Sample : VO67K191
Misc : 0.3ppb 8260/ 1.5ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:21 2019

Vial: 2
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	2057068	10.00 ug/l	-0.01
55) CHLOROBENZENE-D5	15.54	117	1508612	10.00 ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.46	152	512989	10.00 ug/l	0.02
System Monitoring Compounds					
35) Dibromofluoromethane	8.14	111	17032	0.29 ug/l	-0.01
Spiked Amount 10.000			Recovery =	2.90%	
43) 1,2-Dichloroethane-d4	9.23	65	15152	0.30 ug/l	-0.01
Spiked Amount 10.000			Recovery =	3.00%	
56) Toluene-d8	12.93	98	62571	0.30 ug/l	0.00
Spiked Amount 10.000			Recovery =	3.00%	
77) 4-Bromofluorobenzene	17.56	95	20666	0.32 ug/l	0.00
Spiked Amount 10.000			Recovery =	3.20%	
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.86	85	16805	0.29 ug/l	84
4) Chloromethane	2.12	50	36412	0.35 ug/l	100
5) Vinyl chloride	2.22	62	24847	0.27 ug/l	85
6) Bromomethane	2.63	94	17551	0.26 ug/l	100
7) Chloroethane	2.68	64	16695	0.29 ug/l	94
8) Dichlorofluoromethane	2.73	67	41650	0.31 ug/l	91
9) Trichlorofluoromethane	2.93	101	25286	0.26 ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.52	151	13240	0.30 ug/l	100
13) Acetone	3.56	43	22376	3.32 ug/l	95
14) 1,1-Dichloroethene	3.74	61	34895	0.30 ug/l	99
15) tert-Butyl alcohol	3.87	59	29910	9.37 ug/l	91
17) Iodomethane	4.18	142	29074	0.29 ug/l	97
19) Methylene chloride	4.47	49	30708	0.36 ug/l	98
20) Carbon disulfide	4.45	76	69029	0.28 ug/l	97
22) tert-Butyl methyl ether (M	4.76	73	28931	0.31 ug/l	86
23) trans-1,2-Dichloroethene	4.98	96	19766	0.28 ug/l	100
24) Isopropyl ether (DIPE)	5.64	45	61026	0.29 ug/l	98
25) 1,1-Dichloroethane	5.83	63	37135	0.30 ug/l	98
28) tert-Butyl ethyl ether (ET	6.56	59	64847	0.41 ug/l	96
29) 2-Butanone	6.86	72	2605	1.13 ug/l	91
30) 2,2-Dichloropropane	7.13	77	25323	0.29 ug/l	94
31) cis-1,2-Dichloroethene	7.24	96	19115	0.28 ug/l	96
32) Chloroform	7.62	83	32233	0.29 ug/l	99
33) Bromochloromethane	7.99	130	8111	0.27 ug/l	94
37) 1,1,1-Trichloroethane	8.53	97	29934	0.30 ug/l	97
38) Cyclohexane	8.50	84	29521	0.28 ug/l	97
39) 2,2,4-Trimethylpentane	8.68	57	68370	0.25 ug/l	95

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

SA 11/24/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC200.D
Acq On : 19 Nov 2019 1:28 pm
Sample : VO67K191
Misc : 0.3ppb 8260/ 1.5ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:21 2019

Vial: 2
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
40) 1,1-Dichloropropene	8.87	110	9196	0.28 ug/l	97
41) Carbon tetrachloride	9.04	119	24894	0.30 ug/l	99
42) tert-Amyl methyl ether (TA	9.20	87	6957	0.28 ug/l	76
44) 1,2-Dichloroethane	9.44	62	17826	0.30 ug/l	97
45) Benzene	9.42	78	70576	0.29 ug/l	95
46) Trichloroethene	10.68	130	19206	0.29 ug/l	98
47) Methylcyclohexane	10.75	83	31725	0.26 ug/l	95
48) 1,2-Dichloropropane	11.03	63	17283	0.29 ug/l	99
49) Bromodichloromethane	11.47	83	20837	0.29 ug/l	99
50) 1,4-Dioxane	11.57	88	1077	5.38 ug/l	70
51) Dibromomethane	11.55	93	6229	0.24 ug/l	88
52) 2-Chloroethyl vinyl ether	12.15	63	4321	0.26 ug/l	94
53) 4-Methyl-2-pentanone	12.20	43	39926	1.35 ug/l	99
54) cis-1,3-Dichloropropene	12.52	75	24524	0.29 ug/l	80
57) Toluene	13.06	91	76350	0.30 ug/l	100
58) Ethyl methacrylate	13.47	69	12398	0.30 ug/l	76
59) trans-1,3-Dichloropropene	13.44	75	18779	0.28 ug/l	83
60) 1,1,2-Trichloroethane	13.70	97	8616	0.29 ug/l	97
61) 2-Hexanone	13.76	43	29474	1.64 ug/l	85
62) 1,3-Dichloropropane	14.14	76	17250	0.30 ug/l	100
63) Tetrachloroethene	14.20	164	15041	0.30 ug/l	98
64) Dibromochloromethane	14.55	129	11267	0.28 ug/l	97
65) 1,2-Dibromoethane	14.90	107	8211	0.29 ug/l	95
66) 1-Chlorohexane	15.22	91	28355	0.29 ug/l	98
67) Chlorobenzene	15.62	112	41821	0.30 ug/l	98
68) 1,1,1,2-Tetrachloroethane	15.70	131	14577	0.30 ug/l	82
69) Ethylbenzene	15.72	91	88388	0.29 ug/l	100
70) m-Xylene & p-Xylene	15.85	91	132657	0.60 ug/l	99
71) o-Xylene	16.58	91	64893	0.31 ug/l	98
72) Styrene	16.64	104	43654	0.29 ug/l	98
73) Isopropylbenzene	17.18	105	79535	0.29 ug/l	99
75) Bromoform	17.19	173	5779	0.31 ug/l	93
76) 1,1,2,2-Tetrachloroethane	17.46	83	10506	0.35 ug/l	94
78) 1,2,3-Trichloropropane	17.68	110	2436	0.30 ug/l	88
79) trans-1,4-Dichloro-2-buten	17.28	53	3068	0.29 ug/l	100
80) n-Propylbenzene	17.78	91	98020	0.30 ug/l	99
81) Bromobenzene	17.82	156	14177	0.30 ug/l	98
82) 1,3,5-Trimethylbenzene	18.00	105	60521	0.30 ug/l	98
83) 2-Chlorotoluene	18.01	91	61171	0.31 ug/l	99
84) 4-Chlorotoluene	18.07	91	49392	0.29 ug/l	99
85) tert-Butylbenzene	18.45	134	13561	0.30 ug/l	96

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

SU 11/21/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC200.D
Acq On : 19 Nov 2019 1:28 pm
Sample : VO67K191
Misc : 0.3ppb 8260/ 1.5ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:21 2019

Vial: 2
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
86) 1,2,4-Trimethylbenzene	18.48	105	58010	0.30	ug/l	98
87) sec-Butylbenzene	18.70	105	83365	0.30	ug/l	99
88) p-Isopropyltoluene	18.86	119	66749	0.30	ug/l	98
89) 1,3-Dichlorobenzene	18.96	146	28348	0.30	ug/l	100
90) 1,4-Dichlorobenzene	19.08	146	27285	0.31	ug/l	96
91) n-Butylbenzene	19.30	91	61617	0.29	ug/l	99
92) 1,2-Dichlorobenzene	19.49	146	23168	0.31	ug/l	94
93) 1,2-Dibromo-3-chloropropan	20.26	157	1560	0.39	ug/l	68
94) 1,2,4-Trichlorobenzene	21.11	180	11601	0.29	ug/l	95
95) Hexachlorobutadiene	21.23	225	9828	0.30	ug/l	97
96) Naphthalene	21.39	128	16426	0.32	ug/l	97
97) 1,2,3-Trichlorobenzene	21.64	180	8797	0.29	ug/l	97

SG 11/21/19

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

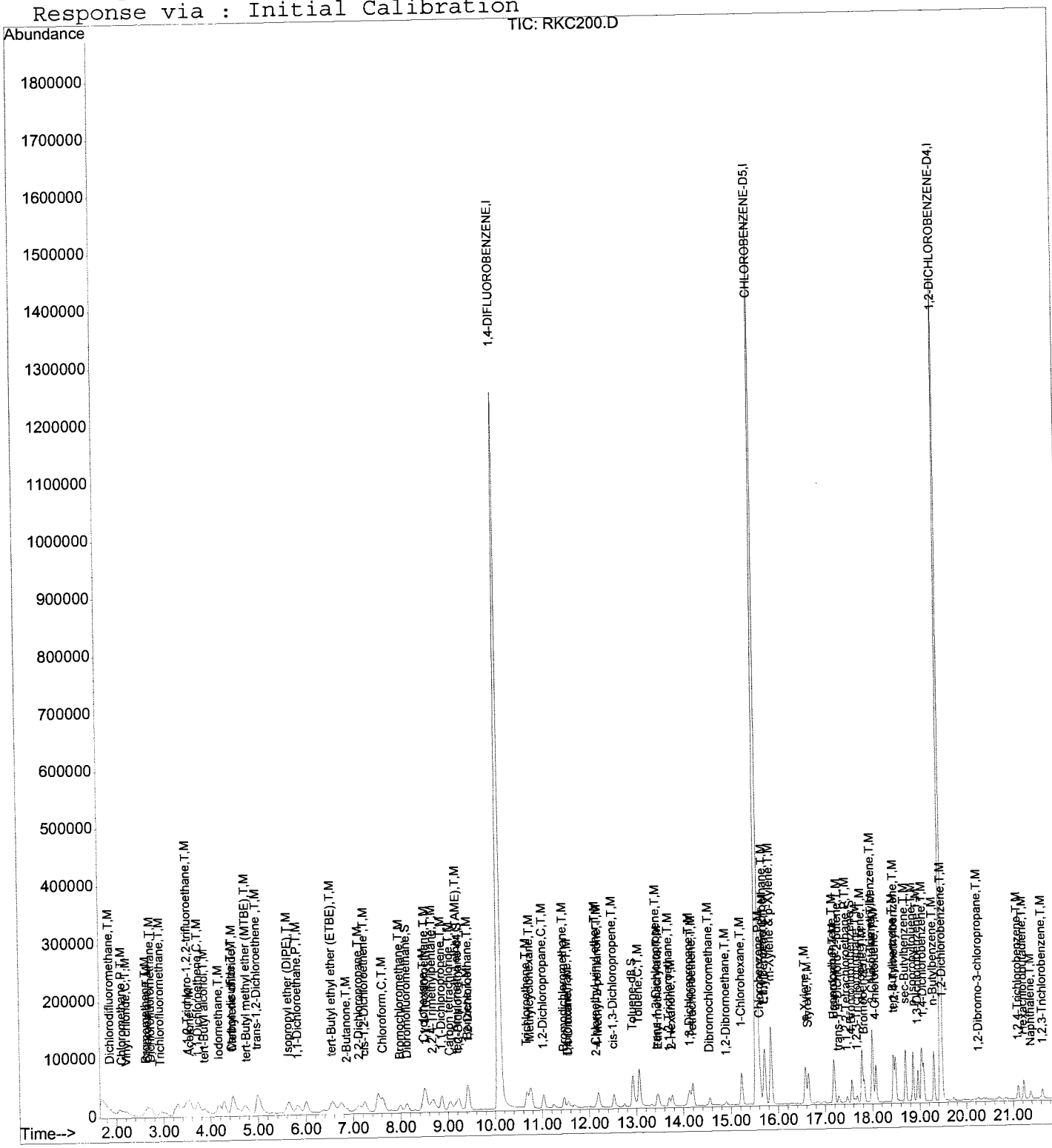
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K19\RKC200.D
Acq On : 19 Nov 2019 1:28 pm
Sample : VO67K191
Misc : 0.3ppb 8260/ 1.5ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:21 2019

Vial: 2
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC201.D
Acq On : 19 Nov 2019 1:53 pm
Sample : VO67K192
Misc : 0.5ppb 8260/ 2.5ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:22 2019

Vial: 3
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1901328	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.54	117	1413719	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.45	152	477217	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.15	111	27199	0.50	ug/l	0.00
Spiked Amount 10.000			Recovery =	5.00%		
43) 1,2-Dichloroethane-d4	9.25	65	24419	0.52	ug/l	0.00
Spiked Amount 10.000			Recovery =	5.20%		
56) Toluene-d8	12.91	98	100071	0.50	ug/l	-0.01
Spiked Amount 10.000			Recovery =	5.00%		
77) 4-Bromofluorobenzene	17.55	95	30994	0.51	ug/l	-0.01
Spiked Amount 10.000			Recovery =	5.10%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.87	85	25922	0.48	ug/l	90
4) Chloromethane	2.12	50	51422	0.54	ug/l	99
5) Vinyl chloride	2.23	62	40635	0.49	ug/l	83
6) Bromomethane	2.62	94	28222	0.45	ug/l	95
7) Chloroethane	2.68	64	26295	0.49	ug/l	97
8) Dichlorofluoromethane	2.73	67	65343	0.53	ug/l	94
9) Trichlorofluoromethane	2.96	101	43098	0.47	ug/l	100
11) Acrolein	3.49	56	17285	3.82	ug/l	66
12) 1,1,2-Trichloro-1,2,2-trif	3.53	151	21402	0.52	ug/l	100
13) Acetone	3.58	43	25051	4.02	ug/l	89
14) 1,1-Dichloroethene	3.75	61	55483	0.52	ug/l	99
15) tert-Butyl alcohol	3.88	59	27687	9.39	ug/l	96
17) Iodomethane	4.21	142	47804	0.52	ug/l	99
19) Methylene chloride	4.50	49	45418	0.57	ug/l	100
20) Carbon disulfide	4.48	76	112133	0.49	ug/l	99
21) Acrylonitrile	4.73	53	19405	2.30	ug/l	89
22) tert-Butyl methyl ether (M	4.78	73	44832	0.51	ug/l	86
23) trans-1,2-Dichloroethene	4.99	96	32308	0.50	ug/l	97
24) Isopropyl ether (DIPE)	5.65	45	99082	0.51	ug/l	99
25) 1,1-Dichloroethane	5.84	63	61110	0.53	ug/l	100
26) Vinyl acetate	5.91	43	28415	0.39	ug/l	89
27) 2-Butanol	6.40	45	20674	11.27	ug/l	80
28) tert-Butyl ethyl ether (ET	6.59	59	88564	0.60	ug/l	97
29) 2-Butanone	6.88	72	4336	2.04	ug/l	78
30) 2,2-Dichloropropane	7.14	77	49712	0.62	ug/l	90
31) cis-1,2-Dichloroethene	7.26	96	30421	0.49	ug/l	98
32) Chloroform	7.64	83	53230	0.52	ug/l	97

(#) = qualifier out of range (m) = manual integration
RKC201.D VO67K19.M Thu Nov 21 16:53:20 2019 Page 1

SG 12/4/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC201.D
Acq On : 19 Nov 2019 1:53 pm
Sample : VO67K192
Misc : 0.5ppb 8260/ 2.5ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:22 2019

Vial: 3
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
33) Bromochloromethane	8.00	130	13243	0.48 ug/l	94
37) 1,1,1-Trichloroethane	8.53	97	48878	0.53 ug/l	98
38) Cyclohexane	8.52	84	47741	0.49 ug/l	96
39) 2,2,4-Trimethylpentane	8.69	57	125604	0.49 ug/l	96
40) 1,1-Dichloropropene	8.88	110	15144	0.51 ug/l	99
41) Carbon tetrachloride	9.06	119	39906	0.52 ug/l	98
42) tert-Amyl methyl ether (TA	9.19	87	11216	0.49 ug/l	83
44) 1,2-Dichloroethane	9.44	62	27209	0.50 ug/l	97
45) Benzene	9.42	78	113283	0.51 ug/l	98
46) Trichloroethene	10.68	130	31191	0.51 ug/l	98
47) Methylcyclohexane	10.77	83	54316	0.49 ug/l	98
48) 1,2-Dichloropropane	11.03	63	28472	0.51 ug/l	99
49) Bromodichloromethane	11.47	83	33318	0.50 ug/l	99
50) 1,4-Dioxane	11.55	88	1143	6.18 ug/l	86
51) Dibromomethane	11.55	93	11121	0.47 ug/l	95
52) 2-Chloroethyl vinyl ether	12.14	63	6948	0.45 ug/l	96
53) 4-Methyl-2-pentanone	12.20	43	71797	2.62 ug/l	95
54) cis-1,3-Dichloropropene	12.52	75	38503	0.50 ug/l	86
57) Toluene	13.06	91	122701	0.52 ug/l	99
58) Ethyl methacrylate	13.47	69	18837	0.49 ug/l	84
59) trans-1,3-Dichloropropene	13.44	75	30761	0.49 ug/l	93
60) 1,1,2-Trichloroethane	13.69	97	14333	0.52 ug/l	97
61) 2-Hexanone	13.76	43	42418	2.53 ug/l	93
62) 1,3-Dichloropropane	14.14	76	26469	0.48 ug/l	95
63) Tetrachloroethene	14.18	164	24959	0.53 ug/l	98
64) Dibromochloromethane	14.55	129	18474	0.49 ug/l	100
65) 1,2-Dibromoethane	14.89	107	12505	0.48 ug/l	99
66) 1-Chlorohexane	15.22	91	47193	0.51 ug/l	97
67) Chlorobenzene	15.60	112	67273	0.51 ug/l	99
68) 1,1,1,2-Tetrachloroethane	15.69	131	23407	0.51 ug/l	91
69) Ethylbenzene	15.70	91	145137	0.52 ug/l	100
70) m-Xylene & p-Xylene	15.84	91	216662	1.04 ug/l	98
71) o-Xylene	16.57	91	104033	0.53 ug/l	98
72) Styrene	16.64	104	67863	0.48 ug/l	97
73) Isopropylbenzene	17.17	105	128320	0.50 ug/l	99
75) Bromoform	17.18	173	8162	0.47 ug/l	98
76) 1,1,2,2-Tetrachloroethane	17.46	83	13904	0.49 ug/l	98
78) 1,2,3-Trichloropropane	17.66	110	3407	0.45 ug/l	93
79) trans-1,4-Dichloro-2-buten	17.27	53	5181	0.53 ug/l	82
80) n-Propylbenzene	17.76	91	158964	0.52 ug/l	99
81) Bromobenzene	17.81	156	22572	0.51 ug/l	99

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

SA 11/21/19

Data File : D:\HPCHEM\1\DATA\19K19\RKC201.D
Acq On : 19 Nov 2019 1:53 pm
Sample : VO67K192
Misc : 0.5ppb 8260/ 2.5ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:22 2019

Vial: 3
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
82) 1,3,5-Trimethylbenzene	17.98	105	97368	0.52	ug/l	98
83) 2-Chlorotoluene	18.00	91	99483	0.54	ug/l	98
84) 4-Chlorotoluene	18.06	91	81278	0.52	ug/l	99
85) tert-Butylbenzene	18.44	134	21995	0.51	ug/l	96
86) 1,2,4-Trimethylbenzene	18.48	105	92233	0.52	ug/l	98
87) sec-Butylbenzene	18.69	105	135568	0.53	ug/l	100
88) p-Isopropyltoluene	18.85	119	107027	0.52	ug/l	98
89) 1,3-Dichlorobenzene	18.95	146	44770	0.51	ug/l	100
90) 1,4-Dichlorobenzene	19.07	146	41681	0.50	ug/l	98
91) n-Butylbenzene	19.28	91	100892	0.51	ug/l	99
92) 1,2-Dichlorobenzene	19.46	146	35309	0.51	ug/l	99
93) 1,2-Dibromo-3-chloropropan	20.25	157	1434	0.39	ug/l	94
94) 1,2,4-Trichlorobenzene	21.10	180	17933	0.48	ug/l	96
95) Hexachlorobutadiene	21.21	225	16253	0.54	ug/l	99
96) Naphthalene	21.37	128	21973	0.46	ug/l	98
97) 1,2,3-Trichlorobenzene	21.62	180	13619	0.49	ug/l	98

SU 11/21/19

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

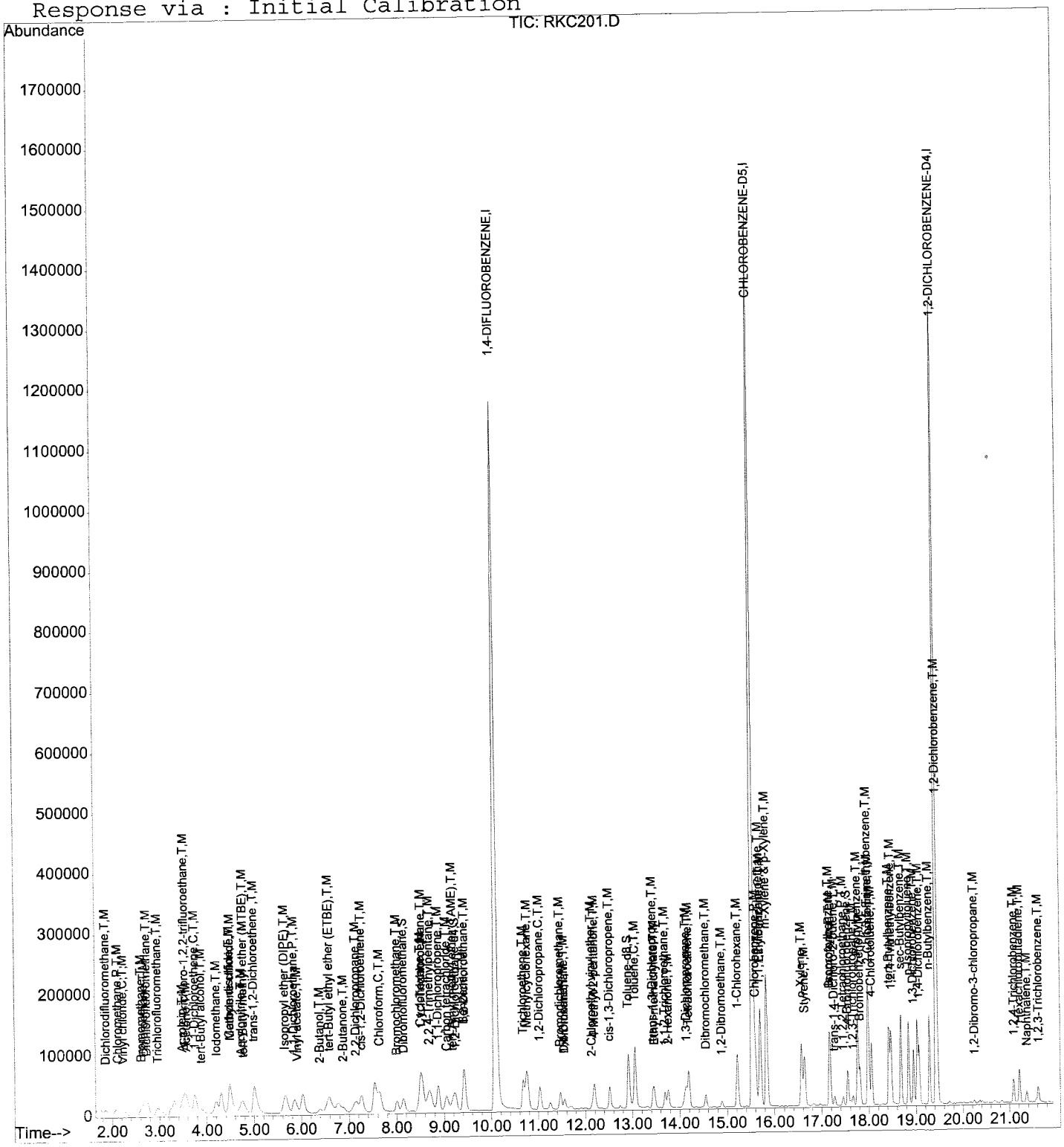
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K19\RKC201.D
Acq On : 19 Nov 2019 1:53 pm
Sample : VO67K192
Misc : 0.5ppb 8260/ 2.5ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:22 2019

Vial: 3
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC202.D
Acq On : 19 Nov 2019 2:19 pm
Sample : VO67K193
Misc : 1ppb 8260/ 5ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 4
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1945964	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.54	117	1458027	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.44	152	497564	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.15	111	54545	0.98	ug/l	0.00
Spiked Amount 10.000			Recovery = 9.80%			
43) 1,2-Dichloroethane-d4	9.25	65	49746	1.04	ug/l	0.00
Spiked Amount 10.000			Recovery = 10.40%			
56) Toluene-d8	12.91	98	199654	0.98	ug/l	-0.01
Spiked Amount 10.000			Recovery = 9.80%			
77) 4-Bromofluorobenzene	17.54	95	61561	0.98	ug/l	-0.01
Spiked Amount 10.000			Recovery = 9.80%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.86	85	56348	1.03	ug/l	93
4) Chloromethane	2.12	50	99617	1.02	ug/l	99
5) Vinyl chloride	2.23	62	86770	1.01	ug/l	93
6) Bromomethane	2.62	94	61212	0.96	ug/l	98
7) Chloroethane	2.68	64	55700	1.01	ug/l	98
8) Dichlorofluoromethane	2.75	67	128200	1.02	ug/l	98
9) Trichlorofluoromethane	2.96	101	97936	1.05	ug/l	94
11) Acrolein	3.49	56	29328	6.34	ug/l	88
12) 1,1,2-Trichloro-1,2,2-trif	3.53	151	42703	1.02	ug/l	100
13) Acetone	3.58	43	42701	6.69	ug/l	95
14) 1,1-Dichloroethene	3.75	61	109351	1.01	ug/l	99
15) tert-Butyl alcohol	3.88	59	57513	23.78	ug/l	95
16) Methyl acetate	4.26	43	19885	1.02	ug/l	94
17) Iodomethane	4.20	142	93850	0.99	ug/l	100
19) Methylene chloride	4.50	49	87062	1.07	ug/l	99
20) Carbon disulfide	4.48	76	236756	1.01	ug/l	100
21) Acrylonitrile	4.73	53	41705	4.83	ug/l	94
22) tert-Butyl methyl ether (M	4.76	73	90726	1.01	ug/l	97
23) trans-1,2-Dichloroethene	4.99	96	64951	0.99	ug/l	99
24) Isopropyl ether (DIPE)	5.67	45	197267	0.99	ug/l	99
25) 1,1-Dichloroethane	5.84	63	118189	0.99	ug/l	98
26) Vinyl acetate	5.90	43	74011	0.99	ug/l	95
27) 2-Butanol	6.40	45	45320	24.13	ug/l	97
28) tert-Butyl ethyl ether (ET	6.57	59	160910	1.07	ug/l	99
29) 2-Butanone	6.88	72	10263	4.71	ug/l	71
30) 2,2-Dichloropropane	7.14	77	88496	1.08	ug/l	95
31) cis-1,2-Dichloroethene	7.26	96	61831	0.97	ug/l	100

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

11/21/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC202.D
Acq On : 19 Nov 2019 2:19 pm
Sample : VO67K193
Misc : 1ppb 8260/ 5ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 4
Operator: RMinam
Inst : 67
Multiplr: 1.00
Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32)	Chloroform	7.64	83	105310	1.00 ug/l	99
33)	Bromochloromethane	8.00	130	27602	0.97 ug/l	98
34)	tert-Amyl alcohol	8.09	59	8321	4.54 ug/l	96
36)	Tetrahydrofuran	8.09	42	8681	1.16 ug/l	82
37)	1,1,1-Trichloroethane	8.53	97	94645	1.01 ug/l	98
38)	Cyclohexane	8.52	84	100735	1.02 ug/l	100
39)	2,2,4-Trimethylpentane	8.69	57	267375	1.03 ug/l	99
40)	1,1-Dichloropropene	8.88	110	30397	0.99 ug/l	97
41)	Carbon tetrachloride	9.06	119	79256	1.01 ug/l	99
42)	tert-Amyl methyl ether (TA	9.20	87	23849	1.03 ug/l	87
44)	1,2-Dichloroethane	9.44	62	57495	1.03 ug/l	99
45)	Benzene	9.42	78	222565	0.97 ug/l	100
46)	Trichloroethene	10.68	130	60880	0.97 ug/l	99
47)	Methylcyclohexane	10.77	83	116848	1.03 ug/l	98
48)	1,2-Dichloropropane	11.03	63	55041	0.97 ug/l	99
49)	Bromodichloromethane	11.47	83	68094	1.01 ug/l	98
50)	1,4-Dioxane	11.55	88	3006	15.87 ug/l	89
51)	Dibromomethane	11.55	93	24684	1.02 ug/l	99
52)	2-Chloroethyl vinyl ether	12.14	63	14865	0.93 ug/l	99
53)	4-Methyl-2-pentanone	12.20	43	138335	4.94 ug/l	99
54)	cis-1,3-Dichloropropene	12.52	75	76196	0.96 ug/l	91
57)	Toluene	13.06	91	234403	0.96 ug/l	99
58)	Ethyl methacrylate	13.47	69	38636	0.97 ug/l	87
59)	trans-1,3-Dichloropropene	13.44	75	63785	0.99 ug/l	96
60)	1,1,2-Trichloroethane	13.69	97	27645	0.97 ug/l	97
61)	2-Hexanone	13.75	43	87126	5.03 ug/l	94
62)	1,3-Dichloropropane	14.14	76	55981	0.99 ug/l	98
63)	Tetrachloroethene	14.18	164	48556	0.99 ug/l	99
64)	Dibromochloromethane	14.55	129	38462	1.00 ug/l	98
65)	1,2-Dibromoethane	14.89	107	26390	0.98 ug/l	97
66)	1-Chlorohexane	15.22	91	93705	0.99 ug/l	99
67)	Chlorobenzene	15.60	112	130194	0.96 ug/l	98
68)	1,1,1,2-Tetrachloroethane	15.69	131	46963	0.99 ug/l	97
69)	Ethylbenzene	15.70	91	282331	0.97 ug/l	100
70)	m-Xylene & p-Xylene	15.84	91	410206	1.91 ug/l	99
71)	o-Xylene	16.57	91	199977	0.98 ug/l	98
72)	Styrene	16.64	104	137039	0.93 ug/l	99
73)	Isopropylbenzene	17.18	105	251948	0.96 ug/l	99
75)	Bromoform	17.18	173	17690	0.98 ug/l	97
76)	1,1,2,2-Tetrachloroethane	17.46	83	28445	0.97 ug/l	97
78)	1,2,3-Trichloropropane	17.66	110	8149	1.02 ug/l	96

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

SC 11/21/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC202.D
Acq On : 19 Nov 2019 2:19 pm
Sample : VO67K193
Misc : 1ppb 8260/ 5ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 4
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79) trans-1,4-Dichloro-2-buten	17.27	53	10620	1.04 ug/l	91
80) n-Propylbenzene	17.76	91	310364	0.98 ug/l	99
81) Bromobenzene	17.81	156	45503	0.98 ug/l	98
82) 1,3,5-Trimethylbenzene	17.98	105	188594	0.96 ug/l	99
83) 2-Chlorotoluene	18.00	91	191118	0.99 ug/l	100
84) 4-Chlorotoluene	18.06	91	159516	0.98 ug/l	99
85) tert-Butylbenzene	18.44	134	43915	0.99 ug/l	98
86) 1,2,4-Trimethylbenzene	18.48	105	179991	0.97 ug/l	100
87) sec-Butylbenzene	18.68	105	257751	0.97 ug/l	100
88) p-Isopropyltoluene	18.85	119	210549	0.97 ug/l	99
89) 1,3-Dichlorobenzene	18.95	146	88104	0.97 ug/l	100
90) 1,4-Dichlorobenzene	19.06	146	83373	0.96 ug/l	99
91) n-Butylbenzene	19.28	91	195348	0.95 ug/l	99
92) 1,2-Dichlorobenzene	19.46	146	70586	0.98 ug/l	99
93) 1,2-Dibromo-3-chloropropan	20.25	157	3822	1.00 ug/l	89
94) 1,2,4-Trichlorobenzene	21.10	180	36230	0.93 ug/l	99
95) Hexachlorobutadiene	21.21	225	30952	0.98 ug/l	98
96) Naphthalene	21.37	128	47287	0.95 ug/l	99
97) 1,2,3-Trichlorobenzene	21.62	180	27840	0.96 ug/l	98

Sa 11/21/19

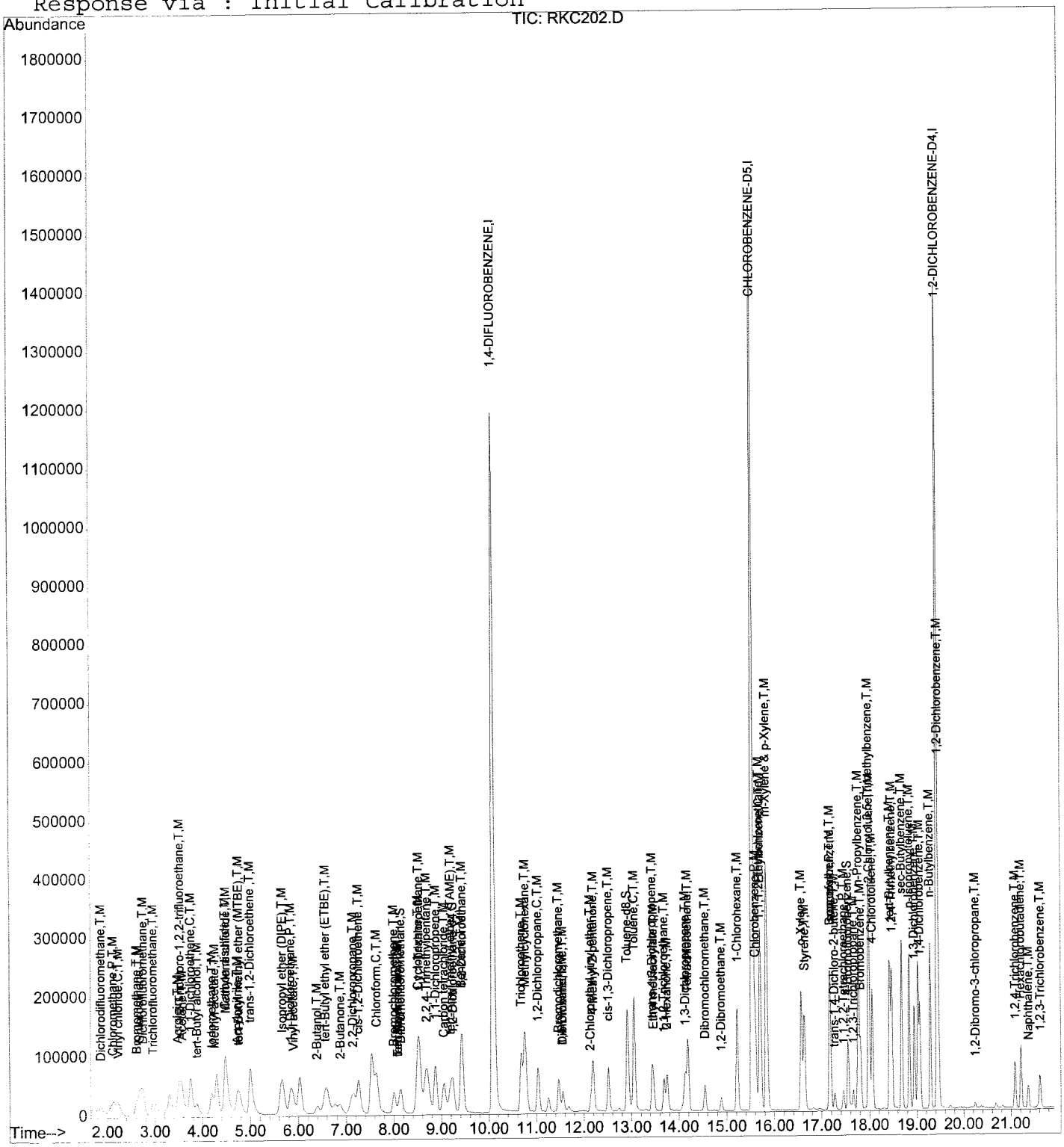
(#) = qualifier out of range (m) = manual integration

Data File : D:\HPCHEM\1\DATA\19K19\RKC202.D
Acq On : 19 Nov 2019 2:19 pm
Sample : VO67K193
Misc : 1ppb 8260/ 5ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 4
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC203.D
Acq On : 19 Nov 2019 2:44 pm
Sample : VO67K194
Misc : 2ppb 8260/ 10ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 5
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1902645	10.00 ug/l	-0.01
55) CHLOROBENZENE-D5	15.54	117	1423736	10.00 ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.44	152	497069	10.00 ug/l	0.00
System Monitoring Compounds					
35) Dibromofluoromethane	8.15	111	111111	2.05 ug/l	0.00
Spiked Amount 10.000			Recovery =	20.50%	
43) 1,2-Dichloroethane-d4	9.25	65	95735	2.05 ug/l	0.00
Spiked Amount 10.000			Recovery =	20.50%	
56) Toluene-d8	12.91	98	403586	2.02 ug/l	-0.01
Spiked Amount 10.000			Recovery =	20.20%	
77) 4-Bromofluorobenzene	17.55	95	125698	1.99 ug/l	-0.01
Spiked Amount 10.000			Recovery =	19.90%	
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.87	85	118181	2.20 ug/l	95
4) Chloromethane	2.12	50	201219	2.11 ug/l	99
5) Vinyl chloride	2.24	62	181893	2.17 ug/l	97
6) Bromomethane	2.63	94	132345	2.13 ug/l	99
7) Chloroethane	2.68	64	111075	2.07 ug/l	99
8) Dichlorofluoromethane	2.75	67	258561	2.10 ug/l	99
9) Trichlorofluoromethane	2.96	101	197847	2.17 ug/l	100
11) Acrolein	3.50	56	50314	11.12 ug/l	89
12) 1,1,2-Trichloro-1,2,2-trif	3.53	151	87236	2.13 ug/l	100
13) Acetone	3.58	43	70184	11.25 ug/l	97
14) 1,1-Dichloroethene	3.75	61	226693	2.14 ug/l	99
15) tert-Butyl alcohol	3.88	59	110964	51.38 ug/l	99
16) Methyl acetate	4.26	43	37548	1.96 ug/l	98
17) Iodomethane	4.21	142	193132	2.09 ug/l	100
19) Methylene chloride	4.50	49	172118	2.16 ug/l	100
20) Carbon disulfide	4.48	76	474863	2.07 ug/l	100
21) Acrylonitrile	4.73	53	81605	9.66 ug/l	97
22) tert-Butyl methyl ether (M	4.76	73	184812	2.11 ug/l	91
23) trans-1,2-Dichloroethene	4.99	96	134102	2.08 ug/l	99
24) Isopropyl ether (DIPE)	5.65	45	402520	2.07 ug/l	99
25) 1,1-Dichloroethane	5.84	63	241801	2.08 ug/l	99
26) Vinyl acetate	5.90	43	146634	2.01 ug/l	99
27) 2-Butanol	6.40	45	89737	48.87 ug/l	98
28) tert-Butyl ethyl ether (ET	6.59	59	310637	2.12 ug/l	99
29) 2-Butanone	6.86	72	20803	9.76 ug/l	69
30) 2,2-Dichloropropane	7.16	77	175839	2.20 ug/l	98
31) cis-1,2-Dichloroethene	7.26	96	131219	2.10 ug/l	99

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

SG 11-24-19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC203.D
Acq On : 19 Nov 2019 2:44 pm
Sample : VO67K194
Misc : 2ppb 8260/ 10ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 5
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) Chloroform	7.64	83	214822	2.08 ug/l	100
33) Bromochloromethane	8.00	130	57917	2.09 ug/l	98
34) tert-Amyl alcohol	8.09	59	16441	9.18 ug/l	94
36) Tetrahydrofuran	8.09	42	16033	2.18 ug/l	95
37) 1,1,1-Trichloroethane	8.53	97	194948	2.12 ug/l	99
38) Cyclohexane	8.52	84	194825	2.02 ug/l	100
39) 2,2,4-Trimethylpentane	8.69	57	538679	2.11 ug/l	100
40) 1,1-Dichloropropene	8.88	110	62904	2.10 ug/l	100
41) Carbon tetrachloride	9.06	119	163027	2.12 ug/l	100
42) tert-Amyl methyl ether (TA	9.20	87	47628	2.10 ug/l	93
44) 1,2-Dichloroethane	9.44	62	114523	2.10 ug/l	99
45) Benzene	9.42	78	462341	2.07 ug/l	98
46) Trichloroethene	10.68	130	126192	2.06 ug/l	100
47) Methylcyclohexane	10.77	83	232368	2.09 ug/l	99
48) 1,2-Dichloropropane	11.03	63	115124	2.08 ug/l	98
49) Bromodichloromethane	11.47	83	137962	2.08 ug/l	100
50) 1,4-Dioxane	11.55	88	7056	38.11 ug/l	94
51) Dibromomethane	11.55	93	50954	2.14 ug/l	100
52) 2-Chloroethyl vinyl ether	12.14	63	30927	1.98 ug/l	95
53) 4-Methyl-2-pentanone	12.18	43	264750	9.66 ug/l	99
54) cis-1,3-Dichloropropene	12.52	75	159388	2.06 ug/l	98
57) Toluene	13.06	91	491696	2.07 ug/l	100
58) Ethyl methacrylate	13.47	69	79505	2.04 ug/l	97
59) trans-1,3-Dichloropropene	13.44	75	129596	2.06 ug/l	99
60) 1,1,2-Trichloroethane	13.69	97	58771	2.11 ug/l	99
61) 2-Hexanone	13.75	43	165603	9.79 ug/l	96
62) 1,3-Dichloropropane	14.14	76	113661	2.06 ug/l	98
63) Tetrachloroethene	14.18	164	100805	2.11 ug/l	99
64) Dibromochloromethane	14.55	129	78958	2.10 ug/l	98
65) 1,2-Dibromoethane	14.89	107	55379	2.10 ug/l	99
66) 1-Chlorohexane	15.22	91	193322	2.09 ug/l	99
67) Chlorobenzene	15.60	112	274455	2.07 ug/l	100
68) 1,1,1,2-Tetrachloroethane	15.69	131	95265	2.07 ug/l	98
69) Ethylbenzene	15.70	91	577590	2.04 ug/l	99
70) m-Xylene & p-Xylene	15.84	91	862912	4.12 ug/l	100
71) o-Xylene	16.57	91	407145	2.05 ug/l	100
72) Styrene	16.64	104	292845	2.04 ug/l	99
73) Isopropylbenzene	17.17	105	529324	2.07 ug/l	100
75) Bromoform	17.18	173	37035	2.05 ug/l	99
76) 1,1,2,2-Tetrachloroethane	17.46	83	59796	2.04 ug/l	99
78) 1,2,3-Trichloropropane	17.66	110	17127	2.16 ug/l	99

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

SA 11/21/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC203.D
Acq On : 19 Nov 2019 2:44 pm
Sample : VO67K194
Misc : 2ppb 8260/ 10ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 5
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79) trans-1,4-Dichloro-2-buten	17.27	53	20108	1.98 ug/l	99
80) n-Propylbenzene	17.76	91	650582	2.06 ug/l	100
81) Bromobenzene	17.81	156	95144	2.06 ug/l	100
82) 1,3,5-Trimethylbenzene	17.98	105	400211	2.05 ug/l	99
83) 2-Chlorotoluene	18.00	91	397700	2.06 ug/l	99
84) 4-Chlorotoluene	18.06	91	335092	2.06 ug/l	100
85) tert-Butylbenzene	18.44	134	93267	2.10 ug/l	99
86) 1,2,4-Trimethylbenzene	18.48	105	382261	2.07 ug/l	99
87) sec-Butylbenzene	18.68	105	556222	2.09 ug/l	100
88) p-Isopropyltoluene	18.85	119	450984	2.09 ug/l	99
89) 1,3-Dichlorobenzene	18.95	146	185873	2.05 ug/l	100
90) 1,4-Dichlorobenzene	19.06	146	178796	2.06 ug/l	99
91) n-Butylbenzene	19.28	91	423723	2.06 ug/l	100
92) 1,2-Dichlorobenzene	19.46	146	149706	2.07 ug/l	99
93) 1,2-Dibromo-3-chloropropan	20.25	157	8165	2.13 ug/l	97
94) 1,2,4-Trichlorobenzene	21.10	180	80195	2.07 ug/l	99
95) Hexachlorobutadiene	21.21	225	68286	2.16 ug/l	99
96) Naphthalene	21.37	128	100463	2.03 ug/l	99
97) 1,2,3-Trichlorobenzene	21.62	180	60314	2.08 ug/l	99

SA 1/29/19

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

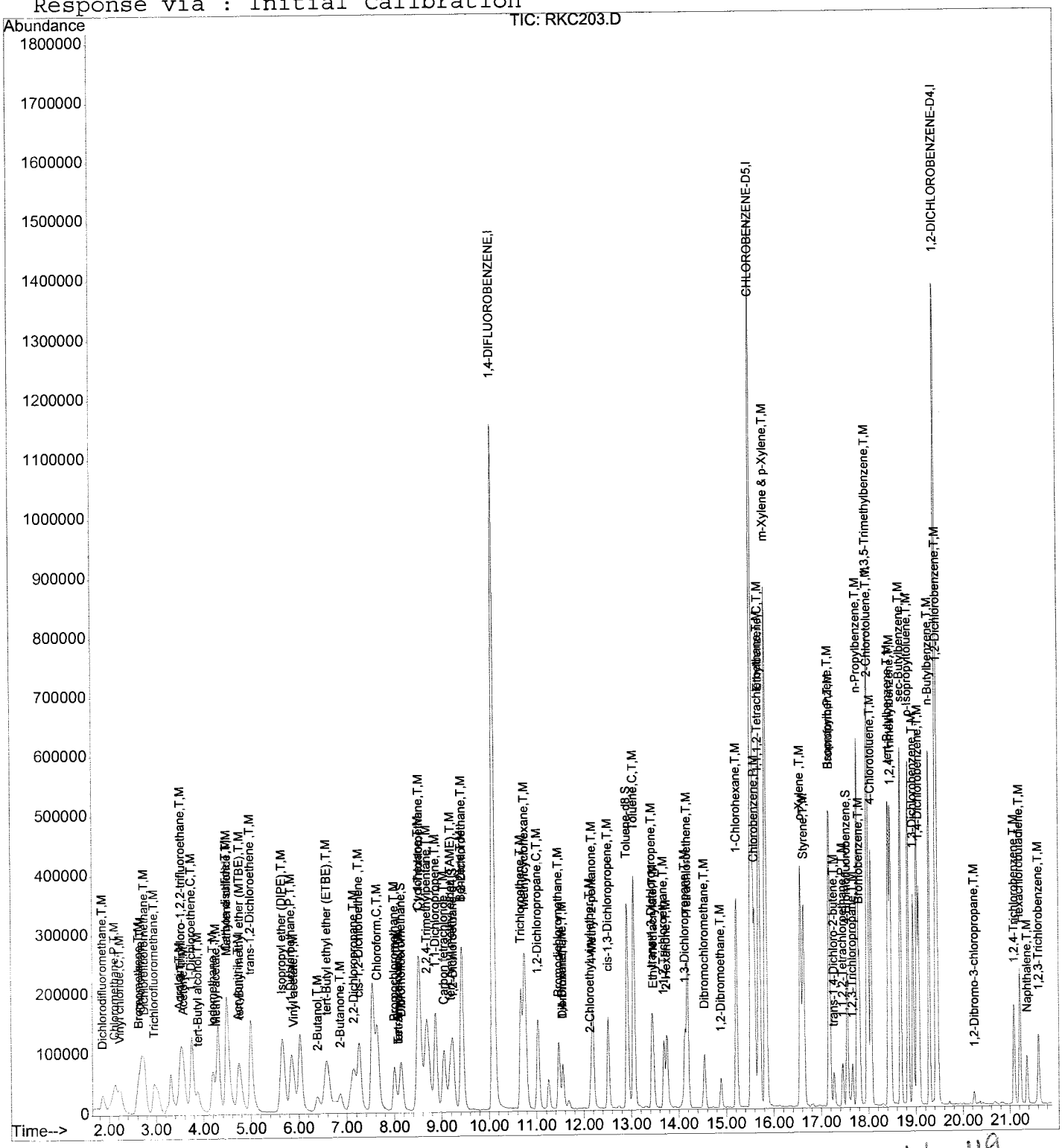
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K19\RKC203.D
Acq On : 19 Nov 2019 2:44 pm
Sample : VO67K194
Misc : 2ppb 8260/ 10ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 5
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC204.D
Acq On : 19 Nov 2019 3:10 pm
Sample : VO67K195
Misc : 5ppb 8260/ 25ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:23 2019

Vial: 6
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	2009910	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.54	117	1513457	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.44	152	528890	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.15	111	292397	5.11	ug/l	0.00
Spiked Amount 10.000			Recovery =	51.10%		
43) 1,2-Dichloroethane-d4	9.25	65	255445	5.17	ug/l	0.00
Spiked Amount 10.000			Recovery =	51.70%		
56) Toluene-d8	12.91	98	1085411	5.11	ug/l	-0.01
Spiked Amount 10.000			Recovery =	51.10%		
77) 4-Bromofluorobenzene	17.54	95	339075	5.06	ug/l	-0.01
Spiked Amount 10.000			Recovery =	50.60%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.87	85	276983	4.88	ug/l	99
4) Chloromethane	2.12	50	473238	4.70	ug/l	98
5) Vinyl chloride	2.24	62	444998	5.03	ug/l	99
6) Bromomethane	2.62	94	317608	4.84	ug/l	99
7) Chloroethane	2.68	64	272857	4.80	ug/l	99
8) Dichlorofluoromethane	2.73	67	661198	5.08	ug/l	100
9) Trichlorofluoromethane	2.96	101	480093	4.99	ug/l	100
11) Acrolein	3.49	56	123905	25.92	ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.53	151	222115	5.14	ug/l	100
13) Acetone	3.58	43	171044	25.96	ug/l	98
14) 1,1-Dichloroethene	3.75	61	573584	5.12	ug/l	99
15) tert-Butyl alcohol	3.87	59	277595	127.96	ug/l	99
16) Methyl acetate	4.26	43	106260	5.25	ug/l	96
17) Iodomethane	4.20	142	494664	5.07	ug/l	99
19) Methylene chloride	4.50	49	421244	5.00	ug/l	100
20) Carbon disulfide	4.48	76	1182052	4.88	ug/l	100
21) Acrylonitrile	4.73	53	223686	25.08	ug/l	99
22) tert-Butyl methyl ether (M	4.76	73	469029	5.07	ug/l	98
23) trans-1,2-Dichloroethene	4.99	96	345380	5.08	ug/l	99
24) Isopropyl ether (DIPE)	5.65	45	1045324	5.10	ug/l	99
25) 1,1-Dichloroethane	5.84	63	619726	5.04	ug/l	99
26) Vinyl acetate	5.90	43	371708	4.84	ug/l	100
27) 2-Butanol	6.38	45	240027	123.74	ug/l	97
28) tert-Butyl ethyl ether (ET	6.59	59	775078	5.00	ug/l	99
29) 2-Butanone	6.86	72	58647	26.05	ug/l	81
30) 2,2-Dichloropropane	7.14	77	425529	5.04	ug/l	99
31) cis-1,2-Dichloroethene	7.26	96	336464	5.09	ug/l	100

(#) = qualifier out of range (m) = manual integration
RKC204.D VO67K19.M Thu Nov 21 16:54:15 2019 Sa 11/21/19 Page 1

Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC204.D
Acq On : 19 Nov 2019 3:10 pm
Sample : VO67K195
Misc : 5ppb 8260/ 25ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:23 2019

Vial: 6
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) Chloroform	7.64	83	558036	5.13 ug/l	100
33) Bromochloromethane	8.02	130	151553	5.18 ug/l	100
34) tert-Amyl alcohol	8.11	59	46133	24.37 ug/l	99
36) Tetrahydrofuran	8.09	42	40293	5.19 ug/l	98
37) 1,1,1-Trichloroethane	8.53	97	500823	5.16 ug/l	99
38) Cyclohexane	8.51	84	503075	4.93 ug/l	99
39) 2,2,4-Trimethylpentane	8.69	57	1273692	4.73 ug/l	100
40) 1,1-Dichloropropene	8.88	110	161132	5.09 ug/l	100
41) Carbon tetrachloride	9.06	119	419148	5.15 ug/l	100
42) tert-Amyl methyl ether (TA	9.20	87	122992	5.13 ug/l	98
44) 1,2-Dichloroethane	9.45	62	302187	5.24 ug/l	99
45) Benzene	9.42	78	1195261	5.07 ug/l	100
46) Trichloroethene	10.68	130	329186	5.09 ug/l	99
47) Methylcyclohexane	10.76	83	588476	5.01 ug/l	99
48) 1,2-Dichloropropane	11.04	63	294803	5.04 ug/l	99
49) Bromodichloromethane	11.47	83	358851	5.13 ug/l	100
50) 1,4-Dioxane	11.57	88	19581	100.11 ug/l	98
51) Dibromomethane	11.55	93	131710	5.25 ug/l	98
52) 2-Chloroethyl vinyl ether	12.15	63	82859	5.03 ug/l	99
53) 4-Methyl-2-pentanone	12.18	43	742474	25.66 ug/l	100
54) cis-1,3-Dichloropropene	12.52	75	411290	5.03 ug/l	99
57) Toluene	13.06	91	1279070	5.06 ug/l	100
58) Ethyl methacrylate	13.47	69	210416	5.09 ug/l	98
59) trans-1,3-Dichloropropene	13.44	75	340584	5.09 ug/l	99
60) 1,1,2-Trichloroethane	13.69	97	148095	5.00 ug/l	98
61) 2-Hexanone	13.75	43	458445	25.50 ug/l	99
62) 1,3-Dichloropropane	14.14	76	294420	5.03 ug/l	100
63) Tetrachloroethene	14.18	164	256466	5.05 ug/l	100
64) Dibromochloromethane	14.55	129	202520	5.06 ug/l	99
65) 1,2-Dibromoethane	14.89	107	140720	5.02 ug/l	98
66) 1-Chlorohexane	15.22	91	494633	5.04 ug/l	100
67) Chlorobenzene	15.60	112	710347	5.03 ug/l	100
68) 1,1,1,2-Tetrachloroethane	15.69	131	247103	5.04 ug/l	99
69) Ethylbenzene	15.70	91	1520626	5.06 ug/l	100
70) m-Xylene & p-Xylene	15.84	91	2257734	10.14 ug/l	100
71) o-Xylene	16.57	91	1073710	5.08 ug/l	99
72) Styrene	16.64	104	773848	5.07 ug/l	100
73) Isopropylbenzene	17.18	105	1389934	5.11 ug/l	100
75) Bromoform	17.18	173	95600	4.96 ug/l	100
76) 1,1,2,2-Tetrachloroethane	17.46	83	154329	4.95 ug/l	99
78) 1,2,3-Trichloropropane	17.66	110	44220	5.23 ug/l	98

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

SG 11/21/19

Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC204.D
Acq On : 19 Nov 2019 3:10 pm
Sample : VO67K195
Misc : 5ppb 8260/ 25ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:23 2019

Vial: 6
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79) trans-1,4-Dichloro-2-buten	17.27	53	53969	4.99 ug/l	99
80) n-Propylbenzene	17.76	91	1719813	5.11 ug/l	100
81) Bromobenzene	17.82	156	249070	5.07 ug/l	100
82) 1,3,5-Trimethylbenzene	17.98	105	1061389	5.11 ug/l	99
83) 2-Chlorotoluene	18.00	91	1035073	5.04 ug/l	100
84) 4-Chlorotoluene	18.06	91	892941	5.17 ug/l	99
85) tert-Butylbenzene	18.44	134	240908	5.09 ug/l	100
86) 1,2,4-Trimethylbenzene	18.48	105	982555	5.00 ug/l	100
87) sec-Butylbenzene	18.68	105	1446711	5.10 ug/l	100
88) p-Isopropyltoluene	18.84	119	1176835	5.11 ug/l	100
89) 1,3-Dichlorobenzene	18.95	146	487058	5.05 ug/l	100
90) 1,4-Dichlorobenzene	19.06	146	468803	5.08 ug/l	99
91) n-Butylbenzene	19.28	91	1117905	5.12 ug/l	100
92) 1,2-Dichlorobenzene	19.47	146	389921	5.07 ug/l	98
93) 1,2-Dibromo-3-chloropropan	20.25	157	21211	5.21 ug/l	98
94) 1,2,4-Trichlorobenzene	21.10	180	217056	5.26 ug/l	99
95) Hexachlorobutadiene	21.23	225	178119	5.30 ug/l	99
96) Naphthalene	21.37	128	264600	5.01 ug/l	99
97) 1,2,3-Trichlorobenzene	21.62	180	160254	5.20 ug/l	99

Sa 11/21/19

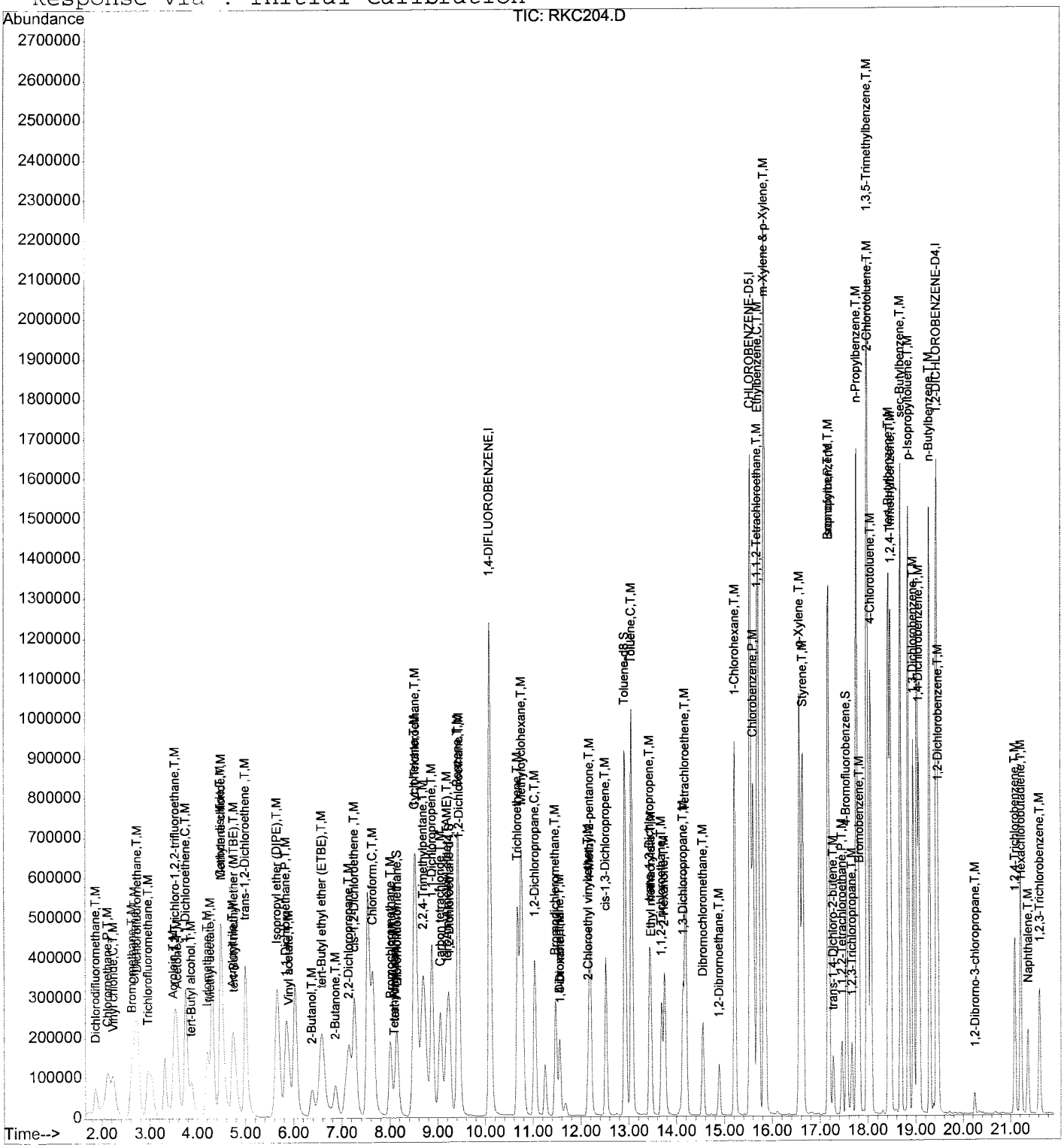
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K19\RKC204.D
Acq On : 19 Nov 2019 3:10 pm
Sample : VO67K195
Misc : 5ppb 8260/ 25ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:23 2019

Vial: 6
Operator: RMinam
Inst : 67
Multiplr: 1.00
Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC205.D
Acq On : 19 Nov 2019 3:35 pm
Sample : VO67K196
Misc : 10ppb 8260/ 50ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 7
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.11	114	1960958	10.00 ug/l	0.00
55) CHLOROBENZENE-D5	15.54	117	1496682	10.00 ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.44	152	532392	10.00 ug/l	0.00
System Monitoring Compounds					
35) Dibromofluoromethane	8.15	111	573629	10.27 ug/l	0.00
Spiked Amount 10.000			Recovery =	102.70%	
43) 1,2-Dichloroethane-d4	9.24	65	499570	10.36 ug/l	0.00
Spiked Amount 10.000			Recovery =	103.60%	
56) Toluene-d8	12.93	98	2105649	10.03 ug/l	0.00
Spiked Amount 10.000			Recovery =	100.30%	
77) 4-Bromofluorobenzene	17.56	95	665877	9.87 ug/l	0.00
Spiked Amount 10.000			Recovery =	98.70%	
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.87	85	570425	10.30 ug/l	100
4) Chloromethane	2.12	50	959481	9.78 ug/l	100
5) Vinyl chloride	2.24	62	933603	10.81 ug/l	100
6) Bromomethane	2.62	94	677570	10.59 ug/l	100
7) Chloroethane	2.68	64	577057	10.41 ug/l	100
8) Dichlorofluoromethane	2.74	67	1296334	10.21 ug/l	100
9) Trichlorofluoromethane	2.96	101	980540	10.46 ug/l	100
11) Acrolein	3.50	56	239645	51.39 ug/l	100
12) 1,1,2-Trichloro-1,2,2-trif	3.53	151	436084	10.34 ug/l	100
13) Acetone	3.58	43	339277	52.79 ug/l	100
14) 1,1-Dichloroethene	3.75	61	1128592	10.32 ug/l	100
15) tert-Butyl alcohol	3.87	59	553173	266.13 ug/l	100
16) Methyl acetate	4.26	43	211818	10.73 ug/l	100
17) Iodomethane	4.20	142	979981	10.30 ug/l	100
19) Methylene chloride	4.50	49	823959	10.01 ug/l	100
20) Carbon disulfide	4.48	76	2371917	10.05 ug/l	100
21) Acrylonitrile	4.73	53	453996	52.17 ug/l	100
22) tert-Butyl methyl ether (M	4.76	73	933782	10.35 ug/l	100
23) trans-1,2-Dichloroethene	4.99	96	684566	10.32 ug/l	100
24) Isopropyl ether (DIPE)	5.65	45	2077307	10.38 ug/l	100
25) 1,1-Dichloroethane	5.84	63	1230947	10.26 ug/l	100
26) Vinyl acetate	5.90	43	788837	10.52 ug/l	100
27) 2-Butanol	6.38	45	507714	268.28 ug/l	100
28) tert-Butyl ethyl ether (ET	6.59	59	1504148	9.95 ug/l	100
29) 2-Butanone	6.86	72	118912	54.14 ug/l	100
30) 2,2-Dichloropropane	7.16	77	803236	9.75 ug/l	100
31) cis-1,2-Dichloroethene	7.27	96	676249	10.49 ug/l	100

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

SA 11/21/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC205.D
Acq On : 19 Nov 2019 3:35 pm
Sample : VO67K196
Misc : 10ppb 8260/ 50ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 7
Operator: RMinam
Inst : 67
Multiplr: 1.00
Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) Chloroform	7.64	83	1101341	10.37 ug/l	100
33) Bromochloromethane	8.02	130	300353	10.51 ug/l	100
34) tert-Amyl alcohol	8.09	59	99456	53.86 ug/l	100
36) Tetrahydrofuran	8.09	42	79033	10.44 ug/l	100
37) 1,1,1-Trichloroethane	8.53	97	986855	10.42 ug/l	100
38) Cyclohexane	8.51	84	1022707	10.27 ug/l	100
39) 2,2,4-Trimethylpentane	8.70	57	2858418	10.88 ug/l	100
40) 1,1-Dichloropropene	8.88	110	320391	10.37 ug/l	100
41) Carbon tetrachloride	9.05	119	831210	10.47 ug/l	100
42) tert-Amyl methyl ether (TA	9.20	87	248072	10.61 ug/l	100
44) 1,2-Dichloroethane	9.45	62	597675	10.63 ug/l	100
45) Benzene	9.42	78	2366207	10.28 ug/l	100
46) Trichloroethene	10.68	130	655853	10.39 ug/l	100
47) Methylcyclohexane	10.76	83	1195110	10.44 ug/l	100
48) 1,2-Dichloropropane	11.04	63	584807	10.24 ug/l	100
49) Bromodichloromethane	11.47	83	707530	10.37 ug/l	100
50) 1,4-Dioxane	11.57	88	40422	211.82 ug/l	100
51) Dibromomethane	11.55	93	262420	10.71 ug/l	100
52) 2-Chloroethyl vinyl ether	12.15	63	169319	10.54 ug/l	100
53) 4-Methyl-2-pentanone	12.20	43	1521041	53.87 ug/l	100
54) cis-1,3-Dichloropropene	12.52	75	834934	10.46 ug/l	100
57) Toluene	13.06	91	2519624	10.08 ug/l	100
58) Ethyl methacrylate	13.47	69	425818	10.41 ug/l	100
59) trans-1,3-Dichloropropene	13.44	75	685751	10.37 ug/l	100
60) 1,1,2-Trichloroethane	13.69	97	296749	10.13 ug/l	100
61) 2-Hexanone	13.75	43	923649	51.95 ug/l	100
62) 1,3-Dichloropropane	14.14	76	589033	10.18 ug/l	100
63) Tetrachloroethene	14.20	164	506638	10.09 ug/l	100
64) Dibromochloromethane	14.55	129	407855	10.31 ug/l	100
65) 1,2-Dibromoethane	14.88	107	285799	10.30 ug/l	100
66) 1-Chlorohexane	15.22	91	986790	10.17 ug/l	100
67) Chlorobenzene	15.60	112	1425748	10.22 ug/l	100
68) 1,1,1,2-Tetrachloroethane	15.70	131	492945	10.17 ug/l	100
69) Ethylbenzene	15.72	91	3045624	10.24 ug/l	100
70) m-Xylene & p-Xylene	15.83	91	4516661	20.52 ug/l	100
71) o-Xylene	16.57	91	2120020	10.15 ug/l	100
72) Styrene	16.64	104	1560254	10.34 ug/l	100
73) Isopropylbenzene	17.18	105	2760080	10.26 ug/l	100
75) Bromoform	17.18	173	196732	10.15 ug/l	100
76) 1,1,2,2-Tetrachloroethane	17.46	83	316991	10.10 ug/l	100
78) 1,2,3-Trichloropropane	17.66	110	89516	10.52 ug/l	100

(#) = qualifier out of range (m) = manual integration
RKC205.D VO67K19.M Thu Nov 21 16:54:37 2019 Page 2

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC205.D
Acq On : 19 Nov 2019 3:35 pm
Sample : VO67K196
Misc : 10ppb 8260/ 50ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 7
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
79) trans-1,4-Dichloro-2-buten	17.27	53	109860	10.10	ug/l	100
80) n-Propylbenzene	17.76	91	3438384	10.15	ug/l	100
81) Bromobenzene	17.82	156	501355	10.13	ug/l	100
82) 1,3,5-Trimethylbenzene	17.98	105	2117162	10.12	ug/l	100
83) 2-Chlorotoluene	18.00	91	2057319	9.96	ug/l	100
84) 4-Chlorotoluene	18.06	91	1817014	10.45	ug/l	100
85) tert-Butylbenzene	18.44	134	481456	10.10	ug/l	100
86) 1,2,4-Trimethylbenzene	18.48	105	2003993	10.13	ug/l	100
87) sec-Butylbenzene	18.68	105	2900832	10.15	ug/l	100
88) p-Isopropyltoluene	18.84	119	2369872	10.23	ug/l	100
89) 1,3-Dichlorobenzene	18.95	146	988881	10.18	ug/l	100
90) 1,4-Dichlorobenzene	19.08	146	941136	10.14	ug/l	100
91) n-Butylbenzene	19.30	91	2250128	10.23	ug/l	100
92) 1,2-Dichlorobenzene	19.47	146	790443	10.22	ug/l	100
93) 1,2-Dibromo-3-chloropropan	20.25	157	43692	10.66	ug/l	100
94) 1,2,4-Trichlorobenzene	21.09	180	449838	10.84	ug/l	100
95) Hexachlorobutadiene	21.23	225	365377	10.79	ug/l	100
96) Naphthalene	21.37	128	571037	10.75	ug/l	100
97) 1,2,3-Trichlorobenzene	21.62	180	337554	10.88	ug/l	100

Sa 11/21/19

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

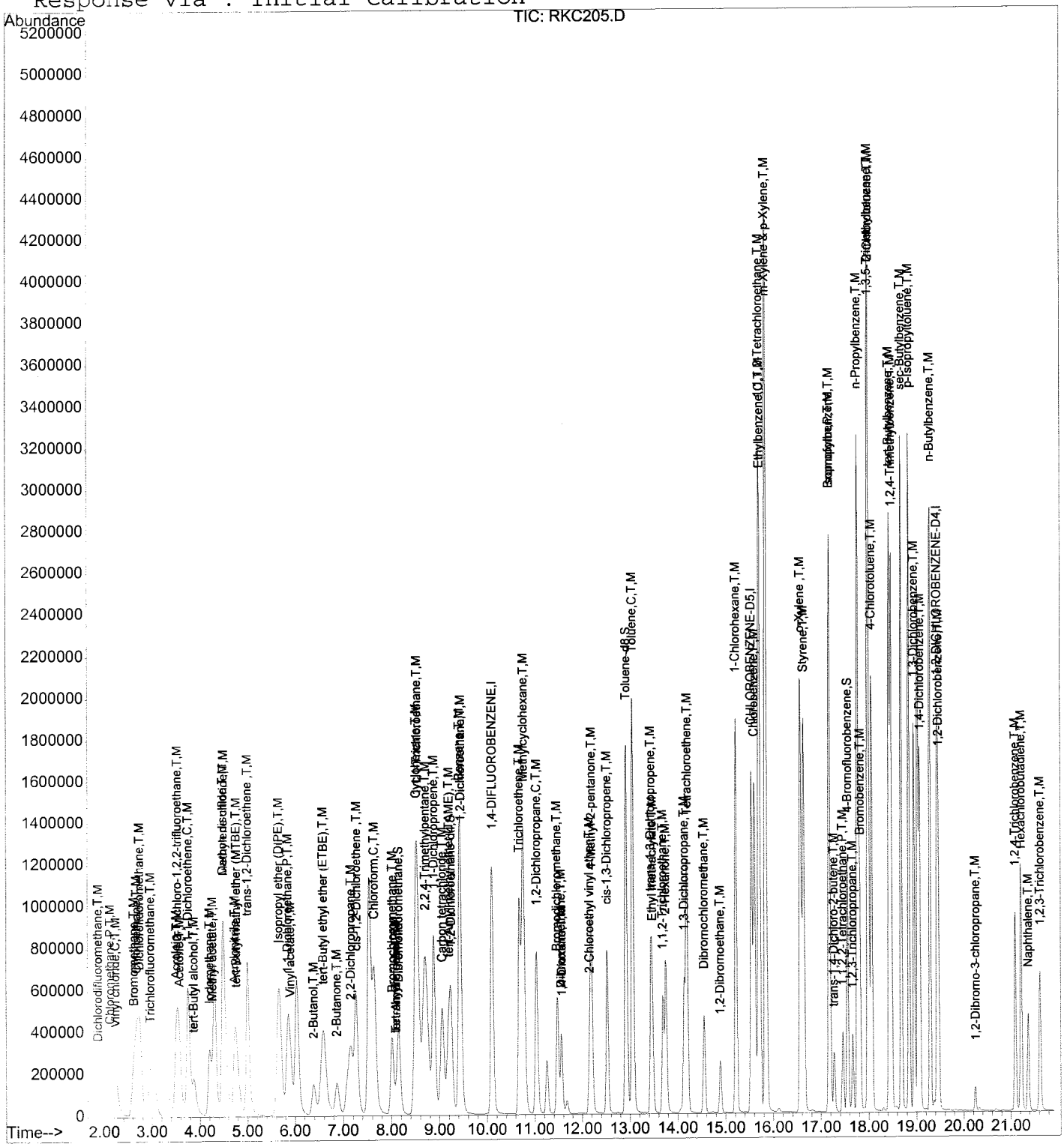
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K19\RKC205.D
Acq On : 19 Nov 2019 3:35 pm
Sample : VO67K196
Misc : 10ppb 8260/ 50ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 7
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC206.D
Acq On : 19 Nov 2019 4:01 pm
Sample : VO67K197
Misc : 20ppb 8260/ 100ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 8
Operator: RMinam
Inst : 67
Multiplr: 1.00
Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	2013937	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.54	117	1515311	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.44	152	544196	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.15	111	1064414	18.56	ug/l	0.00
Spiked Amount 10.000			Recovery = 185.60%			
43) 1,2-Dichloroethane-d4	9.25	65	891892	18.01	ug/l	0.00
Spiked Amount 10.000			Recovery = 180.10%			
56) Toluene-d8	12.93	98	3955453	18.60	ug/l	0.00
Spiked Amount 10.000			Recovery = 186.00%			
77) 4-Bromofluorobenzene	17.56	95	1232910	17.87	ug/l	0.00
Spiked Amount 10.000			Recovery = 178.70%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.87	85	1133115	19.93	ug/l	99
4) Chloromethane	2.11	50	1880858	18.66	ug/l	100
5) Vinyl chloride	2.22	62	1823817	20.55	ug/l	100
6) Bromomethane	2.62	94	1375544	20.93	ug/l	100
7) Chloroethane	2.68	64	1157122	20.33	ug/l	98
8) Dichlorofluoromethane	2.74	67	2336314	17.92	ug/l	100
9) Trichlorofluoromethane	2.96	101	1924288	19.98	ug/l	100
11) Acrolein	3.49	56	426684	89.09	ug/l	96
12) 1,1,2-Trichloro-1,2,2-trif	3.53	151	780792	18.03	ug/l	99
13) Acetone	3.58	43	576022	87.26	ug/l	100
14) 1,1-Dichloroethene	3.75	61	2031061	18.08	ug/l	99
15) tert-Butyl alcohol	3.87	59	937564	442.18	ug/l	99
16) Methyl acetate	4.26	43	393952	19.44	ug/l	98
17) Iodomethane	4.20	142	1788228	18.30	ug/l	99
19) Methylene chloride	4.50	49	1472730	17.43	ug/l	98
20) Carbon disulfide	4.48	76	4942803	20.38	ug/l	99
21) Acrylonitrile	4.73	53	828903	92.74	ug/l	98
22) tert-Butyl methyl ether (M	4.76	73	1656530	17.88	ug/l	98
23) trans-1,2-Dichloroethene	4.99	96	1266007	18.59	ug/l	100
24) Isopropyl ether (DIPE)	5.65	45	3734041	18.17	ug/l	97
25) 1,1-Dichloroethane	5.84	63	2246106	18.23	ug/l	100
26) Vinyl acetate	5.90	43	1598512	20.75	ug/l	99
27) 2-Butanol	6.38	45	953136	490.39	ug/l	99
28) tert-Butyl ethyl ether (ET	6.59	59	2685153	17.30	ug/l	100
29) 2-Butanone	6.86	72	214388	95.04	ug/l	96
30) 2,2-Dichloropropane	7.16	77	1416058	16.73	ug/l	99
31) cis-1,2-Dichloroethene	7.26	96	1232186	18.61	ug/l	100

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

SC 11/21/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC206.D
Acq On : 19 Nov 2019 4:01 pm
Sample : VO67K197
Misc : 20ppb 8260/ 100ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 8
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) Chloroform	7.64	83	1993544	18.28 ug/l	99
33) Bromochloromethane	8.02	130	547243	18.65 ug/l	100
34) tert-Amyl alcohol	8.09	59	182626	96.30 ug/l	100
36) Tetrahydrofuran	8.09	42	130112	16.73 ug/l	95
37) 1,1,1-Trichloroethane	8.53	97	1757943	18.08 ug/l	100
38) Cyclohexane	8.52	84	2070702	20.25 ug/l	100
39) 2,2,4-Trimethylpentane	8.71	57	5428699	20.11 ug/l	99
40) 1,1-Dichloropropene	8.88	110	586526	18.48 ug/l	99
41) Carbon tetrachloride	9.06	119	1482767	18.19 ug/l	100
42) tert-Amyl methyl ether (TA	9.20	87	433081	18.04 ug/l	99
44) 1,2-Dichloroethane	9.45	62	1054059	18.25 ug/l	100
45) Benzene	9.42	78	4320582	18.27 ug/l	99
46) Trichloroethene	10.68	130	1183736	18.26 ug/l	100
47) Methylcyclohexane	10.77	83	2409281	20.48 ug/l	99
48) 1,2-Dichloropropane	11.04	63	1064232	18.15 ug/l	99
49) Bromodichloromethane	11.47	83	1277786	18.23 ug/l	100
50) 1,4-Dioxane	11.55	88	68515	349.59 ug/l	99
51) Dibromomethane	11.55	93	468830	18.64 ug/l	99
52) 2-Chloroethyl vinyl ether	12.15	63	308209	18.68 ug/l	100
53) 4-Methyl-2-pentanone	12.18	43	2616408	90.23 ug/l	99
54) cis-1,3-Dichloropropene	12.52	75	1511945	18.44 ug/l	99
57) Toluene	13.06	91	4641488	18.33 ug/l	100
58) Ethyl methacrylate	13.47	69	760547	18.37 ug/l	99
59) trans-1,3-Dichloropropene	13.44	75	1241391	18.53 ug/l	99
60) 1,1,2-Trichloroethane	13.69	97	536473	18.10 ug/l	100
61) 2-Hexanone	13.75	43	1607906	89.33 ug/l	100
62) 1,3-Dichloropropane	14.14	76	1064942	18.18 ug/l	99
63) Tetrachloroethene	14.20	164	934239	18.38 ug/l	100
64) Dibromochloromethane	14.55	129	739481	18.46 ug/l	100
65) 1,2-Dibromoethane	14.89	107	517001	18.41 ug/l	100
66) 1-Chlorohexane	15.22	91	1794723	18.27 ug/l	100
67) Chlorobenzene	15.60	112	2617991	18.53 ug/l	100
68) 1,1,1,2-Tetrachloroethane	15.70	131	897848	18.30 ug/l	99
69) Ethylbenzene	15.72	91	5557430	18.46 ug/l	100
70) m-Xylene & p-Xylene	15.85	91	8266342	37.09 ug/l	100
71) o-Xylene	16.57	91	3881645	18.36 ug/l	100
72) Styrene	16.64	104	2867281	18.78 ug/l	100
73) Isopropylbenzene	17.18	105	5039653	18.50 ug/l	100
75) Bromoform	17.18	173	353561	17.84 ug/l	99
76) 1,1,2,2-Tetrachloroethane	17.46	83	557298	17.38 ug/l	99
78) 1,2,3-Trichloropropane	17.66	110	153784	17.69 ug/l	100

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

11/21/19

Data File : D:\HPCHEM\1\DATA\19K19\RKC206.D
Acq On : 19 Nov 2019 4:01 pm
Sample : VO67K197
Misc : 20ppb 8260/ 100ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 8
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79)	trans-1,4-Dichloro-2-buten	17.27	53	200058	17.99 ug/l	98
80)	n-Propylbenzene	17.76	91	6406278	18.51 ug/l	100
81)	Bromobenzene	17.82	156	911767	18.03 ug/l	100
82)	1,3,5-Trimethylbenzene	17.98	105	3929497	18.37 ug/l	100
83)	2-Chlorotoluene	18.00	91	3797690	17.98 ug/l	100
84)	4-Chlorotoluene	18.06	91	3270350	18.40 ug/l	100
85)	tert-Butylbenzene	18.44	134	885178	18.17 ug/l	99
86)	1,2,4-Trimethylbenzene	18.48	105	3700521	18.30 ug/l	100
87)	sec-Butylbenzene	18.68	105	5371435	18.39 ug/l	100
88)	p-Isopropyltoluene	18.85	119	4322152	18.25 ug/l	99
89)	1,3-Dichlorobenzene	18.95	146	1822143	18.35 ug/l	100
90)	1,4-Dichlorobenzene	19.08	146	1732319	18.26 ug/l	100
91)	n-Butylbenzene	19.28	91	4230730	18.82 ug/l	100
92)	1,2-Dichlorobenzene	19.47	146	1445846	18.28 ug/l	98
93)	1,2-Dibromo-3-chloropropan	20.25	157	77685	18.54 ug/l	99
94)	1,2,4-Trichlorobenzene	21.10	180	804472	18.96 ug/l	99
95)	Hexachlorobutadiene	21.21	225	643307	18.59 ug/l	99
96)	Naphthalene	21.37	128	990427	18.24 ug/l	99
97)	1,2,3-Trichlorobenzene	21.62	180	593768	18.72 ug/l	100

Sa 11/21/19

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

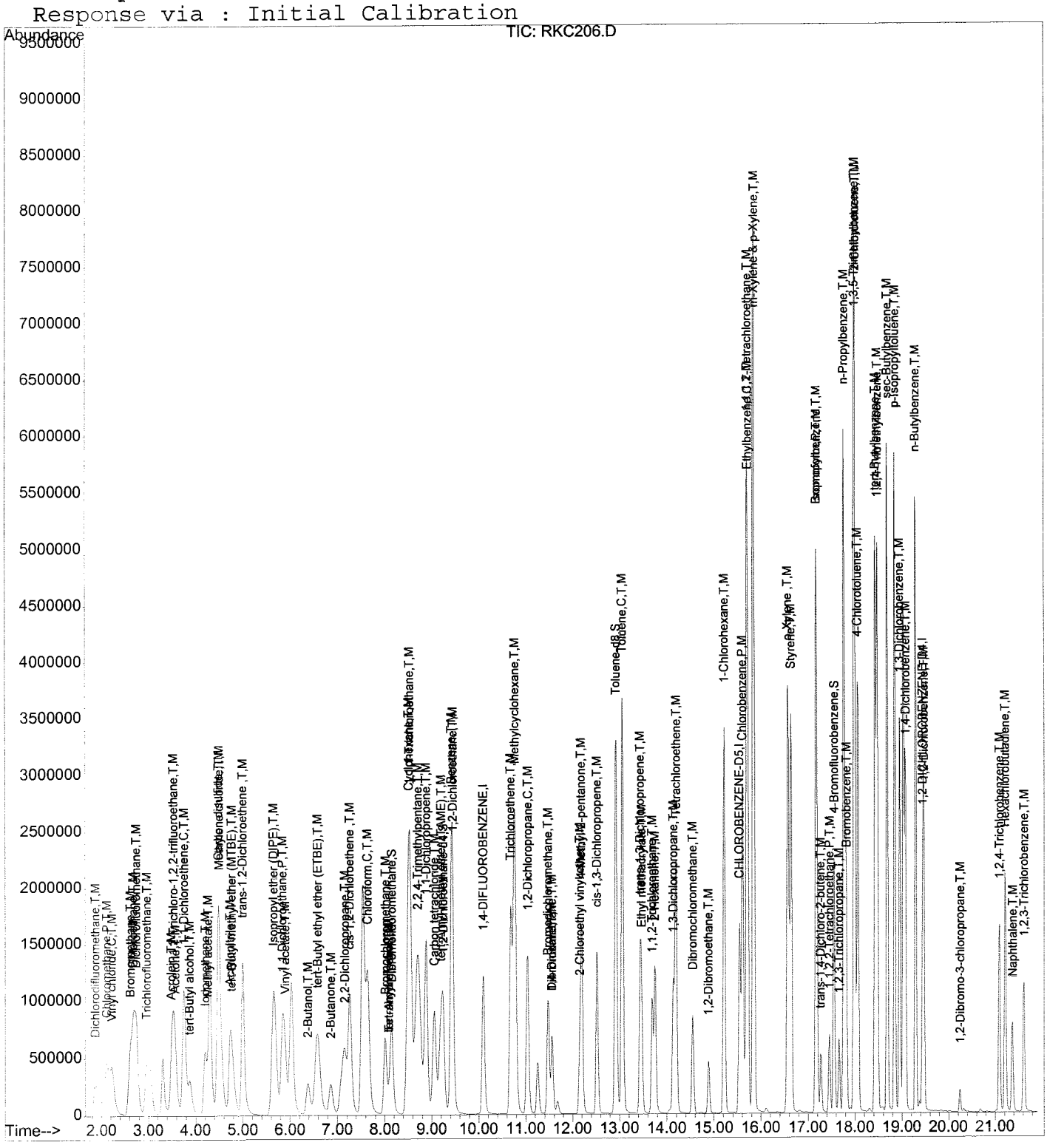
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K19\RKC206.D
Acq On : 19 Nov 2019 4:01 pm
Sample : VO67K197
Misc : 20ppb 8260/ 100ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 8
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC207.D
Acq On : 19 Nov 2019 4:27 pm
Sample : VO67K198
Misc : 30ppb 8260/ 150ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 9
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1892904	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.54	117	1433672	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.44	152	525802	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.15	111	1710510	31.73	ug/l	0.00
Spiked Amount 10.000			Recovery =	317.30%		
43) 1,2-Dichloroethane-d4	9.25	65	1433540	30.80	ug/l	0.00
Spiked Amount 10.000			Recovery =	308.00%		
56) Toluene-d8	12.91	98	6386680	31.75	ug/l	-0.01
Spiked Amount 10.000			Recovery =	317.50%		
77) 4-Bromofluorobenzene	17.55	95	1997519	29.96	ug/l	-0.01
Spiked Amount 10.000			Recovery =	299.60%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.87	85	1587864	29.71	ug/l	100
4) Chloromethane	2.11	50	2662860	28.11	ug/l	99
5) Vinyl chloride	2.22	62	2521718	30.24	ug/l	100
6) Bromomethane	2.62	94	2017005	32.65	ug/l	100
7) Chloroethane	2.68	64	1674804	31.31	ug/l	98
8) Dichlorofluoromethane	2.74	67	3533863	28.84	ug/l	99
9) Trichlorofluoromethane	2.96	101	2743338	30.31	ug/l	100
11) Acrolein	3.49	56	666038	147.96	ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.53	151	1186403	29.15	ug/l	100
13) Acetone	3.58	43	924670	149.04	ug/l	100
14) 1,1-Dichloroethene	3.75	61	3064394	29.03	ug/l	99
15) tert-Butyl alcohol	3.88	59	1553024	782.77	ug/l	97
16) Methyl acetate	4.26	43	595151	31.24	ug/l	97
17) Iodomethane	4.21	142	2715947	29.58	ug/l	99
19) Methylene chloride	4.50	49	2262668	28.49	ug/l	98
20) Carbon disulfide	4.48	76	7241842	31.77	ug/l	99
21) Acrylonitrile	4.73	53	1346038	160.23	ug/l	99
22) tert-Butyl methyl ether (M	4.76	73	2587623	29.71	ug/l	99
23) trans-1,2-Dichloroethene	4.99	96	1914236	29.91	ug/l	100
24) Isopropyl ether (DIPE)	5.67	45	5801723	30.04	ug/l	99
25) 1,1-Dichloroethane	5.84	63	3430187	29.63	ug/l	100
26) Vinyl acetate	5.90	43	2437424	33.66	ug/l	99
27) 2-Butanol	6.38	45	1537987	841.90	ug/l	100
28) tert-Butyl ethyl ether (ET	6.59	59	4137889	28.37	ug/l	99
29) 2-Butanone	6.86	72	349086	164.64	ug/l	96
30) 2,2-Dichloropropane	7.16	77	2134066	26.83	ug/l	99
31) cis-1,2-Dichloroethene	7.26	96	1899576	30.53	ug/l	100

(#) = qualifier out of range (m) = manual integration
RKC207.D VO67K19.M Thu Nov 21 16:55:11 2019 Page 1

SA 11/21/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC207.D
Acq On : 19 Nov 2019 4:27 pm
Sample : VO67K198
Misc : 30ppb 8260/ 150ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 9
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) Chloroform	7.64	83	3040962	29.66 ug/l	99
33) Bromochloromethane	8.00	130	859562	31.17 ug/l	99
34) tert-Amyl alcohol	8.09	59	300781	168.74 ug/l	99
36) Tetrahydrofuran	8.09	42	211667	28.95 ug/l	95
37) 1,1,1-Trichloroethane	8.53	97	2644059	28.93 ug/l	99
38) Cyclohexane	8.52	84	2968160	30.88 ug/l	100
39) 2,2,4-Trimethylpentane	8.71	57	8089132	31.88 ug/l	99
40) 1,1-Dichloropropene	8.88	110	896106	30.03 ug/l	100
41) Carbon tetrachloride	9.06	119	2244411	29.29 ug/l	100
42) tert-Amyl methyl ether (TA	9.20	87	691755	30.65 ug/l	98
44) 1,2-Dichloroethane	9.45	62	1613401	29.72 ug/l	99
45) Benzene	9.42	78	6695909	30.13 ug/l	99
46) Trichloroethene	10.68	130	1832891	30.08 ug/l	99
47) Methylcyclohexane	10.77	83	3463120	31.33 ug/l	99
48) 1,2-Dichloropropane	11.04	63	1670339	30.30 ug/l	97
49) Bromodichloromethane	11.47	83	1991096	30.22 ug/l	99
50) 1,4-Dioxane	11.55	88	116770	633.90 ug/l	98
51) Dibromomethane	11.55	93	743817	31.46 ug/l	99
52) 2-Chloroethyl vinyl ether	12.15	63	507781	32.74 ug/l	99
53) 4-Methyl-2-pentanone	12.18	43	4297217	157.67 ug/l	99
54) cis-1,3-Dichloropropene	12.52	75	2372057	30.77 ug/l	98
57) Toluene	13.06	91	7109033	29.68 ug/l	100
58) Ethyl methacrylate	13.47	69	1208317	30.84 ug/l	99
59) trans-1,3-Dichloropropene	13.44	75	1945873	30.70 ug/l	95
60) 1,1,2-Trichloroethane	13.69	97	857596	30.58 ug/l	100
61) 2-Hexanone	13.75	43	2592148	152.21 ug/l	98
62) 1,3-Dichloropropane	14.14	76	1700908	30.69 ug/l	99
63) Tetrachloroethene	14.20	164	1415962	29.44 ug/l	99
64) Dibromochloromethane	14.55	129	1175388	31.01 ug/l	100
65) 1,2-Dibromoethane	14.89	107	825708	31.07 ug/l	100
66) 1-Chlorohexane	15.22	91	2759253	29.69 ug/l	100
67) Chlorobenzene	15.60	112	3987830	29.83 ug/l	100
68) 1,1,1,2-Tetrachloroethane	15.70	131	1393234	30.01 ug/l	99
69) Ethylbenzene	15.72	91	8447824	29.66 ug/l	99
70) m-Xylene & p-Xylene	15.85	91	12746543	60.45 ug/l	99
71) o-Xylene	16.57	91	5921109	29.60 ug/l	100
72) Styrene	16.64	104	4488395	31.07 ug/l	99
73) Isopropylbenzene	17.18	105	7805726	30.28 ug/l	100
75) Bromoform	17.18	173	572576	29.90 ug/l	100
76) 1,1,2,2-Tetrachloroethane	17.46	83	891280	28.77 ug/l	99
78) 1,2,3-Trichloropropane	17.66	110	251175	29.90 ug/l	100

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

11/21/19

Data File : D:\HPCHEM\1\DATA\19K19\RKC207.D
Acq On : 19 Nov 2019 4:27 pm
Sample : VO67K198
Misc : 30ppb 8260/ 150ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 9
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
79)	trans-1,4-Dichloro-2-buten	17.27	53	317437	29.54	ug/l	99
80)	n-Propylbenzene	17.76	91	9679614	28.94	ug/l	100
81)	Bromobenzene	17.82	156	1417342	29.00	ug/l	100
82)	1,3,5-Trimethylbenzene	17.98	105	5996315	29.01	ug/l	100
83)	2-Chlorotoluene	18.00	91	5807236	28.46	ug/l	100
84)	4-Chlorotoluene	18.06	91	5048715	29.40	ug/l	100
85)	tert-Butylbenzene	18.44	134	1351690	28.71	ug/l	98
86)	1,2,4-Trimethylbenzene	18.48	105	5571773	28.52	ug/l	99
87)	sec-Butylbenzene	18.69	105	8225458	29.15	ug/l	100
88)	p-Isopropyltoluene	18.85	119	6633456	29.00	ug/l	99
89)	1,3-Dichlorobenzene	18.95	146	2817676	29.36	ug/l	100
90)	1,4-Dichlorobenzene	19.08	146	2745969	29.96	ug/l	99
91)	n-Butylbenzene	19.28	91	6499545	29.93	ug/l	99
92)	1,2-Dichlorobenzene	19.47	146	2259195	29.56	ug/l	99
93)	1,2-Dibromo-3-chloropropan	20.25	157	126497	31.24	ug/l	100
94)	1,2,4-Trichlorobenzene	21.10	180	1260433	30.74	ug/l	100
95)	Hexachlorobutadiene	21.21	225	964399	28.84	ug/l	100
96)	Naphthalene	21.37	128	1630641	31.07	ug/l	99
97)	1,2,3-Trichlorobenzene	21.62	180	938753	30.64	ug/l	99

Sm 11/21/19

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

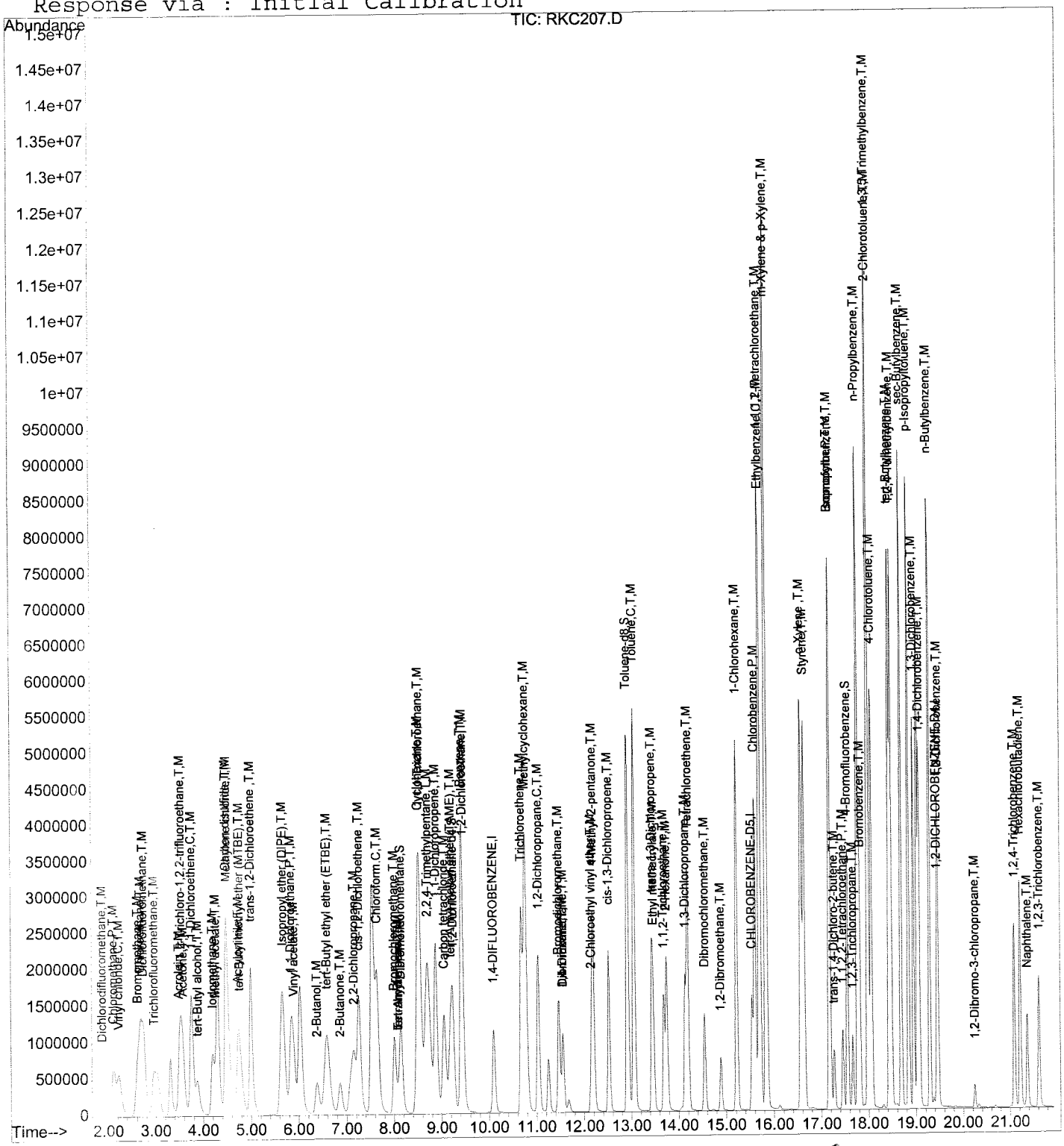
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K19\RKC207.D
Acq On : 19 Nov 2019 4:27 pm
Sample : VO67K198
Misc : 30ppb 8260/ 150ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:19 2019

Vial: 9
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC208.D
Acq On : 19 Nov 2019 4:53 pm
Sample : VO67K199
Misc : 50ppb 8260/ 250ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:24 2019

Vial: 10
Operator: RMinam
Inst : 67
Multiplr: 1.00
Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	2028017	10.00	ug/l	-0.01
55) CHLOROBENZENE-D5	15.54	117	1525266	10.00	ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.45	152	519836	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.15	111	2833672	49.06	ug/l	0.00
Spiked Amount 10.000			Recovery =	490.60%		
43) 1,2-Dichloroethane-d4	9.25	65	2336837	46.86	ug/l	0.00
Spiked Amount 10.000			Recovery =	468.60%		
56) Toluene-d8	12.93	98	10788324	50.41	ug/l	0.00
Spiked Amount 10.000			Recovery =	504.10%		
77) 4-Bromofluorobenzene	17.56	95	3310091	50.22	ug/l	0.00
Spiked Amount 10.000			Recovery =	502.20%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.87	85	2725834	47.60	ug/l	99
4) Chloromethane	2.10	50	4423739	43.59	ug/l	100
5) Vinyl chloride	2.22	62	4011299	44.89	ug/l	100
6) Bromomethane	2.62	94	3592530	54.27	ug/l	100
7) Chloroethane	2.68	64	3029611	52.87	ug/l	98
8) Dichlorofluoromethane	2.74	67	6533544	49.77	ug/l	99
9) Trichlorofluoromethane	2.96	101	4858938	50.10	ug/l	100
11) Acrolein	3.49	56	1140789	236.53	ug/l	97
12) 1,1,2-Trichloro-1,2,2-trif	3.53	151	2122243	48.66	ug/l	100
13) Acetone	3.58	43	1589733	239.16	ug/l	99
14) 1,1-Dichloroethene	3.75	61	5534033	48.93	ug/l	99
15) tert-Butyl alcohol	3.88	59	2663599	1255.84	ug/l	97
16) Methyl acetate	4.26	43	984851	48.26	ug/l	97
17) Iodomethane	4.21	142	4959223	50.41	ug/l	99
19) Methylene chloride	4.50	49	4087998	48.04	ug/l	98
20) Carbon disulfide	4.47	76	12532860	51.33	ug/l	99
21) Acrylonitrile	4.73	53	2346678	260.73	ug/l	99
22) tert-Butyl methyl ether (M	4.78	73	4588210	49.17	ug/l	98
23) trans-1,2-Dichloroethene	4.99	96	3539565	51.61	ug/l	99
24) Isopropyl ether (DIPE)	5.67	45	10588875	51.18	ug/l	97
25) 1,1-Dichloroethane	5.84	63	6316919	50.92	ug/l	100
26) Vinyl acetate	5.90	43	4191489	54.03	ug/l	99
27) 2-Butanol	6.38	45	2549826	1302.79	ug/l	99
28) tert-Butyl ethyl ether (ET	6.59	59	7348370	47.02	ug/l	100
29) 2-Butanone	6.86	72	589160	259.35	ug/l	90
30) 2,2-Dichloropropane	7.16	77	3764301	44.17	ug/l	99
31) cis-1,2-Dichloroethene	7.26	96	3444858	51.67	ug/l	100

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

SC 11/21/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC208.D
Acq On : 19 Nov 2019 4:53 pm
Sample : VO67K199
Misc : 50ppb 8260/ 250ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:24 2019

Vial: 10
Operator: RMinam
Inst : 67
Multiplr: 1.00
Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) Chloroform	7.64	83	5518122	50.24 ug/l	99
33) Bromochloromethane	8.00	130	1525400	51.63 ug/l	100
34) tert-Amyl alcohol	8.11	59	491177	257.20 ug/l	100
36) Tetrahydrofuran	8.09	42	363200	46.37 ug/l	96
37) 1,1,1-Trichloroethane	8.53	97	4755723	48.56 ug/l	99
38) Cyclohexane	8.52	84	5081547	49.34 ug/l	100
39) 2,2,4-Trimethylpentane	8.71	57	13823512	50.86 ug/l	99
40) 1,1-Dichloropropene	8.88	110	1627505	50.91 ug/l	100
41) Carbon tetrachloride	9.06	119	4025323	49.03 ug/l	100
42) tert-Amyl methyl ether (TA	9.20	87	1203591	49.77 ug/l	98
44) 1,2-Dichloroethane	9.45	62	2783976	47.86 ug/l	100
45) Benzene	9.42	78	12193714	51.21 ug/l	99
46) Trichloroethene	10.68	130	3356609	51.42 ug/l	100
47) Methylcyclohexane	10.77	83	5968082	50.39 ug/l	99
48) 1,2-Dichloropropane	11.04	63	3009698	50.97 ug/l	96
49) Bromodichloromethane	11.47	83	3538018	50.12 ug/l	100
50) 1,4-Dioxane	11.55	88	202685	1026.99 ug/l	97
51) Dibromomethane	11.55	93	1314245	51.88 ug/l	100
52) 2-Chloroethyl vinyl ether	12.15	63	915192	55.08 ug/l	99
53) 4-Methyl-2-pentanone	12.20	43	7417408	254.02 ug/l	99
54) cis-1,3-Dichloropropene	12.52	75	4298903	52.06 ug/l	97
57) Toluene	13.06	91	13125082	51.51 ug/l	99
58) Ethyl methacrylate	13.47	69	2137539	51.28 ug/l	96
59) trans-1,3-Dichloropropene	13.44	75	3448703	51.15 ug/l	91
60) 1,1,2-Trichloroethane	13.69	97	1511507	50.65 ug/l	99
61) 2-Hexanone	13.75	43	4391806	242.40 ug/l	97
62) 1,3-Dichloropropane	14.14	76	3018996	51.20 ug/l	100
63) Tetrachloroethene	14.20	164	2567667	50.19 ug/l	100
64) Dibromochloromethane	14.55	129	2039711	50.58 ug/l	99
65) 1,2-Dibromoethane	14.89	107	1450282	51.30 ug/l	100
66) 1-Chlorohexane	15.22	91	5077662	51.35 ug/l	100
67) Chlorobenzene	15.62	112	7360175	51.75 ug/l	100
68) 1,1,1,2-Tetrachloroethane	15.70	131	2527692	51.17 ug/l	100
69) Ethylbenzene	15.72	91	15760654	52.01 ug/l	99
71) o-Xylene	16.57	91	10967270	51.53 ug/l	100
72) Styrene	16.64	104	8189720	53.28 ug/l	98
73) Isopropylbenzene	17.18	105	14227407	51.87 ug/l	99
75) Bromoform	17.18	173	989995	52.30 ug/l	99
76) 1,1,2,2-Tetrachloroethane	17.46	83	1539569	50.26 ug/l	99
78) 1,2,3-Trichloropropane	17.66	110	428979	51.65 ug/l	100
79) trans-1,4-Dichloro-2-buten	17.27	53	533918	50.26 ug/l	100

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

SA 11/21/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC208.D
Acq On : 19 Nov 2019 4:53 pm
Sample : VO67K199
Misc : 50ppb 8260/ 250ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:24 2019

Vial: 10
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
80) n-Propylbenzene	17.76	91	16756570	50.68 ug/l	98
81) Bromobenzene	17.82	156	2503013	51.81 ug/l	100
82) 1,3,5-Trimethylbenzene	17.98	105	10768362	52.70 ug/l	99
83) 2-Chlorotoluene	18.00	91	10385910	51.48 ug/l	94
84) 4-Chlorotoluene	18.07	91	9193781	54.16 ug/l	95
85) tert-Butylbenzene	18.44	134	2425426	52.11 ug/l	95
86) 1,2,4-Trimethylbenzene	18.48	105	10211223	52.87 ug/l	100
87) sec-Butylbenzene	18.69	105	13916135	49.89 ug/l	99
88) p-Isopropyltoluene	18.85	119	11665292	51.58 ug/l	99
89) 1,3-Dichlorobenzene	18.95	146	4923131	51.90 ug/l	100
90) 1,4-Dichlorobenzene	19.08	146	4707772	51.95 ug/l	100
91) n-Butylbenzene	19.30	91	11143051	51.90 ug/l	99
92) 1,2-Dichlorobenzene	19.47	146	3844833	50.89 ug/l	98
93) 1,2-Dibromo-3-chloropropan	20.25	157	212167	53.00 ug/l	99
94) 1,2,4-Trichlorobenzene	21.10	180	2077455	51.25 ug/l	100
95) Hexachlorobutadiene	21.23	225	1588922	48.06 ug/l	100
96) Naphthalene	21.37	128	2657579	51.23 ug/l	99
97) 1,2,3-Trichlorobenzene	21.62	180	1516088	50.04 ug/l	99

Su 11/21/19

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

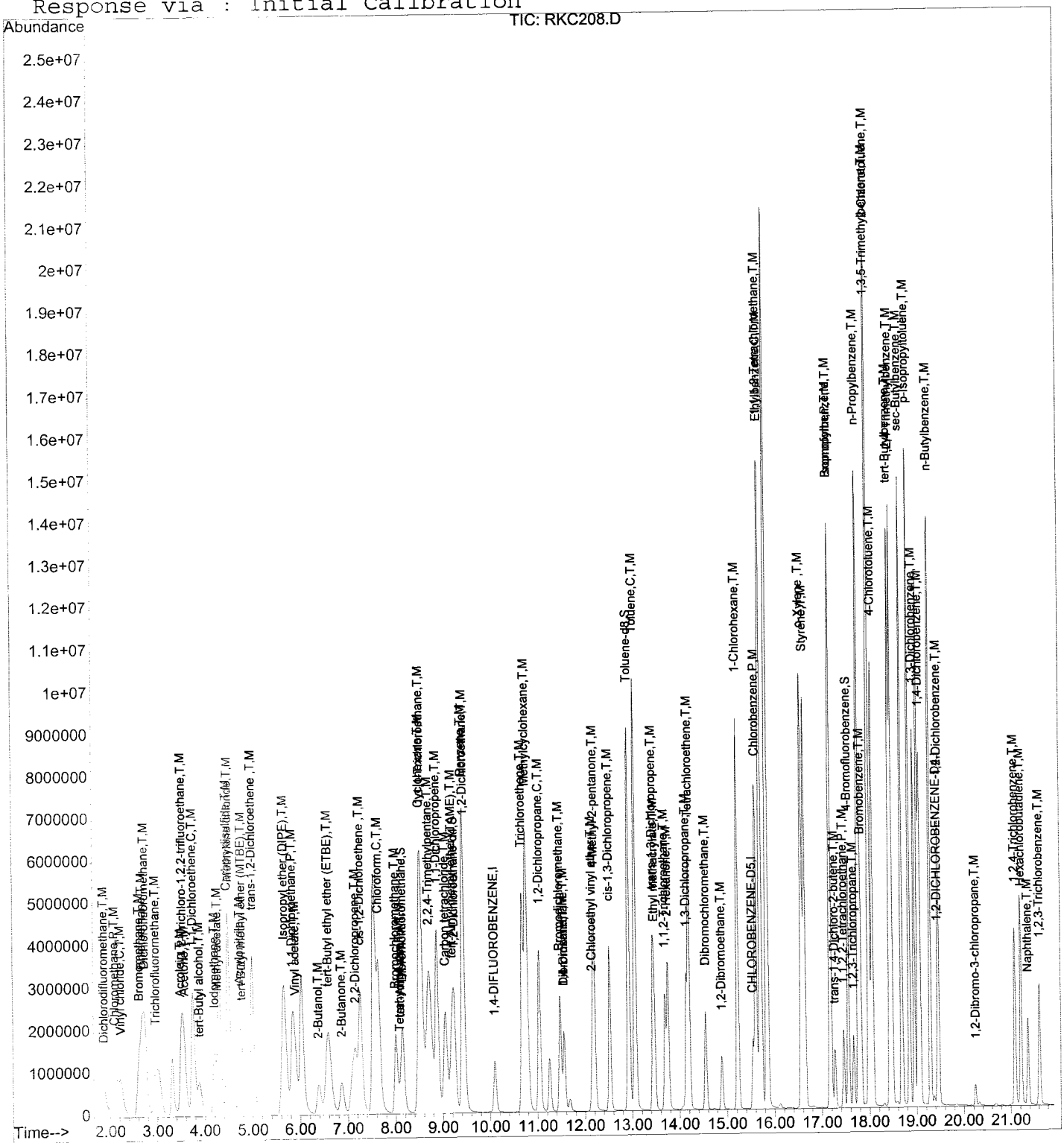
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K19\RKC208.D
Acq On : 19 Nov 2019 4:53 pm
Sample : VO67K199
Misc : 50ppb 8260/ 250ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:24 2019

Vial: 10
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration



SA 11/21/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC209.D Vial: 11
Acq On : 19 Nov 2019 5:18 pm Operator: RMinam
Sample : VO67K1910 Inst : 67
Misc : 100ppb 8260/ 500ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Nov 20 16:25 2019 Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.11	114	2056294	10.00	ug/l	0.00
55) CHLOROBENZENE-D5	15.56	117	1552267	10.00	ug/l	0.02
74) 1,2-DICHLOROBENZENE-D4	19.45	152	511993	10.00	ug/l	0.00
System Monitoring Compounds						
35) Dibromofluoromethane	8.15	111	5867730	100.19	ug/l	0.00
Spiked Amount 10.000			Recovery	= 1001.90%		
43) 1,2-Dichloroethane-d4	9.25	65	4858063	96.07	ug/l	0.00
Spiked Amount 10.000			Recovery	= 960.70%		
56) Toluene-d8	12.93	98	21751641	99.86	ug/l	0.00
Spiked Amount 10.000			Recovery	= 998.60%		
77) 4-Bromofluorobenzene	17.56	95	6806101	104.85	ug/l	0.00
Spiked Amount 10.000			Recovery	= 1048.50%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.86	85	4659113	80.24	ug/l	99
4) Chloromethane	2.09	50	6896602	67.02	ug/l	100
5) Vinyl chloride	2.22	62	5506383	60.78	ug/l	100
6) Bromomethane	2.62	94	6327321	94.28	ug/l	99
7) Chloroethane	2.66	64	5214997	89.75	ug/l	97
8) Dichlorofluoromethane	2.73	67	12468369	93.68	ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.53	151	4246795	96.04	ug/l	100
13) Acetone	3.59	43	3226300	478.70	ug/l	98
14) 1,1-Dichloroethene	3.75	61	10982936	95.77	ug/l	98
15) tert-Butyl alcohol	3.90	59	5369204	2501.21	ug/l	97
16) Methyl acetate	4.26	43	1865327	90.14	ug/l	96
17) Iodomethane	4.21	142	9952479	99.77	ug/l	97
19) Methylene chloride	4.50	49	8061990	93.44	ug/l	97
20) Carbon disulfide	4.47	76	23724916	95.82	ug/l	99
21) Acrylonitrile	4.73	53	4850847	531.54	ug/l	98
22) tert-Butyl methyl ether (M	4.78	73	9181013	97.04	ug/l	98
23) trans-1,2-Dichloroethene	4.99	96	7032417	101.14	ug/l	100
24) Isopropyl ether (DIPE)	5.67	45	20702665	98.69	ug/l	96
25) 1,1-Dichloroethane	5.84	63	12343152	98.14	ug/l	100
26) Vinyl acetate	5.92	43	7531967	95.76	ug/l	99
27) 2-Butanol	6.40	45	4700138	2368.43	ug/l	99
28) tert-Butyl ethyl ether (ET	6.60	59	14430891	91.08	ug/l	99
29) 2-Butanone	6.88	72	1218152	528.87	ug/l	96
30) 2,2-Dichloropropane	7.16	77	6896169	79.81	ug/l	98
31) cis-1,2-Dichloroethene	7.27	96	6893531	101.98	ug/l	100
32) Chloroform	7.65	83	11021909	98.98	ug/l	98
33) Bromochloromethane	8.02	130	3093752	103.27	ug/l	99

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

RKC209.D VO67K19.M Thu Nov 21 17:00:04 2019 Page 1

SA 11/21/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC209.D
Acq On : 19 Nov 2019 5:18 pm
Sample : VO67K1910
Misc : 100ppb 8260/ 500ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:25 2019

Vial: 11
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
34) tert-Amyl alcohol	8.12	59	973222	502.61 ug/l	100
36) Tetrahydrofuran	8.09	42	748869	94.30 ug/l	97
37) 1,1,1-Trichloroethane	8.55	97	9427762	94.94 ug/l	99
39) 2,2,4-Trimethylpentane	8.72	57	27215470	98.75 ug/l	99
40) 1,1-Dichloropropene	8.88	110	3264655	100.72 ug/l	100
41) Carbon tetrachloride	9.06	119	7985131	95.92 ug/l	100
42) tert-Amyl methyl ether (TA	9.22	87	2405360	98.11 ug/l	99
44) 1,2-Dichloroethane	9.45	62	5566491	94.39 ug/l	100
45) Benzene	9.44	78	24588375	101.85 ug/l	99
46) Trichloroethene	10.68	130	6696054	101.16 ug/l	99
47) Methylcyclohexane	10.77	83	11354426	94.55 ug/l	98
48) 1,2-Dichloropropane	11.04	63	6172486	103.09 ug/l	95
49) Bromodichloromethane	11.48	83	7104280	99.26 ug/l	100
50) 1,4-Dioxane	11.57	88	412087	2059.30 ug/l	98
51) Dibromomethane	11.56	93	2643950	102.94 ug/l	99
52) 2-Chloroethyl vinyl ether	12.15	63	1922545	114.12 ug/l	99
53) 4-Methyl-2-pentanone	12.20	43	15177604	512.63 ug/l	98
59) trans-1,3-Dichloropropene	13.44	75	7066470	102.98 ug/l	88
60) 1,1,2-Trichloroethane	13.70	97	3082848	101.52 ug/l	99
61) 2-Hexanone	13.76	43	8952088	485.51 ug/l	96
62) 1,3-Dichloropropane	14.14	76	6239602	103.97 ug/l	100
63) Tetrachloroethene	14.20	164	5127924	98.48 ug/l	99
64) Dibromochloromethane	14.55	129	4157542	101.30 ug/l	99
65) 1,2-Dibromoethane	14.89	107	2950272	102.54 ug/l	100
66) 1-Chlorohexane	15.22	91	10162919	100.99 ug/l	100
67) Chlorobenzene	15.62	112	14659148	101.28 ug/l	100
68) 1,1,1,2-Tetrachloroethane	15.70	131	4986070	99.18 ug/l	99
71) o-Xylene	16.58	91	20413961	94.25 ug/l	96
72) Styrene	16.64	104	16395356	104.81 ug/l	97
75) Bromoform	17.18	173	2028640	108.80 ug/l	100
76) 1,1,2,2-Tetrachloroethane	17.46	83	3102035	102.82 ug/l	99
79) trans-1,4-Dichloro-2-buten	17.28	53	1076705	102.92 ug/l	100
81) Bromobenzene	17.82	156	4978515	104.63 ug/l	100
84) 4-Chlorotoluene	18.07	91	15017458	89.81 ug/l	92
85) tert-Butylbenzene	18.44	134	4662740	101.72 ug/l	96
86) 1,2,4-Trimethylbenzene	18.48	105	16591805	87.22 ug/l	86
89) 1,3-Dichlorobenzene	18.96	146	9403715	100.64 ug/l	99
90) 1,4-Dichlorobenzene	19.08	146	8982493	100.64 ug/l	100
92) 1,2-Dichlorobenzene	19.47	146	7292076	98.00 ug/l	99
93) 1,2-Dibromo-3-chloropropan	20.25	157	402109	101.99 ug/l	100
94) 1,2,4-Trichlorobenzene	21.10	180	3863609	96.77 ug/l	100

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

SG 11/21/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC209.D
Acq On : 19 Nov 2019 5:18 pm
Sample : VO67K1910
Misc : 100ppb 8260/ 500ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:25 2019

Vial: 11
Operator: RMinam
Inst : 67
Multiplr: 1.00
Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
95) Hexachlorobutadiene	21.23	225	2855230	87.68 ug/l	100
96) Naphthalene	21.37	128	5076120	99.34 ug/l	99
97) 1,2,3-Trichlorobenzene	21.62	180	2842597	95.27 ug/l	99

SU 11/21/19

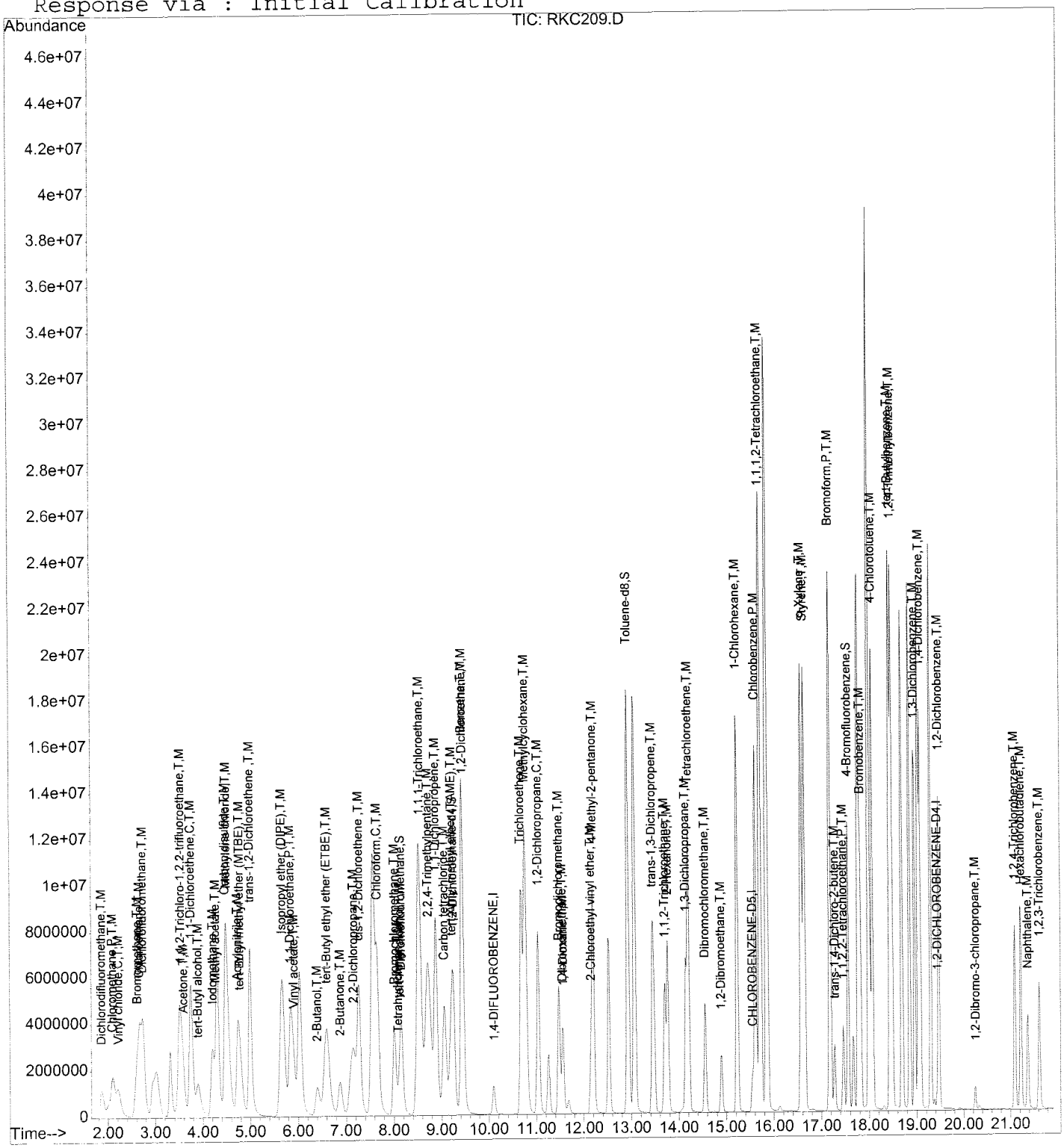
(#) = qualifier out of range (m) = manual integration

Data File : D:\HPCHEM\1\DATA\19K19\RKC209.D
Acq On : 19 Nov 2019 5:18 pm
Sample : VO67K1910
Misc : 100ppb 8260/ 500ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:25 2019

Vial: 11
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration



11/21/19

SECOND SOURCE VERIFICATION

CONTINUE_CALIBRATION - CALIBRATION VERIFICATION

Instrument ID :67
IC Beginning DateTime :11/19/19 13:28
Spike Amount :10 PPB
CC/CV File :RKC212
IC File :RKC205

Column Spec :RTX502.2 ID :0.25MM
IC Ending DateTime :11/19/19 17:18
HPChem Method :V067K19
Date_Time :11/19/19 18:35

M	IDX	Parameters	CC_Con	CC%_D	CC_Resp	CCRRF	AVRRF	CC_Rtm	AvRtm	%_RSD	Co_X0	Co_X1	Co_X2	Co_Cor
	1	1,4-DIFLUOROBENZENE	10.000	0	1976756	1	1	10.093	10.096	0				
	2	Dichlorodifluoromethane	9.242	-7.6	515879	0.261	0.282	1.866	1.867	4.61				
	3	Dichlorotetrafluoroethane												
	4	Chloromethane	8.142	-18.6	805477	0.407	0.500	2.108	2.116	9.43				
	5	Vinyl chloride	9.035	-9.6	786901	0.398	0.441	2.222	2.230	6.47				
	6	Bromomethane	9.297	-7.0	599830	0.303	0.326	2.620	2.623	7.84				
	7	Chloroethane	11.132	11.3	621785	0.315	0.283	2.677	2.676	5.03				
	8	Dichlorofluoromethane	11.065	10.6	1415711	0.716	0.647	2.734	2.737	5.32				
	9	Trichlorofluoromethane	10.480	4.8	990729	0.501	0.478	2.962	2.959	6.68				
	10	sec-Propyl alcohol												
5	11	Acrolein	53.346	6.7	250781	0.025	0.024	3.489	3.494	7.70				
	12	1,1,2-Trichloro-1,2,2-trifluoroethane	10.097	1.0	429193	0.217	0.215	3.533	3.531	4.91				
5	13	Acetone	53.667	7.3	347711	0.035	0.033	3.577	3.579	8.19				
	14	1,1-Dichloroethene	9.709	-2.9	1070361	0.541	0.558	3.752	3.750	4.84				
25	15	tert-Butyl alcohol	275.579	10.2	577095	0.012	0.012	3.869	3.879	23.43	0.0048	0.0104		0.9990
	16	Methyl acetate	10.212	2.1	203149	0.103	0.101	4.263	4.263	5.61				
	17	Iodomethane	10.736	7.4	1029561	0.521	0.485	4.205	4.202	3.79				
10	18	Acetonitrile												
	19	Methylene chloride	10.278	2.8	852479	0.431	0.420	4.497	4.497	8.26				
	20	Carbon disulfide	10.398	4.0	2474848	1.252	1.204	4.483	4.477	3.91				
5	21	Acrylonitrile	55.495	11.0	486859	0.049	0.044	4.731	4.731	5.74				
	22	tert-Butyl methyl ether (MTBE)	10.906	9.1	991903	0.502	0.460	4.760	4.765	4.49				
	23	trans-1,2-Dichloroethene	10.117	1.2	676265	0.342	0.338	4.994	4.992	3.69				
	24	Isopropyl ether (DIPE)	11.111	11.1	2240618	1.133	1.020	5.651	5.656	3.91				
	25	1,1-Dichloroethane	10.447	4.5	1263213	0.639	0.612	5.841	5.840	3.92				
	26	Vinyl acetate	11.828	18.3	894286	0.452	0.382	5.900	5.903	9.76				
25	27	2-Butanol	210.532	-15.8	401639	0.008	0.010	6.382	6.389	6.79				
	28	tert-Butyl ethyl ether (ETBE)	10.498	5.0	1599083	0.809	0.771	6.587	6.587	10.32				
5	29	2-Butanone	55.817	11.6	123590	0.013	0.011	6.864	6.869	8.93				
	30	2,2-Dichloropropane	10.009	0.1	831350	0.421	0.420	7.142	7.148	12.71				
	31	cis-1,2-Dichloroethene	10.420	4.2	677151	0.343	0.329	7.259	7.260	4.34				
	32	Chloroform	10.562	5.6	1130718	0.572	0.542	7.639	7.639	3.93				
	33	Bromochloromethane	11.002	10.0	316828	0.160	0.146	8.004	8.008	5.40				
5	34	tert-Amyl alcohol	51.123	2.2	95162	0.010	0.009	8.106	8.099	7.53				
	35	Dibromofluoromethane	10.037	0.4	565069	0.286	0.285	8.150	8.149	3.64				
	36	Tetrahydrofuran	10.612	6.1	81010	0.041	0.039	8.092	8.092	10.15				
	37	1,1,1-Trichloroethane	10.448	4.5	997316	0.505	0.483	8.530	8.531	5.24				
	38	Cyclohexane	10.053	0.5	1009107	0.510	0.508	8.515	8.514	2.75				
	39	2,2,4-Trimethylpentane	11.774	17.7	3119533	1.578	1.340	8.705	8.698	7.39				
	40	1,1-Dichloropropene	10.602	6.0	330328	0.167	0.158	8.880	8.879	3.86				
	41	Carbon tetrachloride	10.496	5.0	840014	0.425	0.405	9.056	9.054	4.57				
	42	tert-Amyl methyl ether (TAME)	11.163	11.6	263107	0.133	0.119	9.202	9.202	4.86				
	43	1,2-Dichloroethane-d4	9.936	-0.6	482984	0.244	0.246	9.246	9.244	5.01				
	44	1,2-Dichloroethane	10.654	6.5	603992	0.306	0.287	9.436	9.445	4.99				
	45	Benzene	11.188	11.9	2596454	1.313	1.174	9.421	9.423	3.67				
	46	Trichloroethene	10.633	6.3	676616	0.342	0.322	10.678	10.678	3.88				
	47	Methylcyclohexane	9.143	-8.6	1055522	0.534	0.584	10.765	10.764	5.29				
	48	1,2-Dichloropropane	10.488	4.9	603695	0.305	0.291	11.043	11.037	4.12				
	49	Bromodichloromethane	10.811	8.1	743890	0.376	0.348	11.467	11.468	3.75				
20	50	1,4-Dioxane	209.103	4.6	40225	0.001	0.001	11.554	11.561	6.64				
	51	Dibromomethane	10.639	6.4	262708	0.133	0.125	11.554	11.554	8.37				
	52	2-Chloroethyl vinyl ether	11.821	18.2	191443	0.097	0.082	12.153	12.149	9.62				
5	53	4-Methyl-2-pentanone	52.727	5.5	1500730	0.152	0.144	12.183	12.191	6.12				
	54	cis-1,3-Dichloropropene	11.020	10.2	887039	0.449	0.407	12.519	12.519	4.10				
	55	CHLOROBENZENE-D5	10.000	0	1498266	1	1	15.543	15.545	0				
	56	Toluene-d8	9.852	-1.5	2071229	1.382	1.403	12.913	12.921	3.30				
	57	Toluene	10.244	2.4	2564230	1.711	1.671	13.059	13.059	3.92				
	58	Ethyl methacrylate	10.522	5.2	430795	0.288	0.273	13.469	13.469	3.89				
	59	trans-1,3-Dichloropropene	10.733	7.3	710814	0.474	0.442	13.439	13.439	3.94				
	60	1,1,2-Trichloroethane	10.289	2.9	301573	0.201	0.196	13.688	13.691	4.22				
5	61	2-Hexanone	50.712	1.4	902521	0.120	0.119	13.746	13.751	5.29				
	62	1,3-Dichloropropane	10.442	4.4	604834	0.404	0.387	14.141	14.141	3.89				
	63	Tetrachloroethene	10.421	4.2	523721	0.350	0.335	14.199	14.193	3.85				
	64	Dibromochloromethane	10.709	7.1	424257	0.283	0.264	14.550	14.550	4.00				
	65	1,2-Dibromoethane	10.551	5.5	293021	0.196	0.185	14.886	14.887	4.13				
	66	Chlorohexane	11.274	12.7	1095071	0.731	0.648	15.222	15.222	3.82				
	67	Chlorobenzene	10.439	4.4	1458322	0.973	0.932	15.602	15.606	3.46				
	68	1,1,1,2-Tetrachloroethane	10.267	2.7	498208	0.333	0.324	15.689	15.698	3.32				
	69	Ethylbenzene	9.959	-0.4	2964214	1.978	1.987	15.704	15.712	3.69				
2	70	m-Xylene & p-Xylene	20.317	1.6	4477229	1.494	1.471	15.836	15.841	3.93				
	71	o-Xylene	10.285	2.9	2150141	1.435	1.395	16.566	16.569	4.26				
	72	Styrene	10.632	6.3	1605403	1.072	1.008	16.639	16.639	4.95				
	73	Isopropylbenzene	10.474	4.7	2822007	1.884	1.798	17.180	17.177	3.80				
	74	1,2-DICHLOROBENZENE-D4	10.000	0	540007	1	1	19.445	19.446	0				
	75	Bromoform	10.295	3.0	202451	0.375	0.364	17.180	17.181	5.53				
	76	1,1,2,2-Tetrachloroethane	9.951	-0.5	316651	0.586	0.589	17.457	17.458	7.18				
	77	4-Bromofluorobenzene	9.451	-5.5	647082	1.198	1.268	17.545	17.552	4.56				
	78	1,2,3-Trichloropropane	10.327	3.3	89109	0.165	0.160	17.662	17.664	6.85				
	79	trans-1,4-Dichloro-2-butene	10.652	6.5	117542	0.218	0.204	17.267	17.270	4.46				
	80	n-Propylbenzene	10.281	2.8	3531262	6.539	6.360	17.764	17.766	3.74				
	81	Bromobenzene	10.379	3.8	520891	0.965	0.929	17.808	17.818	4.24				
	82	1,3,5-Trimethylbenzene	10.284	2.8	2182744	4.042	3.930	17.983	17.985	4.26				
	83	2-Chlorotoluene	10.015	0.2	2099008	3.887	3.881	17.998	18.000	5.12				
	84	4-Chlorotoluene	10.368	3.7	1828472	3.386	3.266	18.056	18.061	5.85				
	85	tert-Butylbenzene	10.266	2.7	496314	0.919	0.895	18.436	18.438	4.26				
	86	1,2,4-Trimethylbenzene	10.611	6.1	2128831	3.942	3.715	18.480	18.480	4.59				
	87	sec-Butylbenzene	10.432	4.3	3023133	5.598	5.366	18.685	18.686	4.25				
	88	p-Isopropyltoluene	10.620	6.2	2495057	4.620	4.351	18.846	18.847	4.23				
	89	1,3-Dichlorobenzene	10.411	4.1	1025991	1.900	1.825	18.948	18.951	3.58				
	90	1,4-Dichlorobenzene	10.389	3.9	978012	1.811	1.743	19.079	19.073	3.71				
	91	n-Butylbenzene	10.738	7.4	2394785	4.435	4.130	19.284	19.289	3.70				
	92	1,2-Dichlorobenzene	10.375	3.8	814244	1.508	1.453	19.474	19.471	3.73				
	93	1,2-Dibromo-3-chloropropane	10.823	8.2	45005	0.083	0.077	20.248	20.248	9.34				
	94	1,2,4-Trichlorobenzene	11.029	10.3	464433	0.860	0.780	21.096	21.097	5.03				
	95	Hexachlorobutadiene	10.616	6.2	364593	0.675	0.636	21.227	21.220	7.06				
	96	Naphthalene	10.655	6.5	574226	1.063	0.998	21.373	21.375	5.63				
	97	1,2,3-Trichlorobenzene	10.981	9.8	345593	0.640	0.583	21.622	21.623	4.73				

Spike Amount = Nominal Amount * M

Sa 11/21/19

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K19\RKC212.D
Acq On : 19 Nov 2019 6:35 pm
Sample : IVO67K1901
Misc : 10ppb 8260/ 50ppb KET-AA
MS Integration Params: RTE.P

Vial: 14
Operator: RMinam
Inst : 67
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	101	-0.01
2	T,M	Dichlorodifluoromethane	10.000	9.242	7.6	90	0.00
3	T,M	Dichlorotetrafluoroethane	-1.000	0.000	0.0	0	0.00
4	P,T,M	Chloromethane	10.000	8.142	18.6	84	-0.02
5	C,T,M	Vinyl chloride	10.000	9.035	9.6	84	-0.02
6	T,M	Bromomethane	10.000	9.297	7.0	89	0.00
7	T,M	Chloroethane	10.000	11.132	-11.3	108	0.00
8	T,M	Dichlorofluoromethane	10.000	11.065	-10.6	109	0.00
9	T,M	Trichlorofluoromethane	10.000	10.480	-4.8	101	0.00
10	T,M	sec-Propyl alcohol	-1.000	0.000	0.0	0	0.00
11	T,M	Acrolein	50.000	53.346	-6.7	105	-0.01
12	T,M	1,1,2-Trichloro-1,2,2-trifl	10.000	10.097	-1.0	98	0.00
13	T,M	Acetone	50.000	53.667	-7.3	102	0.00
14	C,T,M	1,1-Dichloroethene	10.000	9.709	2.9	95	0.00
15	T,M	tert-Butyl alcohol	250.000	275.579	-10.2	104	0.00
16	T,M	Methyl acetate	10.000	10.212	-2.1	96	0.00
17	T,M	Iodomethane	10.000	10.736	-7.4	105	0.00
18	T,M	Acetonitrile	100.000	0.000	100.0#	0	0.02
19	T,M	Methylene chloride	10.000	10.278	-2.8	103	0.00
20	T,M	Carbon disulfide	10.000	10.398	-4.0	104	0.00
21	T,M	Acrylonitrile	50.000	55.495	-11.0	107	0.00
22	T,M	tert-Butyl methyl ether (MT	10.000	10.906	-9.1	106	0.00
23	T,M	trans-1,2-Dichloroethene	10.000	10.117	-1.2	99	0.00
24	T,M	Isopropyl ether (DIPE)	10.000	11.110	-11.1	108	0.00
25	P,T,M	1,1-Dichloroethane	10.000	10.447	-4.5	103	0.00
26	T,M	Vinyl acetate	10.000	11.828	-18.3	113	0.00
27	T,M	2-Butanol	250.000	210.532	15.8	79	0.00
28	T,M	tert-Butyl ethyl ether (ETB	10.000	10.498	-5.0	106	0.00
29	T,M	2-Butanone	50.000	55.817	-11.6	104	0.00
30	T,M	2,2-Dichloropropane	10.000	10.009	-0.1	104	-0.01
31	T,M	cis-1,2-Dichloroethene	10.000	10.420	-4.2	100	-0.01
32	C,T,M	Chloroform	10.000	10.562	-5.6	103	0.00
33	T,M	Bromochloromethane	10.000	11.001	-10.0	105	-0.01
34	T,M	tert-Amyl alcohol	50.000	51.123	-2.2	96	0.02
35	S	Dibromofluoromethane	10.000	10.037	-0.4	99	0.00
36	T,M	Tetrahydrofuran	10.000	10.612	-6.1	103	0.00
37	T,M	1,1,1-Trichloroethane	10.000	10.448	-4.5	101	0.00
38	T,M	Cyclohexane	10.000	10.053	-0.5	99	0.00
39	T,M	2,2,4-Trimethylpentane	10.000	11.774	-17.7	109	0.00
40	T,M	1,1-Dichloropropene	10.000	10.602	-6.0	103	0.00
41	T,M	Carbon tetrachloride	10.000	10.496	-5.0	101	0.00

(#) = Out of Range

SA 11/24/19

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K19\RKC212.D
Acq On : 19 Nov 2019 6:35 pm
Sample : IVO67K1901
Misc : 10ppb 8260/ 50ppb KET-AA
MS Integration Params: RTE.P

Vial: 14
Operator: RMinam
Inst : 67
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
42	T,M	tert-Amyl methyl ether (TAM	10.000	11.163	-11.6	106	0.00
43	S	1,2-Dichloroethane-d4	10.000	9.936	0.6	97	0.00
44	T,M	1,2-Dichloroethane	10.000	10.654	-6.5	101	-0.01
45	T,M	Benzene	10.000	11.188	-11.9	110	0.00
46	T,M	Trichloroethene	10.000	10.633	-6.3	103	0.00
47	T,M	Methylcyclohexane	10.000	9.143	8.6	88	0.00
48	C,T,M	1,2-Dichloropropane	10.000	10.488	-4.9	103	0.00
49	T,M	Bromodichloromethane	10.000	10.811	-8.1	105	0.00
50	T,M	1,4-Dioxane	200.000	209.103	-4.6	100	-0.01
51	T,M	Dibromomethane	10.000	10.639	-6.4	100	0.00
52	T,M	2-Chloroethyl vinyl ether	10.000	11.821	-18.2	113	0.00
53	T,M	4-Methyl-2-pentanone	50.000	52.727	-5.5	99	-0.01
54	T,M	cis-1,3-Dichloropropene	10.000	11.020	-10.2	106	0.00
55	I	CHLOROBENZENE-D5	10.000	10.000	0.0	100	0.00
56	S	Toluene-d8	10.000	9.852	1.5	98	-0.01
57	C,T,M	Toluene	10.000	10.244	-2.4	102	0.00
58	T,M	Ethyl methacrylate	10.000	10.522	-5.2	101	0.00
59	T,M	trans-1,3-Dichloropropene	10.000	10.732	-7.3	104	0.00
60	T,M	1,1,2-Trichloroethane	10.000	10.289	-2.9	102	0.00
61	T,M	2-Hexanone	50.000	50.712	-1.4	98	0.00
62	T,M	1,3-Dichloropropane	10.000	10.442	-4.4	103	0.00
63	T,M	Tetrachloroethene	10.000	10.421	-4.2	103	0.00
64	T,M	Dibromochloromethane	10.000	10.709	-7.1	104	0.00
65	T,M	1,2-Dibromoethane	10.000	10.551	-5.5	103	0.00
66	T,M	1-Chlorohexane	10.000	11.274	-12.7	111	0.00
67	P,M	Chlorobenzene	10.000	10.439	-4.4	102	0.00
68	T,M	1,1,1,2-Tetrachloroethane	10.000	10.267	-2.7	101	-0.01
69	C,T,M	Ethylbenzene	10.000	9.959	0.4	97	-0.01
70	T,M	m-Xylene & p-Xylene	20.000	20.317	-1.6	99	0.00
71	T,M	o-Xylene	10.000	10.285	-2.9	101	0.00
72	T,M	Styrene	10.000	10.632	-6.3	103	0.00
73	T,M	Isopropylbenzene	10.000	10.474	-4.7	102	0.00
74	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	101	0.00
75	P,T,M	Bromoform	10.000	10.295	-2.9	103	0.00
76	P,T,M	1,1,2,2-Tetrachloroethane	10.000	9.951	0.5	100	0.00
77	S	4-Bromofluorobenzene	10.000	9.451	5.5	97	-0.01
78	T,M	1,2,3-Trichloropropane	10.000	10.327	-3.3	100	0.00
79	T,M	trans-1,4-Dichloro-2-butene	10.000	10.652	-6.5	107	0.00
80	T,M	n-Propylbenzene	10.000	10.281	-2.8	103	0.00

(#) = Out of Range

SA 11/21/19

Data File : D:\HPCHEM\1\DATA\19K19\RKC212.D
Acq On : 19 Nov 2019 6:35 pm
Sample : IVO67K1901
Misc : 10ppb 8260/ 50ppb KET-AA
MS Integration Params: RTE.P

Vial: 14
Operator: RMinam
Inst : 67
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	10.000	10.379	-3.8	104	-0.01
82	T,M	1,3,5-Trimethylbenzene	10.000	10.284	-2.8	103	0.00
83	T,M	2-Chlorotoluene	10.000	10.015	-0.2	102	0.00
84	T,M	4-Chlorotoluene	10.000	10.368	-3.7	101	0.00
85	T,M	tert-Butylbenzene	10.000	10.266	-2.7	103	0.00
86	T,M	1,2,4-Trimethylbenzene	10.000	10.611	-6.1	106	0.00
87	T,M	sec-Butylbenzene	10.000	10.432	-4.3	104	0.00
88	T,M	p-Isopropyltoluene	10.000	10.620	-6.2	105	0.00
89	T,M	1,3-Dichlorobenzene	10.000	10.411	-4.1	104	0.00
90	T,M	1,4-Dichlorobenzene	10.000	10.389	-3.9	104	0.00
91	T,M	n-Butylbenzene	10.000	10.738	-7.4	106	-0.01
92	T,M	1,2-Dichlorobenzene	10.000	10.375	-3.8	103	0.00
93	T,M	1,2-Dibromo-3-chloropropane	10.000	10.823	-8.2	103	0.00
94	T,M	1,2,4-Trichlorobenzene	10.000	11.029	-10.3	103	0.00
95	T,M	Hexachlorobutadiene	10.000	10.616	-6.2	100	0.00
96	T,M	Naphthalene	10.000	10.655	-6.5	101	0.00
97	T,M	1,2,3-Trichlorobenzene	10.000	10.981	-9.8	102	0.00

Sa 11/21/19

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

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K19\RKC212.D
Acq On : 19 Nov 2019 6:35 pm
Sample : IVO67K1901
Misc : 10ppb 8260/ 50ppb KET-AA
MS Integration Params: RTE.P

Vial: 14
Operator: RMinam
Inst : 67
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	101	-0.01
2	T,M	Dichlorodifluoromethane	0.282	0.261	7.4	90	0.00
3	T,M	Dichlorotetrafluoroethane	0.000	0.000	0.0	0#	0.00
4	P,T,M	Chloromethane	0.500	0.407	18.6	84	-0.02
5	C,T,M	Vinyl chloride	0.441	0.398	9.8	84	-0.02
6	T,M	Bromomethane	0.326	0.303	7.1	89	0.00
7	T,M	Chloroethane	0.283	0.315	-11.3	108	0.00
8	T,M	Dichlorofluoromethane	0.647	0.716	-10.7	109	0.00
9	T,M	Trichlorofluoromethane	0.478	0.501	-4.8	101	0.00
10	T,M	sec-Propyl alcohol	0.000	0.000	0.0	0#	0.00
11	T,M	Acrolein	0.024	0.025	-4.2	105	-0.01
12	T,M	1,1,2-Trichloro-1,2,2-trifl	0.215	0.217	-0.9	98	0.00
13	T,M	Acetone	0.033	0.035	-6.1	102	0.00
14	C,T,M	1,1-Dichloroethene	0.558	0.541	3.0	95	0.00
15	T,M	tert-Butyl alcohol	0.012	0.012	0.0	104	0.00
16	T,M	Methyl acetate	0.101	0.103	-2.0	96	0.00
17	T,M	Iodomethane	0.485	0.521	-7.4	105	0.00
18	T,M	Acetonitrile	0.000	0.005	0.0	0#	0.02
19	T,M	Methylene chloride	0.420	0.431	-2.6	103	0.00
20	T,M	Carbon disulfide	1.204	1.252	-4.0	104	0.00
21	T,M	Acrylonitrile	0.044	0.049	-11.4	107	0.00
22	T,M	tert-Butyl methyl ether (MT	0.460	0.502	-9.1	106	0.00
23	T,M	trans-1,2-Dichloroethene	0.338	0.342	-1.2	99	0.00
24	T,M	Isopropyl ether (DIPE)	1.020	1.133	-11.1	108	0.00
25	P,T,M	1,1-Dichloroethane	0.612	0.639	-4.4	103	0.00
26	T,M	Vinyl acetate	0.382	0.452	-18.3	113	0.00
27	T,M	2-Butanol	0.010	0.008	20.0	79	0.00
28	T,M	tert-Butyl ethyl ether (ETB	0.771	0.809	-4.9	106	0.00
29	T,M	2-Butanone	0.011	0.013	-18.2	104	0.00
30	T,M	2,2-Dichloropropane	0.420	0.421	-0.2	104	-0.01
31	T,M	cis-1,2-Dichloroethene	0.329	0.343	-4.3	100	-0.01
32	C,T,M	Chloroform	0.542	0.572	-5.5	103	0.00
33	T,M	Bromochloromethane	0.146	0.160	-9.6	105	-0.01
34	T,M	tert-Amyl alcohol	0.009	0.010	-11.1	96	0.02
35	S	Dibromofluoromethane	0.285	0.286	-0.4	99	0.00
36	T,M	Tetrahydrofuran	0.039	0.041	-5.1	103	0.00
37	T,M	1,1,1-Trichloroethane	0.483	0.505	-4.6	101	0.00
38	T,M	Cyclohexane	0.508	0.510	-0.4	99	0.00
39	T,M	2,2,4-Trimethylpentane	1.340	1.578	-17.8	109	0.00
40	T,M	1,1-Dichloropropene	0.158	0.167	-5.7	103	0.00
41	T,M	Carbon tetrachloride	0.405	0.425	-4.9	101	0.00

(#) = Out of Range

11/21/19

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K19\RKC212.D
Acq On : 19 Nov 2019 6:35 pm
Sample : IVO67K1901
Misc : 10ppb 8260/ 50ppb KET-AA
MS Integration Params: RTE.P

Vial: 14
Operator: RMinam
Inst : 67
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
42	T,M	tert-Amyl methyl ether (TAM	0.119	0.133	-11.8	106	0.00
43	S	1,2-Dichloroethane-d4	0.246	0.244	0.8	97	0.00
44	T,M	1,2-Dichloroethane	0.287	0.306	-6.6	101	-0.01
45	T,M	Benzene	1.174	1.313	-11.8	110	0.00
46	T,M	Trichloroethene	0.322	0.342	-6.2	103	0.00
47	T,M	Methylcyclohexane	0.584	0.534	8.6	88	0.00
48	C,T,M	1,2-Dichloropropane	0.291	0.305	-4.8	103	0.00
49	T,M	Bromodichloromethane	0.348	0.376	-8.0	105	0.00
50	T,M	1,4-Dioxane	0.001	0.001	0.0	100	-0.01
51	T,M	Dibromomethane	0.125	0.133	-6.4	100	0.00
52	T,M	2-Chloroethyl vinyl ether	0.082	0.097	-18.3	113	0.00
53	T,M	4-Methyl-2-pentanone	0.144	0.152	-5.6	99	-0.01
54	T,M	cis-1,3-Dichloropropene	0.407	0.449	-10.3	106	0.00
55	I	CHLOROBENZENE-D5	1.000	1.000	0.0	100	0.00
56	S	Toluene-d8	1.403	1.382	1.5	98	-0.01
57	C,T,M	Toluene	1.671	1.711	-2.4	102	0.00
58	T,M	Ethyl methacrylate	0.273	0.288	-5.5	101	0.00
59	T,M	trans-1,3-Dichloropropene	0.442	0.474	-7.2	104	0.00
60	T,M	1,1,2-Trichloroethane	0.196	0.201	-2.6	102	0.00
61	T,M	2-Hexanone	0.119	0.120	-0.8	98	0.00
62	T,M	1,3-Dichloropropane	0.387	0.404	-4.4	103	0.00
63	T,M	Tetrachloroethene	0.335	0.350	-4.5	103	0.00
64	T,M	Dibromochloromethane	0.264	0.283	-7.2	104	0.00
65	T,M	1,2-Dibromoethane	0.185	0.196	-5.9	103	0.00
66	T,M	1-Chlorohexane	0.648	0.731	-12.8	111	0.00
67	P,M	Chlorobenzene	0.932	0.973	-4.4	102	0.00
68	T,M	1,1,1,2-Tetrachloroethane	0.324	0.333	-2.8	101	-0.01
69	C,T,M	Ethylbenzene	1.987	1.978	0.5	97	-0.01
70	T,M	m-Xylene & p-Xylene	1.471	1.494	-1.6	99	0.00
71	T,M	o-Xylene	1.395	1.435	-2.9	101	0.00
72	T,M	Styrene	1.008	1.072	-6.3	103	0.00
73	T,M	Isopropylbenzene	1.798	1.884	-4.8	102	0.00
74	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	101	0.00
75	P,T,M	Bromoform	0.364	0.375	-3.0	103	0.00
76	P,T,M	1,1,2,2-Tetrachloroethane	0.589	0.586	0.5	100	0.00
77	S	4-Bromofluorobenzene	1.268	1.198	5.5	97	-0.01
78	T,M	1,2,3-Trichloropropane	0.160	0.165	-3.1	100	0.00
79	T,M	trans-1,4-Dichloro-2-butene	0.204	0.218	-6.9	107	0.00
80	T,M	n-Propylbenzene	6.360	6.539	-2.8	103	0.00

(#) = Out of Range

11/25/19

Data File : D:\HPCHEM\1\DATA\19K19\RKC212.D
Acq On : 19 Nov 2019 6:35 pm
Sample : IVO67K1901
Misc : 10ppb 8260/ 50ppb KET-AA
MS Integration Params: RTE.P

Vial: 14
Operator: RMinam
Inst : 67
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	0.929	0.965	-3.9	104	-0.01
82	T,M	1,3,5-Trimethylbenzene	3.930	4.042	-2.8	103	0.00
83	T,M	2-Chlorotoluene	3.881	3.887	-0.2	102	0.00
84	T,M	4-Chlorotoluene	3.266	3.386	-3.7	101	0.00
85	T,M	tert-Butylbenzene	0.895	0.919	-2.7	103	0.00
86	T,M	1,2,4-Trimethylbenzene	3.715	3.942	-6.1	106	0.00
87	T,M	sec-Butylbenzene	5.366	5.598	-4.3	104	0.00
88	T,M	p-Isopropyltoluene	4.351	4.620	-6.2	105	0.00
89	T,M	1,3-Dichlorobenzene	1.825	1.900	-4.1	104	0.00
90	T,M	1,4-Dichlorobenzene	1.743	1.811	-3.9	104	0.00
91	T,M	n-Butylbenzene	4.130	4.435	-7.4	106	-0.01
92	T,M	1,2-Dichlorobenzene	1.453	1.508	-3.8	103	0.00
93	T,M	1,2-Dibromo-3-chloropropane	0.077	0.083	-7.8	103	0.00
94	T,M	1,2,4-Trichlorobenzene	0.780	0.860	-10.3	103	0.00
95	T,M	Hexachlorobutadiene	0.636	0.675	-6.1	100	0.00
96	T,M	Naphthalene	0.998	1.063	-6.5	101	0.00
97	T,M	1,2,3-Trichlorobenzene	0.583	0.640	-9.8	102	0.00

SA 11/21/19

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC212.D
Acq On : 19 Nov 2019 6:35 pm
Sample : IVO67K1901
Misc : 10ppb 8260/ 50ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:20 2019

Vial: 14
Operator: RMinam
Inst : 67
Multiplr: 1.00
Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1976756	10.00 ug/l	-0.01
55) CHLOROBENZENE-D5	15.54	117	1498266	10.00 ug/l	0.00
74) 1,2-DICHLOROBENZENE-D4	19.44	152	540007	10.00 ug/l	0.00
System Monitoring Compounds					
35) Dibromofluoromethane	8.15	111	565069	10.04 ug/l	0.00
Spiked Amount 10.000			Recovery =	100.40%	
43) 1,2-Dichloroethane-d4	9.25	65	482984	9.94 ug/l	0.00
Spiked Amount 10.000			Recovery =	99.40%	
56) Toluene-d8	12.91	98	2071229	9.85 ug/l	-0.01
Spiked Amount 10.000			Recovery =	98.50%	
77) 4-Bromofluorobenzene	17.55	95	647082	9.45 ug/l	-0.01
Spiked Amount 10.000			Recovery =	94.50%	
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.87	85	515879	9.24 ug/l	99
4) Chloromethane	2.11	50	805477	8.14 ug/l	100
5) Vinyl chloride	2.22	62	786901	9.04 ug/l	99
6) Bromomethane	2.62	94	599830	9.30 ug/l	99
7) Chloroethane	2.68	64	621785	11.13 ug/l	99
8) Dichlorofluoromethane	2.73	67	1415711	11.06 ug/l	100
9) Trichlorofluoromethane	2.96	101	990729	10.48 ug/l	100
11) Acrolein	3.49	56	250781	53.35 ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.53	151	429193	10.10 ug/l	99
13) Acetone	3.58	43	347711	53.67 ug/l	99
14) 1,1-Dichloroethene	3.75	61	1070361	9.71 ug/l	100
15) tert-Butyl alcohol	3.87	59	577095	275.58 ug/l	100
16) Methyl acetate	4.26	43	203149	10.21 ug/l	100
17) Iodomethane	4.20	142	1029561	10.74 ug/l	100
19) Methylene chloride	4.50	49	852479	10.28 ug/l	100
20) Carbon disulfide	4.48	76	2474848	10.40 ug/l	100
21) Acrylonitrile	4.73	53	486859	55.50 ug/l	98
22) tert-Butyl methyl ether (M	4.76	73	991903	10.91 ug/l	99
23) trans-1,2-Dichloroethene	4.99	96	676265	10.12 ug/l	99
24) Isopropyl ether (DIPE)	5.65	45	2240618	11.11 ug/l	100
25) 1,1-Dichloroethane	5.84	63	1263213	10.45 ug/l	100
26) Vinyl acetate	5.90	43	894286	11.83 ug/l	99
27) 2-Butanol	6.38	45	401639	210.53 ug/l	99
28) tert-Butyl ethyl ether (ET	6.59	59	1599083	10.50 ug/l	100
29) 2-Butanone	6.86	72	123590	55.82 ug/l	99
30) 2,2-Dichloropropane	7.14	77	831350	10.01 ug/l	99
31) cis-1,2-Dichloroethene	7.26	96	677151	10.42 ug/l	100

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

SA 11/21/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K19\RKC212.D
Acq On : 19 Nov 2019 6:35 pm
Sample : IVO67K1901
Misc : 10ppb 8260/ 50ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:20 2019

Vial: 14
Operator: RMinam
Inst : 67
Multiplr: 1.00
Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
32) Chloroform	7.64	83	1130718	10.56	ug/l	100
33) Bromochloromethane	8.00	130	316828	11.00	ug/l	100
34) tert-Amyl alcohol	8.11	59	95162	51.12	ug/l	99
36) Tetrahydrofuran	8.09	42	81010	10.61	ug/l	98
37) 1,1,1-Trichloroethane	8.53	97	997316	10.45	ug/l	100
38) Cyclohexane	8.52	84	1009107	10.05	ug/l	99
39) 2,2,4-Trimethylpentane	8.71	57	3119533	11.77	ug/l	99
40) 1,1-Dichloropropene	8.88	110	330328	10.60	ug/l	99
41) Carbon tetrachloride	9.06	119	840014	10.50	ug/l	100
42) tert-Amyl methyl ether (TA	9.20	87	263107	11.16	ug/l	99
44) 1,2-Dichloroethane	9.44	62	603992	10.65	ug/l	99
45) Benzene	9.42	78	2596454	11.19	ug/l	100
46) Trichloroethene	10.68	130	676616	10.63	ug/l	99
47) Methylcyclohexane	10.77	83	1055522	9.14	ug/l	100
48) 1,2-Dichloropropane	11.04	63	603695	10.49	ug/l	98
49) Bromodichloromethane	11.47	83	743890	10.81	ug/l	99
50) 1,4-Dioxane	11.55	88	40225	209.10	ug/l	98
51) Dibromomethane	11.55	93	262708	10.64	ug/l	99
52) 2-Chloroethyl vinyl ether	12.15	63	191443	11.82	ug/l	99
53) 4-Methyl-2-pentanone	12.18	43	1500730	52.73	ug/l	99
54) cis-1,3-Dichloropropene	12.52	75	887039	11.02	ug/l	99
57) Toluene	13.06	91	2564230	10.24	ug/l	100
58) Ethyl methacrylate	13.47	69	430795	10.52	ug/l	99
59) trans-1,3-Dichloropropene	13.44	75	710814	10.73	ug/l	98
60) 1,1,2-Trichloroethane	13.69	97	301573	10.29	ug/l	100
61) 2-Hexanone	13.75	43	902521	50.71	ug/l	99
62) 1,3-Dichloropropane	14.14	76	604834	10.44	ug/l	99
63) Tetrachloroethene	14.20	164	523721	10.42	ug/l	100
64) Dibromochloromethane	14.55	129	424257	10.71	ug/l	100
65) 1,2-Dibromoethane	14.89	107	293021	10.55	ug/l	100
66) 1-Chlorohexane	15.22	91	1095071	11.27	ug/l	100
67) Chlorobenzene	15.60	112	1458322	10.44	ug/l	100
68) 1,1,1,2-Tetrachloroethane	15.69	131	498208	10.27	ug/l	100
69) Ethylbenzene	15.70	91	2964214	9.96	ug/l	100
70) m-Xylene & p-Xylene	15.84	91	4477229	20.32	ug/l	100
71) o-Xylene	16.57	91	2150141	10.29	ug/l	100
72) Styrene	16.64	104	1605403	10.63	ug/l	100
73) Isopropylbenzene	17.18	105	2822007	10.47	ug/l	100
75) Bromoform	17.18	173	202451	10.29	ug/l	99
76) 1,1,2,2-Tetrachloroethane	17.46	83	316651	9.95	ug/l	99
78) 1,2,3-Trichloropropane	17.66	110	89109	10.33	ug/l	99

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

11/21/19

Data File : D:\HPCHEM\1\DATA\19K19\RKC212.D
Acq On : 19 Nov 2019 6:35 pm
Sample : IVO67K1901
Misc : 10ppb 8260/ 50ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:20 2019

Vial: 14
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79) trans-1,4-Dichloro-2-buten	17.27	53	117542	10.65 ug/l	98
80) n-Propylbenzene	17.76	91	3531262	10.28 ug/l	100
81) Bromobenzene	17.81	156	520891	10.38 ug/l	99
82) 1,3,5-Trimethylbenzene	17.98	105	2182744	10.28 ug/l	100
83) 2-Chlorotoluene	18.00	91	2099008	10.01 ug/l	100
84) 4-Chlorotoluene	18.06	91	1828472	10.37 ug/l	100
85) tert-Butylbenzene	18.44	134	496314	10.27 ug/l	100
86) 1,2,4-Trimethylbenzene	18.48	105	2128831	10.61 ug/l	100
87) sec-Butylbenzene	18.68	105	3023133	10.43 ug/l	100
88) p-Isopropyltoluene	18.85	119	2495057	10.62 ug/l	100
89) 1,3-Dichlorobenzene	18.95	146	1025991	10.41 ug/l	100
90) 1,4-Dichlorobenzene	19.08	146	978012	10.39 ug/l	99
91) n-Butylbenzene	19.28	91	2394785	10.74 ug/l	100
92) 1,2-Dichlorobenzene	19.47	146	814244	10.38 ug/l	100
93) 1,2-Dibromo-3-chloropropan	20.25	157	45005	10.82 ug/l	100
94) 1,2,4-Trichlorobenzene	21.10	180	464433	11.03 ug/l	100
95) Hexachlorobutadiene	21.23	225	364593	10.62 ug/l	100
96) Naphthalene	21.37	128	574226	10.66 ug/l	99
97) 1,2,3-Trichlorobenzene	21.62	180	345593	10.98 ug/l	100

Sm 11/21/19

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

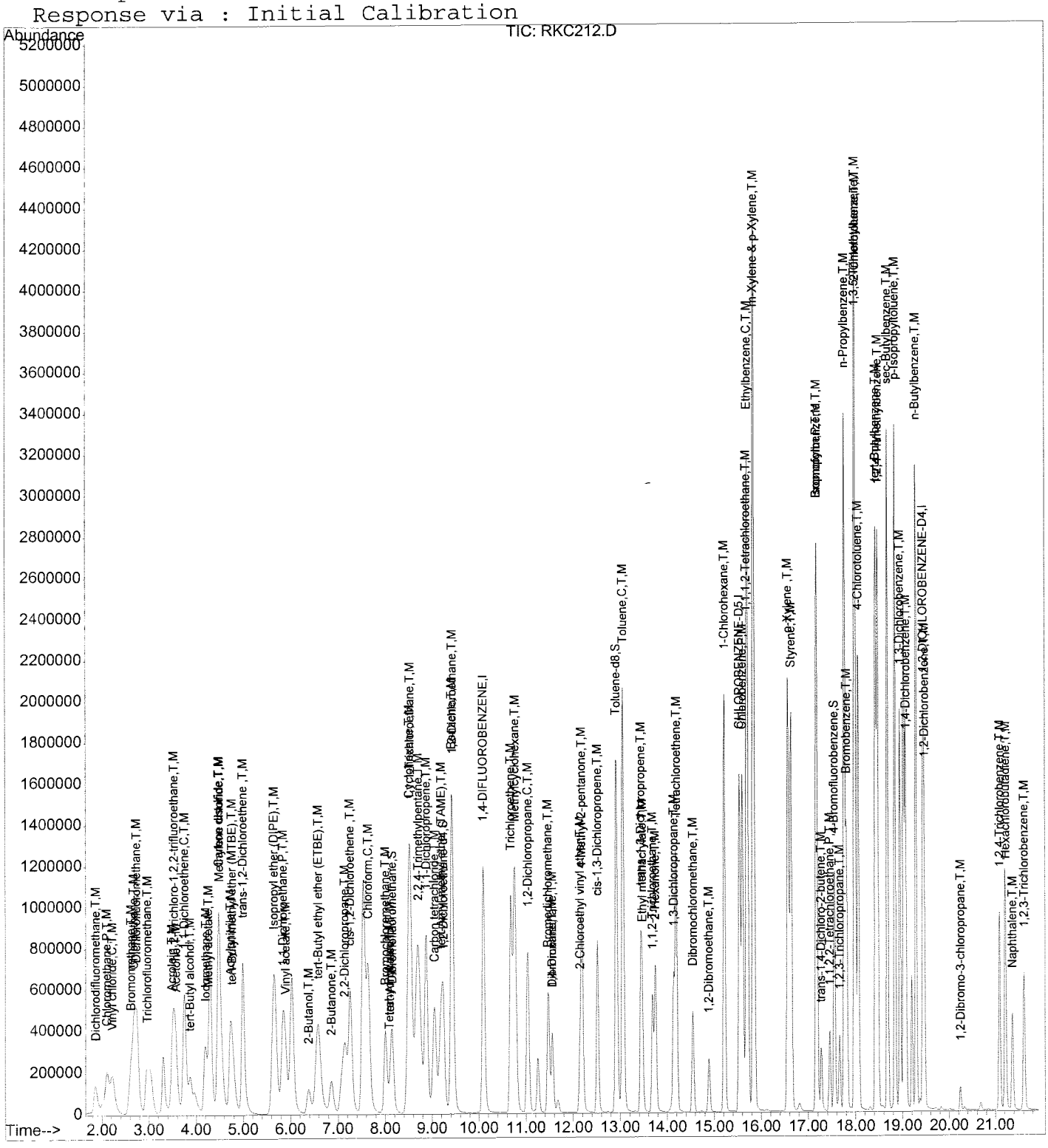
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K19\RKC212.D
Acq On : 19 Nov 2019 6:35 pm
Sample : IVO67K1901
Misc : 10ppb 8260/ 50ppb KET-AA
MS Integration Params: RTE.P
Quant Time: Nov 20 16:20 2019

Vial: 14
Operator: RMinam
Inst : 67
Multiplr: 1.00

Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration



DAILY CALIBRATIONS

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc Contract: VA SALT LAKE CITY
Lab Code: EMXT Case No.: SAS No.: SDG No.: 19L057
Lab File ID: RLC155 BFB Injection Date : 12/12/19
Instrument ID: 67 BFB Injection Time : 10:45
GC Column:RTX502.2ID:0.25mm (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.68
75	30.0 - 60.0% of mass 95	46.82
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.47
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	78.49
175	5.0 - 9.0% of mass 174	5.72(7.3)1
176	95.0 - 101.0% of mass 174	76.13(97.0)1
177	5.0 - 9.0% of mass 176	5.01(6.6)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD010	CV067K1912	RLC156	12/12/19	11:17
2	MBLK1W	V067L09B	RLC160	12/12/19	13:16
3	LCS1W	V067L09L	RLC157	12/12/19	11:58
4	LCD1W	V067L09C	RLC158	12/12/19	12:24
5	OU2-TB05-GW120619	L057-06	RLC164	12/12/19	15:00
6	OU2-TB04-GW120619	L057-11	RLC165	12/12/19	15:26
7	OU2-MW12S-GW120619	L057-01	RLC172	12/12/19	18:25
8	OU2-MW12D-GW120619	L057-02	RLC173	12/12/19	18:51
9	OU2-MW16S-GW120619	L057-03	RLC174	12/12/19	19:16
10	OU2-MW16D-GW120619	L057-04	RLC175	12/12/19	19:42
11	OU2-MW06-GW120619	L057-05	RLC176	12/12/19	20:07
12	OU2-FD01-GW120519	L057-07	RLC177	12/12/19	20:33
13	OU2-MW13S-GW120519	L057-08	RLC178	12/12/19	20:59
14	OU2-MW13D-GW120519	L057-09	RLC179	12/12/19	21:24
15	OU2-MW04-GW120519	L057-10	RLC180	12/12/19	21:50

FORM 8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : EMAX Inc
Lab Code : EMXT
Lab File ID : RKC205
Instrument ID: 67
GC Column : RTX502.2ID:0.25mm (mm)

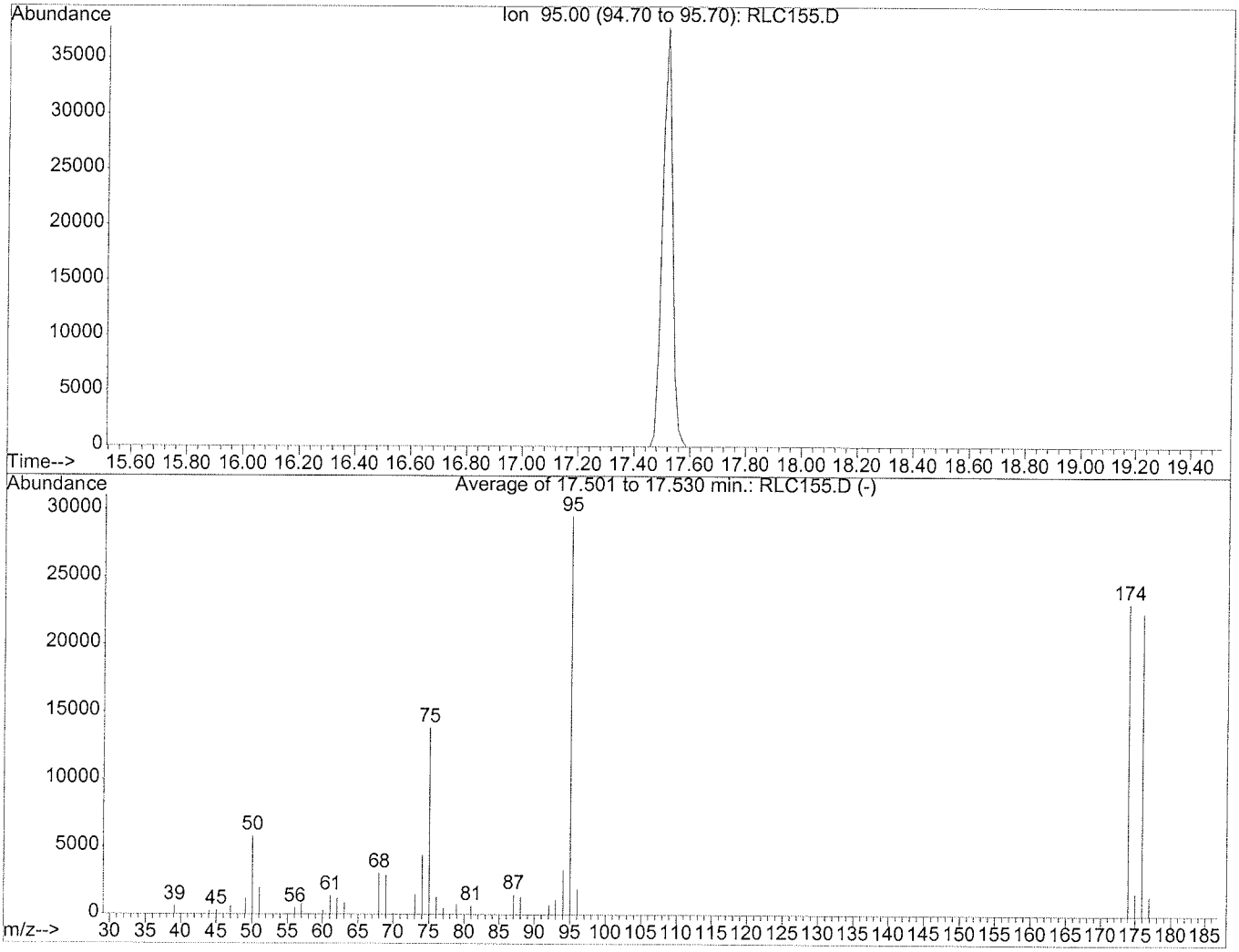
Project: VA SALT LAKE CITY
SDG No: 19L057
Date Analyzed: 11/19/2019
Time Analyzed: 15:35
Heated Purge (Y/N): N

		1,4-DIFLUOROBENZENE		CHLOROBENZENE-D5		1,2-DICHLOROBENZENE-D4	
		AREA #	RT(min)	AREA #	RT(min)	AREA #	RT(min)
	12 HOUR STD	1960958	10.11	1496682	15.54	532392	19.44
	UPPER LIMIT	3921916	10.28	2993364	15.71	1064784	19.61
	LOWER LIMIT	980479	9.94	748341	15.37	266196	19.27
	SAMPLE ID						
1	VSTD010	1687187	10.04	1389294	15.49	506160	19.40
2	MBLK1W	1730511	10.05	1395201	15.50	483100	19.40
3	LCS1W	1667579	10.03	1356121	15.48	500541	19.40
4	LCD1W	1635951	10.05	1355237	15.48	501391	19.40
5	OU2-TB05-GW120619	1642614	10.05	1311400	15.50	458251	19.40
6	OU2-TB04-GW120619	1731913	10.05	1388632	15.50	477708	19.40
7	OU2-MW12S-GW120619	1657586	10.05	1345297	15.50	479522	19.42
8	OU2-MW12D-GW120619	1637789	10.05	1335065	15.50	467818	19.42
9	OU2-MW16S-GW120619	1593867	10.05	1292951	15.50	457396	19.42
10	OU2-MW16D-GW120619	1647400	10.05	1325569	15.50	467866	19.42
11	OU2-MW06-GW120619	1632275	10.05	1319923	15.50	462210	19.41
12	OU2-FD01-GW120519	1630680	10.05	1327292	15.50	459166	19.40
13	OU2-MW13S-GW120519	1643567	10.05	1329068	15.50	474236	19.40
14	OU2-MW13D-GW120519	1621789	10.05	1317901	15.50	471274	19.41
15	OU2-MW04-GW120519	1633080	10.05	1334777	15.50	477607	19.40

Area Upper Limit = + 100% of internal standard area
Area Lower Limit = - 50% of internal standard area
RT Upper Limit = + 0.167 min. (10 sec.) of internal standard RT
RT Lower Limit = - 0.167 min. (10 sec.) of internal standard RT

Data File : D:\HPCHEM\1\DATA\19L12\RLC155.D
Acq On : 12 Dec 2019 10:45 am
Sample : BFB67L09
Misc : T/CHECK
MS Integration Params: RTE.P
Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B

Vial: 1
Operator: RMinam
Inst : 67
Multiplr: 1.00



AutoFind: Scans 1087, 1088, 1089; Background Corrected with Scan 1082

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	19.7	5815	PASS
75	95	30	60	46.8	13833	PASS
95	95	100	100	100.0	29544	PASS
96	95	5	9	6.5	1910	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	78.5	23189	PASS
175	174	5	9	7.3	1689	PASS
176	174	95	101	97.0	22491	PASS
177	176	5	9	6.6	1480	PASS

RLC155.D VO67K19.M Thu Dec 12 17:25:25 2019

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L12\RLC156.D Vial: 2
Acq On : 12 Dec 2019 11:17 am Operator: RMinam
Sample : CVO67K1912 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	86	-0.07
2	T,M	Dichlorodifluoromethane	10.000	9.493	5.1	79	-0.02
3	T,M	Dichlorotetrafluoroethane	-1.000	0.000	0.0	0	0.00
4	P,T,M	Chloromethane	10.000	9.850	1.5	87	-0.03
5	C,T,M	Vinyl chloride	10.000	10.192	-1.9	81	-0.02
6	T,M	Bromomethane	10.000	10.732	-7.3	87	-0.03
7	T,M	Chloroethane	10.000	10.600	-6.0	88	-0.04
8	T,M	Dichlorofluoromethane	10.000	9.232	7.7	78	-0.03
9	T,M	Trichlorofluoromethane	10.000	9.508	4.9	78	-0.05
10	T,M	sec-Propyl alcohol	-1.000	0.000	0.0	0	0.00
11	T,M	Acrolein	50.000	40.906	18.2	68	-0.06
12	T,M	1,1,2-Trichloro-1,2,2-trifl	10.000	9.798	2.0	82	-0.04
13	T,M	Acetone	50.000	48.515	3.0	79	-0.04
14	C,T,M	1,1-Dichloroethene	10.000	9.302	7.0	78	-0.06
15	T,M	tert-Butyl alcohol	250.000	250.534	-0.2	81	-0.04
16	T,M	Methyl acetate	10.000	11.140	-11.4	89	-0.06
17	T,M	Iodomethane	10.000	10.420	-4.2	87	-0.06
18	T,M	Acetonitrile	100.000	0.000	100.0#	0	-0.04
19	T,M	Methylene chloride	10.000	9.857	1.4	85	-0.06
20	T,M	Carbon disulfide	10.000	11.424	-14.2	98	-0.06
21	T,M	Acrylonitrile	50.000	52.747	-5.5	87	-0.07
22	T,M	tert-Butyl methyl ether (MT	10.000	10.071	-0.7	84	-0.06
23	T,M	trans-1,2-Dichloroethene	10.000	10.207	-2.1	85	-0.06
24	T,M	Isopropyl ether (DIPE)	10.000	10.692	-6.9	89	-0.07
25	P,T,M	1,1-Dichloroethane	10.000	10.031	-0.3	84	-0.07
26	T,M	Vinyl acetate	10.000	11.253	-12.5	92	-0.07
27	T,M	2-Butanol	250.000	268.911	-7.6	86	-0.09
28	T,M	tert-Butyl ethyl ether (ETB	10.000	9.597	4.0	83	-0.09
29	T,M	2-Butanone	50.000	53.526	-7.1	85	-0.09
30	T,M	2,2-Dichloropropane	10.000	9.354	6.5	83	-0.09
31	T,M	cis-1,2-Dichloroethene	10.000	10.708	-7.1	88	-0.09
32	C,T,M	Chloroform	10.000	9.784	2.2	81	-0.07
33	T,M	Bromochloromethane	10.000	10.585	-5.9	87	-0.09
34	T,M	tert-Amyl alcohol	50.000	0.000	100.0#	0	-8.09#
35	S	Dibromofluoromethane	10.000	9.799	2.0	82	-0.07
36	T,M	Tetrahydrofuran	10.000	9.653	3.5	80	-0.07
37	T,M	1,1,1-Trichloroethane	10.000	9.188	8.1	76	-0.07
38	T,M	Cyclohexane	10.000	10.622	-6.2	89	-0.07
39	T,M	2,2,4-Trimethylpentane	10.000	0.000	100.0#	0	-8.70#
40	T,M	1,1-Dichloropropene	10.000	10.334	-3.3	86	-0.07
41	T,M	Carbon tetrachloride	10.000	9.174	8.3	75	-0.07

(#) = Out of Range

Data File : D:\HPCHEM\1\DATA\19L12\RLC156.D Vial: 2
Acq On : 12 Dec 2019 11:17 am Operator: RMinam
Sample : CVO67K1912 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
42	T,M	tert-Amyl methyl ether (TAM	10.000	10.271	-2.7	83	-0.07
43	S	1,2-Dichloroethane-d4	10.000	8.594	14.1	71	-0.07
44	T,M	1,2-Dichloroethane	10.000	9.059	9.4	73	-0.07
45	T,M	Benzene	10.000	10.554	-5.5	88	-0.06
46	T,M	Trichloroethene	10.000	10.890	-8.9	90	-0.06
47	T,M	Methylcyclohexane	10.000	11.476	-14.8	95	-0.07
48	C,T,M	1,2-Dichloropropane	10.000	10.784	-7.8	91	-0.07
49	T,M	Bromodichloromethane	10.000	10.072	-0.7	84	-0.06
50	T,M	1,4-Dioxane	200.000	227.030	-13.5	92	-0.07
51	T,M	Dibromomethane	10.000	10.239	-2.4	82	-0.06
52	T,M	2-Chloroethyl vinyl ether	10.000	9.241	7.6	75	-0.06
53	T,M	4-Methyl-2-pentanone	50.000	54.696	-9.4	87	-0.06
54	T,M	cis-1,3-Dichloropropene	10.000	10.806	-8.1	89	-0.06
55	I	CHLOROBENZENE-D5	10.000	10.000	0.0	93	-0.06
56	S	Toluene-d8	10.000	9.926	0.7	92	-0.06
57	C,T,M	Toluene	10.000	10.133	-1.3	93	-0.06
58	T,M	Ethyl methacrylate	10.000	9.784	2.2	87	-0.06
59	T,M	trans-1,3-Dichloropropene	10.000	9.414	5.9	84	-0.06
60	T,M	1,1,2-Trichloroethane	10.000	10.199	-2.0	93	-0.04
61	T,M	2-Hexanone	50.000	49.174	1.7	88	-0.04
62	T,M	1,3-Dichloropropane	10.000	9.959	0.4	91	-0.06
63	T,M	Tetrachloroethene	10.000	9.796	2.0	90	-0.06
64	T,M	Dibromochloromethane	10.000	9.855	1.4	89	-0.06
65	T,M	1,2-Dibromoethane	10.000	10.022	-0.2	90	-0.06
66	T,M	1-Chlorohexane	10.000	9.995	0.1	91	-0.06
67	P,M	Chlorobenzene	10.000	10.622	-6.2	97	-0.04
68	T,M	1,1,1,2-Tetrachloroethane	10.000	10.070	-0.7	92	-0.06
69	C,T,M	Ethylbenzene	10.000	10.209	-2.1	93	-0.06
70	T,M	m-Xylene & p-Xylene	20.000	20.232	-1.2	92	-0.04
71	T,M	o-Xylene	10.000	10.107	-1.1	92	-0.06
72	T,M	Styrene	10.000	10.864	-8.6	97	-0.06
73	T,M	Isopropylbenzene	10.000	10.363	-3.6	94	-0.06
74	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	95	-0.04
75	P,T,M	Bromoform	10.000	9.482	5.2	89	-0.06
76	P,T,M	1,1,2,2-Tetrachloroethane	10.000	10.253	-2.5	96	-0.06
77	S	4-Bromofluorobenzene	10.000	9.392	6.1	91	-0.06
78	T,M	1,2,3-Trichloropropane	10.000	9.613	3.9	87	-0.04
79	T,M	trans-1,4-Dichloro-2-butene	10.000	7.948	20.5#	75	-0.04
80	T,M	n-Propylbenzene	10.000	10.118	-1.2	95	-0.04

(#) = Out of Range

Data File : D:\HPCHEM\1\DATA\19L12\RLC156.D Vial: 2
Acq On : 12 Dec 2019 11:17 am Operator: RMinam
Sample : CVO67K1912 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	10.000	10.182	-1.8	96	-0.06
82	T,M	1,3,5-Trimethylbenzene	10.000	10.040	-0.4	94	-0.04
83	T,M	2-Chlorotoluene	10.000	9.865	1.3	94	-0.04
84	T,M	4-Chlorotoluene	10.000	10.116	-1.2	92	-0.04
85	T,M	tert-Butylbenzene	10.000	10.252	-2.5	96	-0.04
86	T,M	1,2,4-Trimethylbenzene	10.000	10.162	-1.6	95	-0.04
87	T,M	sec-Butylbenzene	10.000	10.277	-2.8	96	-0.04
88	T,M	p-Isopropyltoluene	10.000	10.262	-2.6	95	-0.04
89	T,M	1,3-Dichlorobenzene	10.000	10.667	-6.7	100	-0.04
90	T,M	1,4-Dichlorobenzene	10.000	10.569	-5.7	99	-0.04
91	T,M	n-Butylbenzene	10.000	10.360	-3.6	96	-0.04
92	T,M	1,2-Dichlorobenzene	10.000	10.778	-7.8	100	-0.04
93	T,M	1,2-Dibromo-3-chloropropane	10.000	11.053	-10.5	99	-0.04
94	T,M	1,2,4-Trichlorobenzene	10.000	11.315	-13.1	99	-0.04
95	T,M	Hexachlorobutadiene	10.000	10.655	-6.5	94	-0.06
96	T,M	Naphthalene	10.000	11.149	-11.5	99	-0.06
97	T,M	1,2,3-Trichlorobenzene	10.000	11.199	-12.0	98	-0.06

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L12\RLC156.D Vial: 2
Acq On : 12 Dec 2019 11:17 am Operator: RMinam
Sample : CVO67K1912 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	86	-0.07
2	T,M	Dichlorodifluoromethane	0.282	0.268	5.0	79	-0.02
3	T,M	Dichlorotetrafluoroethane	0.000	0.000	0.0	0#	0.00
4	P,T,M	Chloromethane	0.500	0.493	1.4	87	-0.03
5	C,T,M	Vinyl chloride	0.441	0.449	-1.8	81	-0.02
6	T,M	Bromomethane	0.326	0.350	-7.4	87	-0.03
7	T,M	Chloroethane	0.283	0.300	-6.0	88	-0.04
8	T,M	Dichlorofluoromethane	0.647	0.598	7.6	78	-0.03
9	T,M	Trichlorofluoromethane	0.478	0.455	4.8	78	-0.05
10	T,M	sec-Propyl alcohol	0.000	0.000	0.0	0#	0.00
11	T,M	Acrolein	0.024	0.019	20.8#	68	-0.06
12	T,M	1,1,2-Trichloro-1,2,2-trifl	0.215	0.211	1.9	82	-0.04
13	T,M	Acetone	0.033	0.032	3.0	79	-0.04
14	C,T,M	1,1-Dichloroethene	0.558	0.519	7.0	78	-0.06
15	T,M	tert-Butyl alcohol	0.012	0.011	8.3	81	-0.04
16	T,M	Methyl acetate	0.101	0.112	-10.9	89	-0.06
17	T,M	Iodomethane	0.485	0.505	-4.1	87	-0.06
18	T,M	Acetonitrile	0.000	0.005	0.0	0#	-0.04
19	T,M	Methylene chloride	0.420	0.414	1.4	85	-0.06
20	T,M	Carbon disulfide	1.204	1.376	-14.3	98	-0.06
21	T,M	Acrylonitrile	0.044	0.047	-6.8	87	-0.07
22	T,M	tert-Butyl methyl ether (MT	0.460	0.463	-0.7	84	-0.06
23	T,M	trans-1,2-Dichloroethene	0.338	0.345	-2.1	85	-0.06
24	T,M	Isopropyl ether (DIPE)	1.020	1.091	-7.0	89	-0.07
25	P,T,M	1,1-Dichloroethane	0.612	0.614	-0.3	84	-0.07
26	T,M	Vinyl acetate	0.382	0.430	-12.6	92	-0.07
27	T,M	2-Butanol	0.010	0.010	0.0	86	-0.09
28	T,M	tert-Butyl ethyl ether (ETB	0.771	0.739	4.2	83	-0.09
29	T,M	2-Butanone	0.011	0.012	-9.1	85	-0.09
30	T,M	2,2-Dichloropropane	0.420	0.393	6.4	83	-0.09
31	T,M	cis-1,2-Dichloroethene	0.329	0.352	-7.0	88	-0.09
32	C,T,M	Chloroform	0.542	0.530	2.2	81	-0.07
33	T,M	Bromochloromethane	0.146	0.154	-5.5	87	-0.09
34	T,M	tert-Amyl alcohol	0.009	0.000	100.0#	0#	-8.09#
35	S	Dibromofluoromethane	0.285	0.279	2.1	82	-0.07
36	T,M	Tetrahydrofuran	0.039	0.037	5.1	80	-0.07
37	T,M	1,1,1-Trichloroethane	0.483	0.444	8.1	76	-0.07
38	T,M	Cyclohexane	0.508	0.539	-6.1	89	-0.07
39	T,M	2,2,4-Trimethylpentane	1.340	0.000	100.0#	0#	-8.70#
40	T,M	1,1-Dichloropropene	0.158	0.163	-3.2	86	-0.07
41	T,M	Carbon tetrachloride	0.405	0.371	8.4	75	-0.07

(#) = Out of Range

Data File : D:\HPCHEM\1\DATA\19L12\RLC156.D Vial: 2
Acq On : 12 Dec 2019 11:17 am Operator: RMinam
Sample : CVO67K1912 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
42	T,M	tert-Amyl methyl ether (TAM	0.119	0.122	-2.5	83	-0.07
43	S	1,2-Dichloroethane-d4	0.246	0.211	14.2	71	-0.07
44	T,M	1,2-Dichloroethane	0.287	0.260	9.4	73	-0.07
45	T,M	Benzene	1.174	1.239	-5.5	88	-0.06
46	T,M	Trichloroethene	0.322	0.351	-9.0	90	-0.06
47	T,M	Methylcyclohexane	0.584	0.670	-14.7	95	-0.07
48	C,T,M	1,2-Dichloropropane	0.291	0.314	-7.9	91	-0.07
49	T,M	Bromodichloromethane	0.348	0.351	-0.9	84	-0.06
50	T,M	1,4-Dioxane	0.001	0.001	0.0	92	-0.07
51	T,M	Dibromomethane	0.125	0.128	-2.4	82	-0.06
52	T,M	2-Chloroethyl vinyl ether	0.082	0.076	7.3	75	-0.06
53	T,M	4-Methyl-2-pentanone	0.144	0.158	-9.7	87	-0.06
54	T,M	cis-1,3-Dichloropropene	0.407	0.440	-8.1	89	-0.06
55	I	CHLOROBENZENE-D5	1.000	1.000	0.0	93	-0.06
56	S	Toluene-d8	1.403	1.393	0.7	92	-0.06
57	C,T,M	Toluene	1.671	1.693	-1.3	93	-0.06
58	T,M	Ethyl methacrylate	0.273	0.267	2.2	87	-0.06
59	T,M	trans-1,3-Dichloropropene	0.442	0.416	5.9	84	-0.06
60	T,M	1,1,2-Trichloroethane	0.196	0.200	-2.0	93	-0.04
61	T,M	2-Hexanone	0.119	0.117	1.7	88	-0.04
62	T,M	1,3-Dichloropropane	0.387	0.385	0.5	91	-0.06
63	T,M	Tetrachloroethene	0.335	0.329	1.8	90	-0.06
64	T,M	Dibromochloromethane	0.264	0.261	1.1	89	-0.06
65	T,M	1,2-Dibromoethane	0.185	0.186	-0.5	90	-0.06
66	T,M	1-Chlorohexane	0.648	0.648	0.0	91	-0.06
67	P,M	Chlorobenzene	0.932	0.990	-6.2	97	-0.04
68	T,M	1,1,1,2-Tetrachloroethane	0.324	0.326	-0.6	92	-0.06
69	C,T,M	Ethylbenzene	1.987	2.028	-2.1	93	-0.06
70	T,M	m-Xylene & p-Xylene	1.471	1.488	-1.2	92	-0.04
71	T,M	o-Xylene	1.395	1.410	-1.1	92	-0.06
72	T,M	Styrene	1.008	1.095	-8.6	97	-0.06
73	T,M	Isopropylbenzene	1.798	1.864	-3.7	94	-0.06
74	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	95	-0.04
75	P,T,M	Bromoform	0.364	0.345	5.2	89	-0.06
76	P,T,M	1,1,2,2-Tetrachloroethane	0.589	0.604	-2.5	96	-0.06
77	S	4-Bromofluorobenzene	1.268	1.191	6.1	91	-0.06
78	T,M	1,2,3-Trichloropropane	0.160	0.154	3.8	87	-0.04
79	T,M	trans-1,4-Dichloro-2-butene	0.204	0.162	20.6#	75	-0.04
80	T,M	n-Propylbenzene	6.360	6.436	-1.2	95	-0.04

(#) = Out of Range

Data File : D:\HPCHEM\1\DATA\19L12\RLC156.D Vial: 2
Acq On : 12 Dec 2019 11:17 am Operator: RMinam
Sample : CVO67K1912 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
81	T,M	Bromobenzene	0.929	0.946	-1.8	96	-0.06
82	T,M	1,3,5-Trimethylbenzene	3.930	3.946	-0.4	94	-0.04
83	T,M	2-Chlorotoluene	3.881	3.829	1.3	94	-0.04
84	T,M	4-Chlorotoluene	3.266	3.304	-1.2	92	-0.04
85	T,M	tert-Butylbenzene	0.895	0.918	-2.6	96	-0.04
86	T,M	1,2,4-Trimethylbenzene	3.715	3.776	-1.6	95	-0.04
87	T,M	sec-Butylbenzene	5.366	5.515	-2.8	96	-0.04
88	T,M	p-Isopropyltoluene	4.351	4.465	-2.6	95	-0.04
89	T,M	1,3-Dichlorobenzene	1.825	1.947	-6.7	100	-0.04
90	T,M	1,4-Dichlorobenzene	1.743	1.842	-5.7	99	-0.04
91	T,M	n-Butylbenzene	4.130	4.279	-3.6	96	-0.04
92	T,M	1,2-Dichlorobenzene	1.453	1.566	-7.8	100	-0.04
93	T,M	1,2-Dibromo-3-chloropropane	0.077	0.085	-10.4	99	-0.04
94	T,M	1,2,4-Trichlorobenzene	0.780	0.882	-13.1	99	-0.04
95	T,M	Hexachlorobutadiene	0.636	0.678	-6.6	94	-0.06
96	T,M	Naphthalene	0.998	1.113	-11.5	99	-0.06
97	T,M	1,2,3-Trichlorobenzene	0.583	0.653	-12.0	98	-0.06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLC156.D Vial: 2
Acq On : 12 Dec 2019 11:17 am Operator: RMinam
Sample : CVO67K1912 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 12 17:26 2019 Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.04	114	1687187	10.00	ug/l	-0.07
55) CHLOROBENZENE-D5	15.49	117	1389294	10.00	ug/l	-0.06
74) 1,2-DICHLOROBENZENE-D4	19.40	152	506160	10.00	ug/l	-0.04
System Monitoring Compounds						
35) Dibromofluoromethane	8.08	111	470895	9.80	ug/l	-0.07
Spiked Amount 10.000			Recovery =	98.00%		
43) 1,2-Dichloroethane-d4	9.17	65	356559	8.59	ug/l	-0.07
Spiked Amount 10.000			Recovery =	85.90%		
56) Toluene-d8	12.87	98	1935023	9.93	ug/l	-0.06
Spiked Amount 10.000			Recovery =	99.30%		
77) 4-Bromofluorobenzene	17.50	95	602720	9.39	ug/l	-0.06
Spiked Amount 10.000			Recovery =	93.90%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.84	85	452259	9.49	ug/l	99
4) Chloromethane	2.10	50	831691	9.85	ug/l	98
5) Vinyl chloride	2.21	62	757652	10.19	ug/l	98
6) Bromomethane	2.60	94	591003	10.73	ug/l	99
7) Chloroethane	2.64	64	505352	10.60	ug/l	98
8) Dichlorofluoromethane	2.71	67	1008206	9.23	ug/l	99
9) Trichlorofluoromethane	2.91	101	767145	9.51	ug/l	100
11) Acrolein	3.45	56	164132	40.91	ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.49	151	355476	9.80	ug/l	100
13) Acetone	3.53	43	268287	48.52	ug/l	99
14) 1,1-Dichloroethene	3.69	61	875253	9.30	ug/l	96
15) tert-Butyl alcohol	3.83	59	448525	250.53	ug/l	98
16) Methyl acetate	4.21	43	189136	11.14	ug/l	98
17) Iodomethane	4.15	142	852827	10.42	ug/l	91
19) Methylene chloride	4.44	49	697799	9.86	ug/l	99
20) Carbon disulfide	4.42	76	2320733	11.42	ug/l	100
21) Acrylonitrile	4.66	53	394961	52.75	ug/l	98
22) tert-Butyl methyl ether (M	4.70	73	781776	10.07	ug/l	99
23) trans-1,2-Dichloroethene	4.94	96	582315	10.21	ug/l	100
24) Isopropyl ether (DIPE)	5.58	45	1840343	10.69	ug/l	98
25) 1,1-Dichloroethane	5.77	63	1035237	10.03	ug/l	100
26) Vinyl acetate	5.83	43	726195	11.25	ug/l	100
27) 2-Butanol	6.30	45	437861	268.91	ug/l	98
28) tert-Butyl ethyl ether (ET	6.50	59	1247619	9.60	ug/l	100
29) 2-Butanone	6.78	72	101157	53.53	ug/l	90
30) 2,2-Dichloropropane	7.07	77	663149	9.35	ug/l	98
31) cis-1,2-Dichloroethene	7.19	96	593922	10.71	ug/l	100

(#) = qualifier out of range (m) = manual integration
RLC156.D VO67K19.M Thu Dec 12 17:27:18 2019 Page 1

Data File : D:\HPCHEM\1\DATA\19L12\RLC156.D Vial: 2
Acq On : 12 Dec 2019 11:17 am Operator: RMinam
Sample : CVO67K1912 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 12 17:26 2019 Quant Results File: VO67K19.RES

Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
32)	Chloroform	7.57	83	893926	9.78	ug/l	99
33)	Bromochloromethane	7.93	130	260192	10.59	ug/l	99
36)	Tetrahydrofuran	8.02	42	62899	9.65	ug/l	92
37)	1,1,1-Trichloroethane	8.46	97	748597	9.19	ug/l	99
38)	Cyclohexane	8.44	84	910052	10.62	ug/l	97
40)	1,1-Dichloropropene	8.81	110	274810	10.33	ug/l	100
41)	Carbon tetrachloride	8.98	119	626640	9.17	ug/l	100
42)	tert-Amyl methyl ether (TA	9.13	87	206616	10.27	ug/l	100
44)	1,2-Dichloroethane	9.38	62	438345	9.06	ug/l	99
45)	Benzene	9.36	78	2090429	10.55	ug/l	99
46)	Trichloroethene	10.62	130	591458	10.89	ug/l	97
47)	Methylcyclohexane	10.69	83	1130788	11.48	ug/l	98
48)	1,2-Dichloropropane	10.97	63	529780	10.78	ug/l	91
49)	Bromodichloromethane	11.41	83	591495	10.07	ug/l	100
50)	1,4-Dioxane	11.50	88	37276	227.03	ug/l	98
51)	Dibromomethane	11.50	93	215796	10.24	ug/l	96
52)	2-Chloroethyl vinyl ether	12.10	63	127727	9.24	ug/l	99
53)	4-Methyl-2-pentanone	12.14	43	1328712	54.70	ug/l	99
54)	cis-1,3-Dichloropropene	12.46	75	742382	10.81	ug/l	95
57)	Toluene	13.00	91	2351879	10.13	ug/l	99
58)	Ethyl methacrylate	13.41	69	371439	9.78	ug/l	100
59)	trans-1,3-Dichloropropene	13.38	75	578122	9.41	ug/l	90
60)	1,1,2-Trichloroethane	13.64	97	277188	10.20	ug/l	99
61)	2-Hexanone	13.70	43	811509	49.17	ug/l	98
62)	1,3-Dichloropropane	14.08	76	534912	9.96	ug/l	99
63)	Tetrachloroethene	14.14	164	456516	9.80	ug/l	98
64)	Dibromochloromethane	14.49	129	362015	9.85	ug/l	100
65)	1,2-Dibromoethane	14.83	107	258083	10.02	ug/l	100
66)	1-Chlorohexane	15.16	91	900217	9.99	ug/l	100
67)	Chlorobenzene	15.56	112	1376047	10.62	ug/l	99
68)	1,1,1,2-Tetrachloroethane	15.65	131	453069	10.07	ug/l	99
69)	Ethylbenzene	15.66	91	2817609	10.21	ug/l	99
70)	m-Xylene & p-Xylene	15.79	91	4134121	20.23	ug/l	98
71)	o-Xylene	16.51	91	1959171	10.11	ug/l	98
72)	Styrene	16.58	104	1521064	10.86	ug/l	95
73)	Isopropylbenzene	17.12	105	2588976	10.36	ug/l	98
75)	Bromoform	17.12	173	174780	9.48	ug/l	100
76)	1,1,2,2-Tetrachloroethane	17.40	83	305815	10.25	ug/l	98
78)	1,2,3-Trichloropropane	17.62	110	77746	9.61	ug/l	95
79)	trans-1,4-Dichloro-2-buten	17.22	53	82201	7.95	ug/l	95
80)	n-Propylbenzene	17.72	91	3257396	10.12	ug/l	98

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

Data File : D:\HPCHEM\1\DATA\19L12\RLC156.D Vial: 2
Acq On : 12 Dec 2019 11:17 am Operator: RMinam
Sample : CVO67K1912 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 12 17:26 2019 Quant Results File: VO67K19.RES

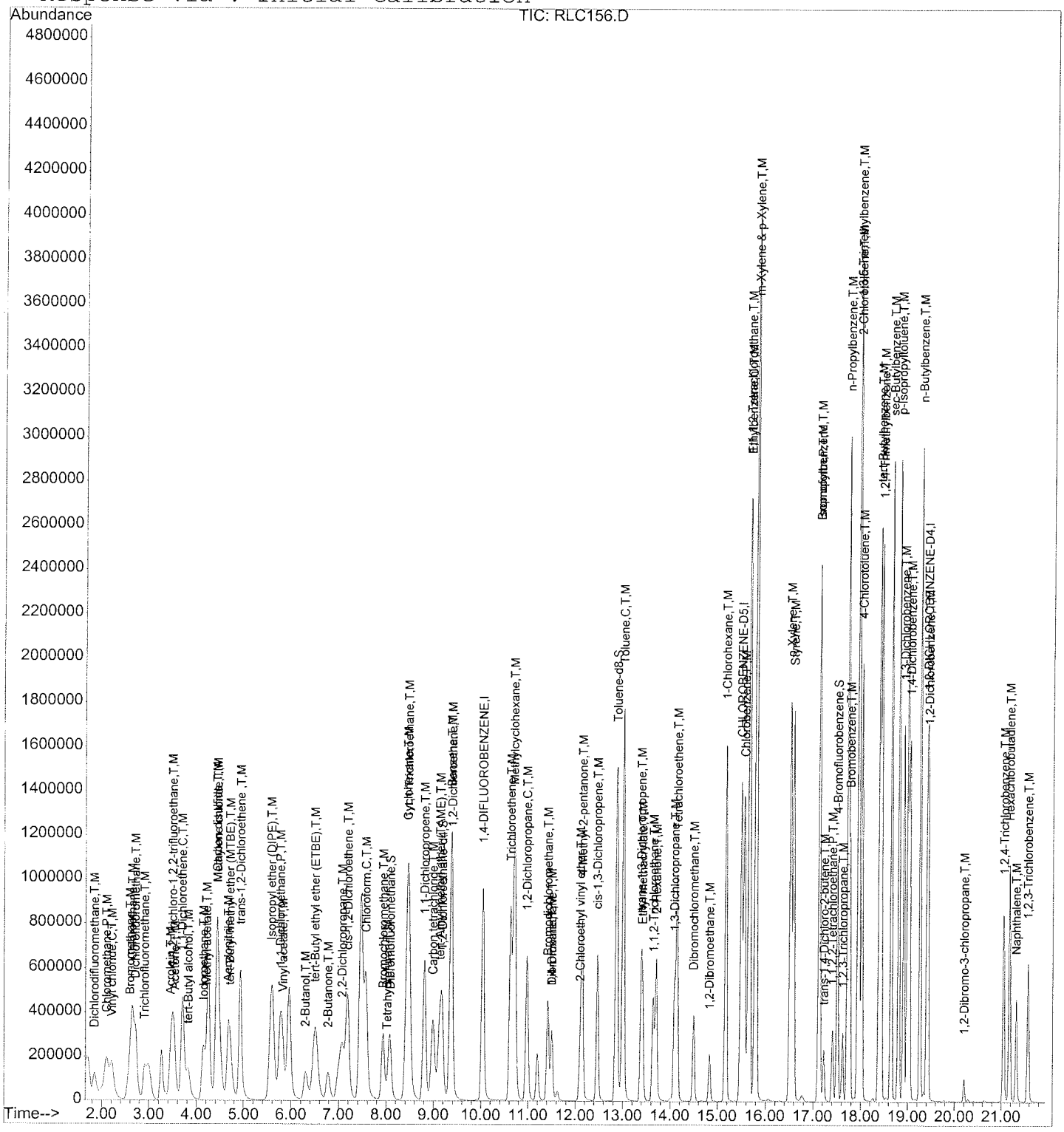
Quant Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration
DataAcq Meth : VO67K19

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
81)	Bromobenzene	17.77	156	478992	10.18 ug/l	99
82)	1,3,5-Trimethylbenzene	17.94	105	1997459	10.04 ug/l	98
83)	2-Chlorotoluene	17.95	91	1937949	9.86 ug/l	98
84)	4-Chlorotoluene	18.01	91	1672146	10.12 ug/l	98
85)	tert-Butylbenzene	18.39	134	464585	10.25 ug/l	95
86)	1,2,4-Trimethylbenzene	18.44	105	1911079	10.16 ug/l	97
87)	sec-Butylbenzene	18.64	105	2791362	10.28 ug/l	100
88)	p-Isopropyltoluene	18.80	119	2259952	10.26 ug/l	97
89)	1,3-Dichlorobenzene	18.90	146	985290	10.67 ug/l	99
90)	1,4-Dichlorobenzene	19.04	146	932586	10.57 ug/l	99
91)	n-Butylbenzene	19.26	91	2165668	10.36 ug/l	99
92)	1,2-Dichlorobenzene	19.43	146	792831	10.78 ug/l	99
93)	1,2-Dibromo-3-chloropropan	20.21	157	43080	11.05 ug/l	100
94)	1,2,4-Trichlorobenzene	21.05	180	446594	11.31 ug/l	100
95)	Hexachlorobutadiene	21.17	225	343007	10.66 ug/l	100
96)	Naphthalene	21.32	128	563186	11.15 ug/l	99
97)	1,2,3-Trichlorobenzene	21.56	180	330351	11.20 ug/l	100

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

Data File : D:\HPCHEM\1\DATA\19L12\RLC156.D Vial: 2
Acq On : 12 Dec 2019 11:17 am Operator: RMinam
Sample : CVO67K1912 Inst : 67
Misc : 10ppb 8260/50ppb KET-AA Multiplr: 1.00
MS Integration Params: RTE.P
Quant Time: Dec 12 17:26 2019 Quant Results File: VO67K19.RES

Method : D:\HPCHEM\1\METHODS\VO67K19.M (RTE Integrator)
Title : METHOD 8260B
Last Update : Wed Nov 20 15:52:05 2019
Response via : Initial Calibration



ANALYTICAL LOG(S)

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR VOLATILES

SOP ☑ EMAX-8260 Rev.No. 10 ☐ EMAX-8260C Rev. No. 1 ☐ EMAX-8260SIM Rev.No. 1 ☐ EMAX-M8260SIM Rev.No. 0 ☐ EMAX-TCPSIM Rev.No. 2 ☐ EMAX-624 Rev.No. 4

Start Date: 11/19/19 ☐ 5-mL Purge ☐ 10-mL Purge ☑ 25-mL Purge

Book #: A67-069

BATCH VO67K196

	Sample Prep ID	Data File Name	Lab Sample ID	Sample Amount (ml)	DF	Matrix W pH <2	Matrix W Cl_2 <5ppm	Matrix S	Notes
01		RKC199	BFB67K14	A/B	N/A	N/A	N/A		12:44
02		200	VO67K191	0.03/0.15					0.3ppb/1.5ppb/7.5ppb
03		201	2	0.05/0.25					0.5/2.5/12.5
04		202	3	0.1/0.5					1/5/25
05		203	4	0.2/1					2/10/50
06		204	5	0.5/2.5					5/25/125
07		205	6	1/5					10/50/250
08		206	7	2/10					20/100/500
09		207	8	3/15					30/150/750
10		208	9	5/25					50/250/1250
11		209	10	10/50					100/500/2500
12		210	RINSE						
13		211							
14		212	IVO67K1901						10ppb/50ppb
15		213	RINSE						
16		214	LOD VERF 1						0.2ppb/4ppb
17		215	2						0.4/4
18		216	3						0.6/4/6 20:20
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									RM 11/20/19

Instrument No.	67
INITIAL CALIBRATION REFERENCE	
DATE	11/19/19
ICAL ID	VO67K19

STANDARDS

NAME	ID	Amount (µl)	Conc. (mg/L)
DCC 4ADD CS_2	SV1-33-25-02	*	250
DCC gas	~~-28-01~~ -39-02	*	↓
DCC TAA+224TMP	-38-03	*	250/1250
DCC 8260 KET	~~-36-01~~ -32-01	*	~~50~~ 250
BFB	SV1-32-75-01	1	50
IS/SURR. IS SS	SV1-33-30-03 -04-03	1 *	250 ~~50~~
ICV/LCS Cl_2 gas	SV1-32-82-03 SV1-33-26-01	1 1	250 ↓
ICV/LCS 8260 KET	-29-03 -31-03	5 5	50 250
ICV/LCS 3ADD 224 TMP	-13-02 -16-02	5 5	50 ↓
ICV/LCS 2-Bnt TAA	-39-01 SV1-32-87-03	12.5 5	500 250
Data File Folder	19K19		

	LOT #	Syringe Lot #
pH strip		MSV-01-04-18
Chlorine strip		↓ -04-06
Methanol		↓ -04-13
$NaHSO_4$		MSV-02-01-04-6
Reagent Water	RW5-19-001	↓ -1
Sand		

Electronic Data Archival Location	Date
HPCHEM_VOA/TO67	11/21/19

Comments: A: CS_2, gas, 4ADD, TAA+224TMP
B: 8260, KET-AA, SS
* Amount varied

Analyzed By: RM

Date Disposed: 11/20/19 Disposed By: RM

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR VOLATILES

SOP ☑ EMAX-8260 Rev.No. 10 ☐ EMAX-8260C Rev. No. 1 ☐ EMAX-8260SIM Rev.No. 1 ☐ EMAX-M8260SIM Rev.No. 0 ☐ EMAX-TCPSIM Rev.No. 2 ☐ EMAX-624 Rev.No. 4

Start Date: 12/12/19 ☐ 5-mL Purge ☐ 10-mL Purge ☑ 25-mL Purge

Book #: A67-069

BATCH CV067K1912

	Sample Prep ID	Data File Name	Lab Sample ID	Sample Amount	DF	Matrix W pH <2	Matrix W Cl_2 <5ppm	Matrix S	Notes
01		RLC155	BFB67L09						10:45
02		156	CV067K1912						
03		157	V067L09L						
04		158	↓ C						
05		159	RINSE						
06		160	V067L09B	25mL	1.0				
07		161	19L071-01	↓	↓	✓	✓		
08		162	↓ -17I	2.5mL	10	✓	✓		
09		163	19L087-01	25mL	1.0	✓	✓		
10		164	19L057-06			✓	✓		
11		165	↓ -11			✓	✓		
12		166	19L087-02			✓	✓		
13		167	-03			✓	✓		
14		168	-04			✓	✓		
15		169	↓ -05			✓	✓		
16		170	19L089-06 ~~-07~~ RM 12/13/19			✓	✓		
17		171	↓ -07			✓	✓		little turbid
18		172	19L057-01			✓	✓		
19		173	-02			✓	✓		
20		174	-03			✓	✓		
21		175	-04			✓	✓		
22		176	-05			✓	✓		
23		177	-07			✓	✓		
24		178	-08			✓	✓		
25		179	-09			✓	✓		
26		180	↓ -10	↓	↓	✓	✓		
27		181	EV067K1912						22:15
28		182	↓ A						
29	↓	183	↓ B						
30		184-186	RINSE						

Instrument No.	67
INITIAL CALIBRATION REFERENCE	
DATE	11/19/19
ICAL ID	V067K19

STANDARDS

NAME	ID	Amount (µl)	Conc. (mg/L)
DCC	SV1-33-43-01	1	
DCC	~~-44-02~~ -33-02	1	
DCC	-36-01	5	
DCC	↓ -32-01	5	
BFB	SV1-32-75-01	1	50/250
IS/SURR.	SV1-33-41-02	5	
ICV/LCS	SV1-32-82-03	1	
ICV/LCS	~~SV1-33-26-01~~ -29-03	5	
ICV/LCS	-42-01	5	
ICV/LCS	↓ -13-02	5	
Data File Folder	19L12		

	LOT #	Syringe Lot #
pH strip	HC863463	MSV-01-04-18
Chlorine strip	9130B	MSV-02-01-04-1
Methanol		↓ -6
$NaHSO_4$		
Reagent Water	RW5-19-001	
Sand		

Electronic Data Archival Location	Date
HPCHEM_VOA/TO67	

Comments:

Analyzed By: RM

Date Disposed: 12/13/19 Disposed By: RM

LABORATORY REPORT FOR

CDM SMITH

VA SALT LAKE CITY

METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

SDG#: 19L057

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L057

METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

A total of nine(9) water samples were received on 12/07/19 to be analyzed for 1,4-Dioxane by GC/MS SIM in accordance with Method SW3520C/SW8270D SIM and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Instrument Performance and Calibration
Instrument tune check was performed prior to calibration. Result was within acceptance criteria. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried out at a frequency required by the project. There was one(1)CCV associated with this SDG. CCV(Datafile ID:RLF037) was within calibration acceptance criteria. All calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. SVL003WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. SVL003WL/SVL003WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Surrogate
Surrogate was added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
1,4-DIOXANE BY GC/MS SIM

Client : CDM SMITH
Project : VA SALT LAKE CITY

SDG NO. : 19L057
Instrument ID : F0

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	SVL003WB	1	NA	12/11/1910:32	12/09/1913:00	RLF038	RKF014	19SVL003W	Method Blank
LCS1W	SVL003WL	1	NA	12/11/1910:45	12/09/1913:00	RLF039	RKF014	19SVL003W	Lab Control Sample (LCS)
LCD1W	SVL003WC	1	NA	12/11/1911:01	12/09/1913:00	RLF040	RKF014	19SVL003W	LCS Duplicate
OU2-MW12S-GW120619	19L057-01	1	NA	12/11/1913:04	12/09/1913:00	RLF048	RKF014	19SVL003W	Field Sample
OU2-MW12D-GW120619	19L057-02	1	NA	12/11/1913:19	12/09/1913:00	RLF049	RKF014	19SVL003W	Field Sample
OU2-MW16S-GW120619	19L057-03	1	NA	12/11/1913:34	12/09/1913:00	RLF050	RKF014	19SVL003W	Field Sample
OU2-MW16D-GW120619	19L057-04	1	NA	12/11/1913:50	12/09/1913:00	RLF051	RKF014	19SVL003W	Field Sample
OU2-MW06-GW120619	19L057-05	1	NA	12/11/1914:05	12/09/1913:00	RLF052	RKF014	19SVL003W	Field Sample
OU2-FD01-GW120519	19L057-07	1	NA	12/11/1914:21	12/09/1913:00	RLF053	RKF014	19SVL003W	Field Sample
OU2-MW13S-GW120519	19L057-08	1	NA	12/11/1914:36	12/09/1913:00	RLF054	RKF014	19SVL003W	Field Sample
OU2-MW13D-GW120519	19L057-09	1	NA	12/11/1914:52	12/09/1913:00	RLF055	RKF014	19SVL003W	Field Sample
OU2-MW04-GW120519	19L057-10	1	NA	12/11/1915:07	12/09/1913:00	RLF056	RKF014	19SVL003W	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/06/19 14:15
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
Batch No.	: 19L057	Date Extracted:	12/09/19 13:00
Sample ID	: OU2-MW12S-GW120619	Date Analyzed:	12/11/19 13:04
Lab Samp ID:	19L057-01	Dilution Factor:	1
Lab File ID:	RLF048	Matrix:	WATER
Ext Btch ID:	19SVL003W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	FO

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.44	0.22

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	32.6	43.6	75	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 920ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

Quantitation Report (QT Reviewed)

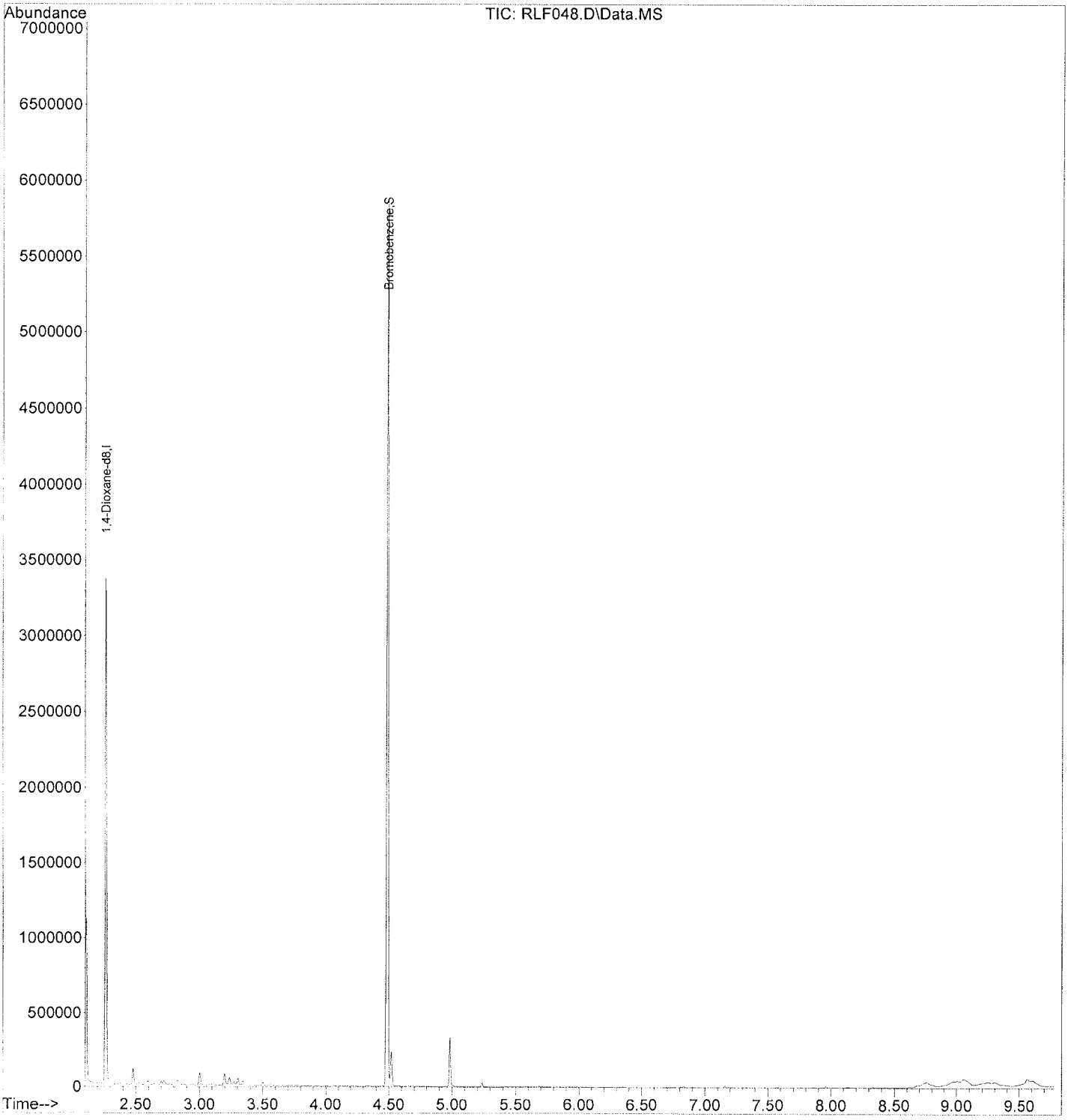
Data File : C:\msdchem\1\DATA\19L11\RLF048.D Vial: 14
Acq On : 11 Dec 2019 13:04 Operator: KVu
Sample : 19L057-01 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 13:20:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	285849	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	682610	14.97	ppm	0.00
Spiked Amount 20.000			Recovery =	74.85%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF048.D Vial: 14
Acq On : 11 Dec 2019 13:04 Operator: KVu
Sample : 19L057-01 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 13:20:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/06/19 12:50
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
Batch No.	: 19L057	Date Extracted:	12/09/19 13:00
Sample ID	: OU2-MW12D-GW120619	Date Analyzed:	12/11/19 13:19
Lab Samp ID:	19L057-02	Dilution Factor:	1
Lab File ID:	RLF049	Matrix:	WATER
Ext Btch ID:	19SVL003W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	FO

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.44	0.22

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	31.6	43.6	72	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 920ml	Final Volume :	2ml
Prepared by	: HWang	Analyzed by :	KVu

Quantitation Report (QT Reviewed)

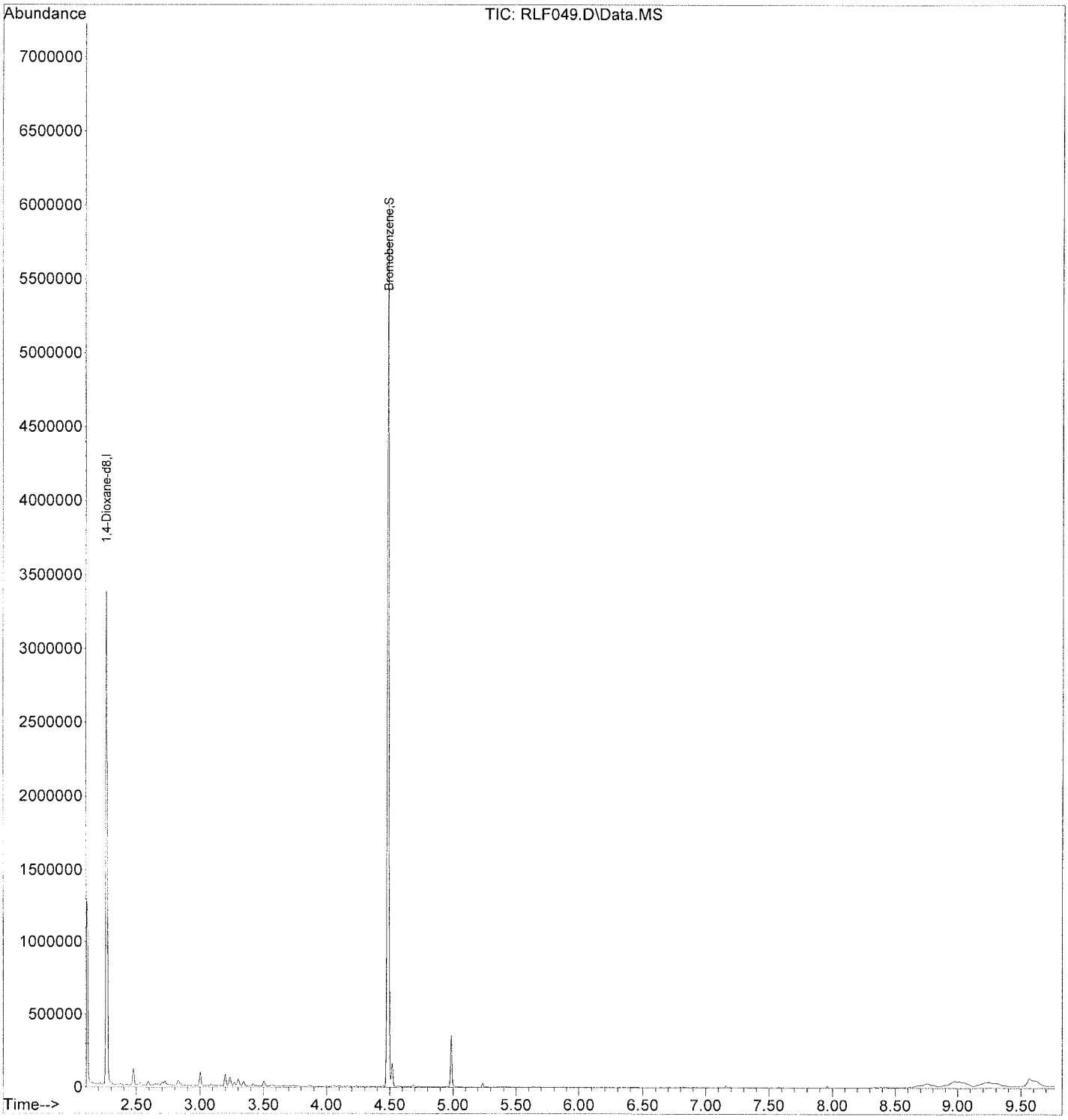
Data File : C:\msdchem\1\DATA\19L11\RLF049.D Vial: 15
Acq On : 11 Dec 2019 13:19 Operator: KVu
Sample : 19L057-02 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 14:06:50 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	297612	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	688959	14.52	ppm	0.00
Spiked Amount 20.000			Recovery =	72.60%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF049.D Vial: 15
Acq On : 11 Dec 2019 13:19 Operator: KVu
Sample : 19L057-02 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 14:06:50 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/06/19 10:55
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
Batch No.	: 19L057	Date Extracted:	12/09/19 13:00
Sample ID	: OU2-MW16S-GW120619	Date Analyzed:	12/11/19 13:34
Lab Samp ID:	19L057-03	Dilution Factor:	1
Lab File ID:	RLF050	Matrix:	WATER
Ext Btch ID:	19SVL003W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	FO

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.41	0.21

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	30.2	41.2	73	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 970ml	Final Volume :	2ml
Prepared by	: HWang	Analyzed by :	KVu

Quantitation Report (QT Reviewed)

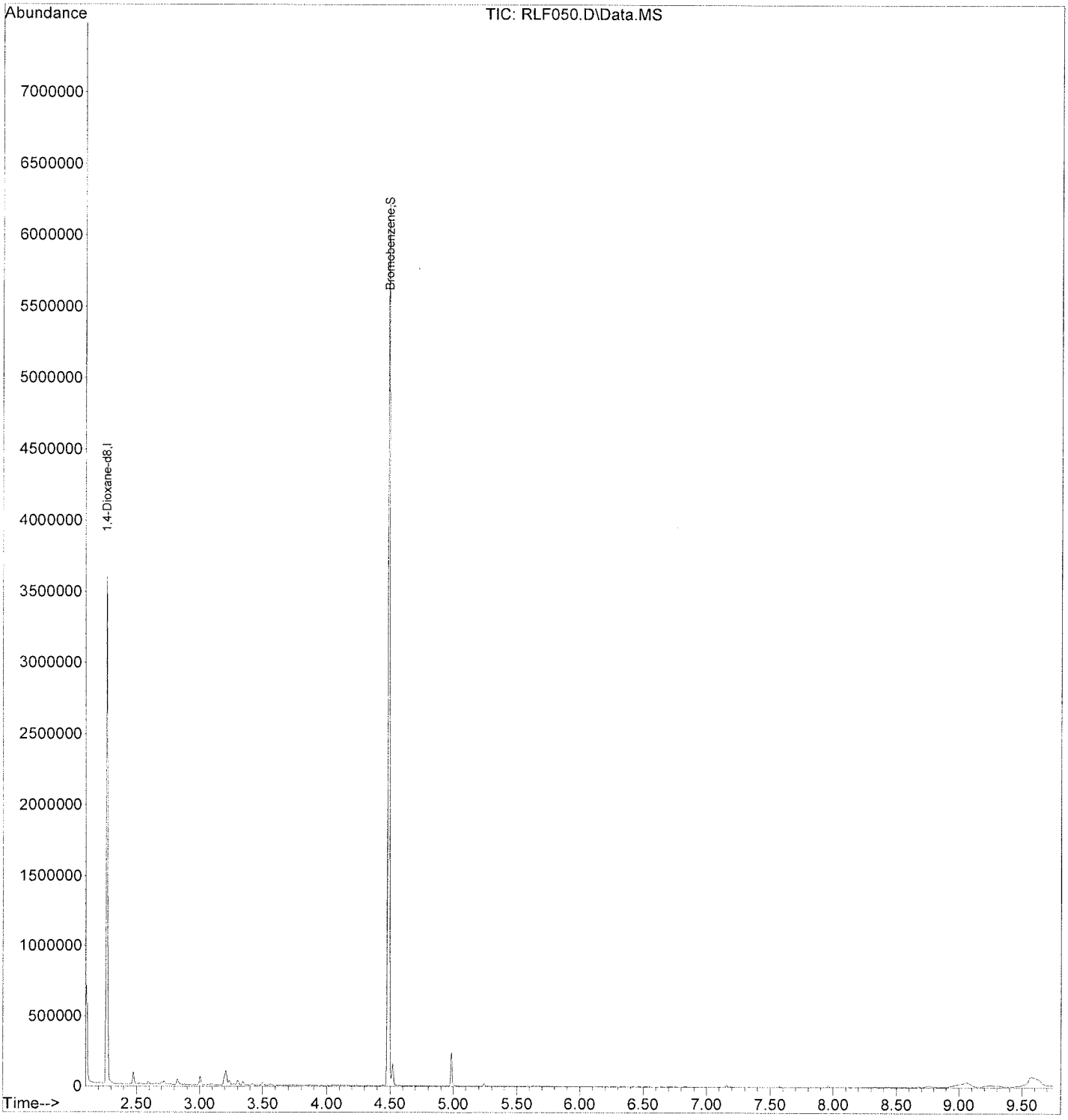
Data File : C:\msdchem\1\DATA\19L11\RLF050.D Vial: 16
Acq On : 11 Dec 2019 13:34 Operator: KVu
Sample : 19L057-03 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 14:07:15 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	300341	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	701594	14.65	ppm	0.00
Spiked Amount 20.000			Recovery =	73.25%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF050.D Vial: 16
Acq On : 11 Dec 2019 13:34 Operator: KVu
Sample : 19L057-03 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 14:07:15 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/06/19 10:10
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
Batch No.	: 19L057	Date Extracted:	12/09/19 13:00
Sample ID	: OU2-MW16D-GW120619	Date Analyzed:	12/11/19 13:50
Lab Samp ID:	19L057-04	Dilution Factor:	1
Lab File ID:	RLF051	Matrix:	WATER
Ext Btch ID:	19SVL003W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	FO

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.47	0.24

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	32.4	47.2	69	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 850ml	Final Volume :	2ml
Prepared by	: HWang	Analyzed by :	KVu

Quantitation Report (QT Reviewed)

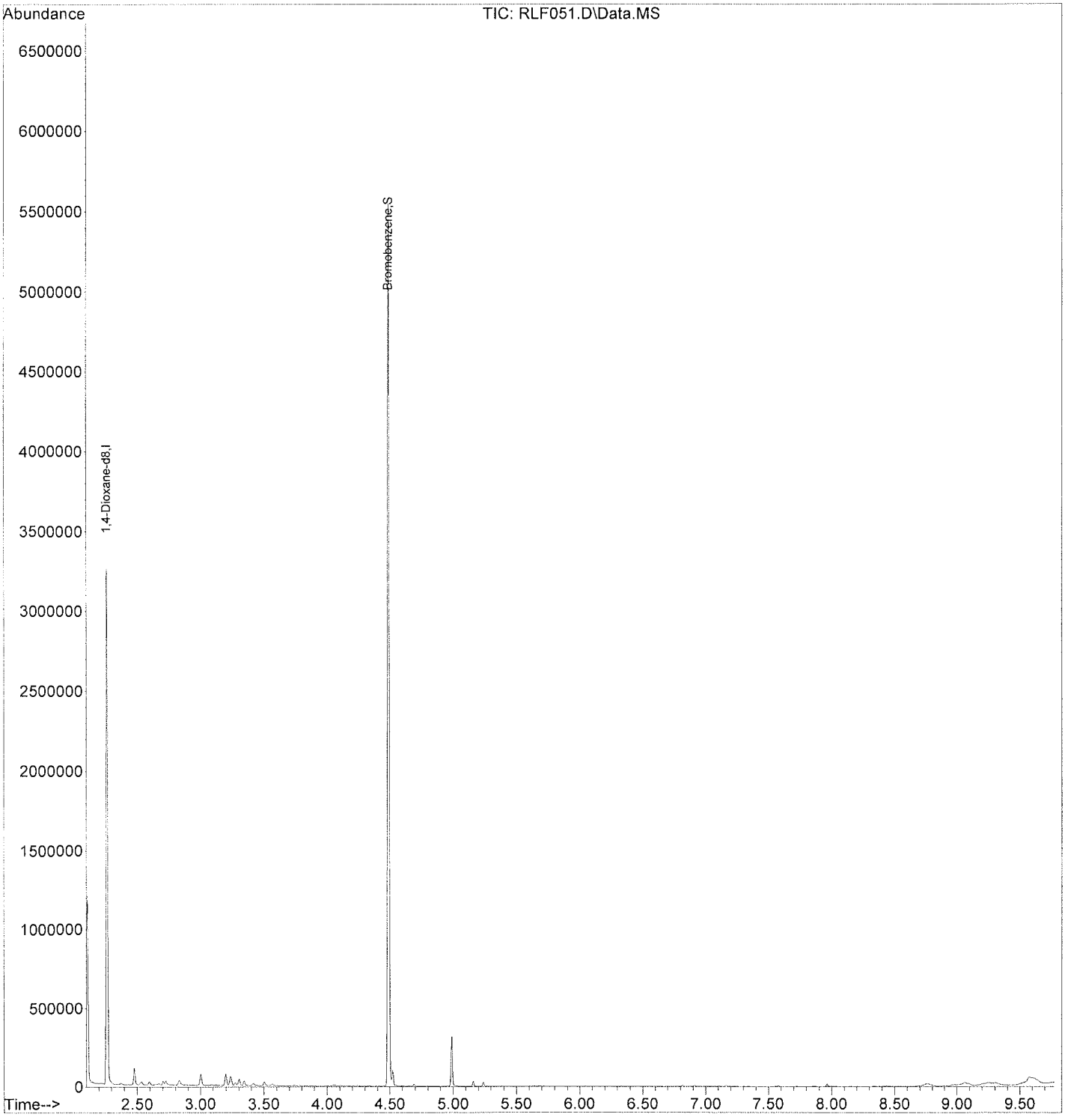
Data File : C:\msdchem\1\DATA\19L11\RLF051.D Vial: 17
Acq On : 11 Dec 2019 13:50 Operator: KVu
Sample : 19L057-04 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 14:07:26 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	286499	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.488	77	628360	13.75	ppm	0.00
Spiked Amount 20.000			Recovery =	68.75%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF051.D Vial: 17
Acq On : 11 Dec 2019 13:50 Operator: KVu
Sample : 19L057-04 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 14:07:26 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/06/19 09:30
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
Batch No.	: 19L057	Date Extracted:	12/09/19 13:00
Sample ID	: OU2-MW06-GW120619	Date Analyzed:	12/11/19 14:05
Lab Samp ID:	19L057-05	Dilution Factor:	1
Lab File ID:	RLF052	Matrix:	WATER
Ext Btch ID:	19SVL003W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	FO

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.43	0.22

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	30.3	43.2	70	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 930ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

Quantitation Report (QT Reviewed)

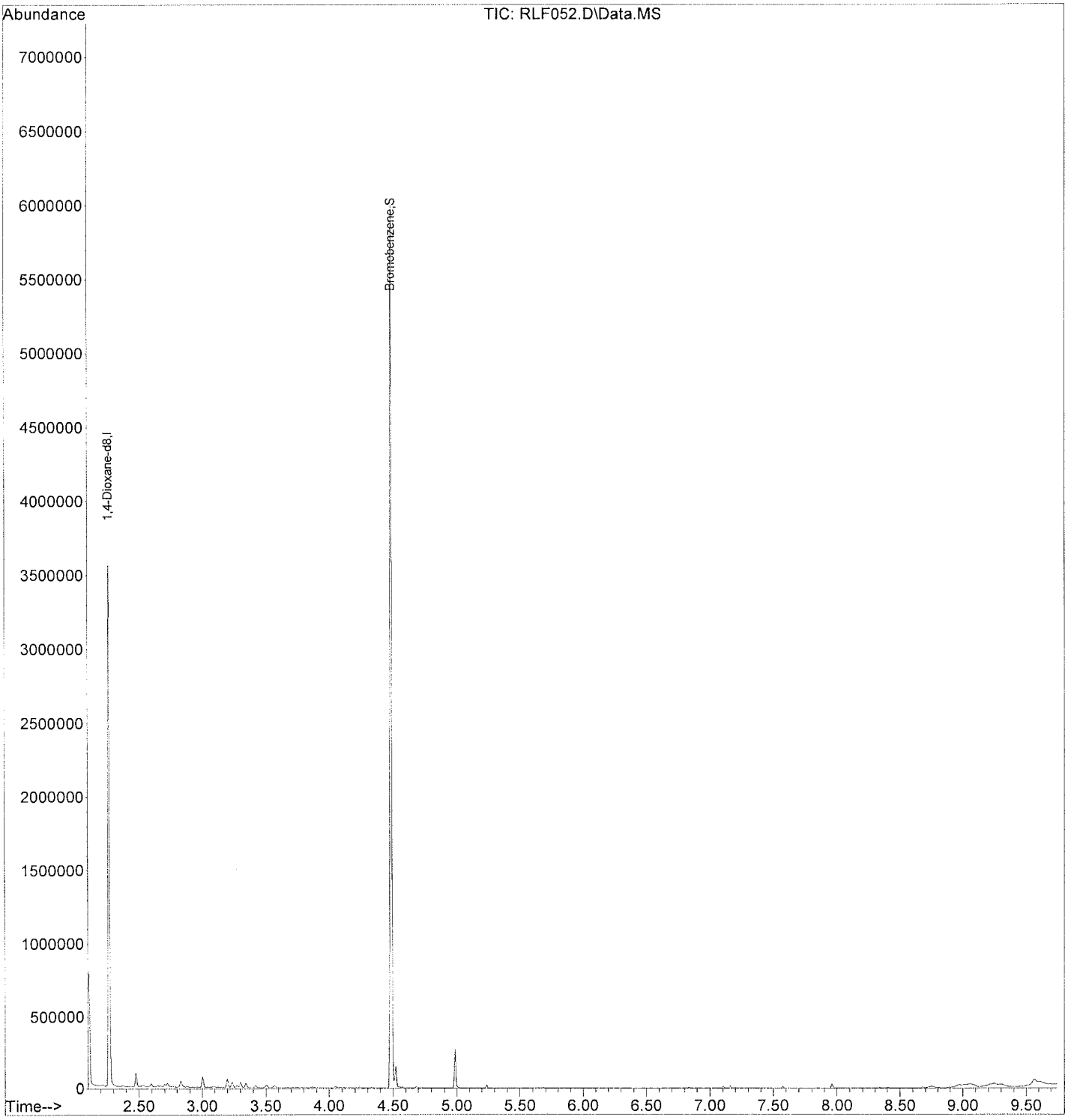
Data File : C:\msdchem\1\DATA\19L11\RLF052.D Vial: 18
Acq On : 11 Dec 2019 14:05 Operator: KVu
Sample : 19L057-05 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 14:28:40 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	301907	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	678844	14.10	ppm	0.00
Spiked Amount 20.000			Recovery = 70.50%			
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF052.D Vial: 18
Acq On : 11 Dec 2019 14:05 Operator: KVu
Sample : 19L057-05 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 14:28:40 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/05/19 13:00
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
Batch No.	: 19L057	Date Extracted:	12/09/19 13:00
Sample ID	: OU2-FD01-GW120519	Date Analyzed:	12/11/19 14:21
Lab Samp ID:	19L057-07	Dilution Factor:	1
Lab File ID:	RLF053	Matrix:	WATER
Ext Btch ID:	19SVL003W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	FO

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.39	0.20

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	27.1	39.2	69	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 1020ml	Final Volume :	2ml
Prepared by	: HWang	Analyzed by :	KVu

Quantitation Report (QT Reviewed)

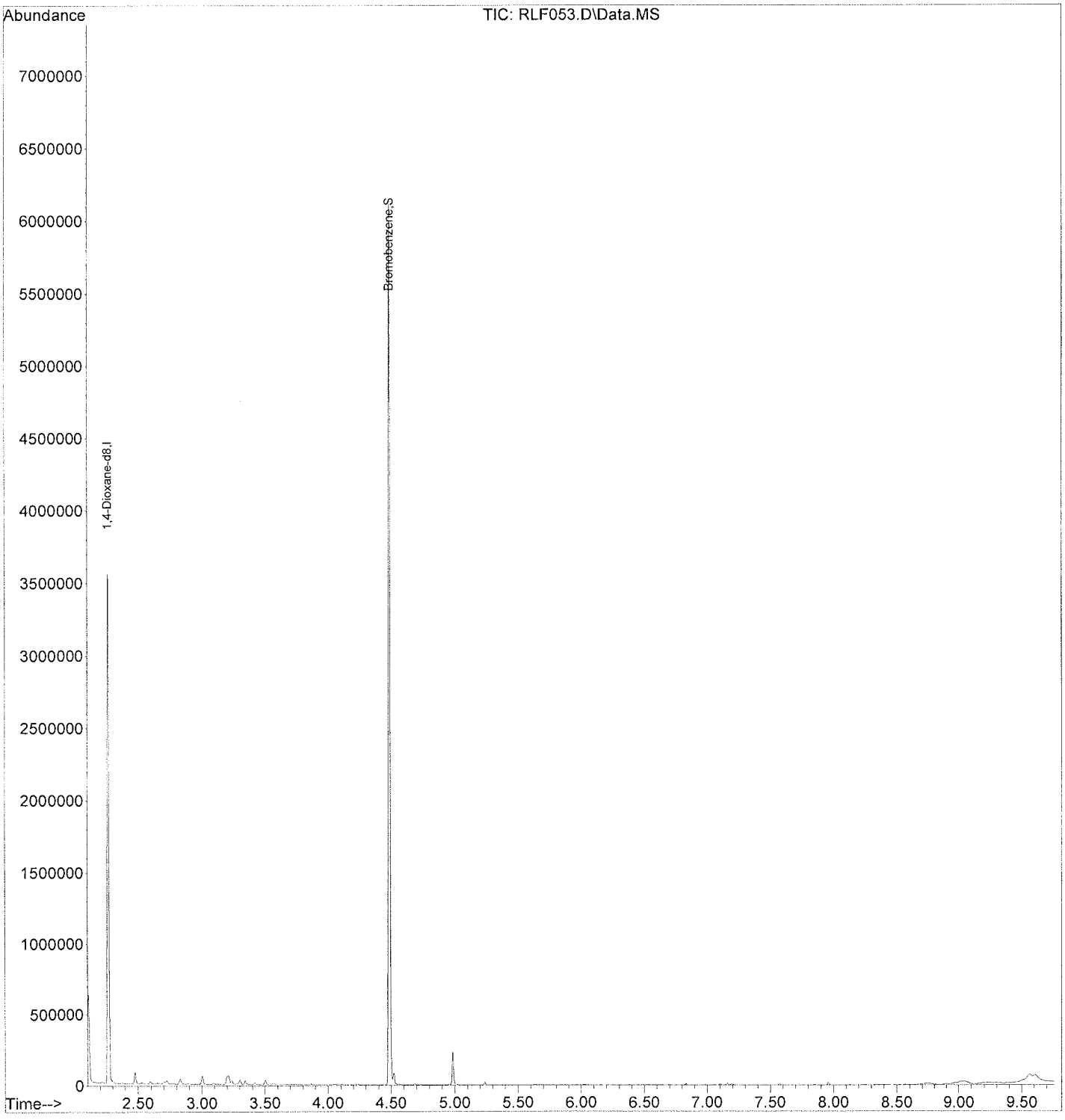
Data File : C:\msdchem\1\DATA\19L11\RLF053.D Vial: 19
Acq On : 11 Dec 2019 14:21 Operator: KVu
Sample : 19L057-07 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 14:56:05 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	309044	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	681583	13.83	ppm	0.00
Spiked Amount 20.000			Recovery =	69.15%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF053.D Vial: 19
Acq On : 11 Dec 2019 14:21 Operator: KVu
Sample : 19L057-07 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 14:56:05 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/05/19 14:40
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
Batch No.	: 19L057	Date Extracted:	12/09/19 13:00
Sample ID	: OU2-MW13S-GW120519	Date Analyzed:	12/11/19 14:36
Lab Samp ID:	19L057-08	Dilution Factor:	1
Lab File ID:	RLF054	Matrix:	WATER
Ext Btch ID:	19SVL003W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.39	0.19

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	20.5	38.8	53	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 1030ml	Final Volume :	2ml
Prepared by	: HWang	Analyzed by :	KVu

Quantitation Report (QT Reviewed)

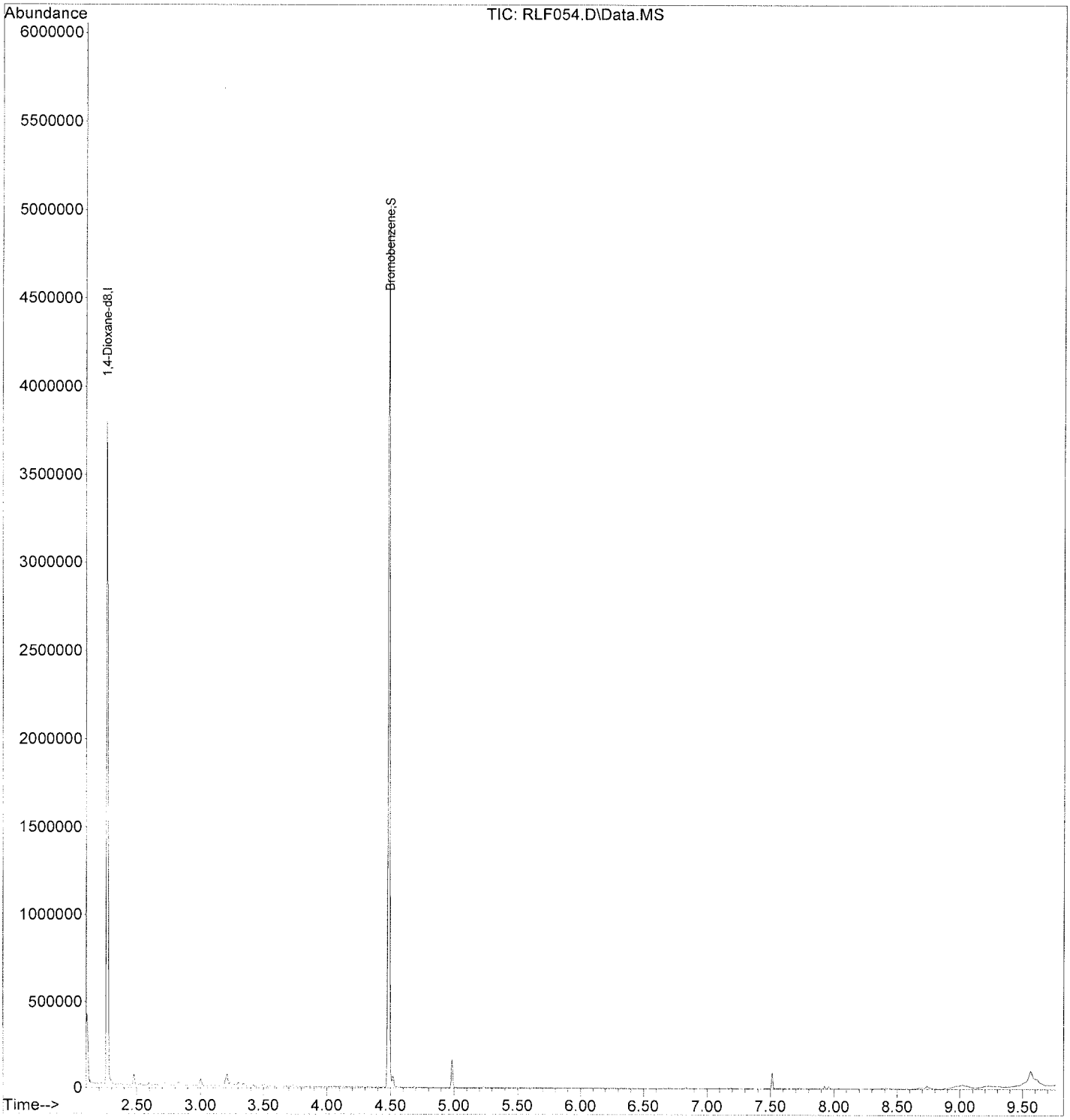
Data File : C:\msdchem\1\DATA\19L11\RLF054.D Vial: 20
Acq On : 11 Dec 2019 14:36 Operator: KVu
Sample : 19L057-08 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 14:56:26 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	329152	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	554574	10.57	ppm	0.00
Spiked Amount 20.000			Recovery =	52.85%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF054.D Vial: 20
Acq On : 11 Dec 2019 14:36 Operator: KVu
Sample : 19L057-08 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 14:56:26 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/05/19 16:55
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
Batch No.	: 19L057	Date Extracted:	12/09/19 13:00
Sample ID	: OU2-MW13D-GW120519	Date Analyzed:	12/11/19 14:52
Lab Samp ID:	19L057-09	Dilution Factor:	1
Lab File ID:	RLF055	Matrix:	WATER
Ext Btch ID:	19SVL003W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.41	0.20

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	24.9	40.8	61	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 980ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

Quantitation Report (QT Reviewed)

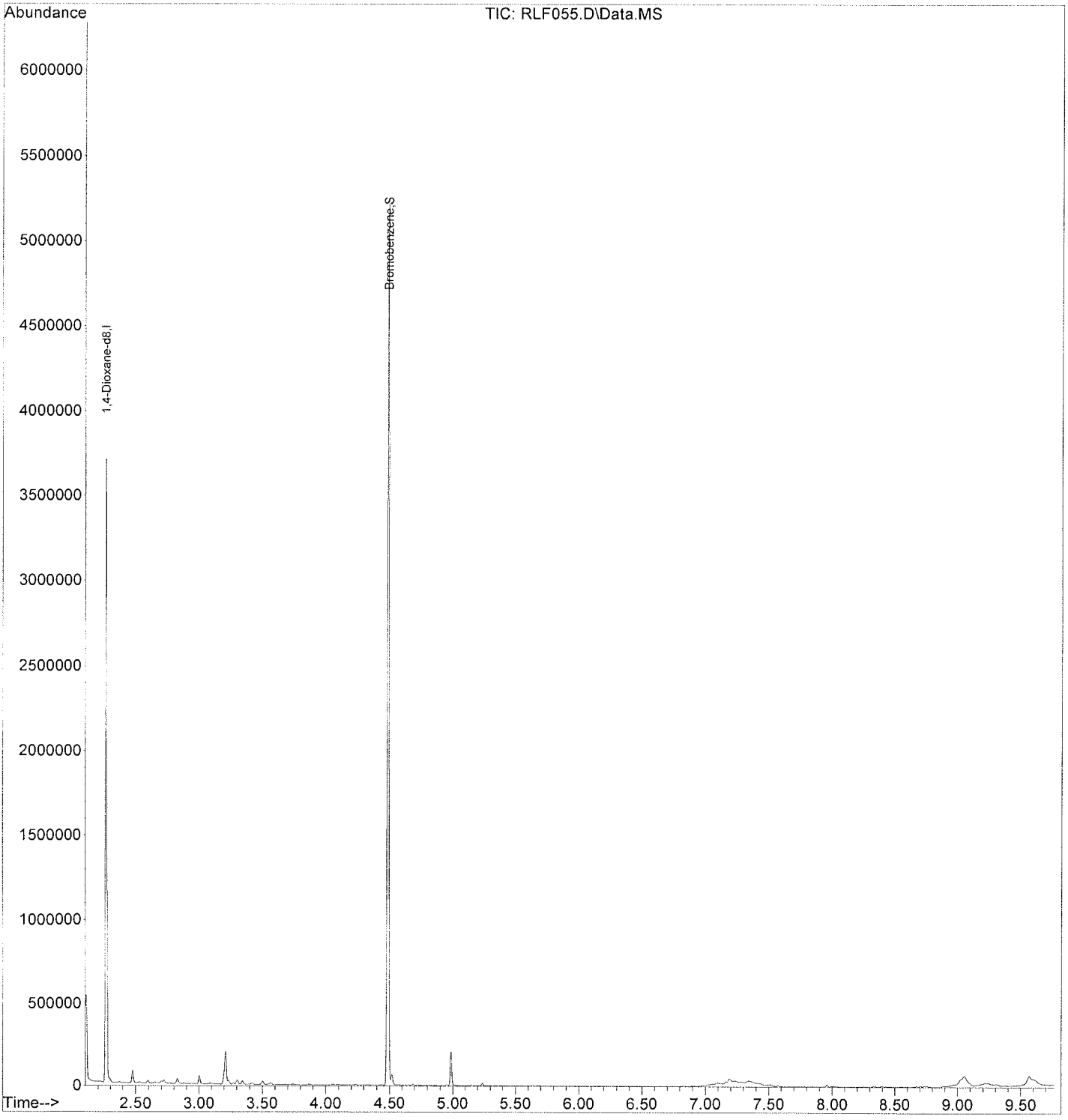
Data File : C:\msdchem\1\DATA\19L11\RLF055.D Vial: 21
Acq On : 11 Dec 2019 14:52 Operator: KVu
Sample : 19L057-09 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 15:08:14 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	307149	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	598209	12.21	ppm	0.00
Spiked Amount 20.000			Recovery =	61.05%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF055.D Vial: 21
Acq On : 11 Dec 2019 14:52 Operator: KVu
Sample : 19L057-09 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 15:08:14 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/05/19 16:05
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
Batch No.	: 19L057	Date Extracted:	12/09/19 13:00
Sample ID	: OU2-MW04-GW120519	Date Analyzed:	12/11/19 15:07
Lab Samp ID:	19L057-10	Dilution Factor:	1
Lab File ID:	RLF056	Matrix:	WATER
Ext Btch ID:	19SVL003W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	FO

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)	
1,4-Dioxane (P-Dioxane)	ND	0.44	0.22	
SURROGATE PARAMETERS	**RESULT**	**SPK_AMT**	**%RECOVERY**	**QC LIMIT**
Bromobenzene	29.2	44.0	66	30-160

Notes:

Detection limits are reported relative to sample result significant figures.
Sample Amount : 910ml Final Volume : 2ml
Prepared by : HWang Analyzed by : KVu

Quantitation Report (QT Reviewed)

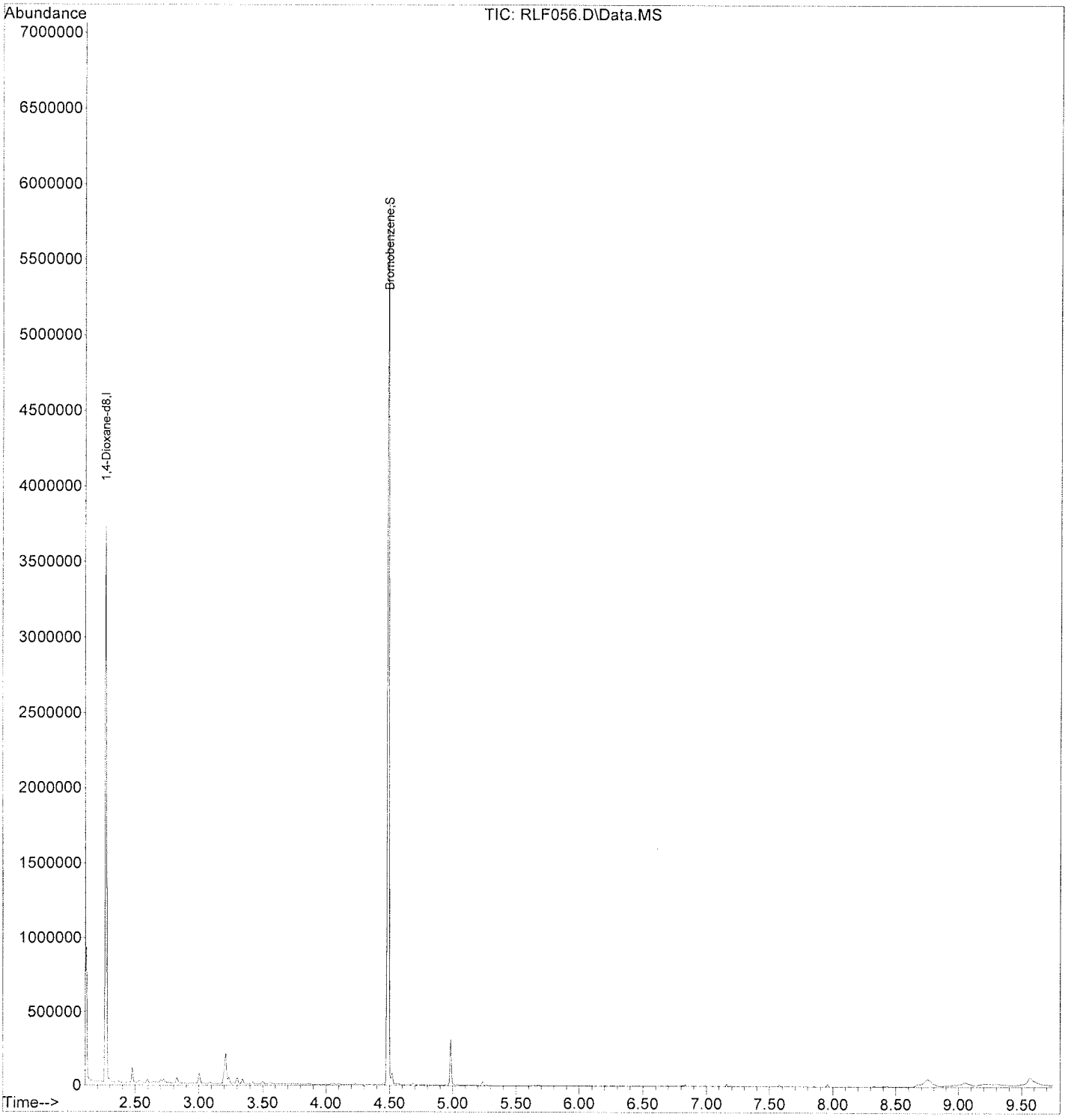
Data File : C:\msdchem\1\DATA\19L11\RLF056.D Vial: 22
Acq On : 11 Dec 2019 15:07 Operator: KVu
Sample : 19L057-10 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 15:24:06 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	316342	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	669378	13.27	ppm	0.00
Spiked Amount 20.000			Recovery = 66.35%			
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF056.D Vial: 22
Acq On : 11 Dec 2019 15:07 Operator: KVu
Sample : 19L057-10 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 15:24:06 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



QC SUMMARIES

METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/09/19 13:00
Project	: VA SALT LAKE CITY	Date Received:	12/09/19
Batch No.	: 19L057	Date Extracted:	12/09/19 13:00
Sample ID	: MBLK1W	Date Analyzed:	12/11/19 10:32
Lab Samp ID:	SVL003WB	Dilution Factor:	1
Lab File ID:	RLF038	Matrix:	WATER
Ext Btch ID:	19SVL003W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.40	0.20

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	26.6	40.0	66	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 1000ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L057
METHOD : SW3520C/SW8270D SIM

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: SVL003WB	SVL003WL	SVL003WC
LAB FILE ID	: RLF038	RLF039	RLF040
DATE PREPARED	: 12/09/19 13:00	12/09/19 13:00	12/09/19 13:00
DATE ANALYZED	: 12/11/19 10:32	12/11/19 10:45	12/11/19 11:01
PREP BATCH	: 19SVL003W	19SVL003W	19SVL003W
CALIBRATION REF	: RKF014	RKF014	RKF014

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRP (%)
1,4-Dioxane (P-Dioxane)	ND	40.0	30.2	76	40.0	31.7	79	5	50-130	20

SURROGATE PARAMETER	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	QCLimit (%)
Bromobenzene	40.0	30.3	76	40.0	30.6	77	30-160

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

QC DATA

Quantitation Report (QT Reviewed)

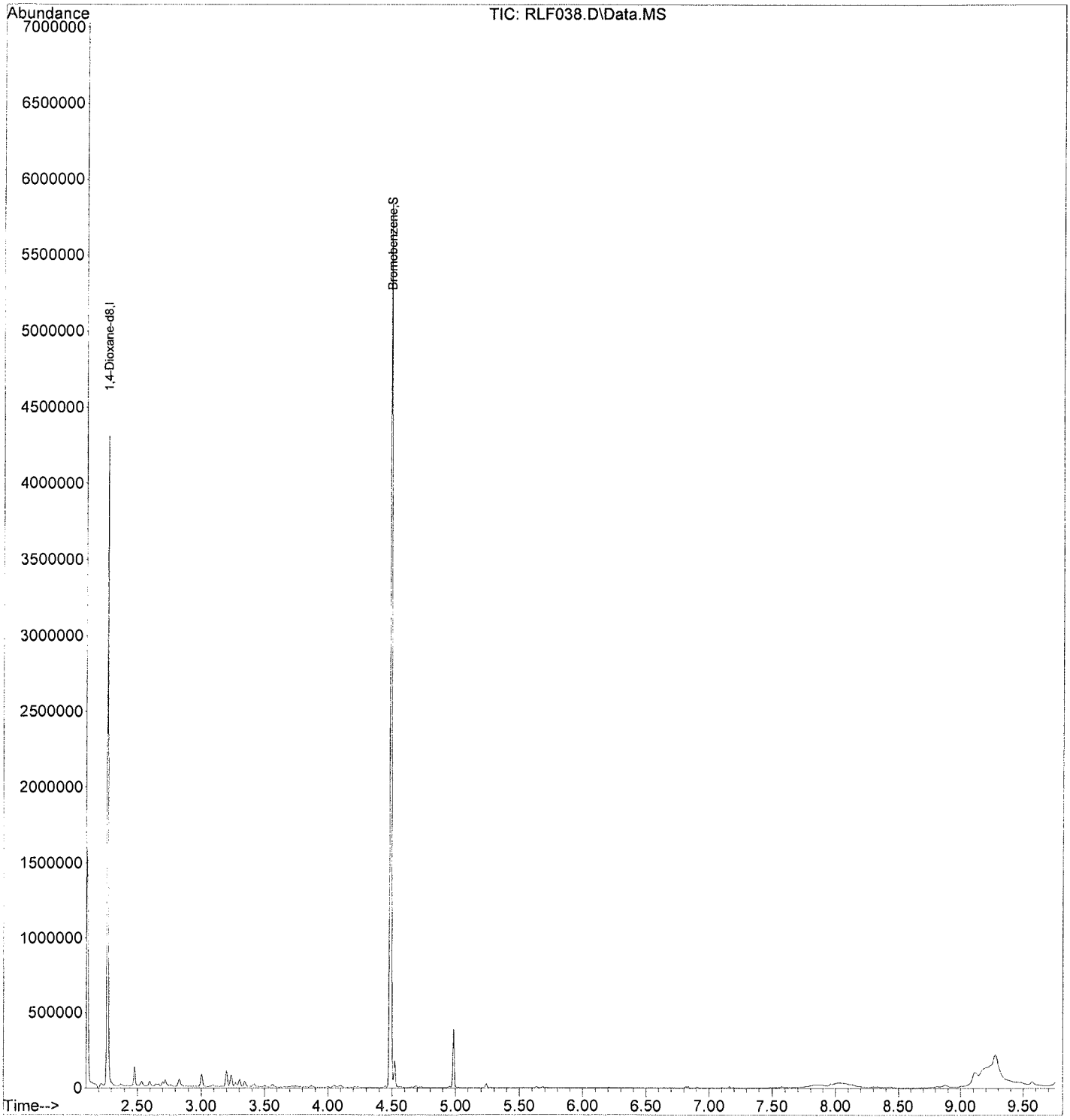
Data File : C:\msdchem\1\DATA\19L11\RLF038.D Vial: 4
Acq On : 11 Dec 2019 10:32 Operator: KVu
Sample : SVL003WB Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 11:02:52 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.268	96	307251	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	651359	13.29	ppm	0.00
Spiked Amount 20.000			Recovery =	66.45%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF038.D Vial: 4
Acq On : 11 Dec 2019 10:32 Operator: KVu
Sample : SVL003WB Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 11:02:52 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



Quantitation Report (QT Reviewed)

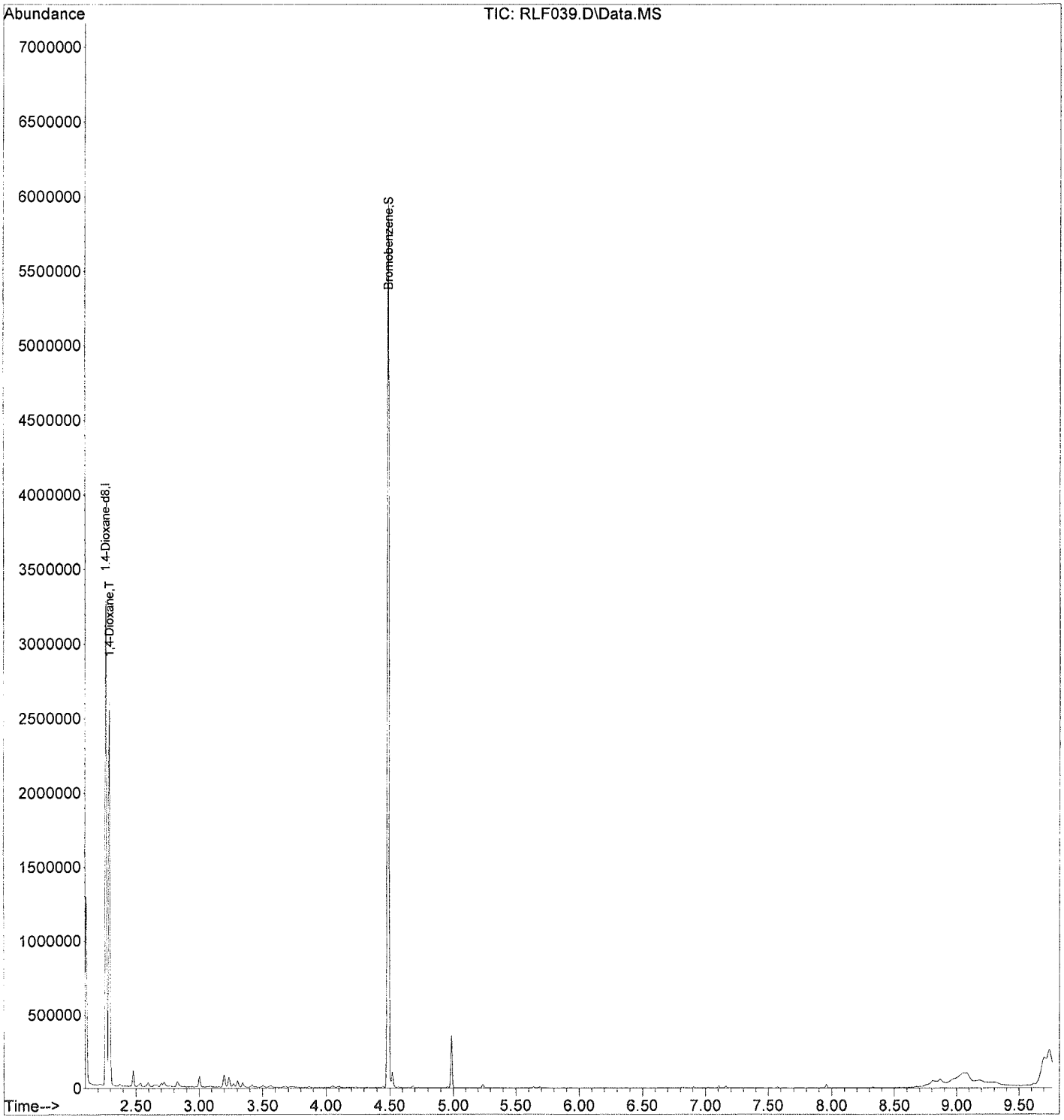
Data File : C:\msdchem\1\DATA\19L11\RLF039.D Vial: 5
Acq On : 11 Dec 2019 10:45 Operator: KVu
Sample : SVL003WL Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 11:03:08 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	278732	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	674298	15.17	ppm	0.00
Spiked Amount 20.000			Recovery =	75.85%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.295	88	187036	15.11	ppm	78

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF039.D Vial: 5
Acq On : 11 Dec 2019 10:45 Operator: KVu
Sample : SVL003WL Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 11:03:08 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



Quantitation Report (QT Reviewed)

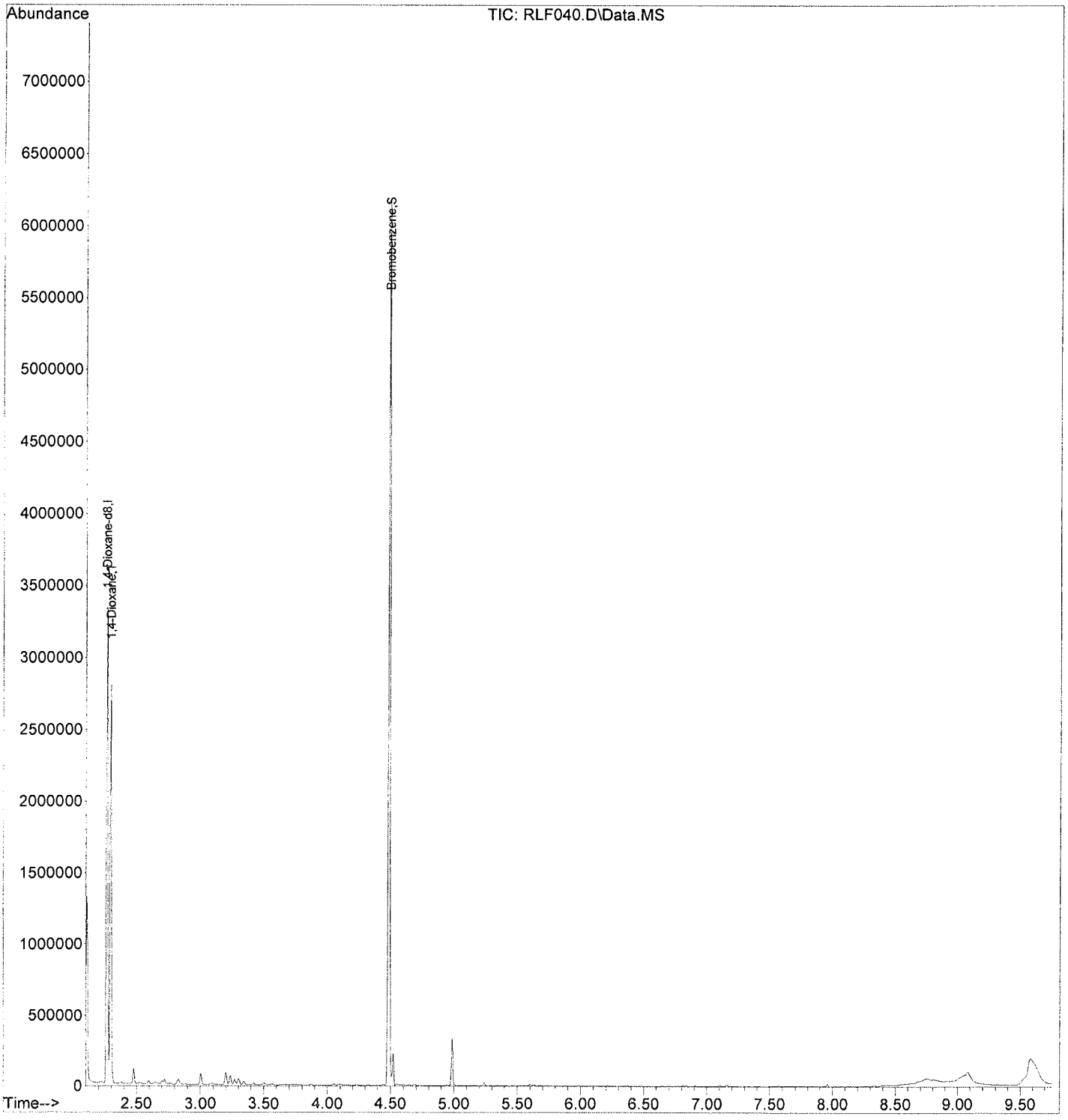
Data File : C:\msdchem\1\DATA\19L11\RLF040.D Vial: 6
Acq On : 11 Dec 2019 11:01 Operator: KVu
Sample : SVL003WC Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 11:26:19 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	282494	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	690023	15.32	ppm	0.00
Spiked Amount 20.000			Recovery =	76.60%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.295	88	198865	15.85	ppm	78

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF040.D Vial: 6
Acq On : 11 Dec 2019 11:01 Operator: KVu
Sample : SVL003WC Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 11:26:19 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



INITIAL CALIBRATIONS

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : EMAX Laboratories, Inc. Project :VA SALT LAKE CITY
Lab Code : EMAX SDG No :19L057
Lab File ID: RKF011 DFTPP Injection Date:11/15/19
Instrument ID: F0 DFTPP Injection Time:10:37

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15 - 40% of mass 95	36.470
75	30 - 60% of mass 95	55.773
95	Base Peak, 100% relative abundance	100.000
96	5 - 9% of mass 95	6.772
173	Less than 2% of mass 174	0.000(0)1
174	50 - 100% of mass 95	61.677
175	5 - 9% of mass 174	4.861(7.88)1
176	95 - 101% % of mass 174	58.982(95.63)1
177	5 - 9% % of mass 176	3.759(6.37)2

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

This check applies to the following samples, Lab QCs and Standards:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	SSTD100	SVF0K1541	RKF012	11/15/19	10:50
2	SSTD60	SVF0K152	RKF013	11/15/19	11:03
3	SSTD20	SVF0K153	RKF014	11/15/19	11:19
4	SSTD5	SVF0K154	RKF015	11/15/19	11:37
5	SSTD1	SVF0K155	RKF016	11/15/19	11:51
6	SSTD0.5	SVF0K156	RKF017	11/15/19	12:07
7	SSTD0.2	SVF0K157	RKF018	11/15/19	12:23
8	SSTD0.15	SVF0K158	RKF019	11/15/19	12:39
9	SSTD0.075	SVF0K159	RKF020	11/15/19	12:55
10	SSTD0.05	SVF0K1510	RKF021	11/15/19	13:11
11	ISSTD20	ISVF0K151	RKF022	11/15/19	13:27

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: EMAX Laboratories, Inc.

Project: ICAL

Lab Code: EMAX SDG No: ICAL

Lab File ID: RKF014 Date Analyzed: 11/15/19

Instrument ID: F0 Time Analyzed: 11:19

	INTERNAL STANDARD (IS)	1,4-Dioxane-d8 Area #	RT #
	12 HOUR STD	213044	2.26
	UPPER LIMIT	426088	2.76
	LOWER LIMIT	106522	1.76
		Area #	RT #
1	SSTD100	203218	2.27
2	SSTD60	206910	2.26
3	SSTD20	213044	2.26
4	SSTD5	224906	2.26
5	SSTD1	220732	2.26
6	SSTD0.5	219847	2.26
7	SSTD0.2	228530	2.26
8	SSTD0.15	238530	2.26
9	SSTD0.075	240731	2.26
10	SSTD0.05	249906	2.26
11	ISSTD20	263400	2.28

Area Upper Limit = +100% of ICAL Midpoint IS Area

Area Lower Limit = -50% of ICAL Midpoint IS Area

Retention Time(RT) Upper Limit = +30 seconds of ICAL Midpoint IS RT

Retention Time(RT) Lower Limit = -30 seconds of ICAL Midpoint IS RT

YM 12/22/19

INITIAL_CALIBRATION - RELATIVE_RESPONSE_FACTOR

Instrument ID :DSQ
Beginning DateTime :11/15/19 10:50
Spike Units :PPM
IC File :RKF014

Column Spec :ZB-SemiVoa ID :0.25MM
Ending DateTime :11/15/19 13:11
HPChem Method :SVFOK15

IDX	Parameters	.05 13:11 RKF021	.075 12:55 RKF020	.15 12:39 RKF019	.2 12:23 RKF018	.5 12:07 RKF017	1 11:51 RKF016	5 11:37 RKF015	20 11:19 RKF014	60 11:03 RKF013	100 10:50 RKF012	Av_RRF	%_RSD	Av_Rt_M
1	1,4-Dioxane-d8	1	1	1	1	1	1	1	1	1	1	1	0	2.2651
2	1,4-Dioxane	1.676	1.446	1.493	1.293	1.283	1.109	1.119	0.995	0.883	0.850	1.215	22.39	2.2937
3	Bromobenzene	------	------	3.651	3.361	3.244	3.268	3.266	2.983	2.553	------	3.189	10.74	4.4866

Ave_%RSD : 16.6 Max_%RSD : 22.4

Use Least Square Linear Regression with weighting factor of inverse concentration
Resp_Ratio = xo + x1 * Amt_Ratio

IDX	Parameter	x0	x1	CCF
2	1,4-Dioxane	0.00343	0.88374	0.9976

YM 12/22/19

INITIAL_CALIBRATION - RELATIVE_RESPONSE_FACTOR(%REC)

Instrument ID :DSQ
Beginning DateTime :11/15/19 10:50
Spike Units :PPM
IC File :RKF014

Column Spec :ZB-SemiVoa ID :0.25MM
Ending DateTime :11/15/19 13:11
HPChem Method :SVF0K15

IDX	Parameters	.05 13:11 RKF021	.075 12:55 RKF020	.15 12:39 RKF019	.2 12:23 RKF018	.5 12:07 RKF017	1 11:51 RKF016	5 11:37 RKF015	20 11:19 RKF014	60 11:03 RKF013	100 10:50 RKF012	AvDRec	%_RSD	Av_Rt_M
1	1,4-Dioxane-d8	1	1	1	1	1	1	1	1	1	1	1	0	2.2651
2	1,4-Dioxane	138	119	123	106	106	91	92	82	73	70	18.4	22.39	2.2937
3	Bromobenzene	------	------	114	105	102	102	102	94	80	------	7.6	10.74	4.4866

YM 12/22/15

Quantitation Limit from Lowest Initial Calibration Concentration

Instrument ID :DSQ
Beginning DateTime :11/15/19 10:50
IC File :RKF014

Column Spec :ZB-SemiVoa ID :0.25MM
Ending DateTime :11/15/19 13:11
HPChem Method :SVF0K15

WATER Init. Vol. (ml) : 1000 Final Vol. (ml) : 2
SOIL Init. Weight (gm) : 30 Final Vol. (ml) : 2

IDX	Parameters	ON_COL MG/L	WATER UG/L	SOIL MG/KG	R_FILE
1	1,4-Dioxane-d8	IntSTD	IntSTD	IntSTD	IntSTD
2	1,4-Dioxane	.05	.1	.003333	RKF021
3	Bromobenzene	.15	.3	.01	RKF019

YM 12/22/19

Quantitation Limit from Lowest Initial Calibration Concentration

Instrument ID :DSQ
Beginning DateTime :11/15/19 10:50
IC File :RKF014

Column Spec :ZB-SemiVoa ID :0.25MM
Ending DateTime :11/15/19 13:11
HPChem Method :SVF0K15

WATER Init. Vol. (ml) : 1000 Final Vol. (ml) : 1
SOIL Init. Weight (gm) : 30 Final Vol. (ml) : 1

IDX	Parameters	ON_COL MG/L	WATER UG/L	SOIL MG/KG	R_FILE
1	1,4-Dioxane-d8	IntSTD	IntSTD	IntSTD	IntSTD
2	1,4-Dioxane	.05	.05	.001667	RKF021
3	Bromobenzene	.15	.15	.005	RKF019

YM 12/22/19

Compound List Report DSQ

Method Path : C:\msdchem\1\METHODS\
Method File : SVF0K15.M
Title : SEMIVOLATILES - SIM
Last Update : Fri Nov 15 15:37:37 2019
Response Via : Initial Calibration

Total Cpnds : 3

PK#		Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I	1,4-Dioxane-d8	96	2.264	1.000	A	1	A	B
2	T	1,4-Dioxane	88	2.291	1.012	L	2	A	B
3	S	Bromobenzene	77	4.486	1.981	A	1	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

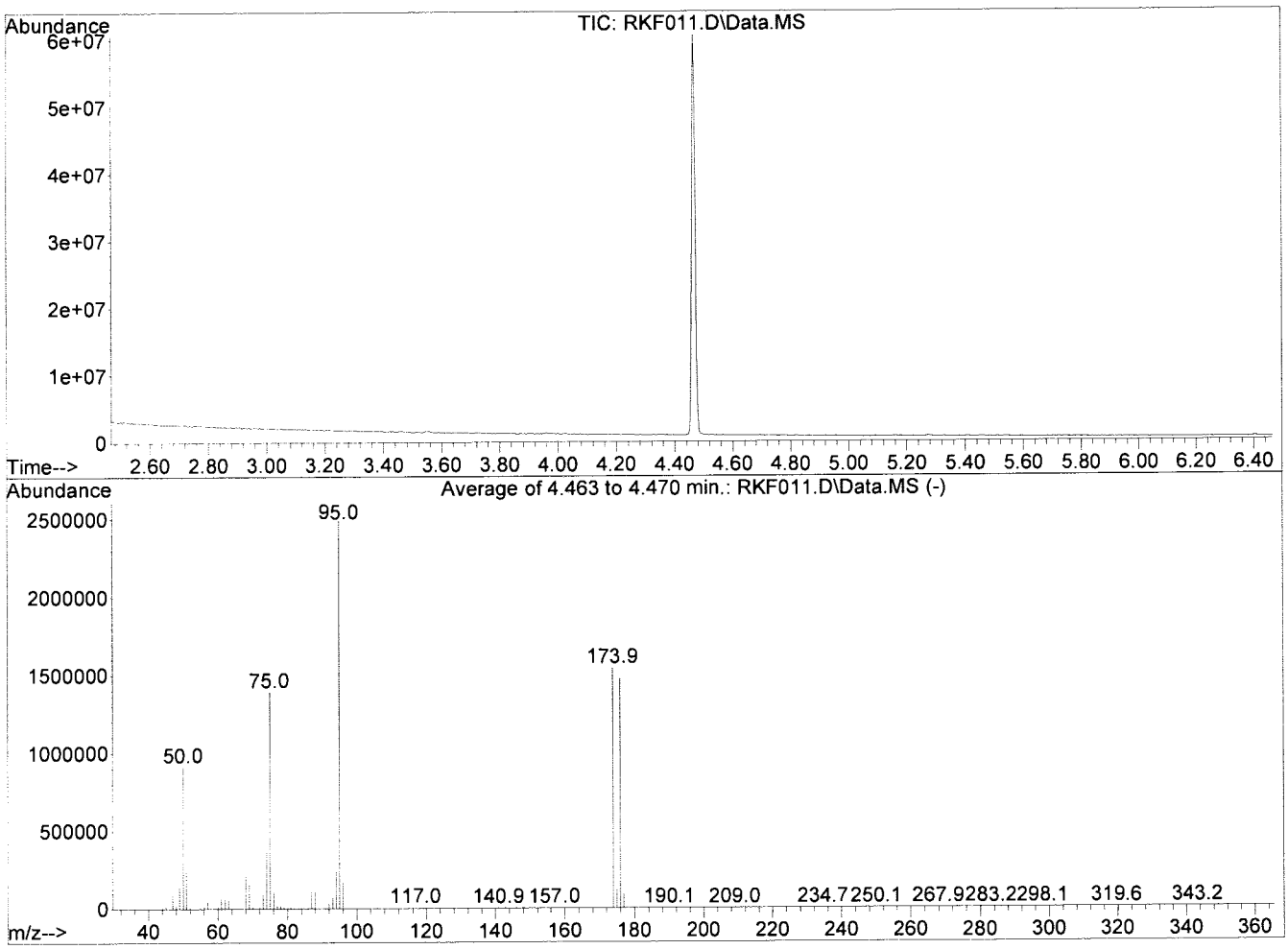
SVF0K15.M Fri Nov 15 15:38:01 2019 F0

YM
12/22/19

Data Path : C:\msdchem\1\DATA\19K15\
Data File : RKF011.D
Acq On : 15 Nov 2019 10:37
Operator : KVu
Sample : BFBF0K1501
Misc : F0
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\BFB.M
Title : BFB
Last Update : Fri Nov 15 14:33:51 2019



AutoFind: Scans 684, 685, 686; Background Corrected with Scan 671

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	36.5	910057	PASS
75	95	30	60	55.8	1391765	PASS
95	95	100	100	100.0	2495388	PASS
96	95	5	9	6.8	168981	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	61.7	1539072	PASS
175	174	5	9	7.9	121293	PASS
176	174	95	101	95.6	1471829	PASS
177	176	5	9	6.4	93795	PASS

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF021.D Vial: 12
Acq On : 15 Nov 2019 13:11 Operator: KVu
Sample : SVF0K1510 0.05PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 21 11:02:40 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	249906	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	0.000	77	0d	0.00	ppm	
Spiked Amount 20.000			Recovery =	0.00%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.295	88	1047	0.02	ppm	# 37

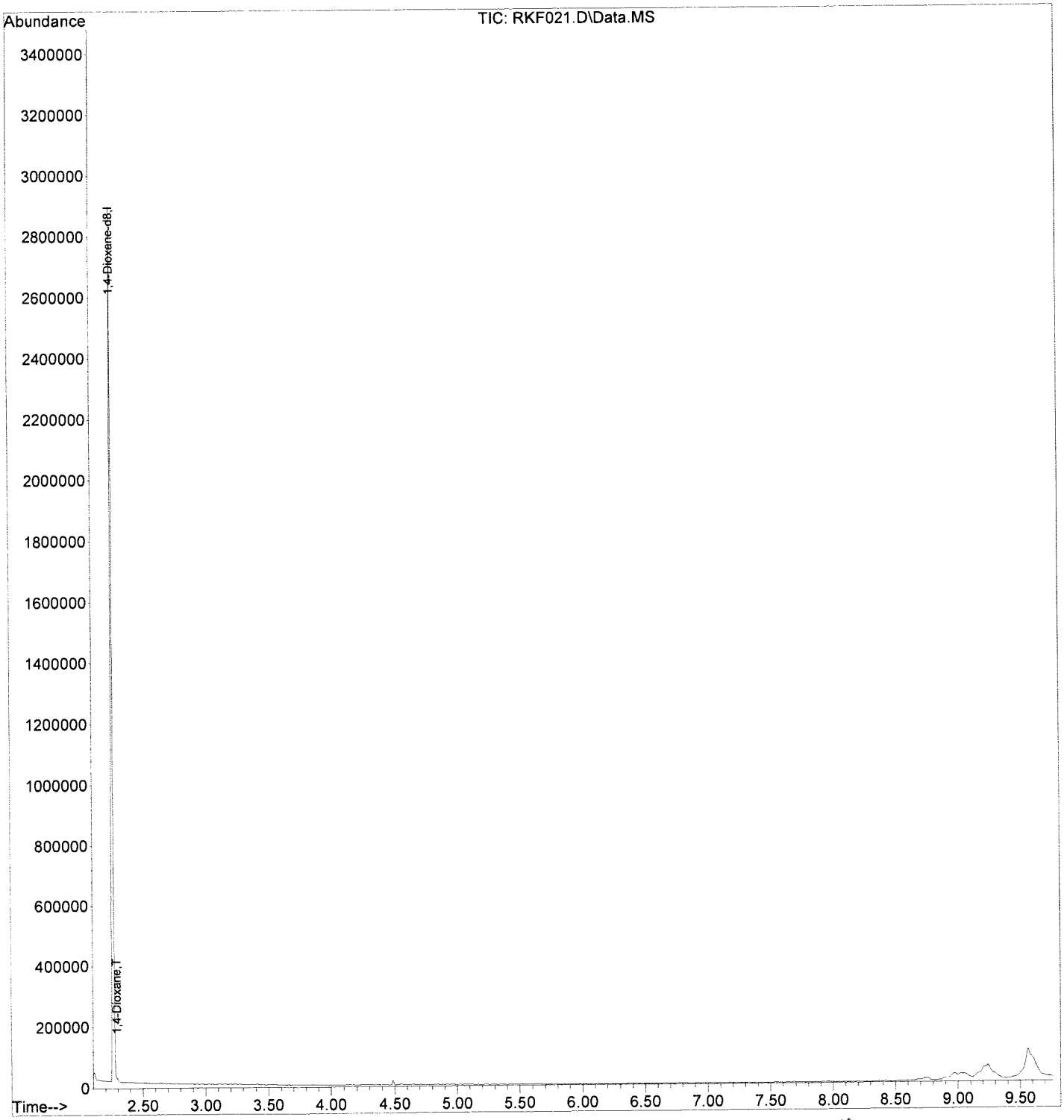
(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF021.D
Acq On : 15 Nov 2019 13:11
Sample : SVF0K1510 0.05PPM
Misc : F0
Integrator: RTE
Quant Time: Nov 21 11:02:40 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Vial: 12
Operator: KVu
Inst : DSQ
Multiplr: 1.00



Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF020.D Vial: 11
Acq On : 15 Nov 2019 12:55 Operator: KVu
Sample : SVF0K159 0.075PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 21 11:02:31 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

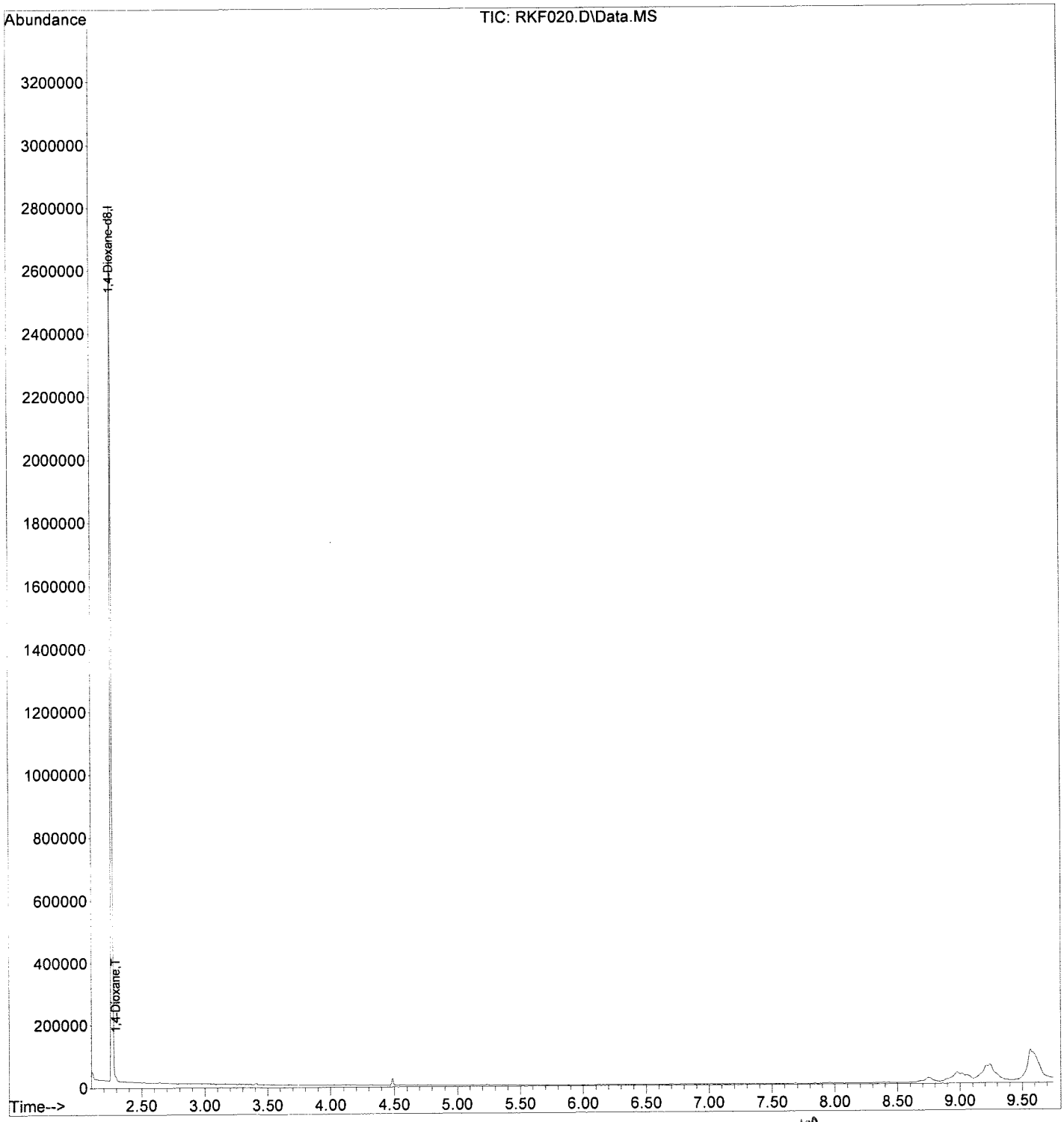
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	240731	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	0.000	77	0d	0.00	ppm	
Spiked Amount 20.000			Recovery =	0.00%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.295	88	1305	0.05	ppm	# 55

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF020.D Vial: 11
Acq On : 15 Nov 2019 12:55 Operator: KVu
Sample : SVF0K159 0.075PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 21 11:02:31 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF019.D Vial: 10
Acq On : 15 Nov 2019 12:39 Operator: KVu
Sample : SVF0K158 0.15PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:55:55 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	238530	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	6531	0.17	ppm	0.00
Spiked Amount 20.000			Recovery =	0.85%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.295	88	2671	0.18	ppm	# 71

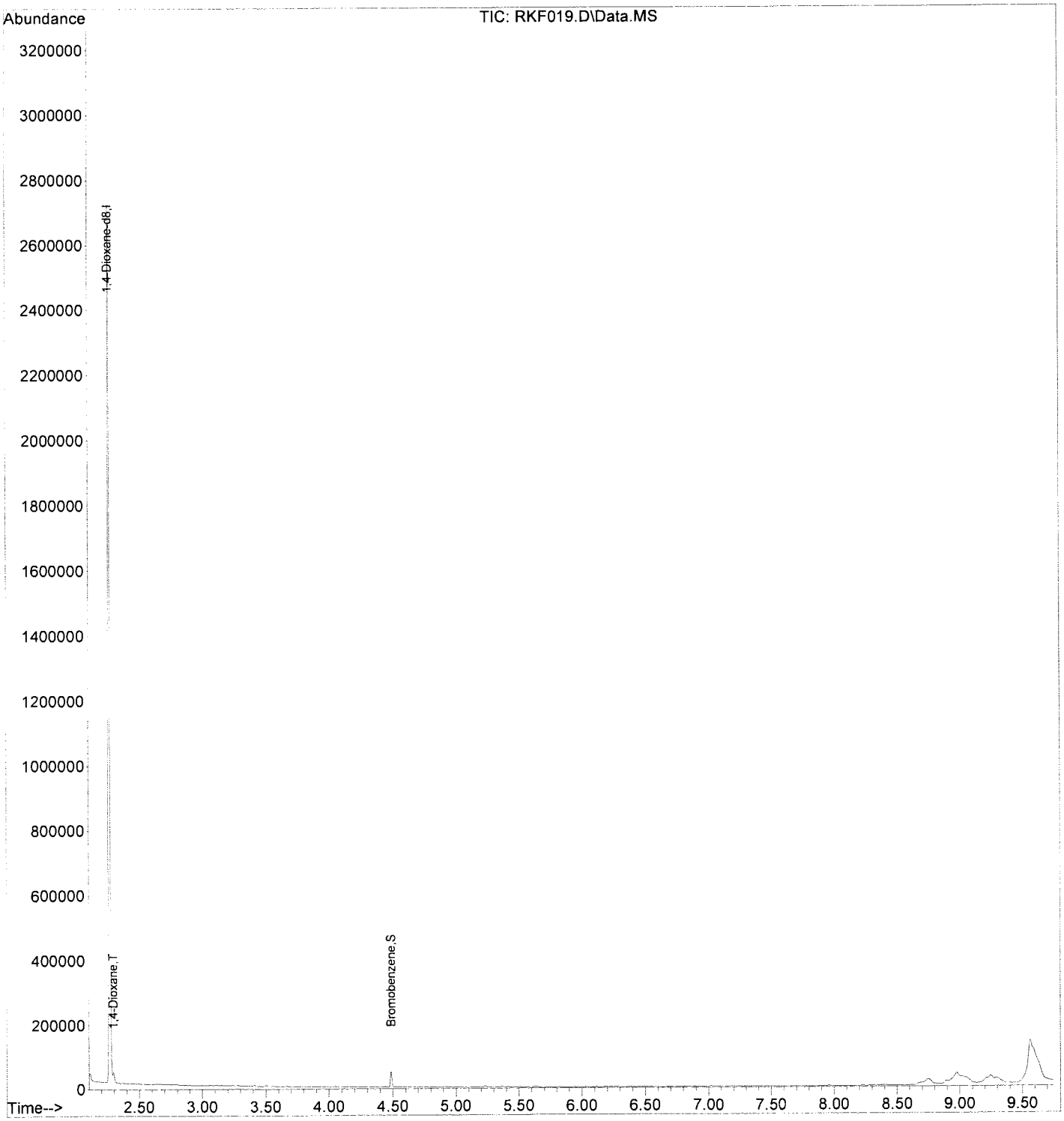
(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF019.D
Acq On : 15 Nov 2019 12:39
Sample : SVF0K158 0.15PPM
Misc : F0
Integrator: RTE
Quant Time: Nov 18 08:55:55 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Vial: 10
Operator: KVu
Inst : DSQ
Multiplr: 1.00



Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF018.D Vial: 9
Acq On : 15 Nov 2019 12:23 Operator: KVu
Sample : SVF0K157 0.2PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:55:36 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	228530	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	7680	0.21	ppm	0.00
Spiked Amount 20.000			Recovery =	1.05%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.295	88	2954	0.21	ppm	78

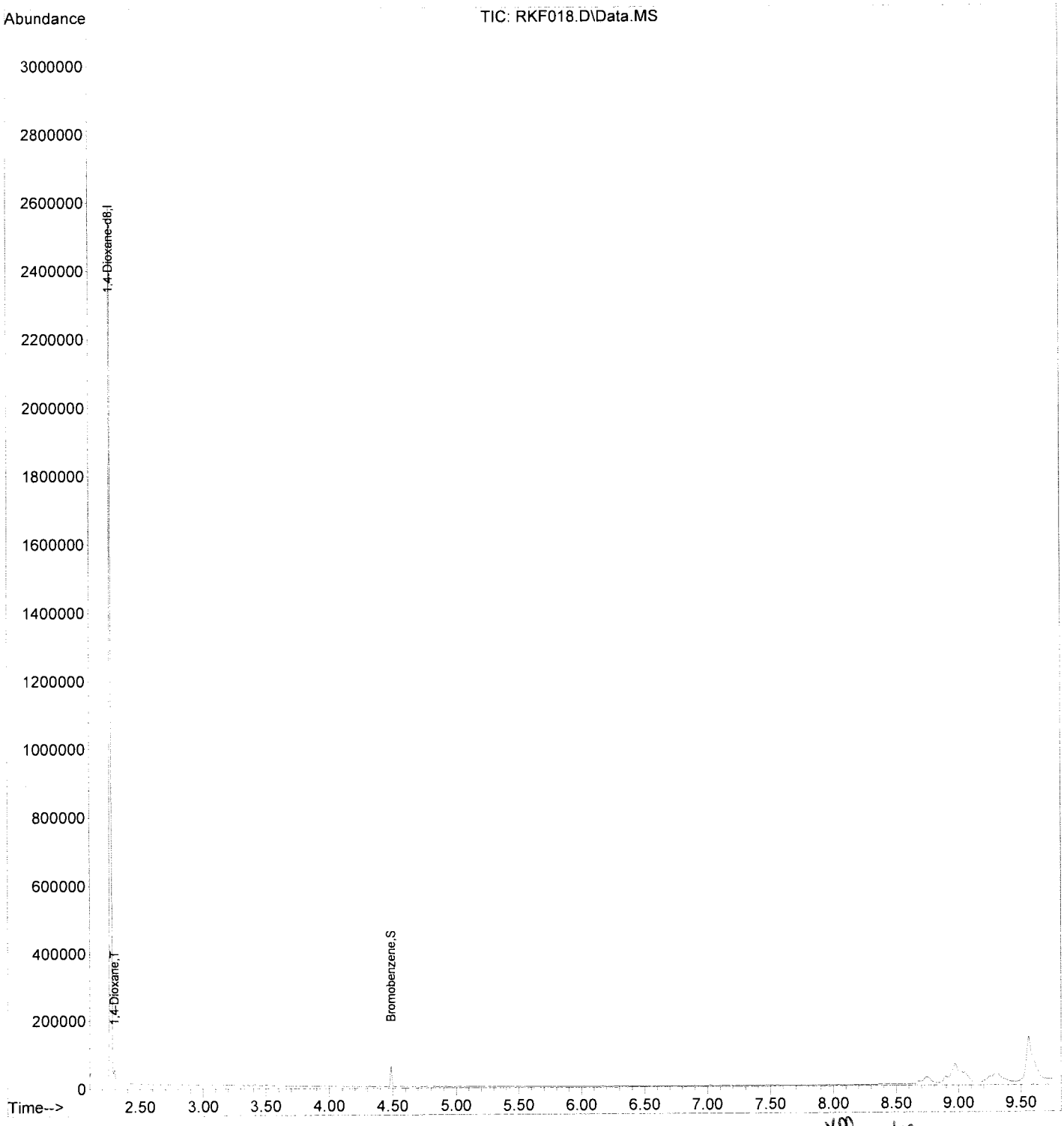
(#) = qualifier out of range (m) = manual integration (+) = signals summed

ym 12/2/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF018.D
Acq On : 15 Nov 2019 12:23
Sample : SVF0K157 0.2PPM
Misc : F0
Integrator: RTE
Quant Time: Nov 18 08:55:36 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Vial: 9
Operator: KVu
Inst : DSQ
Multip1r: 1.00



Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF017.D Vial: 8
Acq On : 15 Nov 2019 12:07 Operator: KVu
Sample : SVF0K156 0.5PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:54:25 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

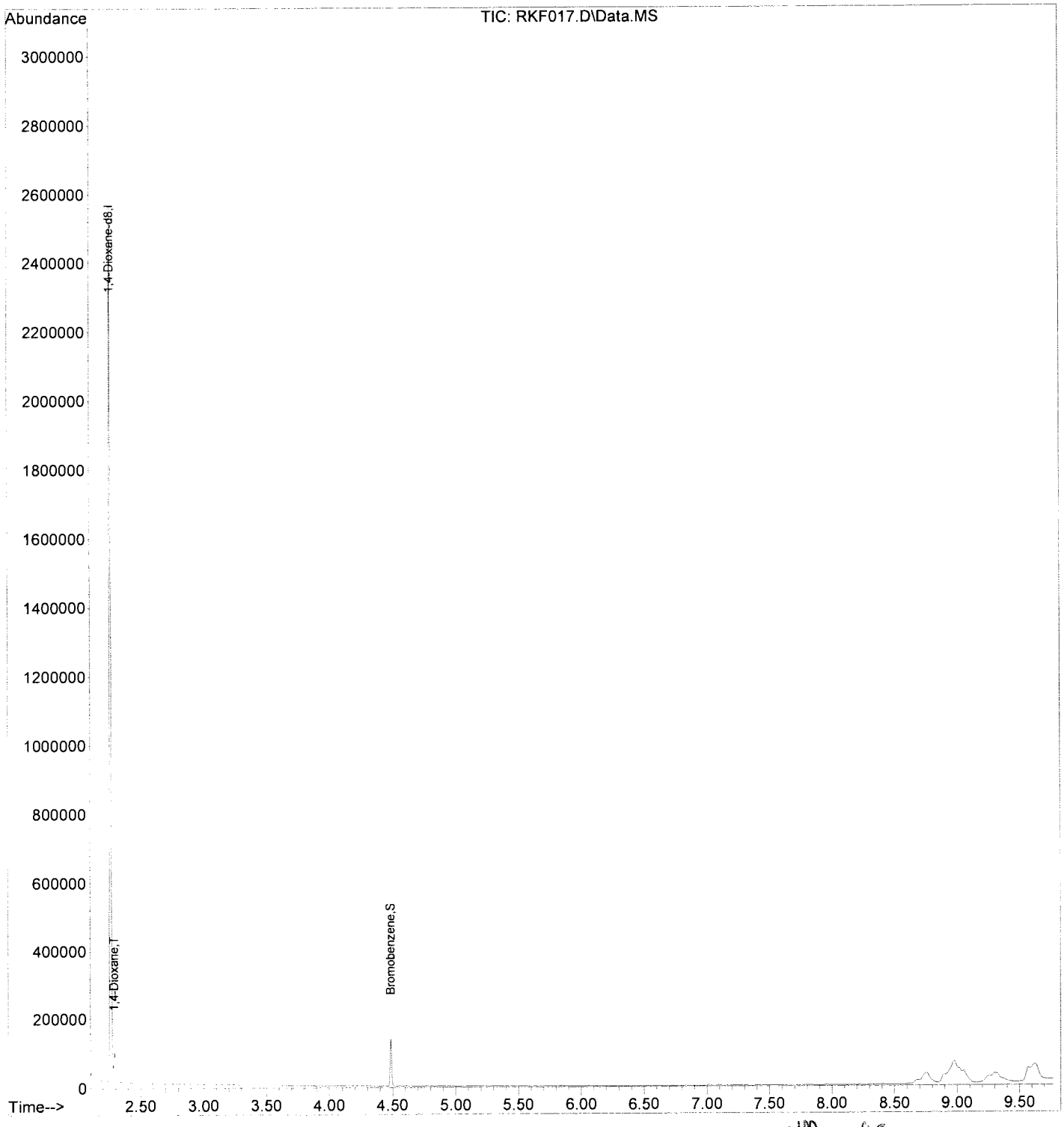
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	219847	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	17830	0.51	ppm	0.00
Spiked Amount 20.000			Recovery =	2.55%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	7051	0.65	ppm	80

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/24/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF017.D Vial: 8
Acq On : 15 Nov 2019 12:07 Operator: KVu
Sample : SVF0K156 0.5PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:54:25 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



YM 12/20/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF016.D Vial: 7
Acq On : 15 Nov 2019 11:51 Operator: KVu
Sample : SVF0K155 1PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:53:53 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

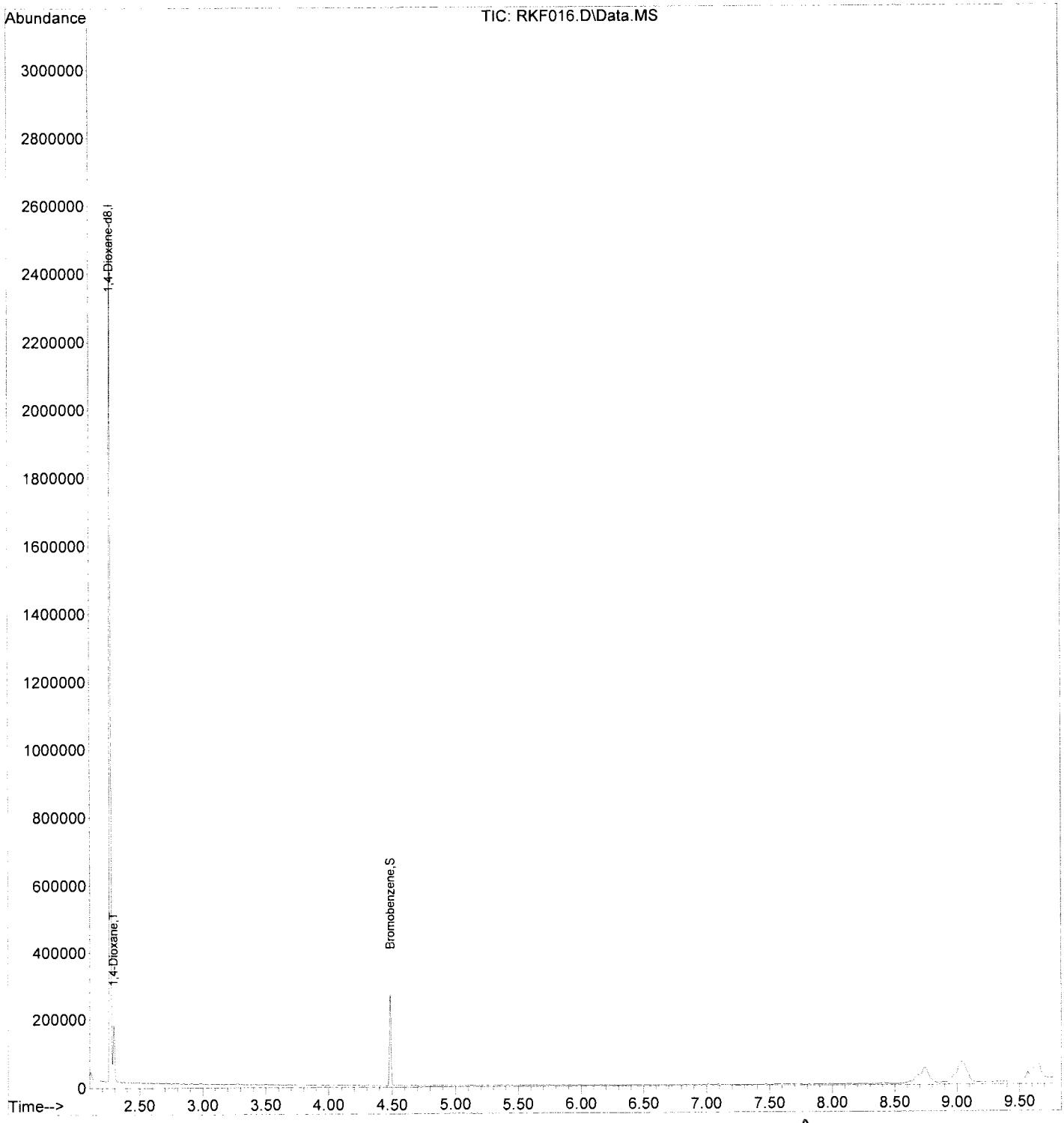
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	220732	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	36063	1.02	ppm	0.00
Spiked Amount 20.000			Recovery =	5.10%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	12235	1.18	ppm	92

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF016.D Vial: 7
Acq On : 15 Nov 2019 11:51 Operator: KVu
Sample : SVF0K155 1PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:53:53 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



YM 12/19/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF015.D Vial: 6
Acq On : 15 Nov 2019 11:37 Operator: KVu
Sample : SVF0K154 5PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:52:42 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

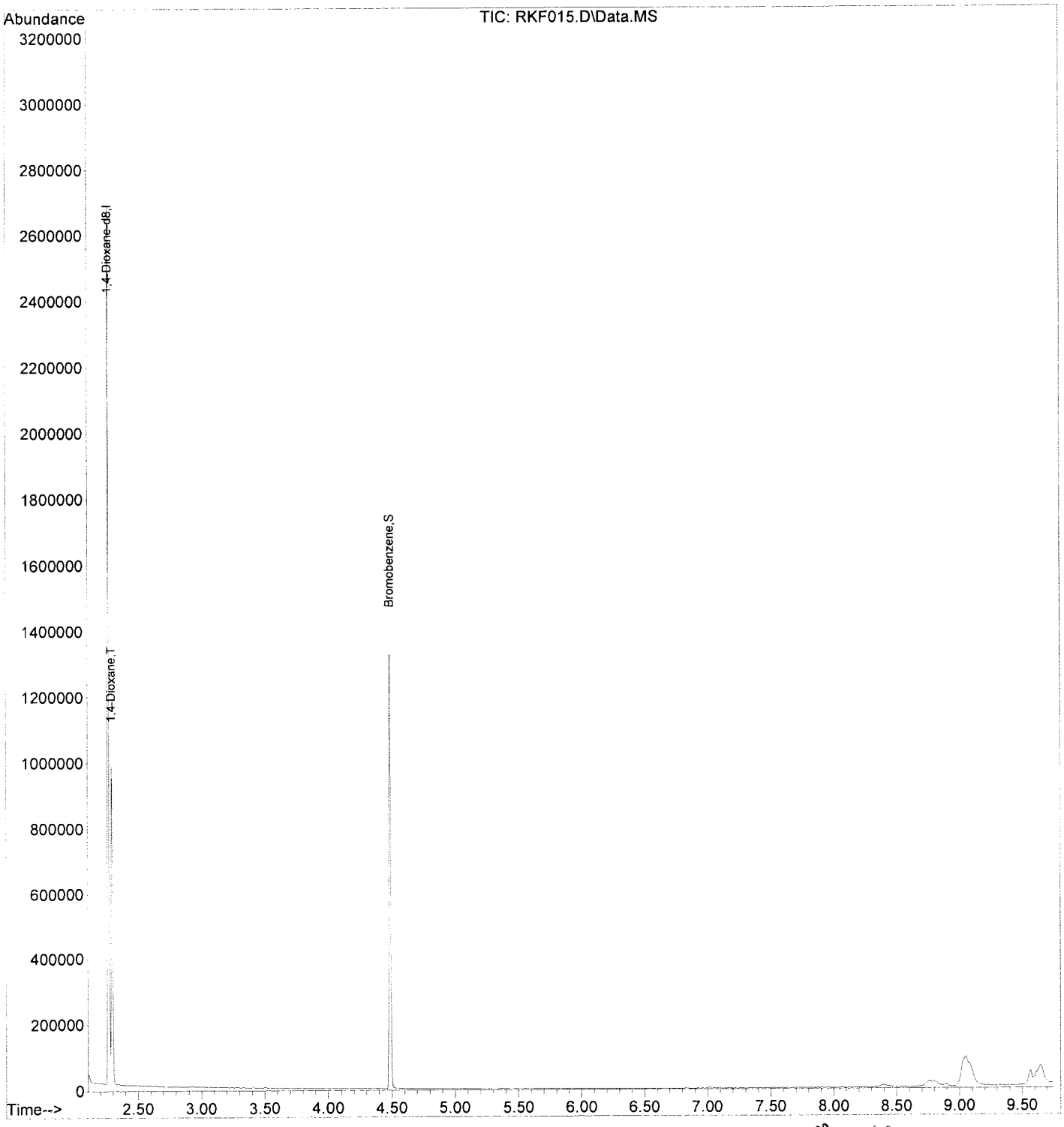
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	224906	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	183639	5.12	ppm	0.00
Spiked Amount 20.000			Recovery =	25.60%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	62943	6.26	ppm	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 2/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF015.D Vial: 6
Acq On : 15 Nov 2019 11:37 Operator: KVu
Sample : SVF0K154 5PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:52:42 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF014.D
Acq On : 15 Nov 2019 11:19
Sample : SVF0K153 20PPM
Misc : F0
Integrator: RTE
Quant Time: Nov 18 08:52:22 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Vial: 5
Operator: KVu
Inst : DSQ
Multiplr: 1.00

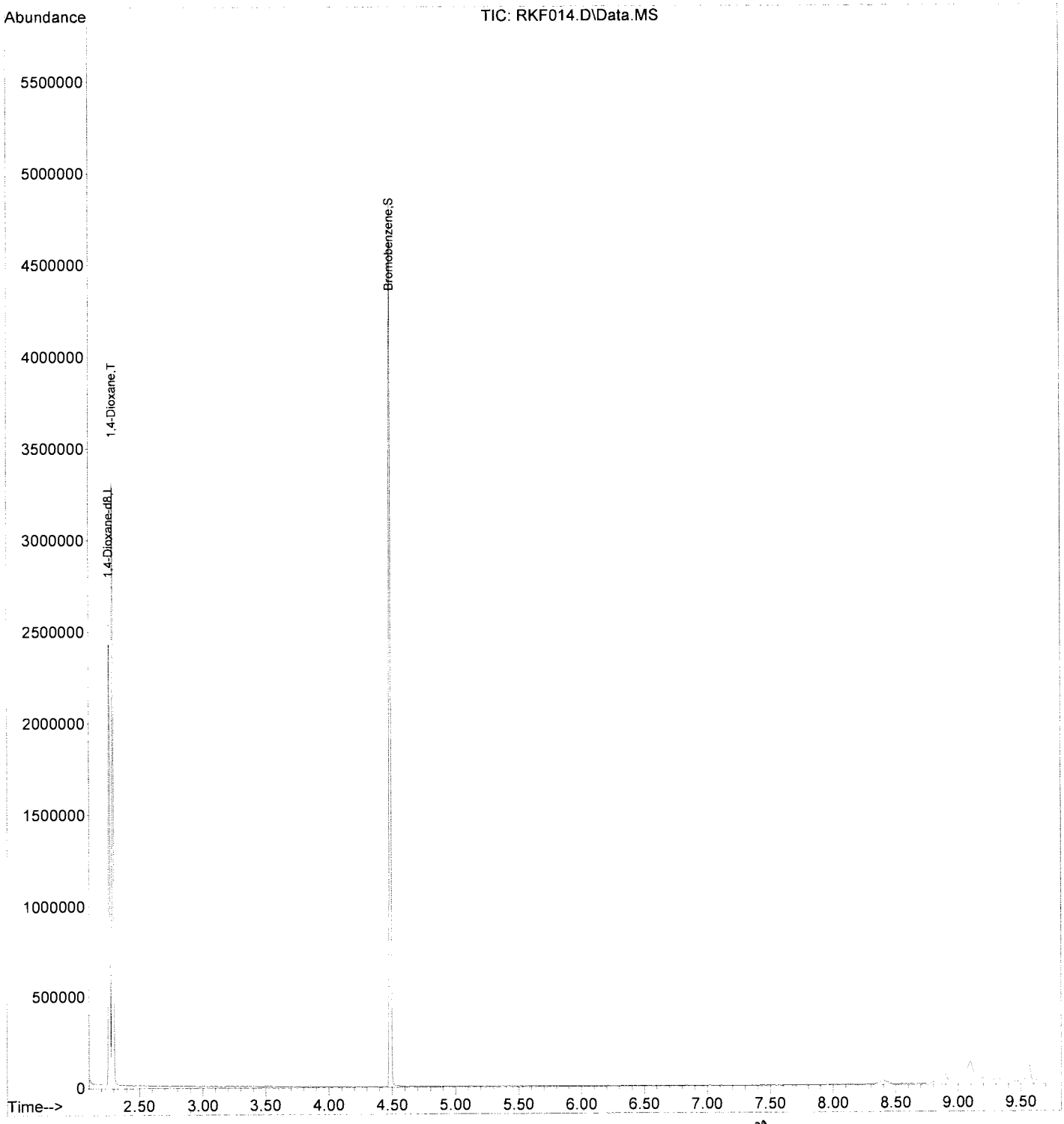
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	213044	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	635497	18.71	ppm	0.00
Spiked Amount 20.000			Recovery =	93.55%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	212034	22.45	ppm	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/23/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF014.D Vial: 5
Acq On : 15 Nov 2019 11:19 Operator: KVu
Sample : SVF0K153 20PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:52:22 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF013.D Vial: 4
Acq On : 15 Nov 2019 11:03 Operator: KVu
Sample : SVF0K152 60PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:51:30 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

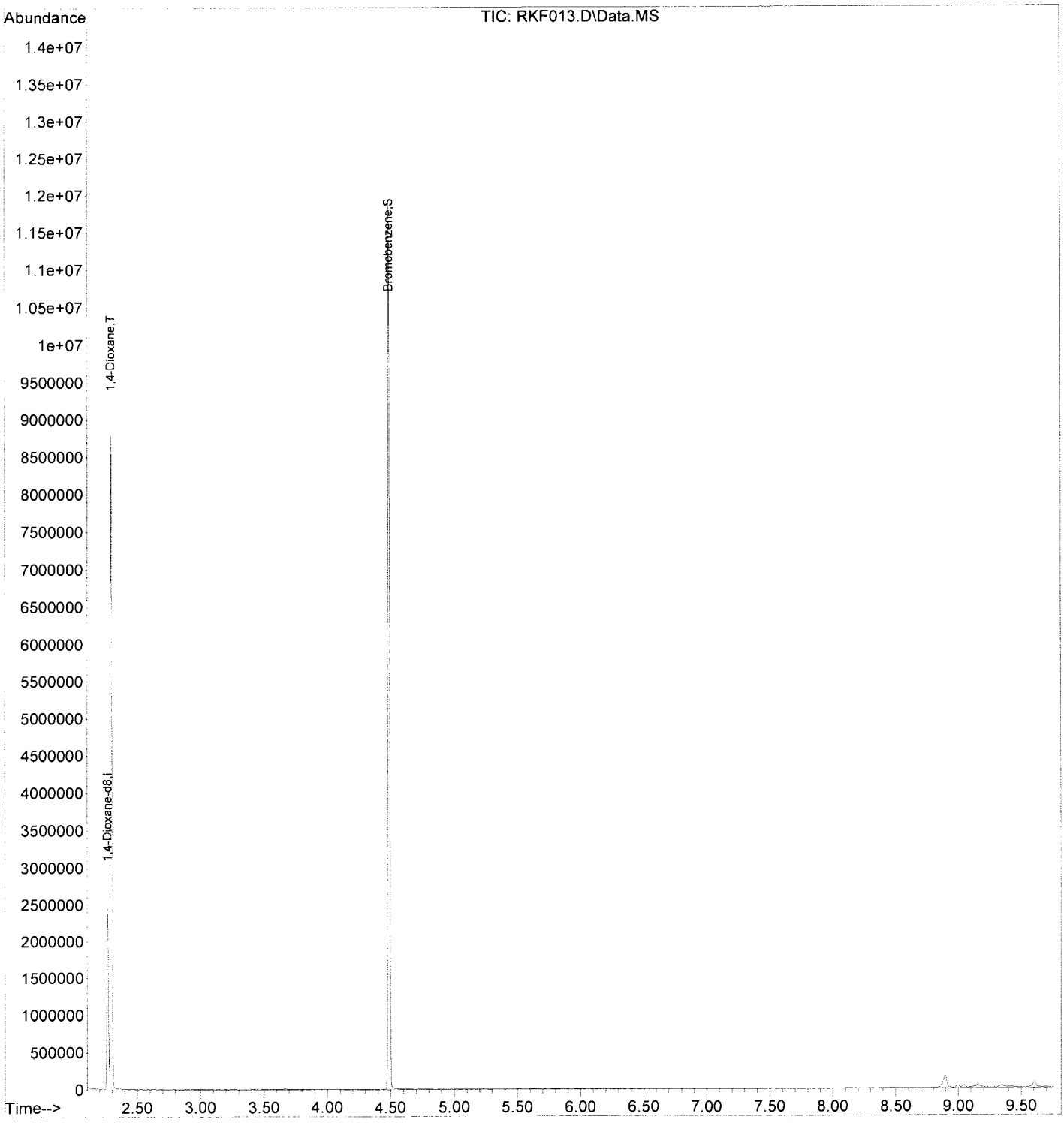
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	206910	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	1584987	48.04	ppm	0.00
Spiked Amount 20.000			Recovery =	240.20%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	547884	59.85	ppm	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF013.D Vial: 4
Acq On : 15 Nov 2019 11:03 Operator: KVu
Sample : SVF0K152 60PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:51:30 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



SVF0K15.M Mon Nov 18 08:51:44 2019 F0 YM 12/22/19 Page: 2

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF012.D Vial: 3
Acq On : 15 Nov 2019 10:50 Operator: KVu
Sample : SVF0K1541 100PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 21 10:58:40 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

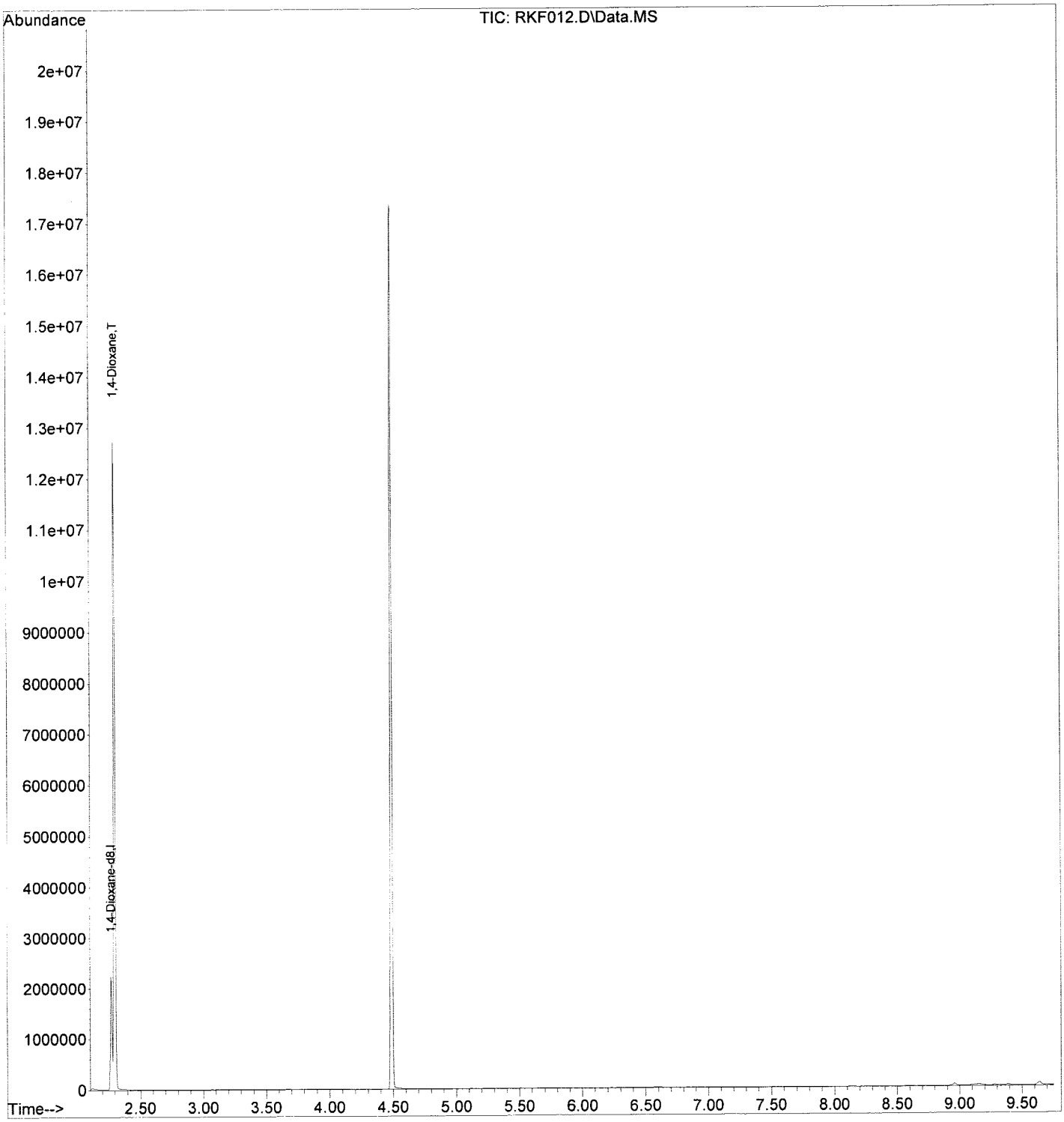
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.272	96	203218	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	0.000	77	0d	0.00	ppm	
Spiked Amount 20.000			Recovery =	0.00%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.299	88	864050	96.15	ppm	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF012.D Vial: 3
Acq On : 15 Nov 2019 10:50 Operator: KVu
Sample : SVF0K1541 100PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 21 10:58:40 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



SECOND SOURCE VERIFICATION

CONTINUE_CALIBRATION - CALIBRATION VERIFICATION

Instrument ID :DSQ
IC_Beginning DateTime :11/15/19 10:50
Spike Amount :20 PPM
CC/CV File :RKF022
IC File :RKF014

Column Spec :ZB-SemiVoa ID :0.25MM
IC_Ending DateTime :11/15/19 13:11
HPChem Method :SVF0K15
Date_Time :11/15/19 13:27

M IDX	Parameters	CC_Con	CC%_D	CC_Resp	CCRRF	AvRRF	CC_Rtm	AvRtm	%_RSD	Co_X0	Co_X1	Co_X2	Co_Cor
1	1,4-Dioxane-d8	20.000	0	263400	1	1	2.276	2.265	0				
2	1,4-Dioxane	21.369	6.8	249613	0.948	1.215	2.303	2.294	22.39	0.0034	0.8837		0.9976
3	Bromobenzene	18.159	-9.2	762761	2.896	3.189	4.486	4.487	10.74				

YM 12/22/19

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\19K15\RKF022.D Vial: 13
Acq On : 15 Nov 2019 13:27 Operator: KVu
Sample : ISVF0K151 ICV Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:57:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dioxane-d8	20.000	20.000	0.0	124	0.01
2	T	1,4-Dioxane	20.000	21.369	-6.8	118	0.01
3	S	Bromobenzene	20.000	18.159	9.2	120	0.00

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

YM 12/22/19

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\19K15\RKF022.D Vial: 13
Acq On : 15 Nov 2019 13:27 Operator: KVu
Sample : ISVF0K151 ICV Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:57:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dioxane-d8	1.000	1.000	0.0	124	0.01
2	T	1,4-Dioxane	1.215	0.948	22.0#	118	0.01
3	S	Bromobenzene	3.189	2.896	9.2	120	0.00

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

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF022.D Vial: 13
Acq On : 15 Nov 2019 13:27 Operator: KVu
Sample : ISVF0K151 ICV Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:57:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

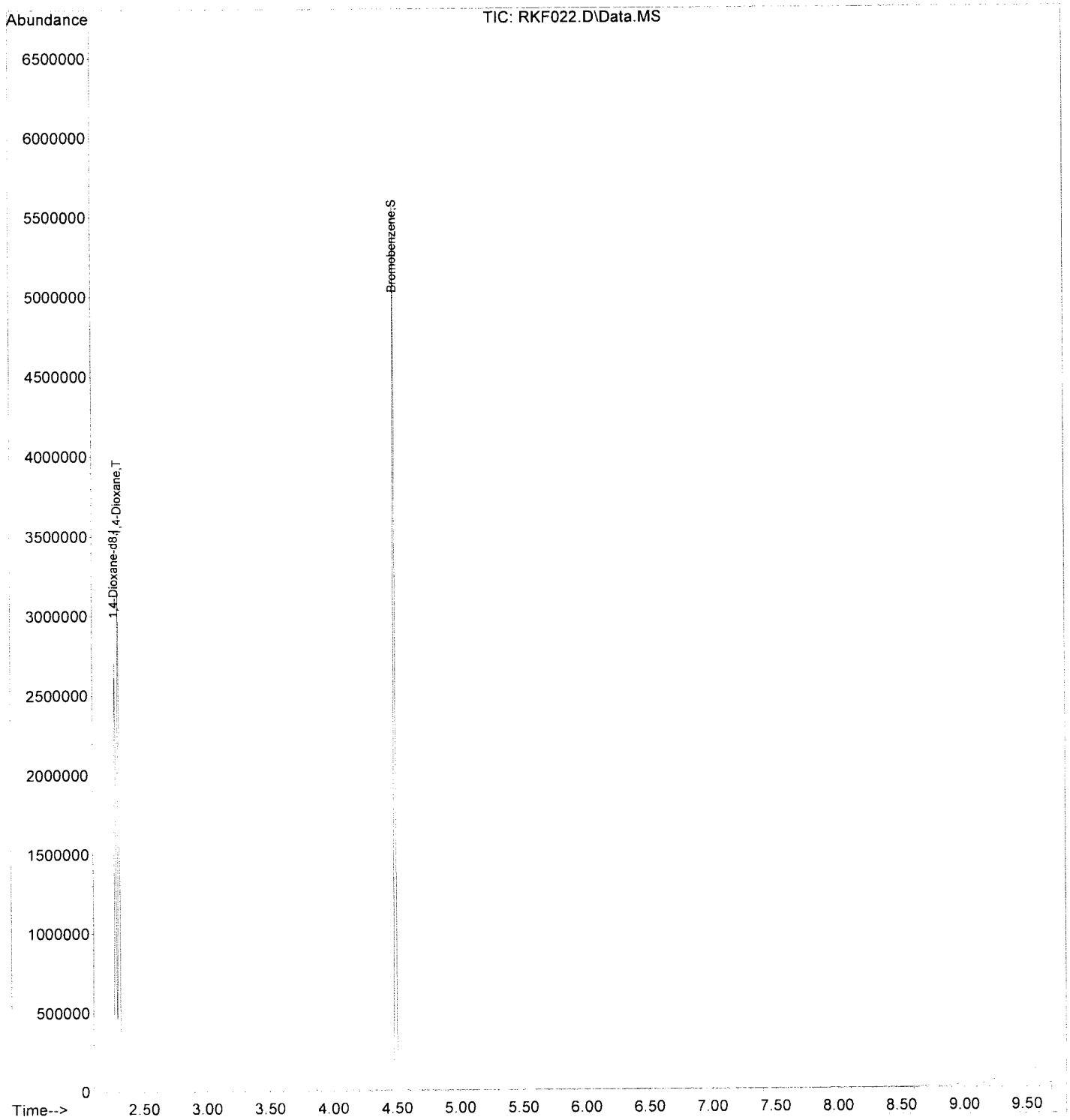
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.276	96	263400	20.00	ppm	0.01
System Monitoring Compounds						
3) Bromobenzene	4.486	77	762761	18.16	ppm	0.00
Spiked Amount 20.000			Recovery =	90.80%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.303	88	249613	21.37	ppm	88

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/24/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF022.D Vial: 13
Acq On : 15 Nov 2019 13:27 Operator: KVu
Sample : ISVF0K151 ICV Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:57:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



DAILY CALIBRATIONS

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: EMAX Laboratories, Inc. Project: VA SALT LAKE CITY

Lab Code: EMAX SDG No: 19L057

Lab File ID: RLF036 DFTPP Injection Date: 12/11/19

Instrument ID: F0 DFTPP Injection Time: 09:37

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15 - 40% of mass 95	26.722
75	30 - 60% of mass 95	44.185
95	Base Peak, 100% relative abundance	100.000
96	5 - 9% of mass 95	6.504
173	Less than 2% of mass 174	0.299(.37)1
174	50 - 100% of mass 95	81.457
175	5 - 9% of mass 174	6.231(7.65)1
176	95 - 101% % of mass 174	77.790(95.5)1
177	5 - 9% % of mass 176	4.799(6.17)2

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

This check applies to the following samples, Lab QCs and Standards:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	SSTD020	CSVF0K1506	RLF037	12/11/19	10:19
2	MBLK1W	SVL003WB	RLF038	12/11/19	10:32
3	LCS1W	SVL003WL	RLF039	12/11/19	10:45
4	LCD1W	SVL003WC	RLF040	12/11/19	11:01
5	OU2-MW12S-GW120619	19L057-01	RLF048	12/11/19	13:04
6	OU2-MW12D-GW120619	19L057-02	RLF049	12/11/19	13:19
7	OU2-MW16S-GW120619	19L057-03	RLF050	12/11/19	13:34
8	OU2-MW16D-GW120619	19L057-04	RLF051	12/11/19	13:50
9	OU2-MW06-GW120619	19L057-05	RLF052	12/11/19	14:05
10	OU2-FD01-GW120519	19L057-07	RLF053	12/11/19	14:21
11	OU2-MW13S-GW120519	19L057-08	RLF054	12/11/19	14:36
12	OU2-MW13D-GW120519	19L057-09	RLF055	12/11/19	14:52
13	OU2-MW04-GW120519	19L057-10	RLF056	12/11/19	15:07

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: EMAX Laboratories, Inc. Project: VA SALT LAKE CITY

Lab Code: EMAX SDG No: 19L057

Lab File ID: RKF014 Date Analyzed: 11/15/19

Instrument ID: FO Time Analyzed: 11:19

	INTERNAL STANDARD (IS)	1,4-Dioxane-d8 Area #	1,4-Dioxane-d8 RT #
	12 HOUR STD	213044	2.26
	UPPER LIMIT	426088	2.76
	LOWER LIMIT	106522	1.76
		Area #	RT #
1	SSTD020	256989	2.26
2	MBLK1W	307251	2.27
3	LCS1W	278732	2.26
4	LCD1W	282494	2.26
5	OU2-MW12S-GW120619	285849	2.26
6	OU2-MW12D-GW120619	297612	2.26
7	OU2-MW16S-GW120619	300341	2.26
8	OU2-MW16D-GW120619	286499	2.26
9	OU2-MW06-GW120619	301907	2.26
10	OU2-FD01-GW120519	309044	2.26
11	OU2-MW13S-GW120519	329152	2.26
12	OU2-MW13D-GW120519	307149	2.26
13	OU2-MW04-GW120519	316342	2.26

Area Upper Limit = +100% of ICAL Midpoint IS Area

Area Lower Limit = -50% of ICAL Midpoint IS Area

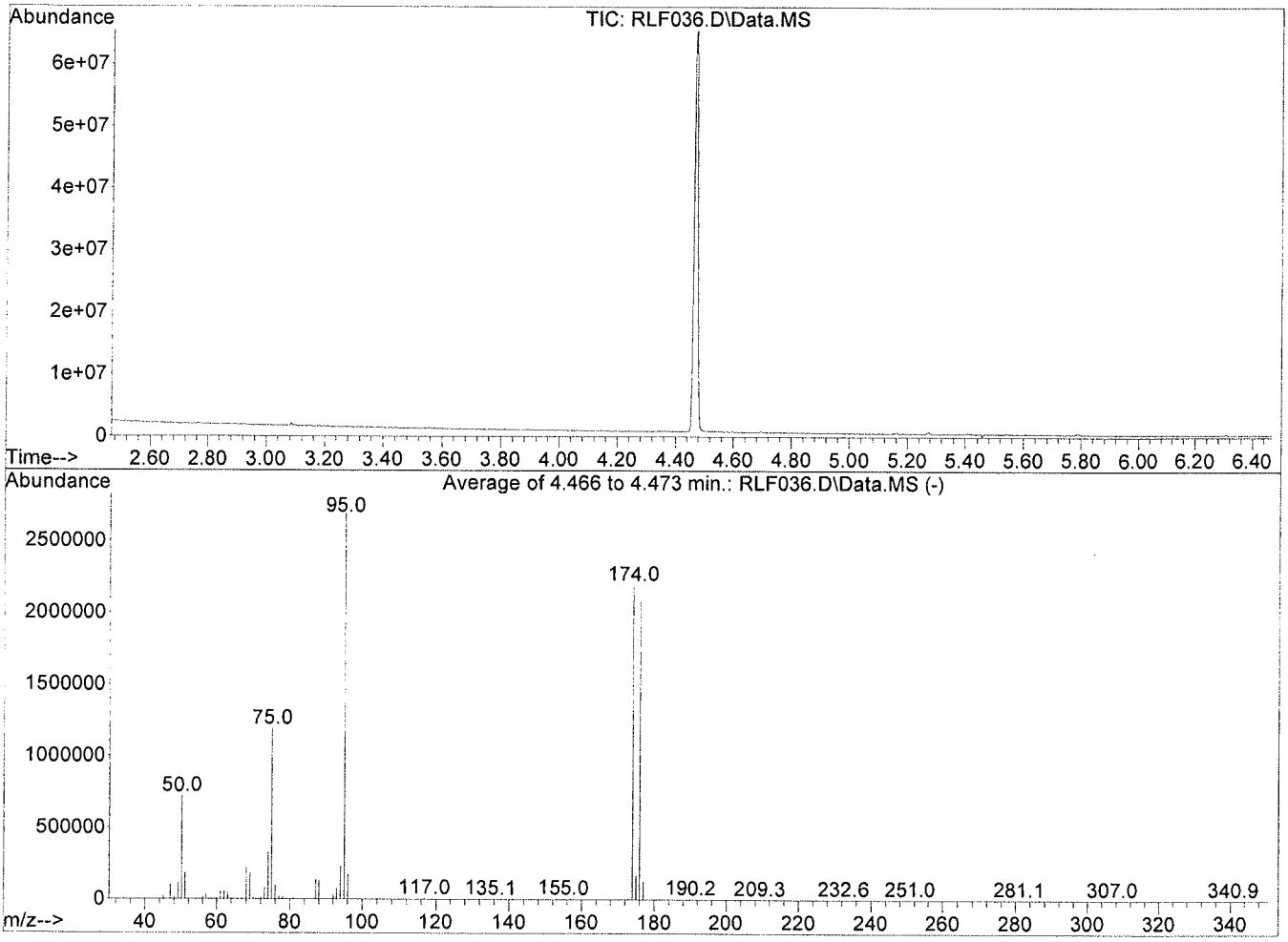
Retention Time(RT) Upper Limit = +30 seconds of ICAL Midpoint IS RT

Retention Time(RT) Lower Limit = -30 seconds of ICAL Midpoint IS RT

Data Path : C:\msdchem\1\DATA\19L11\
Data File : RLF036.D
Acq On : 11 Dec 2019 09:37
Operator : KVu
Sample : BFBF0K1506
Misc : F0
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\BFB.M
Title : BFB
Last Update : Fri Nov 15 14:33:51 2019



AutoFind: Scans 685, 686, 687; Background Corrected with Scan 674

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	26.7	719204	PASS
75	95	30	60	44.2	1189227	PASS
95	95	100	100	100.0	2691464	PASS
96	95	5	9	6.5	175041	PASS
173	174	0.00	2	0.4	8053	PASS
174	95	50	100	81.5	2192384	PASS
175	174	5	9	7.6	167704	PASS
176	174	95	101	95.5	2093677	PASS
177	176	5	9	6.2	129153	PASS

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\19L11\RLF037.D Vial: 3
Acq On : 11 Dec 2019 10:19 Operator: KVu
Sample : CSVF0K1506 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 10:32:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dioxane-d8	20.000	20.000	0.0	121	0.00
2	T	1,4-Dioxane	20.000	23.959	-19.8	129	0.00
3	S	Bromobenzene	20.000	19.189	4.1	124	0.00

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

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\19L11\RLF037.D Vial: 3
Acq On : 11 Dec 2019 10:19 Operator: KVu
Sample : CSVF0K1506 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 10:32:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dioxane-d8	1.000	1.000	0.0	121	0.00
2	T	1,4-Dioxane	1.215	1.062	12.6	129	0.00
3	S	Bromobenzene	3.189	3.060	4.0	124	0.00

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

Quantitation Report (QT Reviewed)

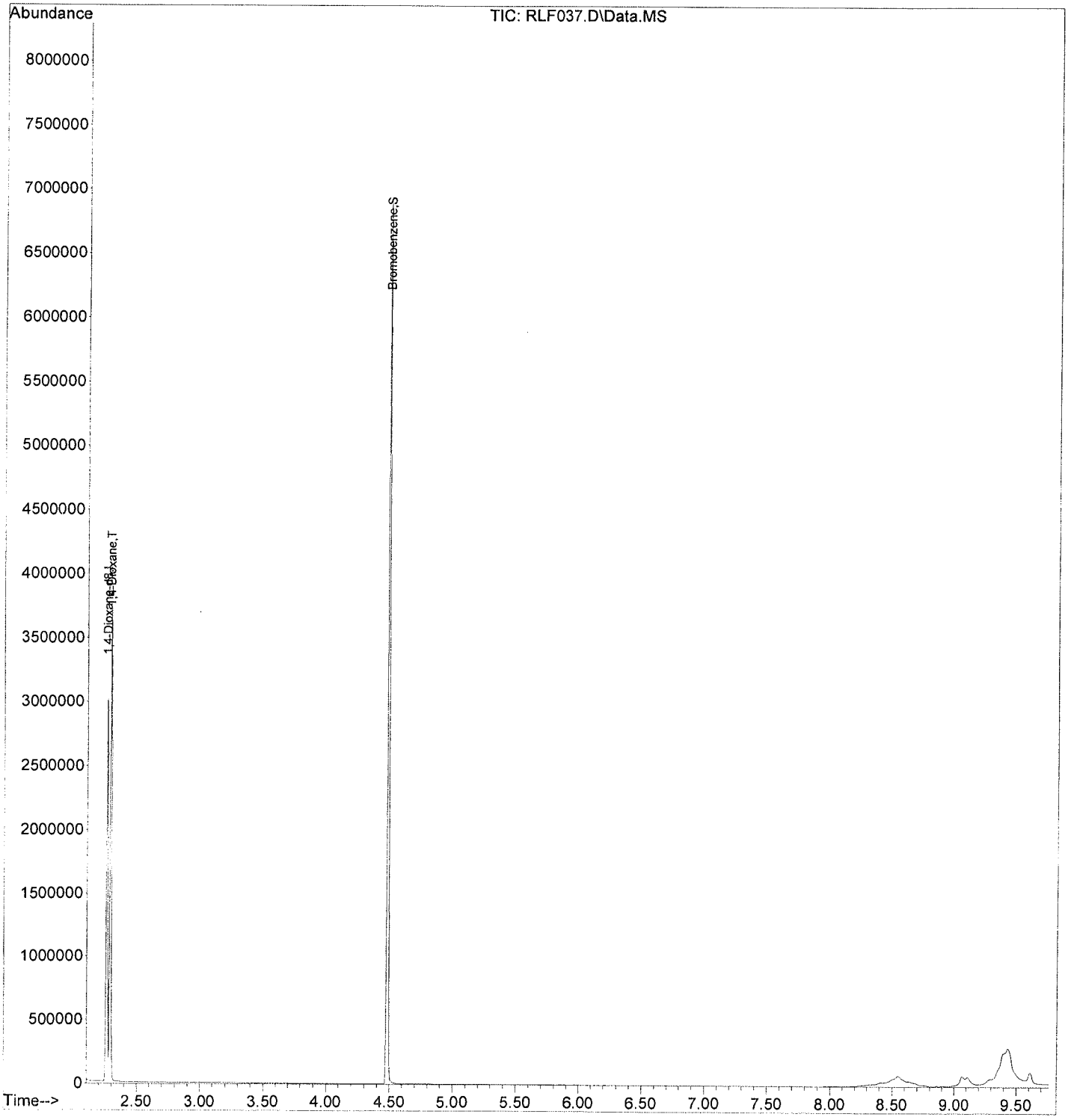
Data File : C:\msdchem\1\DATA\19L11\RLF037.D Vial: 3
Acq On : 11 Dec 2019 10:19 Operator: KVu
Sample : CSVF0K1506 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 10:32:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.260	96	256989	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.483	77	786386	19.19	ppm	0.00
Spiked Amount 20.000			Recovery =	95.95%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.288	88	272951	23.96	ppm	78

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF037.D Vial: 3
Acq On : 11 Dec 2019 10:19 Operator: KVu
Sample : CSVF0K1506 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 10:32:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



ANALYTICAL LOGS

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR SEMIVOLATILES

SOP ☐ EMAX-8270 Rev. No. 6 ☐ EMAX-8270D Rev. No. 1 ☐ EMAX-8270SIM Rev. No. 2 ☑ EMAX-M8270SIM Rev. No. 2 ☐ EMAX-625 Rev. No. 1 ☐ Book #: AF0-005

Method File: SVF0K15 Tune File: BFB Start Date/Time: 11/15/19 10:37 End Date/Time: 11/15/19 13:27

ANALYTICAL BATCH: SVF0K153

Preparative Batch	Data File Name	Run ID	DF	Matrix S	Matrix W	Notes
NA	RKF010	IBFFK1501	1			
	011	BFBF0K1501				
	012	SVF0K151				100 ppm
	013	2				60
	014	3				20
	015	4				5
	016	5				1
	017	6				0.5
	018	7				0.2
	019	8				0.15
	020	9				0.075
	021	10				0.05
	022	ISVF0K151				ICV
	023	SS2B-16-41-02				spike test
	024	SS2B-16-41-01				Surr

MW 11/15/19

Instrument No:	F0
INITIAL CALIBRATION REFERENCE	
Date	11/15/19
ICAL ID	SVF0K15

Standards		
Name	ID	Conc. (mg/L)
DFTPP		
INT. STD.	SS2A-13-10-05	1000
ICV	SS2C-18-17-03	20
DCC/ICAL	SS2C-18-17-02	.05-100
BENZIDINE		
APP 9		
APP 9 ADD		
BFB	SS2C-18-13-02	50

Solvent	ID
CH_2Cl_2	59137
DATA FILE	19K15

Electronic Data Archival	
Location	Date
HPCHEM_SVOA/TOF0	

Micropipette ID: ☐ PO97A-02 ☐ PO97A-03 ☐ PO00-01 Syringe ID: ☐ 503302- ☐

Comments:

Analyzed By: MV

Date Disposed: NA

Disposed By: NA

This page is checked during data review.

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR SEMIVOLATILES

SOP ☐ EMAX-8270 Rev. No. 6 ☐ EMAX-8270D Rev. No. 1 ☐ EMAX-8270SIM Rev. No. 2 ☑ EMAX-M8270SIM Rev. No. 2 ☐ EMAX-625 Rev. No. 1 ☐

Method File: SVF0K15 Tune File: BFB Start Date/Time: 12/11/19 9:37 End Date/Time: 12/11/19 21:23 Book #: AF0-006

ANALYTICAL BATCH: CSVF0K1506

Preparative Batch	Data File Name	Run ID	DF	Matrix S	Matrix W	Notes
	RLF035	IBF0K1506				
	036	BFBF0K1506				
	037	CSVF0K1506				
SVL003W	038	SVL003WB	1		X	
↓	039	↓ WL	↓		↓	
	040	↓ WC				
	041	19L043-07M				
	042	07S				
	043	01				
	044	02				
	045	04				
	046	05				
	047	↓ 07				
	048	19L057-01				
	049	02				
	050	03				
	051	04				
	052	05				
	053	07				
	054	08				
	055	09				
↓	056	↓ 10	↓		↓	
SVL004W	057	SVL004WB	1		X	
↓	058	↓ WL	↓		↓	
	059	↓ WC				
	060	19L064-07M				
	061	07S				
	062	01				
	063	02				
	064	03				
	065	04				
↓	066	↓ 06	↓		↓	

Instrument No:	F0
INITIAL CALIBRATION REFERENCE	
Date	11/15/19
ICAL ID	SVF0K15

Standards		
Name	ID	Conc. (mg/L)
DFTPP		
INT. STD.	SS2A-13-10-05	1000
CCV - 8270		
CCV - 1,4-Dioxane	SS2C-18.17-02	20
BFB	SS2C-18-03-02	50

Solvent	ID
CH_2Cl_2	59137
DATA FILE	19L11

Electronic Data Archival	
Location	Date
HPCHEM_SVOA/TOF0	

Micropipette ID: ☑ PO97A-02 ☐ PO97A-03 ☐ PO00-01

Syringe ID: ☑ 503302- ☐

Comments:

Analyzed By: MV

Date Disposed: 12/12/19

Disposed By: MV

This page is checked during data review.

ANALYSIS LOG FOR SEMIVOLATILES

SOP ☐ EMAX-8270 Rev. No. 6 ☐ EMAX-8270D Rev. No. 1 ☐ EMAX-8270SIM Rev. No. 2 ☑ EMAX-M8270SIM Rev. No. 2 ☐ EMAX-625 Rev. No. 1 ☐

Book #: AF0-006

Method File: SVF0K15 Tune File: BFB Start Date/Time: 12/11/19 9:37 End Date/Time: 12/11/19 21:23

ANALYTICAL BATCH: ESVF0K1506

Preparative Batch	Data File Name	Run ID	DF	Matrix S	Matrix W	Notes
SVL604W	LF067	19L064-07	1		X	
↓	068	08	↓		↓	
	069	09				
	070	10				
	071	11				
	072	12				
	073	13				
	074	14				
	075	15				
	076	17				
	077	18				
	078	20				
↓	079	21	↓		↓	
	080	ESVF0K1507				

MV 12/11/19

Instrument No:	F0

INITIAL CALIBRATION REFERENCE

Date	11/15/19
ICAL ID	SVF0K15

Standards

Name	ID	Conc. (mg/L)
DFTPP		
INT. STD.	SS2A-13-10-05	1000
CCV - 8270		
CCV - 1,4-Dioxane	SS2C-18-17-02	20
BFB		

Solvent	ID
CH_2Cl_2	59137
DATA FILE	19L11

Electronic Data Archival

Location	Date
HPCHEM_SVOA/TOF0	

Micropipette ID: ☑ PO97A-02 ☐ PO97A-03 ☐ PO00-01

Syringe ID: ☑ 503302-2 ☐

Comments:

Analyzed By: MV

Date Disposed: 12/12/19

Disposed By: MV

This page is checked during data review.

EXTRACTION LOGS

SOP	Rev. #
☑ EMAX-3520	5
☐ EMAX-3540	3
☐ EMAX-3546	0
☐ EMAX-3550	5
☐ EMAX-3580	3
☐ EMAX-625	1

Note: For samples and relevant QCs/Standards extracted, refer to attached extraction sequence.

☐ MS/MSD can not be extracted due to insufficient amount of samples

Comments:

Book #: ESV-109
Preparation Batch: SVL003W
Matrix: WATER
Micropipette ID: 1000 µL : PE00-02
Micropipette ID: 100 µL : PE97C-03
Micropipette ID:

Standards	ID	Amount Added (ml)
Surrogate	SS2B-16-41-01	0.1
LCS/MS/1,4-Dioxane	SS2B-16-40-03	1.0
LCS/MS		
LCS/MS		
LCS/MS		

Reagent	Lot# / ID
CH_2Cl_2	188890
Na_2SO_4	SWB-006-15-23
H_2SO_4	
NaOH	SPIB-12-60-03
Silica Sand	
Silica Gel	
Reagent Water	SWA-08-20-10
Residual Chlorine Strip	92218
pH Strip	HC863463
Filter Paper	16812807

Lab Sample ID	Sonicator #	Cell #	Concentrator #
SVL003-WB			1
-WL			1
-WC			1
L043-01			2
-02			2
-04			2
-05			2
-07			2
-07M			2
-07S			3
L057-01			3
-02			3
-03			3
-04			3
-05			3
-07			4
-08			4
-09			4
-10			4

TUNING (Note: A free flowing mixture of soil and solvent must be achieved.)

Sonicator #	Power Output Reading	Acceptance Criteria
		< 15 g sample: at least 10% power output. > 15 g sample: at least 20% power output.

Concentrator	Water Bath Temperature Setting (°C)	Thermometer Reading (°C)
1	35	35
2	35	35
3	35	35
4	35	35
5		
6		
8		

Thermometer ID = SVOC-T1

Prepared By: HW — Witnessed By: ER
Standard Added By: HW — Checked By: ML
Extract Received By: KV 12/10/19 — Location: SE01-10
Disposed By: — Disposed On:

EMAX LABORATORIES, INC.

EXTRACTION LOG FOR SEMIVOLATILES

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Ve(ml)	ExpAmt	ExpVe(ml)	PrepFctr	Comments
19SVL003W01	SVL003WB	1000	ml	12/9/19 14:47	2	1000	2	1	
19SVL003W02	SVL003WL	1000	ml	12/9/19 14:47	2	1000	2	1	1,4-Dioxane
19SVL003W03	SVL003WC	1000	ml	12/9/19 14:47	2	1000	2	1	1,4-Dioxane
19SVL003W04	L043-01	960	ml	12/9/19 14:47	2	1000	2	1.04	
19SVL003W05	L043-02	900	ml	12/9/19 14:47	2	1000	2	1.11	
19SVL003W06	L043-04	1010	ml	12/9/19 14:47	2	1000	2	0.99	
19SVL003W07	L043-05	830	ml	12/9/19 14:47	2	1000	2	1.2	
19SVL003W08	L043-07	870	ml	12/9/19 14:47	2	1000	2	1.15	
19SVL003W09	L043-07M	960	ml	12/9/19 14:47	2	1000	2	1.04	1,4-Dioxane
19SVL003W10	L043-07S	970	ml	12/9/19 14:47	2	1000	2	1.03	1,4-Dioxane
19SVL003W11	L057-01	920	ml	12/9/19 14:47	2	1000	2	1.09	
19SVL003W12	L057-02	920	ml	12/9/19 14:48	2	1000	2	1.09	
19SVL003W13	L057-03	970	ml	12/9/19 14:48	2	1000	2	1.03	
19SVL003W14	L057-04	850	ml	12/9/19 14:48	2	1000	2	1.18	
19SVL003W15	L057-05	930	ml	12/9/19 14:48	2	1000	2	1.08	
19SVL003W16	L057-07	1020	ml	12/9/19 14:48	2	1000	2	0.98	
19SVL003W17	L057-08	1030	ml	12/9/19 14:48	2	1000	2	0.97	
19SVL003W18	L057-09	980	ml	12/9/19 14:48	2	1000	2	1.02	
19SVL003W19	L057-10	910	ml	12/9/19 14:48	2	1000	2	1.1	

Ve=extract volume

PrepFctr=(ExpAmt/Aliquot)(Ve/ExpVe)

☑ Extraction Started @ 12/9/19 13:00 ☐ pHAdj(≤2) @ Vial Lot No.: 277518 Prepared By: HWang

☑ Extraction Ended @ 12/10/19 7:00 ☑ pHAdj(≥11) @ 12/9/19 13:00 Vial Cal Ref.: VC-19-020 Checked By: ML

Comments: volume entered after extraction started, pH=7, chlorine not detected Date 12/10/19

SOP EMAX-3520 Rev. 5

LABORATORY REPORT FOR

CDM SMITH

VA SALT LAKE CITY

METHOD RSK-175
DISSOLVED GASES

SDG#: 19L057

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L057

METHOD RSK-175
DISSOLVED GASES

A total of nine(9) water samples were received on 12/07/19 to be analyzed for Dissolved Gases in accordance with Method RSK-175 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DGL002WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. DGL002WL/DGL002WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
DISSOLVED GASES

Client : CDM SMITH
Project : VA SALT LAKE CITY

SDG NO. : 19L057
Instrument ID : GCT072

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	DGL002WB	1	NA	12/10/1910:44	12/10/1909:40	BL10004A	BL10003A	DGL002W	Method Blank
LCS1W	DGL002WL	1	NA	12/10/1911:01	12/10/1909:40	BL10005A	BL10003A	DGL002W	Lab Control Sample (LCS)
LCD1W	DGL002WC	1	NA	12/10/1911:14	12/10/1909:40	BL10006A	BL10003A	DGL002W	LCS Duplicate
OU2-MW12S-GW120619	L057-01	1	NA	12/10/1913:31	12/10/1909:40	BL10015A	BL10014A	DGL002W	Field Sample
OU2-MW12D-GW120619	L057-02	1	NA	12/10/1914:19	12/10/1909:40	BL10016A	BL10014A	DGL002W	Field Sample
OU2-MW16S-GW120619	L057-03	1	NA	12/10/1914:36	12/10/1909:40	BL10017A	BL10014A	DGL002W	Field Sample
OU2-MW16D-GW120619	L057-04	1	NA	12/10/1914:48	12/10/1909:40	BL10018A	BL10014A	DGL002W	Field Sample
OU2-MW06-GW120619	L057-05	1	NA	12/10/1915:02	12/10/1909:40	BL10019A	BL10014A	DGL002W	Field Sample
OU2-FD01-GW120519	L057-07	1	NA	12/10/1915:14	12/10/1909:40	BL10020A	BL10014A	DGL002W	Field Sample
OU2-MW13S-GW120519	L057-08	1	NA	12/10/1915:27	12/10/1909:40	BL10021A	BL10014A	DGL002W	Field Sample
OU2-MW13D-GW120519	L057-09	1	NA	12/10/1915:40	12/10/1909:40	BL10022A	BL10014A	DGL002W	Field Sample
OU2-MW04-GW120519	L057-10	1	NA	12/10/1915:56	12/10/1909:40	BL10023A	BL10014A	DGL002W	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/06/19
Project : VA SALT LAKE CITY	Date Received: 12/07/19
Batch No. : 19L057	Date Extracted: 12/10/19 09:40
Sample ID: OU2-MW12S-GW120619	Date Analyzed: 12/10/19 13:31
Lab Samp ID: L057-01	Dilution Factor: 1
Lab File ID: BL10015A	Matrix : WATER
Ext Btch ID: DGL002W	% Moisture : NA
Calib. Ref.: BL10014A	Instrument ID : GCT072

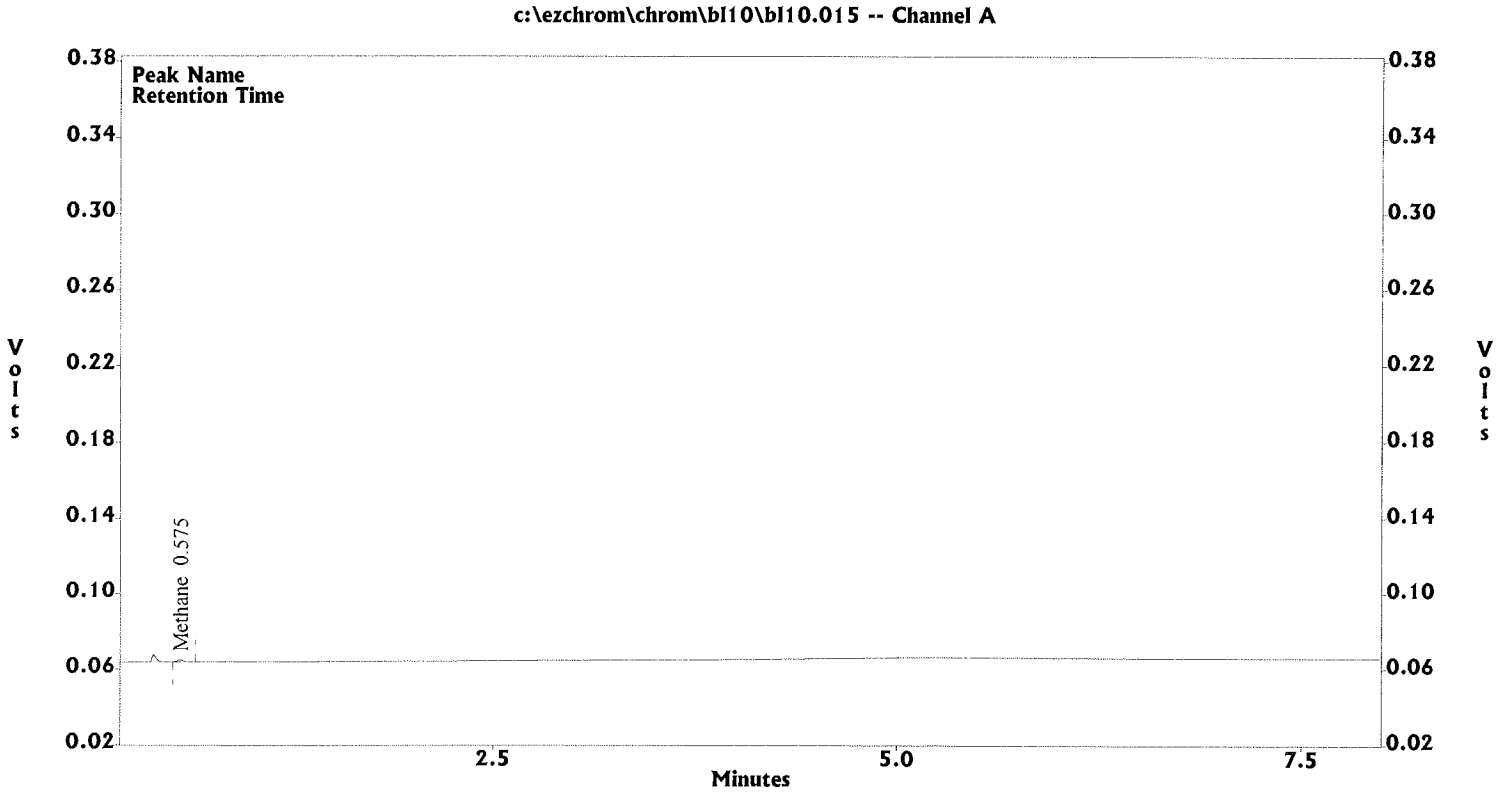
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	0.20J	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\bl10.015
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : L057-01
Acquired : Dec 10, 2019 13:31:49
Printed : Dec 10, 2019 14:21:32
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.575	2566	13000.2	0.197
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client	: CDM SMITH	Date Collected	: 12/06/19
Project	: VA SALT LAKE CITY	Date Received	: 12/07/19
Batch No.	: 19L057	Date Extracted	: 12/10/19 09:40
Sample ID	: OU2-MW12D-GW120619	Date Analyzed	: 12/10/19 14:19
Lab Samp ID	: L057-02	Dilution Factor	: 1
Lab File ID	: BL10016A	Matrix	: WATER
Ext Btch ID	: DGL002W	% Moisture	: NA
Calib. Ref.	: BL10014A	Instrument ID	: GCT072

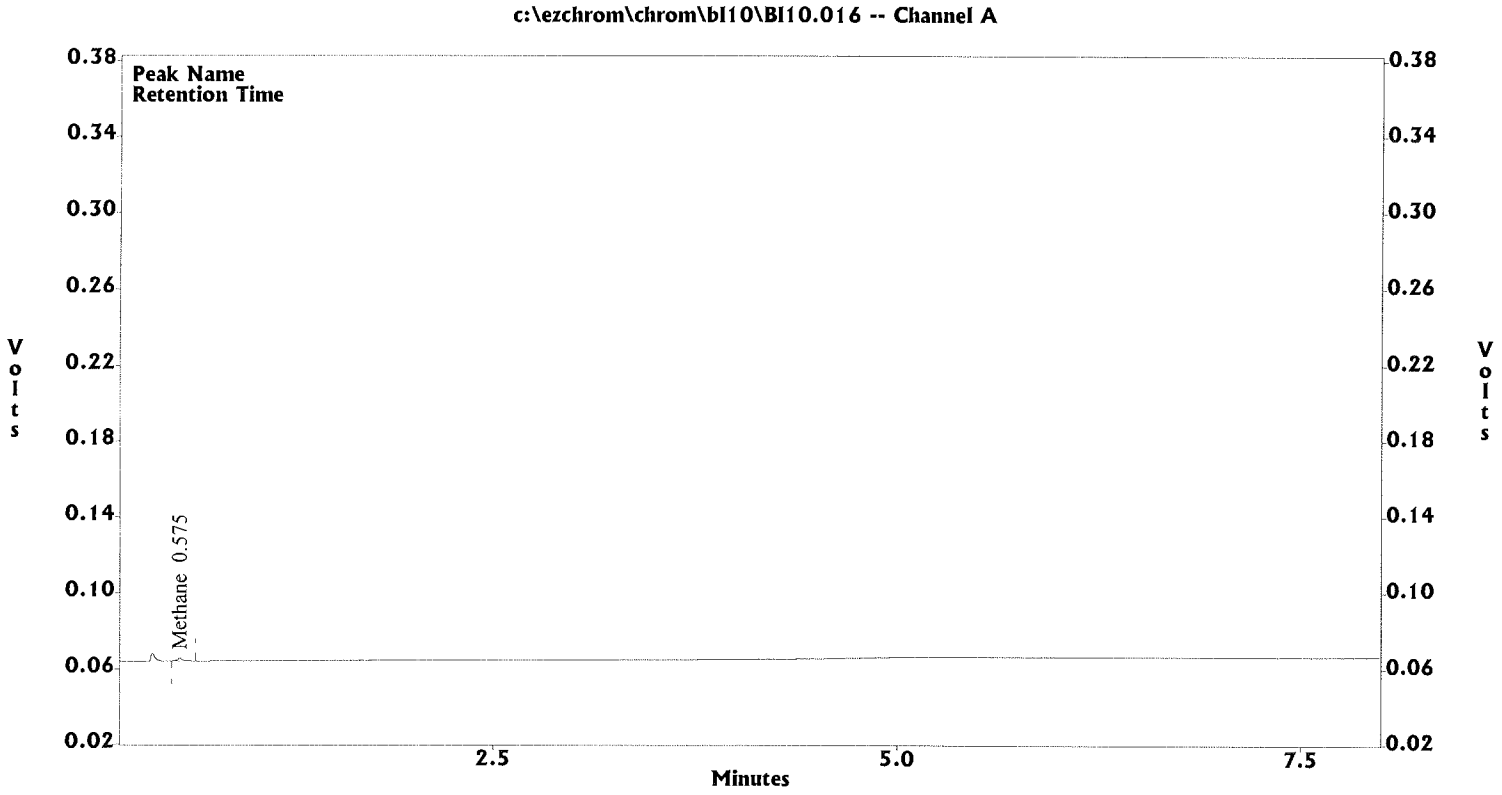
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	0.22J	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.016
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L057-02
Acquired : Dec 10, 2019 14:19:23
Printed : Dec 10, 2019 14:27:25
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.575	2920	13000.2	0.225
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/06/19
Project : VA SALT LAKE CITY	Date Received: 12/07/19
Batch No. : 19L057	Date Extracted: 12/10/19 09:40
Sample ID: OU2-MW16S-GW120619	Date Analyzed: 12/10/19 14:36
Lab Samp ID: L057-03	Dilution Factor: 1
Lab File ID: BL10017A	Matrix : WATER
Ext Btch ID: DGL002W	% Moisture : NA
Calib. Ref.: BL10014A	Instrument ID : GCT072

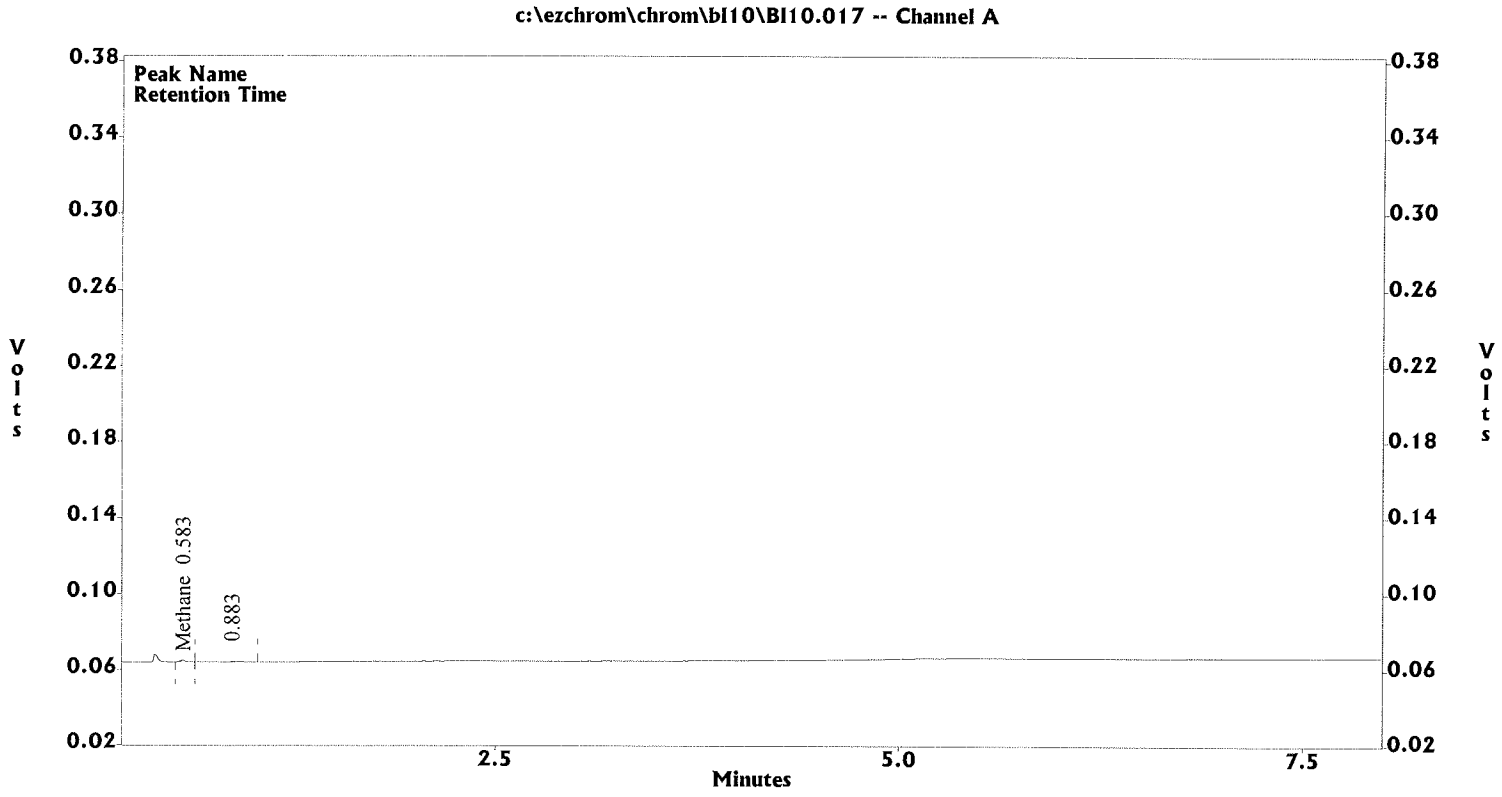
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	ND	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.017
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L057-03
Acquired : Dec 10, 2019 14:36:35
Printed : Dec 10, 2019 14:44:37
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.583	1754	13000.2	0.135
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client	: CDM SMITH	Date Collected:	12/06/19
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
Batch No.	: 19L057	Date Extracted:	12/10/19 09:40
Sample ID	: OU2-MW16D-GW120619	Date Analyzed:	12/10/19 14:48
Lab Samp ID	: L057-04	Dilution Factor:	1
Lab File ID	: BL10018A	Matrix	: WATER
Ext Btch ID	: DGL002W	% Moisture	: NA
Calib. Ref.	: BL10014A	Instrument ID	: GCT072

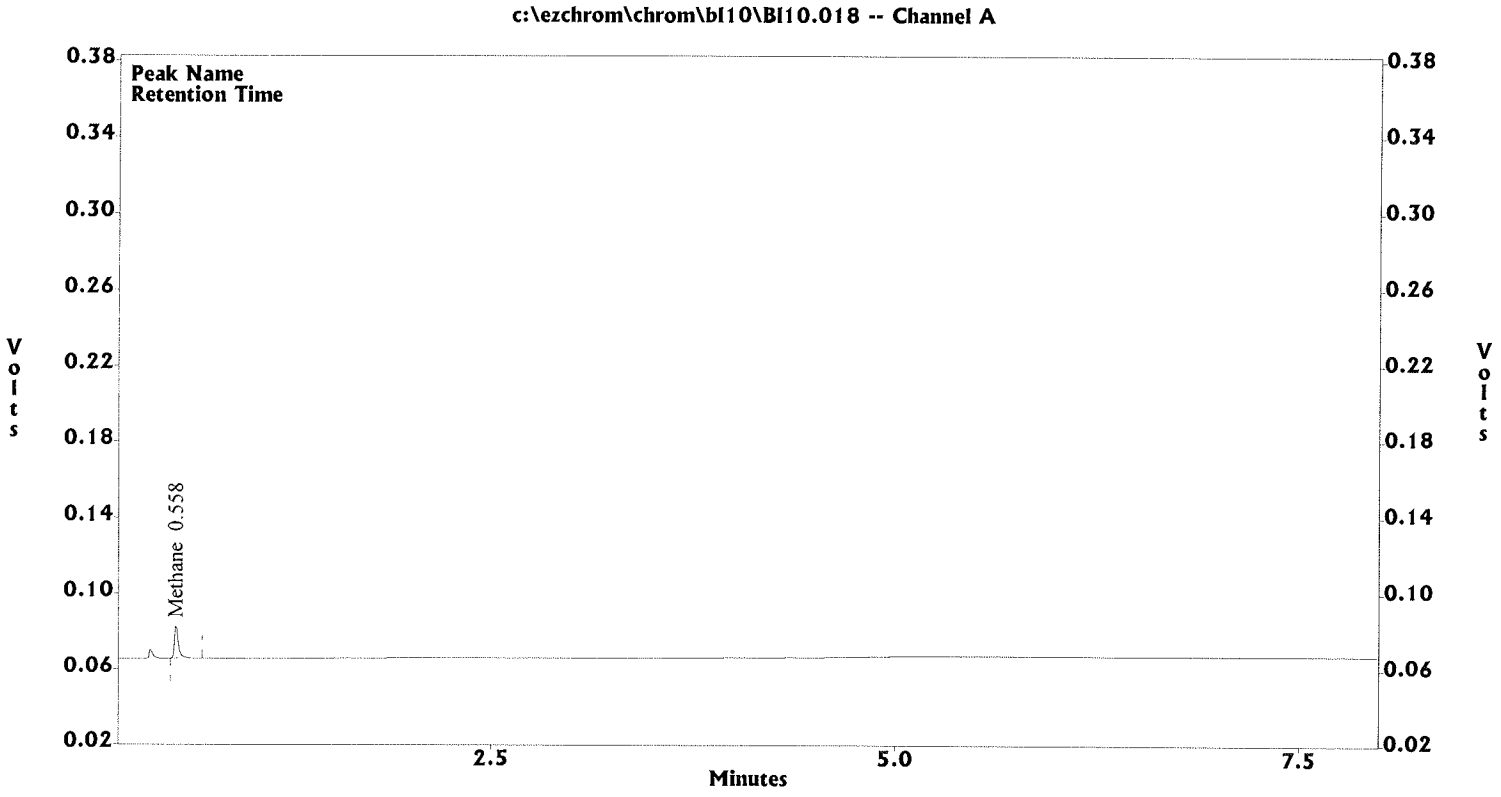
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	2.3	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.018
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L057-04
Acquired : Dec 10, 2019 14:48:57
Printed : Dec 10, 2019 14:57:00
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.558	30136	13000.2	2.318
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client	: CDM SMITH	Date Collected:	12/06/19
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
Batch No.	: 19L057	Date Extracted:	12/10/19 09:40
Sample ID:	OU2-MW06-GW120619	Date Analyzed:	12/10/19 15:02
Lab Samp ID:	L057-05	Dilution Factor:	1
Lab File ID:	BL10019A	Matrix :	WATER
Ext Btch ID:	DGL002W	% Moisture :	NA
Calib. Ref.:	BL10014A	Instrument ID :	GCT072

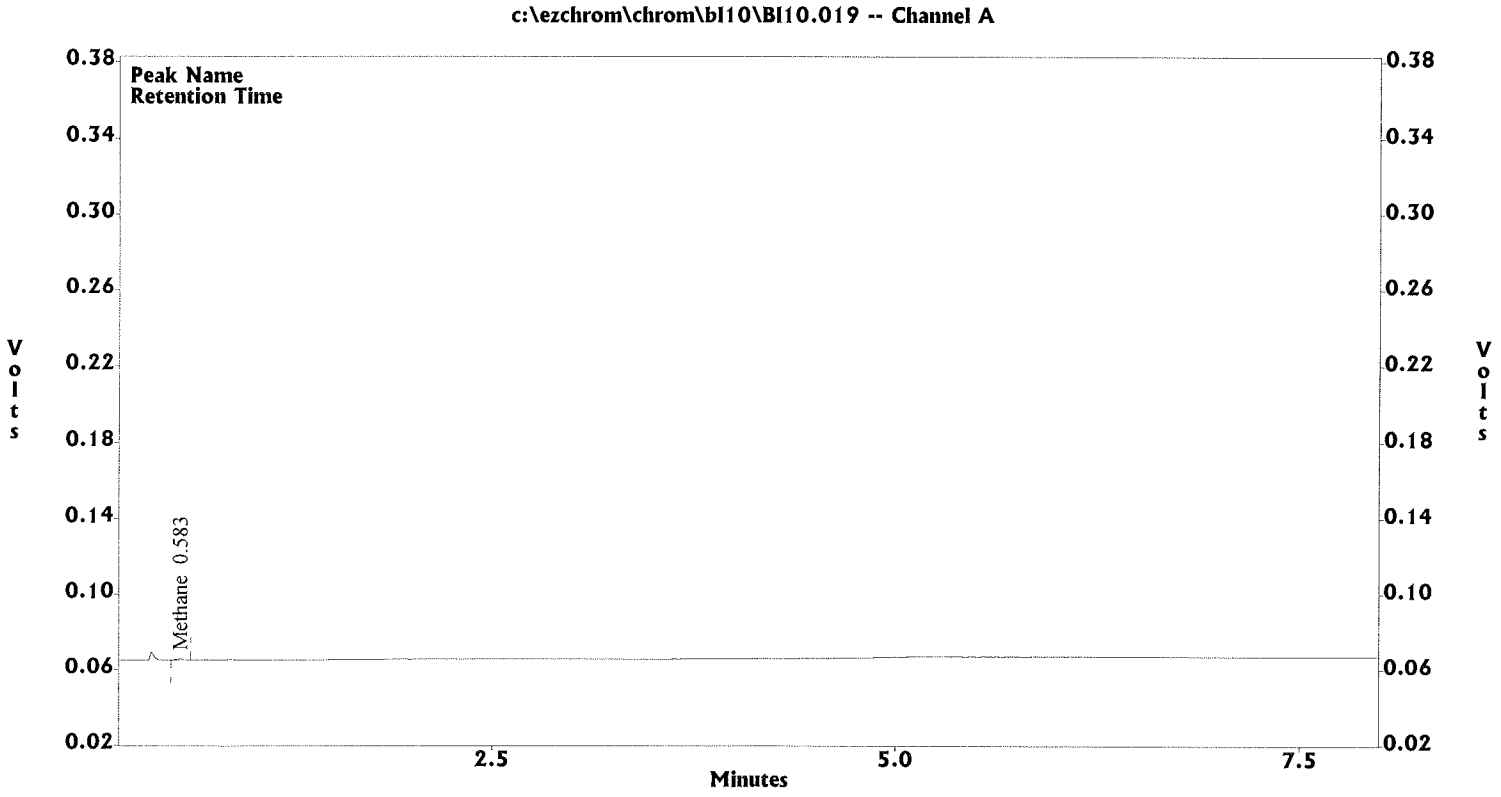
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	ND	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.019
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L057-05
Acquired : Dec 10, 2019 15:02:18
Printed : Dec 10, 2019 15:10:19
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.583	1351	13000.2	0.104
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/05/19
Project : VA SALT LAKE CITY	Date Received: 12/07/19
Batch No. : 19L057	Date Extracted: 12/10/19 09:40
Sample ID: OU2-FD01-GW120519	Date Analyzed: 12/10/19 15:14
Lab Samp ID: L057-07	Dilution Factor: 1
Lab File ID: BL10020A	Matrix : WATER
Ext Btch ID: DGL002W	% Moisture : NA
Calib. Ref.: BL10014A	Instrument ID : GCT072

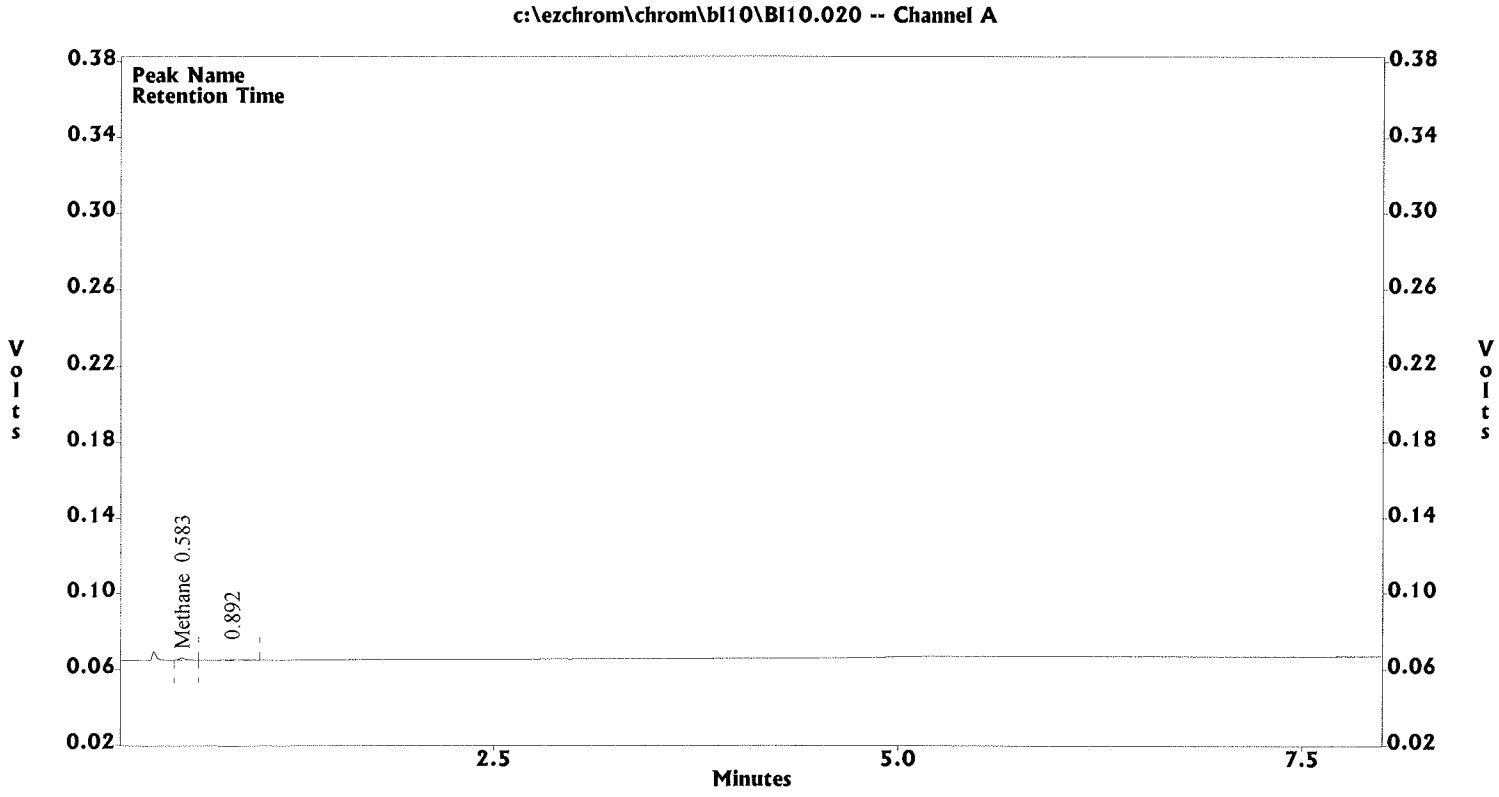
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	0.22J	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.020
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L057-07
Acquired : Dec 10, 2019 15:14:50
Printed : Dec 10, 2019 15:22:51
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.583	2921	13000.2	0.225
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/05/19
Project : VA SALT LAKE CITY	Date Received: 12/07/19
Batch No. : 19L057	Date Extracted: 12/10/19 09:40
Sample ID: OU2-MW13S-GW120519	Date Analyzed: 12/10/19 15:27
Lab Samp ID: L057-08	Dilution Factor: 1
Lab File ID: BL10021A	Matrix : WATER
Ext Btch ID: DGL002W	% Moisture : NA
Calib. Ref.: BL10014A	Instrument ID : GCT072

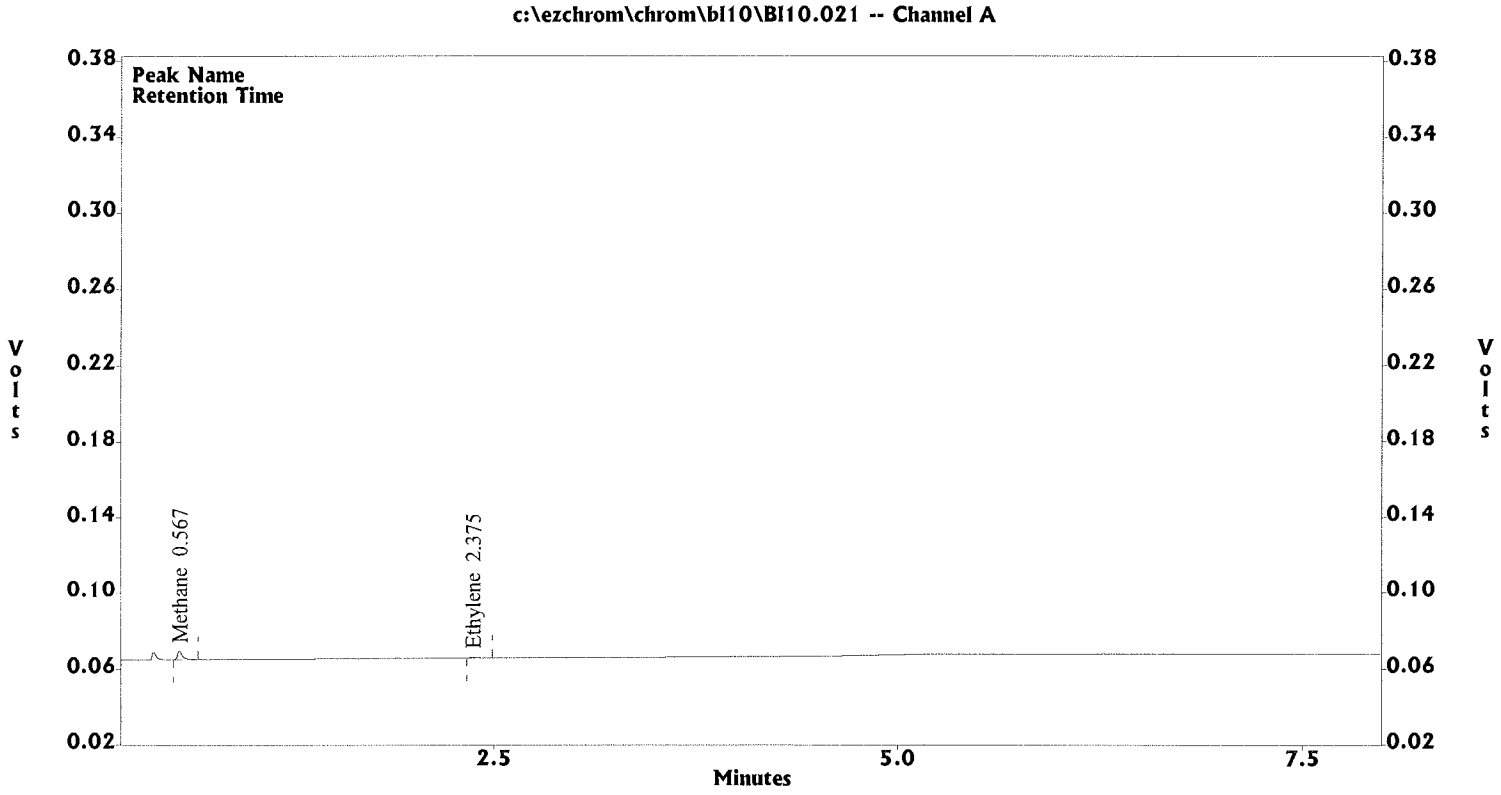
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	0.65J	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.021
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L057-08
Acquired : Dec 10, 2019 15:27:22
Printed : Dec 10, 2019 15:35:23
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	8492	13000.2	0.653
--	Acetylene	1.900	0	0.0	0.000
2	Ethylene	2.375	1007	8316.3	0.121
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/05/19
Project : VA SALT LAKE CITY	Date Received: 12/07/19
Batch No. : 19L057	Date Extracted: 12/10/19 09:40
Sample ID: OU2-MW13D-GW120519	Date Analyzed: 12/10/19 15:40
Lab Samp ID: L057-09	Dilution Factor: 1
Lab File ID: BL10022A	Matrix : WATER
Ext Btch ID: DGL002W	% Moisture : NA
Calib. Ref.: BL10014A	Instrument ID : GCT072

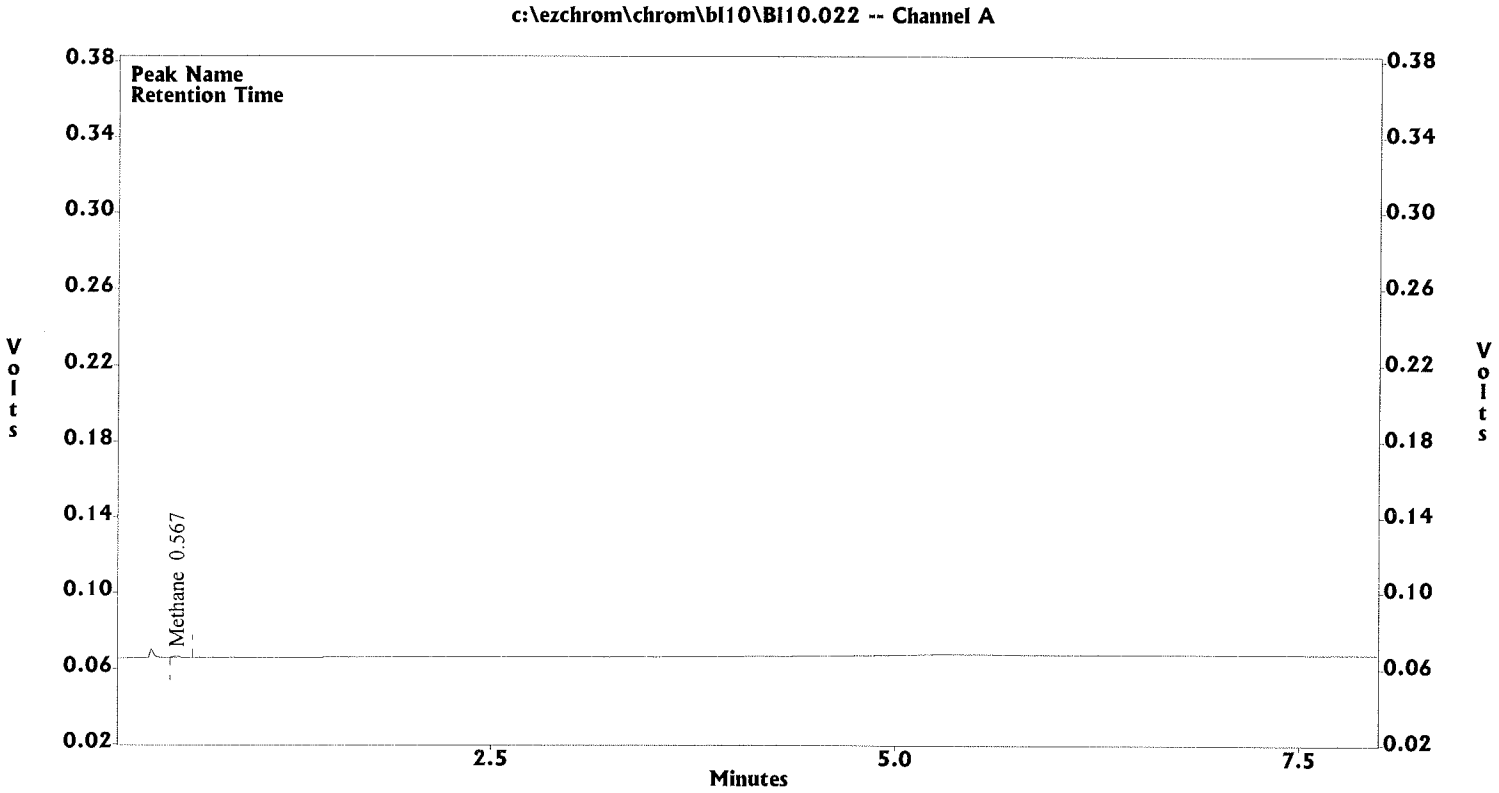
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	ND	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.022
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L057-09
Acquired : Dec 10, 2019 15:40:13
Printed : Dec 10, 2019 15:48:14
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	2097	13000.2	0.161
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/05/19
Project : VA SALT LAKE CITY	Date Received: 12/07/19
Batch No. : 19L057	Date Extracted: 12/10/19 09:40
Sample ID: OU2-MW04-GW120519	Date Analyzed: 12/10/19 15:56
Lab Samp ID: L057-10	Dilution Factor: 1
Lab File ID: BL10023A	Matrix : WATER
Ext Btch ID: DGL002W	% Moisture : NA
Calib. Ref.: BL10014A	Instrument ID : GCT072

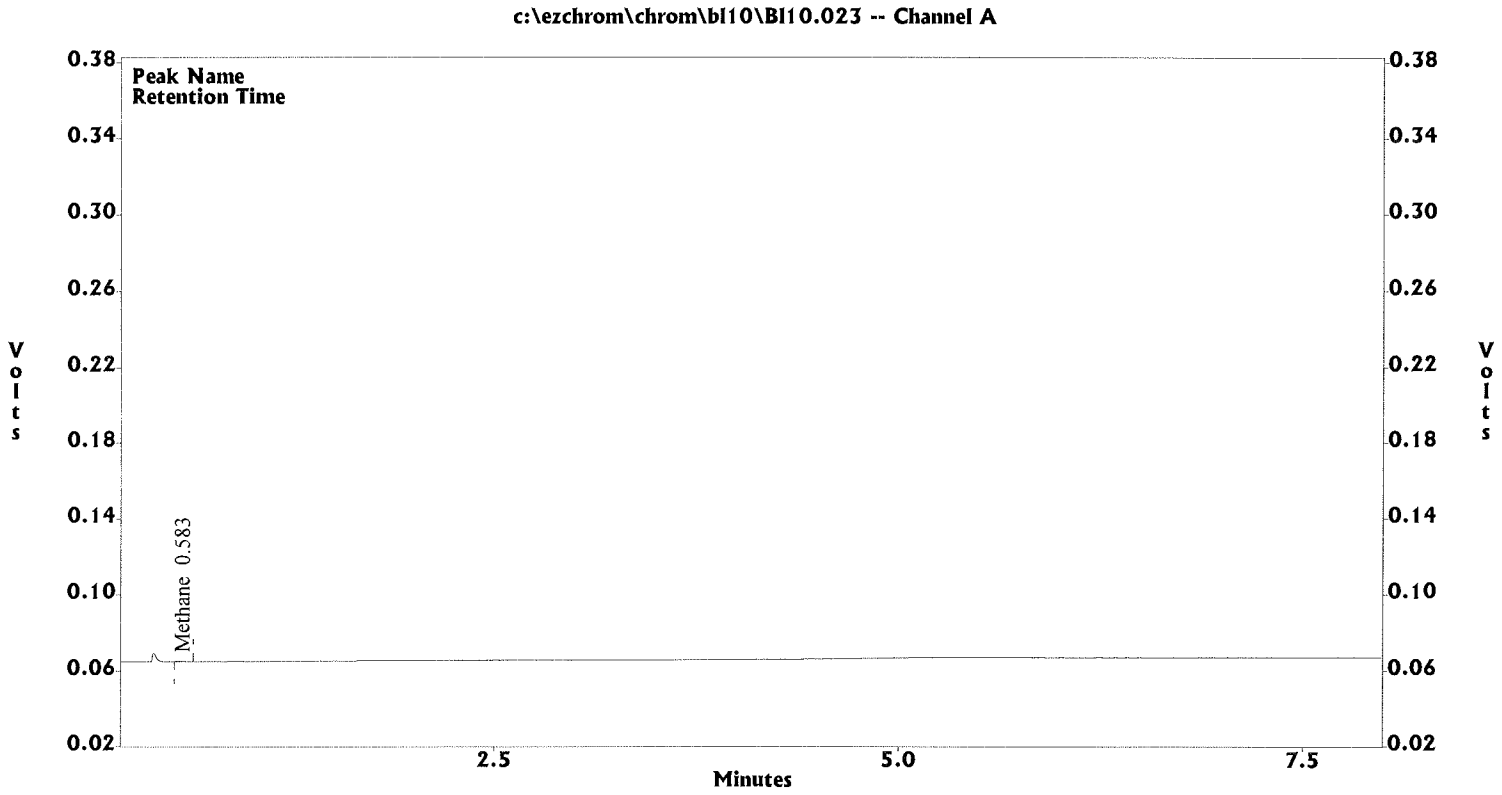
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	ND	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.023
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L057-10
Acquired : Dec 10, 2019 15:56:15
Printed : Dec 10, 2019 16:04:17
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.583	1208	13000.2	0.093
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



QC SUMMARIES

METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: NA
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L057	Date Extracted: 12/10/19 09:40
Sample ID: MBLK1W	Date Analyzed: 12/10/19 10:44
Lab Samp ID: DGL002WB	Dilution Factor: 1
Lab File ID: BL10004A	Matrix : WATER
Ext Btch ID: DGL002W	% Moisture : NA
Calib. Ref.: BL10003A	Instrument ID : GCT072

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	ND	2.0	0.17

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L057
METHOD: RSK-175

MATRIX: WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	DGL002WB	DGL002WL	DGL002WC		
LAB FILE ID:	BL10004A	BL10005A	BL10006A		
DATE EXTRACTED:	12/10/1909:40	12/10/1909:40	12/10/1909:40	DATE COLLECTED:	NA
DATE ANALYZED:	12/10/1910:44	12/10/1911:01	12/10/1911:14	DATE RECEIVED:	12/10/19
PREP. BATCH:	DGL002W	DGL002W	DGL002W		
CALIB. REF:	BL10003A	BL10003A	BL10003A		

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Ethane	ND	25.5	25.4	100	25.5	27.3	107	7	70-140	30
Ethene	ND	23.8	22.7	95	23.8	24.2	102	6	70-140	30
Methane	ND	13.6	13.0	96	13.6	14.1	103	8	70-130	30

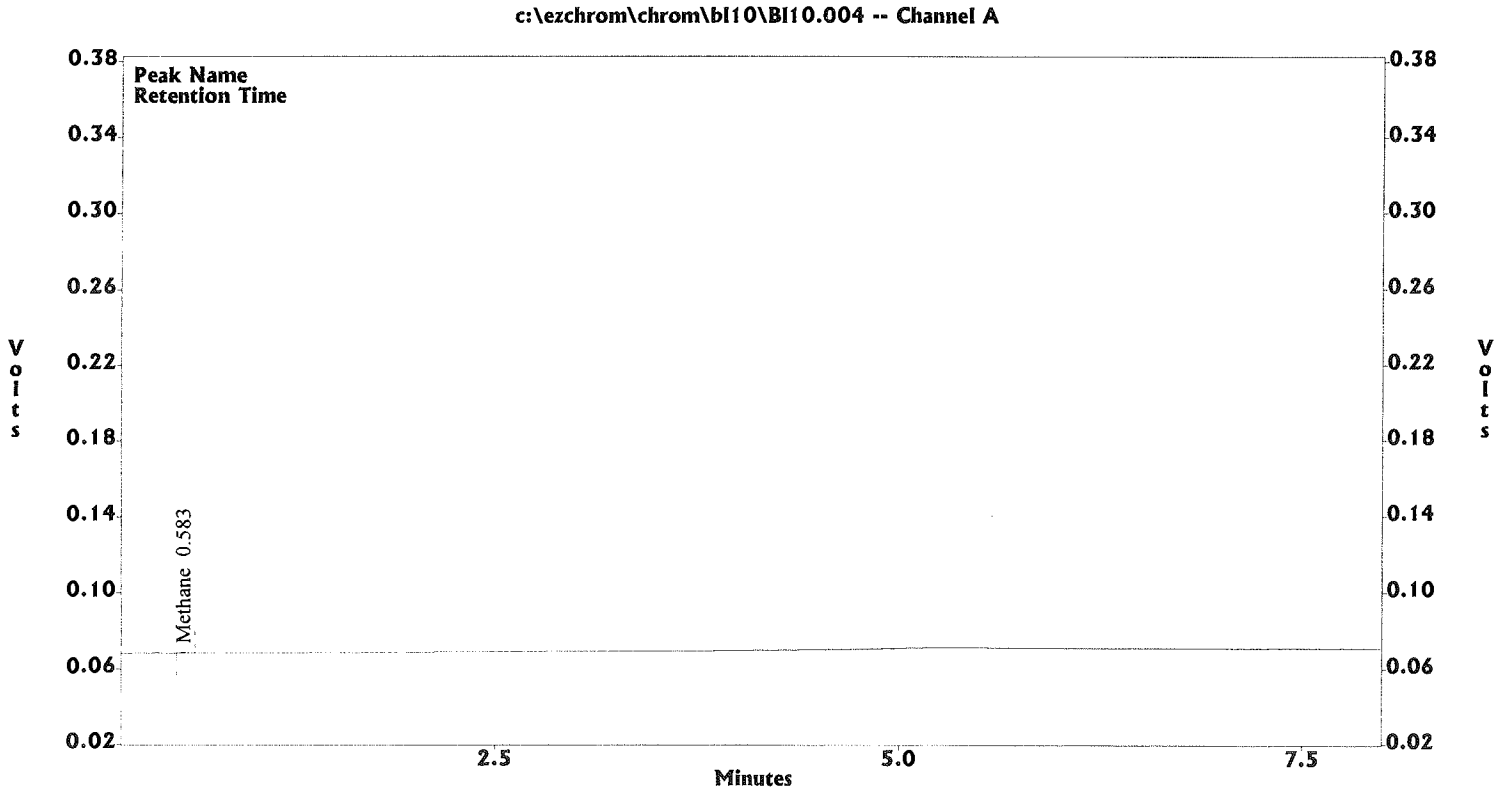
QC DATA

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.004
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : DGL002WB
Acquired : Dec 10, 2019 10:44:37
Printed : Dec 10, 2019 10:52:38
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.583	1184	13000.2	0.091
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000

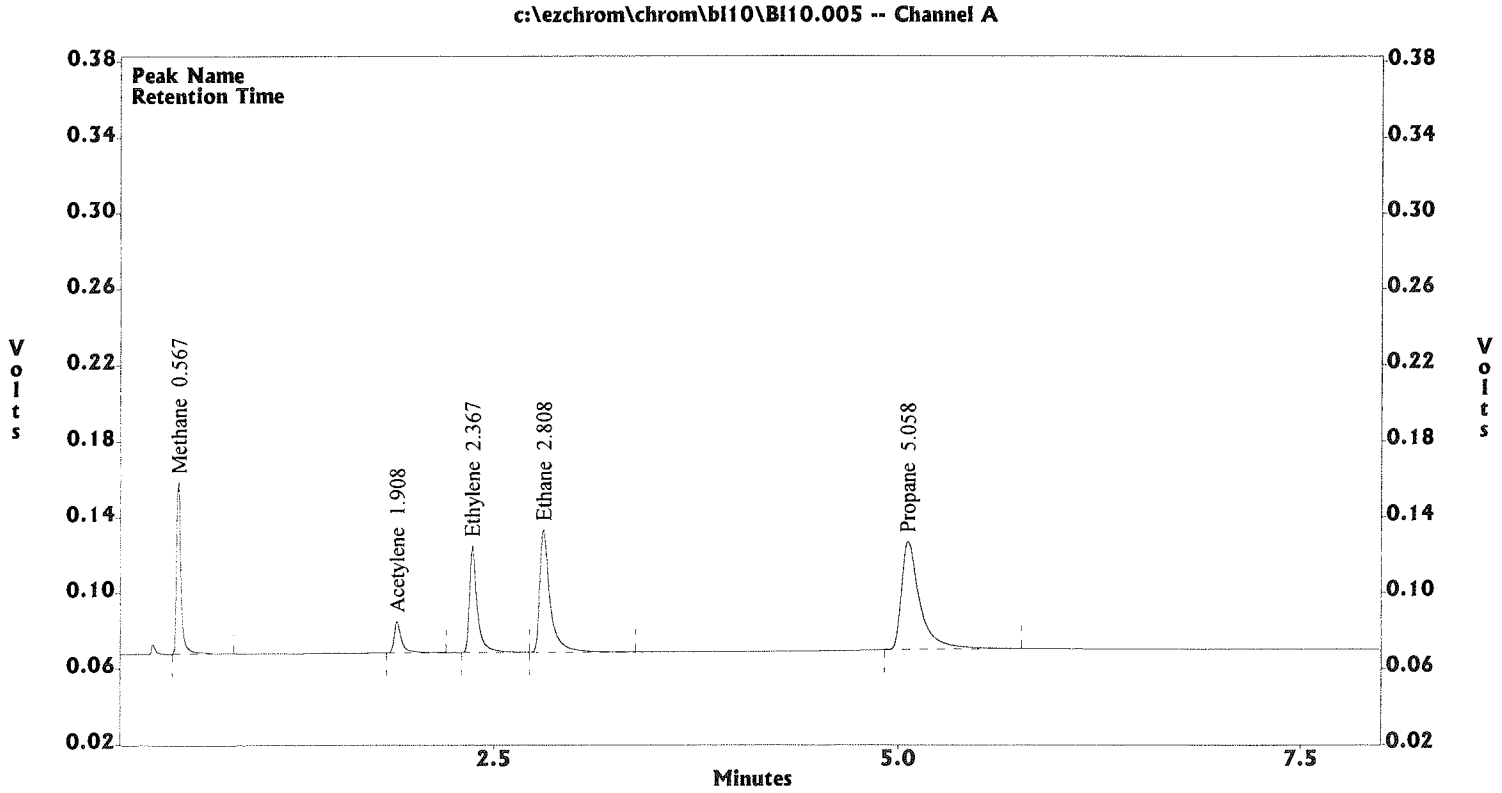


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.005
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : DGL002WL
Acquired : Dec 10, 2019 11:01:37
Printed : Dec 10, 2019 11:09:37
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	169496	13000.2	13.038
2	Acetylene	1.908	52272	2310.0	22.629
3	Ethylene	2.367	188730	8316.3	22.694
4	Ethane	2.808	288977	11378.1	25.398
5	Propane	5.058	448696	12067.0	37.184

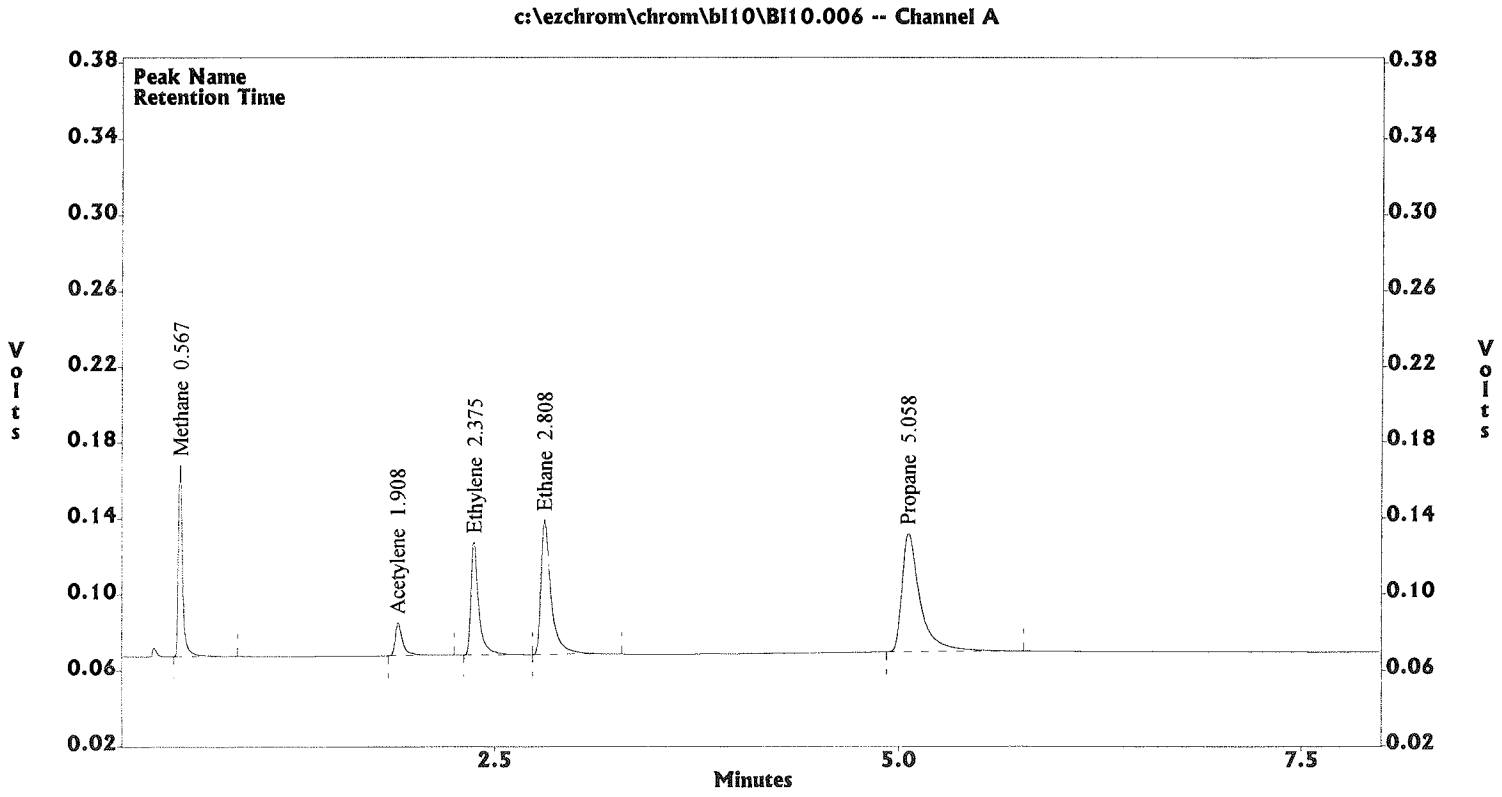


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.006
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : DGL002WC
Acquired : Dec 10, 2019 11:14:10
Printed : Dec 10, 2019 11:22:11
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	182669	13000.2	14.051
2	Acetylene	1.908	55480	2310.0	24.017
3	Ethylene	2.375	201222	8316.3	24.196
4	Ethane	2.808	310773	11378.1	27.313
5	Propane	5.058	485808	12067.0	40.259



INITIAL CALIBRATIONS

INITIAL CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Column : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
LFID & Datetime: BC20002A 03/20/19 10:19
LFID & Datetime: BC20003A 03/20/19 10:31
LFID & Datetime: BC20004A 03/20/19 10:44
LFID & Datetime: BC20005A 03/20/19 10:56
LFID & Datetime: BC20006A 03/20/19 11:08
LFID & Datetime: BC20007A 03/20/19 11:21
CONC UNIT: ppb

COMPOUND	CONC X	CALIBRATION FACTORS (AREA)/UNIT 2.00X	10.00X	25.00X	40.00X	75.00X	100.00X	MEAN	%RSD
Methane	0.34	12510	15188	13549	12749	12136	11869	13000.2	9.4
Acetylene	0.55	1871	2639	2493	2383	2248	2226	2310.0	11.5
Ethylene	0.60	6392	9743	9097	8533	8116	8017	8316.3	13.7
Ethane	0.64	9016	13286	12338	11571	11068	10989	11378.1	12.7
Propane	0.94	9664	13882	13122	12439	11732	11562	12067.0	12.1

DG72C20.MET

FORM VI DGAS -2 1/96 Rev 2/2006

LE 3/20/19

INITIAL CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Columm : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
LFID & Datetime: BC20002A 03/20/19 10:19
LFID & Datetime: BC20003A 03/20/19 10:31
LFID & Datetime: BC20004A 03/20/19 10:44
LFID & Datetime: BC20005A 03/20/19 10:56
LFID & Datetime: BC20006A 03/20/19 11:08
LFID & Datetime: BC20007A 03/20/19 11:21

COMPOUND	RT OF STANDARDS (MIN) 2.0X	10.0X	25.0X	40.0X	75.0X	100.0X	MEAN RT	RT WINDOW FROM	TO	RTWINDOW WIDTH
Methane	0.567	0.567	0.550	0.550	0.550	0.550	0.556	0.530	0.582	0.026
Acetylene	1.917	1.908	1.892	1.892	1.892	1.892	1.899	1.846	1.952	0.053
Ethylene	2.358	2.358	2.350	2.350	2.350	2.350	2.353	2.315	2.391	0.038
Ethane	2.792	2.792	2.792	2.792	2.783	2.792	2.790	2.752	2.829	0.038
Propane	5.050	5.050	5.042	5.050	5.042	5.050	5.047	4.995	5.099	0.052

DG72C20.MET

FORM VI DGAS -1 1/96 Rev 2/2006

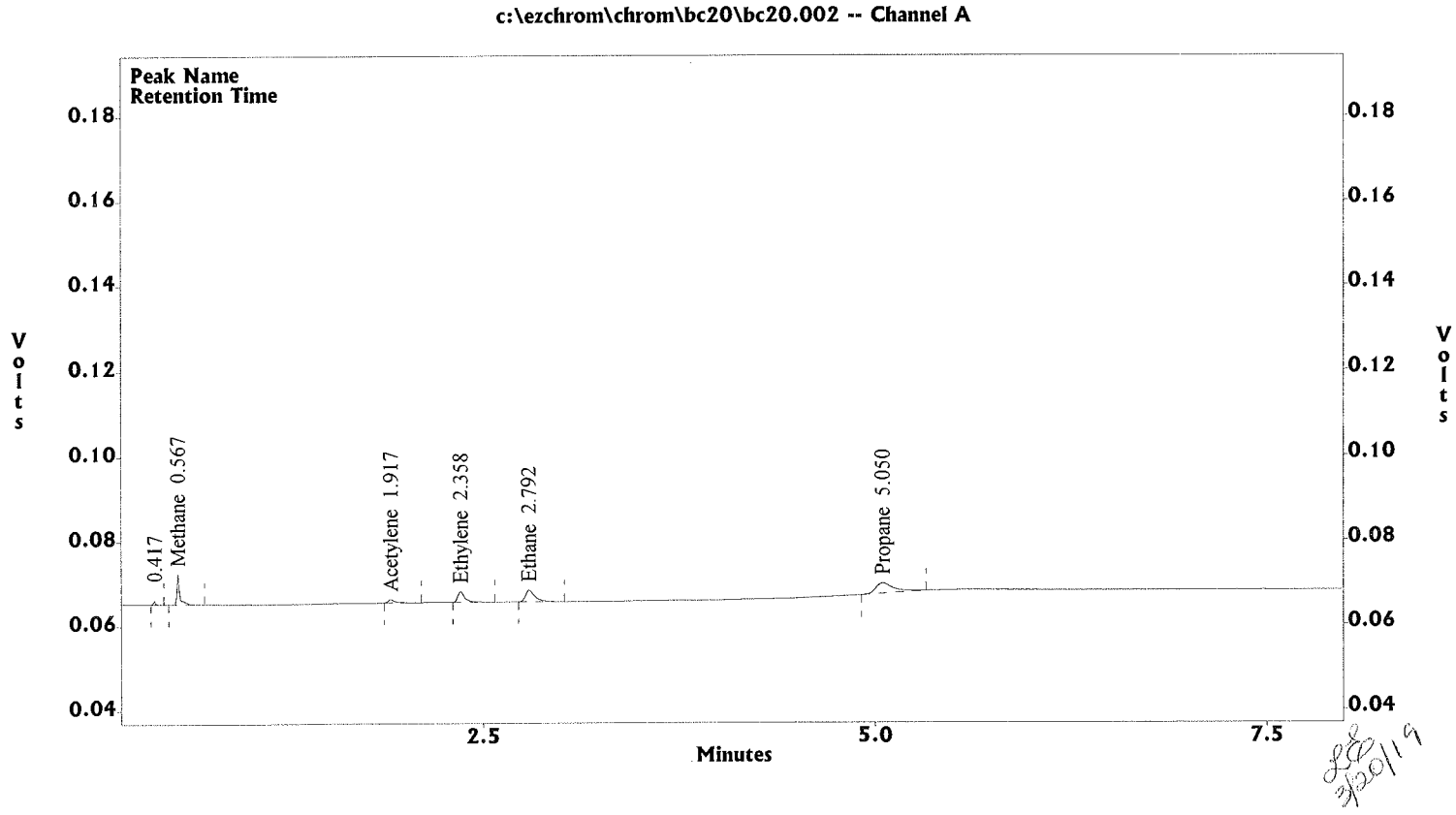
LSP 3/20/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.002
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2001
Acquired : Mar 20, 2019 10:19:11
Printed : Mar 20, 2019 12:29:31
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.567	8507	13000.2	0.680
3	Acetylene	1.917	2068	2310.0	1.105
4	Ethylene	2.358	7606	8316.3	1.190
5	Ethane	2.792	11496	11378.1	1.275
6	Propane	5.050	18071	12067.0	1.870

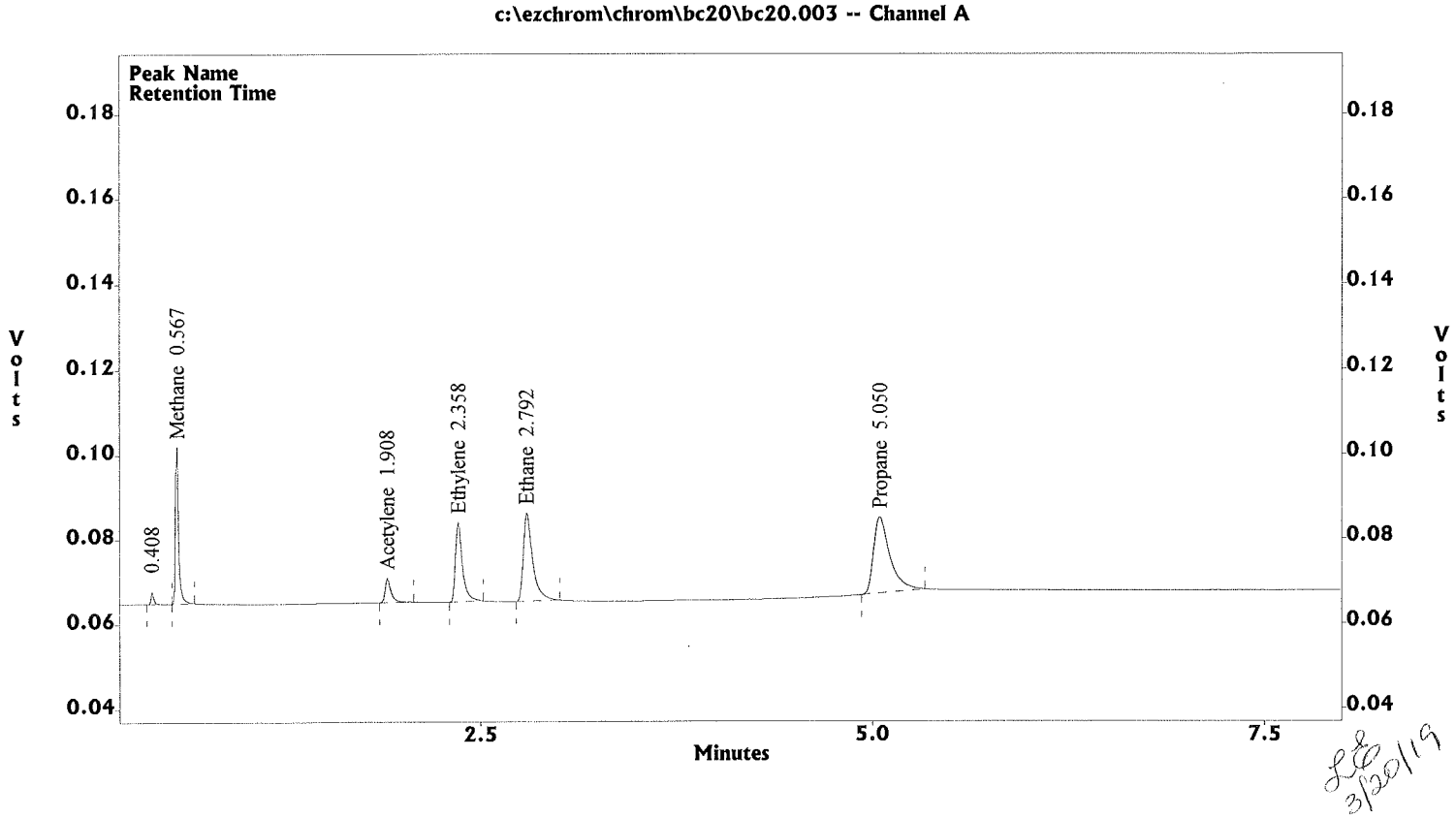


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.003
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2002
Acquired : Mar 20, 2019 10:31:35
Printed : Mar 20, 2019 12:33:26
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.567	51668	13000.2	3.402
3	Acetylene	1.908	14589	2310.0	5.528
4	Ethylene	2.358	58000	8316.3	5.953
5	Ethane	2.792	84739	11378.1	6.378
6	Propane	5.050	129801	12067.0	9.350



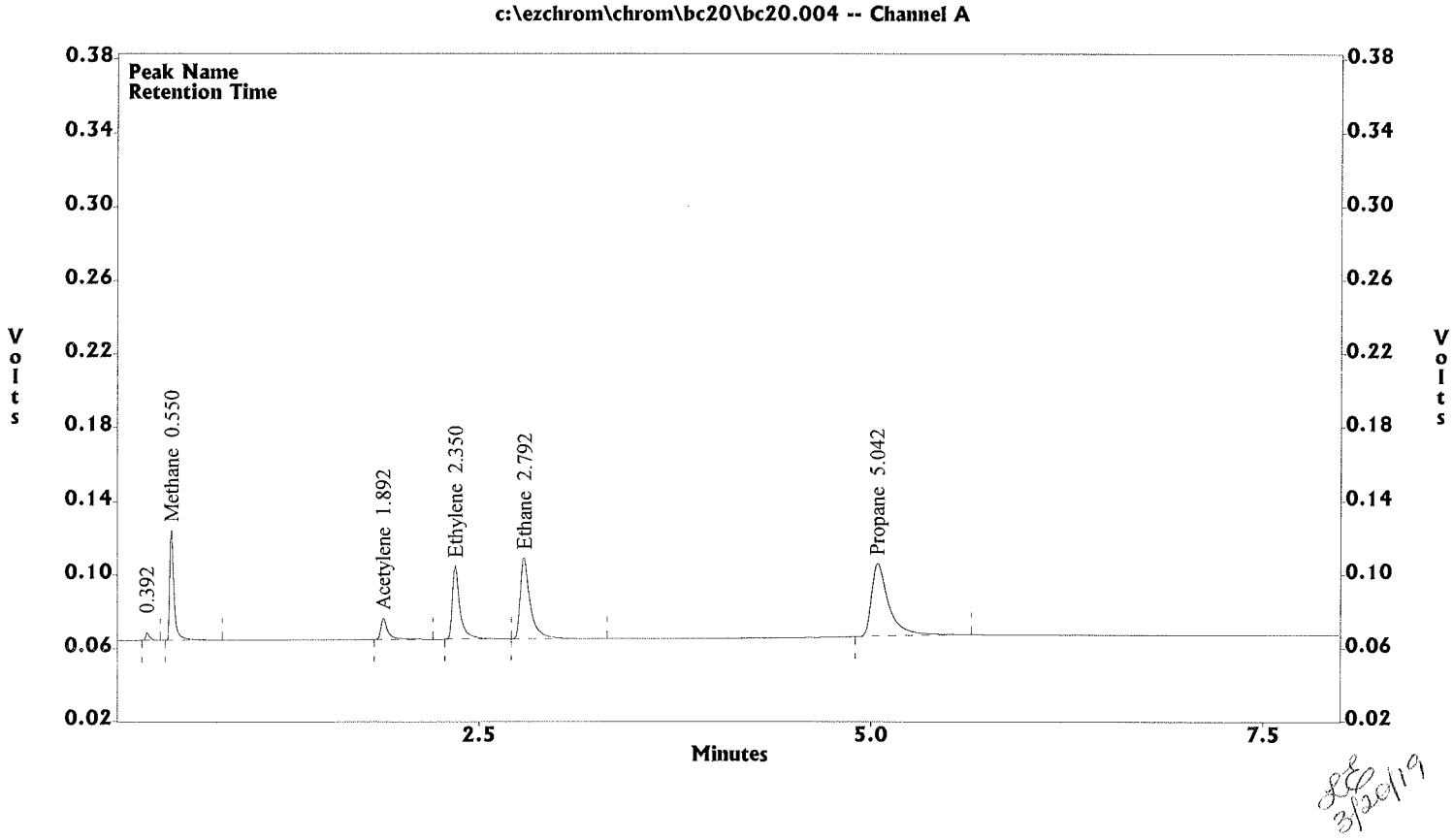
LL 3/20/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.004
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2003
Acquired : Mar 20, 2019 10:44:01
Printed : Mar 20, 2019 12:33:35
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.550	115223	13000.2	8.504
3	Acetylene	1.892	34458	2310.0	13.820
4	Ethylene	2.350	135369	8316.3	14.880
5	Ethane	2.792	196786	11378.1	15.950
6	Propane	5.042	306927	12067.0	23.390



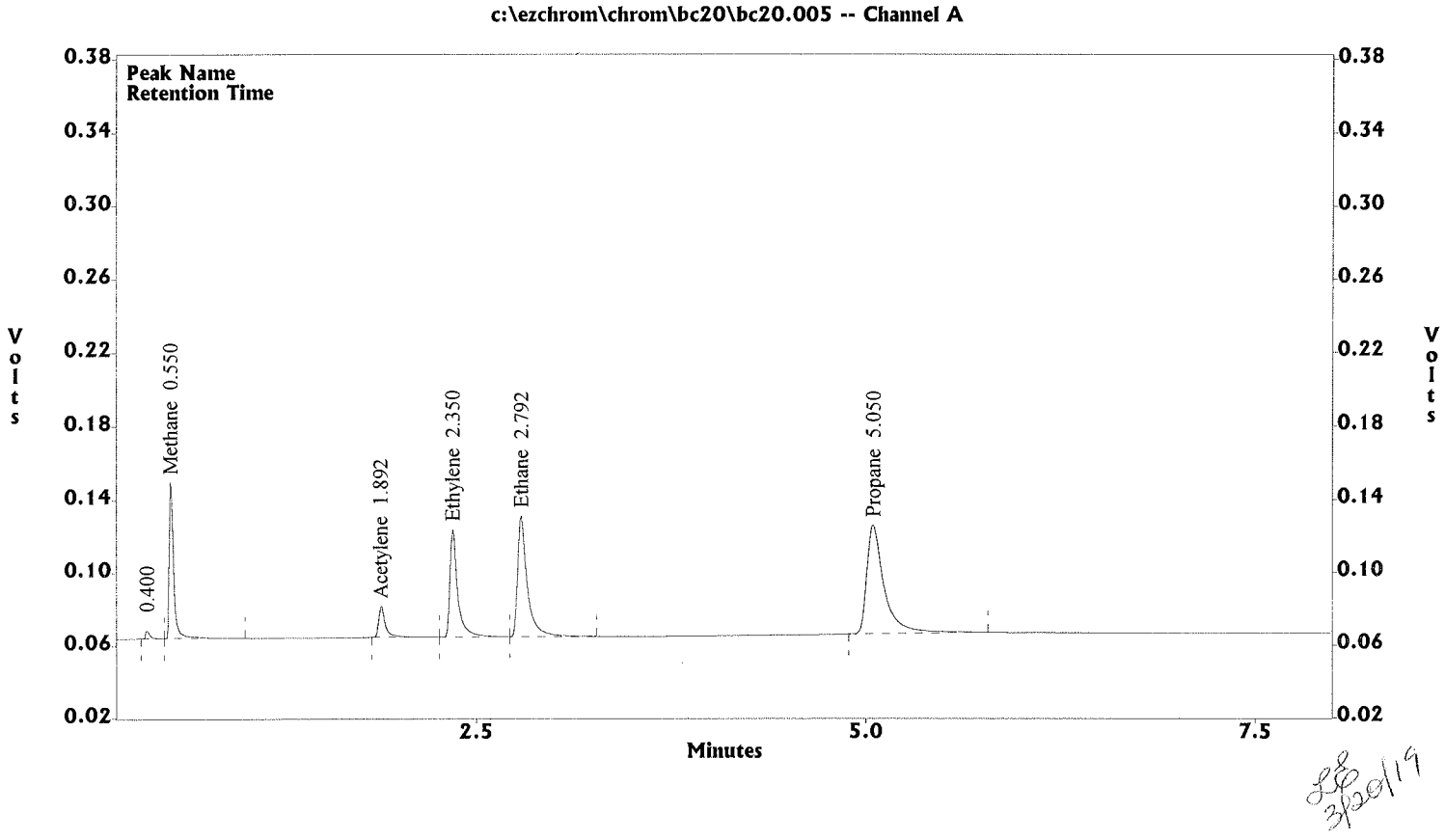
3/20/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.005
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2004
Acquired : Mar 20, 2019 10:56:26
Printed : Mar 20, 2019 12:33:43
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.550	173389	13000.2	13.600
3	Acetylene	1.892	52679	2310.0	22.110
4	Ethylene	2.350	203174	8316.3	23.810
5	Ethane	2.792	295175	11378.1	25.510
6	Propane	5.050	465357	12067.0	37.410



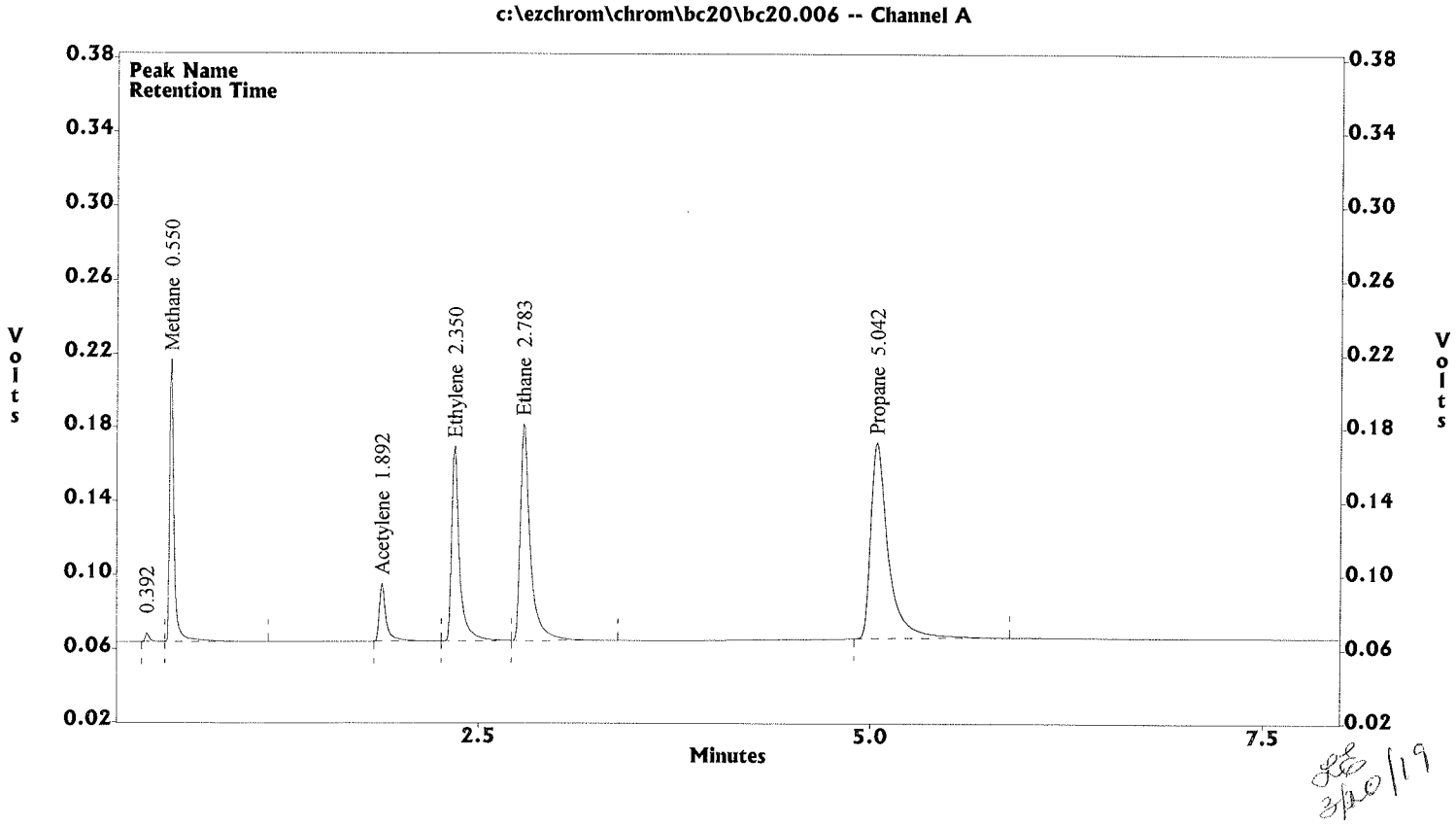
LL 3/20/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.006
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2005
Acquired : Mar 20, 2019 11:08:57
Printed : Mar 20, 2019 12:33:48
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.550	309596	13000.2	25.510
3	Acetylene	1.892	93177	2310.0	41.450
4	Ethylene	2.350	362291	8316.3	44.640
5	Ethane	2.783	529400	11378.1	47.830
6	Propane	5.042	823014	12067.0	70.150



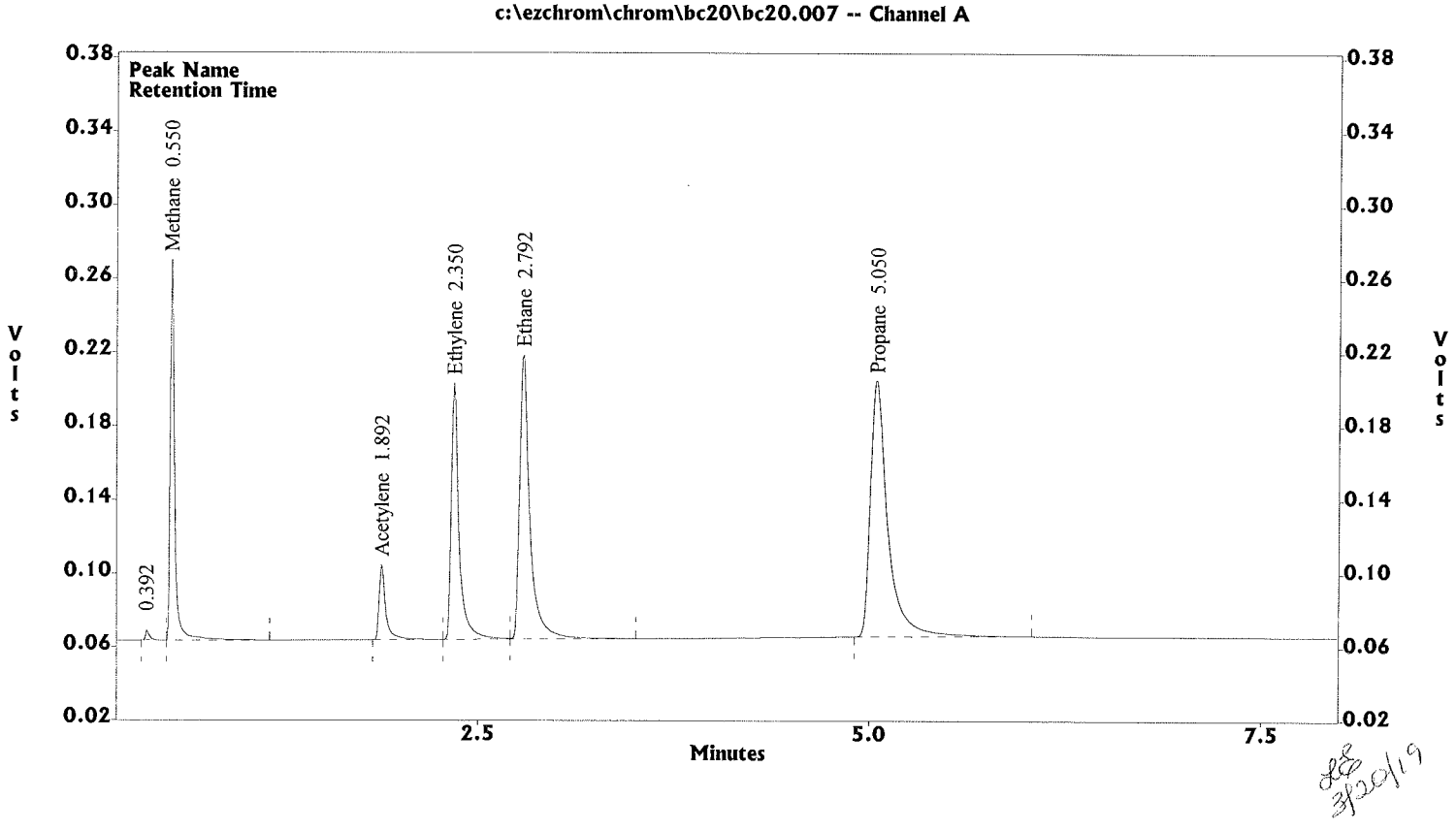
3/20/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.007
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2006
Acquired : Mar 20, 2019 11:21:24
Printed : Mar 20, 2019 12:33:54
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.550	403662	13000.2	34.010
3	Acetylene	1.892	123007	2310.0	55.270
4	Ethylene	2.350	477149	8316.3	59.520
5	Ethane	2.792	700779	11378.1	63.770
6	Propane	5.050	1081384	12067.0	93.530



3/20/19

SECOND SOURCE VERIFICATION

INITIAL CALIBRATION VERIFICATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Columm : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BC20005A 03/20/2019 10:56
Conc Cont LFID & Datetime: BC20008A 03/20/2019 11:56
CONC UNIT : ppb

COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.550	0.524	0.576	13.6	13000.2	177629	13.66	0		15
Acetylene	1.883	1.830	1.936	22.1	2310.0	53924	23.34	6		15
Ethylene	2.350	2.312	2.388	23.8	8316.3	197232	23.72	-0		15
Ethane	2.792	2.754	2.830	25.5	11378.1	299479	26.32	3		15
Propane	5.050	4.998	5.102	37.4	12067.0	474137	39.29	5		15

DG72C20.MET

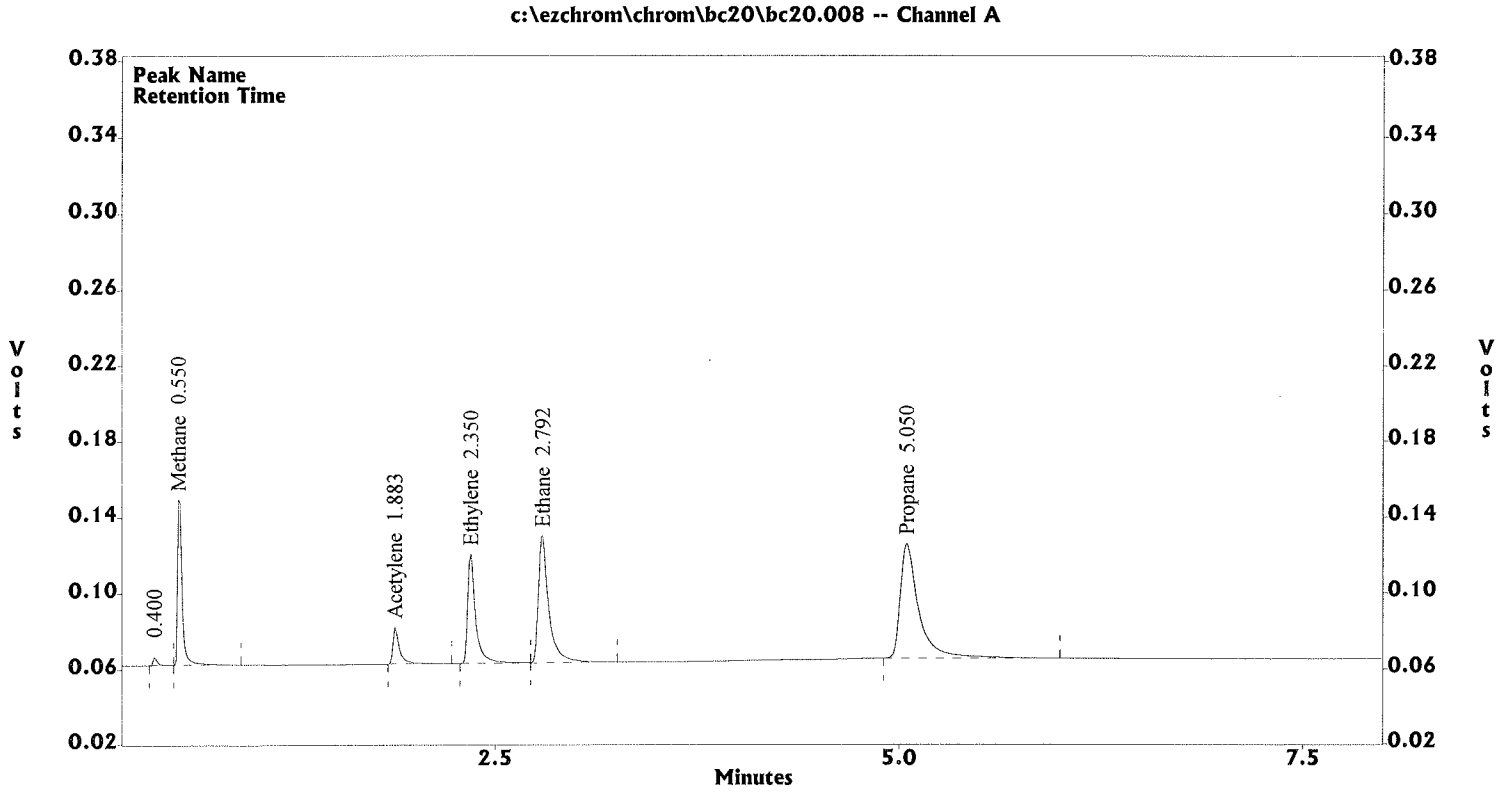
lb 3/29/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.008
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : IDG72C2001
Acquired : Mar 20, 2019 11:56:07
Printed : Mar 20, 2019 12:34:47
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.550	177629	13000.2	13.664
3	Acetylene	1.883	53924	2310.0	23.344
4	Ethylene	2.350	197232	8316.3	23.716
5	Ethane	2.792	299479	11378.1	26.321
6	Propane	5.050	474137	12067.0	39.292



3/20/19

DAILY CALIBRATIONS

CONTINUE CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Columm : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BC20005A 03/20/2019 10:56
Conc Cont LFID & Datetime: BL10003A 12/10/2019 10:23
CONC UNIT : ppb

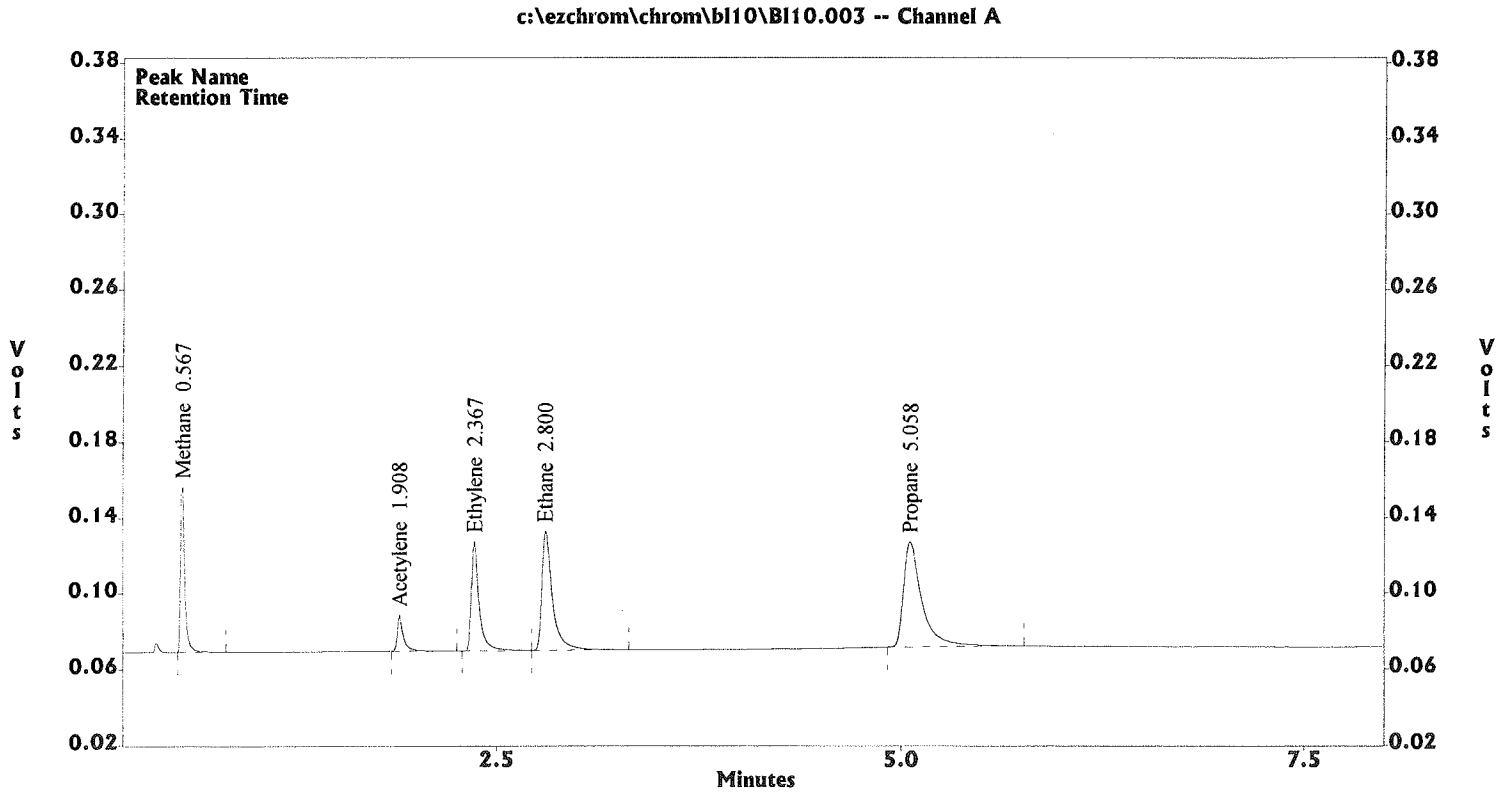
COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.567	0.541	0.593	13.6	13000.2	159564	12.27	-10		15
Acetylene	1.908	1.855	1.961	22.1	2310.0	49397	21.38	-3		15
Ethylene	2.367	2.329	2.405	23.8	8316.3	190242	22.88	-4		15
Ethane	2.800	2.762	2.838	25.5	11378.1	277906	24.42	-4		15
Propane	5.058	5.006	5.110	37.4	12067.0	440123	36.47	-2		15

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.003
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : CDG72C20414
Acquired : Dec 10, 2019 10:23:56
Printed : Dec 10, 2019 10:31:57
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	159564	13000.2	12.274
2	Acetylene	1.908	49397	2310.0	21.384
3	Ethylene	2.367	190242	8316.3	22.876
4	Ethane	2.800	277906	11378.1	24.425
5	Propane	5.058	440123	12067.0	36.473



CONTINUE CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Column : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BC20005A 03/20/2019 10:56
Conc Cont LFID & Datetime: BL10014A 12/10/2019 13:18
CONC UNIT : ppb

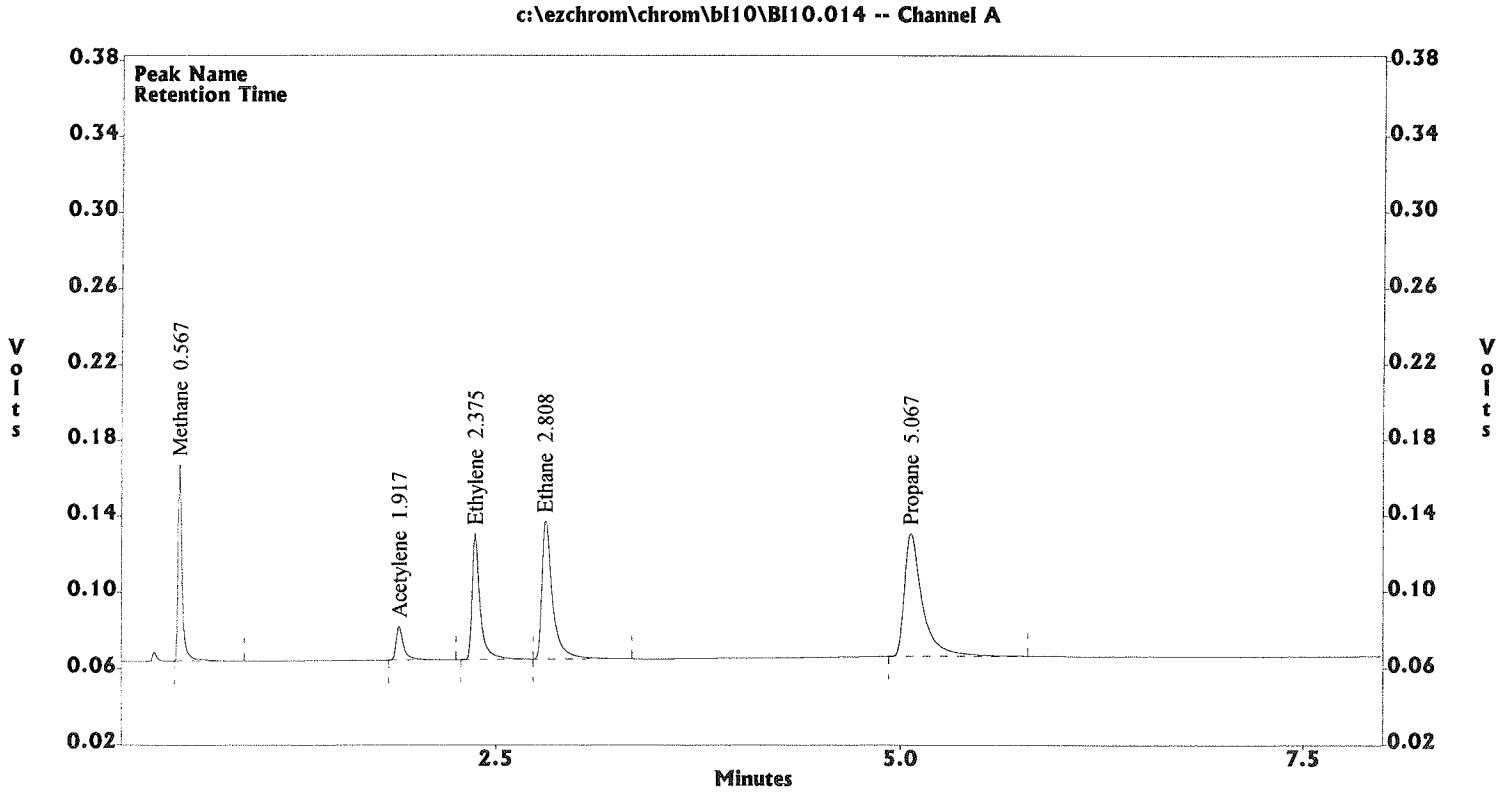
COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.567	0.541	0.593	13.6	13000.2	186147	14.32	5		15
Acetylene	1.917	1.864	1.970	22.1	2310.0	56514	24.47	11		15
Ethylene	2.375	2.337	2.413	23.8	8316.3	219899	26.44	11		15
Ethane	2.808	2.770	2.846	25.5	11378.1	322564	28.35	11		15
Propane	5.067	5.015	5.119	37.4	12067.0	502762	41.66	11		15

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.014
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : CDG72C20415
Acquired : Dec 10, 2019 13:18:16
Printed : Dec 10, 2019 13:26:17
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	186147	13000.2	14.319
2	Acetylene	1.917	56514	2310.0	24.465
3	Ethylene	2.375	219899	8316.3	26.442
4	Ethane	2.808	322564	11378.1	28.349
5	Propane	5.067	502762	12067.0	41.664



CONTINUE CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Columm : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BC20005A 03/20/2019 10:56
Conc Cont LFID & Datetime: BL10024A 12/10/2019 16:14
CONC UNIT : ppb

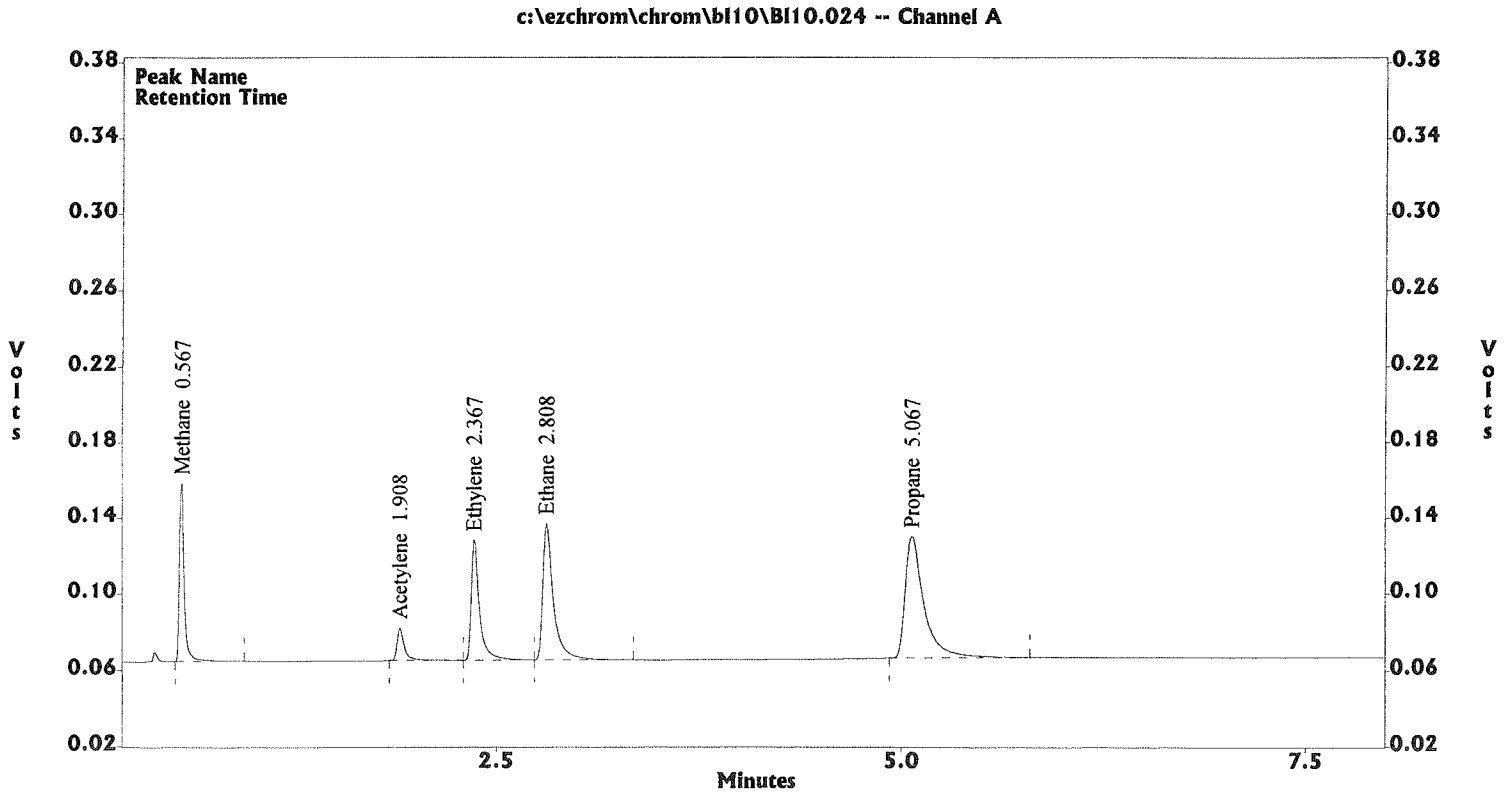
COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.567	0.541	0.593	13.6	13000.2	184940	14.23	5		15
Acetylene	1.908	1.855	1.961	22.1	2310.0	55453	24.01	9		15
Ethylene	2.367	2.329	2.405	23.8	8316.3	218446	26.27	10		15
Ethane	2.808	2.770	2.846	25.5	11378.1	320593	28.18	10		15
Propane	5.067	5.015	5.119	37.4	12067.0	500198	41.45	11		15

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl10\Bl10.024
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : CDG72C20416
Acquired : Dec 10, 2019 16:14:25
Printed : Dec 10, 2019 16:22:26
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	184940	13000.2	14.226
2	Acetylene	1.908	55453	2310.0	24.006
3	Ethylene	2.367	218446	8316.3	26.267
4	Ethane	2.808	320593	11378.1	28.176
5	Propane	5.067	500198	12067.0	41.452



ANALYTICAL LOG(S)

ANALYSIS RUN LOG
for
DISSOLVED GAS

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

DGAS ICAL

Book #: A72-015

Instrument No.: 72

Analytical Sequence: BC20

Method File: DG72C20

Analytical Batch: N/A

SOP #	Rev. #
☑ EMAX-RSK175	4
☐ EMAX-D1945	0
☐ EMAX-	
☐ EMAX-	

STANDARDS ID		Conc ~~(ug/L)~~ mL/L
ICAL	SSB-17-09-01	10 → 500
ICV	↓ -02	200
Temperature (°C) 21		
Data File		

AS 3/20

SYRINGES
☑ 500 µL - MSF-01-02-12
☐ 100 µL - MSF-01-03-02
☐ 100 µL - MSF-01-02-01
☐ 100 µL - MSF-01-02-20
☐ 100 µL - MSF-01-03-08
☐ 10 µL - MSF-01-02-05
☐

ELECTRONIC DATA ARCHIVAL	
Location	Date
Labbkup/Ezchrom/EZC_9_DGAS	

Analyzed By: AS

Date: 3/20/19

Disposed By:

Date Disposed:

Run	Run Type	Sample ID	Method	FileName	Sample Amt	Runs	Description
1	Unknown	IB72C2001	dg72c20.met	BC20.001	500 uL	1	
2	Begin Calibration	DG72C2001	dg72c20.met	BC20.002	500 uL	1	
3	Calibration	DG72C2002	dg72c20.met	BC20.003	500 uL	1	
4	Calibration	DG72C2003	dg72c20.met	BC20.004	500 uL	1	DGAS
5	Calibration	DG72C2004	dg72c20.met	BC20.005	500 uL	1	ICAL
6	Calibration	DG72C2005	dg72c20.met	BC20.006	500 uL	1	
7	End Calibration	DG72C2006	dg72c20.met	BC20.007	500 uL	1	
8	Unknown	IDG72C2001	dg72c20.met	BC20.008	500 uL	1	DGAS ICV

FINAL

As

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

DG2002W : L043, L057

Book #: A72-018

Instrument No.: 72

Analytical Sequence: BL10

Method File: DG72C20

Analytical Batch: CDG72C20414

SOP #	Rev. #
☑ EMAX-RSK175	4
☐ EMAX-D1945	0
☐ EMAX-	
☐ EMAX-	

STANDARDS ID		Conc (µL/L)
DCC	SSSB-17-50-03	200
Temperature (°C)	21	
Data File		

SYRINGES
☐ 500 µL - MSF-01-03-21
☑ 500 µL - MSF-01-02-12
☐ 100 µL - MSF-01-03-05
☐ 100 µL - MSF-01-02-01
☐ 100 µL - MSF-01-02-20
☐ 100 µL - MSF-01-03-08
☐ 10 µL - MSF-01-02-05
☐

ELECTRONIC DATA ARCHIVAL	
Location	Date
Labbkup/Ezchrom/EZC_9_DGAS	

Analyzed By: SC

Date: 12/10/19

Disposed By:

Date Disposed:

Batch: bl10.seq

Run	Sample ID	Method	Filename	Sample Amt.	Mult.	Desc
1	IB72L1001	dg72c20.met	BL10.001	500uL	1	
2	CDG72C20414 Bad Inj.	dg72c20.met	BL10.002	500uL	1	
3	CDG72C20414	dg72c20.met	BL10.003	500uL	1	
4	DGL002WB	dg72c20.met	BL10.004	500uL	1	
5	DGL002WL	dg72c20.met	BL10.005	500uL	1	
6	DGL002WC	dg72c20.met	BL10.006	500uL	1	
7	L043-01	dg72c20.met	BL10.007	500uL	1	
8	L043-02	dg72c20.met	BL10.008	500uL	1	
9	L043-04	dg72c20.met	BL10.009	500uL	1	
10	L043-05	dg72c20.met	BL10.010	500uL	1	
11	L043-07	dg72c20.met	BL10.011	500uL	1	
12	L043-07M	dg72c20.met	BL10.012	500uL	1	
13	L043-07S	dg72c20.met	BL10.013	500uL	1	
14	CDG72C20415	dg72c20.met	BL10.014	500uL	1	
15	L057-01	dg72c20.met	BL10.015	500uL	1	
16	L057-02	dg72c20.met	BL10.016	500uL	1	
17	L057-03	dg72c20.met	BL10.017	500uL	1	
18	L057-04	dg72c20.met	BL10.018	500uL	1	
19	L057-05	dg72c20.met	BL10.019	500uL	1	
20	L057-07	dg72c20.met	BL10.020	500uL	1	
21	L057-08	dg72c20.met	BL10.021	500uL	1	
22	L057-09	dg72c20.met	BL10.022	500uL	1	

FINAL
SC 12/10/19

Batch: bl10.seq

Run	Sample ID	Method	Filename	Sample Amt.	Mult.	Desc
23	L057-10	dg72c20.met	BL10.023	500uL	1	
24	CDG72C20416	dg72c20.met	BL10.024	500uL	1	

FINAL
sc 12/10/19

EXTRACTION LOG(S)

EMAX LABORATORIES, INC.

EXTRACTION LOG FOR DISSOLVED GAS

SOP ☑ EMAX-RSK175 Rev. 4 ☐ CO2 ☐ Room Temp. (°C): 21 Book #: EDG-043

Start Date: 3/20/19 Time: 9:15 End Date: 3/20/19 Time: 9:30

PREPARATION BATCH* N/A

Sample Prep ID	Lab Sample ID	Sample Amount (ml)	Extract Volume (ml)	pH (< 2)	Notes
01	D672E20-01	39	4	N/A	
02	-02			N/A	
03	-03			N/A	
04	-04			N/A	
05	-05			N/A	
06	-06			N/A	
07	ID672C20-01			N/A	
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18			AS 3/20/19		
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Standards	ID	Amount Added (ul)
LCS/MS ICV	555A-10-01-07	1600
ICAL	↓ -02	*

Reagent	Source
H_2O	RW2-18-001
He	555A-10-02-02
Thermometer ID #:	RSK175-01
Tedlar Bag Lot#:	28180128
pH Strips:	HC857466
Vial Manufacturer:	VWR 090318-3

Syringes

- ☐ 10 mL - MSF-01-01-24
- ☑ 5 mL - MSF-01-01-25
- ☑ 5 mL - MSF-01-01-13
- ☐ 5 mL - MSF-01-03-06
- ☑ 1 mL - MSF-01-02-24

Comments: *

DGAS std (mL)		Helium (mL)
1) 0.08 mL	+	3.92 mL
2) 0.40	+	3.60
3) 1.00	+	3.00
4) 1.60	+	2.40
5) 3.00	+	1.00
6) 4.00	+	—

Prepared By: AS

Standard Added By: AS

EMAX LABORATORIES, INC.

EXTRACTION LOG FOR DISSOLVED GAS

SOP ☒ EMAX-RSK175 Rev. 4 ☐ CO2 ☐ Room Temp. (°C): 21 Book #: EDG-044

Start Date: 12/10/19 Time: 9:40 End Date: 12/10/19 Time: 10:40

PREPARATION BATCH* DG1002W

Sample Prep ID	Lab Sample ID	Sample Amount (ml)	Extract Volume (ml)	pH (< 2)	Notes
01	DG1002 WB	39	4	N/A	
02	L			N/A	
03	C			N/A	
04	L043 - 01			✓	
05	-02			✓	
06	-04			✓	
07	-05			✓	
08	-07			✓	
09	-07M			✓	
10	-07S			✓	
11	L057- 01			✓	
12	-02			✓	
13	-03			✓	
14	-04			✓	
15	-05			✓	
16	-07			✓	
17	-08			✓	
18	-09			✓	
19	-10			✓	
20					
21					
22					
23					
24				SC 12/10/19	
25					
26					
27					
28					
29					
30					

Standards	ID	Amount Added (ul)
LCS/MS	SSSA-10-01-07	1600

Reagent	Source
H_2O	RW2-18-001
He	SSSA-10-02-02
Thermometer ID #:	RSK175-01
Tedlar Bag Lot#:	2818180128
pH Strips:	HC863463
Vial Manufacturer:	ESS # FR2385546-2-19221

Syringes

- ☐ 10 mL - MSF-01-01-24
- ☒ ~~5 mL - MSF-01-01-25~~
- ☐ ~~5 mL - MSF-01-01-13~~
- ☐ 5 mL - MSF-01-03-06
- ☐ 1 mL - MSF-01-02-24
- ☐

Comments:

Prepared By: SC

Standard Added By: SC

LABORATORY REPORT FOR

CDM SMITH

VA SALT LAKE CITY

METALS / MERCURY

SDG#: 19L057

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L057

METHOD SW6020A
METALS BY ICP-MS

A total of nine(9) water samples were received on 12/07/19 to be analyzed for Metals by ICP-MS in accordance with Method SW6020A and project specific requirements.

Holding Time
Samples were digested and analyzed within the prescribed holding time.

Calibration
Initial Calibration was established as prescribed by the method and was verified using a secondary source(ICV). Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were satisfied. MRL was analyzed as required by the project.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Calcium(51.8J <1/10 sample detected level), Lead(0.0572J <1/2 LOQ), Sodium(41.4J <1/2 LOQ) and Zinc(5.13J <1/2 LOQ) were detected at trace level in IML008WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. IML008WL/IML008WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
METALS BY ICP-MS

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L057
Instrument ID : H6

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IML008WB	1	NA	12/12/1911:12	12/11/1909:46	H6L03017	H6L03015	IML008W	Method Blank
LCS1W	IML008WL	1	NA	12/12/1911:15	12/11/1909:46	H6L03018	H6L03015	IML008W	Lab Control Sample (LCS)
LCD1W	IML008WC	1	NA	12/12/1911:17	12/11/1909:46	H6L03019	H6L03015	IML008W	LCS Duplicate
OU2-MW12S-GW120619	L057-01I	10	NA	12/12/1911:56	12/11/1909:46	H6L03036	H6L03034	IML008W	Diluted Sample
OU2-MW12D-GW120619	L057-02I	10	NA	12/12/1911:58	12/11/1909:46	H6L03037	H6L03034	IML008W	Diluted Sample
OU2-MW16S-GW120619	L057-03I	10	NA	12/12/1912:01	12/11/1909:46	H6L03038	H6L03034	IML008W	Diluted Sample
OU2-MW16D-GW120619	L057-04I	10	NA	12/12/1912:03	12/11/1909:46	H6L03039	H6L03034	IML008W	Diluted Sample
OU2-MW06-GW120619	L057-05I	10	NA	12/12/1912:05	12/11/1909:46	H6L03040	H6L03034	IML008W	Diluted Sample
OU2-FD01-GW120519	L057-07I	10	NA	12/12/1912:08	12/11/1909:46	H6L03041	H6L03034	IML008W	Diluted Sample
OU2-MW13S-GW120519	L057-08I	10	NA	12/12/1912:10	12/11/1909:46	H6L03042	H6L03034	IML008W	Diluted Sample
OU2-MW13D-GW120519	L057-09I	10	NA	12/12/1912:12	12/11/1909:46	H6L03043	H6L03034	IML008W	Diluted Sample
OU2-MW04-GW120519	L057-10I	10	NA	12/12/1912:14	12/11/1909:46	H6L03044	H6L03034	IML008W	Diluted Sample
OU2-MW12S-GW120619	L057-01	1	NA	12/12/1912:51	12/11/1909:46	H6L03058	H6L03056	IML008W	Field Sample
OU2-MW12D-GW120619	L057-02	1	NA	12/12/1912:54	12/11/1909:46	H6L03059	H6L03056	IML008W	Field Sample
OU2-MW16S-GW120619	L057-03	1	NA	12/12/1912:56	12/11/1909:46	H6L03060	H6L03056	IML008W	Field Sample
OU2-MW16D-GW120619	L057-04	1	NA	12/12/1912:58	12/11/1909:46	H6L03061	H6L03056	IML008W	Field Sample
OU2-MW06-GW120619	L057-05	1	NA	12/12/1913:01	12/11/1909:46	H6L03062	H6L03056	IML008W	Field Sample
OU2-FD01-GW120519	L057-07	1	NA	12/12/1913:03	12/11/1909:46	H6L03063	H6L03056	IML008W	Field Sample
OU2-MW13S-GW120519	L057-08	1	NA	12/12/1913:05	12/11/1909:46	H6L03064	H6L03056	IML008W	Field Sample
OU2-MW13D-GW120519	L057-09	1	NA	12/12/1913:07	12/11/1909:46	H6L03065	H6L03056	IML008W	Field Sample
OU2-MW04-GW120519	L057-10	1	NA	12/12/1913:10	12/11/1909:46	H6L03066	H6L03056	IML008W	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/06/19 14:15
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW12S-GW120619	Date Analyzed:	12/12/19 12:51
Lab Samp ID:	L057-01	Dilution Factor:	1
Lab File ID:	H6L03058	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03056	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.568J	1.00	0.125
Barium	63.9	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	14.2	1.00	0.100
Cobalt	0.928J	1.00	0.100
Copper	0.784J	2.00	0.500
Iron	360	100	25.0
Lead	0.0671J	1.00	0.0500
Manganese	12.5	1.00	0.250
Nickel	15.6	1.00	0.250
Potassium	3940	100	25.0
Selenium	1.85	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	1.38	1.00	0.250
Zinc	ND	20.0	5.00

Sample ID:	OU2-MW12S-GW120619	Date Analyzed:	12/12/19 11:56
Lab Samp ID:	L057-01I	Dilution Factor:	10
Lab File ID:	H6L03036	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03034	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	140000	1000	250
Magnesium	69400	1000	250
Sodium	74600	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/06/19 14:15
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW12S-GW120619	Date Analyzed:	12/12/19 12:51
Lab Samp ID:	L057-01	Dilution Factor:	1
Lab File ID:	H6L03058	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03056	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.568J	1.00	0.125
Barium	63.9	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	145000E	100	25.0
Chromium	14.2	1.00	0.100
Cobalt	0.928J	1.00	0.100
Copper	0.784J	2.00	0.500
Iron	360	100	25.0
Lead	0.0671J	1.00	0.0500
Magnesium	69300E	100	25.0
Manganese	12.5	1.00	0.250
Nickel	15.6	1.00	0.250
Potassium	3940	100	25.0
Selenium	1.85	1.00	0.150
Silver	ND	1.00	0.100
Sodium	77600E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.38	1.00	0.250
Zinc	ND	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/06/19 14:15
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW12S-GW120619	Date Analyzed:	12/12/19 11:56
Lab Samp ID:	L057-01I	Dilution Factor:	10
Lab File ID:	H6L03036	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03034	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	63.3	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	140000	1000	250
Chromium	14.2	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	328J	1000	250
Lead	ND	10.0	0.500
Magnesium	69400	1000	250
Manganese	12.2	10.0	2.50
Nickel	16.5	10.0	2.50
Potassium	3410	1000	250
Selenium	2.05J	10.0	1.50
Silver	ND	10.0	1.00
Sodium	74600	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L057
Sample ID: OU2-MW12D-GW120619
Lab Samp ID: L057-02
Lab File ID: H6L03059
Ext Btch ID: IML008W
Calib. Ref.: H6L03056

Date Collected: 12/06/19 12:50
Date Received: 12/07/19
Date Extracted: 12/11/19 09:46
Date Analyzed: 12/12/19 12:54
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.579J	1.00	0.125
Barium	46.0	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	2.04	1.00	0.100
Cobalt	0.133J	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	0.120J	1.00	0.0500
Manganese	4.09	1.00	0.250
Nickel	0.273J	1.00	0.250
Potassium	2910	100	25.0
Selenium	1.71	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	1.38	1.00	0.250
Zinc	ND	20.0	5.00

Sample ID: OU2-MW12D-GW120619
Lab Samp ID: L057-02I
Lab File ID: H6L03037
Ext Btch ID: IML008W
Calib. Ref.: H6L03034

Date Analyzed: 12/12/19 11:58
Dilution Factor: 10
Matrix: WATER
% Moisture: NA
Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	118000	1000	250
Magnesium	47300	1000	250
Sodium	64100	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml
Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/06/19 12:50
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW12D-GW120619	Date Analyzed:	12/12/19 12:54
Lab Samp ID:	L057-02	Dilution Factor:	1
Lab File ID:	H6L03059	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03056	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.579J	1.00	0.125
Barium	46.0	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	138000E	100	25.0
Chromium	2.04	1.00	0.100
Cobalt	0.133J	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	0.120J	1.00	0.0500
Magnesium	52400E	100	25.0
Manganese	4.09	1.00	0.250
Nickel	0.273J	1.00	0.250
Potassium	2910	100	25.0
Selenium	1.71	1.00	0.150
Silver	ND	1.00	0.100
Sodium	72900E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.38	1.00	0.250
Zinc	ND	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/06/19 12:50
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW12D-GW120619	Date Analyzed:	12/12/19 11:58
Lab Samp ID:	L057-02I	Dilution Factor:	10
Lab File ID:	H6L03037	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03034	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	43.1	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	118000	1000	250
Chromium	1.55J	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	47300	1000	250
Manganese	3.70J	10.0	2.50
Nickel	ND	10.0	2.50
Potassium	2380	1000	250
Selenium	1.55J	10.0	1.50
Silver	ND	10.0	1.00
Sodium	64100	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH		Date Collected:	12/06/19 10:55
Project : VA SALT LAKE CITY		Date Received:	12/07/19
SDG NO. : 19L057		Date Extracted:	12/11/19 09:46
Sample ID: OU2-MW16S-GW120619		Date Analyzed:	12/12/19 12:56
Lab Samp ID: L057-03		Dilution Factor:	1
Lab File ID: H6L03060		Matrix:	WATER
Ext Btch ID: IML008W		% Moisture:	NA
Calib. Ref.: H6L03056		Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.386J	1.00	0.125
Barium	55.9	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	3.18	1.00	0.100
Cobalt	0.233J	1.00	0.100
Copper	ND	2.00	0.500
Iron	47.3J	100	25.0
Lead	0.0866J	1.00	0.0500
Manganese	1.86	1.00	0.250
Nickel	3.67	1.00	0.250
Potassium	2690	100	25.0
Selenium	0.790J	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	1.01	1.00	0.250
Zinc	5.94J	20.0	5.00

Sample ID: OU2-MW16S-GW120619		Date Analyzed:	12/12/19 12:01
Lab Samp ID: L057-03I		Dilution Factor:	10
Lab File ID: H6L03038		Matrix:	WATER
Ext Btch ID: IML008W		% Moisture:	NA
Calib. Ref.: H6L03034		Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	133000	1000	250
Magnesium	52100	1000	250
Sodium	66000	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/06/19 10:55
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW16S-GW120619	Date Analyzed:	12/12/19 12:56
Lab Samp ID:	L057-03	Dilution Factor:	1
Lab File ID:	H6L03060	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03056	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.386J	1.00	0.125
Barium	55.9	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	136000E	100	25.0
Chromium	3.18	1.00	0.100
Cobalt	0.233J	1.00	0.100
Copper	ND	2.00	0.500
Iron	47.3J	100	25.0
Lead	0.0866J	1.00	0.0500
Magnesium	53800E	100	25.0
Manganese	1.86	1.00	0.250
Nickel	3.67	1.00	0.250
Potassium	2690	100	25.0
Selenium	0.790J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	69600E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.01	1.00	0.250
Zinc	5.94J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/06/19 10:55
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW16S-GW120619	Date Analyzed:	12/12/19 12:01
Lab Samp ID:	L057-03I	Dilution Factor:	10
Lab File ID:	H6L03038	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03034	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	54.2	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	133000	1000	250
Chromium	2.67J	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	52100	1000	250
Manganese	ND	10.0	2.50
Nickel	3.74J	10.0	2.50
Potassium	2280	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	66000	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH — Date Collected: 12/06/19 10:10
Project : VA SALT LAKE CITY — Date Received: 12/07/19
SDG NO. : 19L057 — Date Extracted: 12/11/19 09:46
Sample ID: OU2-MW16D-GW120619 — Date Analyzed: 12/12/19 12:58
Lab Samp ID: L057-04 — Dilution Factor: 1
Lab File ID: H6L03061 — Matrix: WATER
Ext Btch ID: IML008W — % Moisture: NA
Calib. Ref.: H6L03056 — Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.454J	1.00	0.125
Barium	28.0	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	1.46	1.00	0.100
Cobalt	0.180J	1.00	0.100
Copper	ND	2.00	0.500
Iron	38.2J	100	25.0
Lead	0.108J	1.00	0.0500
Magnesium	40900	100	25.0
Manganese	10.8	1.00	0.250
Nickel	1.89	1.00	0.250
Potassium	2060	100	25.0
Selenium	0.872J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	30500	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.19	1.00	0.250
Zinc	6.08J	20.0	5.00

Sample ID: OU2-MW16D-GW120619 — Date Analyzed: 12/12/19 12:03
Lab Samp ID: L057-04I — Dilution Factor: 10
Lab File ID: H6L03039 — Matrix: WATER
Ext Btch ID: IML008W — % Moisture: NA
Calib. Ref.: H6L03034 — Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	104000	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml — Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/06/19 10:10
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW16D-GW120619	Date Analyzed:	12/12/19 12:58
Lab Samp ID:	L057-04	Dilution Factor:	1
Lab File ID:	H6L03061	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03056	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.454J	1.00	0.125
Barium	28.0	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	111000E	100	25.0
Chromium	1.46	1.00	0.100
Cobalt	0.180J	1.00	0.100
Copper	ND	2.00	0.500
Iron	38.2J	100	25.0
Lead	0.108J	1.00	0.0500
Magnesium	40900	100	25.0
Manganese	10.8	1.00	0.250
Nickel	1.89	1.00	0.250
Potassium	2060	100	25.0
Selenium	0.872J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	30500	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.19	1.00	0.250
Zinc	6.08J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/06/19 10:10
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW16D-GW120619	Date Analyzed:	12/12/19 12:03
Lab Samp ID:	L057-04I	Dilution Factor:	10
Lab File ID:	H6L03039	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03034	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	27.2	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	104000	1000	250
Chromium	1.09J	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	40400	1000	250
Manganese	10.5	10.0	2.50
Nickel	ND	10.0	2.50
Potassium	1780	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	29400	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/06/19 09:30
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW06-GW120619	Date Analyzed:	12/12/19 13:01
Lab Samp ID:	L057-05	Dilution Factor:	1
Lab File ID:	H6L03062	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03056	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	1.40	1.00	0.125
Barium	50.7	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	0.954J	1.00	0.100
Cobalt	ND	1.00	0.100
Copper	0.728J	2.00	0.500
Iron	ND	100	25.0
Lead	0.262J	1.00	0.0500
Magnesium	36300	100	25.0
Manganese	ND	1.00	0.250
Nickel	0.310J	1.00	0.250
Potassium	1970	100	25.0
Selenium	0.637J	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	2.16	1.00	0.250
Zinc	7.59J	20.0	5.00

Sample ID:	OU2-MW06-GW120619	Date Analyzed:	12/12/19 12:05
Lab Samp ID:	L057-05I	Dilution Factor:	10
Lab File ID:	H6L03040	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03034	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	98100	1000	250
Sodium	59700	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/06/19 09:30
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID	: OU2-MW06-GW120619	Date Analyzed:	12/12/19 13:01
Lab Samp ID	: L057-05	Dilution Factor:	1
Lab File ID	: H6L03062	Matrix:	WATER
Ext Btch ID	: IML008W	% Moisture:	NA
Calib. Ref.	: H6L03056	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	1.40	1.00	0.125
Barium	50.7	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	105000E	100	25.0
Chromium	0.954J	1.00	0.100
Cobalt	ND	1.00	0.100
Copper	0.728J	2.00	0.500
Iron	ND	100	25.0
Lead	0.262J	1.00	0.0500
Magnesium	36300	100	25.0
Manganese	ND	1.00	0.250
Nickel	0.310J	1.00	0.250
Potassium	1970	100	25.0
Selenium	0.637J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	64600E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	2.16	1.00	0.250
Zinc	7.59J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH	Date Collected: 12/06/19 09:30
Project : VA SALT LAKE CITY	Date Received: 12/07/19
SDG NO. : 19L057	Date Extracted: 12/11/19 09:46
Sample ID: OU2-MW06-GW120619	Date Analyzed: 12/12/19 12:05
Lab Samp ID: L057-05I	Dilution Factor: 10
Lab File ID: H6L03040	Matrix: WATER
Ext Btch ID: IML008W	% Moisture: NA
Calib. Ref.: H6L03034	Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	48.9	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	98100	1000	250
Chromium	ND	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	35300	1000	250
Manganese	ND	10.0	2.50
Nickel	ND	10.0	2.50
Potassium	1620	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	59700	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount : 50ml	Final Volume:50ml
Prepared by : MCande	Analyzed by:LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 13:00
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-FD01-GW120519	Date Analyzed:	12/12/19 13:03
Lab Samp ID:	L057-07	Dilution Factor:	1
Lab File ID:	H6L03063	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03056	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.697J	1.00	0.125
Barium	39.7	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	2.05	1.00	0.100
Cobalt	0.118J	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	ND	1.00	0.0500
Magnesium	36300	100	25.0
Manganese	2.73	1.00	0.250
Nickel	0.450J	1.00	0.250
Potassium	2300	100	25.0
Selenium	0.772J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	43200	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.62	1.00	0.250
Zinc	ND	20.0	5.00

Sample ID:	OU2-FD01-GW120519	Date Analyzed:	12/12/19 12:08
Lab Samp ID:	L057-07I	Dilution Factor:	10
Lab File ID:	H6L03041	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03034	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	93800	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 13:00
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-FD01-GW120519	Date Analyzed:	12/12/19 13:03
Lab Samp ID:	L057-07	Dilution Factor:	1
Lab File ID:	H6L03063	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03056	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.697J	1.00	0.125
Barium	39.7	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	103000E	100	25.0
Chromium	2.05	1.00	0.100
Cobalt	0.118J	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	ND	1.00	0.0500
Magnesium	36300	100	25.0
Manganese	2.73	1.00	0.250
Nickel	0.450J	1.00	0.250
Potassium	2300	100	25.0
Selenium	0.772J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	43200	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.62	1.00	0.250
Zinc	ND	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 13:00
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-FD01-GW120519	Date Analyzed:	12/12/19 12:08
Lab Samp ID:	L057-07I	Dilution Factor:	10
Lab File ID:	H6L03041	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03034	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	38.7	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	93800	1000	250
Chromium	1.65J	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	33800	1000	250
Manganese	ND	10.0	2.50
Nickel	ND	10.0	2.50
Potassium	1850	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	39700	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L057
Sample ID: OU2-MW13S-GW120519
Lab Samp ID: L057-08
Lab File ID: H6L03064
Ext Btch ID: IML008W
Calib. Ref.: H6L03056

Date Collected: 12/05/19 14:40
Date Received: 12/07/19
Date Extracted: 12/11/19 09:46
Date Analyzed: 12/12/19 13:05
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	1.67	1.00	0.125
Barium	71.4	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	4.98	1.00	0.100
Cobalt	1.84	1.00	0.100
Copper	0.525J	2.00	0.500
Iron	325	100	25.0
Lead	0.0513J	1.00	0.0500
Manganese	678	1.00	0.250
Nickel	147	1.00	0.250
Potassium	4620	100	25.0
Selenium	0.251J	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	ND	1.00	0.250
Zinc	7.76J	20.0	5.00

Sample ID: OU2-MW13S-GW120519
Lab Samp ID: L057-08I
Lab File ID: H6L03042
Ext Btch ID: IML008W
Calib. Ref.: H6L03034

Date Analyzed: 12/12/19 12:10
Dilution Factor: 10
Matrix: WATER
% Moisture: NA
Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	168000	1000	250
Magnesium	73200	1000	250
Sodium	121000	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml
Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 14:40
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW13S-GW120519	Date Analyzed:	12/12/19 13:05
Lab Samp ID:	L057-08	Dilution Factor:	1
Lab File ID:	H6L03064	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03056	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	1.67	1.00	0.125
Barium	71.4	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	163000E	100	25.0
Chromium	4.98	1.00	0.100
Cobalt	1.84	1.00	0.100
Copper	0.525J	2.00	0.500
Iron	325	100	25.0
Lead	0.0513J	1.00	0.0500
Magnesium	76600E	100	25.0
Manganese	678	1.00	0.250
Nickel	147	1.00	0.250
Potassium	4620	100	25.0
Selenium	0.251J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	114000E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	ND	1.00	0.250
Zinc	7.76J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 14:40
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW13S-GW120519	Date Analyzed:	12/12/19 12:10
Lab Samp ID:	L057-08I	Dilution Factor:	10
Lab File ID:	H6L03042	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03034	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	1.47J	10.0	1.25
Barium	70.3	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	168000	1000	250
Chromium	4.54J	10.0	1.00
Cobalt	1.81J	10.0	1.00
Copper	ND	20.0	5.00
Iron	316J	1000	250
Lead	ND	10.0	0.500
Magnesium	73200	1000	250
Manganese	678	10.0	2.50
Nickel	155	10.0	2.50
Potassium	4020	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	121000	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 16:55
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW13D-GW120519	Date Analyzed:	12/12/19 13:07
Lab Samp ID:	L057-09	Dilution Factor:	1
Lab File ID:	H6L03065	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03056	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.581J	1.00	0.125
Barium	43.5	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	115	1.00	0.100
Cobalt	6.50	1.00	0.100
Copper	5.74	2.00	0.500
Iron	640	100	25.0
Lead	0.101J	1.00	0.0500
Manganese	35.8	1.00	0.250
Nickel	198	1.00	0.250
Potassium	2550	100	25.0
Selenium	0.828J	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	2.12	1.00	0.250
Zinc	5.41J	20.0	5.00

Sample ID:	OU2-MW13D-GW120519	Date Analyzed:	12/12/19 12:12
Lab Samp ID:	L057-09I	Dilution Factor:	10
Lab File ID:	H6L03043	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03034	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	143000	1000	250
Magnesium	49900	1000	250
Sodium	52900	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 16:55
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW13D-GW120519	Date Analyzed:	12/12/19 13:07
Lab Samp ID:	L057-09	Dilution Factor:	1
Lab File ID:	H6L03065	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03056	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.581J	1.00	0.125
Barium	43.5	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	134000E	100	25.0
Chromium	115	1.00	0.100
Cobalt	6.50	1.00	0.100
Copper	5.74	2.00	0.500
Iron	640	100	25.0
Lead	0.101J	1.00	0.0500
Magnesium	49000E	100	25.0
Manganese	35.8	1.00	0.250
Nickel	198	1.00	0.250
Potassium	2550	100	25.0
Selenium	0.828J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	52400E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	2.12	1.00	0.250
Zinc	5.41J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH	Date Collected: 12/05/19 16:55
Project : VA SALT LAKE CITY	Date Received: 12/07/19
SDG NO. : 19L057	Date Extracted: 12/11/19 09:46
Sample ID: OU2-MW13D-GW120519	Date Analyzed: 12/12/19 12:12
Lab Samp ID: L057-09I	Dilution Factor: 10
Lab File ID: H6L03043	Matrix: WATER
Ext Btch ID: IML008W	% Moisture: NA
Calib. Ref.: H6L03034	Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	44.9	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	143000	1000	250
Chromium	120	10.0	1.00
Cobalt	6.96J	10.0	1.00
Copper	ND	20.0	5.00
Iron	640J	1000	250
Lead	ND	10.0	0.500
Magnesium	49900	1000	250
Manganese	35.8	10.0	2.50
Nickel	211	10.0	2.50
Potassium	2250	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	52900	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount : 50ml	Final Volume:50ml
Prepared by : MCande	Analyzed by:LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH	Date Collected: 12/05/19 16:05
Project : VA SALT LAKE CITY	Date Received: 12/07/19
SDG NO. : 19L057	Date Extracted: 12/11/19 09:46
Sample ID: OU2-MW04-GW120519	Date Analyzed: 12/12/19 13:10
Lab Samp ID: L057-10	Dilution Factor: 1
Lab File ID: H6L03066	Matrix: WATER
Ext Btch ID: IML008W	% Moisture: NA
Calib. Ref.: H6L03056	Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	1.02	1.00	0.125
Barium	45.6	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	4.00	1.00	0.100
Cobalt	0.141J	1.00	0.100
Copper	1.54J	2.00	0.500
Iron	28.1J	100	25.0
Lead	0.419J	1.00	0.0500
Magnesium	44300	100	25.0
Manganese	0.446J	1.00	0.250
Nickel	2.32	1.00	0.250
Potassium	2310	100	25.0
Selenium	0.596J	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	2.20	1.00	0.250
Zinc	16.1J	20.0	5.00

Sample ID: OU2-MW04-GW120519	Date Analyzed: 12/12/19 12:14
Lab Samp ID: L057-10I	Dilution Factor: 10
Lab File ID: H6L03044	Matrix: WATER
Ext Btch ID: IML008W	% Moisture: NA
Calib. Ref.: H6L03034	Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	113000	1000	250
Sodium	96400	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 16:05
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW04-GW120519	Date Analyzed:	12/12/19 13:10
Lab Samp ID:	L057-10	Dilution Factor:	1
Lab File ID:	H6L03066	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03056	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	1.02	1.00	0.125
Barium	45.6	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	122000E	100	25.0
Chromium	4.00	1.00	0.100
Cobalt	0.141J	1.00	0.100
Copper	1.54J	2.00	0.500
Iron	28.1J	100	25.0
Lead	0.419J	1.00	0.0500
Magnesium	44300	100	25.0
Manganese	0.446J	1.00	0.250
Nickel	2.32	1.00	0.250
Potassium	2310	100	25.0
Selenium	0.596J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	106000E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	2.20	1.00	0.250
Zinc	16.1J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/05/19 16:05
Project	: VA SALT LAKE CITY	Date Received:	12/07/19
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	OU2-MW04-GW120519	Date Analyzed:	12/12/19 12:14
Lab Samp ID:	L057-10I	Dilution Factor:	10
Lab File ID:	H6L03044	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03034	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	44.1	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	113000	1000	250
Chromium	3.78J	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	42400	1000	250
Manganese	ND	10.0	2.50
Nickel	ND	10.0	2.50
Potassium	1990	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	96400	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	NA
Project	: VA SALT LAKE CITY	Date Received:	NA
SDG NO.	: 19L057	Date Extracted:	12/11/19 09:46
Sample ID:	MBLK1W	Date Analyzed:	12/12/19 11:12
Lab Samp ID:	IML008WB	Dilution Factor:	1
Lab File ID:	H6L03017	Matrix:	WATER
Ext Btch ID:	IML008W	% Moisture:	NA
Calib. Ref.:	H6L03015	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	ND	1.00	0.125
Barium	ND	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	51.8J	100	25.0
Chromium	ND	1.00	0.100
Cobalt	ND	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	0.0572J	1.00	0.0500
Magnesium	ND	100	25.0
Manganese	ND	1.00	0.250
Nickel	ND	1.00	0.250
Potassium	ND	100	25.0
Selenium	ND	1.00	0.150
Silver	ND	1.00	0.100
Sodium	41.4J	100	25.0
Thallium	ND	1.00	0.100
Vanadium	ND	1.00	0.250
Zinc	5.13J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L057
METHOD : SW6020A

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: IML008WB	IML008WL	IML008WC
LAB FILE ID	: H6L03017	H6L03018	H6L03019
DATE PREPARED	: 12/11/19 09:46	12/11/19 09:46	12/11/19 09:46
DATE ANALYZED	: 12/12/19 11:12	12/12/19 11:15	12/12/19 11:17
PREP BATCH	: IML008W	IML008W	IML008W
CALIBRATION REF	: H6L03015	H6L03015	H6L03015

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Aluminum	ND	3000	2690	90	3000	2900	97	8	80-120	20
Antimony	ND	30	27.3	91	30	27.8	93	2	80-120	20
Arsenic	ND	30	28.7	96	30	28.4	95	1	80-120	20
Barium	ND	30	26.8	89	30	27.1	90	1	80-120	20
Beryllium	ND	30	28.5	95	30	27.0	90	5	80-120	20
Cadmium	ND	30	27.5	92	30	27.6	92	0	80-120	20
Calcium	51.8J	3000	2770	92	3000	2790	93	1	80-120	20
Chromium	ND	30	27.7	92	30	27.4	91	1	80-120	20
Cobalt	ND	30	27.4	91	30	28.5	95	4	80-120	20
Copper	ND	30	28.7	96	30	28.2	94	2	80-120	20
Iron	ND	3000	2810	94	3000	2900	97	3	80-120	20
Lead	0.0572J	30	28.8	96	30	27.6	92	4	80-120	20
Magnesium	ND	3000	2740	91	3000	2970	99	8	80-120	20
Manganese	ND	30	28.2	94	30	30.4	101	8	80-120	20
Nickel	ND	30	28.3	94	30	28.0	93	1	80-120	20
Potassium	ND	3000	3160	105	3000	3050	102	4	80-120	20
Selenium	ND	30	29.3	98	30	29.0	97	1	80-120	20
Silver	ND	30	27.8	93	30	28.4	95	2	80-120	20
Sodium	41.4J	3000	2770	92	3000	2820	94	2	80-120	20
Thallium	ND	30	28.9	96	30	27.7	92	4	80-120	20
Vanadium	ND	30	26.3	88	30	26.1	87	1	80-120	20
Zinc	5.13J	60	59.3	99	60	61.1	102	3	80-120	20

ICP-MS QC CHECK TABLE

QC	HIGH STD	ICV	CCV	ICSAB	ICSA
Limit%		90-110	90-110	80-120	80-120
Comp	ug/L	ug/L	ug/L	ug/L	ug/L
Al	50000	30000	25000	100000	100000
Sb	100	60	50	20	0
As	500	300	250	20	0
Ba	1000	300	500	20	0
Be	50	30	25	20	0
B	100	30	50	20	0
Cd	500	300	250	20	0
Ca	50000	30000	25000	100000	100000
Cr	500	300	250	20	0
Co	500	300	250	20	0
Cu	500	300	250	20	0
Fe	50000	30000	25000	100000	100000
Li	50	30	25	20	0
Pb	500	300	250	20	0
Mg	50000	30000	25000	100000	100000
Mn	3000	2000	1500	20	0
Mo	500	300	250	2000	2000
Ni	500	300	250	20	0
P	500	300	250	100000	100000
K	50000	30000	25000	100000	100000
Se	500	300	250	20	0
Si	5000	3000	2500	200	0
Ag	50	30	25	20	0
Na	50000	30000	25000	100000	100000
Sr	500	300	250	20	0
Tl	500	300	250	20	0
Sn	500	300	250	20	0
Ti	500	300	250	2000	2000
W	50	30	25	20	0
V	500	300	250	20	0
U	500	300	250	20	0
Zn	500	300	250	20	0
Zr	50	30	25	20	0

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ICP-MS

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 12/12/19 10:36

End Date: 12/12/19 13:28

Comments:

All soil/solid samples are diluted at 10x dilution prior to analysis.

Filter Lot #: NA

- MRL4204 Na fail
- MRL1205 ↓

Book #:	AH6-002
Instrument No.:	H6
Analytical Batch:	1H6L03
Analytical Sequence:	H6L03
Method File:	E6020HG
Micropipette ID:	☐ 142781004
Micropipette ID:	☒ ICP-06
Micropipette ID:	☒ 339362028
Micropipette ID:	☒ GFAA-07
Micropipette ID:	☐ 339342032
Micropipette ID:	☒ 542780515
Micropipette ID:	☐ 542761827
Micropipette ID:	☐

SOP #	Rev. #
☐ EMAX-200.8	6
☒ EMAX-6020	11
☐ EMAX-6020CA	1
☐ EMAX-	
☐ EMAX-	

STANDARDS ID		STANDARDS ID	
S0	SM6B-18-26-01	MRL1 (1)	SM6B-18-38-01
S1	S0-01	MRL2 (0.4)	48-02
S2	S0-02	MRL3 (HG)	15-01
S3	S1-01	MRL4	NA
S4	S1-02	MRL5	↓
S5	NA	MRL6	↓
S6	↓	Internal Standard	SM6B-17-90-02
S7	↓	Post-Spike 1	SM6A-007-06-09
ICV	SM6B-18-47-01	Post-Spike 2	↓ 06-10
CCV	S2-01	Post-Spike 3	NA
ICSA	66-02	Post-Spike 4	↓
ICSAB	67-01		
6020 TUNE SOLN.	NA		
200.8 TUNE SOLN.	SM6B-17-91-01		

Analyzed By: LV

Date: 12/12/19

INITIAL CALIBRATION VERIFICATION SUMMARY FORM

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L057
Method : METHOD SW6020A
Sequence : IH6L03
InstrumentID: H6

Lab Samp ID :		ICV				ICSA			ICSAB		
QC Limit :		%R:90-110/RSD:<5				%R:80-120/<LOD			%R:80-120		
Lab File ID :		H6L03008				H6L03012			H6L03013		
DateAnalyed :		12/12/1910:52				12/12/1911:01			12/12/1911:03		
Parameter		Result	ICV EV	RSD	%Recovery	Result	ICSA EV	%Rec/LOD	Result	ICSAB EV	%Recovery
Lithium		29.47	30	2.8	98	0.47724	0	>0	21.658	20	108
Beryllium	T	30.26	30	3.3	101	0.0010533	0	<0.10	21.431	20	107
Boron		29.51	30	4.8	98	0.69837	0	<5.0	21.424	20	107
Sodium	T	29880	30000	4.1	100	103050	100000	103	98598	100000	99
Magnesium	T	30640	30000	7.6	102	98874	100000	99	94734	100000	95
Aluminum	T	29500	30000	4.1	98	100860	100000	101	95493	100000	95
Silicon		3061	3000	4.4	102	5.0163	0	<20	196.91	200	98
Phosphorus		295.7	300	2.8	99	94246	100000	94	93729	100000	94
Potassium	T	28790	30000	1.6	96	99478	100000	99	98314	100000	98
Calcium	T	30020	30000	1.2	100	106210	100000	106	101930	100000	102
Titanium		298.2	300	3.4	99	2083.1	2000	104	2003.1	2000	100
Vanadium	T	321.1	300	3.3	107	0.17835	0	<0.25	18.397	20	92
Chromium	T	317.4	300	1.4	106	0.25416	0	>0.1	19.014	20	95
Manganese	T	1952	2000	2.5	98	0.23954	0	<0.25	19.230	20	96
Iron	T	30410	30000	4.2	101	107530	100000	108	101420	100000	101
Cobalt	T	303.3	300	1.9	101	0.36010	0	>0.1	19.021	20	95
Nickel	T	303.2	300	1.3	101	0.31798	0	>0.25	19.231	20	96
Copper	T	323.3	300	0.9	108	0.077132	0	<0.50	19.200	20	96
Zinc	T	301.1	300	7.0	100	1.2515	0	<5	19.867	20	99
Arsenic	T	315.0	300	0.4	105	0.017600	0	<0.125	19.398	20	97
Selenium	T	310.2	300	1.1	103	0.11256	0	<0.15	20.375	20	102
Strontium		292.9	300	6.9	98	0.79661	0	<1.0	19.928	20	100
Zirconium		29.61	30	4.9	99	0.055391	0	<2.0	3.8255	20	19*
Molybdenum		301.1	300	3.5	100	1998.5	2000	100	2030.8	2000	102
Silver	T	28.43	30	1.1	95	0.0064527	0	<0.1	19.602	20	98
Cadmium	T	303.8	300	1.8	101	0.049906	0	<0.1	19.728	20	99
Tin		316.1	300	4.0	105	0.26682	0	>0.2	20.775	20	104
Antimony	T	57.45	60	1.6	96	0.17156	0	<0.25	20.169	20	101
Barium	T	308.8	300	1.7	103	0.23408	0	<0.25	19.839	20	99
Tungsten		29.63	30	1.1	99	0.17696	0	<1.0	20.015	20	100
Mercury		3.043	3	1.0	101	0.0086839	0	<0.1	2.0673	2	103
Thallium	T	323.8	300	5.2	108	0.029961	0	<0.1	19.488	20	97
Lead	T	312.0	300	2.9	104	0.094588	0	>0.05	19.547	20	98
Uranium		324.2	300	5.7	108	0.0018374	0	<0.1	19.663	20	98

Unit: ug/L
T: Target analyte
EV: Expected Value
Comment: * Out of QC limit

CONTINUING CALIBRATION VERIFICATION SUMMARY FORM

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L057
Method : METHOD SW6020A
Sequence : IH6L03
Instrument ID: H6

CCV SampleID		: CCV1				CCV2			CCV3			CCV4			CCV5		
CCV DataFileID		: H6L03015				H6L03023			H6L03034			H6L03045			H6L03056		
CCV DateTime		: 12/12/19 11:08				12/12/19 11:26			12/12/19 11:52			12/12/19 12:17			12/12/19 12:47		
PARAMETER		CCV EV	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD
Lithium		25	24.5	98	2.8	23.8	95	10.0	25.7	103	3.8	25.9	104	11.6	24.5	98	2.4
Beryllium	T	25	25.2	101	3.3	24.9	100	6.9	25.7	103	3.6	26.2	105	8.5	24.5	98	2.5
Boron		50	48.7	97	4.6	47.7	95	4.5	50.8	102	4.1	51.5	103	10.4	48.8	98	3.4
Sodium	T	25000	25200	101	5.9	25000	100	5.4	25100	100	3.4	25500	102	7.5	25400	102	2.9
Magnesium	T	25000	25400	102	6.5	24700	99	3.1	25100	101	3.3	25300	101	1.8	25700	103	2.4
Aluminum	T	25000	24700	99	8.0	24900	100	7.4	25500	102	4.8	24700	99	3.6	24900	100	4.5
Silicon		2500	2520	101	7.9	2480	99	6.4	2540	102	7.9	2510	100	1.8	2470	99	2.2
Phosphorus		250	240	96	6.8	239	96	4.8	240	96	2.5	243	97	0.9	244	98	5.3
Potassium	T	25000	25000	100	2.4	25100	100	2.0	25400	102	2.4	25600	102	1.8	25700	103	0.4
Calcium	T	25000	24900	100	2.5	25800	103	3.8	24800	99	5.3	25700	103	8.0	24800	99	2.1
Titanium		250	242	97	6.1	238	95	4.1	241	96	3.2	242	97	2.1	239	96	4.5
Vanadium	T	250	258	103	2.5	259	103	4.1	268	107	1.1	260	104	5.3	254	102	4.8
Chromium	T	250	253	101	3.4	256	103	0.9	261	104	1.3	249	100	3.2	265	106	3.0
Manganese	T	1500	1560	104	4.8	1570	105	4.1	1580	106	5.0	1540	103	2.4	1560	104	2.1
Iron	T	25000	25100	100	3.5	26000	104	3.5	26100	104	3.9	26700	107	8.2	25500	102	3.5
Cobalt	T	250	250	100	8.1	253	101	3.6	259	104	6.6	255	102	1.6	251	100	2.2
Nickel	T	250	243	97	1.8	240	96	0.0	243	97	0.4	243	97	1.3	247	99	2.0
Copper	T	250	261	105	5.7	263	105	2.2	265	106	1.2	256	102	2.0	267	107	1.3
Zinc	T	250	240	96	4.0	249	99	0.6	236	95	2.5	255	102	5.0	249	100	7.1
Arsenic	T	250	248	99	0.7	248	99	1.1	248	99	0.4	249	100	0.6	246	98	1.8
Selenium	T	250	256	102	1.1	252	101	1.6	251	100	0.4	253	101	2.8	249	100	0.7
Strontium		250	244	97	2.8	249	99	3.8	242	97	5.7	248	99	1.2	250	100	9.3
Zirconium		25	23.9	96	2.5	24.0	96	2.7	23.5	94	3.9	24.7	99	1.9	24.3	97	5.5
Molybdenum		250	240	96	3.8	239	95	1.4	246	99	9.9	252	101	3.6	252	101	3.6
Silver	T	25	24.0	96	0.5	24.6	98	3.0	24.6	98	5.6	24.7	99	4.9	24.6	98	1.7
Cadmium	T	250	245	98	1.1	247	99	3.3	245	98	5.5	249	100	4.2	249	99	1.7
Tin		250	253	101	2.6	254	102	5.7	254	102	2.1	253	101	4.7	257	103	2.9
Antimony	T	50	48.1	96	2.4	48.7	97	3.2	48.6	97	6.5	49.8	100	4.3	49.8	100	1.3
Barium	T	500	493	99	2.1	489	98	2.3	487	97	7.7	496	99	6.2	519	104	5.6
Tungsten		25	24.2	97	2.1	24.3	97	2.3	23.2	93	2.9	25.2	101	3.5	24.2	97	0.4
Mercury		2.5	2.62	105	2.5	2.54	102	1.1	2.50	100	3.0	2.67	107	5.4	2.59	104	1.9
Thallium	T	250	259	103	2.7	249	100	0.8	242	97	4.9	261	104	2.1	250	100	4.8
Lead	T	250	253	101	4.1	251	101	1.8	244	98	4.9	259	104	5.7	256	102	2.9
Uranium		250	252	101	4.1	249	100	1.9	249	99	5.2	264	106	5.0	256	103	0.7

CCV SampleID		: CCV6			
CCV DataFileID		: H6L03067			
CCV DateTime		: 12/12/19 13:12			
PARAMETER		CCV EV	RESULT	%REC	RSD
Lithium		25	23.9	95	2.6
Beryllium	T	25	23.9	96	3.4
Boron		50	48.6	97	4.2
Sodium	T	25000	25000	100	3.0
Magnesium	T	25000	25300	101	1.5
Aluminum	T	25000	24600	99	3.8
Silicon		2500	2390	96	2.4
Phosphorus		250	233	93	3.8
Potassium	T	25000	25900	104	1.7

Calcium	T	25000	24600	99	4.4
Titanium		250	231	92	3.4
Vanadium	T	250	268	107	5.0
Chromium	T	250	259	104	3.6
Manganese	T	1500	1540	103	5.3
Iron	T	25000	25800	103	7.1
Cobalt	T	250	255	102	5.2
Nickel	T	250	243	97	0.7
Copper	T	250	270	108	4.4
Zinc	T	250	252	101	1.9
Arsenic	T	250	247	99	0.6
Selenium	T	250	249	100	1.3
Strontium		250	251	101	8.1
Zirconium		25	24.0	96	3.4
Molybdenum		250	236	94	2.0
Silver	T	25	23.7	95	1.3
Cadmium	T	250	238	95	1.6
Tin		250	252	101	3.5
Antimony	T	50	48.3	97	2.2
Barium	T	500	506	101	2.4
Tungsten		25	23.5	94	5.0
Mercury		2.5	2.49	100	4.3
Thallium	T	250	240	96	4.9
Lead	T	250	252	101	3.1
Uranium		250	251	100	3.0

Unit: ug/L
T: Target analyte
%Rec QC Limit: 90-110
RSD QC Limit: <5
CCV EV: CCV Expected Value ug/L
Comment:

CONTINUING CALIBRATION BLANK SUMMARY FORM

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L057
Method : SW6020A
Sequence : IH6L03
Instrument ID: H6

CB SampleID		: ICB	CCB1	CCB2	CCB3	CCB4
CB DataFileID		: H6L03009	H6L03016	H6L03024	H6L03035	H6L03046
CB DateTime		: 12/12/1910:54	12/12/1911:10	12/12/1911:29	12/12/1911:54	12/12/1912:19

PARAMETER		LOD	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >
Lithium		0	0.3	>0	0.3	>0	1.0	>0	0.04	>0	0.5	>0
Beryllium	T	0.10	0.003	<0.10	0.004	<0.10	0.003	<0.10	0.006	<0.10	0.005	<0.10
Boron		5.0	0.5	<5.0	0.4	<5.0	0.3	<5.0	0.3	<5.0	0.2	<5.0
Sodium	T	25	5	<25	7	<25	3	<25	5	<25	7	<25
Magnesium	T	25	2	<25	1	<25	2	<25	4	<25	7	<25
Aluminum	T	25	1	<25	1	<25	2	<25	4	<25	6	<25
Silicon		20	1	<20	0.04	<20	0.01	<20	0.6	<20	0.7	<20
Phosphorus		25	0.1	<25	4	<25	2	<25	1	<25	0.09	<25
Potassium	T	25	0.1	<25	0.3	<25	1	<25	2	<25	8	<25
Calcium	T	25	0.9	<25	0.3	<25	0.7	<25	2	<25	4	<25
Titanium		0.5	0.005	<0.5	0.0006	<0.5	0.007	<0.5	0.03	<0.5	0.06	<0.5
Vanadium	T	0.25	0.1	<0.25	0.1	<0.25	0.1	<0.25	0.1	<0.25	0.08	<0.25
Chromium	T	0.1	0.004	<0.1	0.03	<0.1	0.02	<0.1	0.02	<0.1	0.004	<0.1
Manganese	T	0.25	0.2	<0.25	0.1	<0.25	0.2	<0.25	0.2	<0.25	0.4	>0.25
Iron	T	25	0.8	<25	0.8	<25	1	<25	2	<25	5	<25
Cobalt	T	0.1	0.01	<0.1	0.009	<0.1	0.02	<0.1	0.03	<0.1	0.06	<0.1
Nickel	T	0.25	0.003	<0.25	0.003	<0.25	0.005	<0.25	0.02	<0.25	0.05	<0.25
Copper	T	0.50	0.02	<0.50	0.2	<0.50	0.2	<0.50	0.2	<0.50	0.2	<0.50
Zinc	T	5	0.1	<5	0.07	<5	0.08	<5	0.10	<5	0.10	<5
Arsenic	T	0.125	0.004	<0.125	0.02	<0.125	0.01	<0.125	0.02	<0.125	0.03	<0.125
Selenium	T	0.15	0.06	<0.15	0.03	<0.15	0.04	<0.15	0.05	<0.15	0.08	<0.15
Strontium		1.0	0.01	<1.0	0.008	<1.0	0.02	<1.0	0.04	<1.0	0.06	<1.0
Zirconium		2.0	0.004	<2.0	0.002	<2.0	0.003	<2.0	0.003	<2.0	0.007	<2.0
Molybdenum		0.5	0.03	<0.5	0.03	<0.5	0.03	<0.5	0.04	<0.5	0.07	<0.5
Silver	T	0.1	0.002	<0.1	0.0005	<0.1	0.002	<0.1	0.002	<0.1	0.0004	<0.1
Cadmium	T	0.1	0.06	<0.1	0.03	<0.1	0.04	<0.1	0.06	<0.1	0.09	<0.1
Tin		0.2	0.2	>0.2	0.2	<0.2	0.1	<0.2	0.01	<0.2	0.01	<0.2
Antimony	T	0.25	0.009	<0.25	0.01	<0.25	0.01	<0.25	0.01	<0.25	0.01	<0.25
Barium	T	0.25	0.01	<0.25	0.02	<0.25	0.03	<0.25	0.06	<0.25	0.1	<0.25
Tungsten		1.0	0.02	<1.0	0.010	<1.0	0.006	<1.0	0.005	<1.0	0.008	<1.0
Mercury		0.1	0.02	<0.1	0.01	<0.1	0.01	<0.1	0.007	<0.1	0.005	<0.1
Thallium	T	0.1	0.2	>0.1	0.09	<0.1	0.09	<0.1	0.1	>0.1	0.2	>0.1
Lead	T	0.05	0.08	>0.05	0.06	>0.05	0.04	<0.05	0.06	>0.05	0.08	>0.05
Uranium		0.1	0.01	<0.1	0.01	<0.1	0.02	<0.1	0.03	<0.1	0.06	<0.1

CB SampleID		: CCB5	CCB6
CB DataFileID		: H6L03057	H6L03068
CB DateTime		: 12/12/1912:49	12/12/1913:14

PARAMETER		LOD	RESULT	< LOD >	RESULT	< LOD >
Lithium		0	0.004	>0	0.1	>0
Beryllium	T	0.10	0.007	<0.10	0.007	<0.10
Boron		5.0	1	<5.0	1	<5.0
Sodium	T	25	60	>25	50	>25
Magnesium	T	25	6	<25	9	<25
Aluminum	T	25	5	<25	8	<25
Silicon		20	0.6	<20	0.9	<20

Phosphorus		25	1	<25	0.2	<25
Potassium	T	25	20	<25	10	<25
Calcium	T	25	5	<25	6	<25
Titanium		0.5	0.06	<0.5	0.07	<0.5
Vanadium	T	0.25	0.010	<0.25	0.04	<0.25
Chromium	T	0.1	0.01	<0.1	0.009	<0.1
Manganese	T	0.25	0.4	>0.25	0.6	>0.25
Iron	T	25	5	<25	6	<25
Cobalt	T	0.1	0.06	<0.1	0.08	<0.1
Nickel	T	0.25	0.05	<0.25	0.06	<0.25
Copper	T	0.50	0.05	<0.50	0.2	<0.50
Zinc	T	5	0.1	<5	0.1	<5
Arsenic	T	0.125	0.07	<0.125	0.05	<0.125
Selenium	T	0.15	0.08	<0.15	0.09	<0.15
Strontium		1.0	0.06	<1.0	0.09	<1.0
Zirconium		2.0	0.006	<2.0	0.008	<2.0
Molybdenum		0.5	0.06	<0.5	0.08	<0.5
Silver	T	0.1	0.007	<0.1	0.002	<0.1
Cadmium	T	0.1	0.07	<0.1	0.1	>0.1
Tin		0.2	0.09	<0.2	0.008	<0.2
Antimony	T	0.25	0.02	<0.25	0.01	<0.25
Barium	T	0.25	0.1	<0.25	0.1	<0.25
Tungsten		1.0	0.002	<1.0	0.006	<1.0
Mercury		0.1	0.009	<0.1	0.008	<0.1
Thallium	T	0.1	0.1	>0.1	0.2	>0.1
Lead	T	0.05	0.09	>0.05	0.10	>0.05
Uranium		0.1	0.05	<0.1	0.08	<0.1

Unit:	ug/L
CB:	Calibration Blank
T:	Target analyte
Acceptance Criteria:	CCB Result <LOD
Comment:	

Sample List

Acq/Data Batch D:\Agilent\ICPMH\1\DATA\L\IH6L03.b

Block List

Acquisition Order

Sequence Order	Block Name
1	Calibration Standards
2	Unknown Samples

Blocks

Calibration Standards

#	Skip	Sample Type	Sample Name	Comment	Vial#	File Name	Replicates	Level	Total Dil.
1		CalBlk	BLANK		1101	H6L03001.d		1	
2		CalBlk	BLANK		1101	H6L03002.d		1	
3		CalBlk	S0		1102	H6L03003.d		1	
4		CalStd	S1		1104	H6L03004.d		2	
5		CalStd	S2		1105	H6L03005.d		3	
6		CalStd	S3		1106	H6L03006.d		4	
7		CalStd	S4		1107	H6L03007.d		5	
8		ICV	ICV		1204	H6L03008.d			1
9		ICB	ICB		1102	H6L03009.d			1
10		LLCCV	MRLL1201 ✓	1/100/10 ppb	1306	H6L03010.d			1
11		LLCCV2	MRLL1202	0.4/40/4 ppb Be Co Tl v	1307	H6L03011.d			1
12		ICS-A	ICSA		1304	H6L03012.d			1
13		ICSB	ICSAB		1305	H6L03013.d			1
14		Sample	MRLL1203	0.1 ppb Hg	1207	H6L03014.d			1
15		CCV	CCV1		1206	H6L03015.d			1
16		CCB	CCB1		1102	H6L03016.d			1

Unknown Samples

#	Skip	Sample Type	Sample Name	Comment	Vial#	File Name	Replicates	Level	Total Dil.
1		Blank	IML008WB		2101	H6L03017.d			1
2		LCSW	IML008WL		2102	H6L03018.d			1
3		LCSW	IML008WC		2103	H6L03019.d			1
4		Sample	K165-09		2104	H6L03020.d			1
5		Sample	L018-02		2105	H6L03021.d			1
6		Sample	L019-09 ✓	Cu>LOQ, verify bottle	2106	H6L03022.d			1
7		CCV	CCV2		1206	H6L03023.d			1
8		CCB	CCB2		1102	H6L03024.d			1
9		Sample	L043-01I		2107	H6L03025.d			10
10		Sample	L043-02I		2108	H6L03026.d			10
11		Sample	L043-04I		2109	H6L03027.d			10
12		Sample	L043-05I		2110	H6L03028.d			10
13		Sample	L043-07M		2111	H6L03029.d			10
14		Sample	L043-07S		2112	H6L03030.d			10
15		Sample	L043-07A		2201	H6L03031.d			10
16		Sample	L043-07I		2202	H6L03032.d			10
17		Sample	L043-07J		2203	H6L03033.d			50
18		CCV	CCV3		1206	H6L03034.d			1
19		CCB	CCB3		1102	H6L03035.d			1
20		Sample	L057-01I		2204	H6L03036.d			10

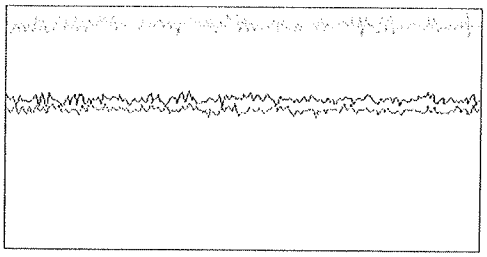
Sample List

#	Skip	Sample Type	Sample Name	Comment	Vial#	File Name	Replicates	Level	Total Dil.
21		Sample	L057-02I		2205	H6L03037.d			10
22		Sample	L057-03I		2206	H6L03038.d			10
23		Sample	L057-04I		2207	H6L03039.d			10
24		Sample	L057-05I		2208	H6L03040.d			10
25		Sample	L057-07I		2209	H6L03041.d			10
26		Sample	L057-08I		2210	H6L03042.d			10
27		Sample	L057-09I		2211	H6L03043.d			10
28		Sample	L057-10I		2212	H6L03044.d			10
29		CCV	CCV4		1206	H6L03045.d			1
30		CCB	CCB4		1102	H6L03046.d			1
31		Sample	L043-01	Na Ca↑	2301	H6L03047.d			1
32		Sample	L043-02	Ca↑	2302	H6L03048.d			1
33		Sample	L043-04	Na mg Ca↑	2303	H6L03049.d			1
34		Sample	L043-05		2304	H6L03050.d			1
35		Sample	L043-07M		2305	H6L03051.d			1
36		Sample	L043-07S		2306	H6L03052.d			1
37		Sample	L043-07A		2307	H6L03053.d			1
38		Sample	L043-07		2308	H6L03054.d			1
39		Sample	L043-07J		2309	H6L03055.d			5
40		CCV	CCV5		1206	H6L03056.d			1
41		CCB	CCB5		1102	H6L03057.d			1
42		Sample	L057-01	Na mg Ca↑	2310	H6L03058.d			1
43		Sample	L057-02		2311	H6L03059.d			1
44		Sample	L057-03		2312	H6L03060.d			1
45		Sample	L057-04	Ca↑	2401	H6L03061.d			1
46		Sample	L057-05	Na Ca↑	2402	H6L03062.d			1
47		Sample	L057-07	Ca↑	2403	H6L03063.d			1
48		Sample	L057-08	Na mg Ca↑	2404	H6L03064.d			1
49		Sample	L057-09	Na mg Ca↑	2405	H6L03065.d			1
50		Sample	L057-10	Na Ca↑	2406	H6L03066.d			1
51		CCV	CCV6		1206	H6L03067.d			1
52		CCB	CCB6		1102	H6L03068.d			1
53		LLCCV	MRLL1204	Na✓1/100/10 ppb	1306	H6L03069.d			1
54		LLCCV2	MRLL1205	↓ 0.4/40/4 ppb	1307	H6L03070.d			1
55		LLCCV2	MRLL1206	Na✓500 ppb CAT	1207	H6L03071.d			1
56		Sample	L019-09N	bottle Cu↗0Q	2407	H6L03072.d			1
57		CCV	CCV7		1206	H6L03073.d			1
58		CCB	CCB7		1102	H6L03074.d			1

Performance Report

Operator Name	LVicto
Acq. Date-Time	2019-12-12 09:20:40
Instrument Name	G8421A SG19253823
Sample Introduction	ISIS
Nebulizer Type	MicroMist
Ion Lens Model	x-Lens
Tune Parameters	Standard Tune

Sensitivity



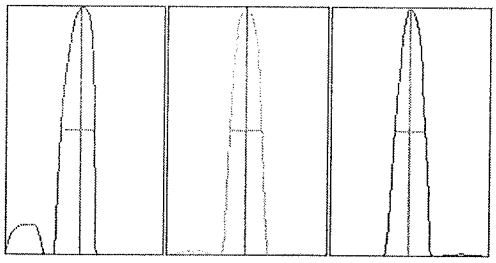
Mass	Range	Count	RSD%	Background
7	10000	5791	2.117	0.150
89	20000	18595	2.211	0.800
205	20000	12453	2.290	2.850

Sampling Period [sec]	0.311
Integration Time [sec]	0.1

Oxide/Doubly Charged Ratio

Oxide	156 / 140 1.028 %
Doubly Charged	70 / 140 1.889 %

Resolution/Axis



Mass	Peak Height	Axis	W-50%	W-10%
7	5815.72	6.95	0.64	0.76
89	18580.69	89.00	0.59	0.75
205	12435.13	205.00	0.59	0.78

Integration Time [sec]	0.1
Acquisition Time [sec]	22.74

Tune Parameters

Plasma Parameters

RF Power	1550 W	Option Gas	---	Makeup Gas	0.00 L/min
RF Matching	1.20 V	Nebulizer Pump	0.10 rps	Auxiliary Gas	0.90 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C	Plasma Gas	15.0 L/min
Nebulizer Gas	1.08 L/min				

Lens Parameters

Extract 1	0.0 V	Omega Lens	9.6 V	Deflect	12.8 V
Extract 2	-190.0 V	Cell Entrance	-30 V	Plate Bias	-35 V
Omega Bias	-100 V	Cell Exit	-50 V		

Performance Report

Cell Parameters

Use Gas	No	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	0.0 mL/min	OctP RF	200 V		

QP Parameters

QP Bias	-3.0 V

Hardware Settings

Torch

Torch H	0.5 mm	Torch H (Hot)	---	Torch H (Cool)	---
Torch V	-0.2 mm	Torch V (Hot)	---	Torch V (Cool)	---

Plasma Correction

Nebulizer Gas Offset	0.03 L/min	Makeup Gas (Hot)	---	Makeup Gas (Cool)	---
		Sample Depth (Hot)	---		

Resolution/Axis

Mass Gain	123	Axis Gain	0.9997
Mass Offset	124	Axis Offset	-0.04

EM

Discriminator	4.1 mV	Analog HV	2147 V	Pulse HV	1212 V

Performance Report

Meter

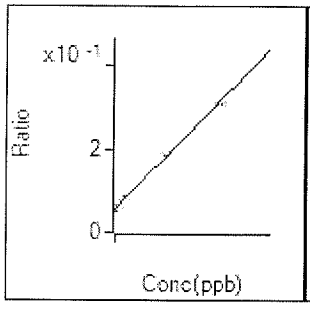
Name	Value	Unit
Nebulizer Gas	1.08	L/min
MU./Dil. Gas	0.00	L/min
Plasma Gas	14.99	L/min
Aux Gas	0.90	L/min
Ar Gas Tank Press	7.19E+2	kPa
+5V (Press Gage)	5.0	V
Ar AMFC Temp	31.0	°C
Nebulizer Gas(DP)	6.34E+0	kPa
MU./Dil. Gas(DP)	-1.23E-1	kPa
Aux Gas(DP)	1.23E+1	kPa
Plasma Gas(DP)	1.11E+1	kPa
Nebulizer Gas(BP)	3.44E+2	kPa
MU./Dil. Gas(BP)	-1.23E+0	kPa
Aux Gas(BP)	5.93E+1	kPa
Plasma Gas(BP)	4.00E+1	kPa
S/C Temp (H)	16.2	°C
S/C Temp (L)	2.0	°C
Peltier Voltage	2.6	V
IF/BK Press	2.42E+2	Pa
Analyzer Press	7.47E-5	Pa
IG HV	178	V
IG Emission	4.98	µA
TMP Revolution	100.0	%
TMP Rev (RAW)	100.2	%
TMP Current	2.83	A
PWR AMP Drain I	0.3	A
PWR AMP Bias	4.12	V
OctP RF (Avg)	203.8	V
OctP RF Set	4.0	V
OctP FET Bias Set	3.97	V
OctP RF(+)	176.5	V
OctP RF(-)	231.5	V
OctP Bias	-8.0	V
Cell Temp.	65.0	°C
Cell Heater Volt.	3.7	V
+U Voltage	9.0	V

Name	Value	Unit
-U Voltage	-14.6	V
V Voltage	42.1	V
QPRF Fader	0.0	V
Pickup Temp	55.0	°C
PWR Amp Temp	0.1	V
+600V	609.1	V
-120V	-133.7	V
-720V	-738.4	V
Prefilter Bias	-4.99	V
Pickup Heater I	0.08	A
QP PS +48V	47.5	V
QP PS +48V I	0.00	A
Analog HV	-2152	V
Pulse HV	1219	V
EM Gate	-30.1	V
Pulse Gate	268.2	V
EM Entrance	0.1	V
EM HV Gain	-782.9	V
Inner Pole	-300.2	V
Outer Pole	20.1	V
Analog -5V	-5.1	V
Analog +15V	14.5	V
Analog -15V	-14.4	V
Analog +5V	5.2	V
Shunt C Pos	1.2	V
Drain Volt.(max)	62.6	V
RF PS +48V	47.5	V
Forward Power	1552	W
Reflected Power	3	W
Plasma Freq.	26.74	MHz
Drain I 1	11.35	A
Drain I 2	10.94	A
Drain I 3	10.84	A
Drain I 4	10.13	A
Temp Sensor	2.8	V
Driver I	5.58	A

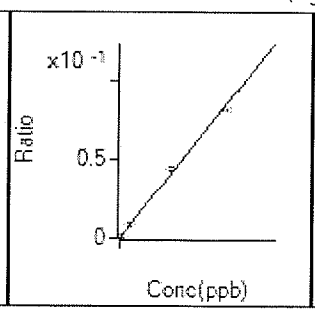
Name	Value	Unit
Igniter	0.0	V
Driver Voltage Set	6.5	V
Unbalance Current	0.44	A
PWM Threshold Set	0.2	V
Driver Voltage	5.1	V
PWM Threshold	0.2	V
Phase Detector	-2.0	mV
H2 Gas	0.00	mL/min
He Gas	0.00	mL/min
H2 Gas Press	1.71E+2	kPa
He Gas Press	6.80E-1	kPa
ORS AMFC Temp	30.9	°C
Atmospheric Press	1.02E+2	kPa
Extract 1	-0.1	V
Extract 2	-190.3	V
Omega Bias	-100.1	V
Omega Lens	9.5	V
Cell Entrance	-29.9	V
Cell Exit	-50.2	V
Deflect	12.7	V
Plate Bias	-35.0	V
HV+530V	524	V
HV+240V	238	V
HV-360V	-357	V
Inlet Temp	28.6	°C
Internal Temp	33.6	°C
+24V	23.6	V
Water Temp	18.6	°C
Water RF/WC/IF	1.47	L/min
ISIS 3 Pump Speed	0.0	%
Valve Position		
Tune/ISTD Valve		

Performance Report History

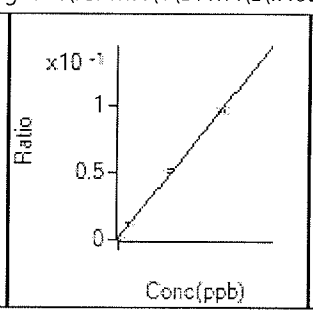
Sensitivity



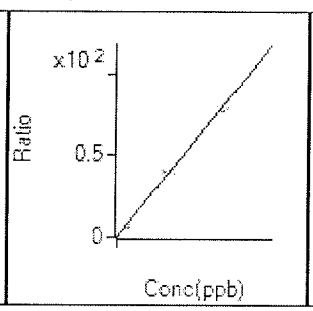
7 Li [No Gas]
ISTD: 6 Li
y = 5.122E-3 x + 5.624E-2
R 0.9997
DL 1.072
BEC 10.98



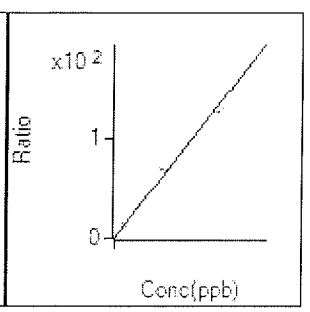
9 Be [No Gas]
ISTD: 6 Li
y = 1.670E-3 x + 9.154E-6
R 0.9993
DL 0.00559
BEC 0.005482



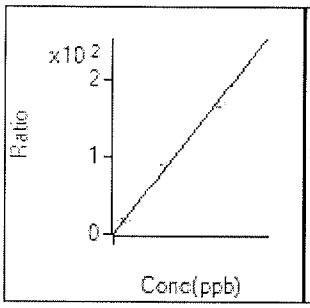
11 B [No Gas]
ISTD: 6 Li
y = 9.662E-4 x + 1.303E-3
R 0.9996
DL 0.2746
BEC 1.349



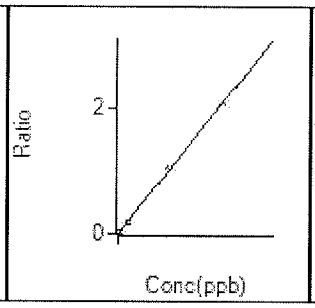
23 Na [H2]
ISTD: 45 Sc
y = 1.580E-3 x + 1.094E-1
R 0.9999
DL 3.575
BEC 69.27



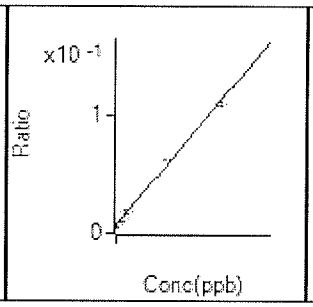
24 Mg [No Gas]
ISTD: 45 Sc
y = 2.648E-3 x + 1.127E-3
R 0.9995
DL 0.05106
BEC 0.4257



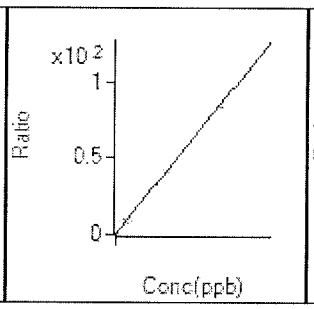
27 Al [No Gas]
ISTD: 45 Sc
y = 3.399E-3 x + 1.862E-3
R 0.9993
DL 0.05209
BEC 0.5477



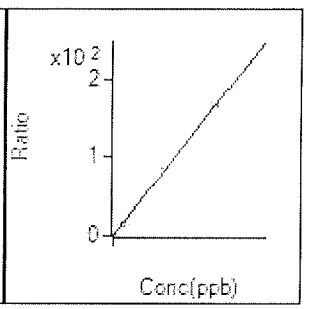
28 Si [H2]
ISTD: 45 Sc
y = 4.178E-4 x + 2.039E-3
R 0.9999
DL 0.2281
BEC 4.881



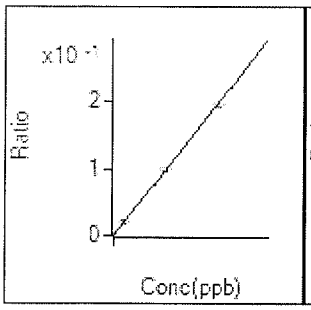
31 P [No Gas]
ISTD: 45 Sc
y = 2.097E-4 x + 7.419E-3
R 0.9996
DL 2.019
BEC 35.38



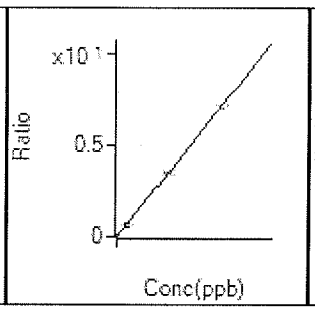
39 K [He]
ISTD: 45 Sc
y = 1.686E-3 x + 2.216E-1
R 1.0000
DL 15.49
BEC 131.4



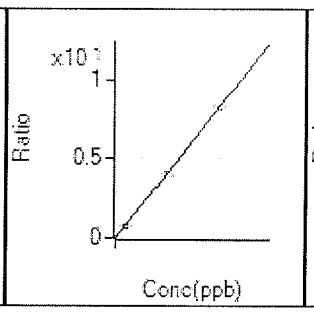
40 Ca [H2]
ISTD: 45 Sc
y = 3.313E-3 x + 2.160E-2
R 0.9999
DL 0.4986
BEC 6.52



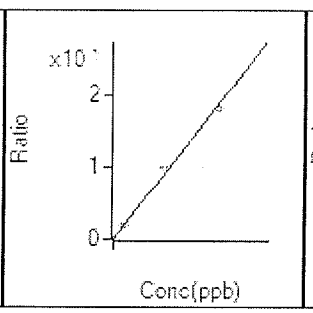
47 Ti [No Gas]
ISTD: 45 Sc
y = 3.938E-4 x + 5.386E-5
R 0.9999
DL 0.007224
BEC 0.1368



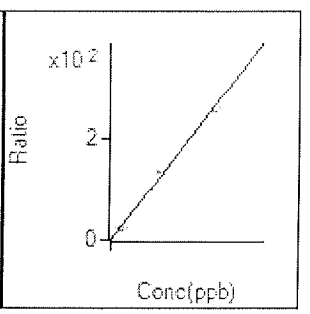
51 V [He]
ISTD: 45 Sc
y = 1.422E-2 x + 4.839E-3
R 0.9999
DL 0.02805
BEC 0.3403



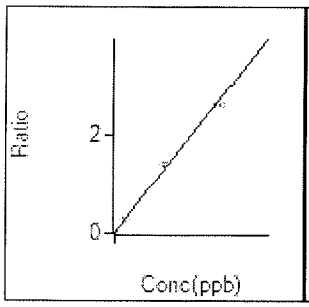
52 Cr [He]
ISTD: 45 Sc
y = 1.643E-2 x + 3.629E-3
R 0.9999
DL 0.03577
BEC 0.2209



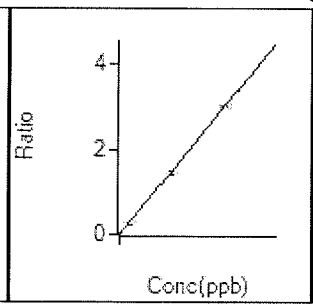
55 Mn [No Gas]
ISTD: 45 Sc
y = 6.163E-3 x + 2.241E-3
R 0.9990
DL 0.008955
BEC 0.3636



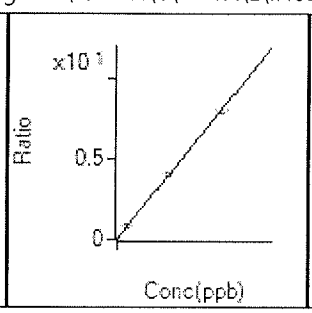
56 Fe [H2]
ISTD: 45 Sc
y = 5.256E-3 x + 3.013E-3
R 0.9998
DL 0.04809
BEC 0.5733



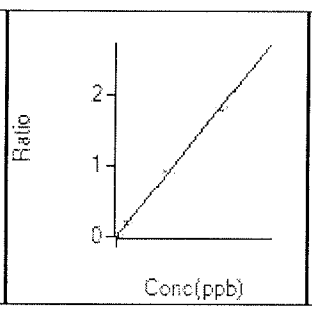
59 Co [No Gas]
ISTD: 45 Sc
y = 5.388E-3 x + 4.157E-5
R 0.9995
DL 0.004654
BEC 0.007716



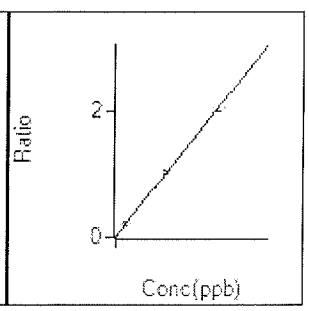
60 Ni [He]
ISTD: 45 Sc
y = 6.000E-3 x + 1.663E-4
R 0.9998
DL 0.01257
BEC 0.02771



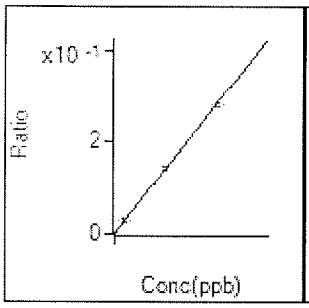
63 Cu [He]
ISTD: 45 Sc
y = 1.593E-2 x + 1.164E-2
R 1.0000
DL 0.04779
BEC 0.7305



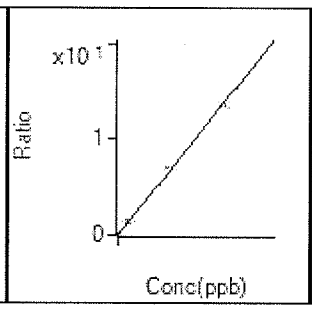
66 Zn [No Gas]
ISTD: 72 Ge
y = 3.634E-3 x + 1.325E-3
R 1.0000
DL 0.04601
BEC 0.3647



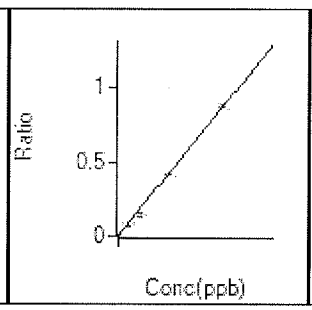
75 As [He]
ISTD: 72 Ge
y = 4.088E-3 x + 5.088E-4
R 1.0000
DL 0.05467
BEC 0.1245



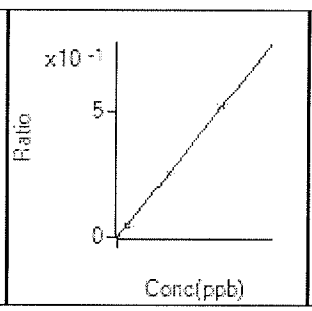
78 Se [H2]
ISTD: 72 Ge
y = 5.668E-4 x + 1.301E-5
R 1.0000
DL 0.01813
BEC 0.02295



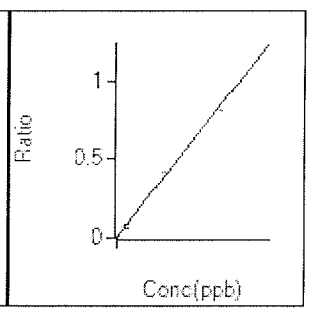
88 Sr [No Gas]
ISTD: 72 Ge
y = 2.723E-2 x + 4.384E-4
R 0.9999
DL 0.002496
BEC 0.0161



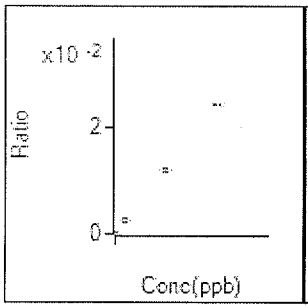
90 Zr [No Gas]
ISTD: 72 Ge
y = 1.731E-2 x + 6.921E-5
R 0.9991
DL 0.00414
BEC 0.003999



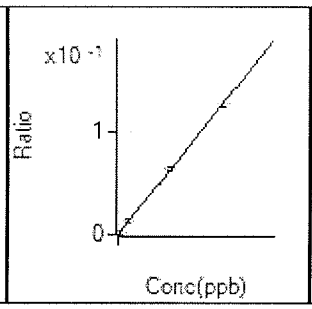
95 Mo [No Gas]
ISTD: 115 In
y = 1.035E-3 x + 3.606E-6
R 0.9999
DL 0.001953
BEC 0.003483



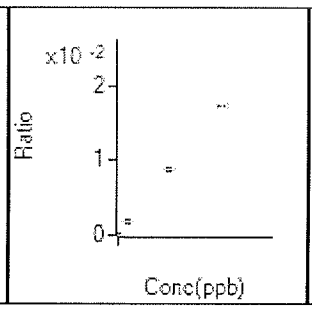
98 Mo [No Gas]
ISTD: 115 In
y = 1.657E-3 x + 2.092E-5
R 0.9999
DL 0.006182
BEC 0.01262



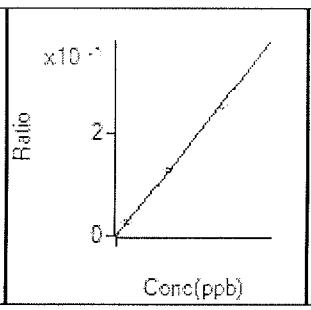
106 [Cd] [No Gas]
ISTD: 115 In
Excluded
R
DL
BEC



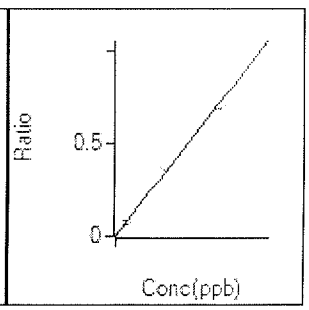
107 Ag [No Gas]
ISTD: 115 In
y = 2.539E-3 x + 1.891E-4
R 1.0000
DL 0.02546
BEC 0.07447



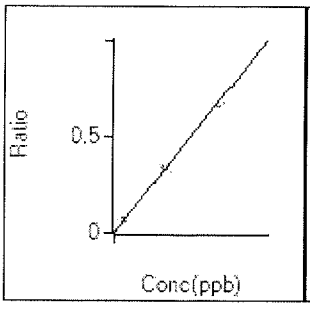
108 [Cd] [No Gas]
ISTD: 115 In
Excluded
R
DL
BEC



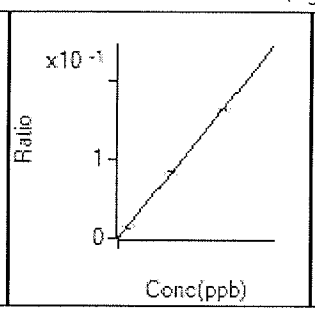
111 Cd [No Gas]
ISTD: 115 In
y = 5.093E-4 x - 2.737E-6
R 1.0000
DL 0.02061
BEC -0.005374



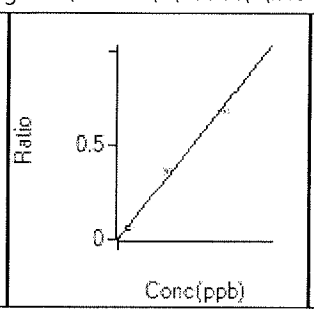
118 Sn [No Gas]
ISTD: 115 In
y = 1.420E-3 x + 7.076E-4
R 0.9997
DL 0.05052
BEC 0.4982



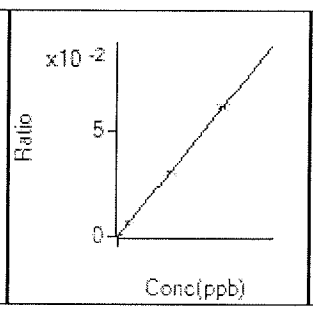
118 Sn [H2]
ISTD: 115 In
y = 1.350E-3 x + 6.217E-4
R 1.0000
DL 0.04305
BEC 0.4605



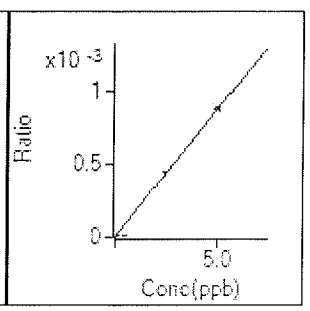
123 Sb [No Gas]
ISTD: 115 In
y = 1.631E-3 x + 3.079E-5
R 1.0000
DL 0.001608
BEC 0.01887



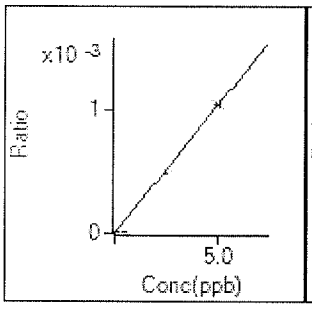
137 Ba [No Gas]
ISTD: 115 In
y = 6.920E-4 x + 1.100E-5
R 0.9995
DL 0.008031
BEC 0.0159



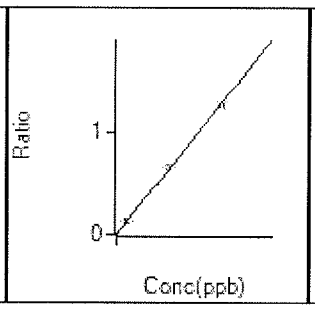
182 W [No Gas]
ISTD: 159 Tb
y = 1.214E-3 x + 7.033E-6
R 0.9999
DL 0.01156
BEC 0.005795



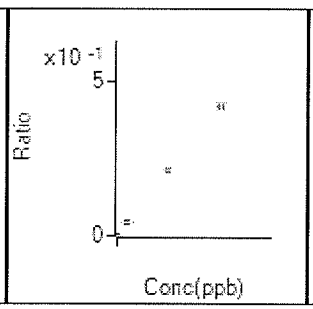
201 Hg [No Gas]
ISTD: 159 Tb
y = 1.753E-4 x + 1.571E-6
R 0.9960
DL 0.008665
BEC 0.008964



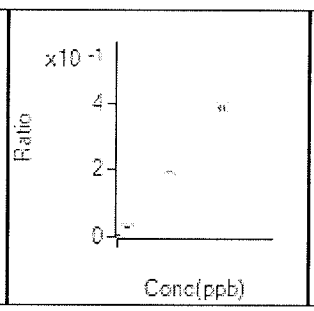
201 Hg [He]
ISTD: 159 Tb
y = 2.061E-4 x + 2.273E-6
R 0.9960
DL 0.001898
BEC 0.01103



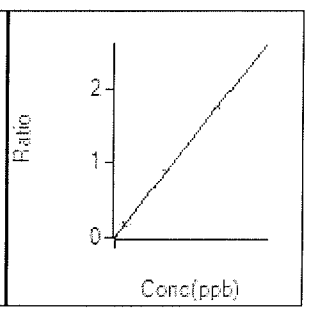
205 Tl [No Gas]
ISTD: 159 Tb
y = 2.567E-3 x + 4.334E-6
R 0.9998
DL 0.0003819
BEC 0.001688



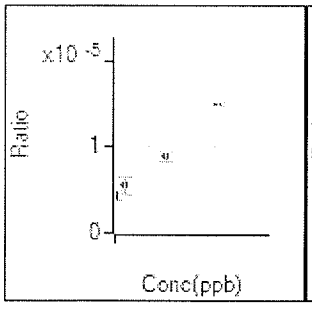
206 Pb [No Gas]
ISTD: 159 Tb
Excluded
R
DL
BEC



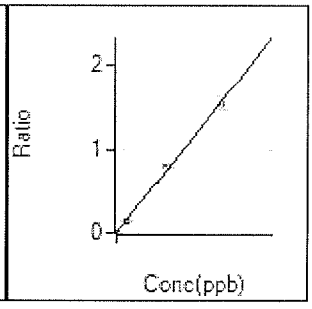
207 Pb [No Gas]
ISTD: 159 Tb
Excluded
R
DL
BEC



208 Pb [No Gas]
ISTD: 159 Tb
y = 3.475E-3 x + 1.691E-4
R 1.0000
DL 0.01514
BEC 0.04866



232 Th [No Gas]
ISTD: 159 Tb
Excluded
R
DL
BEC



238 U [No Gas]
ISTD: 159 Tb
y = 3.138E-3 x + 2.170E-6
R 0.9999
DL 0.001817
BEC 0.0006914

US EPA Tune Check Report

Operator Name	LVicto
Acq/Data Batch	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq. Date-Time	2019-12-12 10:09:26
Report Comment	---
Instrument Name	G8421A SG19253823

[No Gas]

Sensitivity

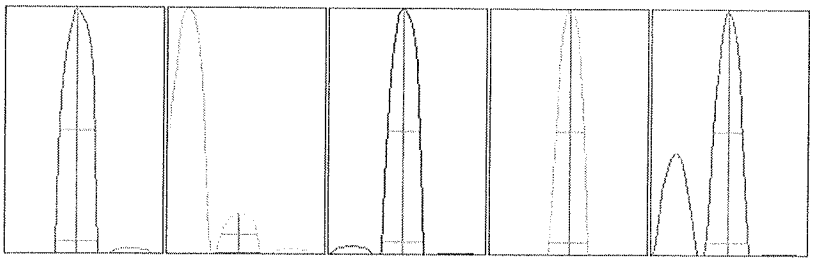
Mass	Conc. [ug/l]	Count	CPS	Resp (Required) [cps/ug/l]	Resp (Flag)	RSD%	RSD% (Required)
9	10.00	2055	20552.72			1.565	5.000
24	10.00	8424	84240.12			1.084	5.000
59	10.00	14808	148083.50			1.520	5.000
115	10.00	16741	167413.98			0.645	5.000
208	10.00	5586	55859.47			1.023	5.000

Mass	RSD% (Flag)
9	
24	
59	
115	
208	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
9	2029	2085	2021	2092	2049
24	8437	8463	8265	8494	8462
59	14678	14855	14489	15007	15014
115	16776	16640	16661	16910	16721
208	5609	5530	5520	5626	5644

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
9	3297.37	8.90	8.90 - 9.10	
24	13509.81	23.90	23.90 - 24.10	
59	24638.61	58.95	58.90 - 59.10	
115	31816.38	115.05	114.90 - 115.10	
208	10419.96	208.00	207.90 - 208.10	

US EPA Tune Check Report

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
9	0.66	0.788	0.900	
24	0.67	0.829	0.900	
59	0.63	0.787	0.900	
115	0.55	0.734	0.900	
208	0.57	0.803	0.900	

Integration Time [sec]	0.1
Acquisition Time [sec]	153.699999999999
Y Axis	Linear

Tune Parameters

Plasma Parameters

Plasma Mode	HMI	Nebulizer Gas	0.62 L/min	Dilution Gas	0.36 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.10 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	10.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	8.5 V	Deflect	12.0 V
Extract 2	-200.0 V	Cell Entrance	-30 V	Plate Bias	-35 V
Omega Bias	-90 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	No	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	0.0 mL/min	OctP RF	190 V		

QP Parameters

Mass Gain	124	Axis Gain	0.9995	QP Bias	-3.0 V
Mass Offset	123	Axis Offset	0.00		

Hardware Settings

Torch

Torch H	0.5 mm	Torch V	-0.2 mm		

EM

Discriminator	4.1 mV	Analog HV	2147 V	Pulse HV	1212 V

Calibration Blank Report

Sample Name	BLANK
File Name	H6L03001.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:31:06
Sample Type	CalBlk
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03001.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	132733.38	1.2
Na	23	45	H2	337126.23	0.4
K	39	45	He	112002.52	3.2

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD
Li	6	No Gas	2376203.06	10.5
Sc	45	No Gas	5513814.50	3.0
Sc	45	H2	2955480.83	0.7
Sc	45	He	501333.58	1.2
Ge	72	No Gas	1258615.37	3.1
Ge	72	H2	770176.73	0.7
Ge	72	He	297255.19	1.1
In	115	No Gas	6527036.56	2.3
Tb	159	No Gas	6939886.39	4.1
Tb	159	He	4396030.17	3.8

Calibration Blank Report

Sample Name	BLANK
File Name	H6L03002.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:34:19
Sample Type	CalBlk
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03002.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	129791.46	0.7
Na	23	45	H2	333375.43	0.5
K	39	45	He	112261.99	3.7

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD
Li	6	No Gas	2148744.95	4.8
Sc	45	No Gas	5439292.00	1.4
Sc	45	H2	2960680.92	4.8
Sc	45	He	501302.74	0.9
Ge	72	No Gas	1248696.04	3.8
Ge	72	H2	760237.02	0.8
Ge	72	He	296469.69	0.7
In	115	No Gas	6212994.72	2.4
Tb	159	No Gas	7075283.61	3.1
Tb	159	He	4488335.00	3.4

Calibration Blank Report

Sample Name	S0
File Name	H6L03003.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:36:58
Sample Type	CalBlk
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	129868.16	0.3
Na	23	45	H2	334503.76	0.3
K	39	45	He	111963.10	3.5

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD
Li	6	No Gas	2310764.06	3.5
Sc	45	No Gas	5435407.83	2.4
Sc	45	H2	3057879.58	1.5
Sc	45	He	505273.24	0.5
Ge	72	No Gas	1203548.54	0.7
Ge	72	H2	768618.71	0.2
Ge	72	He	296718.72	0.4
In	115	No Gas	6172829.62	2.0
Tb	159	No Gas	6668814.32	1.1
Tb	159	He	4400215.83	1.1

Calibration Standard Report

Sample Name	S1
File Name	H6L03004.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:39:38
Sample Type	CalStd
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	141738.26	0.6
Na	23	45	H2	569602.65	0.7
Mg	24	45	No Gas	779228.17	0.8
Al	27	45	No Gas	1021207.85	1.5
Si	28	45	H2	131600.53	0.5
K	39	45	He	154175.13	2.4
Ca	40	45	H2	545199.37	0.4
Fe	56	45	H2	802929.27	0.5
Zr	90	72	No Gas	106959.34	1.4

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2396504.02	6.1	2310764.06	103.71	60	120	
Sc	45	No Gas	5422347.17	2.3	5435407.83	99.76	60	120	
Sc	45	H2	3024729.00	2.9	3057879.58	98.92	60	120	
Sc	45	He	519088.60	2.0	505273.24	102.73	60	120	
Ge	72	No Gas	1266556.00	3.4	1203548.54	105.24	60	120	
Ge	72	H2	825379.42	0.2	768618.71	107.38	60	120	
Ge	72	He	319614.75	0.8	296718.72	107.72	60	120	
In	115	No Gas	6424333.22	3.2	6172829.62	104.07	60	120	
Tb	159	No Gas	6806320.29	4.6	6668814.32	102.06	60	120	
Tb	159	He	4453734.50	1.6	4400215.83	101.22	60	120	

Calibration Standard Report

Sample Name	S2
File Name	H6L03005.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:42:17
Sample Type	CalStd
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	198355.17	0.6
Na	23	45	H2	23258509.33	2.5
Mg	24	45	No Gas	74071562.67	2.1
Al	27	45	No Gas	92957171.95	1.6
Si	28	45	H2	625972.06	0.8
K	39	45	He	4432987.33	4.3
Ca	40	45	H2	47684616.00	2.6
Ti	47	45	No Gas	106230.47	1.0
V	51	45	He	333929.27	0.6
Cr	52	45	He	396028.20	0.6
Mn	55	45	No Gas	10357807.67	2.9
Fe	56	45	H2	77923914.67	3.5
Co	59	45	No Gas	1582161.21	0.9
Ni	60	45	He	148839.06	0.1
Cu	63	45	He	405036.82	1.0
Zn	66	72	No Gas	236045.85	0.5
Sr	88	72	No Gas	1684287.43	3.7
Zr	90	72	No Gas	177698.29	1.4
Mo	95	115	No Gas	317278.82	1.4
Mo	98	115	No Gas	504702.72	0.5
Cd	111	115	No Gas	163222.80	1.2
Sn	118	115	No Gas	454011.84	1.1
Sn	118	115	H2	433187.08	0.4
Sb	123	115	No Gas	102304.78	0.4
Ba	137	115	No Gas	421501.65	0.6
Tl	205	159	No Gas	885901.60	0.4
Pb	206	159	No Gas	304350.11	0.4
Pb	207	159	No Gas	265363.19	1.9
Pb	208	159	No Gas	1208399.04	0.5
U	238	159	No Gas	1045184.47	0.5

QC ISTD Table

Calibration Standard Report

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2451526.96	4.3	2310764.06	106.09	60	120	
Sc	45	No Gas	5470492.50	1.7	5435407.83	100.65	60	120	
Sc	45	H2	3205432.67	1.6	3057879.58	104.83	60	120	
Sc	45	He	509254.19	0.7	505273.24	100.79	60	120	
Ge	72	No Gas	1260304.87	6.2	1203548.54	104.72	60	120	
Ge	72	H2	828267.23	0.8	768618.71	107.76	60	120	
Ge	72	He	313612.20	0.5	296718.72	105.69	60	120	
In	115	No Gas	6553924.44	3.6	6172829.62	106.17	60	120	
Tb	159	No Gas	7067736.80	2.5	6668814.32	105.98	60	120	
Tb	159	He	4445977.50	1.0	4400215.83	101.04	60	120	

Calibration Standard Report

Sample Name	S3
File Name	H6L03006.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:45:16
Sample Type	CalStd
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	425390.07	0.5
B	11	6	No Gas	116497.59	0.5
Na	23	45	H2	110884770.67	3.4
Mg	24	45	No Gas	356929173.33	1.2
Al	27	45	No Gas	461528979.79	2.1
Si	28	45	H2	2923632.17	11.0
P	31	45	No Gas	318605.75	1.2
K	39	45	He	20853811.33	1.8
Ca	40	45	H2	228636506.67	3.5
Ti	47	45	No Gas	513469.23	1.1
V	51	45	He	1723436.87	5.8
Cr	52	45	He	1997905.58	3.1
Mn	55	45	No Gas	50849661.33	1.9
Fe	56	45	H2	373272682.67	2.6
Co	59	45	No Gas	7277162.83	5.4
Ni	60	45	He	719401.56	0.9
Cu	63	45	He	1990892.92	0.2
Zn	66	72	No Gas	1128786.62	1.1
As	75	72	He	313305.99	0.8
Se	78	72	H2	114323.93	0.2
Sr	88	72	No Gas	8526299.11	3.6
Zr	90	72	No Gas	515369.15	1.5
Mo	95	115	No Gas	1558624.04	2.4
Mo	98	115	No Gas	2562333.72	3.8
Ag	107	115	No Gas	390503.50	0.7
Cd	111	115	No Gas	784432.10	0.6
Sn	118	115	No Gas	2257281.72	1.3
Sn	118	115	H2	2129191.23	5.9
Sb	123	115	No Gas	498619.03	0.6
Ba	137	115	No Gas	2217132.83	6.3
W	182	159	No Gas	205944.33	2.3
Tl	205	159	No Gas	4617475.37	3.6
Pb	206	159	No Gas	1493830.13	2.1
Pb	207	159	No Gas	1310790.37	2.4
Pb	208	159	No Gas	6035891.98	1.2

Calibration Standard Report

Name	Mass	ISTD	Tune	CPS	RSD
U	238	159	No Gas	5563386.17	2.8

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2248273.96	2.0	2310764.06	97.3	60	120	
Sc	45	No Gas	5133988.50	4.5	5435407.83	94.45	60	120	
Sc	45	H2	2760043.50	2.3	3057879.58	90.26	60	120	
Sc	45	He	497230.19	0.7	505273.24	98.41	60	120	
Ge	72	No Gas	1226280.04	4.1	1203548.54	101.89	60	120	
Ge	72	H2	802037.73	1.0	768618.71	104.35	60	120	
Ge	72	He	306077.12	0.4	296718.72	103.15	60	120	
In	115	No Gas	6118575.05	1.3	6172829.62	99.12	60	120	
Tb	159	No Gas	6971238.47	3.0	6668814.32	104.53	60	120	
Tb	159	He	4566241.83	2.9	4400215.83	103.77	60	120	

Calibration Standard Report

Sample Name	S4
File Name	H6L03007.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:47:32
Sample Type	CalStd
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	733149.69	0.9
Be	9	6	No Gas	194612.15	0.0
B	11	6	No Gas	228990.78	0.2
Na	23	45	H2	221033530.67	2.2
Mg	24	45	No Gas	714440896.00	0.6
Al	27	45	No Gas	915698599.69	2.3
Si	28	45	H2	5846641.67	2.2
P	31	45	No Gas	607760.40	0.5
K	39	45	He	41757074.67	1.6
Ca	40	45	H2	464767733.33	2.1
Ti	47	45	No Gas	1072663.54	1.9
V	51	45	He	3531770.83	0.9
Cr	52	45	He	4074055.58	1.5
Mn	55	45	No Gas	99268125.33	0.8
Fe	56	45	H2	731642325.33	1.0
Co	59	45	No Gas	14528439.33	2.8
Ni	60	45	He	1491874.00	2.5
Cu	63	45	He	3927691.42	2.1
Zn	66	72	No Gas	2292164.92	0.8
As	75	72	He	621143.65	0.9
Se	78	72	H2	228486.52	0.5
Sr	88	72	No Gas	17140339.87	4.7
Zr	90	72	No Gas	1110469.80	3.1
Mo	95	115	No Gas	3202737.93	3.3
Mo	98	115	No Gas	5096085.63	2.5
[Cd]	106	115	No Gas	150714.82	0.2
Ag	107	115	No Gas	782728.16	0.6
[Cd]	108	115	No Gas	107445.82	1.1
Cd	111	115	No Gas	1566557.71	1.9
Sn	118	115	No Gas	4340410.52	1.5
Sn	118	115	H2	4161766.78	2.8
Sb	123	115	No Gas	1005832.43	1.5
Ba	137	115	No Gas	4215989.69	3.0
W	182	159	No Gas	431731.99	1.6
Tl	205	159	No Gas	8999530.47	0.6

Calibration Standard Report

Name	Mass	ISTD	Tune	CPS	RSD
Pb	206	159	No Gas	2976576.83	0.5
Pb	207	159	No Gas	2750655.27	1.5
Pb	208	159	No Gas	12294557.26	0.5
U	238	159	No Gas	10941469.57	4.8

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2366818.24	3.3	2310764.06	102.43	60	120	
Sc	45	No Gas	5468827.67	0.5	5435407.83	100.61	60	120	
Sc	45	H2	2803291.00	2.0	3057879.58	91.67	60	120	
Sc	45	He	492740.31	0.2	505273.24	97.52	60	120	
Ge	72	No Gas	1265235.00	1.1	1203548.54	105.13	60	120	
Ge	72	H2	807527.19	0.3	768618.71	105.06	60	120	
Ge	72	He	303889.18	0.7	296718.72	102.42	60	120	
In	115	No Gas	6162424.57	2.5	6172829.62	99.83	60	120	
Tb	159	No Gas	7083440.55	5.8	6668814.32	106.22	60	120	
Tb	159	He	4504016.83	5.1	4400215.83	102.36	60	120	

Initial Calibration Verification (ICV) Report

Sample Name	ICV
File Name	H6L03008.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:52:02
Sample Type	ICV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	29.471	ppb	2.8	482050.15	30	98.24	90	110	
Be	9	6	No Gas	30.260	ppb	3.3	117589.04	30	100.87	90	110	
B	11	6	No Gas	29.505	ppb	4.8	69366.68	30	98.35	90	110	
Na	23	45	H2	29879.414	ppb	4.1	132142050.67	30000	99.6	90	110	
Mg	24	45	No Gas	30642.934	ppb	7.6	434037696.00	30000	102.14	90	110	
Al	27	45	No Gas	29494.911	ppb	4.1	536269205.34	30000	98.32	90	110	
Si	28	45	H2	3061.307	ppb	4.4	3577853.92	3000	102.04	90	110	
P	31	45	No Gas	295.688	ppb	2.8	371282.38	300	98.56	90	110	
K	39	45	He	28789.502	ppb	1.6	23685937.33	30000	95.97	90	110	
Ca	40	45	H2	30016.611	ppb	1.2	278033002.67	30000	100.06	90	110	
Ti	47	45	No Gas	298.158	ppb	3.4	628261.52	300	99.39	90	110	
V	51	45	He	321.116	ppb	3.3	2220742.17	300	107.04	90	110	
Cr	52	45	He	317.421	ppb	1.4	2534373.00	300	105.81	90	110	
Mn	55	45	No Gas	1951.814	ppb	2.5	64347028.00	2000	97.59	90	110	
Fe	56	45	H2	30408.350	ppb	4.2	446408394.67	30000	101.36	90	110	
Co	59	45	No Gas	303.254	ppb	1.9	8736953.00	300	101.08	90	110	
Ni	60	45	He	303.201	ppb	1.3	883688.96	300	101.07	90	110	
Cu	63	45	He	323.324	ppb	0.9	2506946.42	300	107.77	90	110	
Zn	66	72	No Gas	301.125	ppb	7.0	1402947.42	300	100.37	90	110	
As	75	72	He	314.994	ppb	0.4	387161.95	300	105	90	110	
Se	78	72	H2	310.161	ppb	1.1	142847.77	300	103.39	90	110	
Sr	88	72	No Gas	292.864	ppb	6.9	10214490.98	300	97.62	90	110	
Zr	90	72	No Gas	29.614	ppb	4.9	656583.71	30	98.71	90	110	
Mo	95	115	No Gas	301.063	ppb	3.5	1976568.95	300	100.35	90	110	
Ag	107	115	No Gas	28.433	ppb	1.1	458953.59	30	94.78	90	110	
Cd	111	115	No Gas	303.823	ppb	1.8	981123.78	300	101.27	90	110	
Sn	118	115	No Gas	316.053	ppb	4.0	2852322.25	300	105.35	90	110	
Sb	123	115	No Gas	57.447	ppb	1.6	594418.62	60	95.74	90	110	
Ba	137	115	No Gas	308.759	ppb	1.7	1355280.57	300	102.92	90	110	
W	182	159	No Gas	29.625	ppb	1.1	255048.74	30	98.75	90	110	
Hg	201	159	He	3.028	ppb	1.9	2870.33	3	100.93	90	110	
Tl	205	159	No Gas	323.838	ppb	5.2	5898939.49	300	107.95	90	110	
Pb	208	159	No Gas	312.031	ppb	2.9	7694432.09	300	104.01	90	110	
U	238	159	No Gas	324.236	ppb	5.7	7220159.44	300	108.08	90	110	

Initial Calibration Verification (ICV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2326320.33	2.0	2310764.06	100.67	60	120	
Sc	45	No Gas	5347611.33	1.1	5435407.83	98.38	60	120	
Sc	45	H2	2794754.25	2.1	3057879.58	91.4	60	120	
Sc	45	He	485725.03	0.9	505273.24	96.13	60	120	
Ge	72	No Gas	1281673.79	1.8	1203548.54	106.49	60	120	
Ge	72	H2	812588.33	0.6	768618.71	105.72	60	120	
Ge	72	He	300543.30	0.6	296718.72	101.29	60	120	
In	115	No Gas	6342223.84	3.1	6172829.62	102.74	60	120	
Tb	159	No Gas	7092818.61	2.1	6668814.32	106.36	60	120	
Tb	159	He	4581811.83	0.5	4400215.83	104.13	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	ICB
File Name	H6L03009.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 10:54:17
Sample Type	ICB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	<0.000	ppb	N/A	130522.98	0.8	
Be	9	6	No Gas	0.003	ppb	78.9	34.44	0.08	
B	11	6	No Gas	0.513	ppb	15.1	4297.33	4	
Na	23	45	H2	5.258	ppb	89.8	346313.02	50	
Mg	24	45	No Gas	1.698	ppb	35.7	29464.83	20	
Al	27	45	No Gas	1.494	ppb	38.3	36374.42	15	
Si	28	45	H2	1.100	ppb	47.1	7344.61	8	
P	31	45	No Gas	0.145	ppb	271.0	39049.43	40	
K	39	45	He	<0.000	ppb	N/A	107222.47	25	
Ca	40	45	H2	0.906	ppb	48.7	72397.77	60	
Ti	47	45	No Gas	0.005	ppb	227.8	293.33	0.5	
V	51	45	He	<0.000	ppb	N/A	1380.07	0.5	
Cr	52	45	He	0.004	ppb	300.2	1785.45	0.25	
Mn	55	45	No Gas	0.184	ppb	29.0	17670.16	0.5	
Fe	56	45	H2	0.792	ppb	10.8	21106.94	25	
Co	59	45	No Gas	0.014	ppb	42.5	620.68	0.15	
Ni	60	45	He	0.003	ppb	46.1	88.67	0.5	
Cu	63	45	He	<0.000	ppb	N/A	5465.10	1	
Zn	66	72	No Gas	0.110	ppb	40.4	2119.50	10	
As	75	72	He	0.004	ppb	212.0	154.00	0.25	
Se	78	72	H2	0.056	ppb	35.6	34.33	0.2	
Sr	88	72	No Gas	0.013	ppb	52.8	986.71	0.3	
Zr	90	72	No Gas	0.004	ppb	51.6	166.67	5	
Mo	95	115	No Gas	0.033	ppb	28.6	244.45	0.2	
Ag	107	115	No Gas	<0.000	ppb	N/A	1198.94	0.08	
Cd	111	115	No Gas	0.058	ppb	36.8	176.97	0.2	
Sn	118	115	No Gas	0.211	ppb	4.6	6578.32	0.2	>LOD
Sb	123	115	No Gas	0.009	ppb	29.8	302.23	0.4	
Ba	137	115	No Gas	0.015	ppb	16.9	138.89	0.25	
W	182	159	No Gas	0.019	ppb	17.8	210.00	0.3	
Hg	201	159	He	0.010	ppb	22.0	19.67	0.1	
Tl	205	159	No Gas	0.155	ppb	27.6	2791.44	0.1	~~>LOD~~
Pb	208	159	No Gas	0.081	ppb	24.0	3142.38	0.1	
U	238	159	No Gas	0.014	ppb	33.1	326.67	0.05	

<1/2 LOQ
LV 12/12/19

Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2389247.06	1.3	2310764.06	103.4	60	120	
Sc	45	No Gas	5242357.67	1.0	5435407.83	96.45	60	120	
Sc	45	H2	2949587.42	6.1	3057879.58	96.46	60	120	
Sc	45	He	484263.93	0.9	505273.24	95.84	60	120	
Ge	72	No Gas	1229575.83	1.1	1203548.54	102.16	60	120	
Ge	72	H2	770640.92	0.9	768618.71	100.26	60	120	
Ge	72	He	293809.13	0.8	296718.72	99.02	60	120	
In	115	No Gas	6533255.46	2.4	6172829.62	105.84	60	120	
Tb	159	No Gas	7022622.92	7.5	6668814.32	105.31	60	120	
Tb	159	He	4584267.33	2.5	4400215.83	104.18	60	120	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	MRLL1201
File Name	H6L03010.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:56:41
Sample Type	LLCCV
Total Dilution	1.0000
Comment	1/100/10 ppb
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Li	7	6	No Gas	0.808	ppb	41.6	144892.54	1	80.8	80	120	
Be	9	6	No Gas	1.028	ppb	2.0	4143.95	1	102.8	80	120	
B	11	6	No Gas	9.706	ppb	1.5	25647.88	10	97.06	80	120	
Na	23	45	H2	101.946	ppb	7.3	815152.11	100	101.95	80	120	
Mg	24	45	No Gas	110.057	ppb	9.0	1557921.09	100	110.06	80	120	
Al	27	45	No Gas	113.694	ppb	2.2	2067218.61	100	113.69	80	120	
Si	28	45	H2	98.922	ppb	1.8	130760.02	100	98.92	80	120	
P	31	45	No Gas	50.702	ppb	2.6	96088.29	50	101.4	80	120	
K	39	45	He	88.199	ppb	4.9	182114.12	100	88.2	80	120	
Ca	40	45	H2	101.805	ppb	3.5	1082177.71	100	101.8	80	120	
Ti	47	45	No Gas	1.054	ppb	4.1	2496.23	1	105.4	80	120	
V	51	45	He	0.803	ppb	3.7	7992.33	1	80.3	80	120	
Cr	52	45	He	0.960	ppb	2.5	9535.98	1	96	80	120	
Mn	55	45	No Gas	1.101	ppb	1.7	48054.90	1	110.1	80	120	
Fe	56	45	H2	103.592	ppb	4.2	1650595.50	100	103.59	80	120	
Co	59	45	No Gas	1.036	ppb	2.7	29946.17	1	103.6	80	120	
Ni	60	45	He	1.011	ppb	2.6	3065.01	1	101.1	80	120	
Cu	63	45	He	0.922	ppb	3.7	12938.15	1	92.2	80	120	
Zn	66	72	No Gas	10.994	ppb	0.7	51174.91	10	109.94	80	120	
As	75	72	He	0.984	ppb	0.1	1395.74	1	98.4	80	120	
Se	78	72	H2	1.090	ppb	3.1	516.68	1	109	80	120	
Sr	88	72	No Gas	2.087	ppb	2.6	71018.90	2	104.35	80	120	
Zr	90	72	No Gas	4.906	ppb	0.8	105360.61	5	98.12	80	120	
Mo	95	115	No Gas	0.983	ppb	5.9	6616.10	1	98.3	80	120	
Ag	107	115	No Gas	1.035	ppb	4.2	18235.90	1	103.5	80	120	
Cd	111	115	No Gas	1.035	ppb	0.3	3395.26	1	103.5	80	120	
Sn	118	115	No Gas	0.882	ppb	4.1	12696.13	1	88.2	80	120	
Sb	123	115	No Gas	0.988	ppb	3.7	10641.00	1	98.8	80	120	
Ba	137	115	No Gas	0.992	ppb	0.4	4519.68	1	99.2	80	120	
W	182	159	No Gas	1.914	ppb	5.8	16901.39	2	95.7	80	120	
Hg	201	159	He	0.102	ppb	3.0	108.50	0.1	102	80	120	
Tl	205	159	No Gas	1.050	ppb	0.6	19584.26	1	105	80	120	
Pb	208	159	No Gas	1.032	ppb	2.1	27239.51	1	103.2	80	120	
U	238	159	No Gas	0.963	ppb	3.7	21942.96	1	96.3	80	120	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2401554.10	5.0	2310764.06	103.93	60	120	
Sc	45	No Gas	5324179.00	1.7	5435407.83	97.95	60	120	
Sc	45	H2	3016062.08	2.1	3057879.58	98.63	60	120	
Sc	45	He	491718.24	0.8	505273.24	97.32	60	120	
Ge	72	No Gas	1239863.62	2.2	1203548.54	103.02	60	120	
Ge	72	H2	818934.08	0.4	768618.71	106.55	60	120	
Ge	72	He	307961.63	1.0	296718.72	103.79	60	120	
In	115	No Gas	6476848.97	1.4	6172829.62	104.93	60	120	
Tb	159	No Gas	7255073.32	0.8	6668814.32	108.79	60	120	
Tb	159	He	4656928.00	1.1	4400215.83	105.83	60	120	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	MRLL1202
File Name	H6L03011.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 10:58:59
Sample Type	LLCCV2
Total Dilution	1.0000
Comment	0.4/40/4 ppb
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Li	7	6	No Gas	0.373	ppb	59.0	134496.72	0.4	93.25	80	120	
Be	9	6	No Gas	0.404	ppb	6.4	1577.87	0.4	101	80	120	
B	11	6	No Gas	0.701	ppb	14.8	4578.53	0.4	175.25	80	120	> +/- 20%
Na	23	45	H2	35.388	ppb	5.4	502681.46	40	88.47	80	120	
Mg	24	45	No Gas	39.282	ppb	2.3	571271.62	40	98.2	80	120	
Al	27	45	No Gas	38.483	ppb	2.0	720995.82	40	96.21	80	120	
K	39	45	He	37.156	ppb	14.9	137606.53	40	92.89	80	120	
Ca	40	45	H2	33.968	ppb	2.8	407939.24	40	84.92	80	120	
Ti	47	45	No Gas	0.362	ppb	9.9	1068.71	0.4	90.5	80	120	
V	51	45	He	0.226	ppb	5.6	3898.55	0.4	56.5	80	120	> +/- 20%
Cr	52	45	He	0.348	ppb	7.3	4520.08	0.4	87	80	120	
Mn	55	45	No Gas	0.397	ppb	4.8	25479.04	0.4	99.25	80	120	
Fe	56	45	H2	36.915	ppb	2.2	599141.23	40	92.29	80	120	
Co	59	45	No Gas	0.380	ppb	2.0	11367.42	0.4	95	80	120	
Ni	60	45	He	0.385	ppb	1.5	1197.39	0.4	96.25	80	120	
Cu	63	45	He	0.465	ppb	6.9	9211.12	0.4	116.25	80	120	
Zn	66	72	No Gas	4.107	ppb	4.0	20560.21	4	102.68	80	120	
As	75	72	He	0.392	ppb	4.8	622.68	0.4	98	80	120	
Se	78	72	H2	0.422	ppb	7.0	197.00	0.4	105.5	80	120	
Sr	88	72	No Gas	0.382	ppb	2.0	13710.37	0.4	95.5	80	120	
Mo	95	115	No Gas	0.353	ppb	1.8	2440.23	0.4	88.25	80	120	
Ag	107	115	No Gas	0.381	ppb	1.6	7643.33	0.4	95.25	80	120	
Cd	111	115	No Gas	0.365	ppb	3.5	1211.69	0.4	91.25	80	120	
Sn	118	115	No Gas	0.398	ppb	11.1	8410.48	0.4	99.5	80	120	
Sb	123	115	No Gas	0.365	ppb	2.9	4137.32	0.4	91.25	80	120	
Ba	137	115	No Gas	0.384	ppb	1.3	1827.91	0.4	96	80	120	
Tl	205	159	No Gas	0.416	ppb	9.4	7634.57	0.4	104	80	120	
Pb	208	159	No Gas	0.406	ppb	6.9	11265.36	0.4	101.5	80	120	
U	238	159	No Gas	0.366	ppb	6.9	8202.76	0.4	91.5	80	120	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2314021.85	4.5	2310764.06	100.14	60	120	
Sc	45	No Gas	5435706.67	4.0	5435407.83	100.01	60	120	

Low Level Continuing Calibration Verification (LLCCV) Report

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	H2	3041672.67	2.0	3057879.58	99.47	60	120	
Sc	45	He	483976.89	1.6	505273.24	95.79	60	120	
Ge	72	No Gas	1266799.17	4.8	1203548.54	105.26	60	120	
Ge	72	H2	782014.85	1.0	768618.71	101.74	60	120	
Ge	72	He	295088.50	0.4	296718.72	99.45	60	120	
In	115	No Gas	6612797.12	1.2	6172829.62	107.13	60	120	
Tb	159	No Gas	7138320.83	4.9	6668814.32	107.04	60	120	
Tb	159	He	4529632.17	1.1	4400215.83	102.94	60	120	

Interference Check Solution A (ICS-A) Report

Sample Name	ICSA
File Name	H6L03012.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:01:22
Sample Type	ICS-A
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Low	%High	QC Flag
Na	23	45	H2	103052.476	ppb	1.0	435208917.33	100000	80	120	
Mg	24	45	No Gas	98873.795	ppb	2.0	1394273365.33	100000	80	120	
Al	27	45	No Gas	100864.732	ppb	5.1	1825739706.13	100000	80	120	
P	31	45	No Gas	94245.875	ppb	2.9	105254376.00	100000	80	120	
K	39	45	He	99478.389	ppb	0.9	81837032.00	100000	80	120	
Ca	40	45	H2	106208.026	ppb	3.3	940120810.67	100000	80	120	
Ti	47	45	No Gas	2083.080	ppb	0.2	4367403.50	2000	80	120	
Fe	56	45	H2	107527.695	ppb	2.3	1509809621.33	100000	80	120	
Mo	95	115	No Gas	1998.463	ppb	3.3	12456085.34	2000	80	120	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2251566.69	3.1	2310764.06	97.44	60	120	
Sc	45	No Gas	5324307.00	3.1	5435407.83	97.96	60	120	
Sc	45	H2	2672161.67	1.5	3057879.58	87.39	60	120	
Sc	45	He	487232.46	0.8	505273.24	96.43	60	120	
Ge	72	No Gas	1246510.17	1.9	1203548.54	103.57	60	120	
Ge	72	H2	781487.98	1.0	768618.71	101.67	60	120	
Ge	72	He	296746.27	0.7	296718.72	100.01	60	120	
In	115	No Gas	6019033.48	0.6	6172829.62	97.51	60	120	
Tb	159	No Gas	7183712.35	5.3	6668814.32	107.72	60	120	
Tb	159	He	4497710.50	3.8	4400215.83	102.22	60	120	

Interference Check Solution AB (ICS-AB) Report

Sample Name	ICSAB
File Name	H6L03013.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:03:37
Sample Type	ICSB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Low	%High	QC Flag
Li	7	6	No Gas	21.658	ppb	4.9	348247.54	20	80	120	
Be	9	6	No Gas	21.431	ppb	3.5	74583.04	20	80	120	
B	11	6	No Gas	21.424	ppb	4.0	45842.44	20	80	120	
Na	23	45	H2	98598.007	ppb	1.0	430959893.33	100000	80	120	
Mg	24	45	No Gas	94733.913	ppb	5.9	1343526442.67	100000	80	120	
Al	27	45	No Gas	95493.235	ppb	6.0	1738640507.43	100000	80	120	
Si	28	45	H2	196.911	ppb	2.1	233024.72	200	80	120	
P	31	45	No Gas	93728.988	ppb	4.9	105344173.33	100000	80	120	
K	39	45	He	98314.069	ppb	2.3	79637074.67	100000	80	120	
Ca	40	45	H2	101926.853	ppb	1.2	934052608.00	100000	80	120	
Ti	47	45	No Gas	2003.084	ppb	6.7	4225065.67	2000	80	120	
V	51	45	He	18.397	ppb	0.8	127833.61	20	80	120	
Cr	52	45	He	19.014	ppb	0.8	151598.21	20	80	120	
Mn	55	45	No Gas	19.230	ppb	5.6	646864.00	20	80	120	
Fe	56	45	H2	101422.627	ppb	3.8	1473024426.67	100000	80	120	
Co	59	45	No Gas	19.021	ppb	6.1	549120.67	20	80	120	
Ni	60	45	He	19.231	ppb	1.4	55439.00	20	80	120	
Cu	63	45	He	19.200	ppb	1.1	152303.22	20	80	120	
Zn	66	72	No Gas	19.867	ppb	1.4	91194.50	20	80	120	
As	75	72	He	19.398	ppb	2.7	23934.50	20	80	120	
Se	78	72	H2	20.375	ppb	0.9	9039.69	20	80	120	
Sr	88	72	No Gas	19.928	ppb	0.8	673838.36	20	80	120	
Zr	90	72	No Gas	3.826	ppb	1.8	82225.83	20	80	120	> +/- 20%
Mo	95	115	No Gas	2030.752	ppb	3.1	12633813.11	2000	80	120	
Ag	107	115	No Gas	19.602	ppb	2.4	300144.72	20	80	120	
Cd	111	115	No Gas	19.728	ppb	1.1	60354.88	20	80	120	
Sn	118	115	No Gas	20.775	ppb	2.5	181534.79	20	80	120	
Sb	123	115	No Gas	20.169	ppb	2.2	197861.39	20	80	120	
Ba	137	115	No Gas	19.839	ppb	1.6	82546.86	20	80	120	
W	182	159	No Gas	20.015	ppb	1.2	166407.65	20	80	120	
Hg	201	159	He	1.935	ppb	0.7	1856.14	2	80	120	
Tl	205	159	No Gas	19.488	ppb	1.9	342673.03	20	80	120	
Pb	208	159	No Gas	19.547	ppb	2.0	466362.15	20	80	120	
U	238	159	No Gas	19.663	ppb	2.1	422648.80	20	80	120	

Interference Check Solution AB (ICS-AB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2083579.75	1.8	2310764.06	90.17	60	120	
Sc	45	No Gas	5363232.83	3.5	5435407.83	98.67	60	120	
Sc	45	H2	2765243.58	2.8	3057879.58	90.43	60	120	
Sc	45	He	479760.76	0.4	505273.24	94.95	60	120	
Ge	72	No Gas	1240729.04	3.1	1203548.54	103.09	60	120	
Ge	72	H2	781958.10	0.5	768618.71	101.74	60	120	
Ge	72	He	299997.41	1.7	296718.72	101.1	60	120	
In	115	No Gas	6008352.56	1.7	6172829.62	97.34	60	120	
Tb	159	No Gas	6849270.14	0.3	6668814.32	102.71	60	120	
Tb	159	He	4627908.33	1.7	4400215.83	105.17	60	120	

Sample Report

Sample Name	MRLL1203
File Name	H6L03014.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:05:52
Sample Type	Sample
Total Dilution	1.0000
Comment	0.1 ppb Hg
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	0.057	0.057	ppb	536.8	123548.64	50	
Be	9	6	No Gas	0.001	0.001	ppb	433.2	22.22	50	
B	11	6	No Gas	0.142	0.142	ppb	50.6	3147.02	100	
Na	23	45	H2	13.400	13.400	ppb	22.7	413463.90	50000	
Mg	24	45	No Gas	7.326	7.326	ppb	14.1	110540.57	50000	
Al	27	45	No Gas	6.813	6.813	ppb	15.1	134749.37	50000	
Si	28	45	H2	<0.000	<0.000	ppb	N/A	6279.42	5000	
P	31	45	No Gas	2.291	2.291	ppb	45.3	42539.73	500	
K	39	45	He	6.429	6.429	ppb	79.9	116242.27	50000	
Ca	40	45	H2	4.920	4.920	ppb	6.4	120054.97	50000	
Ti	47	45	No Gas	0.125	0.125	ppb	27.1	554.68	500	
V	51	45	He	<0.000	<0.000	ppb	N/A	1298.73	500	
Cr	52	45	He	<0.000	<0.000	ppb	N/A	1594.09	500	
Mn	55	45	No Gas	0.068	0.068	ppb	13.1	14318.82	3000	
Fe	56	45	H2	5.565	5.565	ppb	3.1	102180.08	50000	
Co	59	45	No Gas	<0.000	<0.000	ppb	N/A	183.33	500	
Ni	60	45	He	<0.000	<0.000	ppb	N/A	65.33	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	3941.24	500	
Zn	66	72	No Gas	0.733	0.733	ppb	7.6	4886.88	500	
As	75	72	He	<0.000	<0.000	ppb	N/A	117.00	500	
Se	78	72	H2	0.018	0.018	ppb	45.8	18.67	500	
Sr	88	72	No Gas	0.003	0.003	ppb	43.7	633.35	500	
Zr	90	72	No Gas	0.002	0.002	ppb	50.7	133.33	50	
Mo	95	115	No Gas	0.176	0.176	ppb	17.7	1253.40	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	1132.27	50	
Cd	111	115	No Gas	0.008	0.008	ppb	27.1	8.60	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	4182.90	500	
Sb	123	115	No Gas	0.006	0.006	ppb	8.9	274.45	100	
Ba	137	115	No Gas	0.011	0.011	ppb	64.5	123.33	1000	
W	182	159	No Gas	0.010	0.010	ppb	31.4	140.00	50	
Hg	201	159	He	0.106	0.106	ppb	2.9	111.33	5	
Tl	205	159	No Gas	0.023	0.023	ppb	17.1	443.34	500	
Pb	208	159	No Gas	0.036	0.036	ppb	9.8	2114.52	500	
U	238	159	No Gas	0.001	0.001	ppb	19.0	33.33	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2186526.66	3.5	2310764.06	94.62	60	120	
Sc	45	No Gas	5385171.33	0.8	5435407.83	99.08	60	120	
Sc	45	H2	3168728.50	2.9	3057879.58	103.63	60	120	
Sc	45	He	499948.14	1.0	505273.24	98.95	60	120	
Ge	72	No Gas	1225432.96	0.8	1203548.54	101.82	60	120	
Ge	72	H2	799229.44	1.4	768618.71	103.98	60	120	
Ge	72	He	301908.35	0.9	296718.72	101.75	60	120	
In	115	No Gas	6734558.64	0.5	6172829.62	109.1	60	120	
Tb	159	No Gas	7149197.22	2.1	6668814.32	107.2	60	120	
Tb	159	He	4634772.67	1.7	4400215.83	105.33	60	120	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV1
File Name	H6L03015.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:08:16
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	24.510	ppb	2.8	402951.39	25	98.04	90	110	
Be	9	6	No Gas	25.171	ppb	3.3	93198.62	25	100.68	90	110	
B	11	6	No Gas	48.734	ppb	4.6	107286.08	50	97.47	90	110	
Na	23	45	H2	25246.448	ppb	5.9	115228146.67	25000	100.99	90	110	
Mg	24	45	No Gas	25400.595	ppb	6.5	358093088.00	25000	101.6	90	110	
Al	27	45	No Gas	24697.372	ppb	8.0	446803846.68	25000	98.79	90	110	
Si	28	45	H2	2517.680	ppb	7.9	3035900.67	2500	100.71	90	110	
P	31	45	No Gas	240.187	ppb	6.8	307685.66	250	96.07	90	110	
K	39	45	He	25029.798	ppb	2.4	21194888.00	25000	100.12	90	110	
Ca	40	45	H2	24941.709	ppb	2.5	238342842.67	25000	99.77	90	110	
Ti	47	45	No Gas	241.635	ppb	6.1	506909.06	250	96.65	90	110	
V	51	45	He	258.476	ppb	2.5	1838616.00	250	103.39	90	110	
Cr	52	45	He	252.682	ppb	3.4	2076288.21	250	101.07	90	110	
Mn	55	45	No Gas	1564.370	ppb	4.8	51364888.00	1500	104.29	90	110	
Fe	56	45	H2	25063.636	ppb	3.5	379767040.00	25000	100.25	90	110	
Co	59	45	No Gas	250.133	ppb	8.1	7171867.67	250	100.05	90	110	
Ni	60	45	He	242.633	ppb	1.8	727403.89	250	97.05	90	110	
Cu	63	45	He	261.467	ppb	5.7	2085727.04	250	104.59	90	110	
Zn	66	72	No Gas	240.455	ppb	4.0	1131244.41	250	96.18	90	110	
As	75	72	He	248.155	ppb	0.7	313980.57	250	99.26	90	110	
Se	78	72	H2	255.865	ppb	1.1	117494.11	250	102.35	90	110	
Sr	88	72	No Gas	243.646	ppb	2.8	8579444.94	250	97.46	90	110	
Zr	90	72	No Gas	23.922	ppb	2.5	535369.64	25	95.69	90	110	
Mo	95	115	No Gas	239.743	ppb	3.8	1602297.30	250	95.9	90	110	
Ag	107	115	No Gas	24.000	ppb	0.5	394477.70	25	96	90	110	
Cd	111	115	No Gas	245.286	ppb	1.1	806264.72	250	98.11	90	110	
Sn	118	115	No Gas	253.360	ppb	2.6	2327375.60	250	101.34	90	110	
Sb	123	115	No Gas	48.117	ppb	2.4	506708.70	50	96.23	90	110	
Ba	137	115	No Gas	492.643	ppb	2.1	2200652.48	500	98.53	90	110	
W	182	159	No Gas	24.205	ppb	2.1	208519.54	25	96.82	90	110	
Hg	201	159	He	2.538	ppb	3.1	2436.90	2.5	101.52	90	110	
Tl	205	159	No Gas	258.536	ppb	2.7	4710003.56	250	103.41	90	110	
Pb	208	159	No Gas	252.752	ppb	4.1	6235160.23	250	101.1	90	110	
U	238	159	No Gas	251.531	ppb	4.1	5599454.22	250	100.61	90	110	

Continuing Calibration Verification (CCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2216586.91	2.1	2310764.06	95.92	60	120	
Sc	45	No Gas	5333483.67	4.1	5435407.83	98.12	60	120	
Sc	45	H2	2883979.42	2.1	3057879.58	94.31	60	120	
Sc	45	He	499640.25	1.1	505273.24	98.89	60	120	
Ge	72	No Gas	1293174.96	1.3	1203548.54	107.45	60	120	
Ge	72	H2	810164.46	0.3	768618.71	105.41	60	120	
Ge	72	He	309359.08	0.7	296718.72	104.26	60	120	
In	115	No Gas	6454271.73	1.6	6172829.62	104.56	60	120	
Tb	159	No Gas	7100809.30	3.7	6668814.32	106.48	60	120	
Tb	159	He	4641692.67	3.9	4400215.83	105.49	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB1
File Name	H6L03016.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 11:10:31
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	<0.000	ppb	N/A	125165.15	0.8	
Be	9	6	No Gas	0.004	ppb	93.3	34.44	0.08	
B	11	6	No Gas	0.394	ppb	28.9	3853.86	4	
Na	23	45	H2	7.176	ppb	14.5	372044.36	50	
Mg	24	45	No Gas	1.354	ppb	31.6	26090.19	20	
Al	27	45	No Gas	1.161	ppb	37.6	32159.05	15	
Si	28	45	H2	0.043	ppb	87.4	6338.78	8	
P	31	45	No Gas	<0.000	ppb	N/A	36637.53	40	
K	39	45	He	0.282	ppb	1701.6	110305.63	25	
Ca	40	45	H2	0.341	ppb	23.9	70043.67	60	
Ti	47	45	No Gas	0.001	ppb	3006.9	300.00	0.5	
V	51	45	He	<0.000	ppb	N/A	1408.74	0.5	
Cr	52	45	He	<0.000	ppb	N/A	1590.76	0.25	
Mn	55	45	No Gas	0.117	ppb	31.3	16444.57	0.5	
Fe	56	45	H2	0.792	ppb	5.4	22112.54	25	
Co	59	45	No Gas	0.009	ppb	52.0	485.34	0.15	
Ni	60	45	He	<0.000	ppb	N/A	74.00	0.5	
Cu	63	45	He	<0.000	ppb	N/A	4492.74	1	
Zn	66	72	No Gas	0.074	ppb	80.8	1990.82	10	
As	75	72	He	<0.000	ppb	N/A	125.00	0.25	
Se	78	72	H2	0.034	ppb	14.7	25.33	0.2	
Sr	88	72	No Gas	0.008	ppb	42.8	830.02	0.3	
Zr	90	72	No Gas	0.002	ppb	65.4	140.00	5	
Mo	95	115	No Gas	0.028	ppb	29.1	214.45	0.2	
Ag	107	115	No Gas	<0.000	ppb	N/A	1242.28	0.08	
Cd	111	115	No Gas	0.033	ppb	25.6	92.69	0.2	
Sn	118	115	No Gas	0.153	ppb	17.1	6118.10	0.2	
Sb	123	115	No Gas	0.011	ppb	10.6	327.78	0.4	
Ba	137	115	No Gas	0.021	ppb	47.6	170.00	0.25	
W	182	159	No Gas	0.010	ppb	23.3	130.00	0.3	
Hg	201	159	He	0.007	ppb	57.8	17.33	0.1	
Tl	205	159	No Gas	0.088	ppb	22.5	1585.66	0.1	
Pb	208	159	No Gas	0.057	ppb	15.4	2525.67	0.1	
U	238	159	No Gas	0.011	ppb	38.8	255.56	0.05	

Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2288440.93	0.5	2310764.06	99.03	60	120	
Sc	45	No Gas	5553935.50	1.9	5435407.83	102.18	60	120	
Sc	45	H2	3081496.75	0.9	3057879.58	100.77	60	120	
Sc	45	He	496674.56	0.1	505273.24	98.3	60	120	
Ge	72	No Gas	1249148.08	1.0	1203548.54	103.79	60	120	
Ge	72	H2	784823.17	1.2	768618.71	102.11	60	120	
Ge	72	He	298252.92	0.5	296718.72	100.52	60	120	
In	115	No Gas	6621367.13	3.1	6172829.62	107.27	60	120	
Tb	159	No Gas	6898989.73	3.4	6668814.32	103.45	60	120	
Tb	159	He	4608599.17	0.6	4400215.83	104.74	60	120	

Blank Report

Sample Name	IML008WB
File Name	H6L03017.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 11:12:54
Sample Type	Blank
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	<0.000	ppb	N/A	130749.90	0.8	
Be	9	6	No Gas	0.001	ppb	346.3	26.67	0.08	
B	11	6	No Gas	0.271	ppb	33.5	3713.83	4	
Na	23	45	H2	41.434	ppb	7.8	555901.75	50	
Mg	24	45	No Gas	11.700	ppb	3.2	174903.40	20	
Al	27	45	No Gas	2.225	ppb	2.0	51327.95	15	
Si	28	45	H2	1.887	ppb	25.6	8985.71	8	
P	31	45	No Gas	<0.000	ppb	N/A	35416.39	40	
K	39	45	He	1.707	ppb	387.7	113611.08	25	
Ca	40	45	H2	51.807	ppb	3.1	614444.38	60	
Ti	47	45	No Gas	0.069	ppb	3.0	442.01	0.5	
V	51	45	He	<0.000	ppb	N/A	1078.04	0.5	
Cr	52	45	He	0.022	ppb	9.6	2018.82	0.25	
Mn	55	45	No Gas	0.129	ppb	7.0	16515.96	0.5	
Fe	56	45	H2	3.056	ppb	4.7	60622.74	25	
Co	59	45	No Gas	0.003	ppb	36.7	306.67	0.15	
Ni	60	45	He	0.070	ppb	7.0	297.33	0.5	
Cu	63	45	He	<0.000	ppb	N/A	4084.61	1	
Zn	66	72	No Gas	5.134	ppb	3.4	25356.32	10	
As	75	72	He	<0.000	ppb	N/A	93.00	0.25	
Se	78	72	H2	0.029	ppb	16.7	24.33	0.2	
Sr	88	72	No Gas	0.309	ppb	4.1	11243.62	0.3	>1/2LOQ
Zr	90	72	No Gas	0.007	ppb	34.3	233.33	5	
Mo	95	115	No Gas	0.023	ppb	17.5	181.11	0.2	
Mo	98	115	No Gas	0.014	ppb	4.7	288.89	0.2	
Ag	107	115	No Gas	<0.000	ppb	N/A	82.22	0.08	
Cd	111	115	No Gas	0.020	ppb	8.3	49.52	0.2	
Sn	118	115	No Gas	<0.000	ppb	N/A	2520.25	0.2	
Sb	123	115	No Gas	0.020	ppb	7.5	423.34	0.4	
Ba	137	115	No Gas	0.202	ppb	5.4	993.37	0.25	
W	182	159	No Gas	0.003	ppb	155.1	73.33	0.3	
Hg	201	159	No Gas	0.009	ppb	17.5	22.33	0.1	
Hg	201	159	He	0.006	ppb	37.5	16.33	0.1	
Tl	205	159	No Gas	0.032	ppb	12.9	616.68	0.1	

Blank Report

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Pb	208	159	No Gas	0.057	ppb	18.2	2606.78	0.1	
U	238	159	No Gas	0.002	ppb	31.7	58.89	0.05	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2376107.10	4.8	2310764.06	102.83	60	120	
Sc	45	No Gas	5446761.33	1.4	5435407.83	100.21	60	120	
Sc	45	H2	3180948.83	2.8	3057879.58	104.02	60	120	
Sc	45	He	506242.19	1.9	505273.24	100.19	60	120	
Ge	72	No Gas	1269900.67	4.3	1203548.54	105.51	60	120	
Ge	72	H2	832420.29	0.3	768618.71	108.3	60	120	
Ge	72	He	312427.29	0.6	296718.72	105.29	60	120	
In	115	No Gas	6597835.80	3.2	6172829.62	106.89	60	120	
Tb	159	No Gas	7099865.83	5.1	6668814.32	106.46	60	120	
Tb	159	He	4786288.50	3.0	4400215.83	108.77	60	120	

Laboratory Control Sample (LCS) Report

Sample Name	IML008WL
File Name	H6L03018.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 11:15:17
Sample Type	LCSW
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	28.194	ppb	5.2	469195.42	30	93.98	85	115	
Be	9	6	No Gas	28.546	ppb	4.0	111489.44	30	95.15	83	121	
B	11	6	No Gas	27.197	ppb	6.0	64474.55	30	90.66	85	115	
Na	23	45	H2	2769.214	ppb	2.8	14108263.67	3000	92.31	85	117	
Mg	24	45	No Gas	2741.759	ppb	3.0	41989198.67	3000	91.39	83	118	
Al	27	45	No Gas	2687.752	ppb	3.5	52776787.55	3000	89.59	84	117	
Si	28	45	H2	0.809	ppb	9.5	7480.68	3000	0.03	85	115	DOD LIMIT
P	31	45	No Gas	<0.000	ppb	N/A	35866.22	300	-1.93	85	115	DOD LIMIT
K	39	45	He	3161.886	ppb	2.2	2813169.42	3000	105.4	87	115	
Ca	40	45	H2	2772.992	ppb	1.9	28979070.67	3000	92.43	87	118	
Ti	47	45	No Gas	26.336	ppb	2.3	60247.28	30	87.79	85	115	
V	51	45	He	26.275	ppb	0.2	191727.46	30	87.58	86	115	
Cr	52	45	He	27.672	ppb	0.2	232115.03	30	92.24	85	116	
Mn	55	45	No Gas	28.156	ppb	1.8	1015863.10	30	93.85	87	115	
Fe	56	45	H2	2810.752	ppb	3.5	46480513.33	3000	93.69	87	118	
Co	59	45	No Gas	27.357	ppb	1.8	851991.69	30	91.19	86	115	
Ni	60	45	He	28.304	ppb	0.6	86116.22	30	94.35	85	117	
Cu	63	45	He	28.681	ppb	0.1	237303.68	30	95.6	85	118	
Zn	66	72	No Gas	59.299	ppb	1.0	280822.53	60	98.83	83	119	
As	75	72	He	28.690	ppb	1.2	36992.87	30	95.63	84	116	
Se	78	72	H2	29.262	ppb	0.6	13826.08	30	97.54	80	120	
Sr	88	72	No Gas	27.614	ppb	1.0	974777.53	30	92.05	85	115	
Zr	90	72	No Gas	0.015	ppb	25.3	423.34	30	0.05	85	115	DOD LIMIT
Mo	95	115	No Gas	26.341	ppb	0.8	180455.35	30	87.8	85	115	
Ag	107	115	No Gas	27.815	ppb	0.8	468435.08	30	92.72	85	117	
Cd	111	115	No Gas	27.458	ppb	0.7	92507.73	30	91.53	87	115	
Sn	118	115	No Gas	27.734	ppb	1.4	265308.33	30	92.45	85	115	
Sb	123	115	No Gas	27.314	ppb	0.7	294987.54	30	91.05	85	117	
Ba	137	115	No Gas	26.753	ppb	0.6	122556.03	30	89.18	86	114	
W	182	159	No Gas	0.009	ppb	65.2	126.67	30	0.03	85	115	DOD LIMIT
Hg	201	159	He	0.005	ppb	58.4	15.50	2.5	0.2	82	119	DOD LIMIT
Tl	205	159	No Gas	28.914	ppb	2.0	519760.15	30	96.38	82	116	
Pb	208	159	No Gas	28.802	ppb	1.6	702000.32	30	96.01	88	115	
U	238	159	No Gas	27.926	ppb	0.8	613696.24	30	93.09	85	115	

Laboratory Control Sample (LCS) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2339200.57	3.9	2310764.06	101.23	60	120	
Sc	45	No Gas	5780021.33	3.2	5435407.83	106.34	60	120	
Sc	45	H2	3146671.50	2.0	3057879.58	102.9	60	120	
Sc	45	He	506573.56	0.1	505273.24	100.26	60	120	
Ge	72	No Gas	1295461.75	2.9	1203548.54	107.64	60	120	
Ge	72	H2	832987.00	0.8	768618.71	108.37	60	120	
Ge	72	He	314069.76	0.7	296718.72	105.85	60	120	
In	115	No Gas	6615535.08	1.7	6172829.62	107.17	60	120	
Tb	159	No Gas	7002979.17	2.0	6668814.32	105.01	60	120	
Tb	159	He	4791478.83	2.7	4400215.83	108.89	60	120	

Laboratory Control Sample (LCS) Report

Sample Name	IML008WC
File Name	H6L03019.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:17:32
Sample Type	LCSW
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	26.062	ppb	9.2	467217.93	30	86.87	85	115	
Be	9	6	No Gas	27.017	ppb	6.7	111117.48	30	90.06	83	121	
B	11	6	No Gas	25.754	ppb	8.9	64457.84	30	85.85	85	115	
Na	23	45	H2	2816.357	ppb	5.1	14248284.00	3000	93.88	85	117	
Mg	24	45	No Gas	2965.056	ppb	2.4	43485630.67	3000	98.84	83	118	
Al	27	45	No Gas	2902.064	ppb	2.9	54650589.19	3000	96.74	84	117	
Si	28	45	H2	1.012	ppb	40.3	7688.79	3000	0.03	85	115	DOD LIMIT
P	31	45	No Gas	<0.000	ppb	N/A	35628.94	300	-1.57	85	115	DOD LIMIT
K	39	45	He	3051.110	ppb	1.7	2739495.33	3000	101.7	87	115	
Ca	40	45	H2	2794.785	ppb	6.1	29002129.33	3000	93.16	87	118	
Ti	47	45	No Gas	27.245	ppb	2.4	59733.09	30	90.82	85	115	
V	51	45	He	26.110	ppb	1.5	192012.52	30	87.03	86	115	
Cr	52	45	He	27.381	ppb	1.6	231463.07	30	91.27	85	116	
Mn	55	45	No Gas	30.439	ppb	2.9	1051479.44	30	101.46	87	115	
Fe	56	45	H2	2898.137	ppb	2.9	47647542.67	3000	96.6	87	118	
Co	59	45	No Gas	28.475	ppb	1.9	850181.08	30	94.92	86	115	
Ni	60	45	He	27.986	ppb	1.2	85810.98	30	93.29	85	117	
Cu	63	45	He	28.181	ppb	1.3	235072.11	30	93.94	85	118	
Zn	66	72	No Gas	61.054	ppb	4.9	282137.81	60	101.76	83	119	
As	75	72	He	28.394	ppb	1.3	36786.95	30	94.65	84	116	
Se	78	72	H2	28.979	ppb	2.1	13804.73	30	96.6	80	120	
Sr	88	72	No Gas	28.046	ppb	5.1	965890.62	30	93.49	85	115	
Zr	90	72	No Gas	0.010	ppb	17.9	310.00	30	0.03	85	115	DOD LIMIT
Mo	95	115	No Gas	26.545	ppb	1.5	178747.05	30	88.48	85	115	
Ag	107	115	No Gas	28.397	ppb	1.1	470025.82	30	94.66	85	117	
Cd	111	115	No Gas	27.603	ppb	1.2	91402.60	30	92.01	87	115	
Sn	118	115	No Gas	28.055	ppb	1.4	263670.54	30	93.52	85	115	
Sb	123	115	No Gas	27.831	ppb	1.2	295399.72	30	92.77	85	117	
Ba	137	115	No Gas	27.056	ppb	1.2	121812.56	30	90.19	86	114	
W	182	159	No Gas	0.012	ppb	36.2	153.33	30	0.04	85	115	DOD LIMIT
Hg	201	159	He	0.007	ppb	75.2	17.17	2.5	0.28	82	119	DOD LIMIT
Tl	205	159	No Gas	27.742	ppb	1.0	514014.41	30	92.47	82	116	
Pb	208	159	No Gas	27.640	ppb	2.2	694442.24	30	92.13	88	115	
U	238	159	No Gas	26.689	ppb	1.7	604510.84	30	88.96	85	115	

Laboratory Control Sample (LCS) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2466331.47	3.7	2310764.06	106.73	60	120	
Sc	45	No Gas	5539466.33	1.6	5435407.83	101.91	60	120	
Sc	45	H2	3130161.17	5.0	3057879.58	102.36	60	120	
Sc	45	He	510533.81	1.2	505273.24	101.04	60	120	
Ge	72	No Gas	1265767.04	5.0	1203548.54	105.17	60	120	
Ge	72	H2	839939.77	1.1	768618.71	109.28	60	120	
Ge	72	He	315575.94	1.2	296718.72	106.36	60	120	
In	115	No Gas	6501965.87	1.5	6172829.62	105.33	60	120	
Tb	159	No Gas	7218005.82	2.1	6668814.32	108.24	60	120	
Tb	159	He	4573273.33	2.6	4400215.83	103.93	60	120	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV2
File Name	H6L03023.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:26:52
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	23.750	ppb	10.0	412850.53	25	95	90	110	
Be	9	6	No Gas	24.912	ppb	6.9	96577.04	25	99.65	90	110	
B	11	6	No Gas	47.680	ppb	4.5	110120.23	50	95.36	90	110	
Na	23	45	H2	24986.047	ppb	5.4	112181664.00	25000	99.94	90	110	
Mg	24	45	No Gas	24655.008	ppb	3.1	356181034.67	25000	98.62	90	110	
Al	27	45	No Gas	24947.327	ppb	7.4	461993019.78	25000	99.79	90	110	
Si	28	45	H2	2476.959	ppb	6.4	2938413.08	2500	99.08	90	110	
P	31	45	No Gas	239.095	ppb	4.8	313965.40	250	95.64	90	110	
K	39	45	He	25075.180	ppb	2.0	21326484.00	25000	100.3	90	110	
Ca	40	45	H2	25777.818	ppb	3.8	242302197.33	25000	103.11	90	110	
Ti	47	45	No Gas	238.399	ppb	4.1	512363.05	250	95.36	90	110	
V	51	45	He	258.669	ppb	4.1	1848188.12	250	103.47	90	110	
Cr	52	45	He	256.387	ppb	0.9	2115318.29	250	102.55	90	110	
Mn	55	45	No Gas	1569.576	ppb	4.1	52811486.67	1500	104.64	90	110	
Fe	56	45	H2	25979.789	ppb	3.5	387198880.00	25000	103.92	90	110	
Co	59	45	No Gas	253.138	ppb	3.6	7441677.33	250	101.26	90	110	
Ni	60	45	He	240.399	ppb	0.0	723883.67	250	96.16	90	110	
Cu	63	45	He	263.332	ppb	2.2	2110253.96	250	105.33	90	110	
Zn	66	72	No Gas	248.532	ppb	0.6	1156554.58	250	99.41	90	110	
As	75	72	He	248.169	ppb	1.1	316363.63	250	99.27	90	110	
Se	78	72	H2	251.791	ppb	1.6	118027.99	250	100.72	90	110	
Sr	88	72	No Gas	248.702	ppb	3.8	8656915.21	250	99.48	90	110	
Zr	90	72	No Gas	24.038	ppb	2.7	532056.32	25	96.15	90	110	
Mo	95	115	No Gas	238.579	ppb	1.4	1579082.30	250	95.43	90	110	
Ag	107	115	No Gas	24.557	ppb	3.0	399286.93	25	98.23	90	110	
Cd	111	115	No Gas	246.541	ppb	3.3	801723.25	250	98.62	90	110	
Sn	118	115	No Gas	254.274	ppb	5.7	2310014.35	250	101.71	90	110	
Sb	123	115	No Gas	48.727	ppb	3.2	507756.28	50	97.45	90	110	
Ba	137	115	No Gas	488.808	ppb	2.3	2161086.03	500	97.76	90	110	
W	182	159	No Gas	24.257	ppb	2.3	210002.02	25	97.03	90	110	
Hg	201	159	He	2.494	ppb	2.6	2484.75	2.5	99.76	90	110	
Tl	205	159	No Gas	249.005	ppb	0.8	4561317.18	250	99.6	90	110	
Pb	208	159	No Gas	251.444	ppb	1.8	6236975.47	250	100.58	90	110	
U	238	159	No Gas	249.311	ppb	1.9	5584022.42	250	99.72	90	110	

Continuing Calibration Verification (CCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2331399.60	10.2	2310764.06	100.89	60	120	
Sc	45	No Gas	5462596.17	5.4	5435407.83	100.5	60	120	
Sc	45	H2	2837525.08	2.9	3057879.58	92.79	60	120	
Sc	45	He	501780.65	0.7	505273.24	99.31	60	120	
Ge	72	No Gas	1278644.58	2.5	1203548.54	106.24	60	120	
Ge	72	H2	827150.08	1.7	768618.71	107.62	60	120	
Ge	72	He	311702.59	1.1	296718.72	105.05	60	120	
In	115	No Gas	6390142.71	4.1	6172829.62	103.52	60	120	
Tb	159	No Gas	7135324.58	3.8	6668814.32	107	60	120	
Tb	159	He	4813913.17	1.7	4400215.83	109.4	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB2
File Name	H6L03024.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:29:07
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	<0.000	ppb	N/A	128414.98	0.8	
Be	9	6	No Gas	0.003	ppb	71.9	35.56	0.08	
B	11	6	No Gas	0.251	ppb	32.3	3882.77	4	
Na	23	45	H2	3.077	ppb	39.7	352990.54	50	
Mg	24	45	No Gas	2.306	ppb	26.9	38683.00	20	
Al	27	45	No Gas	2.122	ppb	29.7	48525.26	15	
Si	28	45	H2	<0.000	ppb	N/A	6283.42	8	
P	31	45	No Gas	<0.000	ppb	N/A	37447.71	40	
K	39	45	He	1.433	ppb	368.6	111281.59	25	
Ca	40	45	H2	0.691	ppb	21.7	73809.23	60	
Ti	47	45	No Gas	0.007	ppb	189.5	303.33	0.5	
V	51	45	He	<0.000	ppb	N/A	1552.09	0.5	
Cr	52	45	He	<0.000	ppb	N/A	1605.43	0.25	
Mn	55	45	No Gas	0.165	ppb	34.0	17456.63	0.5	
Fe	56	45	H2	1.331	ppb	6.2	30912.32	25	
Co	59	45	No Gas	0.020	ppb	34.0	805.36	0.15	
Ni	60	45	He	0.005	ppb	59.3	96.67	0.5	
Cu	63	45	He	<0.000	ppb	N/A	4107.29	1	
Zn	66	72	No Gas	0.080	ppb	88.7	1986.15	10	
As	75	72	He	<0.000	ppb	N/A	140.00	0.25	
Se	78	72	H2	0.041	ppb	40.5	28.67	0.2	
Sr	88	72	No Gas	0.019	ppb	9.6	1173.39	0.3	
Zr	90	72	No Gas	0.003	ppb	84.9	143.33	5	
Mo	95	115	No Gas	0.029	ppb	11.2	222.23	0.2	
Ag	107	115	No Gas	<0.000	ppb	N/A	1214.50	0.08	
Cd	111	115	No Gas	0.040	ppb	16.7	115.66	0.2	
Sn	118	115	No Gas	0.114	ppb	19.5	5704.58	0.2	
Sb	123	115	No Gas	0.011	ppb	32.0	317.78	0.4	
Ba	137	115	No Gas	0.029	ppb	35.6	203.33	0.25	
W	182	159	No Gas	0.006	ppb	62.3	100.00	0.3	
Hg	201	159	He	0.006	ppb	90.9	15.83	0.1	
Tl	205	159	No Gas	0.092	ppb	27.5	1691.23	0.1	
Pb	208	159	No Gas	0.041	ppb	36.1	2206.75	0.1	
U	238	159	No Gas	0.019	ppb	13.1	435.57	0.05	

Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2511435.87	6.0	2310764.06	108.68	60	120	
Sc	45	No Gas	5367373.00	3.8	5435407.83	98.75	60	120	
Sc	45	H2	3089687.00	1.6	3057879.58	101.04	60	120	
Sc	45	He	496692.09	0.4	505273.24	98.3	60	120	
Ge	72	No Gas	1226906.91	0.8	1203548.54	101.94	60	120	
Ge	72	H2	793259.46	0.8	768618.71	103.21	60	120	
Ge	72	He	299720.76	0.6	296718.72	101.01	60	120	
In	115	No Gas	6562999.85	0.2	6172829.62	106.32	60	120	
Tb	159	No Gas	7096591.94	4.9	6668814.32	106.41	60	120	
Tb	159	He	4572213.00	2.1	4400215.83	103.91	60	120	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV3
File Name	H6L03034.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:52:03
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	I Victo

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	25.666	ppb	3.8	422553.76	25	102.66	90	110	
Be	9	6	No Gas	25.662	ppb	3.6	96484.17	25	102.65	90	110	
B	11	6	No Gas	50.826	ppb	4.1	113502.75	50	101.65	90	110	
Na	23	45	H2	25124.846	ppb	3.4	112730304.00	25000	100.5	90	110	
Mg	24	45	No Gas	25136.755	ppb	3.3	357504725.33	25000	100.55	90	110	
Al	27	45	No Gas	25508.791	ppb	4.8	465578339.73	25000	102.04	90	110	
Si	28	45	H2	2542.623	ppb	7.9	3011611.83	2500	101.7	90	110	
P	31	45	No Gas	240.503	ppb	2.5	310754.36	250	96.2	90	110	
K	39	45	He	25420.950	ppb	2.4	21443643.33	25000	101.68	90	110	
Ca	40	45	H2	24772.554	ppb	5.3	232408261.33	25000	99.09	90	110	
Ti	47	45	No Gas	240.508	ppb	3.2	508967.94	250	96.2	90	110	
V	51	45	He	267.617	ppb	1.1	1896317.38	250	107.05	90	110	
Cr	52	45	He	261.079	ppb	1.3	2136284.83	250	104.43	90	110	
Mn	55	45	No Gas	1583.680	ppb	5.0	52437540.00	1500	105.58	90	110	
Fe	56	45	H2	26055.632	ppb	3.9	387910506.67	25000	104.22	90	110	
Co	59	45	No Gas	259.034	ppb	6.6	7490401.83	250	103.61	90	110	
Ni	60	45	He	243.361	ppb	0.4	726786.00	250	97.34	90	110	
Cu	63	45	He	265.055	ppb	1.2	2106720.46	250	106.02	90	110	
Zn	66	72	No Gas	236.373	ppb	2.5	1139304.71	250	94.55	90	110	
As	75	72	He	248.254	ppb	0.4	313737.53	250	99.3	90	110	
Se	78	72	H2	250.855	ppb	0.4	115866.81	250	100.34	90	110	
Sr	88	72	No Gas	242.188	ppb	5.7	8728201.60	250	96.88	90	110	
Zr	90	72	No Gas	23.549	ppb	3.9	539350.28	25	94.2	90	110	
Mo	95	115	No Gas	246.322	ppb	9.9	1621292.82	250	98.53	90	110	
Ag	107	115	No Gas	24.552	ppb	5.6	397901.02	25	98.21	90	110	
Cd	111	115	No Gas	244.555	ppb	5.5	792729.46	250	97.82	90	110	
Sn	118	115	No Gas	253.958	ppb	2.1	2302102.48	250	101.58	90	110	
Sb	123	115	No Gas	48.561	ppb	6.5	504267.29	50	97.12	90	110	
Ba	137	115	No Gas	487.321	ppb	7.7	2145186.23	500	97.46	90	110	
W	182	159	No Gas	23.230	ppb	2.9	209972.61	25	92.92	90	110	
Hg	201	159	He	2.531	ppb	3.2	2448.41	2.5	101.24	90	110	
Tl	205	159	No Gas	242.075	ppb	4.9	4626845.23	250	96.83	90	110	
Pb	208	159	No Gas	243.925	ppb	4.9	6311573.61	250	97.57	90	110	
U	238	159	No Gas	248.657	ppb	5.2	5810174.35	250	99.46	90	110	

Continuing Calibration Verification (CCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2251784.90	2.7	2310764.06	97.45	60	120	
Sc	45	No Gas	5373007.00	3.0	5435407.83	98.85	60	120	
Sc	45	H2	2836875.08	6.6	3057879.58	92.77	60	120	
Sc	45	He	497666.39	0.4	505273.24	98.49	60	120	
Ge	72	No Gas	1324147.54	3.6	1203548.54	110.02	60	120	
Ge	72	H2	814893.08	0.7	768618.71	106.02	60	120	
Ge	72	He	308991.13	0.5	296718.72	104.14	60	120	
In	115	No Gas	6373039.58	3.8	6172829.62	103.24	60	120	
Tb	159	No Gas	7447237.48	1.2	6668814.32	111.67	60	120	
Th	159	He	4674116.50	2.0	4400215.83	106.22	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB3
File Name	H6L03035.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:54:18
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	<0.000	ppb	N/A	130259.15	0.8	
Be	9	6	No Gas	0.006	ppb	35.1	45.56	0.08	
B	11	6	No Gas	0.312	ppb	20.6	3728.27	4	
Na	23	45	H2	4.706	ppb	36.2	358634.34	50	
Mg	24	45	No Gas	3.731	ppb	42.3	58905.24	20	
Al	27	45	No Gas	3.569	ppb	41.3	74842.73	15	
Si	28	45	H2	<0.000	ppb	N/A	5436.40	8	
P	31	45	No Gas	<0.000	ppb	N/A	37931.68	40	
K	39	45	He	2.191	ppb	207.8	110830.01	25	
Ca	40	45	H2	1.550	ppb	9.4	82079.66	60	
Ti	47	45	No Gas	0.027	ppb	43.2	343.34	0.5	
V	51	45	He	<0.000	ppb	N/A	1557.42	0.5	
Cr	52	45	He	<0.000	ppb	N/A	1646.10	0.25	
Mn	55	45	No Gas	0.235	ppb	39.2	19638.49	0.5	
Fe	56	45	H2	2.158	ppb	3.5	44056.84	25	
Co	59	45	No Gas	0.034	ppb	51.4	1206.06	0.15	
Ni	60	45	He	0.017	ppb	46.2	131.33	0.5	
Cu	63	45	He	<0.000	ppb	N/A	3900.56	1	
Zn	66	72	No Gas	0.096	ppb	91.5	2048.83	10	
As	75	72	He	0.015	ppb	60.8	169.33	0.25	
Se	78	72	H2	0.052	ppb	20.2	33.67	0.2	
Sr	88	72	No Gas	0.036	ppb	49.1	1724.57	0.3	
Zr	90	72	No Gas	0.003	ppb	150.1	143.33	5	
Mo	95	115	No Gas	0.039	ppb	44.5	288.90	0.2	
Ag	107	115	No Gas	<0.000	ppb	N/A	1223.39	0.08	
Cd	111	115	No Gas	0.064	ppb	24.8	199.91	0.2	
Sn	118	115	No Gas	<0.000	ppb	N/A	4579.69	0.2	
Sb	123	115	No Gas	0.012	ppb	49.9	334.45	0.4	
Ba	137	115	No Gas	0.061	ppb	52.1	354.45	0.25	
W	182	159	No Gas	0.005	ppb	52.8	96.67	0.3	
Hg	201	159	He	0.000	ppb	262.7	11.17	0.1	
Tl	205	159	No Gas	0.143	ppb	35.0	2688.10	0.1	>~~LOD~~
Pb	208	159	No Gas	0.057	ppb	41.4	2657.90	0.1	
U	238	159	No Gas	0.033	ppb	46.4	773.36	0.05	

c1/2LOQ
LV 12/12/19

Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2323628.66	0.8	2310764.06	100.56	60	120	
Sc	45	No Gas	5303008.83	3.7	5435407.83	97.56	60	120	
Sc	45	H2	3070403.17	2.2	3057879.58	100.41	60	120	
Sc	45	He	491905.37	0.2	505273.24	97.35	60	120	
Ge	72	No Gas	1225598.92	2.1	1203548.54	101.83	60	120	
Ge	72	H2	788612.02	0.0	768618.71	102.6	60	120	
Ge	72	He	296795.48	1.0	296718.72	100.03	60	120	
In	115	No Gas	666742/.71	1.4	617282Y.62	108.01	60	120	
Tb	159	No Gas	7227328.04	1.7	6668814.32	108.38	60	120	
Tb	159	He	4710502.83	2.1	4400215.83	107.05	60	120	

Sample Report

Sample Name	L057-01I
File Name	H6L03036.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 11:56:41
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	45.871	4.587	ppb	40.5	190588.57	50	
Be	9	6	No Gas	0.011	0.001	ppb	288.1	25.55	50	
B	11	6	No Gas	247.456	24.746	ppb	15.8	60148.79	100	
Na	23	45	H2	74558.897	7455.890	ppb	6.1	34499164.00	50000	
Mg	24	45	No Gas	69420.337	6942.034	ppb	6.7	97098077.33	50000	
Al	27	45	No Gas	9.782	0.978	ppb	7.8	27437.44	50000	
Si	28	45	H2	9692.713	969.271	ppb	6.0	1181259.75	5000	
P	31	45	No Gas	9.112	0.911	ppb	79.6	40222.09	500	
K	39	45	He	3412.862	341.286	ppb	1.2	393088.05	50000	
Ca	40	45	H2	140068.711	14006.871	ppb	5.7	134783112.00	50000	
Ti	47	45	No Gas	0.610	0.061	ppb	33.3	411.34	500	
V	51	45	He	0.352	0.035	ppb	32.6	2632.25	500	
Cr	52	45	He	14.184	1.418	ppb	1.4	13279.77	500	
Mn	55	45	No Gas	12.168	1.217	ppb	4.6	51465.34	3000	
Fe	56	45	H2	328.255	32.826	ppb	4.4	509735.58	50000	
Co	59	45	No Gas	0.897	0.090	ppb	8.9	2772.29	500	
Ni	60	45	He	16.479	1.648	ppb	2.1	4957.57	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	4515.42	500	
Zn	66	72	No Gas	5.870	0.587	ppb	16.6	4506.75	500	
As	75	72	He	0.376	0.038	ppb	48.5	206.00	500	
Se	78	72	H2	2.053	0.205	ppb	10.1	106.00	500	
Sr	88	72	No Gas	1160.113	116.011	ppb	3.7	4130234.56	500	
Zr	90	72	No Gas	0.084	0.008	ppb	27.0	283.34	50	
Mo	95	115	No Gas	1.519	0.152	ppb	54.1	1013.45	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	102.22	50	
Cd	111	115	No Gas	0.196	0.020	ppb	14.6	45.82	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	3362.66	500	
Sb	123	115	No Gas	0.102	0.010	ppb	17.6	298.89	100	
Ba	137	115	No Gas	63.312	6.331	ppb	3.2	27682.80	1000	
W	182	159	No Gas	0.031	0.003	ppb	73.1	76.67	50	
Hg	201	159	He	0.022	0.002	ppb	113.3	12.67	5	
Tl	205	159	No Gas	0.247	0.025	ppb	18.5	477.79	500	
Pb	208	159	No Gas	0.118	0.012	ppb	53.3	1483.37	500	
U	238	159	No Gas	2.791	0.279	ppb	1.1	6201.58	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2413018.87	12.3	2310764.06	104.43	60	120	
Sc	45	No Gas	5287088.50	2.4	5435407.83	97.27	60	120	
Sc	45	H2	2907813.17	4.8	3057879.58	95.09	60	120	
Sc	45	He	493129.90	1.2	505273.24	97.6	60	120	
Ge	72	No Gas	1307694.42	5.2	1203548.54	108.65	60	120	
Ge	72	H2	819066.94	0.8	768618.71	106.56	60	120	
Ge	72	He	311330.89	1.3	296718.72	104.92	60	120	
In	115	No Gas	6302909.42	0.5	6172829.62	102.11	60	120	
Tb	159	No Gas	7062742.78	2.0	6668814.32	105.91	60	120	
Tb	159	He	4637004.83	0.5	4400215.83	105.38	60	120	

Sample Report

Sample Name	L057-02I
File Name	H6L03037.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 11:58:58
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	24.245	2.424	ppb	20.7	154917.43	50	
Be	9	6	No Gas	<0.000	<0.000	ppb	N/A	18.89	50	
B	11	6	No Gas	102.776	10.278	ppb	9.0	25318.43	100	
Na	23	45	H2	64106.535	6410.653	ppb	4.7	31293133.33	50000	
Mg	24	45	No Gas	47327.393	4732.739	ppb	4.4	67974464.00	50000	
Al	27	45	No Gas	20.016	2.002	ppb	61.5	46527.23	50000	
Si	28	45	H2	8259.724	825.972	ppb	2.4	1061471.62	5000	
P	31	45	No Gas	1.128	0.113	ppb	1842.0	40342.46	500	
K	39	45	He	2380.467	238.047	ppb	1.8	309939.04	50000	
Ca	40	45	H2	118040.996	11804.100	ppb	3.4	119662405.33	50000	
Ti	47	45	No Gas	0.693	0.069	ppb	32.3	440.68	500	
V	51	45	He	0.402	0.040	ppb	21.9	2691.60	500	
Cr	52	45	He	1.547	0.155	ppb	5.2	3069.68	500	
Mn	55	45	No Gas	3.702	0.370	ppb	8.4	24525.29	3000	
Fe	56	45	H2	20.029	2.003	ppb	2.1	41409.91	50000	
Co	59	45	No Gas	0.115	0.012	ppb	13.1	562.01	500	
Ni	60	45	He	0.116	0.012	ppb	22.5	117.33	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	3442.44	500	
Zn	66	72	No Gas	5.504	0.550	ppb	7.8	4479.41	500	
As	75	72	He	0.548	0.055	ppb	9.5	229.00	500	
Se	78	72	H2	1.553	0.155	ppb	1.1	83.00	500	
Sr	88	72	No Gas	1107.502	110.750	ppb	3.5	4061605.11	500	
Zr	90	72	No Gas	0.016	0.002	ppb	49.9	130.00	50	
Mo	95	115	No Gas	0.725	0.073	ppb	8.8	513.35	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	78.89	50	
Cd	111	115	No Gas	0.155	0.016	ppb	18.9	33.81	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	3483.80	500	
Sb	123	115	No Gas	0.079	0.008	ppb	45.4	285.56	100	
Ba	137	115	No Gas	43.114	4.311	ppb	2.4	19559.16	1000	
W	182	159	No Gas	0.015	0.001	ppb	288.0	63.33	50	
Hg	201	159	He	<0.000	<0.000	ppb	N/A	10.17	5	
Tl	205	159	No Gas	0.153	0.015	ppb	20.1	317.78	500	
Pb	208	159	No Gas	0.101	0.010	ppb	43.6	1487.82	500	
U	238	159	No Gas	1.858	0.186	ppb	1.4	4257.41	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2258106.65	3.6	2310764.06	97.72	60	120	
Sc	45	No Gas	5430883.50	5.1	5435407.83	99.92	60	120	
Sc	45	H2	3058659.58	1.3	3057879.58	100.03	60	120	
Sc	45	He	497477.98	0.5	505273.24	98.46	60	120	
Ge	72	No Gas	1346452.79	1.7	1203548.54	111.87	60	120	
Ge	72	H2	821737.56	0.4	768618.71	106.91	60	120	
Ge	72	He	312535.66	0.9	296718.72	105.33	60	120	
In	115	No Gas	6531456.92	2.3	6172829.62	105.81	60	120	
Tb	159	No Gas	7275272.21	3.2	6668814.32	109.09	60	120	
Tb	159	He	4662062.17	3.8	4400215.83	105.95	60	120	

Sample Report

Sample Name	L057-03I
File Name	H6L03038.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 12:01:15
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	29.370	2.937	ppb	17.8	154521.78	50	
Be	9	6	No Gas	<0.000	<0.000	ppb	N/A	14.44	50	
B	11	6	No Gas	93.260	9.326	ppb	2.0	22375.59	100	
Na	23	45	H2	65997.456	6599.746	ppb	8.9	32064055.33	50000	
Mg	24	45	No Gas	52056.230	5205.623	ppb	1.3	74476045.33	50000	
Al	27	45	No Gas	22.116	2.212	ppb	9.0	50644.77	50000	
Si	28	45	H2	7732.257	773.226	ppb	8.6	989476.12	5000	
P	31	45	No Gas	<0.000	<0.000	ppb	N/A	39607.66	500	
K	39	45	He	2282.186	228.219	ppb	2.1	301143.20	50000	
Ca	40	45	H2	133000.718	13300.072	ppb	7.8	134294629.33	50000	
Ti	47	45	No Gas	0.761	0.076	ppb	16.7	452.68	500	
V	51	45	He	0.202	0.020	ppb	75.6	2545.57	500	
Cr	52	45	He	2.670	0.267	ppb	4.2	3980.58	500	
Mn	55	45	No Gas	1.476	0.148	ppb	8.1	17015.91	3000	
Fe	56	45	H2	42.965	4.297	ppb	8.5	77951.37	50000	
Co	59	45	No Gas	0.202	0.020	ppb	10.7	813.36	500	
Ni	60	45	He	3.739	0.374	ppb	6.6	1196.72	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	3425.10	500	
Zn	66	72	No Gas	6.852	0.685	ppb	9.5	4857.55	500	
As	75	72	He	0.161	0.016	ppb	36.9	179.00	500	
Se	78	72	H2	0.890	0.089	ppb	28.7	51.67	500	
Sr	88	72	No Gas	1032.092	103.209	ppb	4.6	3580330.27	500	
Zr	90	72	No Gas	0.020	0.002	ppb	124.8	133.33	50	
Mo	95	115	No Gas	0.645	0.065	ppb	7.0	460.01	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	74.45	50	
Cd	111	115	No Gas	0.148	0.015	ppb	5.8	31.39	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	3492.69	500	
Sb	123	115	No Gas	0.109	0.011	ppb	9.4	317.78	100	
Ba	137	115	No Gas	54.207	5.421	ppb	1.1	24576.54	1000	
W	182	159	No Gas	0.860	0.086	ppb	6.9	800.03	50	
Hg	201	159	He	0.020	0.002	ppb	24.6	12.83	5	
Tl	205	159	No Gas	0.103	0.010	ppb	8.9	221.11	500	
Pb	208	159	No Gas	0.051	0.005	ppb	79.7	1342.25	500	
U	238	159	No Gas	2.070	0.207	ppb	2.4	4682.01	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2170501.11	5.4	2310764.06	93.93	60	120	
Sc	45	No Gas	5402927.00	1.3	5435407.83	99.4	60	120	
Sc	45	H2	3057749.58	8.0	3057879.58	100	60	120	
Sc	45	He	496578.29	0.2	505273.24	98.28	60	120	
Ge	72	No Gas	1273881.37	1.2	1203548.54	105.84	60	120	
Ge	72	H2	813164.96	1.1	768618.71	105.8	60	120	
Ge	72	He	311362.30	0.6	296718.72	104.94	60	120	
In	115	No Gas	6532163.44	1.0	6172829.62	105.82	60	120	
Tb	159	No Gas	7184322.77	1.5	6668814.32	107.73	60	120	
Tb	159	He	4778754.67	2.7	4400215.83	108.6	60	120	

Sample Report

Sample Name	L057-04I
File Name	H6L03039.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:03:32
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	18.868	1.887	ppb	23.2	149409.46	50	
Be	9	6	No Gas	0.013	0.001	ppb	165.2	25.55	50	
B	11	6	No Gas	56.860	5.686	ppb	3.2	15411.79	100	
Na	23	45	H2	29389.543	2938.954	ppb	3.7	14863051.33	50000	
Mg	24	45	No Gas	40364.064	4036.406	ppb	3.4	59177456.00	50000	
Al	27	45	No Gas	27.952	2.795	ppb	6.5	62869.22	50000	
Si	28	45	H2	7387.558	738.756	ppb	4.1	971478.17	5000	
P	31	45	No Gas	<0.000	<0.000	ppb	N/A	40935.51	500	
K	39	45	He	1780.239	178.024	ppb	4.2	260846.72	50000	
Ca	40	45	H2	103645.962	10364.596	ppb	3.5	107459845.33	50000	
Ti	47	45	No Gas	0.858	0.086	ppb	7.4	485.34	500	
V	51	45	He	0.511	0.051	ppb	23.1	2781.62	500	
Cr	52	45	He	1.092	0.109	ppb	15.2	2710.94	500	
Mn	55	45	No Gas	10.474	1.047	ppb	3.8	48125.18	3000	
Fe	56	45	H2	34.176	3.418	ppb	3.5	65596.84	50000	
Co	59	45	No Gas	0.172	0.017	ppb	5.1	742.69	500	
Ni	60	45	He	1.846	0.185	ppb	1.8	636.68	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	3453.11	500	
Zn	66	72	No Gas	8.817	0.882	ppb	6.7	5831.25	500	
As	75	72	He	0.178	0.018	ppb	55.5	182.67	500	
Se	78	72	H2	0.968	0.097	ppb	8.1	57.00	500	
Sr	88	72	No Gas	1028.610	102.861	ppb	3.2	3607771.80	500	
Zr	90	72	No Gas	0.050	0.005	ppb	49.9	200.00	50	
Mo	95	115	No Gas	0.702	0.070	ppb	8.4	511.12	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	56.67	50	
Cd	111	115	No Gas	0.107	0.011	ppb	3.2	18.13	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	3454.90	500	
Sb	123	115	No Gas	0.121	0.012	ppb	30.1	337.78	100	
Ba	137	115	No Gas	27.183	2.718	ppb	1.6	12669.51	1000	
W	182	159	No Gas	0.045	0.004	ppb	111.4	90.00	50	
Hg	201	159	He	0.009	0.001	ppb	276.1	11.83	5	
Tl	205	159	No Gas	0.080	0.008	ppb	5.5	180.00	500	
Pb	208	159	No Gas	0.205	0.021	ppb	4.6	1733.39	500	
U	238	159	No Gas	1.185	0.118	ppb	4.1	2696.96	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2269585.56	5.6	2310764.06	98.22	60	120	
Sc	45	No Gas	5538442.00	4.0	5435407.83	101.9	60	120	
Sc	45	H2	3128947.75	2.6	3057879.58	102.32	60	120	
Sc	45	He	499876.54	0.4	505273.24	98.93	60	120	
Ge	72	No Gas	1288382.34	2.6	1203548.54	107.05	60	120	
Ge	72	H2	839964.92	0.5	768618.71	109.28	60	120	
Ge	72	He	314133.24	0.8	296718.72	105.87	60	120	
In	115	No Gas	6696632.65	1.7	6172829.62	108.49	60	120	
Tb	159	No Gas	7211346.66	1.2	6668814.32	108.14	60	120	
Tb	159	He	4857275.17	7.0	4400215.83	110.39	60	120	

Sample Report

Sample Name	L057-05I
File Name	H6L03040.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 12:05:48
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	8.925	0.892	ppb	57.8	141282.55	50	
Be	9	6	No Gas	<0.000	<0.000	ppb	N/A	13.33	50	
B	11	6	No Gas	63.804	6.380	ppb	8.0	17342.94	100	
Na	23	45	H2	59680.110	5968.011	ppb	1.6	29596090.00	50000	
Mg	24	45	No Gas	35289.134	3528.913	ppb	3.2	50040833.33	50000	
Al	27	45	No Gas	4.665	0.466	ppb	10.3	18455.60	50000	
Si	28	45	H2	5962.594	596.259	ppb	0.8	779438.44	5000	
P	31	45	No Gas	12.931	1.293	ppb	179.7	41138.13	500	
K	39	45	He	1618.279	161.828	ppb	2.4	249528.32	50000	
Ca	40	45	H2	98093.198	9809.320	ppb	2.7	100941864.00	50000	
Ti	47	45	No Gas	0.464	0.046	ppb	18.2	386.68	500	
V	51	45	He	1.412	0.141	ppb	2.7	3454.44	500	
Cr	52	45	He	0.439	0.044	ppb	13.3	2194.84	500	
Mn	55	45	No Gas	<0.000	<0.000	ppb	N/A	11520.18	3000	
Fe	56	45	H2	2.629	0.263	ppb	1.1	13639.48	50000	
Co	59	45	No Gas	0.064	0.006	ppb	6.6	407.34	500	
Ni	60	45	He	0.181	0.018	ppb	38.6	138.67	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	3941.24	500	
Zn	66	72	No Gas	9.568	0.957	ppb	8.4	6190.75	500	
As	75	72	He	1.178	0.118	ppb	16.4	311.67	500	
Se	78	72	H2	0.714	0.071	ppb	40.9	43.67	500	
Sr	88	72	No Gas	719.066	71.907	ppb	1.4	2528710.74	500	
Zr	90	72	No Gas	<0.000	<0.000	ppb	N/A	86.67	50	
Mo	95	115	No Gas	0.606	0.061	ppb	12.0	440.01	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	101.11	50	
Cd	111	115	No Gas	0.100	0.010	ppb	14.4	15.66	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	3513.81	500	
Sb	123	115	No Gas	0.079	0.008	ppb	24.7	290.00	100	
Ba	137	115	No Gas	48.861	4.886	ppb	1.9	22525.06	1000	
W	182	159	No Gas	<0.000	<0.000	ppb	N/A	36.67	50	
Hg	201	159	He	<0.000	<0.000	ppb	N/A	10.33	5	
Tl	205	159	No Gas	0.062	0.006	ppb	34.1	140.00	500	
Pb	208	159	No Gas	0.210	0.021	ppb	32.3	1680.04	500	
U	238	159	No Gas	1.375	0.138	ppb	1.3	3014.82	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2326430.93	5.8	2310764.06	100.68	60	120	
Sc	45	No Gas	5361483.00	5.3	5435407.83	98.64	60	120	
Sc	45	H2	3103727.17	0.4	3057879.58	101.5	60	120	
Sc	45	He	504579.39	0.7	505273.24	99.86	60	120	
Ge	72	No Gas	1290853.75	3.3	1203548.54	107.25	60	120	
Ge	72	H2	817713.50	0.6	768618.71	106.39	60	120	
Ge	72	He	314816.54	0.3	296718.72	106.1	60	120	
In	115	No Gas	6642442.82	3.0	6172829.62	107.61	60	120	
Tb	159	No Gas	6949541.67	2.5	6668814.32	104.21	60	120	
Tb	159	He	4712065.17	1.4	4400215.83	107.09	60	120	

Sample Report

Sample Name	L057-07I
File Name	H6L03041.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 12:08:06
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	17.064	1.706	ppb	70.2	146901.30	50	
Be	9	6	No Gas	<0.000	<0.000	ppb	N/A	13.33	50	
B	11	6	No Gas	67.821	6.782	ppb	14.1	17746.78	100	
Na	23	45	H2	39661.156	3966.116	ppb	1.9	19569092.00	50000	
Mg	24	45	No Gas	33818.623	3381.862	ppb	5.3	49689462.67	50000	
Al	27	45	No Gas	7.442	0.744	ppb	11.1	24361.38	50000	
Si	28	45	H2	7598.193	759.819	ppb	4.7	980161.40	5000	
P	31	45	No Gas	<0.000	<0.000	ppb	N/A	40417.33	500	
K	39	45	He	1847.286	184.729	ppb	4.3	264078.95	50000	
Ca	40	45	H2	93782.792	9378.279	ppb	3.3	95460989.33	50000	
Ti	47	45	No Gas	0.228	0.023	ppb	62.1	348.67	500	
V	51	45	He	0.877	0.088	ppb	6.7	3015.00	500	
Cr	52	45	He	1.653	0.165	ppb	1.8	3143.03	500	
Mn	55	45	No Gas	2.231	0.223	ppb	4.6	20072.05	3000	
Fe	56	45	H2	18.623	1.862	ppb	4.6	39282.32	50000	
Co	59	45	No Gas	0.095	0.009	ppb	5.8	514.68	500	
Ni	60	45	He	0.338	0.034	ppb	15.7	182.67	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	3129.03	500	
Zn	66	72	No Gas	5.085	0.508	ppb	15.5	4091.29	500	
As	75	72	He	0.646	0.065	ppb	16.7	240.00	500	
Se	78	72	H2	0.639	0.064	ppb	14.0	40.33	500	
Sr	88	72	No Gas	766.796	76.680	ppb	2.9	2697346.00	500	
Zr	90	72	No Gas	0.036	0.004	ppb	20.2	170.00	50	
Mo	95	115	No Gas	0.471	0.047	ppb	10.1	346.67	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	70.00	50	
Cd	111	115	No Gas	0.088	0.009	ppb	5.6	11.53	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	3429.34	500	
Sb	123	115	No Gas	0.122	0.012	ppb	4.6	336.67	100	
Ba	137	115	No Gas	38.680	3.868	ppb	5.1	17825.55	1000	
W	182	159	No Gas	<0.000	<0.000	ppb	N/A	36.67	50	
Hg	201	159	He	0.019	0.002	ppb	67.5	12.67	5	
Tl	205	159	No Gas	0.065	0.006	ppb	10.2	152.22	500	
Pb	208	159	No Gas	<0.000	<0.000	ppb	N/A	1170.02	500	
U	238	159	No Gas	1.210	0.121	ppb	3.3	2773.65	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2272555.31	8.4	2310764.06	98.35	60	120	
Sc	45	No Gas	5552654.83	1.9	5435407.83	102.16	60	120	
Sc	45	H2	3071009.83	3.2	3057879.58	100.43	60	120	
Sc	45	He	495325.85	0.6	505273.24	98.03	60	120	
Ge	72	No Gas	1290889.46	2.3	1203548.54	107.26	60	120	
Ge	72	H2	819558.23	0.5	768618.71	106.63	60	120	
Ge	72	He	310678.23	0.7	296718.72	104.7	60	120	
In	115	No Gas	6641357.37	5.6	6172829.62	107.59	60	120	
Tb	159	No Gas	7267392.49	2.9	6668814.32	108.98	60	120	
Tb	159	He	4754199.67	2.3	4400215.83	108.04	60	120	

Sample Report

Sample Name	L057-08I
File Name	H6L03042.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 12:10:23
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	44.400	4.440	ppb	5.0	185288.19	50	
Be	9	6	No Gas	<0.000	<0.000	ppb	N/A	15.56	50	
B	11	6	No Gas	174.281	17.428	ppb	4.9	42558.89	100	
Na	23	45	H2	120527.310	12052.731	ppb	2.9	53779202.67	50000	
Mg	24	45	No Gas	73235.977	7323.598	ppb	4.8	105326690.67	50000	
Al	27	45	No Gas	6.955	0.695	ppb	4.3	22932.25	50000	
Si	28	45	H2	8915.492	891.549	ppb	2.1	1051595.02	5000	
P	31	45	No Gas	6.052	0.605	ppb	214.1	40946.23	500	
K	39	45	He	4024.198	402.420	ppb	1.3	454112.44	50000	
Ca	40	45	H2	168320.784	16832.078	ppb	1.7	156691200.00	50000	
Ti	47	45	No Gas	0.434	0.043	ppb	36.3	384.67	500	
V	51	45	He	<0.000	<0.000	ppb	N/A	2077.49	500	
Cr	52	45	He	4.541	0.454	ppb	0.7	5594.48	500	
Mn	55	45	No Gas	677.991	67.799	ppb	4.2	2279808.58	3000	
Fe	56	45	H2	316.325	31.633	ppb	0.4	475365.28	50000	
Co	59	45	No Gas	1.808	0.181	ppb	1.0	5513.12	500	
Ni	60	45	He	155.494	15.549	ppb	0.8	47150.68	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	3623.15	500	
Zn	66	72	No Gas	8.351	0.835	ppb	6.7	5823.25	500	
As	75	72	He	1.471	0.147	ppb	9.4	351.67	500	
Se	78	72	H2	0.386	0.039	ppb	25.5	28.67	500	
Sr	88	72	No Gas	1258.771	125.877	ppb	3.4	4584425.37	500	
Zr	90	72	No Gas	0.123	0.012	ppb	7.6	376.68	50	
Mo	95	115	No Gas	5.876	0.588	ppb	3.4	4022.83	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	73.33	50	
Cd	111	115	No Gas	0.153	0.015	ppb	16.4	33.12	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	3686.08	500	
Sb	123	115	No Gas	0.271	0.027	ppb	12.2	492.23	100	
Ba	137	115	No Gas	70.313	7.031	ppb	2.9	32021.59	1000	
W	182	159	No Gas	0.020	0.002	ppb	94.4	66.67	50	
Hg	201	159	He	<0.000	<0.000	ppb	N/A	9.17	5	
Tl	205	159	No Gas	0.059	0.006	ppb	3.7	137.78	500	
Pb	208	159	No Gas	0.003	0.000	ppb	1324.7	1198.91	500	
U	238	159	No Gas	1.948	0.195	ppb	3.5	4322.99	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2345848.13	0.3	2310764.06	101.52	60	120	
Sc	45	No Gas	5429603.17	2.9	5435407.83	99.89	60	120	
Sc	45	H2	2808317.83	0.9	3057879.58	91.84	60	120	
Sc	45	He	504474.32	0.4	505273.24	99.84	60	120	
Ge	72	No Gas	1336999.50	3.3	1203548.54	111.09	60	120	
Ge	72	H2	820524.21	3.1	768618.71	106.75	60	120	
Ge	72	He	316847.80	0.9	296718.72	106.78	60	120	
In	115	No Gas	6569445.62	3.4	6172829.62	106.43	60	120	
Tb	159	No Gas	7048037.50	1.7	6668814.32	105.69	60	120	
Tb	159	He	4872287.33	3.5	4400215.83	110.73	60	120	

Sample Report

Sample Name	L057-09I
File Name	H6L03043.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 12:12:39
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Flal	Pass
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	18.517	1.852	ppb	25.0	153164.75	50	
Be	9	6	No Gas	<0.000	<0.000	ppb	N/A	16.67	50	
B	11	6	No Gas	83.408	8.341	ppb	4.6	21824.74	100	
Na	23	45	H2	52864.907	5286.491	ppb	2.0	23872317.33	50000	
Mg	24	45	No Gas	49907.547	4990.755	ppb	0.8	70357832.00	50000	
Al	27	45	No Gas	19.100	1.910	ppb	1.8	44471.60	50000	
Si	28	45	H2	8874.263	887.426	ppb	1.6	1052098.52	5000	
P	31	45	No Gas	24.870	2.487	ppb	77.5	42232.72	500	
K	39	45	He	2245.611	224.561	ppb	3.5	297958.42	50000	
Ca	40	45	H2	142907.638	14290.764	ppb	0.7	133705712.00	50000	
Ti	47	45	No Gas	1.010	0.101	ppb	38.5	496.68	500	
V	51	45	He	1.743	0.174	ppb	8.9	3632.48	500	
Cr	52	45	He	120.264	12.026	ppb	2.0	99867.44	500	
Mn	55	45	No Gas	35.779	3.578	ppb	2.0	129303.45	3000	
Fe	56	45	H2	640.249	64.025	ppb	2.0	958088.50	50000	
Co	59	45	No Gas	6.957	0.696	ppb	3.0	20166.23	500	
Ni	60	45	He	210.959	21.096	ppb	1.0	62916.67	500	
Cu	63	45	He	3.043	0.304	ppb	10.9	8182.46	500	
Zn	66	72	No Gas	5.666	0.567	ppb	12.2	4502.09	500	
As	75	72	He	0.536	0.054	ppb	30.4	227.67	500	
Se	78	72	H2	0.817	0.082	ppb	8.6	48.67	500	
Sr	88	72	No Gas	1038.465	103.847	ppb	3.2	3763835.96	500	
Zr	90	72	No Gas	0.086	0.009	ppb	42.1	290.01	50	
Mo	95	115	No Gas	22.058	2.206	ppb	2.5	15018.46	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	94.44	50	
Cd	111	115	No Gas	0.121	0.012	ppb	14.4	22.31	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	3379.33	500	
Sb	123	115	No Gas	0.094	0.009	ppb	12.7	302.22	100	
Ba	137	115	No Gas	44.852	4.485	ppb	2.9	20449.42	1000	
W	182	159	No Gas	0.197	0.020	ppb	14.9	233.33	50	
Hg	201	159	He	0.003	0.000	ppb	736.9	11.00	5	
Tl	205	159	No Gas	0.040	0.004	ppb	17.3	110.00	500	
Pb	208	159	No Gas	0.038	0.004	ppb	113.4	1365.59	500	
U	238	159	No Gas	1.375	0.138	ppb	8.9	3250.44	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2332475.94	4.8	2310764.06	100.94	60	120	
Sc	45	No Gas	5325288.67	3.7	5435407.83	97.97	60	120	
Sc	45	H2	2822271.50	1.2	3057879.58	92.3	60	120	
Sc	45	He	496411.83	0.6	505273.24	98.25	60	120	
Ge	72	No Gas	1331171.29	1.9	1203548.54	110.6	60	120	
Ge	72	H2	820634.79	0.5	768618.71	106.77	60	120	
Ge	72	He	312706.43	1.1	296718.72	105.39	60	120	
In	115	No Gas	6567276.37	2.1	6172829.62	106.39	60	120	
Tb	159	No Gas	7508887.48	3.7	6668814.32	112.6	60	120	
Tb	159	He	4703638.50	2.2	4400215.83	106.9	60	120	

Sample Report

Sample Name	L057-10I
File Name	H6L03044.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L03.b
Acq Time	2019-12-12 12:14:57
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	15.000	1.500	ppb	29.5	143570.30	50	
Be	9	6	No Gas	<0.000	<0.000	ppb	N/A	13.33	50	
B	11	6	No Gas	146.362	14.636	ppb	3.7	34687.26	100	
Na	23	45	H2	96445.062	9644.506	ppb	2.6	48135670.67	50000	
Mg	24	45	No Gas	42440.374	4244.037	ppb	2.0	62633684.00	50000	
Al	27	45	No Gas	5.115	0.511	ppb	1.1	20061.14	50000	
Si	28	45	H2	6305.983	630.598	ppb	3.2	832771.02	5000	
P	31	45	No Gas	0.354	0.035	ppb	2603.2	41374.83	500	
K	39	45	He	1990.749	199.075	ppb	3.6	274105.51	50000	
Ca	40	45	H2	112981.981	11298.198	ppb	5.1	117469909.33	50000	
Ti	47	45	No Gas	0.406	0.041	ppb	52.6	389.34	500	
V	51	45	He	1.478	0.148	ppb	10.8	3413.10	500	
Cr	52	45	He	3.782	0.378	ppb	6.2	4840.86	500	
Mn	55	45	No Gas	<0.000	<0.000	ppb	N/A	11983.92	3000	
Fe	56	45	H2	23.804	2.380	ppb	3.6	48701.85	50000	
Co	59	45	No Gas	0.108	0.011	ppb	10.5	556.01	500	
Ni	60	45	He	2.201	0.220	ppb	5.7	731.35	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	4363.37	500	
Zn	66	72	No Gas	17.403	1.740	ppb	8.0	9614.07	500	
As	75	72	He	0.863	0.086	ppb	8.2	269.67	500	
Se	78	72	H2	0.705	0.071	ppb	13.5	43.00	500	
Sr	88	72	No Gas	900.569	90.057	ppb	7.2	3084287.24	500	
Zr	90	72	No Gas	0.025	0.002	ppb	104.1	140.00	50	
Mo	95	115	No Gas	3.912	0.391	ppb	4.2	2690.28	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	63.33	50	
Cd	111	115	No Gas	0.113	0.011	ppb	8.4	19.70	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	2781.41	500	
Sb	123	115	No Gas	0.021	0.002	ppb	18.0	225.56	100	
Ba	137	115	No Gas	44.097	4.410	ppb	3.3	20160.08	1000	
W	182	159	No Gas	<0.000	<0.000	ppb	N/A	40.00	50	
Hg	201	159	He	<0.000	<0.000	ppb	N/A	9.33	5	
Tl	205	159	No Gas	0.031	0.003	ppb	35.4	90.00	500	
Pb	208	159	No Gas	0.288	0.029	ppb	4.3	1980.07	500	
U	238	159	No Gas	1.437	0.144	ppb	3.4	3330.46	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2248094.59	4.5	2310764.06	97.29	60	120	
Sc	45	No Gas	5572630.17	1.6	5435407.83	102.52	60	120	
Sc	45	H2	3138871.25	3.0	3057879.58	102.65	60	120	
Sc	45	He	491823.66	0.3	505273.24	97.34	60	120	
Ge	72	No Gas	1259470.25	4.9	1203548.54	104.65	60	120	
Ge	72	H2	812289.27	0.9	768618.71	105.68	60	120	
Ge	72	He	313032.86	0.0	296718.72	105.5	60	120	
In	115	No Gas	6585004.82	1.9	6172829.62	106.68	60	120	
Tb	159	No Gas	7353125.54	2.2	6668814.32	110.26	60	120	
Tb	159	He	4534096.83	2.0	4400215.83	103.04	60	120	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV4
File Name	H6L03045.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:17:15
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	25.921	ppb	11.6	415987.09	25	103.68	90	110	
Be	9	6	No Gas	26.244	ppb	8.5	96461.58	25	104.98	90	110	
B	11	6	No Gas	51.518	ppb	10.4	112333.14	50	103.04	90	110	
Na	23	45	H2	25491.363	ppb	7.5	110207458.67	25000	101.97	90	110	
Mg	24	45	No Gas	25314.283	ppb	1.8	352234026.67	25000	101.26	90	110	
Al	27	45	No Gas	24725.091	ppb	3.6	441680193.42	25000	98.9	90	110	
Si	28	45	H2	2505.159	ppb	1.8	2873352.08	2500	100.21	90	110	
P	31	45	No Gas	243.301	ppb	0.9	307101.30	250	97.32	90	110	
K	39	45	He	25581.280	ppb	1.8	21388662.00	25000	102.33	90	110	
Ca	40	45	H2	25671.221	ppb	8.0	232190176.00	25000	102.68	90	110	
Ti	47	45	No Gas	242.106	ppb	2.1	501340.67	250	96.84	90	110	
V	51	45	He	259.975	ppb	5.3	1825510.17	250	103.99	90	110	
Cr	52	45	He	249.319	ppb	3.2	2022143.88	250	99.73	90	110	
Mn	55	45	No Gas	1541.791	ppb	2.4	49952917.33	1500	102.79	90	110	
Fe	56	45	H2	26697.187	ppb	8.2	382958912.00	25000	106.79	90	110	
Co	59	45	No Gas	255.272	ppb	1.6	7227888.50	250	102.11	90	110	
Ni	60	45	He	242.598	ppb	1.3	718122.31	250	97.04	90	110	
Cu	63	45	He	256.205	ppb	2.0	2018381.79	250	102.48	90	110	
Zn	66	72	No Gas	255.373	ppb	5.0	1141933.96	250	102.15	90	110	
As	75	72	He	249.432	ppb	0.6	312090.87	250	99.77	90	110	
Se	78	72	H2	253.291	ppb	2.8	114515.21	250	101.32	90	110	
Sr	88	72	No Gas	247.541	ppb	1.2	8283106.89	250	99.02	90	110	
Zr	90	72	No Gas	24.744	ppb	1.9	525958.12	25	98.98	90	110	
Mo	95	115	No Gas	251.686	ppb	3.6	1630640.24	250	100.67	90	110	
Ag	107	115	No Gas	24.732	ppb	4.9	393563.07	25	98.93	90	110	
Cd	111	115	No Gas	249.114	ppb	4.2	793113.43	250	99.65	90	110	
Sn	118	115	No Gas	253.291	ppb	4.7	2252781.51	250	101.32	90	110	
Sb	123	115	No Gas	49.848	ppb	4.3	508503.75	50	99.7	90	110	
Ba	137	115	No Gas	495.605	ppb	6.2	2142257.83	500	99.12	90	110	
W	182	159	No Gas	25.243	ppb	3.5	215106.84	25	100.97	90	110	
Hg	201	159	He	2.518	ppb	1.4	2465.74	2.5	100.72	90	110	
Tl	205	159	No Gas	260.753	ppb	2.1	4701065.09	250	104.3	90	110	
Pb	208	159	No Gas	259.306	ppb	5.7	6321391.89	250	103.72	90	110	
U	238	159	No Gas	264.389	ppb	5.0	5828208.38	250	105.76	90	110	

Continuing Calibration Verification (CCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2208130.16	6.2	2310764.06	95.56	60	120	
Sc	45	No Gas	5254949.00	1.5	5435407.83	96.68	60	120	
Sc	45	H2	2738809.75	6.8	3057879.58	89.57	60	120	
Sc	45	He	493258.50	0.9	505273.24	97.62	60	120	
Ge	72	No Gas	1228513.63	3.9	1203548.54	102.07	60	120	
Ge	72	H2	798140.52	3.4	768618.71	103.84	60	120	
Ge	72	He	305925.86	1.0	296718.72	103.1	60	120	
In	115	No Gas	6261374.97	6.1	6172829.62	101.43	60	120	
Tb	159	No Gas	7027894.58	5.1	6668814.32	105.38	60	120	
Tb	159	He	4730649.00	1.2	4400215.83	107.51	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB4
File Name	H6L03046.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:19:30
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	<0.000	ppb	N/A	128935.39	0.8	
Be	9	6	No Gas	0.005	ppb	103.0	40.00	0.08	
B	11	6	No Gas	0.250	ppb	72.8	3719.39	4	
Na	23	45	H2	7.471	ppb	29.0	363381.22	50	
Mg	24	45	No Gas	6.739	ppb	13.7	99351.57	20	
Al	27	45	No Gas	6.350	ppb	13.3	122819.37	15	
Si	28	45	H2	<0.000	ppb	N/A	5273.00	8	
P	31	45	No Gas	<0.000	ppb	N/A	38840.84	40	
K	39	45	He	8.069	ppb	83.7	114715.06	25	
Ca	40	45	H2	4.394	ppb	9.7	108400.72	60	
Ti	47	45	No Gas	0.063	ppb	32.1	412.01	0.5	
V	51	45	He	<0.000	ppb	N/A	1837.46	0.5	
Cr	52	45	He	0.004	ppb	95.8	1800.78	0.25	
Mn	55	45	No Gas	0.414	ppb	18.5	25102.40	0.5	
Fe	56	45	H2	4.975	ppb	5.4	87394.33	25	
Co	59	45	No Gas	0.064	ppb	11.6	2037.49	0.15	
Ni	60	45	He	0.050	ppb	26.4	226.00	0.5	
Cu	63	45	He	<0.000	ppb	N/A	3885.89	1	
Zn	66	72	No Gas	0.100	ppb	72.7	2090.17	10	
As	75	72	He	0.034	ppb	14.5	190.67	0.25	
Se	78	72	H2	0.080	ppb	24.7	45.00	0.2	
Sr	88	72	No Gas	0.064	ppb	10.2	2706.94	0.3	
Zr	90	72	No Gas	0.007	ppb	35.5	236.67	5	
Mo	95	115	No Gas	0.074	ppb	8.9	534.46	0.2	
Ag	107	115	No Gas	0.000	ppb	1177.9	1261.17	0.08	
Cd	111	115	No Gas	0.087	ppb	16.8	275.56	0.2	
Sn	118	115	No Gas	0.013	ppb	36.3	4825.34	0.2	
Sb	123	115	No Gas	0.014	ppb	57.4	357.78	0.4	
Ba	137	115	No Gas	0.119	ppb	10.5	621.13	0.25	
W	182	159	No Gas	0.008	ppb	46.8	123.33	0.3	
Hg	201	159	He	0.004	ppb	52.0	15.00	0.1	
Tl	205	159	No Gas	0.166	ppb	20.2	3138.18	0.1	~~>LOD~~
Pb	208	159	No Gas	0.077	ppb	21.2	3192.39	0.1	
U	238	159	No Gas	0.061	ppb	18.9	1404.53	0.05	>LOD

< ½ LOQ
W 12/12/19

Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2412982.04	3.5	2310764.06	104.42	60	120	
Sc	45	No Gas	5254564.83	3.7	5435407.83	96.67	60	120	
Sc	45	H2	2998988.42	1.9	3057879.58	98.07	60	120	
Sc	45	He	487738.01	0.3	505273.24	96.53	60	120	
Ge	72	No Gas	1241717.12	2.4	1203548.54	103.17	60	120	
Ge	72	H2	772037.25	1.0	768618.71	100.44	60	120	
Ge	72	He	294870.88	0.6	296718.72	99.38	60	120	
In	115	No Gas	6643400.31	3.4	6172629.62	107.62	60	120	
Tb	159	No Gas	7301907.49	3.2	6668814.32	109.49	60	120	
Tb	159	He	4707768.17	3.3	4400215.83	106.99	60	120	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV5
File Name	H6L03056.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:47:21
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	24.480	ppb	2.4	460083.35	25	97.92	90	110	
Be	9	6	No Gas	24.493	ppb	2.5	103630.00	25	97.97	90	110	
B	11	6	No Gas	48.803	ppb	3.4	122748.37	50	97.61	90	110	
Na	23	45	H2	25377.382	ppb	2.9	115241285.33	25000	101.51	90	110	
Mg	24	45	No Gas	25684.454	ppb	2.4	371539712.00	25000	102.74	90	110	
Al	27	45	No Gas	24880.037	ppb	4.5	461829539.78	25000	99.52	90	110	
Si	28	45	H2	2473.577	ppb	2.2	2969511.17	2500	98.94	90	110	
P	31	45	No Gas	244.365	ppb	5.3	320194.63	250	97.75	90	110	
K	39	45	He	25669.200	ppb	0.4	21533288.67	25000	102.68	90	110	
Ca	40	45	H2	24813.485	ppb	2.1	235808544.00	25000	99.25	90	110	
Ti	47	45	No Gas	239.060	ppb	4.5	514147.86	250	95.62	90	110	
V	51	45	He	254.476	ppb	4.8	1792231.25	250	101.79	90	110	
Cr	52	45	He	264.824	ppb	3.0	2154210.17	250	105.93	90	110	
Mn	55	45	No Gas	1564.218	ppb	2.1	52685264.00	1500	104.28	90	110	
Fe	56	45	H2	25524.522	ppb	3.5	384566880.00	25000	102.1	90	110	
Co	59	45	No Gas	250.863	ppb	2.2	7386655.83	250	100.35	90	110	
Ni	60	45	He	246.599	ppb	2.0	732243.27	250	98.64	90	110	
Cu	63	45	He	267.415	ppb	1.3	2113579.71	250	106.97	90	110	
Zn	66	72	No Gas	249.433	ppb	7.1	1191945.21	250	99.77	90	110	
As	75	72	He	246.061	ppb	1.8	315062.93	250	98.42	90	110	
Se	78	72	H2	248.913	ppb	0.7	116604.01	250	99.57	90	110	
Sr	88	72	No Gas	250.417	ppb	9.3	8941652.98	250	100.17	90	110	
Zr	90	72	No Gas	24.289	ppb	5.5	551470.73	25	97.16	90	110	
Mo	95	115	No Gas	252.205	ppb	3.6	1730475.73	250	100.88	90	110	
Ag	107	115	No Gas	24.556	ppb	1.7	414229.56	25	98.22	90	110	
Cd	111	115	No Gas	248.681	ppb	1.7	839001.49	250	99.47	90	110	
Sn	118	115	No Gas	256.827	ppb	2.9	2420790.81	250	102.73	90	110	
Sb	123	115	No Gas	49.803	ppb	1.3	538387.37	50	99.61	90	110	
Ba	137	115	No Gas	519.029	ppb	5.6	2379088.38	500	103.81	90	110	
W	182	159	No Gas	24.221	ppb	0.4	231978.08	25	96.88	90	110	
Hg	201	159	He	2.530	ppb	2.7	2592.93	2.5	101.2	90	110	
Tl	205	159	No Gas	249.798	ppb	4.8	5060452.02	250	99.92	90	110	
Pb	208	159	No Gas	255.834	ppb	2.9	7016630.39	250	102.33	90	110	
U	238	159	No Gas	256.393	ppb	0.7	6348896.55	250	102.56	90	110	

Continuing Calibration Verification (CCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2533033.80	0.2	2310764.06	109.62	60	120	
Sc	45	No Gas	5468486.33	6.2	5435407.83	100.61	60	120	
Sc	45	H2	2869332.42	4.9	3057879.58	93.83	60	120	
Sc	45	He	494989.24	2.6	505273.24	97.96	60	120	
Ge	72	No Gas	1314059.42	5.4	1203548.54	109.18	60	120	
Ge	72	H2	826489.31	0.6	768618.71	107.53	60	120	
Ge	72	He	313133.02	2.1	296718.72	105.53	60	120	
In	115	No Gas	6624637.50	1.4	6172829.62	107.32	60	120	
Tb	159	No Gas	7890219.69	0.9	6668814.32	118.32	60	120	
Tb	159	He	4953542.33	3.5	4400215.83	112.57	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB5
File Name	H6L03057.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:49:35
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Fail
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	0.004	ppb	16206.3	141267.55	0.8	
Be	9	6	No Gas	0.007	ppb	58.8	52.22	0.08	
B	11	6	No Gas	1.302	ppb	23.1	6423.70	4	
Na	23	45	H2	63.274	ppb	4.1	657117.08	50	~~>LOD~~
Mg	24	45	No Gas	6.160	ppb	1.7	97994.97	20	
Al	27	45	No Gas	5.451	ppb	2.4	114593.88	15	
Si	28	45	H2	<0.000	ppb	N/A	5633.14	8	
P	31	45	No Gas	1.083	ppb	19.2	42968.28	40	
K	39	45	He	15.100	ppb	46.3	124583.78	25	
Ca	40	45	H2	5.177	ppb	8.5	121630.14	60	
Ti	47	45	No Gas	0.058	ppb	26.7	431.34	0.5	
V	51	45	He	0.010	ppb	74.7	2509.56	0.5	
Cr	52	45	He	<0.000	ppb	N/A	1731.44	0.25	
Mn	55	45	No Gas	0.412	ppb	2.5	26846.96	0.5	
Fe	56	45	H2	5.072	ppb	1.8	93133.14	25	
Co	59	45	No Gas	0.058	ppb	3.6	1979.48	0.15	
Ni	60	45	He	0.050	ppb	20.0	234.67	0.5	
Cu	63	45	He	<0.000	ppb	N/A	5445.09	1	
Zn	66	72	No Gas	0.103	ppb	60.1	2161.51	10	
As	75	72	He	0.070	ppb	9.3	244.00	0.25	
Se	78	72	H2	0.076	ppb	24.2	44.67	0.2	
Sr	88	72	No Gas	0.062	ppb	9.1	2722.50	0.3	
Zr	90	72	No Gas	0.006	ppb	45.9	230.00	5	
Mo	95	115	No Gas	0.062	ppb	10.1	472.23	0.2	
Ag	107	115	No Gas	0.007	ppb	30.7	1442.30	0.08	
Cd	111	115	No Gas	0.075	ppb	6.1	247.39	0.2	
Sn	118	115	No Gas	0.093	ppb	9.5	5874.65	0.2	
Sb	123	115	No Gas	0.018	ppb	25.0	421.12	0.4	
Ba	137	115	No Gas	0.109	ppb	6.5	603.35	0.25	
W	182	159	No Gas	0.002	ppb	80.3	76.67	0.3	
Hg	201	159	He	0.005	ppb	59.0	17.00	0.1	
Tl	205	159	No Gas	0.114	ppb	18.4	2412.46	0.1	~~>LOD~~
Pb	208	159	No Gas	0.088	ppb	6.9	3872.47	0.1	
U	238	159	No Gas	0.053	ppb	9.2	1377.85	0.05	>LOD

<LOQ
LV 12|12|19

<LOQ
LV 12|12|19

Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2516630.20	6.4	2310764.06	108.91	60	120	
Sc	45	No Gas	5619708.33	1.0	5435407.83	103.39	60	120	
Sc	45	H2	3139391.33	1.4	3057879.58	102.67	60	120	
Sc	45	He	504400.21	1.4	505273.24	99.83	60	120	
Ge	72	No Gas	1272488.04	0.3	1203548.54	105.73	60	120	
Ge	72	H2	797908.38	0.5	768618.71	103.81	60	120	
Ge	72	He	306397.82	0.5	296718.72	103.26	60	120	
In	115	No Gas	6995420.17	1.6	6172829.62	113.33	60	120	
Tb	159	No Gas	8173000.23	3.9	6668814.32	122.56	60	120	~~ISTD Failed~~
Tb	159	He	5061975.17	4.6	4400215.83	115.04	60	120	

IS ok
LW 12/12/19

Sample Report

Sample Name	L057-01
File Name	H6L03058.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:51:59
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	55.838	55.838	ppb	6.0	821776.84	50	>LDR
Be	9	6	No Gas	0.003	0.003	ppb	59.5	35.56	50	
B	11	6	No Gas	277.166	277.166	ppb	5.1	646097.26	100	>LDR
Na	23	45	H2	77602.508	77602.508	ppb	1.4	355060000.00	50000	>LDR
Mg	24	45	No Gas	69337.986	69337.986	ppb	6.1	999274602.67	50000	>LDR
Al	27	45	No Gas	5.728	5.728	ppb	4.9	116140.94	50000	
Si	28	45	H2	9385.553	9385.553	ppb	1.6	11352699.33	5000	>LDR
P	31	45	No Gas	16.204	16.204	ppb	3.7	58903.85	500	
K	39	45	He	3938.604	3938.604	ppb	1.8	3481237.25	50000	
Ca	40	45	H2	145019.665	145019.665	ppb	4.0	1390572586.67	50000	>LDR
Ti	47	45	No Gas	0.533	0.533	ppb	4.7	1436.74	500	
V	51	45	He	1.379	1.379	ppb	1.5	12401.60	500	
Cr	52	45	He	14.171	14.171	ppb	0.3	119915.80	500	
Mn	55	45	No Gas	12.496	12.496	ppb	3.2	431494.48	3000	
Fe	56	45	H2	359.799	359.799	ppb	2.3	5480996.50	50000	
Co	59	45	No Gas	0.928	0.928	ppb	2.8	27455.62	500	
Ni	60	45	He	15.573	15.573	ppb	2.1	47471.74	500	
Cu	63	45	He	0.784	0.784	ppb	3.8	12230.83	500	
Zn	66	72	No Gas	4.176	4.176	ppb	7.1	21014.23	500	
As	75	72	He	0.568	0.568	ppb	3.2	900.36	500	
Se	78	72	H2	1.853	1.853	ppb	1.3	880.03	500	
Sr	88	72	No Gas	1212.367	1212.367	ppb	3.3	42100344.99	500	>LDR
Zr	90	72	No Gas	0.058	0.058	ppb	4.6	1380.08	50	
Mo	95	115	No Gas	1.079	1.079	ppb	1.3	7548.81	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	585.57	50	
Cd	111	115	No Gas	0.021	0.021	ppb	12.1	55.12	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	1963.49	500	
Sb	123	115	No Gas	0.071	0.071	ppb	10.8	982.26	100	
Ba	137	115	No Gas	63.888	63.888	ppb	2.2	297746.19	1000	
W	182	159	No Gas	0.018	0.018	ppb	30.7	213.33	50	
Hg	201	159	He	0.007	0.007	ppb	12.2	18.17	5	
Tl	205	159	No Gas	0.025	0.025	ppb	19.7	492.23	500	
Pb	208	159	No Gas	0.067	0.067	ppb	9.1	2926.81	500	
U	238	159	No Gas	2.942	2.942	ppb	7.6	67092.94	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2402482.99	4.3	2310764.06	103.97	60	120	
Sc	45	No Gas	5445822.33	1.1	5435407.83	100.19	60	120	
Sc	45	H2	2894552.92	2.3	3057879.58	94.66	60	120	
Sc	45	He	507195.74	0.9	505273.24	100.38	60	120	
Ge	72	No Gas	1276283.21	4.7	1203548.54	106.04	60	120	
Ge	72	H2	827701.27	0.6	768618.71	107.69	60	120	
Ge	72	He	318026.19	1.1	296718.72	107.18	60	120	
In	115	No Gas	6735572.48	3.1	6172829.62	109.12	60	120	
Tb	159	No Gas	7290975.54	7.0	6668814.32	109.33	60	120	
Tb	159	He	4959067.17	1.9	4400215.83	112.7	60	120	

Sample Report

Sample Name	L057-02
File Name	H6L03059.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:54:13
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	26.258	26.258	ppb	2.8	484076.14	50	
Be	9	6	No Gas	0.001	0.001	ppb	245.1	25.56	50	
B	11	6	No Gas	105.093	105.093	ppb	1.5	261070.86	100	>LDR
Na	23	45	H2	72938.883	72938.883	ppb	3.9	328209930.67	50000	>LDR
Mg	24	45	No Gas	52399.108	52399.108	ppb	10.2	788346282.67	50000	>LDR
Al	27	45	No Gas	13.052	13.052	ppb	6.5	263665.51	50000	
Si	28	45	H2	8945.194	8945.194	ppb	6.7	10634745.33	5000	>LDR
P	31	45	No Gas	8.938	8.938	ppb	23.6	52891.08	500	
K	39	45	He	2911.902	2911.902	ppb	2.2	2640546.75	50000	
Ca	40	45	H2	137848.998	137848.998	ppb	4.0	1300411392.00	50000	>LDR
Ti	47	45	No Gas	0.585	0.585	ppb	10.1	1616.76	500	
V	51	45	He	1.378	1.378	ppb	1.6	12572.42	500	
Cr	52	45	He	2.042	2.042	ppb	1.1	19130.01	500	
Mn	55	45	No Gas	4.092	4.092	ppb	2.4	156395.42	3000	
Fe	56	45	H2	24.324	24.324	ppb	5.3	372295.12	50000	
Co	59	45	No Gas	0.133	0.133	ppb	2.6	4324.02	500	
Ni	60	45	He	0.273	0.273	ppb	4.6	928.70	500	
Cu	63	45	He	0.006	0.006	ppb	281.7	6036.68	500	
Zn	66	72	No Gas	4.540	4.540	ppb	2.5	23086.26	500	
As	75	72	He	0.579	0.579	ppb	4.7	916.70	500	
Se	78	72	H2	1.712	1.712	ppb	2.9	818.03	500	
Sr	88	72	No Gas	1230.853	1230.853	ppb	3.5	43427144.94	500	>LDR
Zr	90	72	No Gas	0.022	0.022	ppb	9.3	573.35	50	
Mo	95	115	No Gas	0.713	0.713	ppb	4.8	5115.43	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	276.67	50	
Cd	111	115	No Gas	0.022	0.022	ppb	7.1	58.67	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	1966.82	500	
Sb	123	115	No Gas	0.052	0.052	ppb	16.0	790.02	100	
Ba	137	115	No Gas	46.023	46.023	ppb	2.0	219674.94	1000	
W	182	159	No Gas	0.010	0.010	ppb	32.6	150.00	50	
Hg	201	159	He	0.000	0.000	ppb	1055.5	11.83	5	
Tl	205	159	No Gas	0.011	0.011	ppb	12.9	252.23	500	
Pb	208	159	No Gas	0.120	0.120	ppb	8.1	4565.88	500	
U	238	159	No Gas	1.999	1.999	ppb	2.3	49038.98	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2539444.92	4.8	2310764.06	109.9	60	120	
Sc	45	No Gas	5699310.00	4.4	5435407.83	104.86	60	120	
Sc	45	H2	2849312.00	4.5	3057879.58	93.18	60	120	
Sc	45	He	514564.74	0.4	505273.24	101.84	60	120	
Ge	72	No Gas	1295487.33	2.3	1203548.54	107.64	60	120	
Ge	72	H2	832002.12	0.4	768618.71	108.25	60	120	
Ge	72	He	318728.69	0.6	296718.72	107.42	60	120	
In	115	No Gas	6897649.37	3.2	6172829.62	111.74	60	120	
Tb	159	No Gas	7819413.30	3.3	6668814.32	117.25	60	120	
Tb	159	He	5004549.83	0.4	4400215.83	113.73	60	120	

Sample Report

Sample Name	L057-03
File Name	H6L03060.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:56:29
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	24.217	24.217	ppb	4.2	454504.60	50	
Be	9	6	No Gas	0.004	0.004	ppb	100.4	41.11	50	
B	11	6	No Gas	86.918	86.918	ppb	1.5	215112.80	100	
Na	23	45	H2	69616.015	69616.015	ppb	4.6	321244501.33	50000	>LDR
Mg	24	45	No Gas	53826.382	53826.382	ppb	3.7	787940309.33	50000	>LDR
Al	27	45	No Gas	20.856	20.856	ppb	5.3	402031.26	50000	
Si	28	45	H2	7857.615	7857.615	ppb	2.4	9593189.00	5000	>LDR
P	31	45	No Gas	6.861	6.861	ppb	31.7	48946.66	500	
K	39	45	He	2692.998	2692.998	ppb	2.9	2403991.50	50000	
Ca	40	45	H2	135870.283	135870.283	ppb	1.0	1314782122.67	50000	>LDR
Ti	47	45	No Gas	0.859	0.859	ppb	24.4	2164.93	500	
V	51	45	He	1.013	1.013	ppb	1.8	9712.77	500	
Cr	52	45	He	3.176	3.176	ppb	1.2	28172.93	500	
Mn	55	45	No Gas	1.857	1.857	ppb	3.3	75677.35	3000	
Fe	56	45	H2	47.318	47.318	ppb	1.6	734991.35	50000	
Co	59	45	No Gas	0.233	0.233	ppb	3.5	7173.22	500	
Ni	60	45	He	3.667	3.667	ppb	1.2	11191.93	500	
Cu	63	45	He	0.109	0.109	ppb	12.8	6748.34	500	
Zn	66	72	No Gas	5.936	5.936	ppb	5.4	31077.51	500	
As	75	72	He	0.386	0.386	ppb	6.7	665.35	500	
Se	78	72	H2	0.790	0.790	ppb	1.7	382.68	500	
Sr	88	72	No Gas	1002.974	1002.974	ppb	3.9	37094281.86	500	>LDR
Zr	90	72	No Gas	0.030	0.030	ppb	29.4	803.37	50	
Mo	95	115	No Gas	0.614	0.614	ppb	1.5	4375.17	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	274.45	50	
Cd	111	115	No Gas	0.018	0.018	ppb	8.6	42.36	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	2748.07	500	
Sb	123	115	No Gas	0.058	0.058	ppb	7.8	853.36	100	
Ba	137	115	No Gas	55.879	55.879	ppb	2.8	264406.12	1000	
W	182	159	No Gas	0.891	0.891	ppb	5.6	8242.71	50	
Hg	201	159	He	0.003	0.003	ppb	24.4	14.17	5	
Tl	205	159	No Gas	0.007	0.007	ppb	3.1	177.78	500	
Pb	208	159	No Gas	0.087	0.087	ppb	10.4	3562.43	500	
U	238	159	No Gas	2.249	2.249	ppb	2.3	53468.55	497	

Sample Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2522809.99	4.3	2310764.06	109.18	60	120	
Sc	45	No Gas	5533832.17	4.2	5435407.83	101.81	60	120	
Sc	45	H2	2920856.75	2.8	3057879.58	95.52	60	120	
Sc	45	He	504793.70	0.8	505273.24	99.91	60	120	
Ge	72	No Gas	1360269.00	6.4	1203548.54	113.02	60	120	
Ge	72	H2	830205.16	0.3	768618.71	108.01	60	120	
Ge	72	He	318902.86	0.7	296718.72	107.48	60	120	
In	115	No Gas	6841382.70	4.6	6172829.62	110.83	60	120	
Tb	159	No Gas	7577640.81	2.3	6668814.32	113.63	60	120	
Tb	159	He	4903706.67	2.4	4400215.83	111.44	60	120	

Sample Report

Sample Name	L057-04
File Name	H6L03061.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 12:58:45
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	17.146	17.146	ppb	5.7	369618.59	50	
Be	9	6	No Gas	0.003	0.003	ppb	81.2	34.44	50	
B	11	6	No Gas	54.772	54.772	ppb	6.3	139074.56	100	
Na	23	45	H2	30474.237	30474.237	ppb	2.5	140895642.67	50000	
Mg	24	45	No Gas	40916.255	40916.255	ppb	4.4	617998421.33	50000	
Al	27	45	No Gas	23.335	23.335	ppb	4.2	463021.62	50000	
Si	28	45	H2	8202.670	8202.670	ppb	3.5	10016686.67	5000	>LDR
P	31	45	No Gas	9.969	9.969	ppb	12.2	54252.29	500	
K	39	45	He	2063.909	2063.909	ppb	2.5	1873530.16	50000	
Ca	40	45	H2	111399.735	111399.735	ppb	3.4	1077932565.33	50000	>LDR
Ti	47	45	No Gas	0.875	0.875	ppb	3.6	2273.53	500	
V	51	45	He	1.193	1.193	ppb	0.6	11034.44	500	
Cr	52	45	He	1.460	1.460	ppb	2.0	13975.79	500	
Mn	55	45	No Gas	10.772	10.772	ppb	4.0	391565.85	3000	
Fe	56	45	H2	38.168	38.168	ppb	3.0	594589.83	50000	
Co	59	45	No Gas	0.180	0.180	ppb	4.5	5779.23	500	
Ni	60	45	He	1.894	1.894	ppb	2.0	5835.92	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	5852.59	500	
Zn	66	72	No Gas	6.080	6.080	ppb	5.1	32418.67	500	
As	75	72	He	0.454	0.454	ppb	1.3	755.69	500	
Se	78	72	H2	0.872	0.872	ppb	10.0	421.01	500	
Sr	88	72	No Gas	973.057	973.057	ppb	6.7	36675555.21	500	>LDR
Zr	90	72	No Gas	0.044	0.044	ppb	18.1	1153.39	50	
Mo	95	115	No Gas	0.717	0.717	ppb	7.5	5096.54	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	316.67	50	
Cd	111	115	No Gas	0.015	0.015	ppb	13.8	31.99	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	1834.58	500	
Sb	123	115	No Gas	0.041	0.041	ppb	3.8	665.57	100	
Ba	137	115	No Gas	27.965	27.965	ppb	6.0	132285.98	1000	
W	182	159	No Gas	0.087	0.087	ppb	3.2	856.70	50	
Hg	201	159	He	0.003	0.003	ppb	57.7	14.17	5	
Tl	205	159	No Gas	0.009	0.009	ppb	18.1	205.56	500	
Pb	208	159	No Gas	0.108	0.108	ppb	10.3	4156.95	500	
U	238	159	No Gas	1.299	1.299	ppb	4.4	31015.85	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2566663.79	1.8	2310764.06	111.07	60	120	
Sc	45	No Gas	5708230.33	3.0	5435407.83	105.02	60	120	
Sc	45	H2	2921810.17	3.0	3057879.58	95.55	60	120	
Sc	45	He	506137.61	0.5	505273.24	100.17	60	120	
Ge	72	No Gas	1385879.50	3.8	1203548.54	115.15	60	120	
Ge	72	H2	830226.75	0.4	768618.71	108.02	60	120	
Ge	72	He	319672.08	0.0	296718.72	107.74	60	120	
In	115	No Gas	6843082.32	4.2	6172829.62	110.86	60	120	
Tb	159	No Gas	7612322.48	3.6	6668814.32	114.15	60	120	
Tb	159	He	4961132.00	1.8	4400215.83	112.75	60	120	

Sample Report

Sample Name	L057-05
File Name	H6L03062.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 13:01:00
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	10.833	10.833	ppb	7.3	287641.53	50	
Be	9	6	No Gas	0.004	0.004	ppb	81.1	40.00	50	
B	11	6	No Gas	64.283	64.283	ppb	4.2	163327.22	100	
Na	23	45	H2	64566.234	64566.234	ppb	6.2	301317120.00	50000	>LDR
Mg	24	45	No Gas	36281.322	36281.322	ppb	2.8	552136277.33	50000	
Al	27	45	No Gas	2.000	2.000	ppb	3.4	49782.42	50000	
Si	28	45	H2	6846.218	6846.218	ppb	6.7	8446339.17	5000	>LDR
P	31	45	No Gas	12.157	12.157	ppb	15.9	57279.77	500	
K	39	45	He	1972.907	1972.907	ppb	2.9	1798232.63	50000	
Ca	40	45	H2	105164.682	105164.682	ppb	4.1	1028907306.67	50000	>LDR
Ti	47	45	No Gas	0.285	0.285	ppb	1.2	954.70	500	
V	51	45	He	2.160	2.160	ppb	1.9	18017.84	500	
Cr	52	45	He	0.954	0.954	ppb	2.1	9780.16	500	
Mn	55	45	No Gas	0.191	0.191	ppb	13.6	19638.08	3000	
Fe	56	45	H2	4.524	4.524	ppb	5.8	79064.43	50000	
Co	59	45	No Gas	0.082	0.082	ppb	6.3	2761.62	500	
Ni	60	45	He	0.310	0.310	ppb	2.7	1026.04	500	
Cu	63	45	He	0.728	0.728	ppb	2.0	11769.75	500	
Zn	66	72	No Gas	7.592	7.592	ppb	2.2	38305.31	500	
As	75	72	He	1.403	1.403	ppb	3.5	1998.48	500	
Se	78	72	H2	0.637	0.637	ppb	2.7	309.00	500	
Sr	88	72	No Gas	733.988	733.988	ppb	2.7	26501638.95	500	>LDR
Zr	90	72	No Gas	0.005	0.005	ppb	24.2	206.67	50	
Mo	95	115	No Gas	0.563	0.563	ppb	5.0	4098.42	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	563.35	50	
Cd	111	115	No Gas	0.011	0.011	ppb	15.8	19.45	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	1923.48	500	
Sb	123	115	No Gas	0.050	0.050	ppb	3.7	785.58	100	
Ba	137	115	No Gas	50.660	50.660	ppb	3.4	244805.27	1000	
W	182	159	No Gas	0.005	0.005	ppb	41.5	100.00	50	
Hg	201	159	He	0.001	0.001	ppb	589.2	11.83	5	
Tl	205	159	No Gas	0.005	0.005	ppb	50.9	132.22	500	
Pb	208	159	No Gas	0.262	0.262	ppb	7.7	8289.98	500	
U	238	159	No Gas	1.413	1.413	ppb	3.6	34153.11	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2577734.58	5.9	2310764.06	111.55	60	120	
Sc	45	No Gas	5752192.67	3.9	5435407.83	105.83	60	120	
Sc	45	H2	2955394.17	4.1	3057879.58	96.65	60	120	
Sc	45	He	506744.49	0.4	505273.24	100.29	60	120	
Ge	72	No Gas	1325576.25	4.1	1203548.54	110.14	60	120	
Ge	72	H2	826246.48	0.4	768618.71	107.5	60	120	
Ge	72	He	319920.24	0.4	296718.72	107.82	60	120	
In	115	No Gas	6983525.89	2.7	6172829.62	113.13	60	120	
Tb	159	No Gas	7699276.36	2.2	6668814.32	115.45	60	120	
Tb	159	He	4938809.17	2.5	4400215.83	112.24	60	120	

Sample Report

Sample Name	L057-07
File Name	H6L03063.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 13:03:16
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	15.238	15.238	ppb	3.6	353297.90	50	
Be	9	6	No Gas	0.001	0.001	ppb	228.4	28.89	50	
B	11	6	No Gas	65.041	65.041	ppb	2.8	168798.35	100	
Na	23	45	H2	43229.392	43229.392	ppb	6.2	196530272.00	50000	
Mg	24	45	No Gas	36317.828	36317.828	ppb	5.1	540461237.33	50000	
Al	27	45	No Gas	6.600	6.600	ppb	4.2	136594.79	50000	
Si	28	45	H2	8355.332	8355.332	ppb	6.4	10042802.67	5000	>LDR
P	31	45	No Gas	7.611	7.611	ppb	21.4	50674.19	500	
K	39	45	He	2303.820	2303.820	ppb	1.0	2079325.79	50000	
Ca	40	45	H2	102848.316	102848.316	ppb	5.1	979611029.33	50000	>LDR
Ti	47	45	No Gas	0.438	0.438	ppb	12.1	1271.39	500	
V	51	45	He	1.619	1.619	ppb	2.6	14110.59	500	
Cr	52	45	He	2.049	2.049	ppb	1.1	18885.00	500	
Mn	55	45	No Gas	2.731	2.731	ppb	2.8	107257.68	3000	
Fe	56	45	H2	22.699	22.699	ppb	4.5	351650.11	50000	
Co	59	45	No Gas	0.118	0.118	ppb	2.1	3811.20	500	
Ni	60	45	He	0.450	0.450	ppb	5.4	1450.08	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	5128.97	500	
Zn	66	72	No Gas	4.800	4.800	ppb	2.0	25798.49	500	
As	75	72	He	0.697	0.697	ppb	1.8	1061.37	500	
Se	78	72	H2	0.772	0.772	ppb	9.3	376.01	500	
Sr	88	72	No Gas	730.807	730.807	ppb	3.4	27366942.25	500	>LDR
Zr	90	72	No Gas	0.032	0.032	ppb	3.5	850.03	50	
Mo	95	115	No Gas	0.470	0.470	ppb	5.5	3349.31	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	276.67	50	
Cd	111	115	No Gas	0.014	0.014	ppb	5.8	30.07	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	2592.48	500	
Sb	123	115	No Gas	0.060	0.060	ppb	4.2	884.47	100	
Ba	137	115	No Gas	39.724	39.724	ppb	4.4	187837.52	1000	
W	182	159	No Gas	0.011	0.011	ppb	16.6	153.33	50	
Hg	201	159	He	0.001	0.001	ppb	341.1	12.33	5	
Tl	205	159	No Gas	0.007	0.007	ppb	11.6	167.78	500	
Pb	208	159	No Gas	0.041	0.041	ppb	8.5	2401.21	500	
U	238	159	No Gas	1.275	1.275	ppb	4.2	30853.23	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2632151.15	3.8	2310764.06	113.91	60	120	
Sc	45	No Gas	5624189.67	2.2	5435407.83	103.47	60	120	
Sc	45	H2	2878475.92	4.2	3057879.58	94.13	60	120	
Sc	45	He	506356.03	0.3	505273.24	100.21	60	120	
Ge	72	No Gas	1375148.75	3.1	1203548.54	114.26	60	120	
Ge	72	H2	835026.46	0.5	768618.71	108.64	60	120	
Ge	72	He	315929.89	0.8	296718.72	106.47	60	120	
In	115	No Gas	6833993.39	2.3	6172829.62	110.71	60	120	
Tb	159	No Gas	7717921.08	4.4	6668814.32	115.73	60	120	
Tb	159	He	5058515.33	1.9	4400215.83	114.96	60	120	

Sample Report

Sample Name	L057-08
File Name	H6L03064.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 13:05:32
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	49.849	49.849	ppb	9.1	803530.40	50	>LDR
Be	9	6	No Gas	0.001	0.001	ppb	128.5	30.00	50	
B	11	6	No Gas	175.482	175.482	ppb	6.5	441146.83	100	>LDR
Na	23	45	H2	113675.450	113675.450	ppb	4.9	527994432.00	50000	>LDR
Mg	24	45	No Gas	76583.889	76583.889	ppb	5.8	1100840234.67	50000	>LDR
Al	27	45	No Gas	5.643	5.643	ppb	8.2	114290.55	50000	
Si	28	45	H2	8122.041	8122.041	ppb	2.3	9987374.00	5000	>LDR
P	31	45	No Gas	6.484	6.484	ppb	15.6	47688.99	500	
K	39	45	He	4622.820	4622.820	ppb	2.6	4032629.25	50000	
Ca	40	45	H2	163001.251	163001.251	ppb	4.4	1587580970.67	50000	>LDR
Ti	47	45	No Gas	0.551	0.551	ppb	12.2	1470.76	500	
V	51	45	He	0.163	0.163	ppb	7.8	3598.47	500	
Cr	52	45	He	4.984	4.984	ppb	0.9	43007.99	500	
Mn	55	45	No Gas	678.464	678.464	ppb	5.8	22722434.67	3000	
Fe	56	45	H2	325.226	325.226	ppb	5.4	5031603.00	50000	
Co	59	45	No Gas	1.841	1.841	ppb	4.3	54097.77	500	
Ni	60	45	He	147.327	147.327	ppb	1.2	444727.53	500	
Cu	63	45	He	0.525	0.525	ppb	13.0	10057.79	500	
Zn	66	72	No Gas	7.757	7.757	ppb	4.7	39257.28	500	
As	75	72	He	1.672	1.672	ppb	2.7	2321.53	500	
Se	78	72	H2	0.251	0.251	ppb	9.9	128.67	500	
Sr	88	72	No Gas	1280.471	1280.471	ppb	4.7	46408773.71	500	>LDR
Zr	90	72	No Gas	0.119	0.119	ppb	2.3	2836.98	50	
Mo	95	115	No Gas	5.974	5.974	ppb	1.8	41673.88	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	418.90	50	
Cd	111	115	No Gas	0.048	0.048	ppb	2.8	146.39	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	3113.71	500	
Sb	123	115	No Gas	0.216	0.216	ppb	0.7	2580.26	100	
Ba	137	115	No Gas	71.411	71.411	ppb	1.0	332918.52	1000	
W	182	159	No Gas	0.047	0.047	ppb	6.5	496.68	50	
Hg	201	159	He	0.001	0.001	ppb	191.5	12.33	5	
Tl	205	159	No Gas	0.016	0.016	ppb	2.1	344.45	500	
Pb	208	159	No Gas	0.051	0.051	ppb	15.7	2666.79	500	
U	238	159	No Gas	1.998	1.998	ppb	1.1	48163.34	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2586606.56	6.4	2310764.06	111.94	60	120	
Sc	45	No Gas	5434511.67	2.5	5435407.83	99.98	60	120	
Sc	45	H2	2942177.17	3.5	3057879.58	96.22	60	120	
Sc	45	He	503010.87	0.6	505273.24	99.55	60	120	
Ge	72	No Gas	1331651.33	3.6	1203548.54	110.64	60	120	
Ge	72	H2	829368.85	0.2	768618.71	107.9	60	120	
Ge	72	He	316118.17	0.2	296718.72	106.54	60	120	
In	115	No Gas	6735390.88	2.1	6172829.62	109.11	60	120	
Tb	159	No Gas	7680242.75	0.4	6668814.32	115.17	60	120	
Tb	159	He	4945840.83	3.6	4400215.83	112.4	60	120	

Sample Report

Sample Name	L057-09
File Name	H6L03065.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 13:07:46
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	18.255	18.255	ppb	0.5	383977.55	50	
Be	9	6	No Gas	0.001	0.001	ppb	396.2	27.78	50	
B	11	6	No Gas	78.556	78.556	ppb	1.9	197974.72	100	
Na	23	45	H2	52409.404	52409.404	ppb	1.5	236988112.00	50000	>LDR
Mg	24	45	No Gas	49002.318	49002.318	ppb	5.4	710066837.33	50000	>LDR
Al	27	45	No Gas	18.942	18.942	ppb	9.8	362556.69	50000	
Si	28	45	H2	7817.506	7817.506	ppb	3.9	9337221.67	5000	>LDR
P	31	45	No Gas	17.444	17.444	ppb	10.6	60607.85	500	
K	39	45	He	2546.114	2546.114	ppb	2.3	2218599.92	50000	
Ca	40	45	H2	134402.355	134402.355	ppb	4.7	1272318250.67	50000	>LDR
Ti	47	45	No Gas	1.232	1.232	ppb	73.2	2939.64	500	
V	51	45	He	2.118	2.118	ppb	1.1	17182.75	500	
Cr	52	45	He	114.877	114.877	ppb	0.9	929187.48	500	
Mn	55	45	No Gas	35.836	35.836	ppb	0.7	1221177.95	3000	
Fe	56	45	H2	640.059	640.059	ppb	7.3	9614762.33	50000	
Co	59	45	No Gas	6.496	6.496	ppb	2.2	191798.43	500	
Ni	60	45	He	197.947	197.947	ppb	0.4	583794.91	500	
Cu	63	45	He	5.742	5.742	ppb	1.3	50663.40	500	
Zn	66	72	No Gas	5.410	5.410	ppb	3.8	27233.26	500	
As	75	72	He	0.581	0.581	ppb	6.0	888.70	500	
Se	78	72	H2	0.828	0.828	ppb	2.9	393.01	500	
Sr	88	72	No Gas	1052.447	1052.447	ppb	2.5	37204610.74	500	>LDR
Zr	90	72	No Gas	0.051	0.051	ppb	39.0	1236.81	50	
Mo	95	115	No Gas	21.557	21.557	ppb	1.3	149637.46	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	721.13	50	
Cd	111	115	No Gas	0.019	0.019	ppb	11.1	44.87	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	4267.36	500	
Sb	123	115	No Gas	0.089	0.089	ppb	5.2	1174.50	100	
Ba	137	115	No Gas	43.538	43.538	ppb	0.8	202033.86	1000	
W	182	159	No Gas	0.224	0.224	ppb	3.0	2116.85	50	
Hg	201	159	He	<0.000	<0.000	ppb	N/A	10.83	5	
Tl	205	159	No Gas	0.009	0.009	ppb	12.7	205.56	500	
Pb	208	159	No Gas	0.101	0.101	ppb	8.3	3954.70	500	
U	238	159	No Gas	1.500	1.500	ppb	3.5	35733.13	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2564274.33	3.2	2310764.06	110.97	60	120	
Sc	45	No Gas	5474333.83	2.1	5435407.83	100.72	60	120	
Sc	45	H2	2859538.83	3.1	3057879.58	93.51	60	120	
Sc	45	He	491451.41	0.9	505273.24	97.26	60	120	
Ge	72	No Gas	1298744.71	3.7	1203548.54	107.91	60	120	
Ge	72	H2	815154.67	0.6	768618.71	106.05	60	120	
Ge	72	He	308320.82	0.5	296718.72	103.91	60	120	
In	115	No Gas	6703033.12	1.1	6172829.62	108.59	60	120	
Tb	159	No Gas	7595619.70	4.9	6668814.32	113.9	60	120	
Tb	159	He	5021180.50	3.2	4400215.83	114.11	60	120	

Sample Report

Sample Name	L057-10
File Name	H6L03066.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 13:10:00
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	12.705	12.705	ppb	2.7	320075.94	50	
Be	9	6	No Gas	0.000	0.000	ppb	485.8	25.55	50	
B	11	6	No Gas	135.096	135.096	ppb	2.1	348086.74	100	>LDR
Na	23	45	H2	106471.331	106471.331	ppb	1.8	486799349.33	50000	>LDR
Mg	24	45	No Gas	44311.038	44311.038	ppb	3.4	652981760.00	50000	
Al	27	45	No Gas	3.302	3.302	ppb	2.7	72840.51	50000	
Si	28	45	H2	7161.339	7161.339	ppb	3.9	8658835.67	5000	>LDR
P	31	45	No Gas	8.889	8.889	ppb	1.0	51671.18	500	
K	39	45	He	2312.534	2312.534	ppb	2.3	2059141.13	50000	
Ca	40	45	H2	122138.431	122138.431	ppb	2.8	1170562133.33	50000	>LDR
Ti	47	45	No Gas	0.477	0.477	ppb	6.1	1344.07	500	
V	51	45	He	2.201	2.201	ppb	1.8	18053.88	500	
Cr	52	45	He	3.996	3.996	ppb	0.7	34611.60	500	
Mn	55	45	No Gas	0.446	0.446	ppb	1.6	27769.47	3000	
Fe	56	45	H2	28.109	28.109	ppb	2.2	436052.41	50000	
Co	59	45	No Gas	0.141	0.141	ppb	2.8	4470.07	500	
Ni	60	45	He	2.321	2.321	ppb	2.6	7042.49	500	
Cu	63	45	He	1.542	1.542	ppb	5.3	18080.67	500	
Zn	66	72	No Gas	16.145	16.145	ppb	4.1	78126.77	500	
As	75	72	He	1.018	1.018	ppb	2.3	1472.75	500	
Se	78	72	H2	0.596	0.596	ppb	4.5	288.67	500	
Sr	88	72	No Gas	874.092	874.092	ppb	4.4	31002103.21	500	>LDR
Zr	90	72	No Gas	0.006	0.006	ppb	45.7	233.33	50	
Mo	95	115	No Gas	4.015	4.015	ppb	1.8	27695.46	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	297.78	50	
Cd	111	115	No Gas	0.009	0.009	ppb	39.6	12.41	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	1827.91	500	
Sb	123	115	No Gas	0.046	0.046	ppb	15.1	700.02	100	
Ba	137	115	No Gas	45.641	45.641	ppb	2.7	210353.51	1000	
W	182	159	No Gas	0.011	0.011	ppb	68.8	156.67	50	
Hg	201	159	He	0.001	0.001	ppb	581.3	11.67	5	
Tl	205	159	No Gas	0.004	0.004	ppb	20.0	117.78	500	
Pb	208	159	No Gas	0.419	0.419	ppb	6.9	12384.68	500	
U	238	159	No Gas	1.566	1.566	ppb	2.2	37540.73	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2639129.46	3.3	2310764.06	114.21	60	120	
Sc	45	No Gas	5566313.17	0.5	5435407.83	102.41	60	120	
Sc	45	H2	2893382.92	2.0	3057879.58	94.62	60	120	
Sc	45	He	499698.18	0.7	505273.24	98.9	60	120	
Ge	72	No Gas	1303794.88	5.1	1203548.54	108.33	60	120	
Ge	72	H2	822551.35	0.0	768618.71	107.02	60	120	
Ge	72	He	315267.02	0.7	296718.72	106.25	60	120	
In	115	No Gas	6658449.24	1.5	6172829.62	107.87	60	120	
Tb	159	No Gas	7637459.42	4.0	6668814.32	114.52	60	120	
Tb	159	He	4914644.83	5.5	4400215.83	111.69	60	120	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV6
File Name	H6L03067.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 13:12:16
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Fail
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	23.874	ppb	2.6	454574.89	25	95.5	90	110	
Be	9	6	No Gas	23.938	ppb	3.4	101813.40	25	95.75	90	110	
B	11	6	No Gas	48.632	ppb	4.2	122974.68	50	97.26	90	110	
Na	23	45	H2	24955.383	ppb	3.0	112599066.67	25000	99.82	90	110	
Mg	24	45	No Gas	25344.255	ppb	1.5	371556373.33	25000	101.38	90	110	
Al	27	45	No Gas	24630.084	ppb	3.8	463609659.76	25000	98.52	90	110	
Si	28	45	H2	2391.999	ppb	2.4	2853962.67	2500	95.68	90	110	
P	31	45	No Gas	233.287	ppb	3.8	311854.71	250	93.31	90	110	
K	39	45	He	25921.673	ppb	1.7	21719293.33	25000	103.69	90	110	
Ca	40	45	H2	24638.490	ppb	4.4	232513008.00	25000	98.55	90	110	
Ti	47	45	No Gas	231.207	ppb	3.4	504266.27	250	92.48	90	110	
V	51	45	He	267.676	ppb	5.0	1884463.96	250	107.07	90	110	
Cr	52	45	He	258.996	ppb	3.6	2104996.33	250	103.6	90	110	
Mn	55	45	No Gas	1541.059	ppb	5.3	52573750.67	1500	102.74	90	110	
Fe	56	45	H2	25798.726	ppb	7.1	385787370.67	25000	103.19	90	110	
Co	59	45	No Gas	255.339	ppb	5.2	7616836.17	250	102.14	90	110	
Ni	60	45	He	242.658	ppb	0.7	719886.29	250	97.06	90	110	
Cu	63	45	He	270.013	ppb	4.4	2131715.08	250	108.01	90	110	
Zn	66	72	No Gas	251.601	ppb	1.9	1198490.50	250	100.64	90	110	
As	75	72	He	246.877	ppb	0.6	313772.77	250	98.75	90	110	
Se	78	72	H2	249.334	ppb	1.3	114596.66	250	99.73	90	110	
Sr	88	72	No Gas	251.341	ppb	8.1	8955910.20	250	100.54	90	110	
Zr	90	72	No Gas	24.047	ppb	3.4	544780.50	25	96.19	90	110	
Mo	95	115	No Gas	235.580	ppb	2.0	1651642.96	250	94.23	90	110	
Ag	107	115	No Gas	23.681	ppb	1.3	408312.88	25	94.72	90	110	
Cd	111	115	No Gas	238.050	ppb	1.6	820711.08	250	95.22	90	110	
Sn	118	115	No Gas	251.798	ppb	3.5	2424457.68	250	100.72	90	110	
Sb	123	115	No Gas	48.302	ppb	2.2	533508.40	50	96.6	90	110	
Ba	137	115	No Gas	506.258	ppb	2.4	2371115.81	500	101.25	90	110	
W	182	159	No Gas	23.547	ppb	5.0	231155.01	25	94.19	90	110	
Hg	201	159	He	2.458	ppb	5.9	2613.77	2.5	98.32	90	110	
Tl	205	159	No Gas	240.453	ppb	4.9	4993198.14	250	96.18	90	110	
Pb	208	159	No Gas	252.077	ppb	3.1	7093311.05	250	100.83	90	110	
U	238	159	No Gas	250.518	ppb	3.0	6361605.16	250	100.21	90	110	

Continuing Calibration Verification (CCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2546281.57	0.5	2310764.06	110.19	60	120	
Sc	45	No Gas	5537417.67	2.8	5435407.83	101.88	60	120	
Sc	45	H2	2851478.75	5.0	3057879.58	93.25	60	120	
Sc	45	He	494367.34	0.4	505273.24	97.84	60	120	
Ge	72	No Gas	1309075.75	1.2	1203548.54	108.77	60	120	
Ge	72	H2	810908.23	0.6	768618.71	105.5	60	120	
Ge	72	He	310756.31	0.9	296718.72	104.73	60	120	
In	115	No Gas	6771709.24	3.8	6172829.62	109.7	60	120	
Tb	159	No Gas	8098975.51	4.6	6668814.32	121.45	60	120	ISTD Failed
Th	159	He	5144681.33	4.6	4400215.83	116.92	60	120	

IS ok
LV 12/12/19

Continuing Calibration Blank (CCB) Report

Sample Name	CCB6
File Name	H6L03068.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 13:14:31
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag	
Li	7	6	No Gas	<0.000	ppb	N/A	141859.36	0.8		
Be	9	6	No Gas	0.007	ppb	68.3	53.33	0.08		
B	11	6	No Gas	1.377	ppb	11.2	6717.16	4		
Na	23	45	H2	47.566	ppb	2.8	587879.10	50		
Mg	24	45	No Gas	9.174	ppb	23.3	143562.70	20		
Al	27	45	No Gas	8.095	ppb	23.0	165966.81	15		
Si	28	45	H2	<0.000	ppb	N/A	5244.32	8		
P	31	45	No Gas	0.182	ppb	1007.1	42304.28	40		
K	39	45	He	10.852	ppb	57.9	120632.99	25		
Ca	40	45	H2	5.695	ppb	4.1	128925.79	60		
Ti	47	45	No Gas	0.069	ppb	54.7	458.68	0.5		
V	51	45	He	0.038	ppb	52.0	2702.93	0.5		
Cr	52	45	He	<0.000	ppb	N/A	1750.11	0.25		
Mn	55	45	No Gas	0.558	ppb	23.7	32135.33	0.5	~~>LOD~~	<LOQ LV 12/12/19
Fe	56	45	H2	5.713	ppb	1.4	105251.77	25		
Co	59	45	No Gas	0.083	ppb	22.3	2755.62	0.15		
Ni	60	45	He	0.056	ppb	10.4	251.33	0.5		
Cu	63	45	He	<0.000	ppb	N/A	4067.94	1		
Zn	66	72	No Gas	0.104	ppb	60.1	2236.86	10		
As	75	72	He	0.054	ppb	15.5	225.67	0.25		
Se	78	72	H2	0.089	ppb	0.9	50.67	0.2		
Sr	88	72	No Gas	0.090	ppb	21.8	3805.01	0.3		
Zr	90	72	No Gas	0.008	ppb	31.7	280.00	5		
Mo	95	115	No Gas	0.079	ppb	29.7	605.57	0.2		
Ag	107	115	No Gas	0.002	ppb	534.4	1362.30	0.08		
Cd	111	115	No Gas	0.106	ppb	11.7	363.18	0.2		
Sn	118	115	No Gas	0.008	ppb	443.6	5078.76	0.2		
Sb	123	115	No Gas	0.015	ppb	13.2	385.56	0.4		
Ba	137	115	No Gas	0.140	ppb	36.8	763.36	0.25		
W	182	159	No Gas	0.006	ppb	58.2	116.67	0.3		
Hg	201	159	He	0.002	ppb	111.7	13.17	0.1		
Tl	205	159	No Gas	0.162	ppb	20.2	3343.80	0.1	~~>LOD~~	<LOQ LV 12/12/19
Pb	208	159	No Gas	0.098	ppb	18.1	4073.60	0.1		
U	238	159	No Gas	0.077	ppb	19.4	1953.50	0.05	>LOD	

Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2554306.52	3.8	2310764.06	110.54	60	120	
Sc	45	No Gas	5681127.33	4.2	5435407.83	104.52	60	120	
Sc	45	H2	3185759.00	0.6	3057879.58	104.18	60	120	
Sc	45	He	502832.58	0.3	505273.24	99.52	60	120	
Ge	72	No Gas	1310055.92	2.9	1203548.54	108.85	60	120	
Ge	72	H2	797492.19	0.5	768618.71	103.76	60	120	
Ge	72	He	308912.31	0.4	296718.72	104.11	60	120	
In	115	No Gas	7009840.54	3.2	6172029.62	114.53	60	120	
Tb	159	No Gas	7979448.85	1.5	6668814.32	119.65	60	120	
Tb	159	He	4943050.67	0.9	4400215.83	112.34	60	120	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	MRLL1204
File Name	H6L03069.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 13:16:54
Sample Type	LLCCV
Total Dilution	1.0000
Comment	1/100/10 ppb
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Li	7	6	No Gas	0.382	ppb	156.6	155561.89	1	38.2	80	120	> +/- 20%
Be	9	6	No Gas	0.910	ppb	4.6	4092.82	1	91	80	120	
B	11	6	No Gas	9.748	ppb	6.0	28680.44	10	97.48	80	120	
Na	23	45	H2	150.852	ppb	3.5	1100786.63	100	150.85	80	120	> +/- 20%
Mg	24	45	No Gas	109.479	ppb	6.8	1635085.38	100	109.48	80	120	
Al	27	45	No Gas	107.907	ppb	3.5	2073635.96	100	107.91	80	120	
Si	28	45	H2	92.253	ppb	0.3	128497.37	100	92.25	80	120	
P	31	45	No Gas	48.987	ppb	6.2	99511.13	50	97.97	80	120	
K	39	45	He	95.170	ppb	3.9	193788.95	100	95.17	80	120	
Ca	40	45	H2	102.511	ppb	3.8	1144248.92	100	102.51	80	120	
Ti	47	45	No Gas	0.973	ppb	2.4	2460.22	1	97.3	80	120	
V	51	45	He	0.864	ppb	1.2	8685.42	1	86.4	80	120	
Cr	52	45	He	0.918	ppb	1.0	9491.29	1	91.8	80	120	
Mn	55	45	No Gas	1.065	ppb	4.0	49539.52	1	106.5	80	120	
Fe	56	45	H2	100.124	ppb	5.4	1676488.71	100	100.12	80	120	
Co	59	45	No Gas	1.002	ppb	3.1	30602.99	1	100.2	80	120	
Ni	60	45	He	0.979	ppb	4.0	3062.35	1	97.9	80	120	
Cu	63	45	He	0.757	ppb	5.3	12017.30	1	75.7	80	120	> +/- 20%
Zn	66	72	No Gas	10.400	ppb	0.5	51508.15	10	104	80	120	
As	75	72	He	0.994	ppb	3.4	1451.41	1	99.4	80	120	
Se	78	72	H2	1.020	ppb	3.3	497.01	1	102	80	120	
Sr	88	72	No Gas	2.055	ppb	0.7	74294.41	2	102.75	80	120	
Zr	90	72	No Gas	4.765	ppb	2.3	108670.47	5	95.3	80	120	
Mo	95	115	No Gas	0.910	ppb	4.3	6611.64	1	91	80	120	
Ag	107	115	No Gas	0.971	ppb	3.8	18563.03	1	97.1	80	120	
Cd	111	115	No Gas	0.971	ppb	3.3	3439.50	1	97.1	80	120	
Sn	118	115	No Gas	0.728	ppb	8.5	12174.53	1	72.8	80	120	> +/- 20%
Sb	123	115	No Gas	0.969	ppb	5.8	11263.74	1	96.9	80	120	
Ba	137	115	No Gas	0.993	ppb	2.9	4882.03	1	99.3	80	120	
W	182	159	No Gas	1.924	ppb	4.9	18082.95	2	96.2	80	120	
Hg	201	159	He	0.100	ppb	11.1	108.83	0.1	100	80	120	
Tl	205	159	No Gas	1.043	ppb	2.7	20718.30	1	104.3	80	120	
Pb	208	159	No Gas	1.014	ppb	3.0	28517.19	1	101.4	80	120	
U	238	159	No Gas	0.965	ppb	2.1	23395.66	1	96.5	80	120	

OK @ 30%. LV 12/12/19

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2679358.55	7.3	2310764.06	115.95	60	120	
Sc	45	No Gas	5631232.33	4.7	5435407.83	103.6	60	120	
Sc	45	H2	3166561.83	1.0	3057879.58	103.55	60	120	
Sc	45	He	507120.68	1.0	505273.24	100.37	60	120	
Ge	72	No Gas	1316864.13	2.0	1203548.54	109.42	60	120	
Ge	72	H2	840677.67	1.2	768618.71	109.38	60	120	
Ge	72	He	317320.00	1.3	296718.72	106.94	60	120	
In	115	No Gas	6995699.65	2.6	6172829.62	113.33	60	120	
Tb	159	No Gas	7725800.53	2.3	6668814.32	115.85	60	120	
Tb	159	He	4762180.00	0.7	4400215.83	108.23	60	120	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	MRLL1205
File Name	H6L03070.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 13:19:12
Sample Type	LLCCV2
Total Dilution	1.0000
Comment	0.4/40/4 ppb
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Li	7	6	No Gas	0.085	ppb	305.4	145693.65	0.4	21.25	80	120	> +/- 20%
Be	9	6	No Gas	0.347	ppb	5.9	1512.31	0.4	86.75	80	120	
B	11	6	No Gas	1.296	ppb	5.5	6568.21	0.4	324	80	120	> +/- 20%
Na	23	45	H2	65.274	ppb	11.6	684722.04	40	163.18	80	120	> +/- 20%
Mg	24	45	No Gas	38.665	ppb	6.4	593789.94	40	96.66	80	120	
Al	27	45	No Gas	37.285	ppb	7.2	737673.35	40	93.21	80	120	
K	39	45	He	42.950	ppb	12.3	146654.21	40	107.38	80	120	
Ca	40	45	H2	31.787	ppb	5.8	409089.29	40	79.47	80	120	> +/- 20%
Ti	47	45	No Gas	0.346	ppb	7.0	1092.04	0.4	86.5	80	120	
V	51	45	He	0.344	ppb	4.8	4855.53	0.4	86	80	120	
Cr	52	45	He	0.307	ppb	8.5	4327.35	0.4	76.75	80	120	> +/- 20%
Mn	55	45	No Gas	0.388	ppb	10.1	26587.12	0.4	97	80	120	
Fe	56	45	H2	35.331	ppb	5.2	608142.87	40	88.33	80	120	
Co	59	45	No Gas	0.366	ppb	6.6	11536.88	0.4	91.5	80	120	
Ni	60	45	He	0.386	ppb	3.8	1239.39	0.4	96.5	80	120	
Cu	63	45	He	0.226	ppb	10.0	7600.12	0.4	56.5	80	120	> +/- 20%
Zn	66	72	No Gas	3.953	ppb	0.6	20507.47	4	98.82	80	120	
As	75	72	He	0.412	ppb	5.6	668.69	0.4	103	80	120	
Se	78	72	H2	0.384	ppb	6.0	184.00	0.4	96	80	120	
Sr	88	72	No Gas	0.376	ppb	2.3	13953.94	0.4	94	80	120	
Mo	95	115	No Gas	0.343	ppb	6.5	2436.89	0.4	85.75	80	120	
Ag	107	115	No Gas	0.396	ppb	3.4	8115.83	0.4	99	80	120	
Cd	111	115	No Gas	0.368	ppb	1.3	1256.84	0.4	92	80	120	
Sn	118	115	No Gas	0.311	ppb	10.6	7811.21	0.4	77.75	80	120	> +/- 20%
Sb	123	115	No Gas	0.385	ppb	2.3	4482.99	0.4	96.25	80	120	
Ba	137	115	No Gas	0.410	ppb	2.1	2003.49	0.4	102.5	80	120	
Tl	205	159	No Gas	0.379	ppb	1.6	7697.94	0.4	94.75	80	120	
Pb	208	159	No Gas	0.372	ppb	6.0	11505.42	0.4	93	80	120	
U	238	159	No Gas	0.356	ppb	5.3	8816.52	0.4	89	80	120	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2571393.62	2.5	2310764.06	111.28	60	120	
Sc	45	No Gas	5748223.50	4.9	5435407.83	105.76	60	120	

Low Level Continuing Calibration Verification (LLCCV) Report

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	H2	3228616.50	5.4	3057879.58	105.58	60	120	
Sc	45	He	498813.22	0.6	505273.24	98.72	60	120	
Ge	72	No Gas	1306975.71	1.4	1203548.54	108.59	60	120	
Ge	72	H2	798803.65	0.6	768618.71	103.93	60	120	
Ge	72	He	304769.50	0.9	296718.72	102.71	60	120	
In	115	No Gas	6804451.28	3.4	6172829.62	110.23	60	120	
Tb	159	No Gas	7880731.08	4.1	6668814.32	118.17	60	120	
Tb	159	He	4977595.17	2.5	4400215.83	113.12	60	120	

Sample Report

Sample Name	MRLL1206
File Name	H6L03071.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L03.b
Acq Time	2019-12-12 13:21:36
Sample Type	Sample
Total Dilution	1.0000
Comment	500 ppb CAT
ISTD Ref FileName	H6L03003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	I Victo

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	<0.000	<0.000	ppb	N/A	143689.01	50	
Be	9	6	No Gas	0.001	0.001	ppb	245.8	28.89	50	
B	11	6	No Gas	0.793	0.793	ppb	10.7	5306.56	100	
Na	23	45	H2	539.256	539.256	ppb	1.8	3052161.83	50000	
Mg	24	45	No Gas	511.372	511.372	ppb	5.5	7873145.50	50000	
Al	27	45	No Gas	498.983	498.983	ppb	5.6	9869449.64	50000	
Si	28	45	H2	<0.000	<0.000	ppb	N/A	5101.60	5000	
P	31	45	No Gas	1.492	1.492	ppb	164.8	44886.34	500	
K	39	45	He	455.953	455.953	ppb	2.0	501467.49	50000	
Ca	40	45	H2	485.251	485.251	ppb	7.9	5170065.17	50000	
Ti	47	45	No Gas	0.006	0.006	ppb	304.0	326.67	500	
V	51	45	He	<0.000	<0.000	ppb	N/A	1922.80	500	
Cr	52	45	He	<0.000	<0.000	ppb	N/A	1262.06	500	
Mn	55	45	No Gas	0.059	0.059	ppb	50.7	15117.68	3000	
Fe	56	45	H2	496.434	496.434	ppb	2.3	8293885.00	50000	
Co	59	45	No Gas	0.005	0.005	ppb	11.6	402.01	500	
Ni	60	45	He	0.006	0.006	ppb	72.0	102.00	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	3024.34	500	
Zn	66	72	No Gas	1.031	1.031	ppb	4.5	6628.95	500	
As	75	72	He	<0.000	<0.000	ppb	N/A	134.33	500	
Se	78	72	H2	0.007	0.007	ppb	134.9	13.67	500	
Sr	88	72	No Gas	0.029	0.029	ppb	6.3	1600.10	500	
Zr	90	72	No Gas	0.012	0.012	ppb	19.8	366.68	50	
Mo	95	115	No Gas	0.006	0.006	ppb	61.8	65.56	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	106.67	50	
Cd	111	115	No Gas	0.015	0.015	ppb	11.5	35.50	500	
Sn	118	115	No Gas	<0.000	<0.000	ppb	N/A	2461.34	500	
Sb	123	115	No Gas	0.006	0.006	ppb	75.6	276.67	100	
Ba	137	115	No Gas	0.066	0.066	ppb	11.5	392.23	1000	
W	182	159	No Gas	<0.000	<0.000	ppb	N/A	40.00	50	
Hg	201	159	He	0.003	0.003	ppb	79.4	14.17	5	
Tl	205	159	No Gas	0.013	0.013	ppb	14.1	283.34	500	
Pb	208	159	No Gas	0.003	0.003	ppb	74.4	1382.26	500	
U	238	159	No Gas	0.002	0.002	ppb	45.2	57.78	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2564449.02	1.6	2310764.06	110.98	60	120	
Sc	45	No Gas	5823087.33	6.8	5435407.83	107.13	60	120	
Sc	45	H2	3176052.08	2.0	3057879.58	103.86	60	120	
Sc	45	He	506338.47	0.8	505273.24	100.21	60	120	
Ge	72	No Gas	1307642.54	3.1	1203548.54	108.65	60	120	
Ge	72	H2	818047.02	0.4	768618.71	106.43	60	120	
Ge	72	He	310180.98	0.3	296718.72	104.54	60	120	
In	115	No Gas	6932698.54	2.4	6172829.62	112.31	60	120	
Tb	159	No Gas	7714369.69	2.4	6668814.32	115.68	60	120	
Tb	159	He	4886908.67	1.3	4400215.83	111.06	60	120	

EMAX LABORATORIES, INC.

DIGESTION LOG
for
ICP-MS METALS

Note: For samples, relevant QCs/Standards digested, refer to attached digestion sequence.

Comments:

Digestion Vessel Lot # 19072243

All samples pH<2

Book #: EIM-078
Batch: IML008W
Matrix: WATER
Digestor ID: E

SOP #	Rev. #
☐ EMAX-200.8	6
☑ EMAX-6020	11
☐ EMAX-6020CA	1
☐ EMAX-	

Start	Temp	End	Temp
	92.7 °C		93.4 °C

Standards	ID	Amount Added (ml/g)
LCS-1	SMSA-007-06-15	0.1S
LCS-2	↓ -06-16	0.1S
MS	Same spike soln and vol. as	LCS 1 and 2
Blank Soil (Bead)	N/A	N/A
Reagent	**Lot# / ID**	**Amount Added (ml)**
HNO_3	SWA-08-18-09	0.5 + 1.0
HCl	↓ -17-08	0.25+0.25
H_2O_2	N/A	N/A
HNO_3(1:1)	↓	
pH Strip (0-14)	HC863463	↓

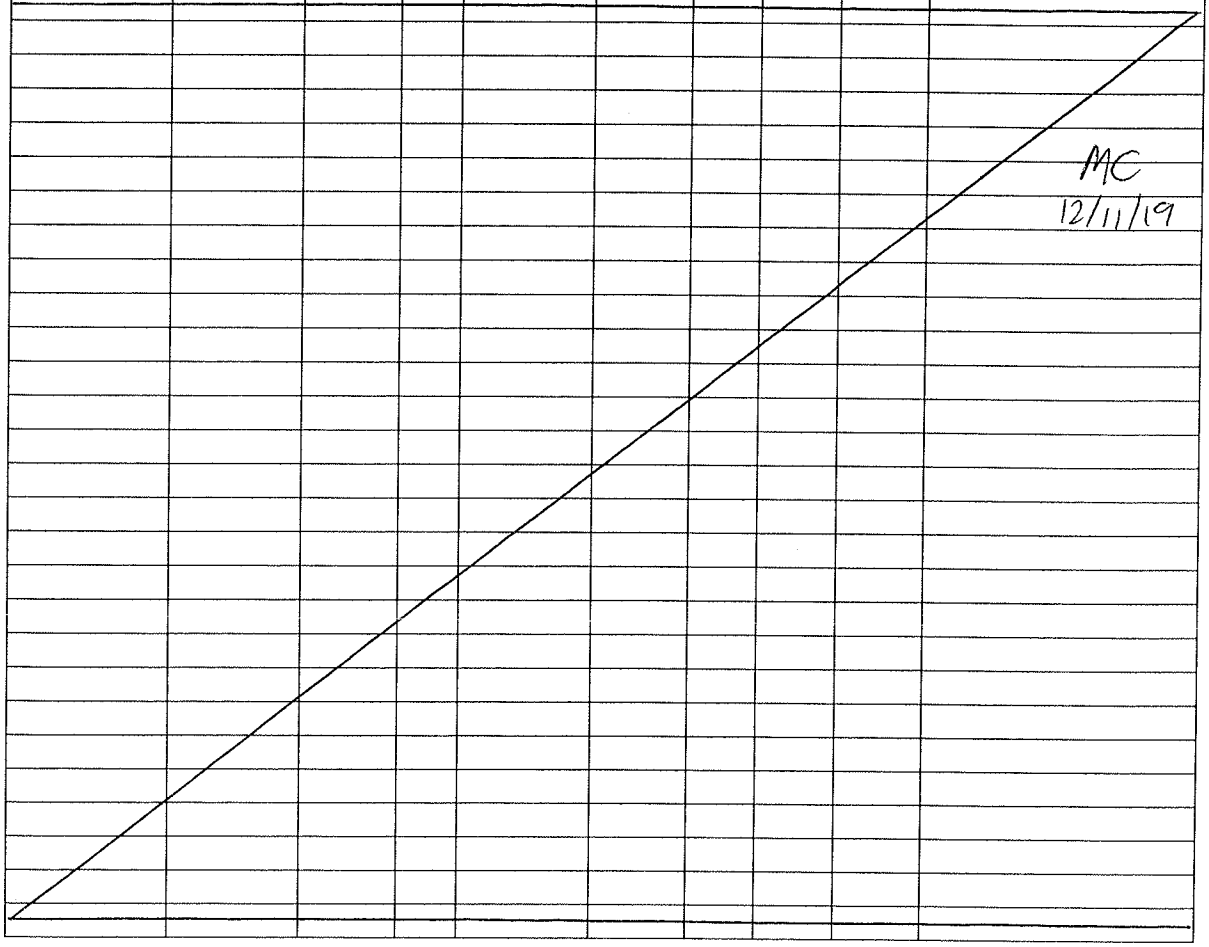
Digestate Location	Metals
Extract Location	N/A
☑ Reagent Water ID:	SMSA-CM-09-08
☑ Thermometer ID:	181292128/E30
☑ Pipette ID:	7427663331
☐ Pipette ID:	
☐ Pipette ID:	
☐ HNO_3 dispenser checked @ 5.0 ml with Class A volumetric flask	
☐ HCl dispenser checked @ 5.0 ml with Class A volumetric flask	

Prepared By: MC
Standard Added By: MC Witnessed By: LY
Extract Rcvd By: LY Checked By: MC

EMAX LABORATORIES

DIGESTION LOG FOR METALS

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Vd(ml)	ExpAmt	ExpVd(ml)	PrepFctr	Comments
19IML008W01	IML008WB	50	ml	12/11/19 9:20	50	50	50	1	
19IML008W02	IML008WL	50	ml	12/11/19 9:20	50	50	50	1	
19IML008W03	IML008WC	50	ml	12/11/19 9:20	50	50	50	1	
19IML008W04	K165-09	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W05	L018-02	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W06	L019-09	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W07	L043-01	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W08	L043-02	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W09	L043-04	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W10	L043-05	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W11	L043-07	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W12	L043-07M	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W13	L043-07S	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W14	L057-01	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W15	L057-02	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W16	L057-03	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W17	L057-04	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W18	L057-05	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W19	L057-07	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W20	L057-08	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W21	L057-09	50	ml	12/11/19 9:20	50	50	50	1	TOTAL
19IML008W22	L057-10	50	ml	12/11/19 9:20	50	50	50	1	TOTAL



Vd=digestate volume PrepFctr=(ExpAmt/Aliquot)*(Vd/ExpVd)

☑ Digestion Started @ 12/11/19 9:46 Prepared By: MCande

☑ Digestion Ended @ 12/11/19 12:12 Checked By: LY

Comments: Date 12/11/19

SOP EMAX-6020 Rev. 11

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L057

METHOD SW7470A
MERCURY BY COLD VAPOR

A total of nine(9) water samples were received on 12/07/19 to be analyzed for Mercury by Cold Vapor in accordance with Method SW7470A and project specific requirements.

Holding Time
Samples were digested and analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Mercury was not detected in HGL005WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. HGL005WL/HGL005WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
MERCURY BY COLD VAPOR

Client : CDM SMITH
Project : VA SALT LAKE CITY

SDG NO. : 19L057
Instrument ID : 47

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	HGL005WB	1	NA	12/12/1919:26	12/12/1912:30	M47L005013	M47L005	19HGL005W	Method Blank
LCS1W	HGL005WL	1	NA	12/12/1919:29	12/12/1912:30	M47L005014	M47L005	19HGL005W	Lab Control Sample (LCS)
LCD1W	HGL005WC	1	NA	12/12/1919:31	12/12/1912:30	M47L005015	M47L005	19HGL005W	LCS Duplicate
OU2-MW12S-GW120619	L057-01	1	NA	12/12/1920:05	12/12/1912:30	M47L005028	M47L005	19HGL005W	Field Sample
OU2-MW12D-GW120619	L057-02	1	NA	12/12/1920:07	12/12/1912:30	M47L005029	M47L005	19HGL005W	Field Sample
OU2-MW16S-GW120619	L057-03	1	NA	12/12/1920:10	12/12/1912:30	M47L005030	M47L005	19HGL005W	Field Sample
OU2-MW16D-GW120619	L057-04	1	NA	12/12/1920:12	12/12/1912:30	M47L005031	M47L005	19HGL005W	Field Sample
OU2-MW06-GW120619	L057-05	1	NA	12/12/1920:14	12/12/1912:30	M47L005032	M47L005	19HGL005W	Field Sample
OU2-MW13S-GW120519	L057-08	1	NA	12/12/1920:19	12/12/1912:30	M47L005034	M47L005	19HGL005W	Field Sample
OU2-MW13D-GW120519	L057-09	1	NA	12/12/1920:26	12/12/1912:30	M47L005037	M47L005	19HGL005W	Field Sample
OU2-MW04-GW120519	L057-10	1	NA	12/12/1920:29	12/12/1912:30	M47L005038	M47L005	19HGL005W	Field Sample
OU2-FD01-GW120519	L057-07N	1	NA	12/13/1914:30	12/12/1912:30	M47L006021	M47L006	19HGL005W	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD SW7470A
MERCURY BY COLD VAPOR

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L057
Matrix : WATER
InstrumentID : 47

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DILT'N FACTOR	MOIST (%)	RL (ug/L)	MDL (ug/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	HGL005WB	ND	1	NA	0.500	0.100	12/12/1919:26	12/12/1912:30	M47L005013	M47L005	19HGL005W	NA	NA
LCS1W	HGL005WL	2.39	1	NA	0.500	0.100	12/12/1919:29	12/12/1912:30	M47L005014	M47L005	19HGL005W	NA	NA
LCD1W	HGL005WC	2.29	1	NA	0.500	0.100	12/12/1919:31	12/12/1912:30	M47L005015	M47L005	19HGL005W	NA	NA
OU2-MW12S-GW120619	L057-01	ND	1	NA	0.500	0.100	12/12/1920:05	12/12/1912:30	M47L005028	M47L005	19HGL005W	12/06/1914:15	12/07/19
OU2-MW12D-GW120619	L057-02	ND	1	NA	0.500	0.100	12/12/1920:07	12/12/1912:30	M47L005029	M47L005	19HGL005W	12/06/1912:50	12/07/19
OU2-MW16S-GW120619	L057-03	ND	1	NA	0.500	0.100	12/12/1920:10	12/12/1912:30	M47L005030	M47L005	19HGL005W	12/06/1910:55	12/07/19
OU2-MW16D-GW120619	L057-04	ND	1	NA	0.500	0.100	12/12/1920:12	12/12/1912:30	M47L005031	M47L005	19HGL005W	12/06/1910:10	12/07/19
OU2-MW06-GW120619	L057-05	ND	1	NA	0.500	0.100	12/12/1920:14	12/12/1912:30	M47L005032	M47L005	19HGL005W	12/06/1909:30	12/07/19
OU2-MW13S-GW120519	L057-08	ND	1	NA	0.500	0.100	12/12/1920:19	12/12/1912:30	M47L005034	M47L005	19HGL005W	12/05/1914:40	12/07/19
OU2-MW13D-GW120519	L057-09	ND	1	NA	0.500	0.100	12/12/1920:26	12/12/1912:30	M47L005037	M47L005	19HGL005W	12/05/1916:55	12/07/19
OU2-MW04-GW120519	L057-10	ND	1	NA	0.500	0.100	12/12/1920:29	12/12/1912:30	M47L005038	M47L005	19HGL005W	12/05/1916:05	12/07/19
OU2-FD01-GW120519	L057-07N	ND	1	NA	0.500	0.100	12/13/1914:30	12/12/1912:30	M47L006021	M47L006	19HGL005W	12/05/1913:00	12/07/19

Note: Detection limits are reported relative to sample result significant figures.

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L057
METHOD : METHOD SW7470A

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: HGL005WB	HGL005WL	HGL005WC
LAB FILE ID	: M47L005013	M47L005014	M47L005015
DATE PREPARED	: 12/12/1912:30	12/12/1912:30	12/12/1912:30
DATE ANALYZED	: 12/12/1919:26	12/12/1919:29	12/12/1919:31
PREP BATCH	: 19HGL005W	19HGL005W	19HGL005W
CALIBRATION REF	: M47L005	M47L005	M47L005

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Mercury	ND	2.50	2.39	96	2.50	2.29	92	4	80-120	20

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 12/12/19 **Start Time:** 18:57

End Date: 12/12/19 **End Time:** 20:33

Comments: QC

Book #: A47-118

Instrument No.: 47

Analytical Sequence/Batch: M47L085

Method File: HG1

Micropipette ID: ☐ 339342032

Micropipette ID: ☑ HG-03

Micropipette ID: ☑ 742781062

Micropipette ID: ☐ HG-06

Micropipette ID: ☐

SOP #	Rev. #
☑ EMAX-7470	8
☐ EMAX-7471	9
☐ EMAX-245.1	4
☐ EMAX-	

STANDARDS ID	
S1	BLANK
S2	SM3B-18-38-04
S3	↓
S4	↓
S5	↓
S6	↓
CCV	↓
ICV	SM3B-18-38-05
LCS	↓
Analytical Spike	
	SM3B-18-38-06 TV 3 µg/L

Analyzed By: [signature]

Date: 12/12/19

Disposed By:

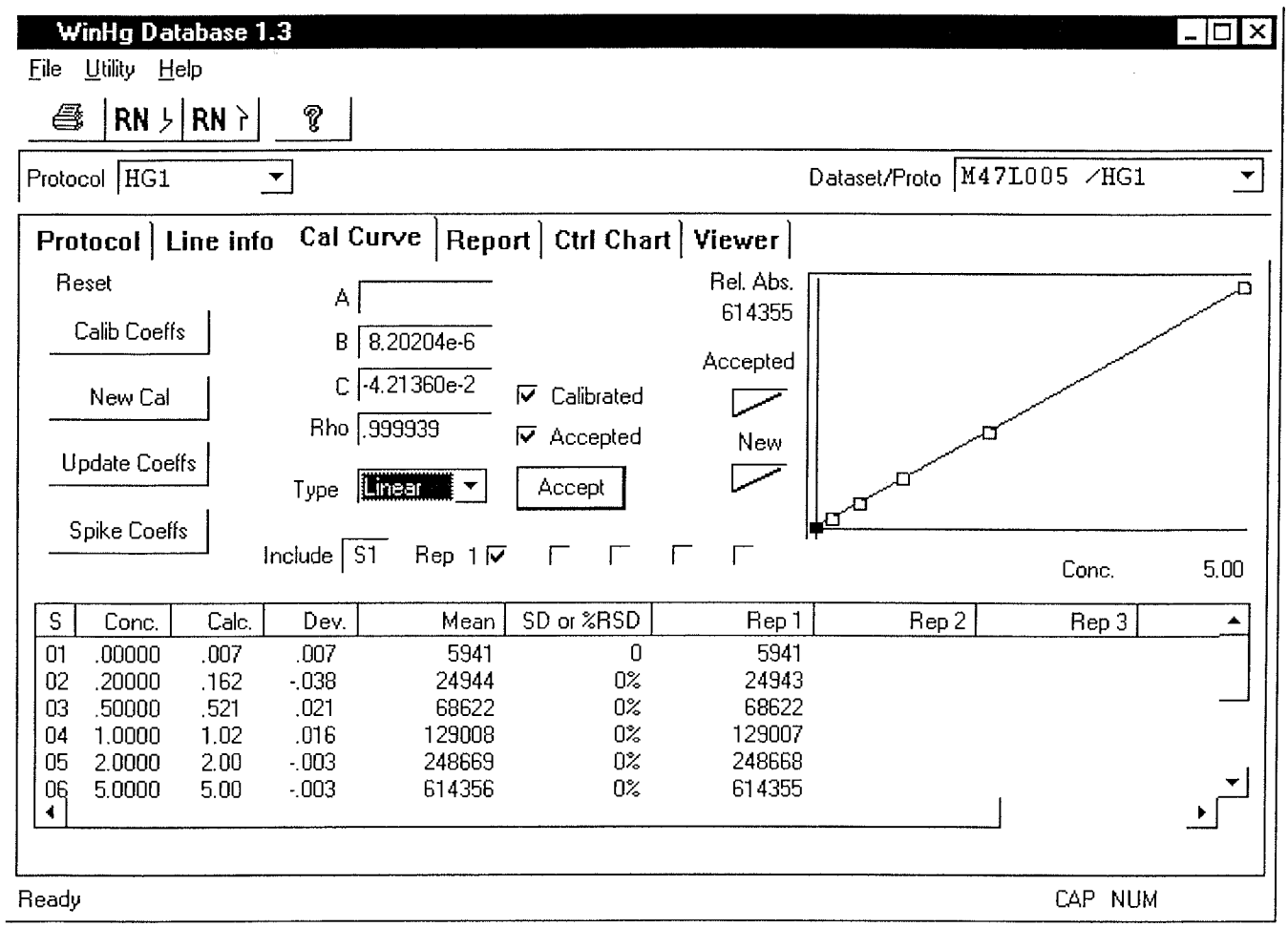
Date:

"M47L005"

EMAX1fid	EMAX1sid	conc	Raw_resp	rsd/rf	adatetime	DF
M47L005001	STD01REP1	0	5941		12/12/1918:57	1
M47L005002	STD02REP1	.2	24943		12/12/1919:00	1
M47L005003	STD03REP1	.5	68622		12/12/1919:02	1
M47L005004	STD04REP1	1	129007		12/12/1919:04	1
M47L005005	STD05REP1	2	248668		12/12/1919:06	1
M47L005006	STD06REP1	5	614355		12/12/1919:09	1
M47L005007	ICV	2.15	266955	0	12/12/1919:12	1
M47L005008	ICB	.02	7627	0	12/12/1919:15	1
M47L005009	MRLL1201	.683	88401	0	12/12/1919:17	1
M47L005010	CCV1	1.99	247769	0	12/12/1919:19	1
M47L005011	CCB1	-.135	-11308	0	12/12/1919:21	1
M47L005012	CCB1	.001	5261	0	12/12/1919:24	1
M47L005013	HGL005WB	.007	5987	0	12/12/1919:26	1
M47L005014	HGL005WL	2.39	296986	0	12/12/1919:29	1
M47L005015	HGL005WC	2.29	283930	0	12/12/1919:31	1
M47L005016	L043-01	.034	9296	0	12/12/1919:34	1
M47L005017	L043-02	-.143	-12255	0	12/12/1919:36	1
M47L005018	L043-04	-.138	-11631	0	12/12/1919:38	1
M47L005019	L043-05	.062	12727	0	12/12/1919:42	1
M47L005020	L043-07A	2.79	344875	0	12/12/1919:44	1
M47L005021	L043-07	.013	6722	0	12/12/1919:46	1
M47L005022	L043-07J	.108	18321	0	12/12/1919:48	5
M47L005023	CCV2	2.09	259911	0	12/12/1919:51	1
M47L005024	CCB2	-.039	393	0	12/12/1919:54	1
M47L005025	L043-07M	2.24	277669	0	12/12/1919:57	1
M47L005026	L043-07S	2.37	293965	0	12/12/1919:59	1
M47L005027	L052-01	.092	16320	0	12/12/1920:02	1
M47L005028	L057-01	.028	8516	0	12/12/1920:05	1
M47L005029	L057-02	.02	7576	0	12/12/1920:07	1
M47L005030	L057-03	.032	9011	0	12/12/1920:10	1
M47L005031	L057-04	.03	8804	0	12/12/1920:12	1
M47L005032	L057-05	.049	11112	0	12/12/1920:14	1
M47L005033	L057-07	-.127	-10308	0	12/12/1920:17	1
M47L005034	L057-08	.013	6710	0	12/12/1920:19	1
M47L005035	CCV3	2.03	252828	0	12/12/1920:21	1
M47L005036	CCB3	-.021	2605	0	12/12/1920:24	1
M47L005037	L057-09	-.077	-4299	0	12/12/1920:26	1
M47L005038	L057-10	.003	5485	0	12/12/1920:29	1
M47L005039	CCV4	2.1	261741	0	12/12/1920:31	1
M47L005040	CCB4	.001	5318	0	12/12/1920:33	1
**********	**********	**********	**********	**********	**********	***
EMAX1fid	EMAX1sid	Xint	Yint	rrf	adatetime	DF
M47L005000		0	0	0	12/12/1920:33	1
M47L005001	BLANK	-4.231788E-02	5158.808	.999939	12/12/1920:33	1

* M47L005 *

cup	sample ID	extended ID	weight	volume	? A D F P S U SC UI US C1..7
1	ICV		1.0000	1.0000	
2	ICB		1.0000	1.0000	
3	MRLL1201	0.5	1.0000	1.0000	
4	CCV1		1.0000	1.0000	
5	CCB1		1.0000	1.0000	
6	HGL005WB		1.0000	1.0000	
7	HGL005WL		1.0000	1.0000	
8	HGL005WC		1.0000	1.0000	
9	L043-01		1.0000	1.0000	
10	L043-02		1.0000	1.0000	
11	L043-04		1.0000	1.0000	
12	L043-05		1.0000	1.0000	
13	L043-07A		1.0000	1.0000	
14	L043-07		1.0000	1.0000	
15	L043-07J	5X	1.0000	1.0000	
16	CCV2		1.0000	1.0000	
17	CCB2		1.0000	1.0000	
18	L043-07M		1.0000	1.0000	
19	L043-07S		1.0000	1.0000	
20	L052-01		1.0000	1.0000	
21	L057-01		1.0000	1.0000	
22	L057-02		1.0000	1.0000	
23	L057-03		1.0000	1.0000	
24	L057-04		1.0000	1.0000	
25	L057-05		1.0000	1.0000	
26	L057-07		1.0000	1.0000	
27	L057-08		1.0000	1.0000	
28	CCV3		1.0000	1.0000	
29	CCB3		1.0000	1.0000	
30	L057-09		1.0000	1.0000	
31	L057-10		1.0000	1.0000	
32	CCV4		1.0000	1.0000	
33	CCB4		1.0000	1.0000	
34			1.0000	1.0000	
35			1.0000	1.0000	
36			1.0000	1.0000	
37			1.0000	1.0000	
38			1.0000	1.0000	
39			1.0000	1.0000	
40			1.0000	1.0000	
41			1.0000	1.0000	
42			1.0000	1.0000	
43			1.0000	1.0000	
44			1.0000	1.0000	


WinHg Database 1.3
File Utility Help
RN
RN
Protocol HG1
Dataset/Proto M47L005 /HG1
Protocol
Line info
Cal Curve
Report
Ctrl Chart
Viewer
Reset
Calib Coeffs
New Cal
Update Coeffs
Spike Coeffs
A
B 8.20204e-6
C -4.21360e-2
Rho .999939
Type Linear
Calibrated
Accepted
Accept
Include S1
Rep 1
Rel. Abs.
614355
Accepted
New
Conc. 5.00
S Conc. Calc. Dev. Mean SD or %RSD Rep 1 Rep 2 Rep 3
01 .00000 .007 .007 5941 0 5941
02 .20000 .162 -.038 24944 0% 24943
03 .50000 .521 .021 68622 0% 68622
04 1.0000 1.02 .016 129008 0% 129007
05 2.0000 2.00 -.003 248669 0% 248668
06 5.0000 5.00 -.003 614356 0% 614355
Ready
CAP NUM

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 1 Rep: 1				Seq: 1		18:57:44 12 Dec 19		HG
Hg	.000	ppb	5941					
*** Standard: 2 Rep: 1				Seq: 2		19:00:14 12 Dec 19		HG
Hg	.200	ppb	24943					
*** Standard: 3 Rep: 1				Seq: 3		19:02:33 12 Dec 19		HG
Hg	.500	ppb	68622					
*** Standard: 4 Rep: 1				Seq: 4		19:04:47 12 Dec 19		HG
Hg	1.00	ppb	129007					
*** Standard: 5 Rep: 1				Seq: 5		19:06:58 12 Dec 19		HG
Hg	2.00	ppb	248668					
*** Standard: 6 Rep: 1				Seq: 6		19:09:18 12 Dec 19		HG
Hg	5.00	ppb	614355					
*** Sample ID: ICV				Seq: 7		19:12:56 12 Dec 19		HG
Hg	2.15	ppb	266955					
*** Sample ID: ICB				Seq: 8		19:15:06 12 Dec 19		HG
Hg	.020	ppb	7627					
*** Sample ID: MRLL1201				Seq: 9		19:17:16 12 Dec 19		HG
Hg	.683	ppb	0.5 88401					
*** Sample ID: CCV1				Seq: 10		19:19:27 12 Dec 19		HG
Hg	1.99	ppb	247769					
*** Sample ID: CCB1				Seq: 11		19:21:51 12 Dec 19		HG
Hg	-.135	ppb	-11308					
*** Sample ID: CCB1				Seq: 12		19:24:13 12 Dec 19		HG
Hg	.001	ppb	5261					
*** Sample ID: HGL005WB				Seq: 13		19:26:54 12 Dec 19		HG
Hg	.007	ppb	5987					
*** Sample ID: HGL005WL				Seq: 14		19:29:19 12 Dec 19		HG
Hg	2.39	ppb	296986					
*** Sample ID: HGL005WC				Seq: 15		19:31:49 12 Dec 19		HG
Hg	2.29	ppb	283930					

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: L043-01				Seq: 16	19:34:00 12 Dec 19	HG		
Hg	.034	ppb	9296					
*** Sample ID: L043-02				Seq: 17	19:36:31 12 Dec 19	HG		
Hg	-.143	ppb	-12255					
*** Sample ID: L043-04				Seq: 18	19:38:43 12 Dec 19	HG		
Hg	-.138	ppb	-11631					
*** Sample ID: L043-05				Seq: 19	19:42:06 12 Dec 19	HG		
Hg	.062	ppb	12727					
*** Sample ID: L043-07A				Seq: 20	19:44:29 12 Dec 19	HG		
Hg	2.79	ppb	344875					
*** Sample ID: L043-07				Seq: 21	19:46:39 12 Dec 19	HG		
Hg	.013	ppb	6722					
*** Sample ID: L043-07J				Seq: 22	19:48:51 12 Dec 19	HG		
			5X					
Hg	.108	ppb	18321					
*** Sample ID: CCV2				Seq: 23	19:51:51 12 Dec 19	HG		
Hg	2.09	ppb	259911					
*** Sample ID: CCB2				Seq: 24	19:54:32 12 Dec 19	HG		
Hg	-.039	ppb	393					
*** Sample ID: L043-07M				Seq: 25	19:57:04 12 Dec 19	HG		
Hg	2.24	ppb	277669					
*** Sample ID: L043-07S				Seq: 26	19:59:24 12 Dec 19	HG		
Hg	2.37	ppb	293965					
*** Sample ID: L052-01				Seq: 27	20:02:30 12 Dec 19	HG		
Hg	.092	ppb	16320					
*** Sample ID: L057-01				Seq: 28	20:05:42 12 Dec 19	HG		
Hg	.028	ppb	8516					
*** Sample ID: L057-02				Seq: 29	20:07:54 12 Dec 19	HG		
Hg	.020	ppb	7576					
*** Sample ID: L057-03				Seq: 30	20:10:05 12 Dec 19	HG		
Hg	.032	ppb	9011					

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: L057-04				Seq: 31	20:12:36 12 Dec 19	HG		
Hg	.030	ppb	8804					
*** Sample ID: L057-05				Seq: 32	20:14:48 12 Dec 19	HG		
Hg	.049	ppb	11112					
*** Sample ID: L057-07				Seq: 33	20:17:04 12 Dec 19	HG		
Hg	-.127	ppb	-10308					
*** Sample ID: L057-08				Seq: 34	20:19:36 12 Dec 19	HG		
Hg	.013	ppb	6710					
*** Sample ID: CCV3				Seq: 35	20:21:51 12 Dec 19	HG		
Hg	2.03	ppb	252828					
*** Sample ID: CCB3				Seq: 36	20:24:28 12 Dec 19	HG		
Hg	-.021	ppb	2605					
*** Sample ID: L057-09				Seq: 37	20:26:59 12 Dec 19	HG		
Hg	-.077	ppb	-4299					
*** Sample ID: L057-10				Seq: 38	20:29:32 12 Dec 19	HG		
Hg	.003	ppb	5485					
*** Sample ID: CCV4				Seq: 39	20:31:45 12 Dec 19	HG		
Hg	2.10	ppb	261741					
*** Sample ID: CCB4				Seq: 40	20:33:56 12 Dec 19	HG		
Hg	.001	ppb	5318					

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
MERCURY

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 12/13/19 **Start Time:** 13:30

End Date: 12/13/19 **End Time:** 14:34

Comments: QC OK

Book #: A47-118

Instrument No.: 47

Analytical Sequence/Batch: M47L006

Method File: HG 1

Micropipette ID: ☐ 339342032

Micropipette ID: ☑ HG-03

Micropipette ID: ☑ 742781062

Micropipette ID: ☑ HG-06

Micropipette ID: ☐

SOP #	Rev. #
☑ EMAX-7470	8
☐ EMAX-7471	9
☐ EMAX-245.1	4
☐ EMAX-	

STANDARDS ID	
S1	BLANK
S2	SMSP-18-38-04
S3	
S4	
S5	
S6	
CCV	
ICV	SMSP-18-38-05
LCS	
Analytical Spike	
	SMSP-18-38-06 TV 3 µg/L

Analyzed By: JA

Date: 12/13/19

Disposed By:

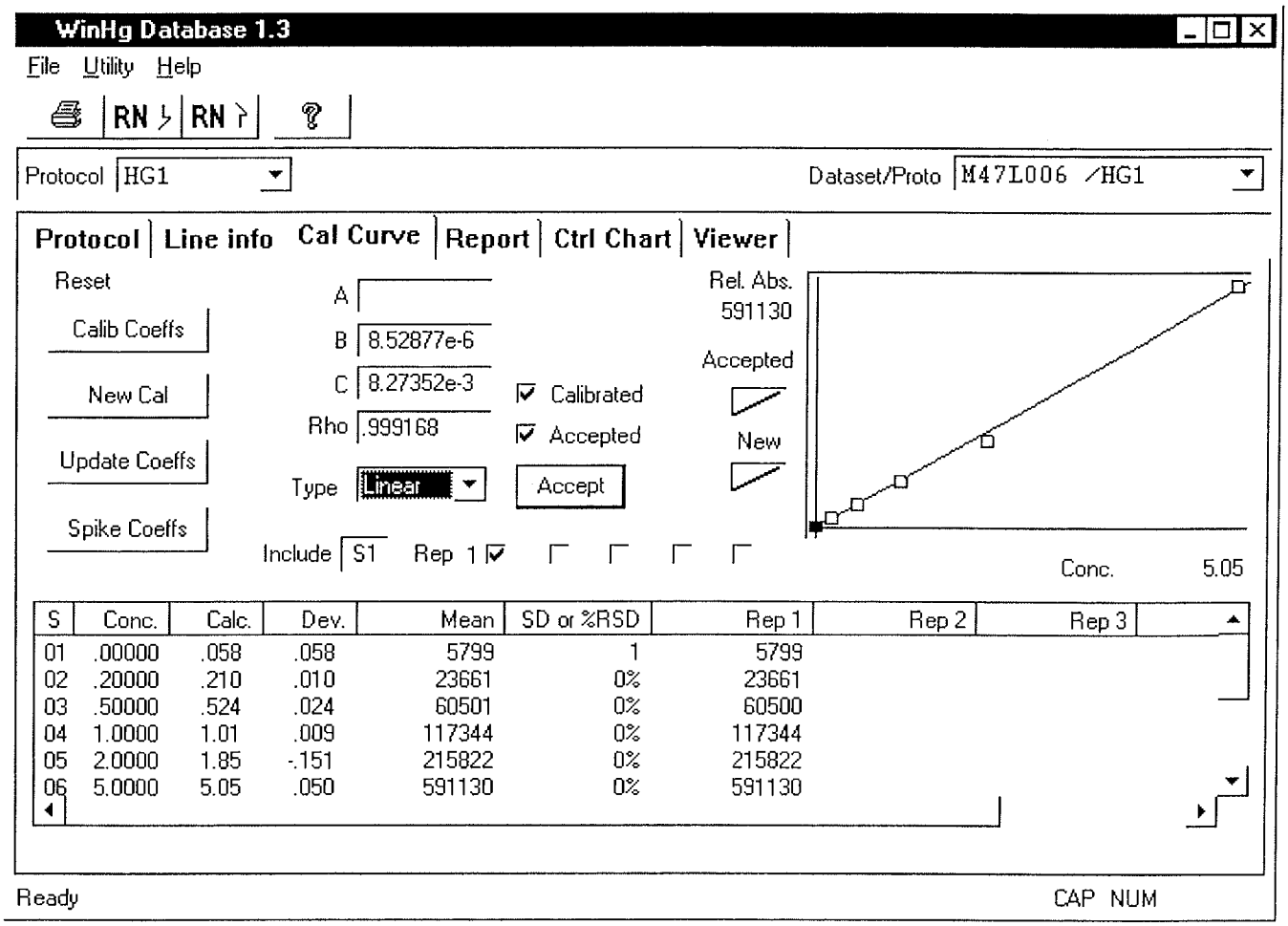
Date:

"M47L006"

EMAXlfid	EMAXlsid	conc	Raw_resp	rsd/rf	adatetime	DF
M47L006001	STD01REP1	0	5799		12/13/1913:30	1
M47L006002	STD02REP1	.2	23661		12/13/1913:32	1
M47L006003	STD03REP1	.5	60500		12/13/1913:34	1
M47L006004	STD04REP1	1	117344		12/13/1913:37	1
M47L006005	STD05REP1	2	215822		12/13/1913:39	1
M47L006006	STD06REP1	5	591130		12/13/1913:41	1
M47L006007	ICV	2.1	245317	0	12/13/1913:47	1
M47L006008	ICB	-.057	-7711	0	12/13/1913:49	1
M47L006009	MRLL1301	.51	58860	0	12/13/1913:52	1
M47L006010	CCV1	1.94	226916	0	12/13/1913:54	1
M47L006011	CCB1	-.137	-16984	0	12/13/1913:56	1
M47L006012	CCB1	.26	29540	0	12/13/1913:59	1
M47L006013	CCV2	2.13 ✓	248924	0	12/13/1914:09	1
M47L006014	CCB2	.071 ✓	7400	0	12/13/1914:11	1
M47L006015	HGL005WB	.028	2310	0	12/13/1914:14	1
M47L006016	HGL005WL	2.41	282174	0	12/13/1914:17	1
M47L006017	HGL005WC	2.51	293638	0	12/13/1914:19	1
M47L006018	L043-02N	-.095	-12098	0	12/13/1914:22	1
M47L006019	L043-04N	.234	26492	0	12/13/1914:24	1
M47L006020	L052-01N	.071	7302	0	12/13/1914:27	1
M47L006021	L057-07N	.099	10625	0	12/13/1914:30	1
M47L006022	CCV3	2.07	241450	0	12/13/1914:32	1
M47L006023	CCB3	.077	8109	0	12/13/1914:34	1
**********	**********	**********	**********	**********	**********	***
EMAXlfid	EMAXlsid	Xint	Yint	rrf	adatetime	DF
M47L006000		0	0	0	12/13/1914:34	1
M47L006001	BLANK	5.871098E-03	-687.242	.9991679	12/13/1914:34	1

* M47L006 *

cup	sample ID	extended ID	weight	volume	? A D F P S U SC UI US C1..7
1	ICV		1.0000	1.0000	
2	ICB		1.0000	1.0000	
3	MRLL1301	0.5	1.0000	1.0000	
4	CCV1		1.0000	1.0000	
5	CCB1		1.0000	1.0000	
6	CCV2		1.0000	1.0000	
7	CCB2		1.0000	1.0000	
8	HGL005WB		1.0000	1.0000	
9	HGL005WL		1.0000	1.0000	
10	HGL005WC		1.0000	1.0000	
11	L043-02N		1.0000	1.0000	
12	L043-04N		1.0000	1.0000	
13	L052-01N		1.0000	1.0000	
14	L057-07N		1.0000	1.0000	
15	CCV3		1.0000	1.0000	
16	CCB3		1.0000	1.0000	
17			1.0000	1.0000	
18			1.0000	1.0000	
19			1.0000	1.0000	
20			1.0000	1.0000	
21			1.0000	1.0000	
22			1.0000	1.0000	
23			1.0000	1.0000	
24			1.0000	1.0000	
25			1.0000	1.0000	
26			1.0000	1.0000	
27			1.0000	1.0000	
28			1.0000	1.0000	
29			1.0000	1.0000	
30			1.0000	1.0000	
31			1.0000	1.0000	
32			1.0000	1.0000	
33			1.0000	1.0000	
34			1.0000	1.0000	
35			1.0000	1.0000	
36			1.0000	1.0000	
37			1.0000	1.0000	
38			1.0000	1.0000	
39			1.0000	1.0000	
40			1.0000	1.0000	
41			1.0000	1.0000	
42			1.0000	1.0000	
43			1.0000	1.0000	
44			1.0000	1.0000	


WinHg Database 1.3
File Utility Help
RN
RN
Protocol HG1
Dataset/Proto M47L006 /HG1
Protocol
Line info
Cal Curve
Report
Ctrl Chart
Viewer
Reset
Calib Coeffs
New Cal
Update Coeffs
Spike Coeffs
A
B 8.52877e-6
C 8.27352e-3
Rho .999168
Type Linear
Calibrated
Accepted
Accept
Include S1
Rep 1
Rel. Abs.
591130
Accepted
New
Conc. 5.05
S Conc. Calc. Dev. Mean SD or %RSD Rep 1 Rep 2 Rep 3
01 .00000 .058 .058 5799 1 5799
02 .20000 .210 .010 23661 0% 23661
03 .50000 .524 .024 60501 0% 60500
04 1.0000 1.01 .009 117344 0% 117344
05 2.0000 1.85 -.151 215822 0% 215822
06 5.0000 5.05 .050 591130 0% 591130
Ready
CAP NUM

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 1 Rep: 1				Seq: 1	13:30:11 13 Dec 19	HG		
Hg	.000	ppb	5799					
*** Standard: 2 Rep: 1				Seq: 2	13:32:32 13 Dec 19	HG		
Hg	.200	ppb	23661					
*** Standard: 3 Rep: 1				Seq: 3	13:34:52 13 Dec 19	HG		
Hg	.500	ppb	60500					
*** Standard: 4 Rep: 1				Seq: 4	13:37:03 13 Dec 19	HG		
Hg	1.00	ppb	117344					
*** Standard: 5 Rep: 1				Seq: 5	13:39:14 13 Dec 19	HG		
Hg	2.00	ppb	215822					
*** Standard: 6 Rep: 1				Seq: 6	13:41:26 13 Dec 19	HG		
Hg	5.00	ppb	591130					
*** Sample ID: ICV				Seq: 7	13:47:27 13 Dec 19	HG		
Hg	2.10	ppb	245317					
*** Sample ID: ICB				Seq: 8	13:49:57 13 Dec 19	HG		
Hg	-.057	ppb	-7711					
*** Sample ID: MRLL1301				Seq: 9	13:52:27 13 Dec 19	HG		
Hg	.510	ppb	0.5 58860					
*** Sample ID: CCV1				Seq: 10	13:54:39 13 Dec 19	HG		
Hg	1.94	ppb	226916					
*** Sample ID: CCB1				Seq: 11	13:56:50 13 Dec 19	HG		
Hg	-.137	ppb	-16984					
*** Sample ID: CCB1				Seq: 12	13:59:49 13 Dec 19	HG		
Hg	.260	ppb	29540					
*** Sample ID: CCV2				Seq: 13	14:09:20 13 Dec 19	HG		
Hg	2.13	ppb	248924					
*** Sample ID: CCB2				Seq: 14	14:11:31 13 Dec 19	HG		
Hg	.071	ppb	7400					
*** Sample ID: HGL005WB				Seq: 15	14:14:57 13 Dec 19	HG		
Hg	.028	ppb	2310					

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: HGL005WL				Seq: 16	14:17:41 13 Dec 19			HG
Hg	2.41	ppb	282174					
*** Sample ID: HGL005WC				Seq: 17	14:19:54 13 Dec 19			HG
Hg	2.51	ppb	293638					
*** Sample ID: L043-02N				Seq: 18	14:22:07 13 Dec 19			HG
Hg	-.095	ppb	-12098					
*** Sample ID: L043-04N				Seq: 19	14:24:30 13 Dec 19			HG
Hg	.234	ppb	26492					
*** Sample ID: L052-01N				Seq: 20	14:27:43 13 Dec 19			HG
Hg	.071	ppb	7302					
*** Sample ID: L057-07N				Seq: 21	14:30:05 13 Dec 19			HG
Hg	.099	ppb	10625					
*** Sample ID: CCV3				Seq: 22	14:32:15 13 Dec 19			HG
Hg	2.07	ppb	241450					
*** Sample ID: CCB3				Seq: 23	14:34:50 13 Dec 19			HG
Hg	.077	ppb	8109					

EMAX LABORATORIES, INC.

DIGESTION LOG
for
MERCURY

Note: For samples, relevant QCs/Standards digested, refer to attached digestion sequence.

Comments: SAMPLES PH = <2

Digestion Vessel Lot #: 04119002

Aqua Regia Prep. Vessel Lot#: N/A

Book #: E47-113

Batch No.: HGL005 W

Matrix: WATER

SOP #	Rev. #
☑ EMAX-7470	8
☐ EMAX-7471	9
☐ EMAX-245.1	4
☐ EMAX-	

Standards	ID	Conc. (µg/L)	Amount Added (ml)
ICAL	SM3B-18-38-04	50	0.2, 0.5, 1, 2.5
CCV	↓	↓	2
ICV	SM3B-18-38-05	↓	2
LCS/MS	↓	↓	2.5

Reagent	ID / Lot #
HNO_3	SWA-08-18-09
HCl	N/A
H_2SO_4	SWA-08-16-04
$KMnO_4$	SM5B-04-11-03
$K_2S_2O_8$	SM5B-04-10-~~03~~01
$NH_2OH•HCl•NaCl$	SM5B-04-10-~~04~~03 JB 12/12/19
$SnCl_2$	SM5B-04-11-04
Silica Sand	N/A
Reagent Water	RW1-19-002
pH strip 0-14	AC8574 66

Digestor ID/ Temp (°C) A - 95.1 B - 95.2

Thermometer ID/LOC: 192272438 A-3

Thermometer ID/LOC: 192332031 B-9

Pipette ID: HG-03, HG-06, 33934 2032

☐ H_2SO_4 dispenser checked @ 2.5 ml with Class A graduated cylinder

☐ HCl dispenser checked @ ___ ml with Class A graduated cylinder

☐ HNO_3 dispenser checked @ ___ ml with Class A graduated cylinder

Prepared By: JA

Standard Added By: JA Witnessed By: MC

EMAX LABORATORIES, INC.

DIGESTION LOG FOR MERCURY

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Vd(ml)	ExpAmt	ExpVd(ml)	PrepFctr	Comments
19HGL005W01	HGL005WB	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W02	HGL005WL	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W03	HGL005WC	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W04	L043-01	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W05	L043-02	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W06	L043-04	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W07	L043-05	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W08	L043-07	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W09	L043-07M	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W10	L043-07S	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W11	L052-01	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W12	L057-01	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W13	L057-02	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W14	L057-03	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W15	L057-04	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W16	L057-05	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W17	L057-07	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W18	L057-08	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W19	L057-09	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W20	L057-10	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W21	S-0/CCB/ICB	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W22	S-0.2	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W23	S-0.5	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W24	S-1	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W25	S-2/CCV	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W26	S-5	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W27	ICV	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W28	PS H2O	50	ml	12/12/19 10:47	80	50	80	1	
19HGL005W29	MRL-0.5	50	ml	12/12/19 10:47	80	50	80	1	

JU 12/12/19

Vd=digestate volume PrepFctr=(ExpAmt/Aliquot)*(Vd/ExpVd)

☑ Digestion Started @ 12/12/19 12:30 Prepared By: JVille

☑ Digestion Ended @ 12/12/19 14:45 Checked By: JU

Comments: Date 12/12/19

SOP EMAX-7470 Rev. 8

LABORATORY REPORT FOR

CDM SMITH

VA SALT LAKE CITY

WET CHEMICAL ANALYSES

SDG#: 19L057

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L057

METHOD E300.0
CHLORIDE

A total of nine(9) water samples were received on 12/07/19 to be analyzed for Chloride in accordance with Method E300.0 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, two(2) method blanks were analyzed. ICL012WB and ICL014WB were compliant to project requirement. Refer to sample result summary forms for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, two(2) sets of LCS/LCD were analyzed. ICL012WL/ICL012WC and ICL014WL/ICL014WC were within LCS limits. Refer to LCS summary forms for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. Chloride was within MS QC limits in L057-01JM/L057-01JS. Sample duplicate was analyzed and RPD was within expected value. Refer to Matrix QC summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L057

METHOD E300.0
SULFATE

A total of nine(9) water samples were received on 12/07/19 to be analyzed for Sulfate in accordance with Method E300.0 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, two(2) method blanks were analyzed. ICL012WB and ICL014WB were compliant to project requirement. Refer to sample result summary forms for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, two(2) sets of LCS/LCD were analyzed. ICL012WL/ICL012WC and ICL014WL/ICL014WC were within LCS limits. Refer to LCS summary forms for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. Sulfate was within MS QC limits in L057-01IM/L057-01IS. Sample duplicate was analyzed and RPD was within expected value. Refer to Matrix QC summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

SAMPLE RESULTS

METHOD E300.0
CHLORIDE

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L057

Matrix : WATER
InstrumentID : D7

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ICL012WB	ND	1	NA	0.2	0.05	12/17/1912:22	NA	AL14-03	AL14-01	ICL012W	NA	NA
LCS1W	ICL012WL	1.91	1	NA	0.2	0.05	12/17/1912:43	NA	AL14-04	AL14-01	ICL012W	NA	NA
LCD1W	ICL012WC	1.92	1	NA	0.2	0.05	12/17/1913:04	NA	AL14-05	AL14-01	ICL012W	NA	NA
OU2-MW12S-GW120619	L057-01J	259	200	NA	40	10	12/17/1922:04	NA	AL14-29	AL14-25	ICL012W	12/06/1914:15	12/07/19
OU2-MW12S-GW120619DUP	L057-01JD	260	200	NA	40	10	12/17/1922:24	NA	AL14-30	AL14-25	ICL012W	12/06/1914:15	12/07/19
OU2-MW12S-GW120619MS	L057-01JM	645	200	NA	40	10	12/17/1922:45	NA	AL14-31	AL14-25	ICL012W	12/06/1914:15	12/07/19
OU2-MW12S-GW120619MSD	L057-01JS	652	200	NA	40	10	12/17/1923:06	NA	AL14-32	AL14-25	ICL012W	12/06/1914:15	12/07/19
OU2-MW12D-GW120619	L057-02J	189	200	NA	40	10	12/17/1923:47	NA	AL14-34	AL14-25	ICL012W	12/06/1912:50	12/07/19
OU2-MW16S-GW120619	L057-03J	263	200	NA	40	10	12/18/1900:29	NA	AL14-36	AL14-25	ICL012W	12/06/1910:55	12/07/19
OU2-MW16D-GW120619	L057-04J	143	200	NA	40	10	12/18/1901:52	NA	AL14-40	AL14-37	ICL012W	12/06/1910:10	12/07/19
OU2-MW06-GW120619	L057-05J	170	200	NA	40	10	12/18/1902:33	NA	AL14-42	AL14-37	ICL012W	12/06/1909:30	12/07/19
OU2-FD01-GW120519	L057-07J	156	200	NA	40	10	12/18/1903:15	NA	AL14-44	AL14-37	ICL012W	12/05/1913:00	12/07/19
OU2-MW13S-GW120519	L057-08J	426	200	NA	40	10	12/18/1903:56	NA	AL14-46	AL14-37	ICL012W	12/05/1914:40	12/07/19
OU2-MW13D-GW120519	L057-09J	218	200	NA	40	10	12/18/1904:38	NA	AL14-48	AL14-37	ICL012W	12/05/1916:55	12/07/19
MBLK2W	ICL014WB	ND	1	NA	0.2	0.05	12/18/1913:42	NA	AL16-03	AL16-01	ICL014W	NA	NA
LCS2W	ICL014WL	1.88	1	NA	0.2	0.05	12/18/1914:03	NA	AL16-04	AL16-01	ICL014W	NA	NA
LCD2W	ICL014WC	1.88	1	NA	0.2	0.05	12/18/1914:23	NA	AL16-05	AL16-01	ICL014W	NA	NA
OU2-MW04-GW120519	L057-10J	246	200	NA	40	10	12/18/1915:41	NA	AL16-07	AL16-01	ICL014W	12/05/1916:05	12/07/19

METHOD E300.0
SULFATE

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L057

Matrix : WATER
InstrumentID : D7

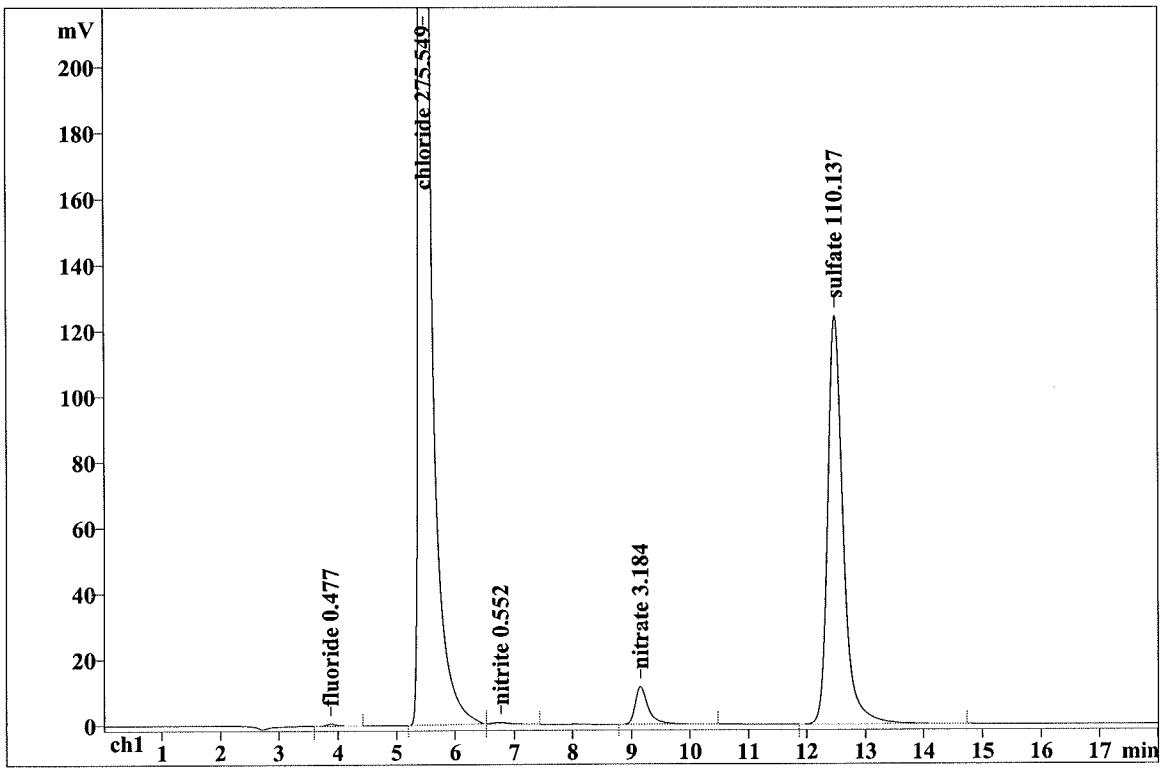
CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ICL012WB	ND	1	NA	0.5	0.13	12/17/1912:22	NA	AL14-03	AL14-01	ICL012W	NA	NA
LCS1W	ICL012WL	4.72	1	NA	0.5	0.13	12/17/1912:43	NA	AL14-04	AL14-01	ICL012W	NA	NA
LCD1W	ICL012WC	4.72	1	NA	0.5	0.13	12/17/1913:04	NA	AL14-05	AL14-01	ICL012W	NA	NA
OU2-MW12S-GW120619	L057-01I	110	10	NA	5	1.3	12/17/1914:38	NA	AL14-09	AL14-01	ICL012W	12/06/1914:15	12/07/19
OU2-MW12S-GW120619MS	L057-01IM	160	10	NA	5	1.3	12/17/1914:59	NA	AL14-10	AL14-01	ICL012W	12/06/1914:15	12/07/19
OU2-MW12S-GW120619MSD	L057-01IS	160	10	NA	5	1.3	12/17/1915:20	NA	AL14-11	AL14-01	ICL012W	12/06/1914:15	12/07/19
OU2-MW12S-GW120619DUP	L057-01ID	110	10	NA	5	1.3	12/17/1915:40	NA	AL14-12	AL14-01	ICL012W	12/06/1914:15	12/07/19
OU2-MW12D-GW120619	L057-02I	163	10	NA	5	1.3	12/17/1923:27	NA	AL14-33	AL14-25	ICL012W	12/06/1912:50	12/07/19
OU2-MW16S-GW120619	L057-03I	94.7	10	NA	5	1.3	12/18/1900:08	NA	AL14-35	AL14-25	ICL012W	12/06/1910:55	12/07/19
OU2-MW16D-GW120619	L057-04I	146	10	NA	5	1.3	12/18/1901:31	NA	AL14-39	AL14-37	ICL012W	12/06/1910:10	12/07/19
OU2-MW06-GW120619	L057-05I	104	10	NA	5	1.3	12/18/1902:13	NA	AL14-41	AL14-37	ICL012W	12/06/1909:30	12/07/19
OU2-FD01-GW120519	L057-07I	94.0	10	NA	5	1.3	12/18/1902:54	NA	AL14-43	AL14-37	ICL012W	12/05/1913:00	12/07/19
OU2-MW13S-GW120519	L057-08I	102	10	NA	5	1.3	12/18/1903:36	NA	AL14-45	AL14-37	ICL012W	12/05/1914:40	12/07/19
OU2-MW13D-GW120519	L057-09I	118	10	NA	5	1.3	12/18/1904:17	NA	AL14-47	AL14-37	ICL012W	12/05/1916:55	12/07/19
MBLK2W	ICL014WB	ND	1	NA	0.5	0.13	12/18/1913:42	NA	AL16-03	AL16-01	ICL014W	NA	NA
LCS2W	ICL014WL	4.71	1	NA	0.5	0.13	12/18/1914:03	NA	AL16-04	AL16-01	ICL014W	NA	NA
LCD2W	ICL014WC	4.72	1	NA	0.5	0.13	12/18/1914:23	NA	AL16-05	AL16-01	ICL014W	NA	NA
OU2-MW04-GW120519	L057-10I	103	10	NA	5	1.3	12/18/1915:20	NA	AL16-06	AL16-01	ICL014W	12/05/1916:05	12/07/19

Report date: 12/18/2019 3:37:43 PM
Printed by: LDip

Ident: AL14-09 L057-01I DF=10
Analysis from: 12/17/2019 2:38:39 PM
File: _2019-12-17_14-38.chw Last save: 12/17/2019 2:56:40 PM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89961

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 9
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.88	0.64	7.235	0.477	fluoride
2	5.48	680.99	7347.536	275.549	chloride
3	6.78	0.41	8.592	0.552	nitrite
4	9.15	11.47	179.080	3.184	nitrate
5	12.49	124.41	2258.248	110.137	sulfate ✓
5	18.00	817.93	9800.691	389.900	

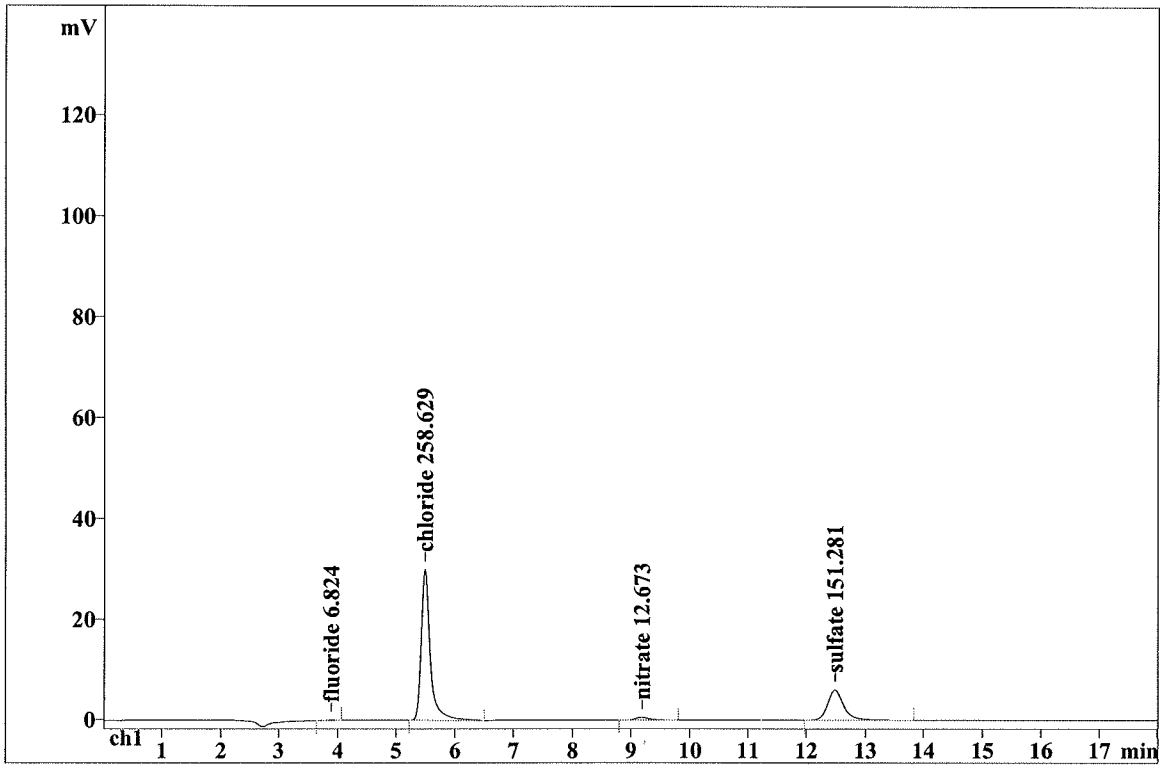
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 3:38:11 PM
Printed by: LDip

Ident: AL14-29 L057-01J DF=200
Analysis from: 12/17/2019 10:04:11 PM
File: _2019-12-17_22-04.chw Last save: 12/17/2019 10:22:12 PM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89981

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 29
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	0.09	0.904	6.824	fluoride
2	5.48	30.02	324.397	258.629	chloride ✓
3	9.18	0.58	9.512	12.673	nitrate
4	12.49	6.04	116.508	151.281	sulfate
4	18.00	36.73	451.321	429.407	

This report has been created by IC Net
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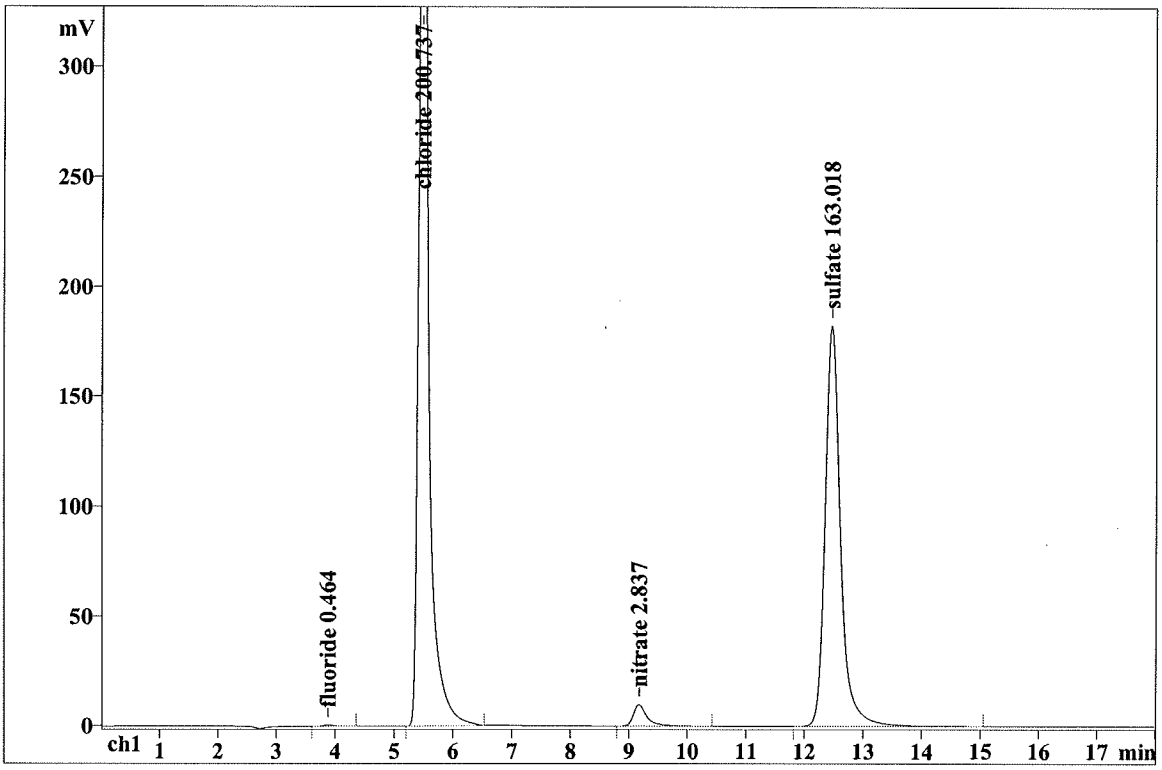
Report date: 12/18/2019 3:38:49 PM
Printed by: LDip

Ident: AL14-33 L057-02I DF=10
Analysis from: 12/17/2019 11:27:11 PM
File: _2019-12-17_23-27.chw Last save: 12/17/2019 11:45:11 PM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89985

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 33
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.88	0.60	6.649	0.464	fluoride
2	5.48	495.66	5346.852	200.737	chloride
3	9.17	9.75	155.994	2.837	nitrate
4	12.47	182.30	3362.408	163.018	sulfate✓
4	18.00	688.31	8871.903	367.057	

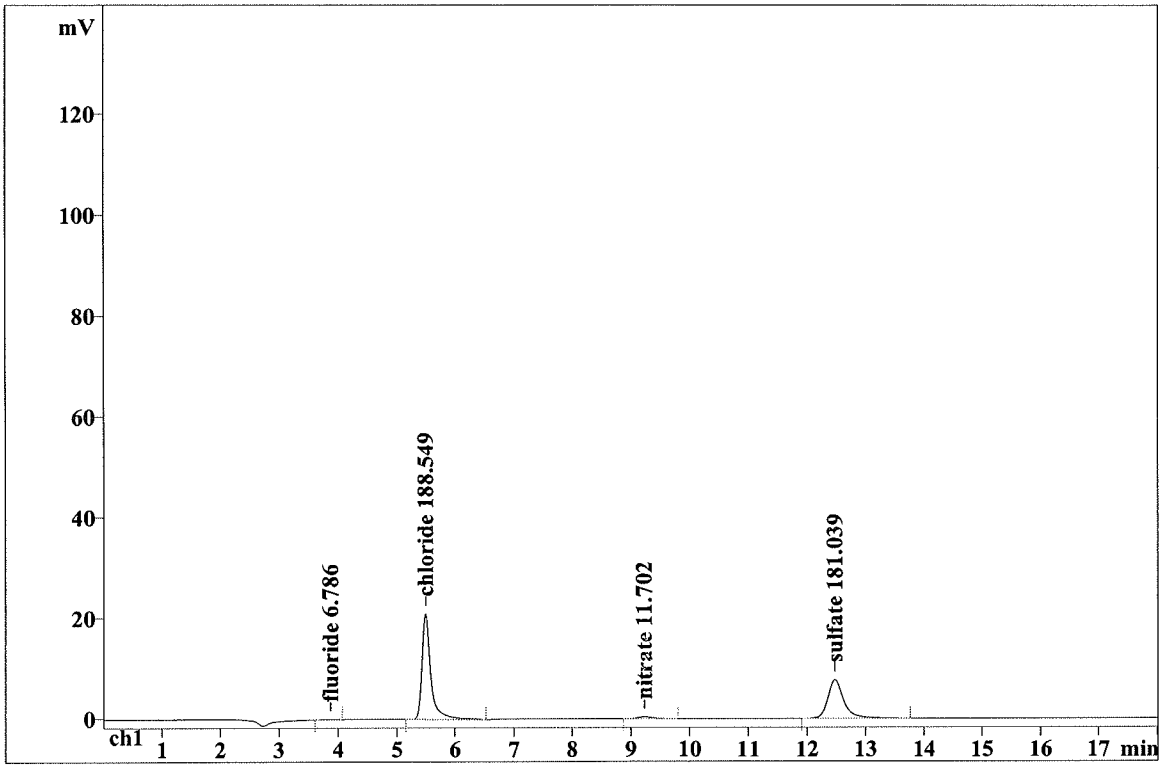
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 3:38:59 PM
Printed by: LDip

Ident: AL14-34 L057-02J DF=200
Analysis from: 12/17/2019 11:47:56 PM
File: _2019-12-17_23-47.chw Last save: 12/18/2019 12:05:56 AM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89986

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 34
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.88	0.08	0.817	6.786	fluoride
2	5.50	20.99	230.691	188.549	chloride
3	9.23	0.38	6.287	11.702	nitrate
4	12.48	7.70	147.575	181.039	sulfate
4	18.00	29.15	385.369	388.077	

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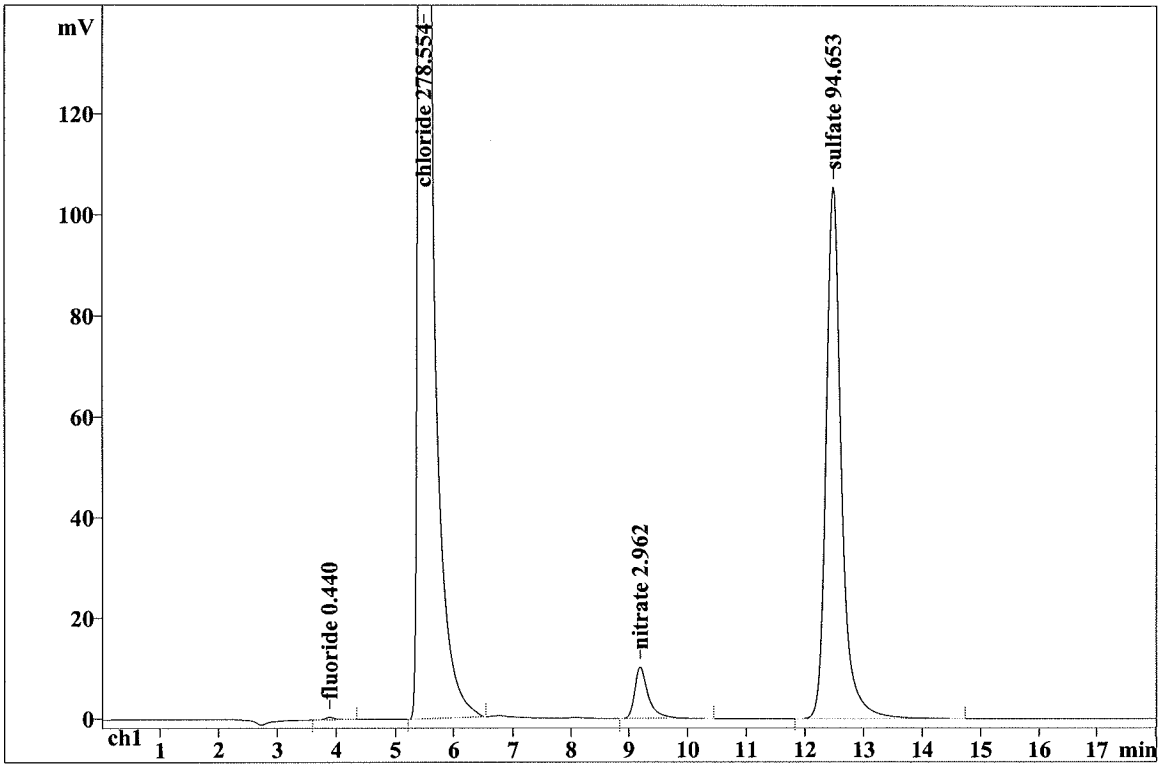
Report date: 12/18/2019 3:39:15 PM
Printed by: LDip

Ident: AL14-35 L057-03I DF=10
Analysis from: 12/18/2019 12:08:41 AM
File: _2019-12-18_00-08.chw Last save: 12/18/2019 12:26:41 AM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89987

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 35
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	0.48	5.515	0.440	fluoride
2	5.49	677.41	7427.891	278.554	chloride
3	9.19	10.23	164.274	2.962	nitrate
4	12.48	105.48	1934.938	94.653	sulfate ✓
4	18.00	793.60	9532.619	376.609	

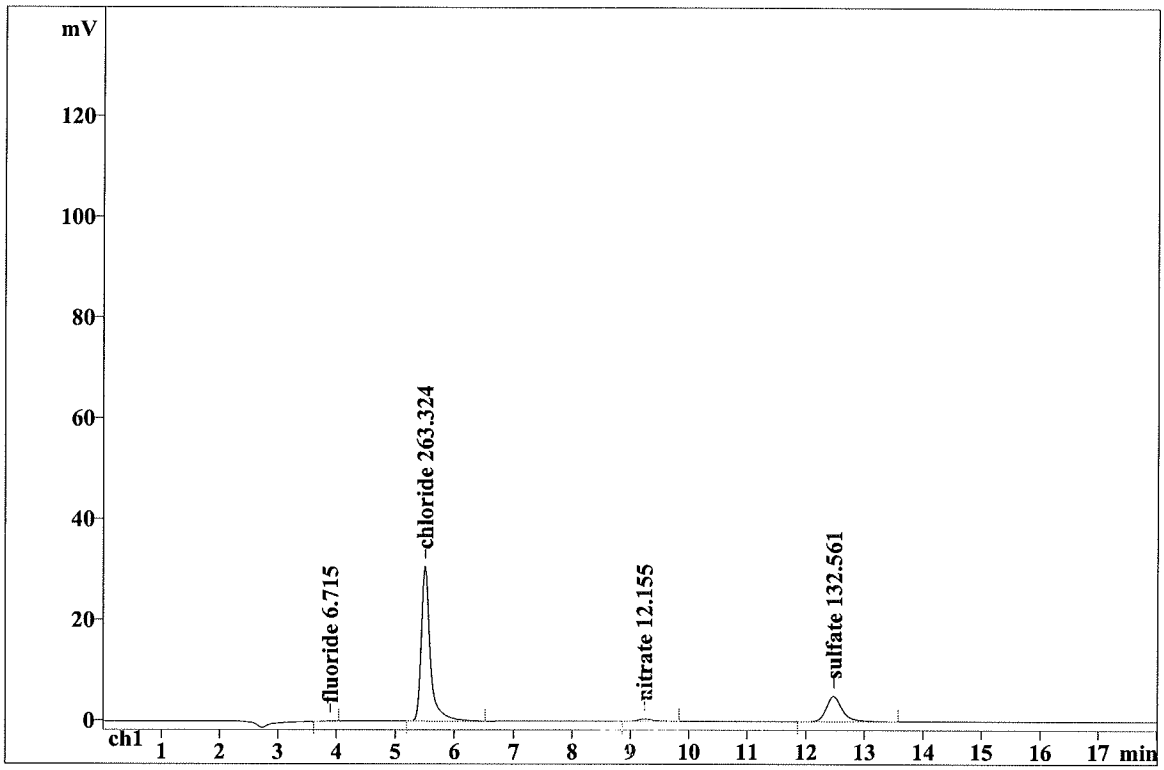
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 3:39:21 PM
Printed by: LDip

Ident: AL14-36 L057-03J DF=200
Analysis from: 12/18/2019 12:29:25 AM
File: _2019-12-18_00-29.chw Last save: 12/18/2019 12:47:25 AM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89988

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 36
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	0.07	0.650	6.715	fluoride
2	5.50	30.66	330.675	263.324	chloride ✓
3	9.24	0.47	7.792	12.155	nitrate
4	12.48	5.01	96.964	132.561	sulfate
4	18.00	36.21	436.082	414.756	

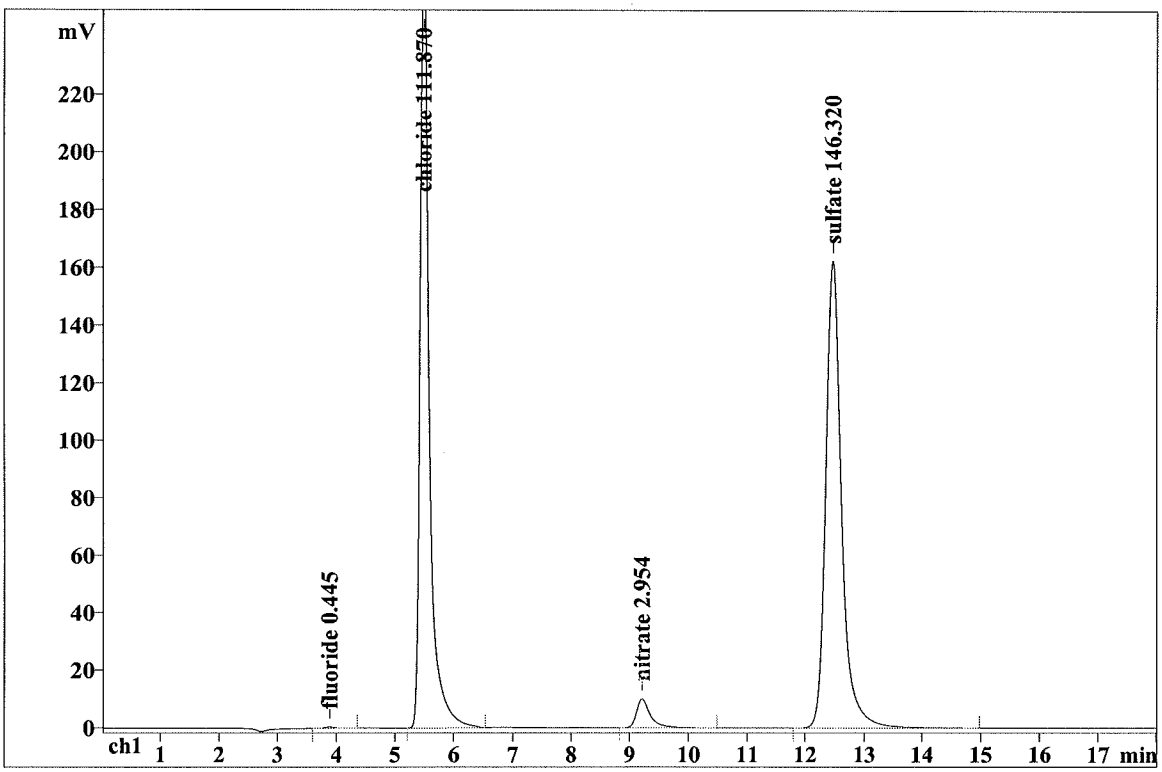
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 3:39:36 PM
Printed by: LDip

Ident: AL14-39 L057-04I DF=10
Analysis from: 12/18/2019 1:31:40 AM
File: _2019-12-18_01-31.chw Last save: 12/18/2019 1:49:40 AM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89991

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 39
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	0.51	5.747	0.445	fluoride
2	5.49	276.81	2970.304	111.870	chloride
3	9.21	10.06	163.761	2.954	nitrate
4	12.46	162.38	3013.742	146.320	sulfate ✓
4	18.00	449.75	6153.554	261.589	

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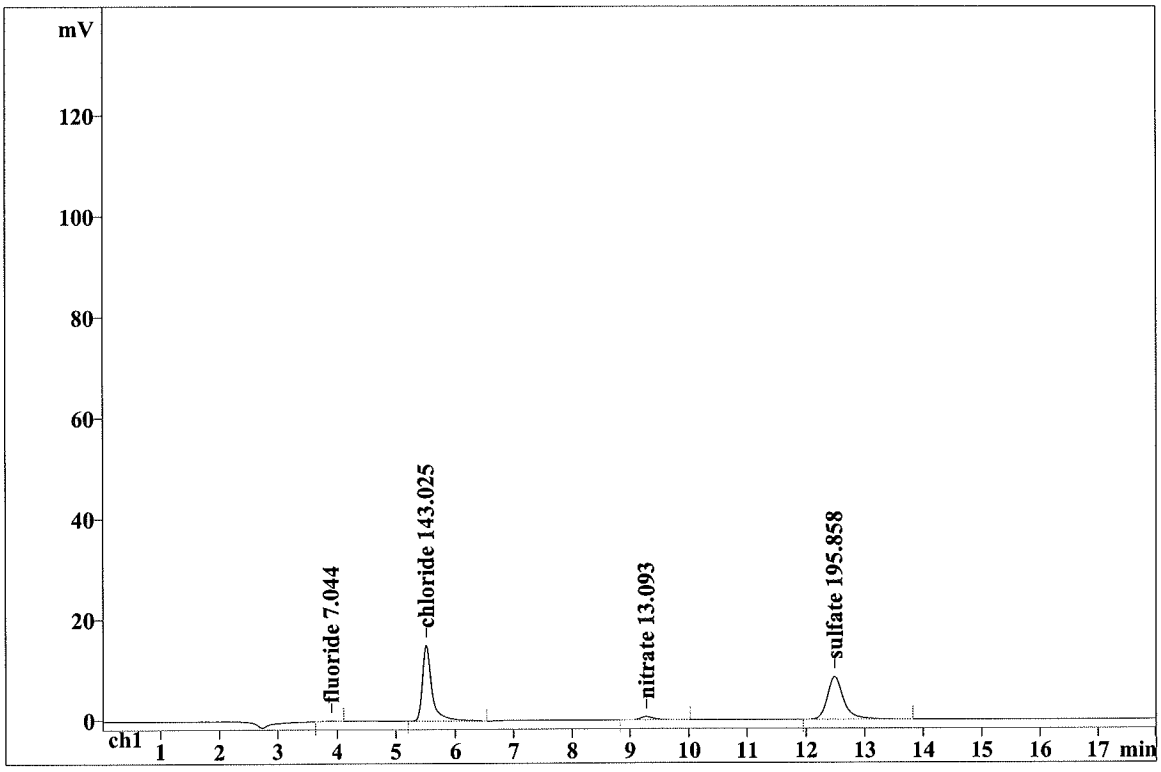
METROHM LTD

Report date: 12/18/2019 3:39:42 PM
Printed by: LDip

Ident: AL14-40 L057-04J DF=200
Analysis from: 12/18/2019 1:52:24 AM
File: _2019-12-18_01-52.chw Last save: 12/18/2019 2:10:24 AM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89992

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 40
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.90	0.14	1.418	7.044	fluoride
2	5.51	15.03	169.818	143.025	chloride ✓
3	9.28	0.64	10.909	13.093	nitrate
4	12.48	8.47	163.046	195.858	sulfate
4	18.00	24.28	345.192	359.021	

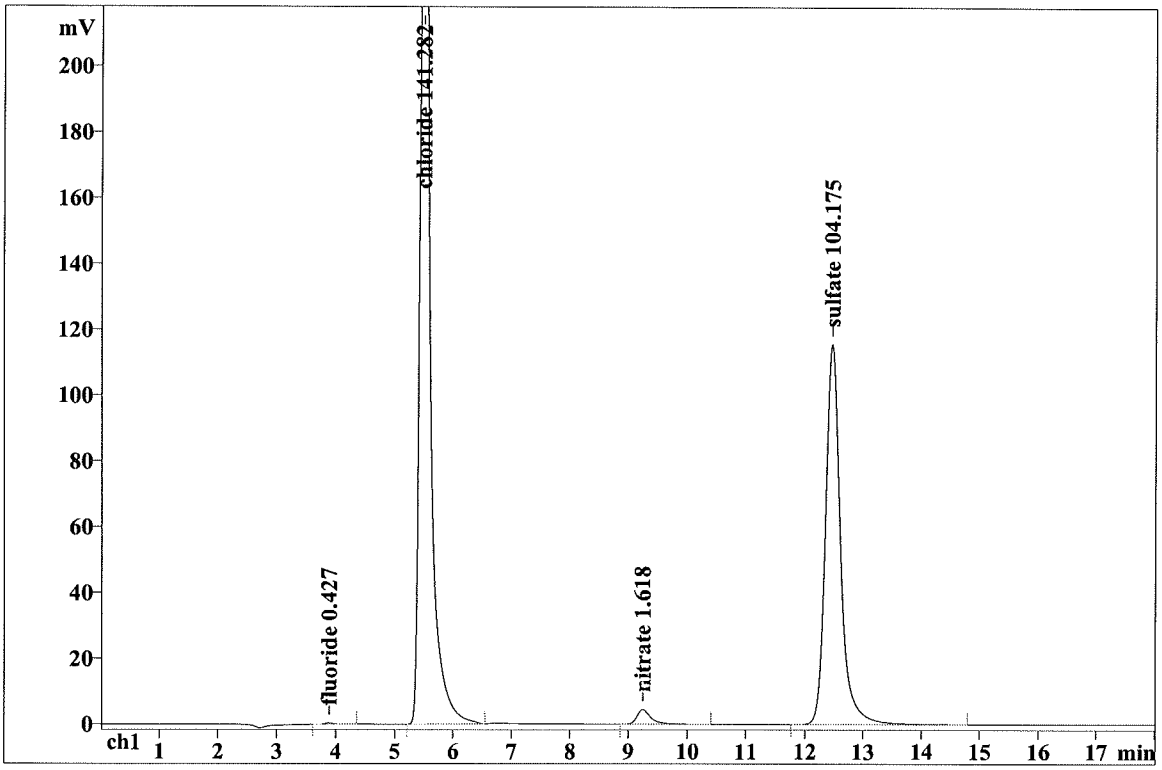
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 3:39:51 PM
Printed by: LDip

Ident: AL14-41 L057-05I DF=10
Analysis from: 12/18/2019 2:13:09 AM
File: _2019-12-18_02-13.chw Last save: 12/18/2019 2:31:09 AM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89993

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 41
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	0.42	4.888	0.427	fluoride
2	5.49	345.55	3756.865	141.282	chloride
3	9.25	4.50	74.976	1.618	nitrate
4	12.46	115.60	2133.746	104.175	sulfate ✓
4	18.00	466.06	5970.475	247.502	

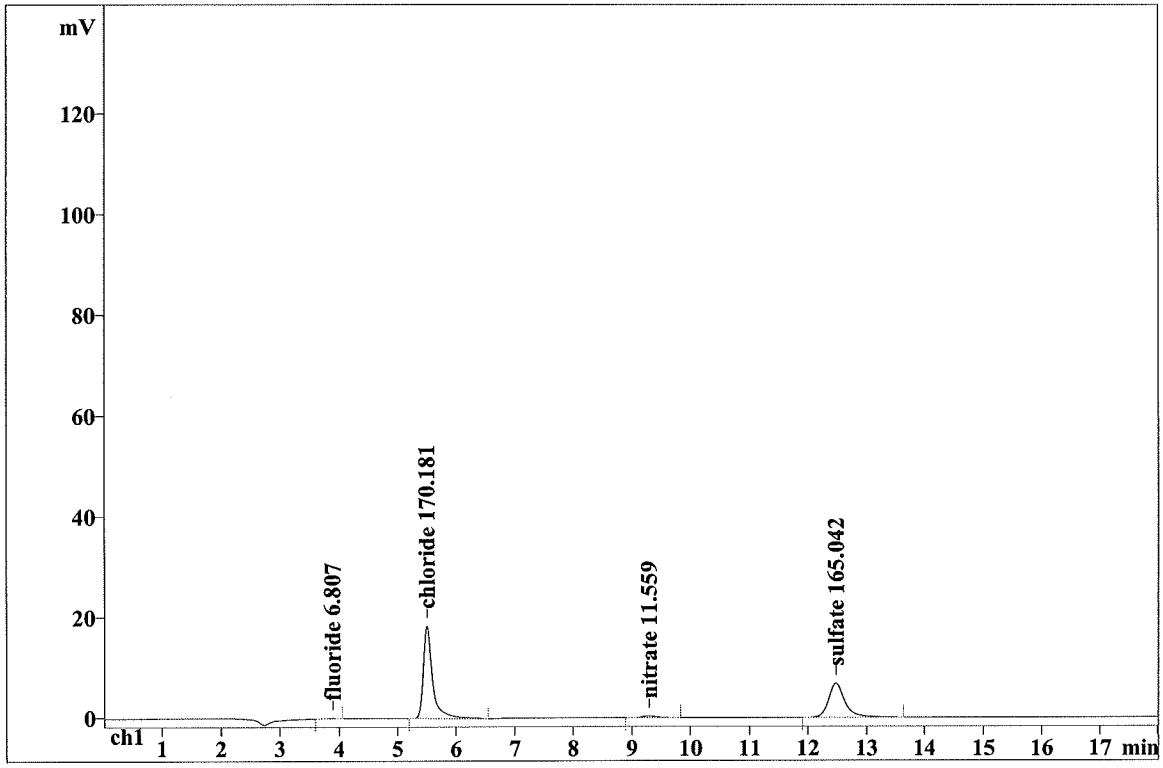
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 3:39:56 PM
Printed by: LDip

Ident: AL14-42 L057-05J DF=200
Analysis from: 12/18/2019 2:33:53 AM
File: _2019-12-18_02-33.chw Last save: 12/18/2019 2:51:54 AM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89994

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 42
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	0.09	0.865	6.807	fluoride
2	5.51	18.36	206.130	170.181	chloride
3	9.29	0.35	5.811	11.559	nitrate
4	12.47	6.75	130.874	165.042	sulfate
4	18.00	25.55	343.680	353.589	

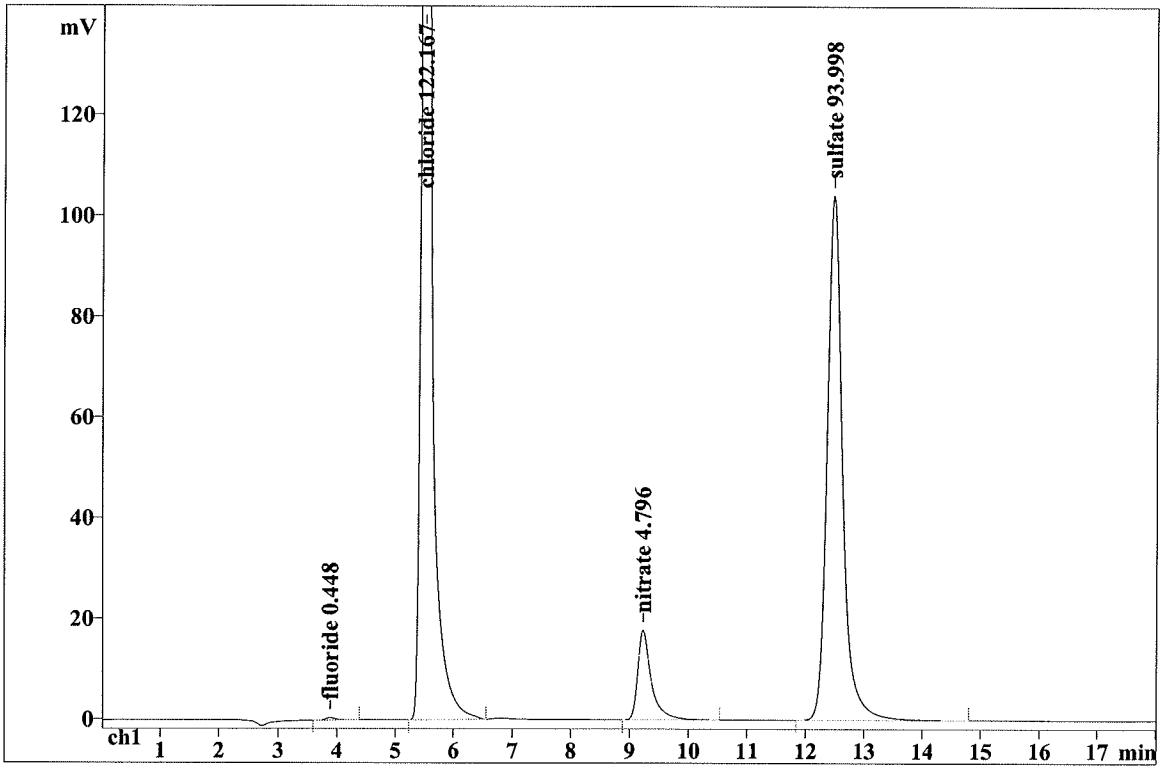
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 3:40:03 PM
Printed by: LDip

Ident: AL14-43 L057-07I DF=10
Analysis from: 12/18/2019 2:54:38 AM
File: _2019-12-18_02-54.chw Last save: 12/18/2019 3:12:38 AM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89995

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 43
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	0.51	5.899	0.448	fluoride
2	5.50	300.94	3245.652	122.167	chloride
3	9.23	17.78	286.230	4.796	nitrate
4	12.48	104.23	1921.257	93.998	sulfate ✓
4	18.00	423.46	5459.038	221.409	

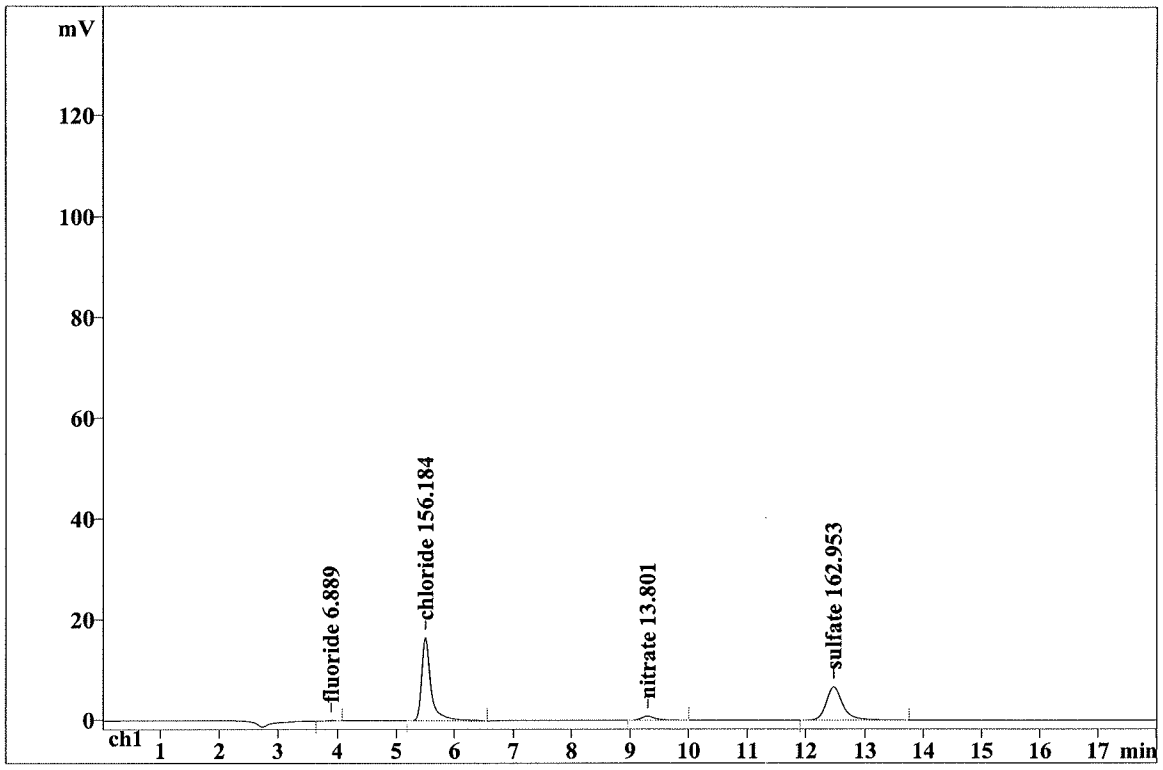
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 3:40:08 PM
Printed by: LDip

Ident: AL14-44 L057-07J DF=200
Analysis from: 12/18/2019 3:15:23 AM
File: _2019-12-18_03-15.chw Last save: 12/18/2019 3:33:23 AM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89996

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 44
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	0.11	1.057	6.889	fluoride
2	5.51	16.51	187.413	156.184	chloride
3	9.30	0.78	13.263	13.801	nitrate
4	12.47	6.61	128.693	162.953	sulfate
4	18.00	24.01	330.426	339.827	

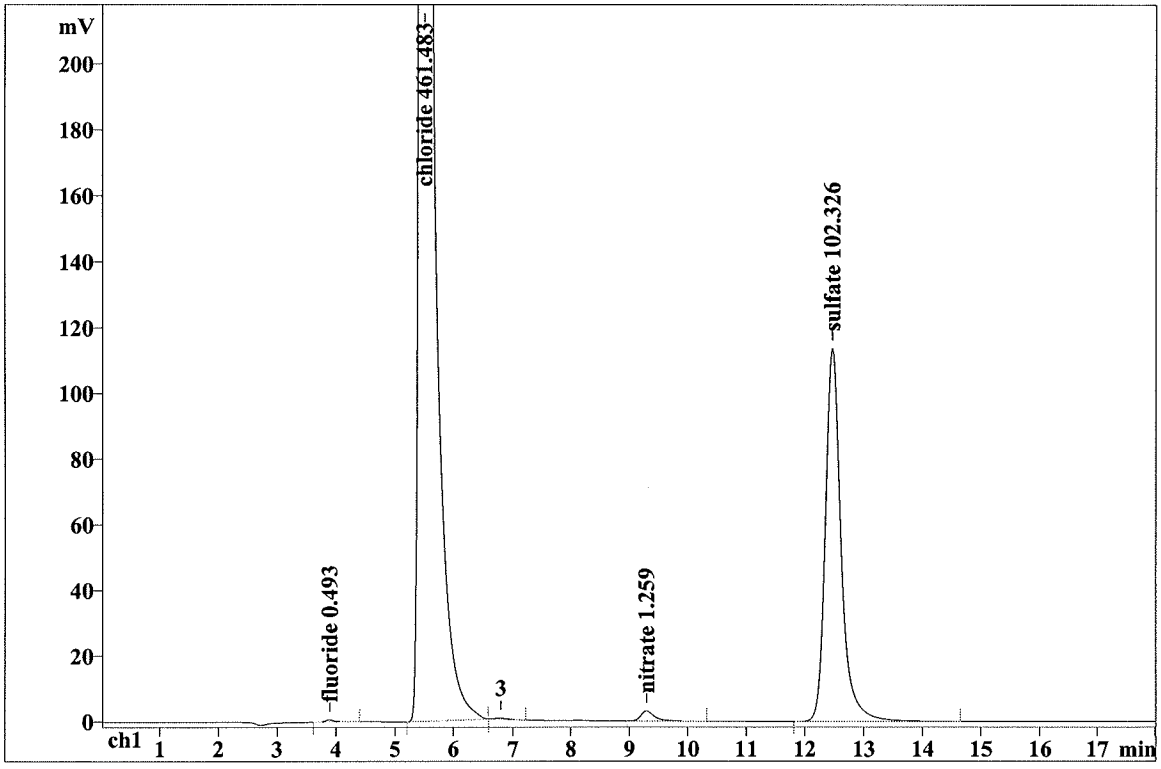
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 3:40:16 PM
Printed by: LDip

Ident: AL14-45 L057-08I DF=10
Analysis from: 12/18/2019 3:36:08 AM
File: _2019-12-18_03-36.chw Last save: 12/18/2019 3:54:08 AM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89997

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 45
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	0.71	7.988	0.493	fluoride
2	5.50	1100.79	12319.930	461.483	chloride
3	6.81	0.36	5.902	0.000	
4	9.29	3.07	51.074	1.259	nitrate
5	12.47	113.67	2095.149	102.326	sulfate ✓
5	18.00	1218.59	14480.043	565.561	

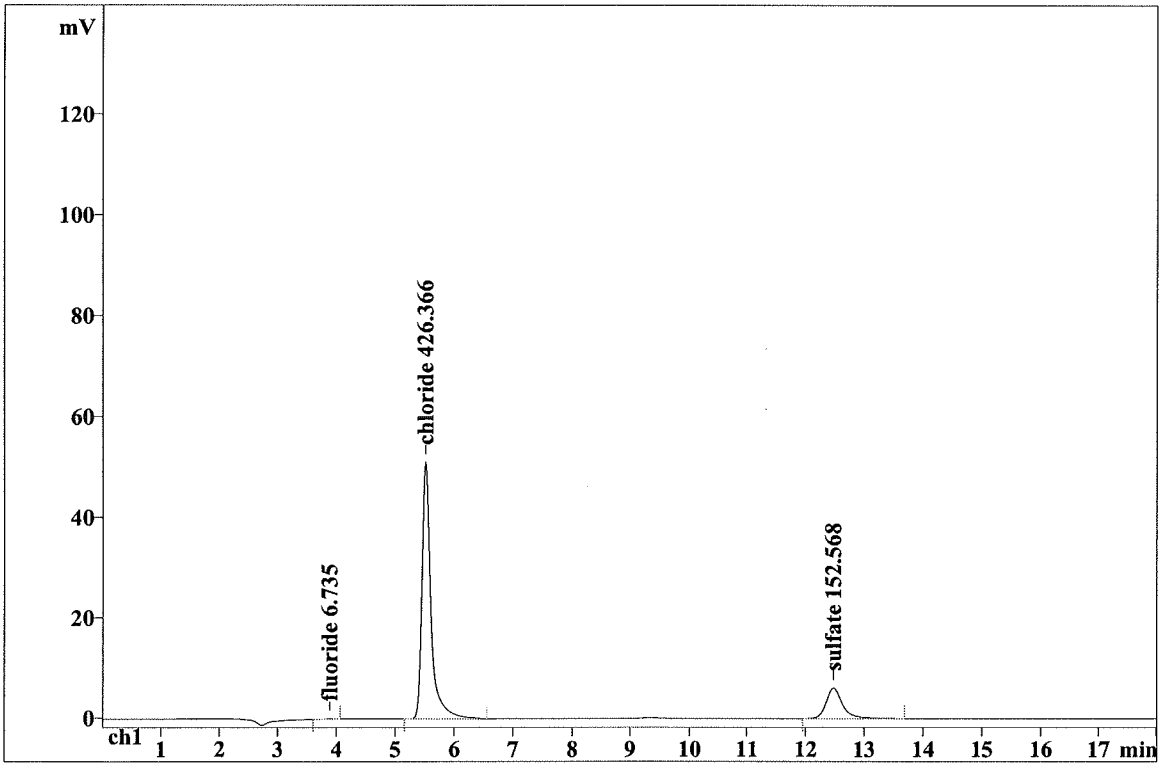
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 3:40:21 PM
Printed by: LDip

Ident: AL14-46 L057-08J DF=200
Analysis from: 12/18/2019 3:56:52 AM
File: _2019-12-18_03-56.chw Last save: 12/18/2019 4:14:53 AM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89998

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 46
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	0.07	0.698	6.735	fluoride
2	5.51	51.02	548.685	426.366	chloride
3	12.48	6.03	117.851	152.568	sulfate
3	18.00	57.12	667.234	585.669	

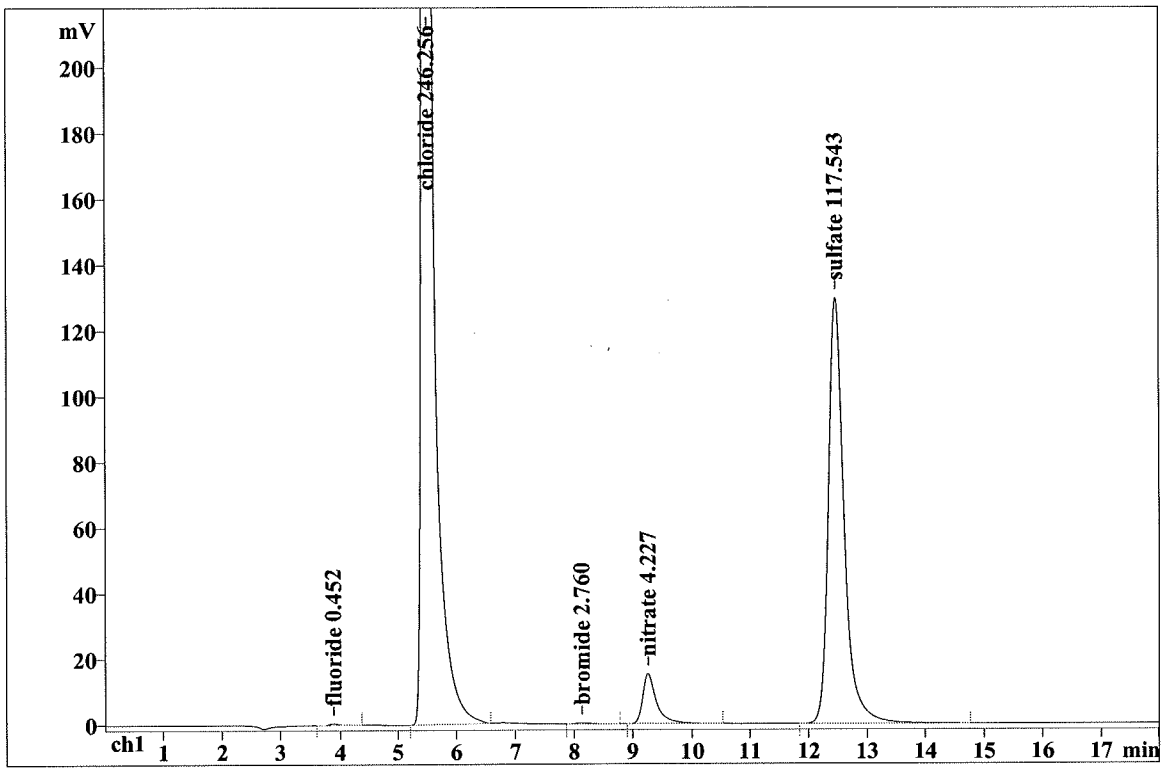
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 3:40:29 PM
Printed by: LDip

Ident: AL14-47 L057-09I DF=10
Analysis from: 12/18/2019 4:17:37 AM
File: _2019-12-18_04-17.chw Last save: 12/18/2019 4:35:38 AM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89999

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 47
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	0.52	6.047	0.452	fluoride
2	5.50	593.19	6564.146	246.256	chloride
3	8.14	0.30	4.955	2.760	bromide
4	9.26	15.21	248.374	4.227	nitrate
5	12.46	129.82	2412.871	117.543	sulfate ✓
5	18.00	739.03	9236.393	371.236	

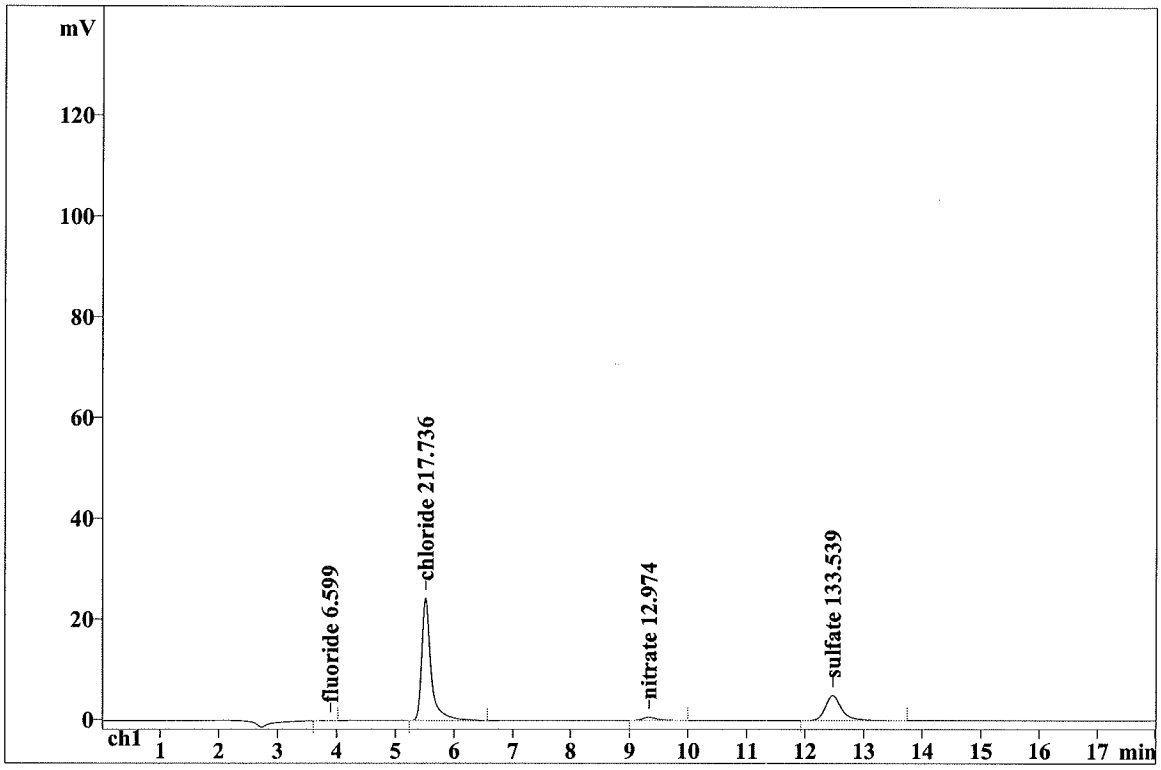
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 3:40:35 PM
Printed by: LDip

Ident: AL14-48 L057-09J DF=200
Analysis from: 12/18/2019 4:38:22 AM
File: _2019-12-18_04-38.chw Last save: 12/18/2019 4:56:23 AM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 90000

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 48
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	0.04	0.381	6.599	fluoride
2	5.52	24.30	269.717	217.736	chloride
3	9.33	0.61	10.513	12.974	nitrate
4	12.47	4.96	97.984	133.539	sulfate
4	18.00	29.91	378.595	370.848	

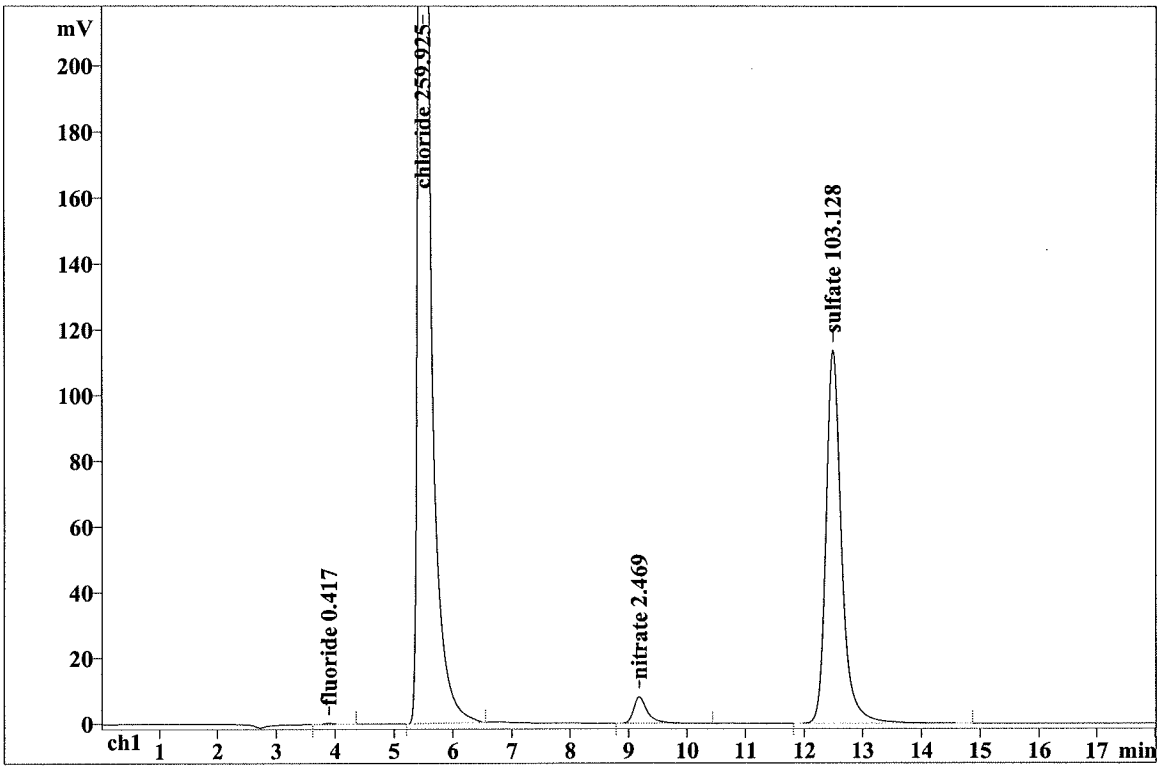
This report has been created by IC Net
METROHM LTD

Report date: 12/19/2019 12:31:35 PM
Printed by: LDip

Ident: AL16-06 L057-10I DF=10
Analysis from: 12/18/2019 3:20:43 PM
File: _2019-12-18_15-20.chw Last save: 12/18/2019 3:38:43 PM

Method: ICD7-L04.mtw Last save: 12/18/2019 12:36:35 PM
Run operator: LDip
Analysis number: 90017

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 6
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	0.39	4.415	0.417	fluoride
2	5.48	636.41	6929.697	259.925	chloride
3	9.18	8.05	131.508	2.469	nitrate
4	12.50	113.78	2111.891	103.128	sulfate ✓
4	18.00	758.63	9177.511	365.938	

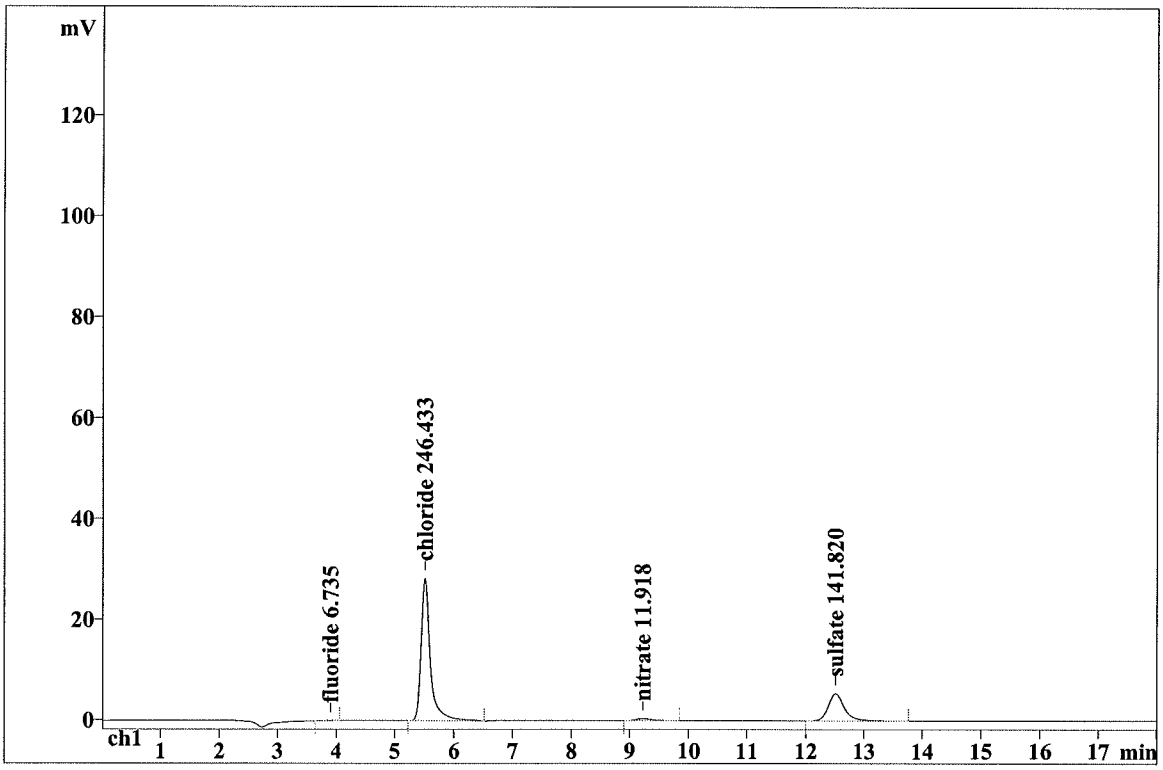
This report has been created by IC Net
METROHM LTD

Report date: 12/19/2019 12:31:41 PM
Printed by: LDip

Ident: AL16-07 L057-10J DF=200
Analysis from: 12/18/2019 3:41:28 PM
File: _2019-12-18_15-41.chw Last save: 12/18/2019 3:59:28 PM

Method: ICD7-L04.mtw Last save: 12/18/2019 12:36:35 PM
Run operator: LDip
Analysis number: 90018

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 7
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	0.07	0.698	6.735	fluoride
2	5.50	28.26	308.090	246.433	chloride ✓
3	9.22	0.41	7.004	11.918	nitrate
4	12.51	5.42	106.630	141.820	sulfate
4	18.00	34.17	422.421	406.906	

This report has been created by IC Net
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QC SUMMARIES

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L057
METHOD : E300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ICL012WB	ICL012WL	ICL012WC
LAB FILE ID :	AL14-03	AL14-04	AL14-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/17/1912:22	12/17/1912:43	12/17/1913:04
PREP BATCH :	ICL012W	ICL012W	ICL012W
CALIBRATION REF:	AL14-01	AL14-01	AL14-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride	ND	2	1.91	95	2	1.92	96	1	87-111	20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L057
METHOD : E300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK2W	LCS2W	LCD2W
LAB SAMPLE ID :	ICL014WB	ICL014WL	ICL014WC
LAB FILE ID :	AL16-03	AL16-04	AL16-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/18/1913:42	12/18/1914:03	12/18/1914:23
PREP BATCH :	ICL014W	ICL014W	ICL014W
CALIBRATION REF:	AL16-01	AL16-01	AL16-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride	ND	2	1.88	94	2	1.88	94	0	87-111	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L057
METHOD : E300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	200	200	200
SAMPLE ID :	OU2-MW12S-GW120619	OU2-MW12S-GW120619MS	OU2-MW12S-GW120619MSD
LAB SAMPLE ID :	L057-01J	L057-01JM	L057-01JS
LAB FILE ID :	AL14-29	AL14-31	AL14-32
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/17/1922:04	12/17/1922:45	12/17/1923:06
PREP BATCH :	ICL012W	ICL012W	ICL012W
CALIBRATION REF:	AL14-25	AL14-25	AL14-25

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	SPIKE AMT (mg/L)	MS RESULT (mg/L)	MS REC (%)	SPIKE AMT (mg/L)	MSD RESULT (mg/L)	MSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride	259	400	645	96	400	652	98	1	87-111	20

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L057
METHOD : E300.0

MATRIX	: WATER	
DILUTION FACTOR	: 200	200
SAMPLE ID	: OU2-MW12S-GW120619	OU2-MW12S-GW120619DUP
LAB SAMPLE ID	: L057-01J	L057-01JD
LAB FILE ID	: AL14-29	AL14-30
DATE PREPARED	: NA	NA
DATE ANALYZED	: 12/17/1922:04	12/17/1922:24
PREP BATCH	: ICL012W	ICL012W
CALIBRATION REF	: AL14-25	AL14-25

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	RPD (%)	MAX RPD (%)
Chloride	259	260	0	20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L057
METHOD : E300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ICL012WB	ICL012WL	ICL012WC
LAB FILE ID :	AL14-03	AL14-04	AL14-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/17/1912:22	12/17/1912:43	12/17/1913:04
PREP BATCH :	ICL012W	ICL012W	ICL012W
CALIBRATION REF:	AL14-01	AL14-01	AL14-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	5	4.72	94	5	4.72	94	0	87-112	20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L057
METHOD : E300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK2W	LCS2W	LCD2W
LAB SAMPLE ID :	ICL014WB	ICL014WL	ICL014WC
LAB FILE ID :	AL16-03	AL16-04	AL16-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/18/1913:42	12/18/1914:03	12/18/1914:23
PREP BATCH :	ICL014W	ICL014W	ICL014W
CALIBRATION REF:	AL16-01	AL16-01	AL16-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	5	4.71	94	5	4.72	94	0	87-112	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L057
METHOD : E300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	10	10	10
SAMPLE ID :	OU2-MW12S-GW120619	OU2-MW12S-GW120619MS	OU2-MW12S-GW120619MSD
LAB SAMPLE ID :	L057-01I	L057-01IM	L057-01IS
LAB FILE ID :	AL14-09	AL14-10	AL14-11
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/17/1914:38	12/17/1914:59	12/17/1915:20
PREP BATCH :	ICL012W	ICL012W	ICL012W
CALIBRATION REF:	AL14-01	AL14-01	AL14-01

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	SPIKE AMT (mg/L)	MS RESULT (mg/L)	MS REC (%)	SPIKE AMT (mg/L)	MSD RESULT (mg/L)	MSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	110	50	160	100	50	160	100	0	87-112	20

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L057
METHOD : E300.0

MATRIX	: WATER	
DILUTION FACTOR:	10	10
SAMPLE ID	: OU2-MW12S-GW120619	OU2-MW12S-GW120619DUP
LAB SAMPLE ID	: L057-01I	L057-01ID
LAB FILE ID	: AL14-09	AL14-12
DATE PREPARED	: NA	NA
DATE ANALYZED	: 12/17/1914:38	12/17/1915:40
PREP BATCH	: ICL012W	ICL012W
CALIBRATION REF:	AL14-01	AL14-01

ACCESSION:

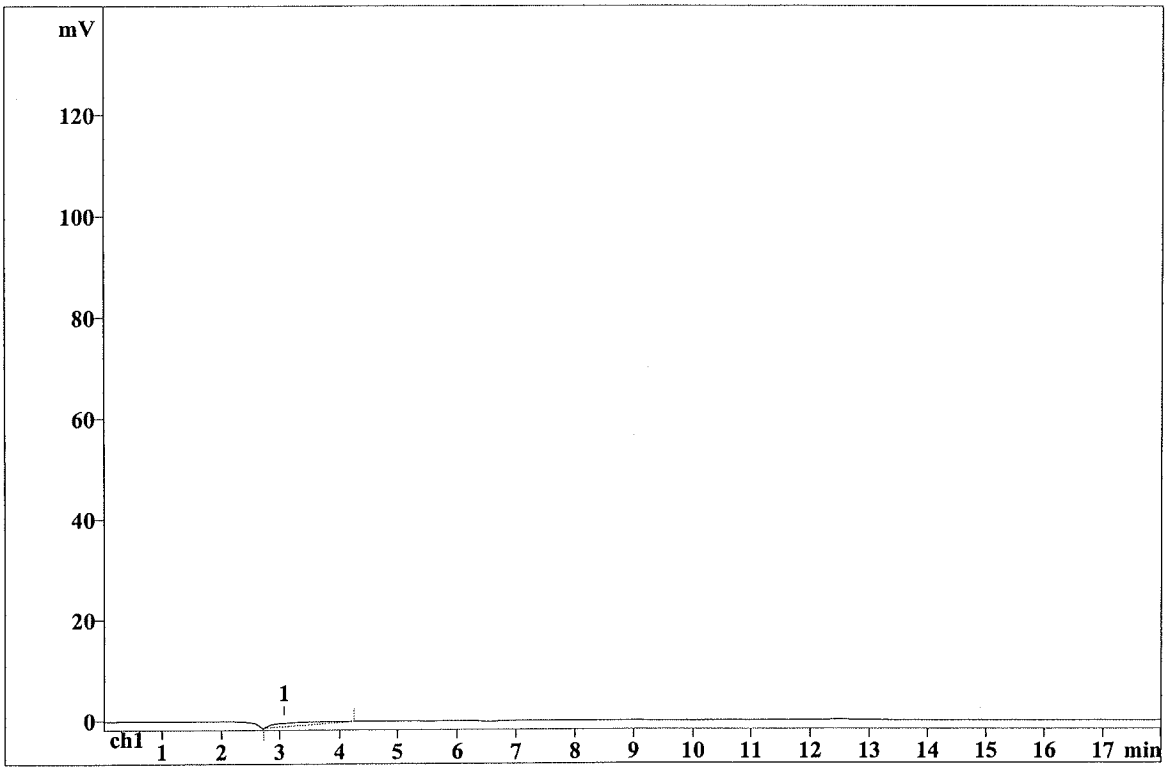
PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	RPD (%)	MAX RPD (%)
Sulfate	110	110	0	20

QC DATA

Report date: 12/18/2019 11:12:23 AM
Printed by: LDip

Ident: AL14-03 ICL012WB
Analysis from: 12/17/2019 12:22:34 PM
File: _2019-12-17_12-22.chw Last save: 12/17/2019 12:40:35 PM
Modified!
Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89955

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 3
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.07	0.66	38.085	0.000	

This report has been created by IC Net
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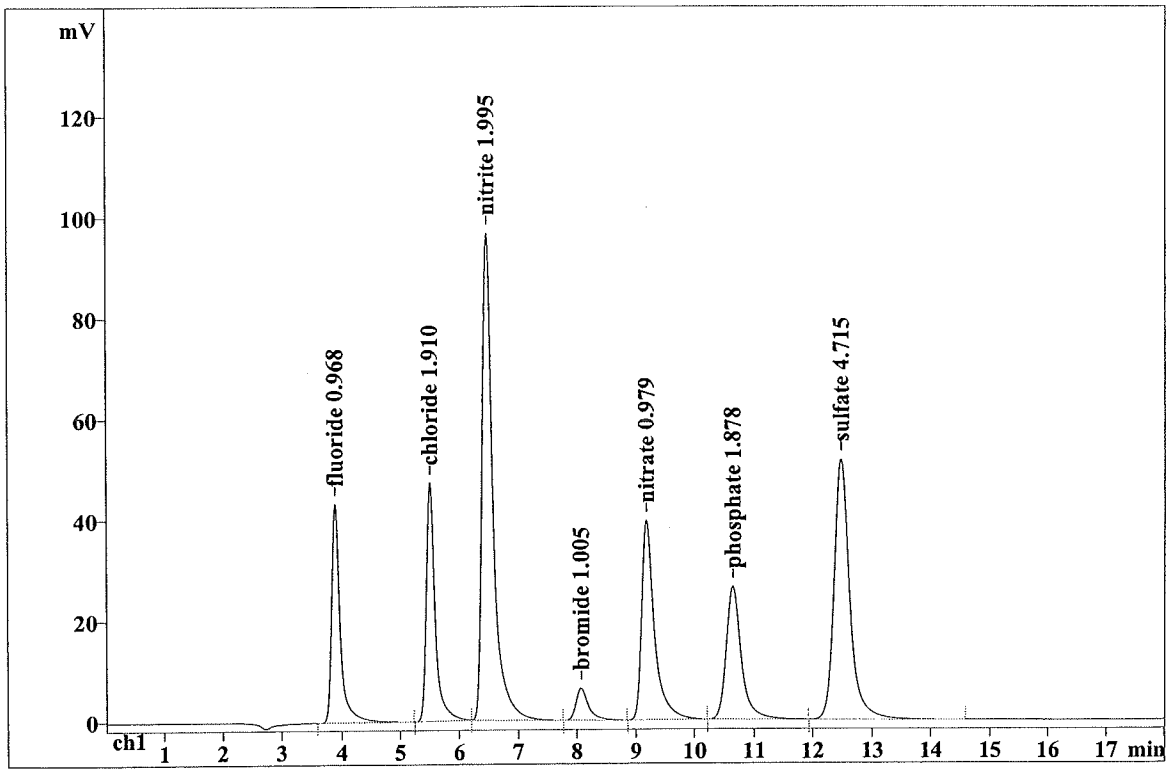
Report date: 12/18/2019 11:12:33 AM
Printed by: LDip

Ident: AL14-04 ICL012WL
Analysis from: 12/17/2019 12:43:19 PM
File: _2019-12-17_12-43.chw Last save: 12/17/2019 1:01:19 PM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89956

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 4
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	43.40	436.083	0.968	fluoride
2	5.51	47.30	489.310	1.910	chloride
3	6.46	96.73	1267.281	1.995	nitrite
4	8.07	6.37	92.283	1.005	bromide
5	9.18	39.57	618.330	0.979	nitrate
6	10.65	26.38	460.600	1.878	phosphate
7	12.48	51.61	943.170	4.715	sulfate
7	18.00	311.36	4307.057	13.451	

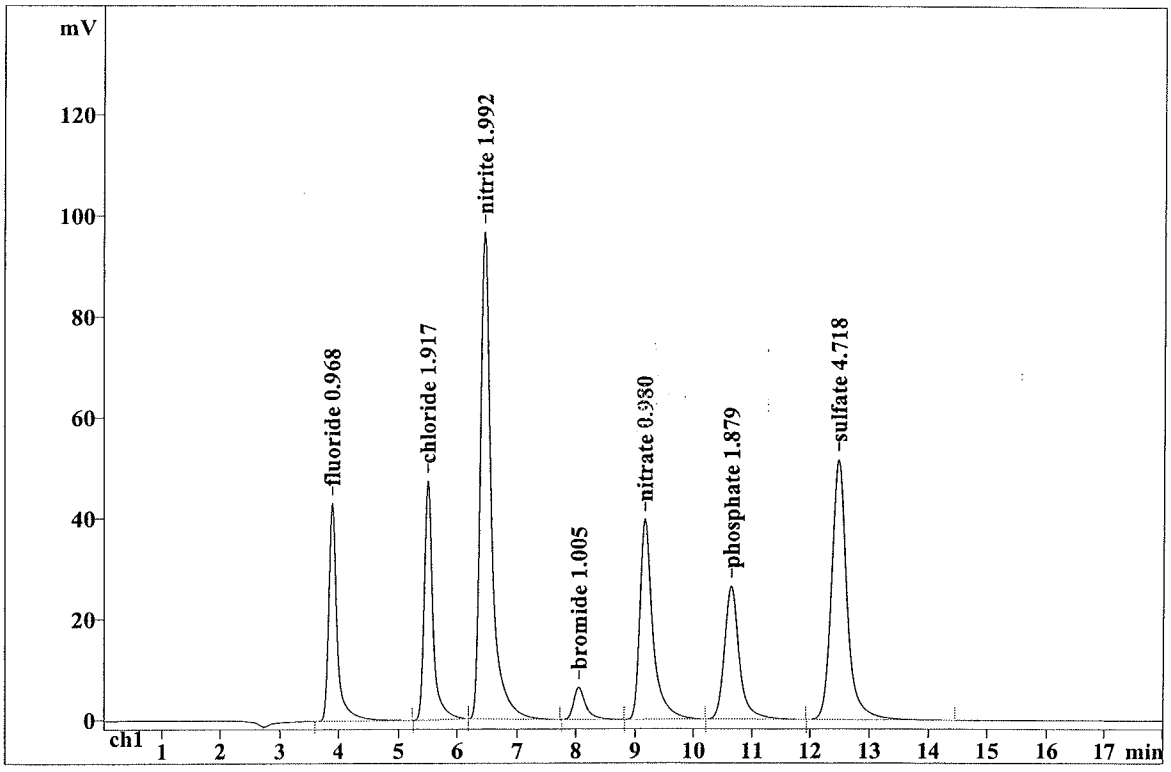
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 11:12:40 AM
Printed by: LDip

Ident: AL14-05 ICL012WC
Analysis from: 12/17/2019 1:04:04 PM
File: _2019-12-17_13-04.chw Last save: 12/17/2019 1:22:05 PM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89957

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 5
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

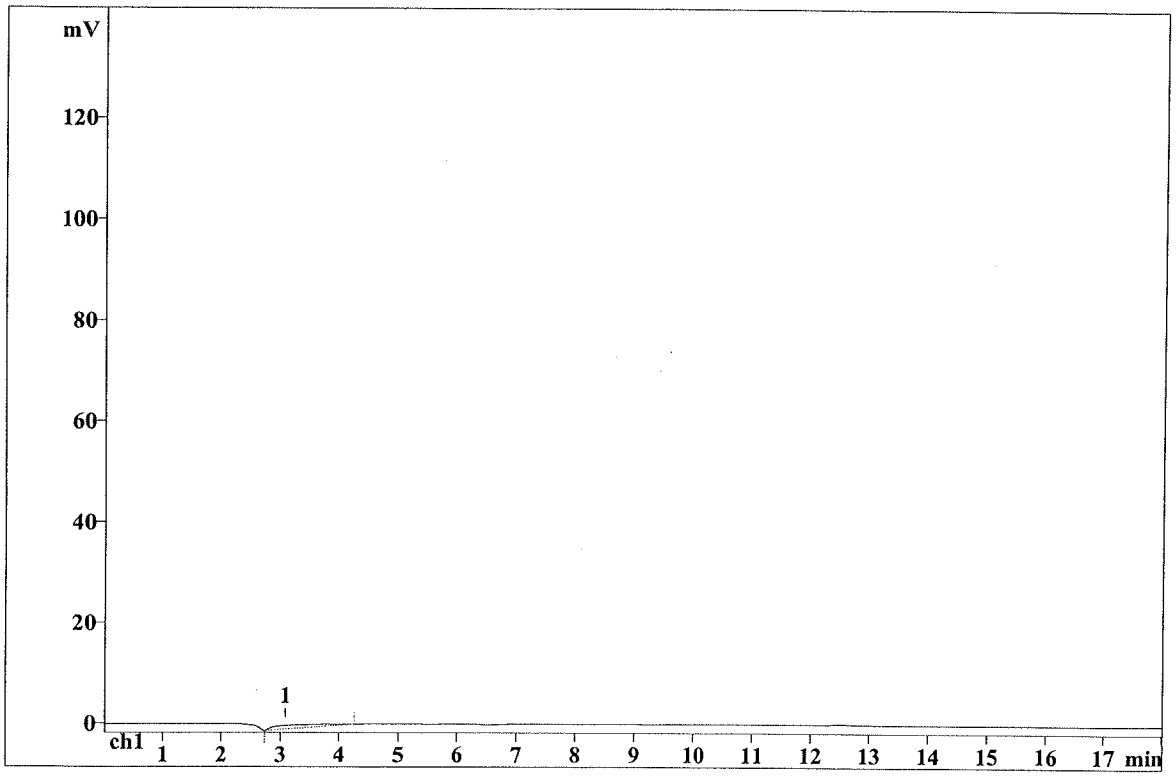
No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	43.16	436.189	0.968	fluoride
2	5.50	47.38	491.263	1.917	chloride
3	6.45	96.59	1265.253	1.992	nitrite
4	8.05	6.38	92.241	1.005	bromide
5	9.16	39.67	619.123	0.980	nitrate
6	10.64	26.37	460.788	1.879	phosphate
7	12.47	51.57	943.645	4.718	sulfate
7	18.00	311.13	4308.504	13.459	

This report has been created by IC Net
METROHM LTD

Report date: 12/19/2019 12:25:36 PM
Printed by: LDip

Ident: AL16-03 ICL014WB
Analysis from: 12/18/2019 1:42:26 PM
File: _2019-12-18_13-42.chw Last save: 12/18/2019 2:00:26 PM
Modified!
Method: ICD7-L04.mtw Last save: 12/18/2019 12:36:35 PM
Run operator: LDip
Analysis number: 90014

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 3
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.09	0.68	39.153	0.000	

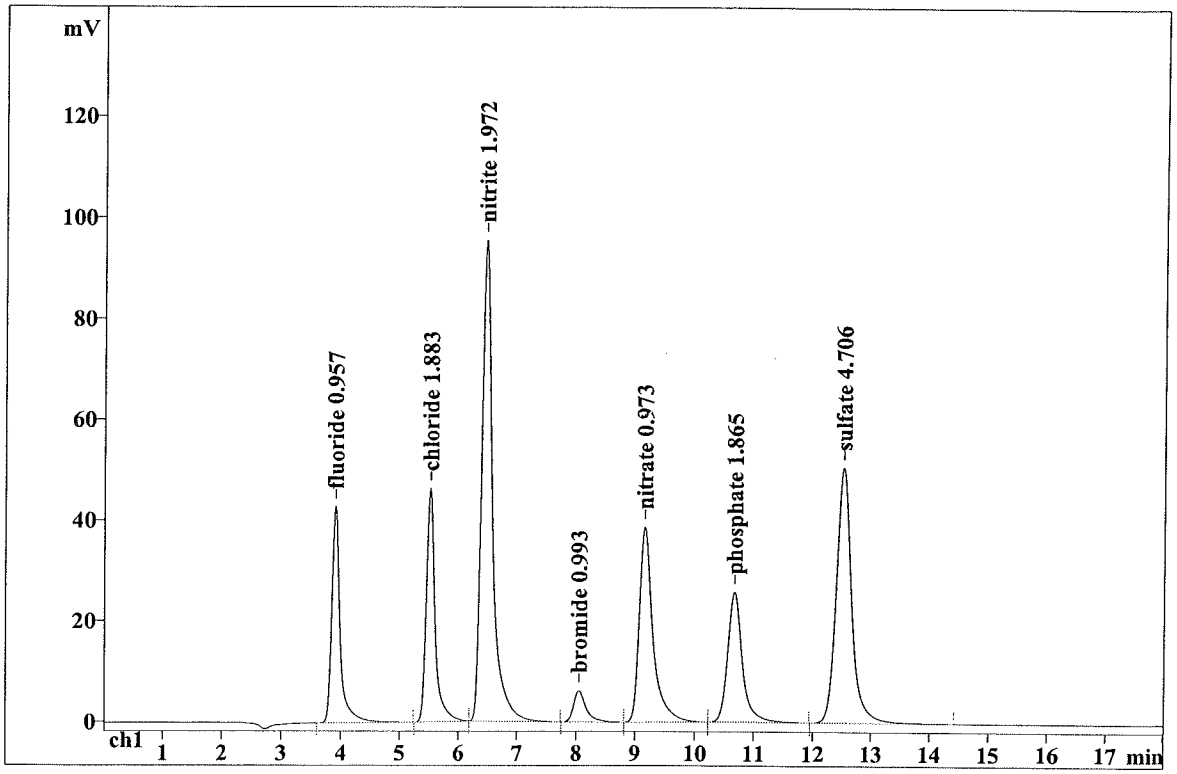
This report has been created by IC Net
METROHM LTD

Report date: 12/19/2019 12:25:46 PM
Printed by: LDip

Ident: AL16-04 ICL014WL
Analysis from: 12/18/2019 2:03:11 PM
File: _2019-12-18_14-03.chw Last save: 12/18/2019 2:21:11 PM

Method: ICD7-L04.mtw Last save: 12/18/2019 12:36:35 PM
Run operator: LDip
Analysis number: 90015

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 4
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.90	42.91	430.804	0.957	fluoride
2	5.51	46.35	482.232	1.883	chloride
3	6.45	95.45	1252.298	1.972	nitrite
4	8.05	6.21	90.855	0.993	bromide
5	9.15	38.71	613.945	0.973	nitrate
6	10.66	25.80	457.125	1.865	phosphate
7	12.51	50.71	941.251	4.706	sulfate
7	18.00	306.15	4268.510	13.349	

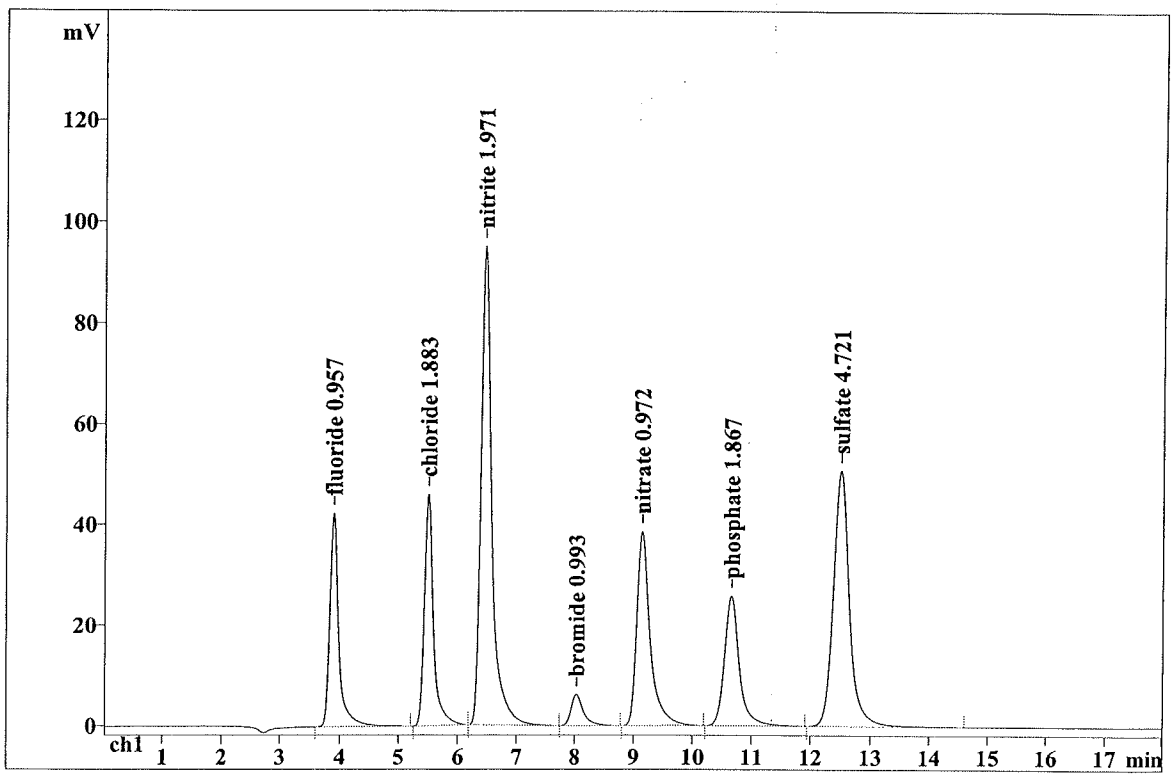
This report has been created by IC Net
METROHM LTD

Report date: 12/19/2019 12:25:54 PM
Printed by: LDip

Ident: AL16-05 ICL014WC
Analysis from: 12/18/2019 2:23:55 PM
File: _2019-12-18_14-23.chw Last save: 12/18/2019 2:41:55 PM

Method: ICD7-L04.mtw Last save: 12/18/2019 12:36:35 PM
Run operator: LDip
Analysis number: 90016

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 5
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	42.43	430.713	0.957	fluoride
2	5.49	45.98	482.206	1.883	chloride
3	6.44	94.96	1251.421	1.971	nitrite
4	8.03	6.19	90.896	0.993	bromide
5	9.13	38.60	613.749	0.972	nitrate
6	10.65	25.77	457.706	1.867	phosphate
7	12.49	50.78	944.272	4.721	sulfate
7	18.00	304.71	4270.962	13.364	

This report has been created by IC Net
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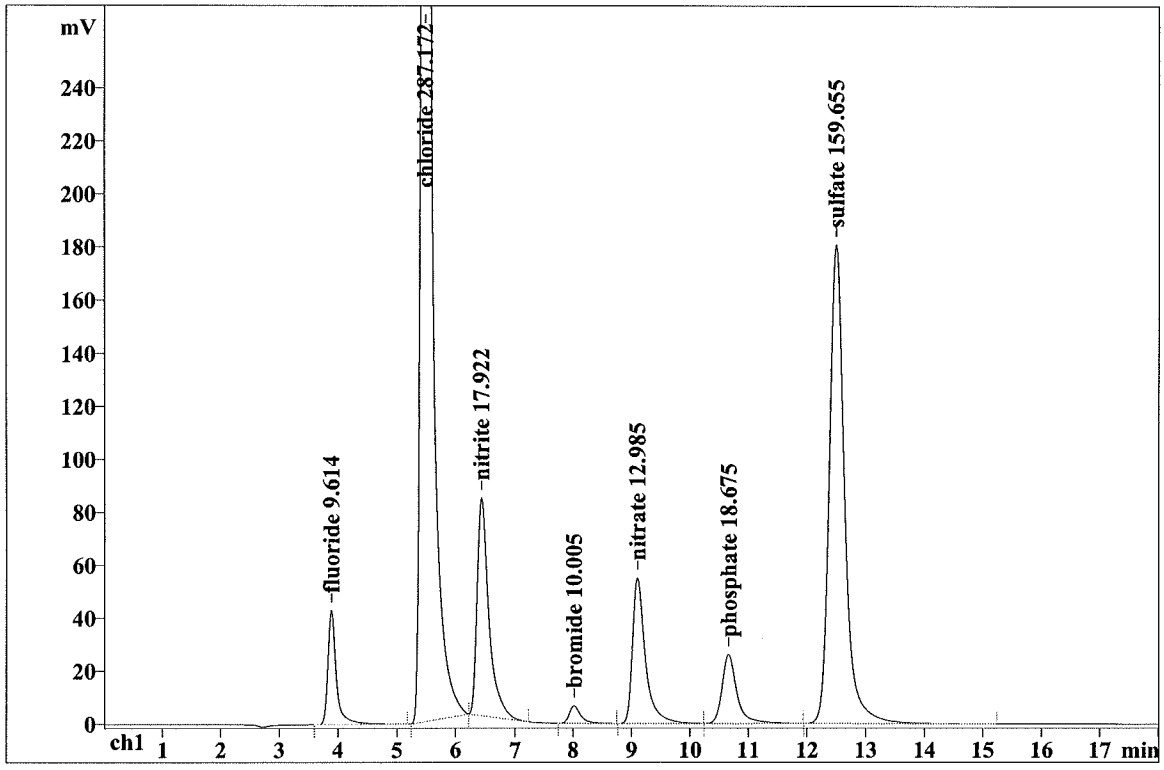
Report date: 12/18/2019 3:38:00 PM
Printed by: LDip

Ident: AL14-10 L057-01IM DF=10
Analysis from: 12/17/2019 2:59:25 PM
File: _2019-12-17_14-59.chw Last save: 12/17/2019 3:17:25 PM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89962

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 10
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	43.10	432.952	9.614	fluoride
2	5.48	720.75	7658.352	287.172	chloride
3	6.44	82.24	1135.683	17.922	nitrite
4	8.02	6.68	91.743	10.005	bromide
5	9.10	55.03	830.621	12.985	nitrate
6	10.67	26.07	457.821	18.675	phosphate
7	12.50	180.68	3292.187	159.655	sulfate ✓
7	18.00	1114.54	13899.360	516.027	

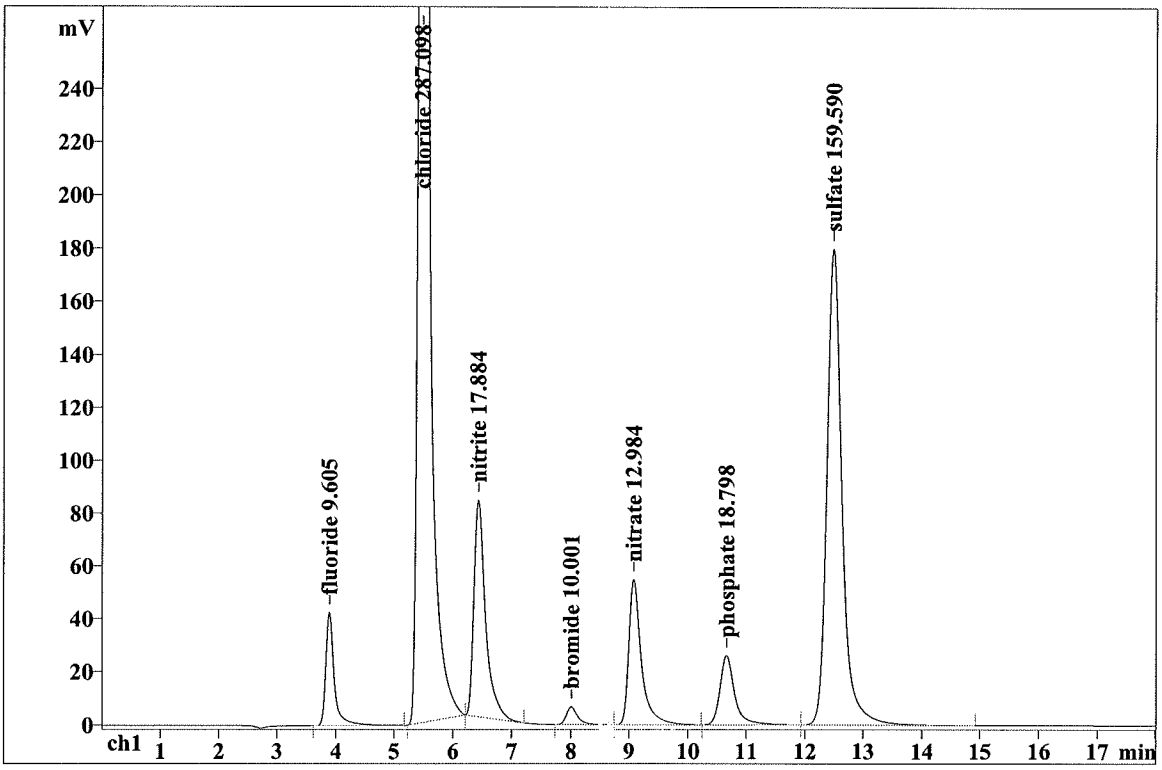
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 3:38:06 PM
Printed by: LDip

Ident: AL14-11 L057-01IS DF=10
Analysis from: 12/17/2019 3:20:10 PM
File: _2019-12-17_15-20.chw Last save: 12/17/2019 3:38:10 PM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89963

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 11
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	42.57	432.558	9.605	fluoride
2	5.48	715.31	7656.378	287.098	chloride
3	6.43	81.89	1133.171	17.884	nitrite
4	8.01	6.65	91.697	10.001	bromide
5	9.08	54.83	830.556	12.984	nitrate
6	10.66	26.06	461.043	18.798	phosphate
7	12.49	179.87	3290.815	159.590	sulfate
7	18.00	1107.19	13896.218	515.958	

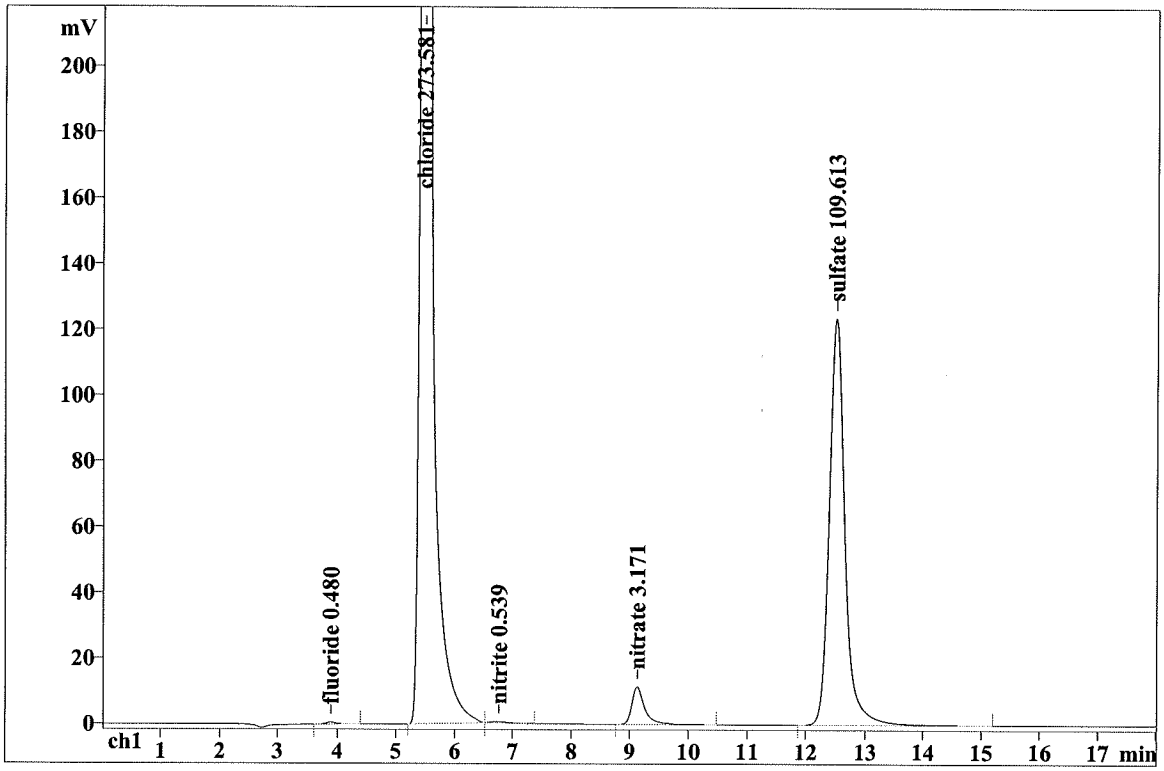
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 3:37:51 PM
Printed by: LDip

Ident: AL14-12 L057-01ID DF=10
Analysis from: 12/17/2019 3:40:55 PM
File: _2019-12-17_15-40.chw Last save: 12/17/2019 3:58:55 PM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89964

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 12
Volume: 1.0 µL
Dilution: 10.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	0.66	7.366	0.480	fluoride
2	5.48	678.62	7294.900	273.581	chloride
3	6.76	0.39	7.748	0.539	nitrite
4	9.13	11.48	178.208	3.171	nitrate
5	12.50	123.70	2247.296	109.613	sulfate ✓
5	18.00	814.86	9735.518	387.384	

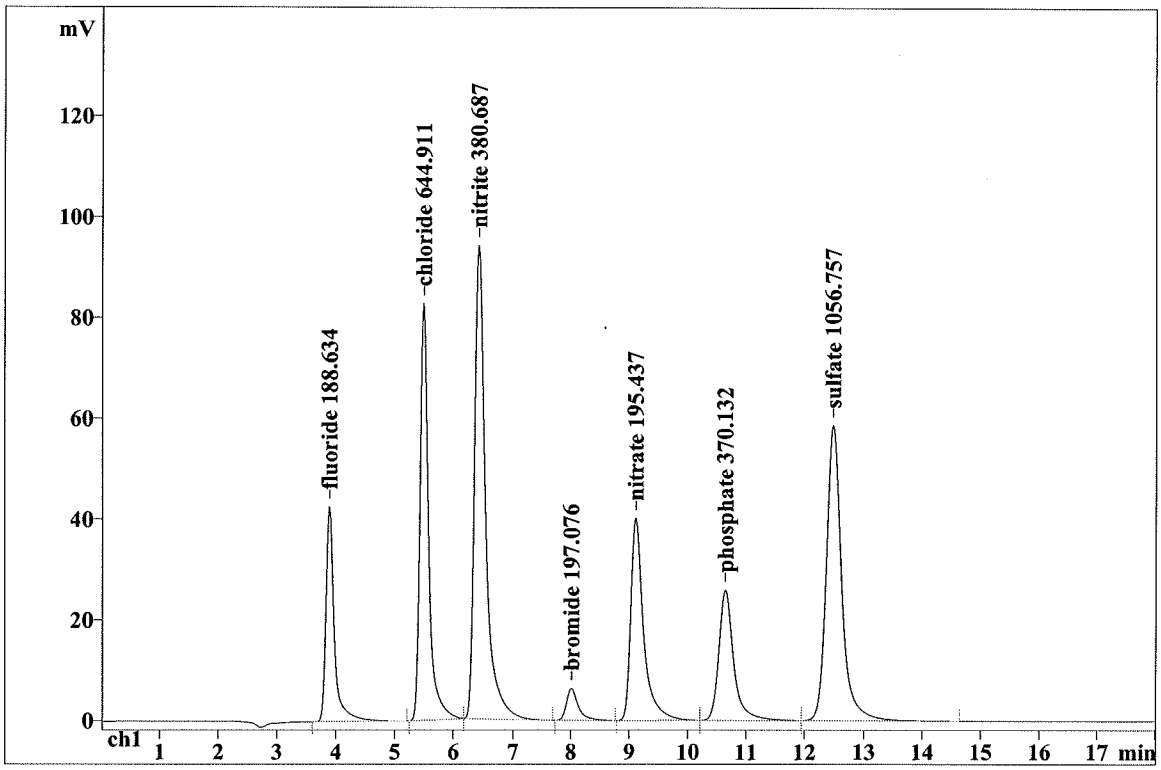
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 3:38:22 PM
Printed by: LDip

Ident: AL14-31 L057-01JM DF=200
Analysis from: 12/17/2019 10:45:41 PM
File: _2019-12-17_22-45.chw Last save: 12/17/2019 11:03:41 PM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89983

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 31
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	42.55	424.461	188.634	fluoride
2	5.49	82.68	840.910	644.911	chloride✓
3	6.43	94.01	1207.844	380.687	nitrite
4	8.01	6.33	89.937	197.076	bromide
5	9.11	40.10	617.028	195.437	nitrate
6	10.65	25.81	453.418	370.132	phosphate
7	12.48	58.50	1061.829	1056.757	sulfate
7	18.00	349.99	4695.428	3033.635	

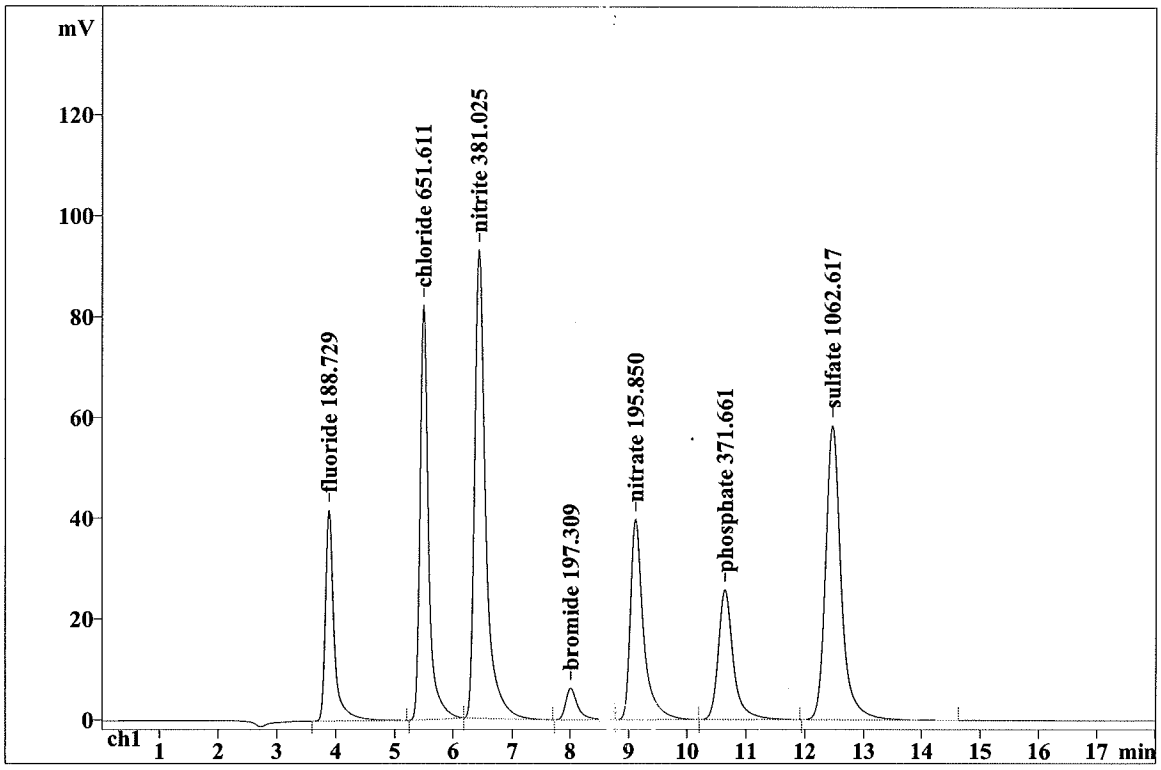
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 3:38:31 PM
Printed by: LDip

Ident: AL14-32 L057-01JS DF=200
Analysis from: 12/17/2019 11:06:26 PM
File: _2019-12-17_23-06.chw Last save: 12/17/2019 11:24:27 PM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89984

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 32
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	41.76	424.681	188.729	fluoride
2	5.49	82.27	849.869	651.611	chloride ✓
3	6.43	92.90	1208.941	381.025	nitrite
4	8.01	6.26	90.077	197.309	bromide
5	9.11	39.75	618.399	195.850	nitrate
6	10.64	25.69	455.422	371.661	phosphate
7	12.48	58.39	1067.946	1062.617	sulfate
7	18.00	347.02	4715.335	3048.800	

This report has been created by IC Net
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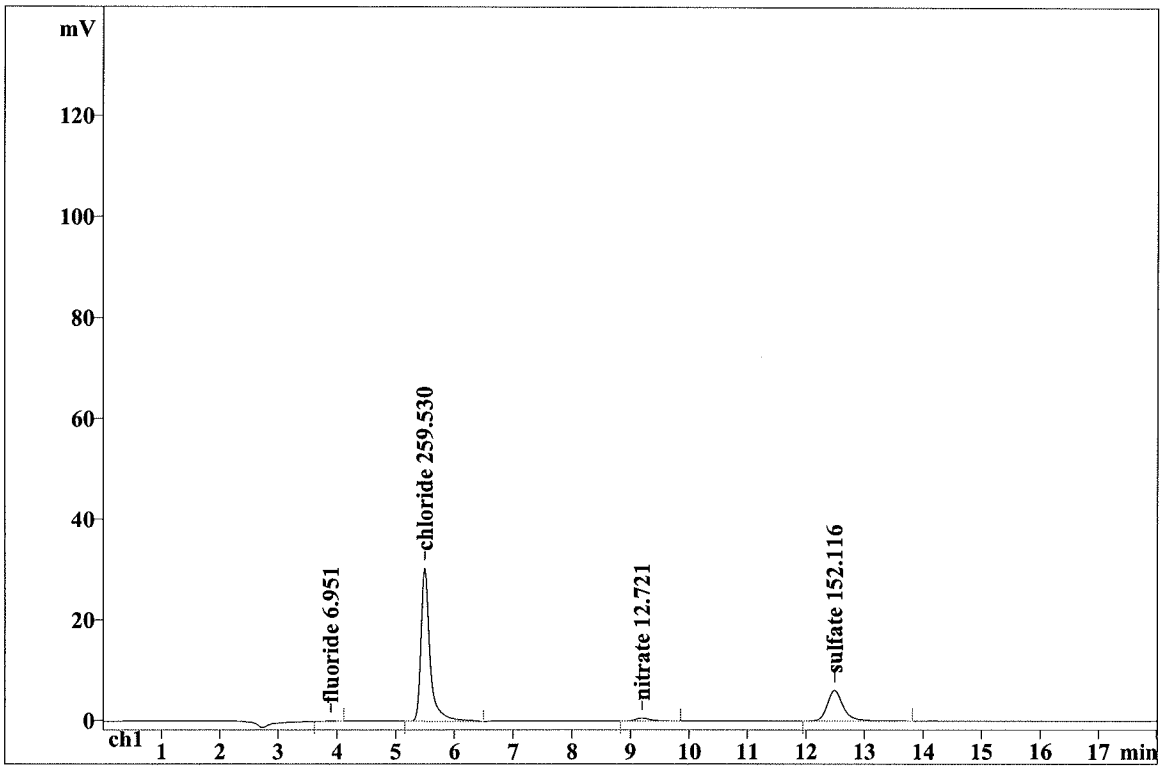
Report date: 12/18/2019 3:38:17 PM
Printed by: LDip

Ident: AL14-30 L057-01JD DF=200
Analysis from: 12/17/2019 10:24:56 PM
File: _2019-12-17_22-24.chw Last save: 12/17/2019 10:42:56 PM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89982

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 30
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	0.12	1.200	6.951	fluoride
2	5.49	30.39	325.602	259.530	chloride ✓
3	9.20	0.59	9.671	12.721	nitrate
4	12.49	6.11	117.379	152.116	sulfate
4	18.00	37.21	453.852	431.317	

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INITIAL CALIBRATION(S)

IC Result Check FormVersion : L04/AL02(2019)

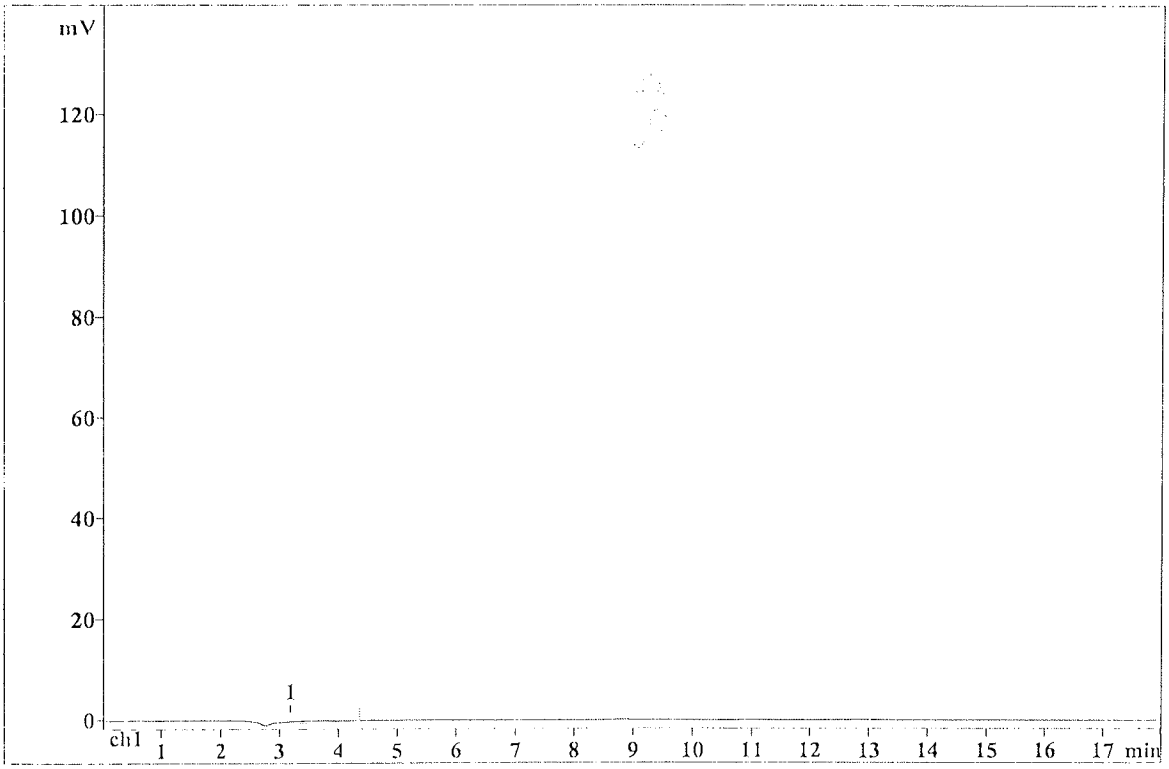
LFID	LSID	Selection	iodide	chloride	fluoride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AL02-01	IB	OCFIBNPS	0	0	0	0	0	0	0	0	_2019-12-04_14-40	1
AL02-02	S0	OCFIBNPS	0	0	0	0	0	0	0	0	_2019-12-04_15-00	1
AL02-03	S1	OCFIBNPS	0	0.116289	0.067888	0.0778798	0.267441	0.0842262	0.149855	0.256218	_2019-12-04_15-21	1
AL02-04	S2	OCFIBNPS	0	0.151685	0.108502	0.115014	0.301425	0.120153	0.179126	0.284301	_2019-12-04_15-42	1
AL02-05	S3	OCFIBNPS	0	0.222393	0.18613	0.191628	0.370552	0.194993	0.242998	0.349226	_2019-12-04_16-03	1
AL02-06	S4	OCFIBNPS	0	0.493982	0.466795	0.471147	0.597988	0.466635	0.46957	0.578805	_2019-12-04_16-23	1
AL02-07	S5	OCFIBNPS	0	0.919169	0.963866	0.965426	0.98218	0.959045	0.888561	0.967668	_2019-12-04_16-44	1
AL02-08	S6	OCFIBNPS	0	1.89631	2.01024	1.99068	1.8114	2.02495	1.85091	1.81141	_2019-12-04_17-05	1
AL02-09	S7	OCFIBNPS	0	5.05017	5.08906	5.06478	4.59241	5.37797	5.06898	4.64504	_2019-12-04_17-26	1
AL02-10	S8	OCFIBNPS	0	10.4902	9.95751	9.97344	9.67149	11.0942	10.7303	9.7439	_2019-12-04_17-46	1
AL02-11	S9	OCFIBNPS	0	21.3779	18.7099	18.9242	20.2551	22.5288	22.0851	20.2134	_2019-12-04_18-07	1
AL02-12	ICV	OCFIBNPS	0%*	91.8%	93.7%	96.5%	95.8%	95.1%	90.4%	92.4%	_2019-12-04_18-28	1
AL02-13	ICV1	OCFIBNPS	0%*	88.8%*	93.3%	93.1%	95.9%	93.3%	86.6%*	91.3%	_2019-12-04_18-49	1
AL02-14	ICB	OCFIBNPS	0	0	0	0	0	0	0	0	_2019-12-04_19-09	1

Report date: 12/5/2019 1:06:22 PM
Printed by: LDip

Ident: AL02-02 S0
Analysis from: 12/4/2019 3:00:51 PM
File: _2019-12-04_15-00.chw Last save: 12/5/2019 12:42:13 PM

Method: ICD7-L04.mtw Last save: 12/4/2019 4:21:07 PM
Run operator: LDip
Analysis number: 89739

SAMPLE: METHOD300/9056/4110B
:
Vial number: 2
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.19	0.49	30.135	0.000	

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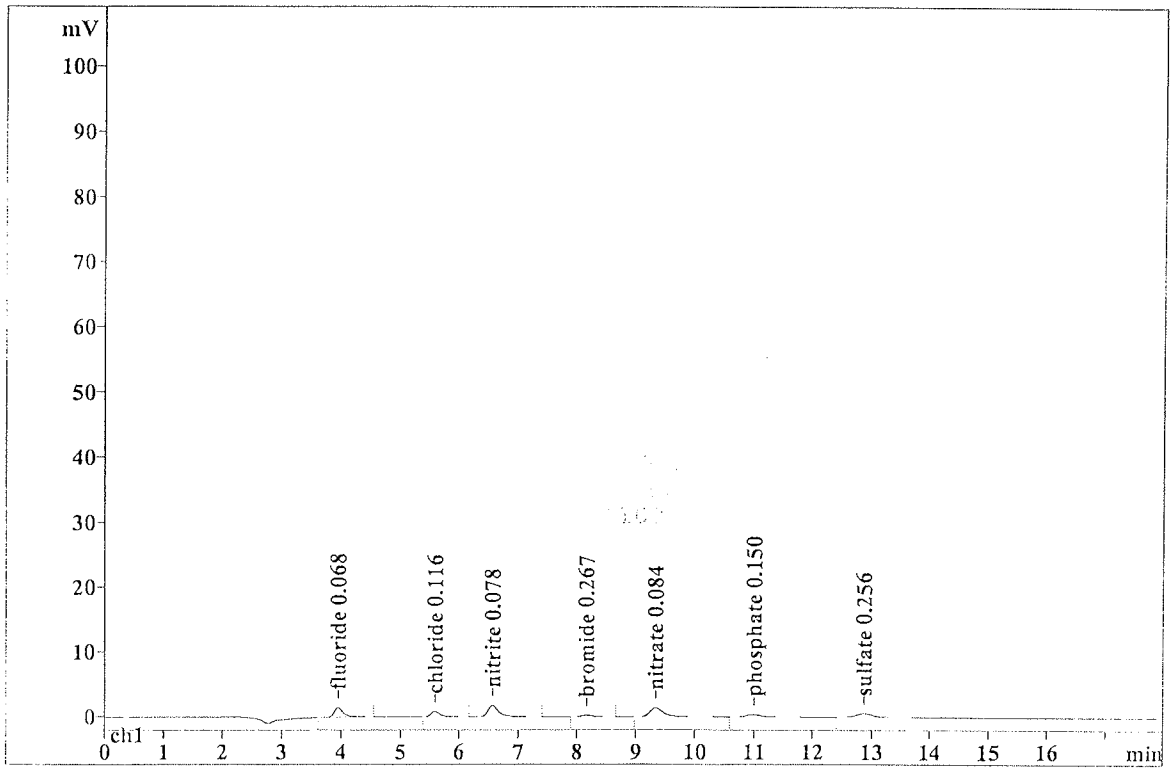
Report date: 12/5/2019 1:06:35 PM
Printed by: LDip

Ident: AL02-03 S1
Analysis from: 12/4/2019 3:21:37 PM
File: _2019-12-04_15-21.chw Last save: 12/5/2019 12:42:13 PM

Method: ICD7-L04.mtw Last save: 12/4/2019 4:21:07 PM
Run operator: LDip
Analysis number: 89740

SAMPLE: METHOD300/9056/4110B
: 0.05 PPM
Vial number: 3
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.95	1.53	16.638	0.068	fluoride
2	5.59	0.85	9.673	0.116	chloride
3	6.57	1.79	23.284	0.078	nitrite
4	8.17	0.26	3.930	0.267	bromide
5	9.34	1.37	23.382	0.084	nitrate
6	10.99	0.39	7.634	0.150	phosphate
7	12.87	0.59	12.068	0.256	sulfate
7	18.00	6.77	96.609	1.020	

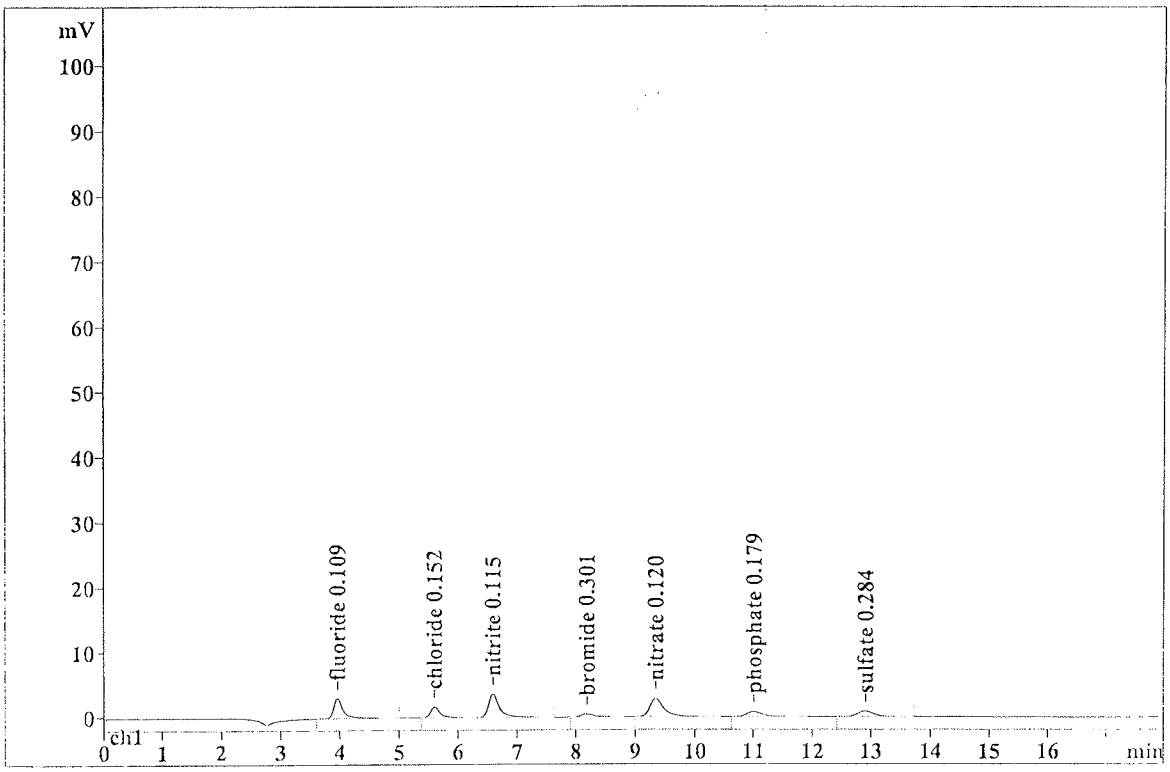
This report has been created by IC Net
METROHM LTD

Report date: 12/5/2019 1:06:42 PM
Printed by: LDip

Ident: AL02-04 S2
Analysis from: 12/4/2019 3:42:22 PM
File: _2019-12-04_15-42.chw Last save: 12/5/2019 12:42:13 PM

Method: ICD7-L04.mtw Last save: 12/4/2019 4:21:07 PM
Run operator: LDip
Analysis number: 89741

SAMPLE: METHOD300/9056/4110B
: 0.1 PPM
Vial number: 4
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.96	3.11	35.562	0.109	fluoride
2	5.60	1.66	19.138	0.152	chloride
3	6.59	3.65	47.380	0.115	nitrite
4	8.19	0.52	8.001	0.301	bromide
5	9.34	2.81	47.266	0.120	nitrate
6	11.01	0.79	15.306	0.179	phosphate
7	12.90	0.89	17.932	0.284	sulfate
7	18.00	13.43	190.585	1.260	

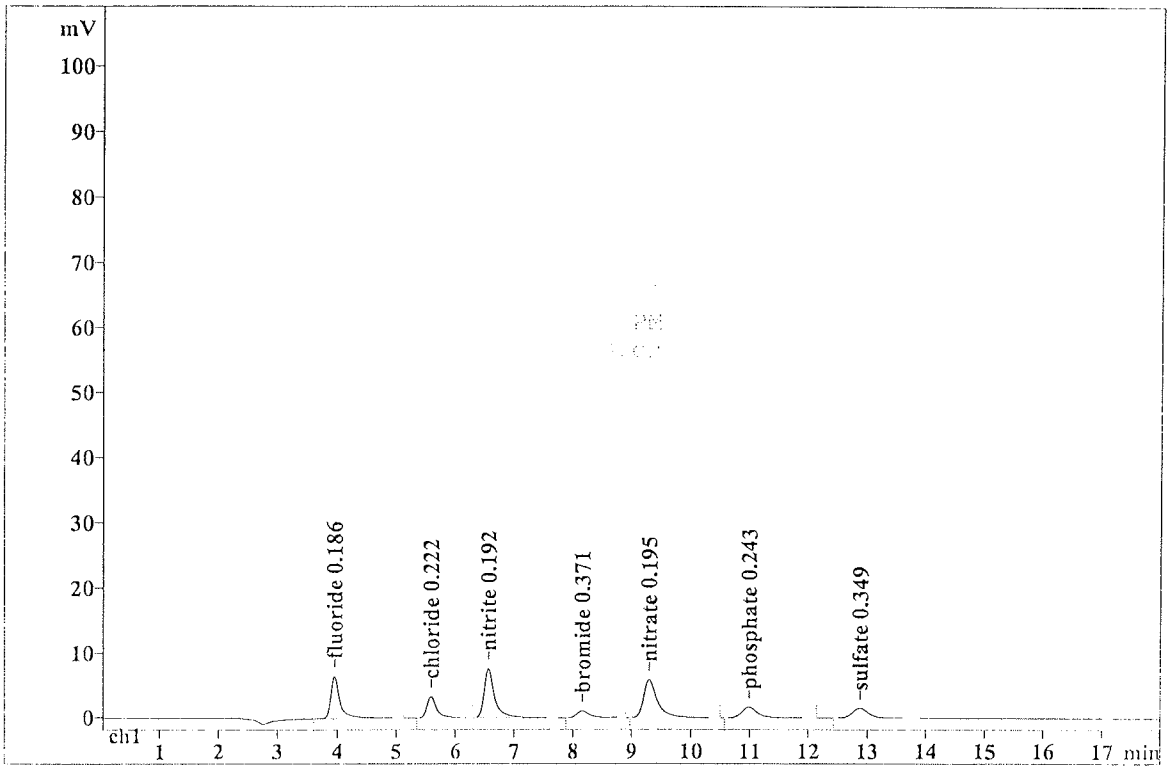
This report has been created by IC Net
METROHM LTD

Report date: 12/5/2019 1:06:55 PM
Printed by: LDip

Ident: AL02-05 S3
Analysis from: 12/4/2019 4:03:06 PM
File: _2019-12-04_16-03.chw Last save: 12/5/2019 12:42:13 PM

Method: ICD7-L04.mtw Last save: 12/4/2019 4:21:07 PM
Run operator: LDip
Analysis number: 89742

SAMPLE: METHOD300/9056/4110B
: 0.2 PPM
Vial number: 5
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.95	6.54	71.731	0.186	fluoride
2	5.59	3.36	38.048	0.222	chloride
3	6.57	7.61	97.093	0.192	nitrite
4	8.16	1.06	16.283	0.371	bromide
5	9.30	5.90	97.020	0.195	nitrate
6	10.99	1.66	32.047	0.243	phosphate
7	12.88	1.56	31.488	0.349	sulfate
7	18.00	27.69	383.710	1.758	

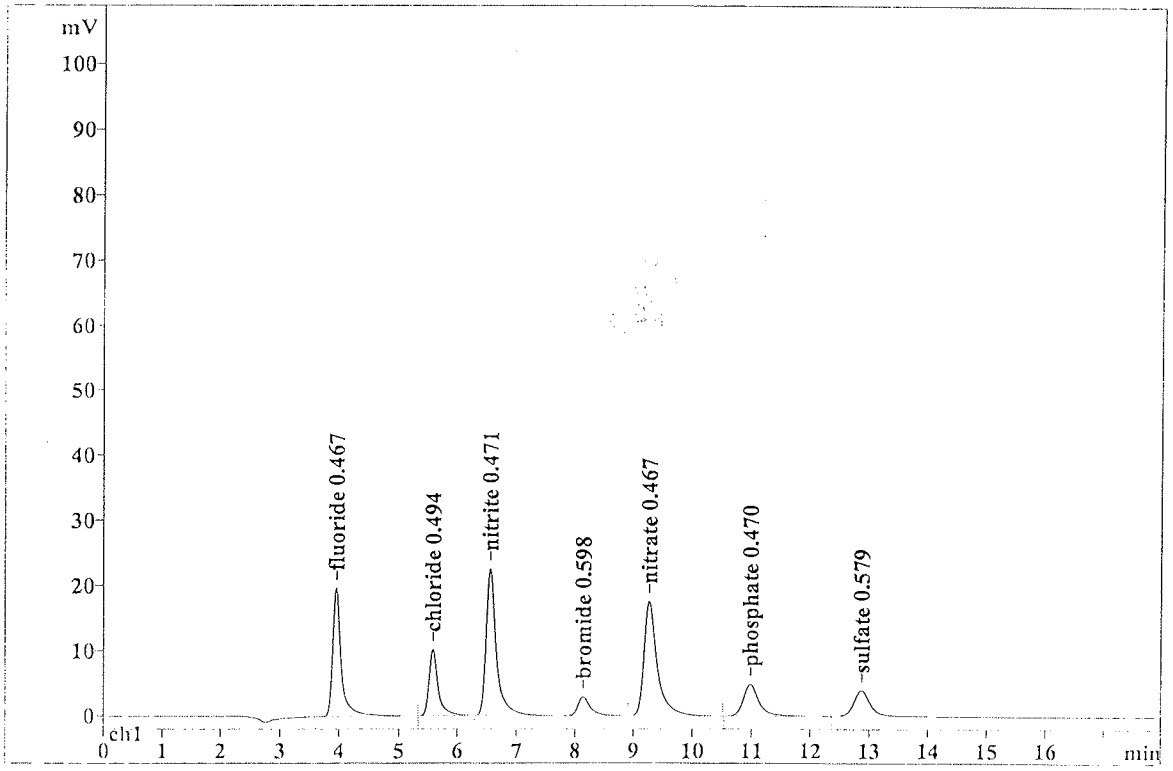
This report has been created by IC Net
METROHM LTD

Report date: 12/5/2019 1:07:01 PM
Printed by: LDip

Ident: AL02-06 S4
Analysis from: 12/4/2019 4:23:52 PM
File: _2019-12-04_16-23.chw Last save: 12/5/2019 12:42:13 PM

Method: ICD7-L04.mtw Last save: 12/4/2019 4:21:07 PM
Run operator: LDip
Analysis number: 89743

SAMPLE: METHOD300/9056/4110B
: 0.5 PPM
Vial number: 6
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.95	19.74	202.502	0.467	fluoride
2	5.58	10.20	110.678	0.494	chloride
3	6.56	22.58	278.466	0.471	nitrite
4	8.14	2.93	43.529	0.598	bromide
5	9.27	17.58	277.610	0.467	nitrate
6	10.98	4.88	91.432	0.470	phosphate
7	12.87	4.00	79.424	0.579	sulfate
7	18.00	81.91	1083.642	3.545	

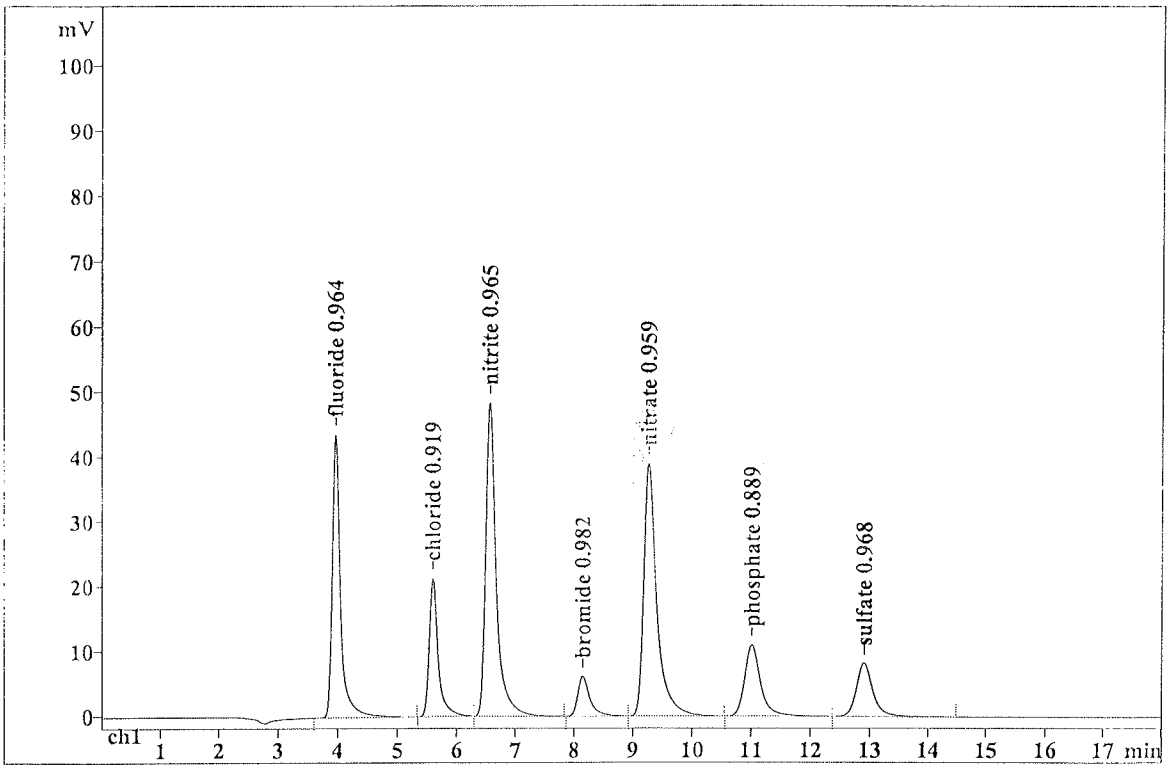
This report has been created by IC Net
METROHM LTD

Report date: 12/5/2019 1:07:07 PM
Printed by: LDip

Ident: AL02-07 S5
Analysis from: 12/4/2019 4:44:37 PM
File: _2019-12-04_16-44.chw Last save: 12/5/2019 12:42:13 PM

Method: ICD7-L04.mtw Last save: 12/4/2019 4:21:07 PM
Run operator: LDip
Analysis number: 89744

SAMPLE: METHOD300/9056/4110B
: 1.0 PPM
Vial number: 7
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.97	43.64	434.104	0.964	fluoride
2	5.60	21.28	224.385	0.919	chloride
3	6.57	48.29	599.192	0.965	nitrite
4	8.15	6.19	89.554	0.982	bromide
5	9.26	38.93	604.967	0.959	nitrate
6	11.01	11.00	201.251	0.889	phosphate
7	12.90	8.25	160.619	0.968	sulfate
7	18.00	177.57	2314.072	6.646	

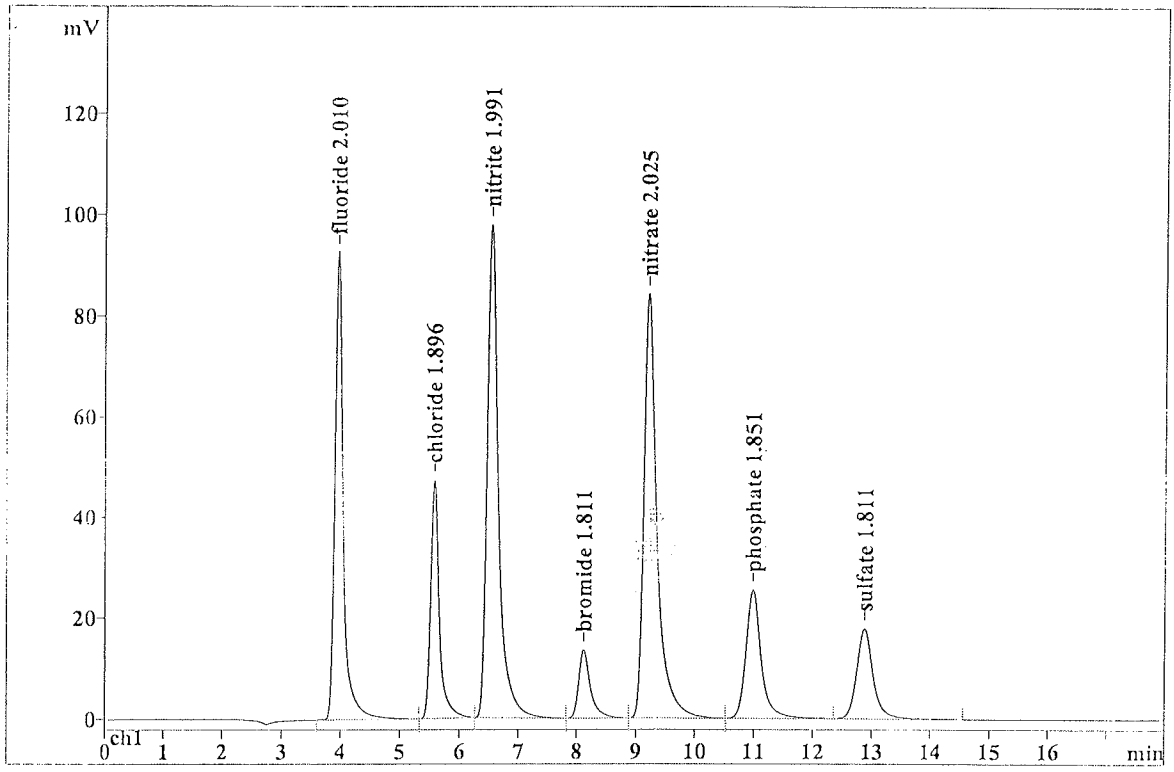
This report has been created by IC Net
METROHM LTD

Report date: 12/5/2019 1:07:16 PM
Printed by: LDip

Ident: AL02-08 S6
Analysis from: 12/4/2019 5:05:22 PM
File: _2019-12-04_17-05.chw Last save: 12/5/2019 12:42:13 PM

Method: ICD7-L04.mtw Last save: 12/4/2019 4:21:07 PM
Run operator: LDip
Analysis number: 89745

SAMPLE: METHOD300/9056/4110B
: 2.0 PPM
Vial number: 8
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.96	92.73	921.646	2.010	fluoride
2	5.58	47.27	485.701	1.896	chloride
3	6.54	97.76	1264.458	1.991	nitrite
4	8.12	13.54	188.892	1.811	bromide
5	9.21	84.20	1313.587	2.025	nitrate
6	10.99	25.45	453.482	1.851	phosphate
7	12.88	17.84	336.794	1.811	sulfate
7	18.00	378.79	4964.560	13.396	

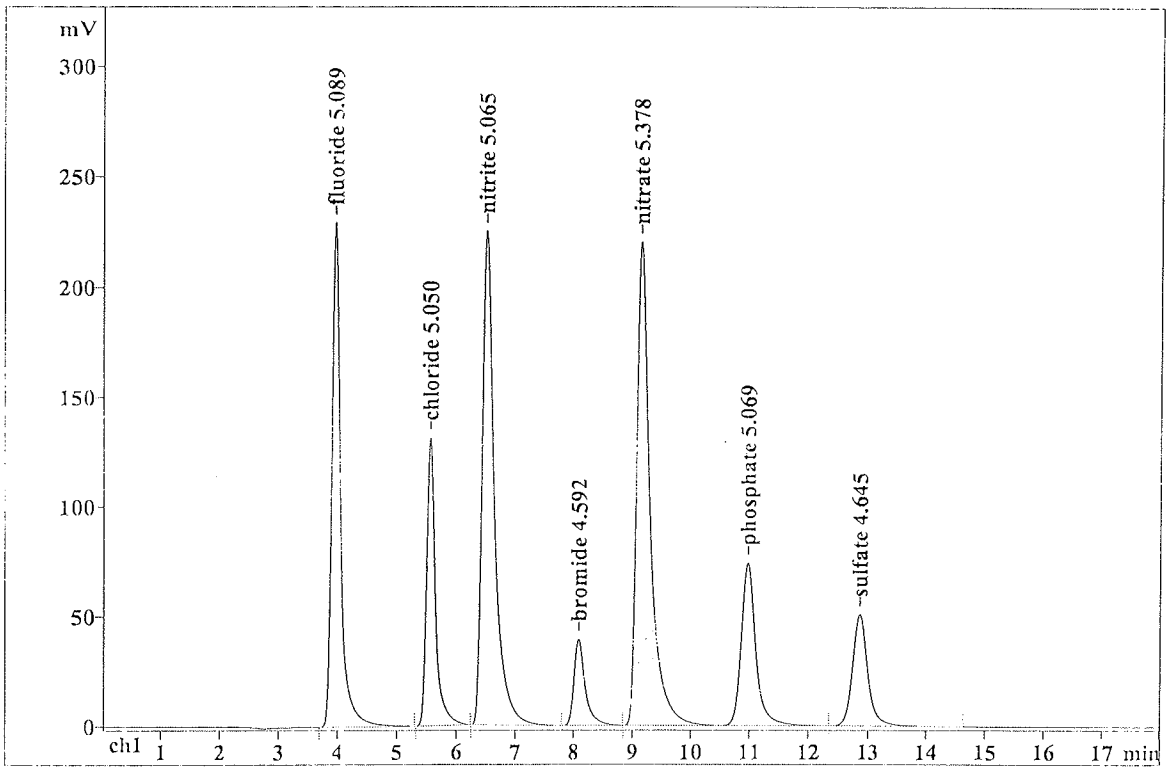
This report has been created by IC Net
METROHM LTD

Report date: 12/5/2019 1:07:30 PM
Printed by: LDip

Ident: AL02-09 S7
Analysis from: 12/4/2019 5:26:07 PM
File: _2019-12-04_17-26.chw Last save: 12/5/2019 12:42:13 PM

Method: ICD7-L04.mtw Last save: 12/4/2019 4:21:07 PM
Run operator: LDip
Analysis number: 89746

SAMPLE: METHOD300/9056/4110B
: 5.0 PPM
Vial number: 9
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.96	229.17	2356.167	5.089	fluoride
2	5.57	130.87	1329.131	5.050	chloride
3	6.50	224.51	3259.166	5.065	nitrite
4	8.09	39.17	522.049	4.592	bromide
5	9.14	219.85	3542.699	5.378	nitrate
6	10.97	73.72	1296.946	5.069	phosphate
7	12.86	50.69	928.458	4.645	sulfate
7	18.00	967.99	13234.618	34.888	

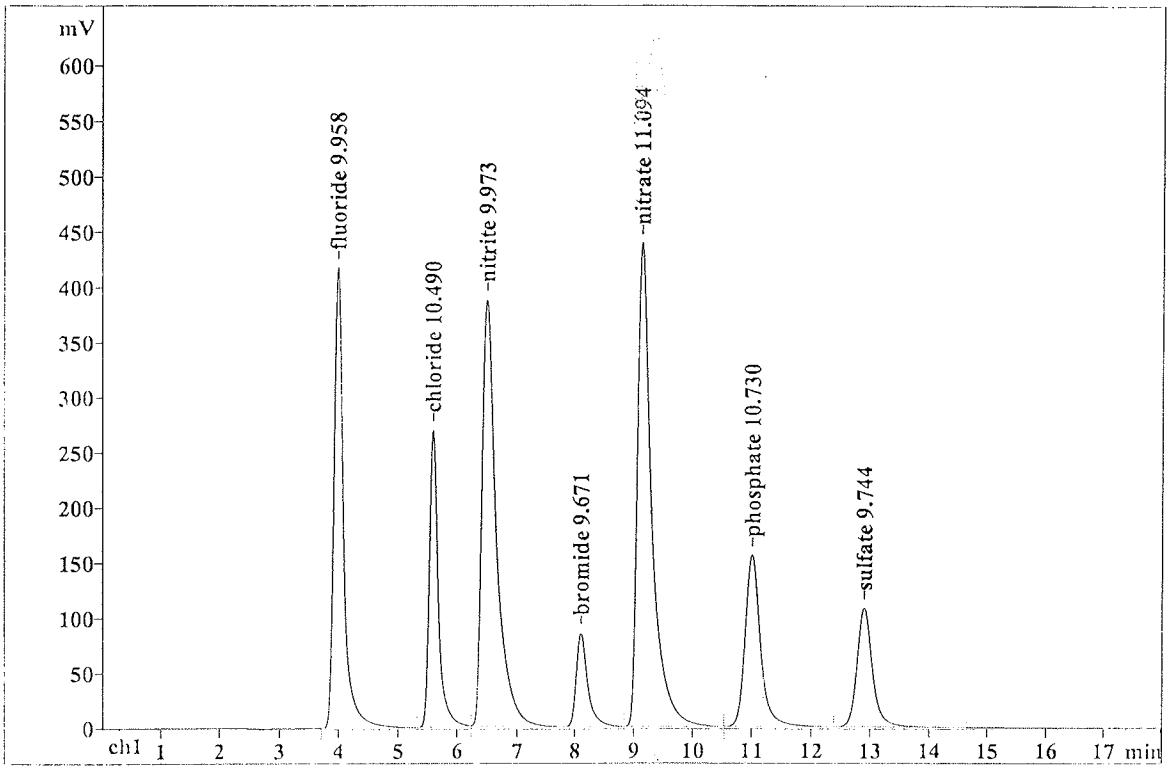
This report has been created by IC Net
METROHM LTD

Report date: 12/5/2019 1:07:42 PM
Printed by: LDip

Ident: AL02-10 S8
Analysis from: 12/4/2019 5:46:52 PM
File: _2019-12-04_17-46.chw Last save: 12/5/2019 12:42:13 PM

Method: ICD7-L04.mtw Last save: 12/4/2019 4:21:07 PM
Run operator: LDip
Analysis number: 89747

SAMPLE: METHOD300/9056/4110B
: 10.0 PPM
Vial number: 10
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.99	417.88	4624.538	9.958	fluoride
2	5.58	269.25	2783.939	10.490	chloride
3	6.50	386.81	6444.285	9.973	nitrite
4	8.10	84.90	1130.509	9.671	bromide
5	9.13	439.04	7342.908	11.094	nitrate
6	11.01	156.00	2780.786	10.730	phosphate
7	12.90	108.22	1993.106	9.744	sulfate
7	18.00	1862.10	27100.072	71.661	

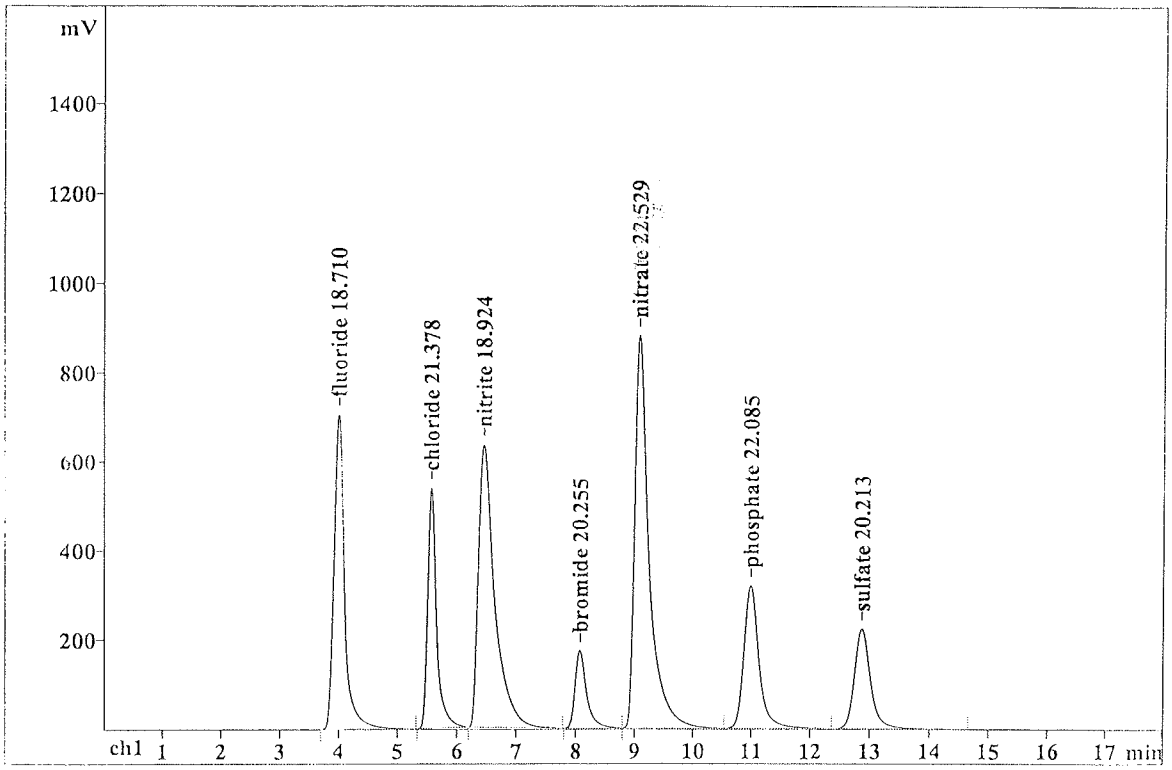
This report has been created by IC Net
METROHM LTD

Report date: 12/5/2019 1:07:56 PM
Printed by: LDip

Ident: AL02-11 S9
Analysis from: 12/4/2019 6:07:37 PM
File: _2019-12-04_18-07.chw Last save: 12/5/2019 12:42:13 PM

Method: ICD7-L04.mtw Last save: 12/4/2019 4:21:07 PM
Run operator: LDip
Analysis number: 89748

SAMPLE: METHOD300/9056/4110B
: 20.0 PPM
Vial number: 11
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	4.00	705.70	8702.579	18.710	fluoride
2	5.56	538.02	5695.622	21.378	chloride
3	6.45	633.14	12252.235	18.924	nitrite
4	8.07	173.98	2398.400	20.255	bromide
5	9.08	880.91	14944.719	22.529	nitrate
6	10.99	319.14	5756.898	22.085	phosphate
7	12.87	223.62	4179.153	20.213	sulfate
7	18.00	3474.49	53929.607	144.095	

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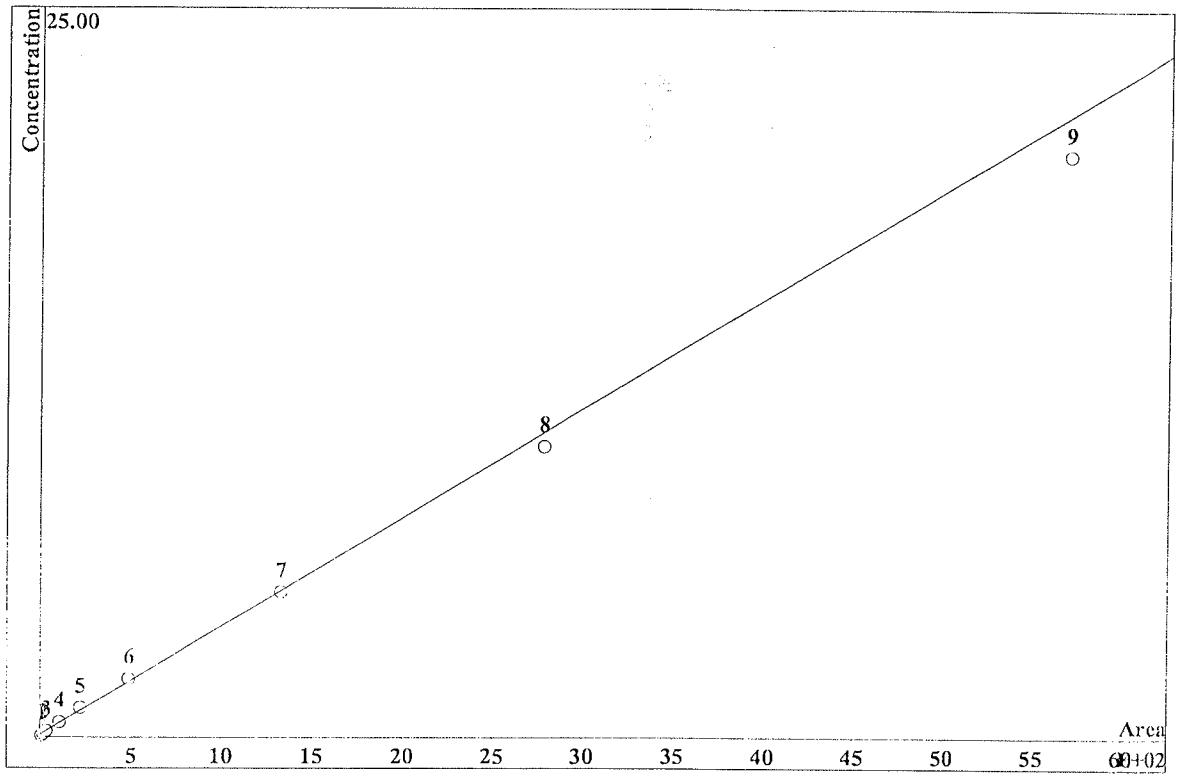
CALIBRATION OF COMPONENT chloride

Method: ICD7-L04.mtw
Equation: Q = 0.00373932·A + 0.0801202
RSD: 5.856 %
Correlation coefficient: 0.999283

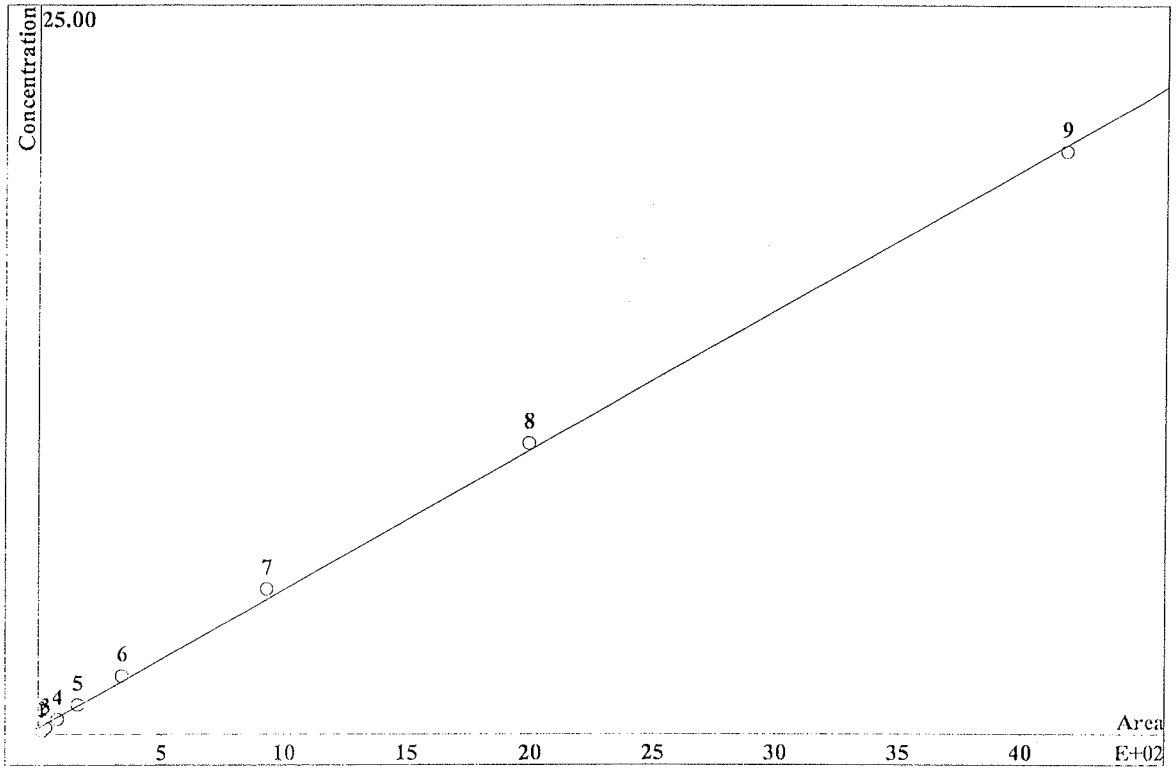


K3 = 0 K2 = 0 K1 = 0.00373932 K0 = 0.0801202
Base: Area
Ref.channel: ch1
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.8465	9.673	0.05	1	5.58	Yes	_2019-12-04_1r
2	1.663	19.14	0.1	1	5.58	Yes	_2019-12-04_1r
3	3.357	38.05	0.2	1	5.58	Yes	_2019-12-04_1r
4	10.2	110.7	0.5	1	5.58	Yes	_2019-12-04_1r
5	21.28	224.4	1	1	5.58	Yes	_2019-12-04_1r
6	47.27	485.7	2	1	5.58	Yes	_2019-12-04_1r
7	130.9	1329	5	1	5.58	Yes	_2019-12-04_1r
8	269.2	2784	10	1	5.58	No	_2019-12-04_1
9	538	5696	20	1	5.58	No	_2019-12-04_1

CALIBRATION OF COMPONENT sulfate

Method: ICD7-L04.mtw
Equation: Q = 0.00478925·A + 0.198422
RSD: 5.388 %
Correlation coefficient: 0.999478



K3 = 0 K2 = 0 K1 = 0.00478925 K0 = 0.198422
Base: Area
Ref.channel: ch1
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.592	12.07	0.05	1	12.88	Yes	_2019-12-04_1r
2	0.8892	17.93	0.1	1	12.88	Yes	_2019-12-04_1r
3	1.556	31.49	0.2	1	12.88	Yes	_2019-12-04_1r
4	4.005	79.42	0.5	1	12.88	Yes	_2019-12-04_1r
5	8.247	160.6	1	1	12.88	Yes	_2019-12-04_1r
6	17.85	336.8	2	1	12.88	Yes	_2019-12-04_1r
7	50.69	928.5	5	1	12.88	Yes	_2019-12-04_1r
8	108.2	1993	10	1	12.88	Yes	_2019-12-04_1
9	223.6	4179	20	1	12.88	Yes	_2019-12-04_1

SECOND SOURCE VERIFICATION

IC Result Check FormVersion : L04/AL02(2019)

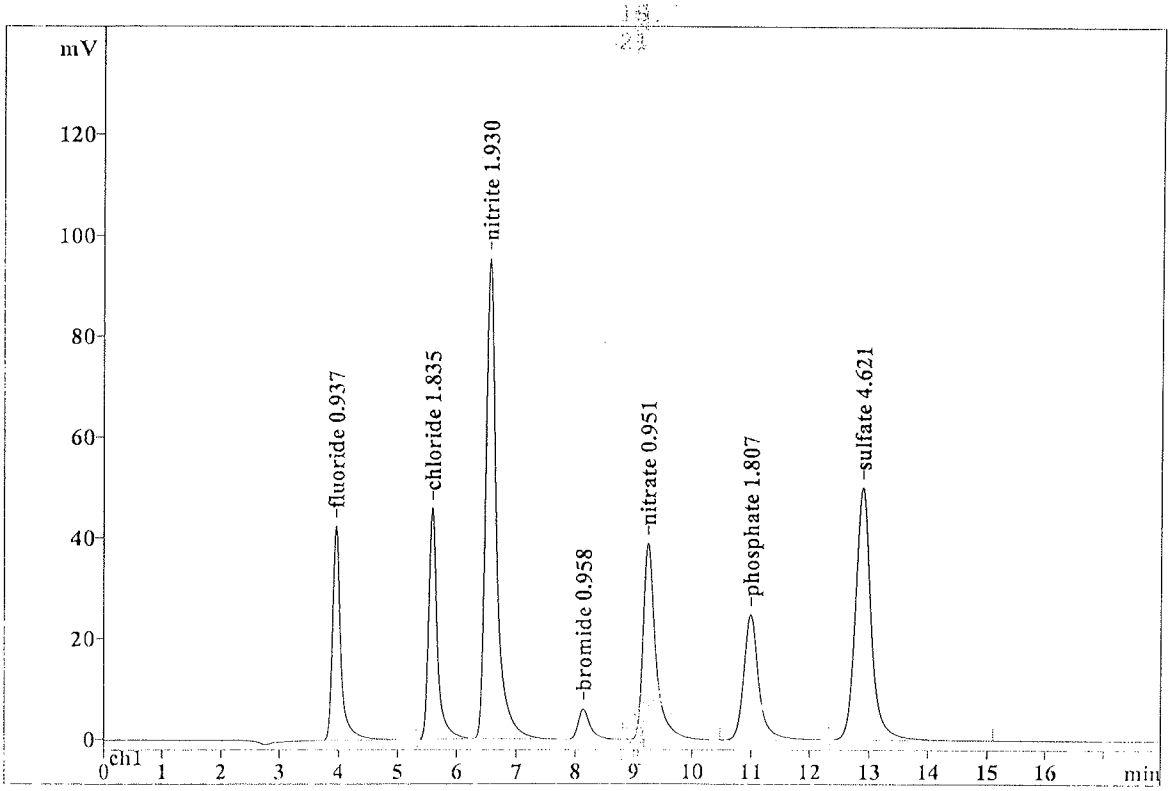
LFID	LSID	Selection	phosphate	nitrite	nitrate	iodide	fluoride	chloride	bromide	sulfate	RawNetID	DF
AL02-01	IB	PINOFCBS	0	0	0	0	0	0	0	0	_2019-12-04_14-40	1
AL02-12	ICV	PINOFCBS	90.4%	96.5%	95.1%	0%*	93.7%	91.8%	95.8%	92.4%	_2019-12-04_18-28	1
AL02-13	ICV1	PINOFCBS	86.6%*	93.1%	93.3%	0%*	93.3%	88.8%*	95.9%	91.3%	_2019-12-04_18-49	1
AL02-14	ICB	PINOFCBS	0	0	0	0	0	0	0	0	_2019-12-04_19-09	1

Report date: 12/5/2019 1:08:06 PM
Printed by: LDip

Ident: AL02-12 ICV
Analysis from: 12/4/2019 6:28:21 PM
File: _2019-12-04_18-28.chw Last save: 12/5/2019 12:42:14 PM

Method: ICD7-L04.mtw Last save: 12/4/2019 4:21:07 PM
Run operator: LDip
Analysis number: 89749

SAMPLE: METHOD300/9056/4110B
:
Vial number: 12
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.95	42.68	421.515	0.937	fluoride
2	5.58	45.99	469.369	1.835	chloride
3	6.54	95.35	1225.223	1.930	nitrite
4	8.13	6.06	86.701	0.958	bromide
5	9.24	39.05	599.496	0.951	nitrate
6	10.99	24.94	442.080	1.807	phosphate
7	12.88	50.17	923.362	4.621	sulfate
7	18.00	304.26	4167.746	13.040	

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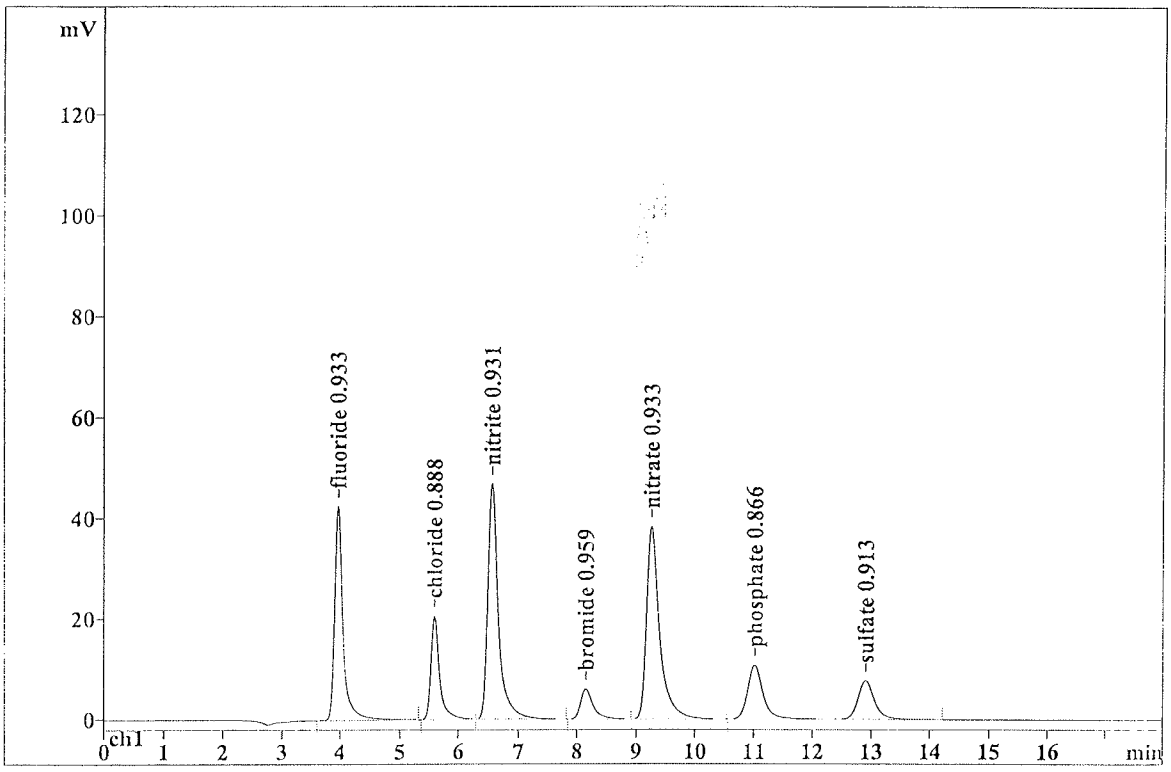
Report date: 12/5/2019 1:08:13 PM
Printed by: LDip

Ident: AL02-13 ICV1
Analysis from: 12/4/2019 6:49:06 PM
File: _2019-12-04_18-49.chw Last save: 12/5/2019 12:42:14 PM

Method: ICD7-L04.mtw Last save: 12/4/2019 4:21:07 PM
Run operator: LDip
Analysis number: 89750

SAMPLE: METHOD300/9056/4110B
: 1.0 PPM
Vial number: 13
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.96	42.63	419.844	0.933	fluoride
2	5.60	20.61	215.948	0.888	chloride
3	6.56	46.90	576.763	0.931	nitrite
4	8.15	6.03	86.751	0.959	bromide
5	9.26	38.34	587.943	0.933	nitrate
6	11.01	10.78	195.327	0.866	phosphate
7	12.91	7.73	149.187	0.913	sulfate
7	18.00	173.03	2231.763	6.423	

This report has been created by IC Net
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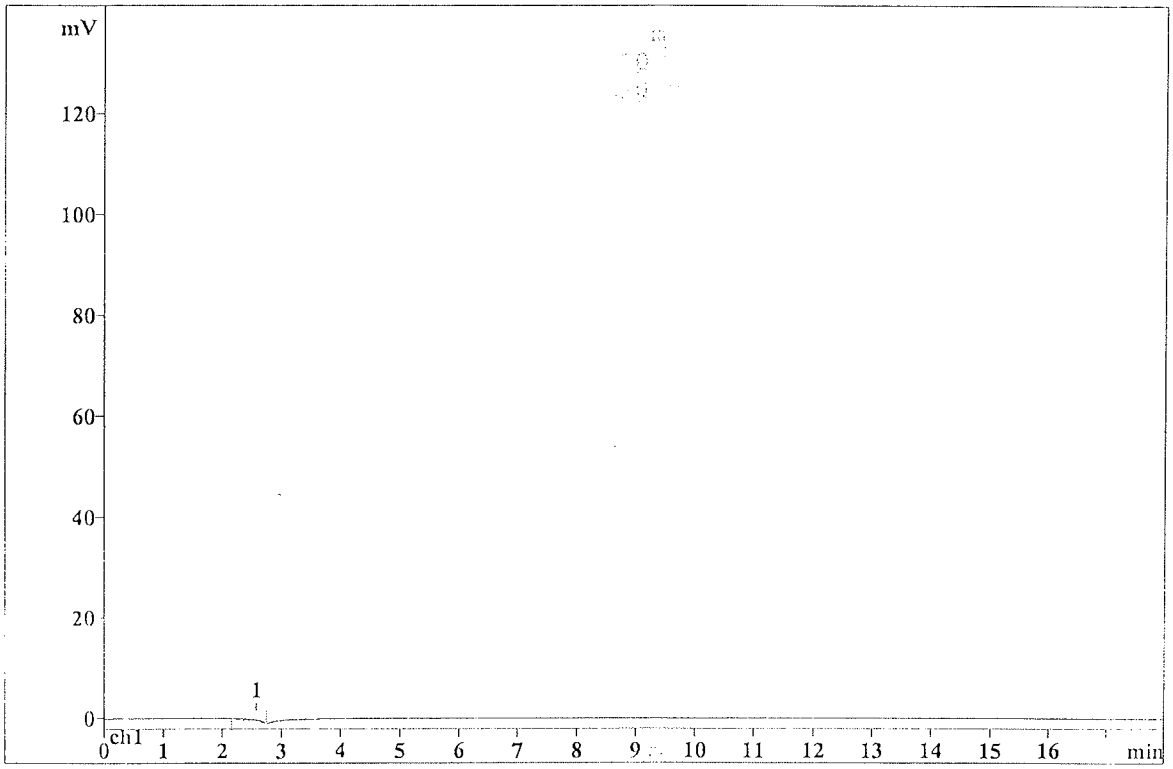
Report date: 12/5/2019 1:08:20 PM
Printed by: LDip

Ident: AL02-14 ICB
Analysis from: 12/4/2019 7:09:51 PM
File: _2019-12-04_19-09.chw Last save: 12/5/2019 12:42:14 PM

Method: ICD7-L04.mtw Last save: 12/4/2019 4:21:07 PM
Run operator: LDip
Analysis number: 89751

SAMPLE: METHOD300/9056/4110B
:
Vial number: 14
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	2.58	0.40	8.937	0.000	

This report has been created by IC Net
METROHM LTD

DAILY CALIBRATION(S)

Continuing Calibration Summary Form

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG : 19L057
Method : E300.0
ICAL Ref. : 19AL02
InstrumentID: D7
Parameter : CHLORIDE

LFID	LSID	Recovery (%)	AnalysisDateTime
AL14-01	CCV72	96.1	12/17/1911:41
AL14-13	CCV74	96.4	12/17/1916:01
AL14-25	CCV76	96.1	12/17/1920:41
AL14-37	CCV78	95.7	12/18/1900:50
AL14-49	CCV80	96.4	12/18/1904:59
AL16-01	CCV84	94.7	12/18/1913:00
AL16-13	CCV86	95	12/18/1917:53

CCV Acceptance Criteria: 90-110%

Continuing Calibration Summary Form

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG : 19L057
Method : E300.0
ICAL Ref. : 19AL02
InstrumentID: D7
Parameter : SULFATE

LFID	LSID	Recovery (%)	AnalysisDateTime
AL14-01	CCV72	94.6	12/17/1911:41
AL14-13	CCV74	94.5	12/17/1916:01
AL14-25	CCV76	94.2	12/17/1920:41
AL14-37	CCV78	94.7	12/18/1900:50
AL14-49	CCV80	95.1	12/18/1904:59
AL16-01	CCV84	93.8	12/18/1913:00
AL16-13	CCV86	93.7	12/18/1917:53

CCV Acceptance Criteria: 90-110%

IC Result Check FormVersion : L04/AL02(2019)

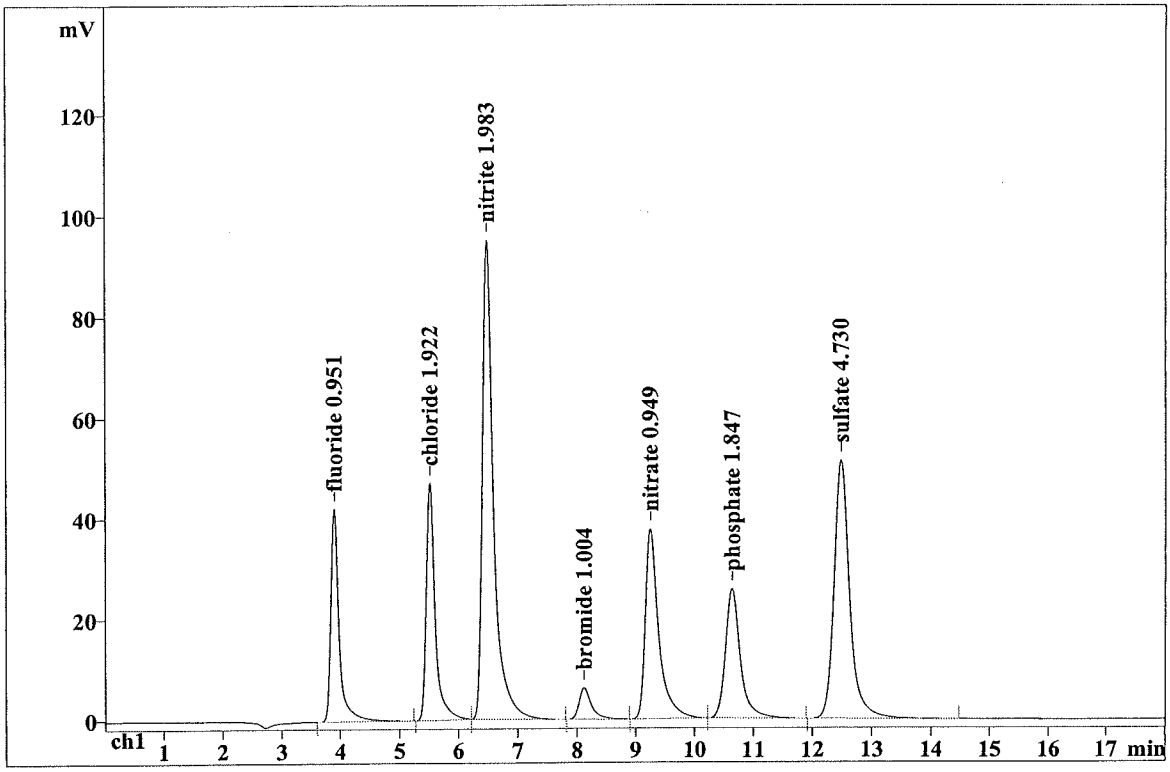
LFID	LSID	Selection	nitrate	chloride	fluoride	iodide	nitrite	bromide	phosphate	sulfate	RawNetID	DF
AL14-01	CCV72	NCFOIBPS	94.9%	96.1%	95.1%	0%*	99.1%	100.4%	92.3%	94.6%	_2019-12-17_11-41	1
AL14-02	CCB72	NCFOIBPS	0	0	0	0	0	0	0	0	_2019-12-17_12-01	1
AL14-13	CCV74	NCFOIBPS	96.3%	96.4%	95.2%	0%*	98.8%	100.2%	93.7%	94.5%	_2019-12-17_16-01	1
AL14-14	CCB74	NCFOIBPS	0	0	0	0	0	0	0	0	_2019-12-17_16-22	1
AL14-25	CCV76	NCFOIBPS	96.1%	96.1%	94.8%	0%*	98.5%	100.1%	93.9%	94.2%	_2019-12-17_20-41	1
AL14-26	CCB76	NCFOIBPS	0	0	0	0	0	0	0	0	_2019-12-17_21-01	1
AL14-37	CCV78	NCFOIBPS	95.7%	95.7%	95.2%	0%*	98.8%	100.3%	93.7%	94.7%	_2019-12-18_00-50	1
AL14-38	CCB7B	NCFOIBPS	0	0	0	0	0	0	0	0	_2019-12-18_01-10	1
AL14-49	CCV80	NCFOIBPS	95.9%	96.4%	96%	0%*	99.7%	101%	93.6%	95.1%	_2019-12-18_04-59	1
AL14-50	CCB80	NCFOIBPS	0	0	0	0	0	0	0	0	_2019-12-18_05-19	1
AL14-54	CCV82	NCFOIBPS	0%*	8.4%*	0%*	0%*	0%*	0%*	0%*	6.1%*	_2019-12-18_06-42	1
AL14-55	CCB82	NCFOIBPS	0.0583053	6.32713	0	0	0	0	0	1.45438	_2019-12-18_07-03	1

Report date: 12/18/2019 11:11:39 AM
Printed by: LDip

Ident: AL14-01 CCV72
Analysis from: 12/17/2019 11:41:04 AM
File: _2019-12-17_11-41.chw Last save: 12/17/2019 11:59:04 AM

Method: ICD7-L04.mtw Last save: 12/13/2019 11:16:36 AM
Run operator: LDip
Analysis number: 89953

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 1
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.90	42.17	428.144	0.951	fluoride
2	5.52	47.13	492.487	1.922	chloride
3	6.49	95.11	1259.418	1.983	nitrite
4	8.12	6.25	92.191	1.004	bromide
5	9.25	37.71	598.291	0.949	nitrate
6	10.64	25.73	452.387	1.847	phosphate
7	12.48	51.38	946.118	4.730	sulfate
7	18.00	305.48	4269.036	13.385	

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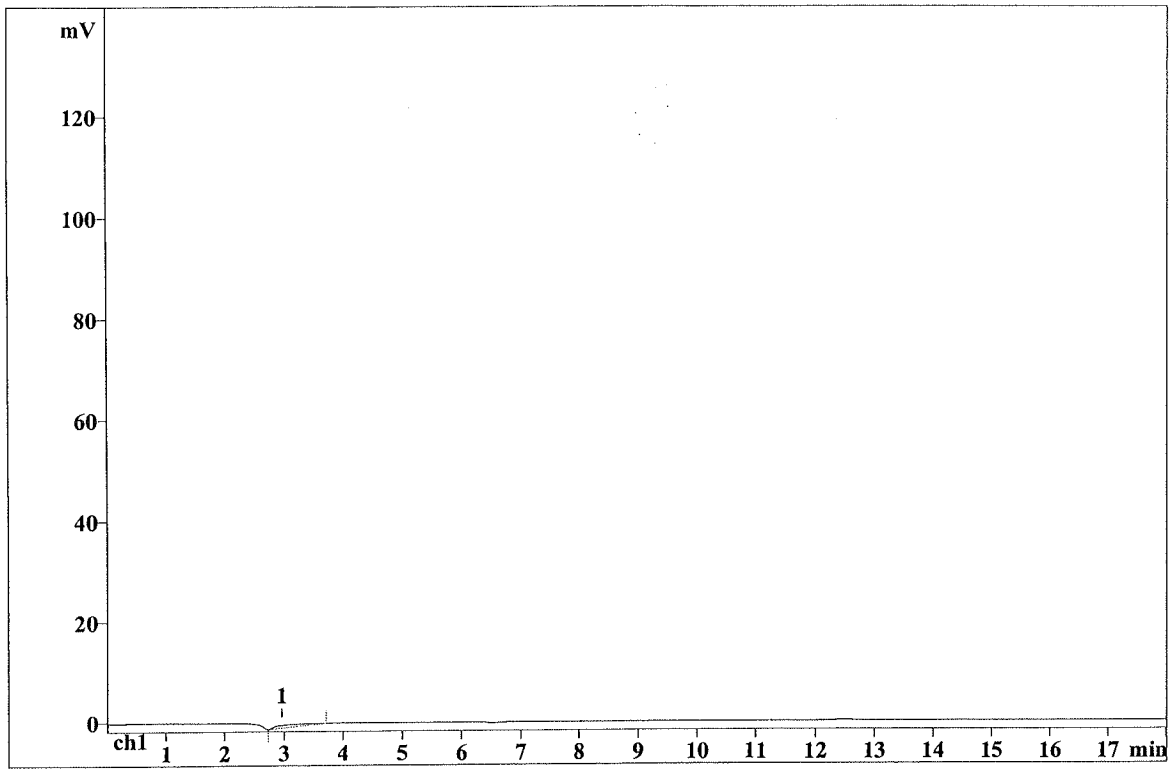
Report date: 12/18/2019 11:12:00 AM
Printed by: LDip

Ident: AL14-02 CCB72
Analysis from: 12/17/2019 12:01:49 PM
File: _2019-12-17_12-01.chw Last save: 12/17/2019 12:19:50 PM
Modified!
Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89954

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 2
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	2.96	0.53	19.409	0.000	

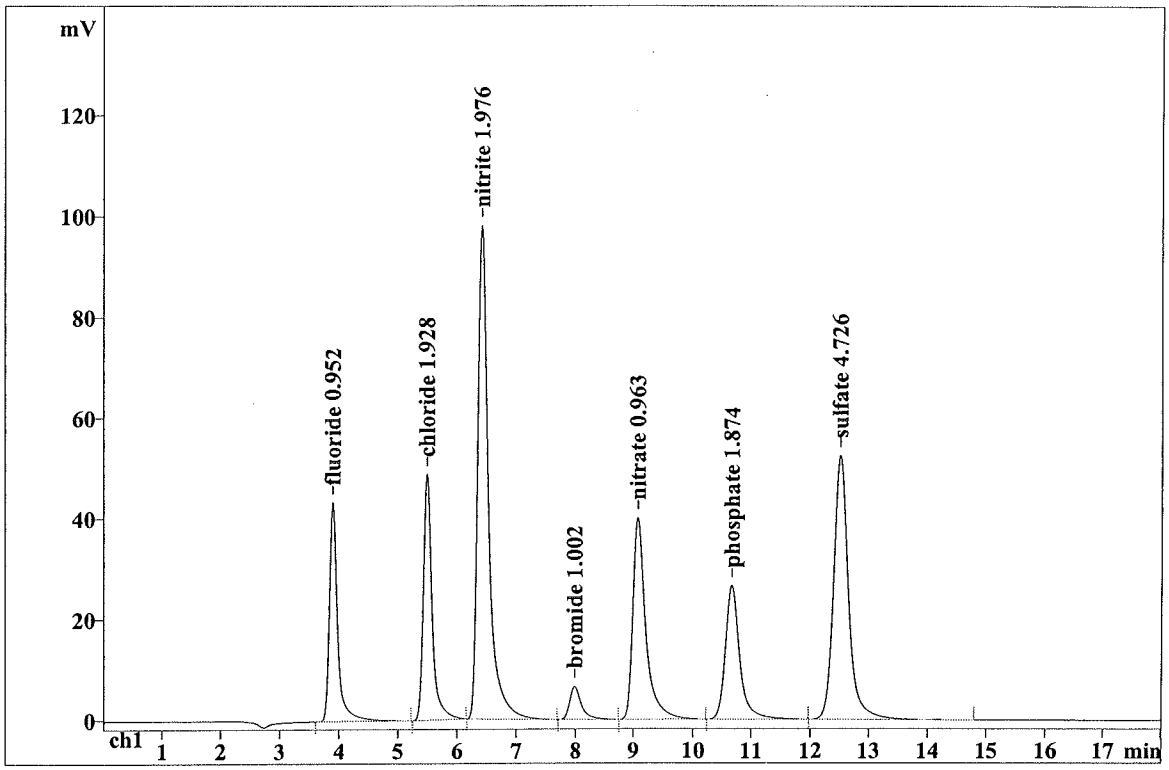
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 11:12:50 AM
Printed by: LDip

Ident: AL14-13 CCV74
Analysis from: 12/17/2019 4:01:40 PM
File: _2019-12-17_16-01.chw Last save: 12/17/2019 4:19:40 PM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89965

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 13
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

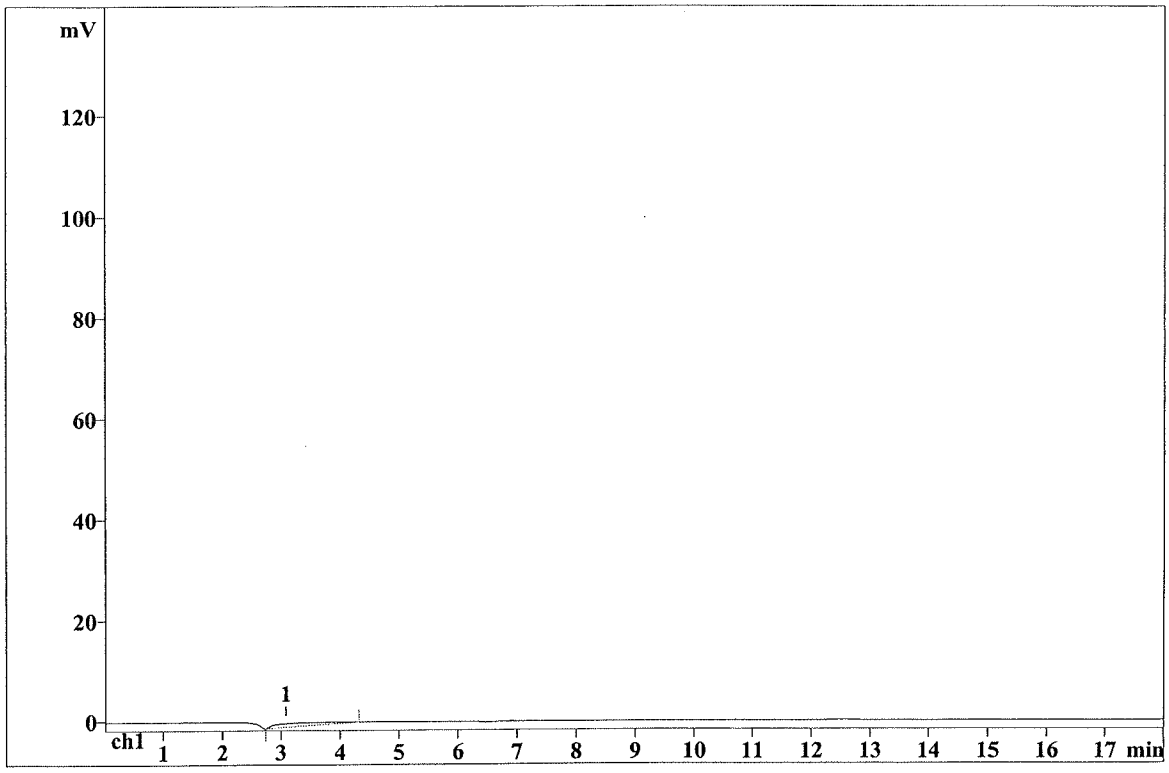
No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.90	43.35	428.781	0.952	fluoride
2	5.49	48.75	494.180	1.928	chloride
3	6.42	98.04	1255.073	1.976	nitrite
4	7.99	6.56	91.880	1.002	bromide
5	9.07	40.02	607.884	0.963	nitrate
6	10.67	26.57	459.633	1.874	phosphate
7	12.51	52.34	945.322	4.726	sulfate
7	18.00	315.63	4282.754	13.422	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 11:13:00 AM
Printed by: LDip

Ident: AL14-14 CCB74
Analysis from: 12/17/2019 4:22:24 PM
File: _2019-12-17_16-22.chw Last save: 12/17/2019 4:40:24 PM
Modified!
Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89966

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 14
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.08	0.70	42.148	0.000	

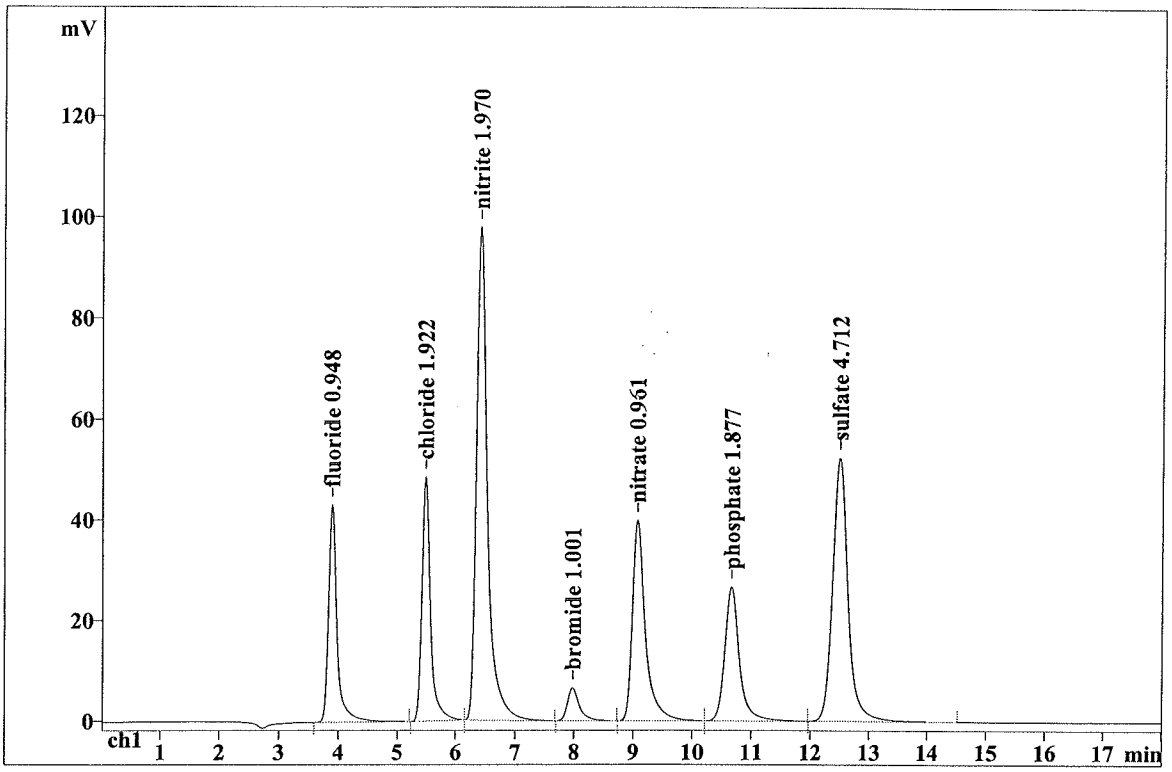
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 11:13:10 AM
Printed by: LDip

Ident: AL14-25 CCV76
Analysis from: 12/17/2019 8:41:12 PM
File: _2019-12-17_20-41.chw Last save: 12/17/2019 8:59:12 PM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89977

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 25
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

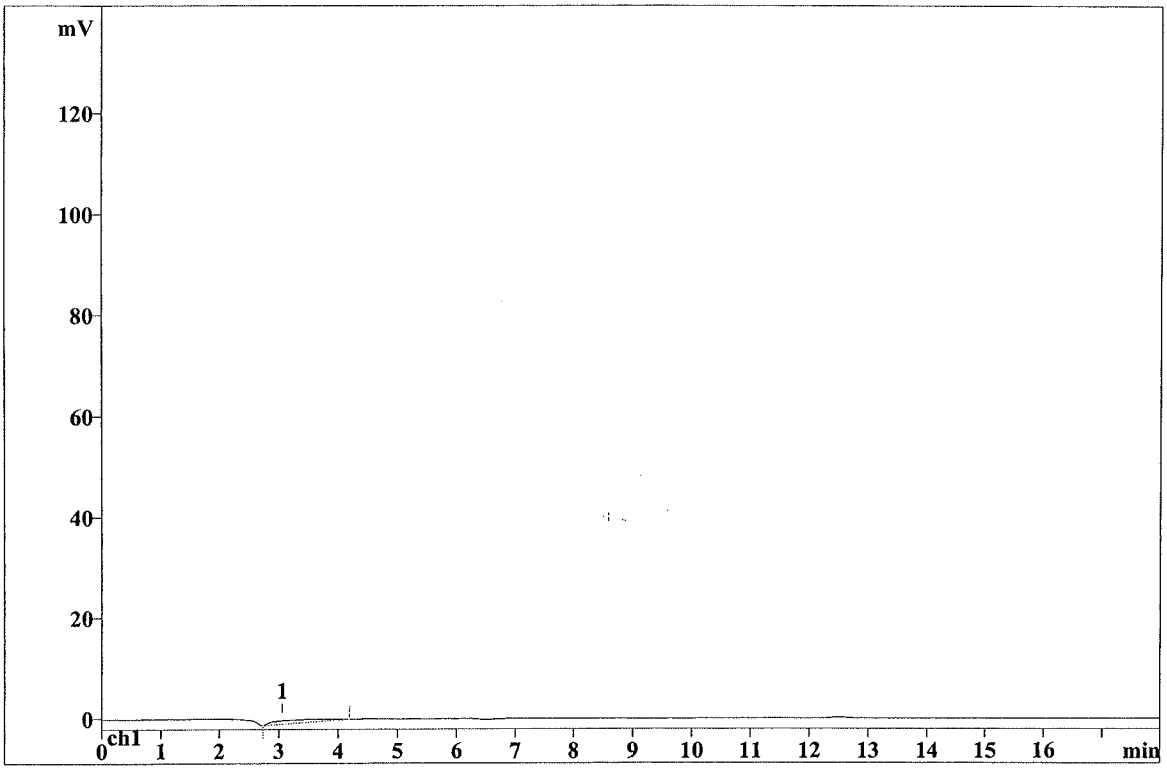
No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	43.13	426.590	0.948	fluoride
2	5.48	48.44	492.580	1.922	chloride
3	6.41	97.76	1251.090	1.970	nitrite
4	7.98	6.53	91.833	1.001	bromide
5	9.06	39.82	606.192	0.961	nitrate
6	10.66	26.58	460.340	1.877	phosphate
7	12.49	52.32	942.344	4.712	sulfate
7	18.00	314.59	4270.969	13.391	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 11:13:36 AM
Printed by: LDip

Ident: AL14-26 CCB76
Analysis from: 12/17/2019 9:01:57 PM
File: _2019-12-17_21-01.chw Last save: 12/17/2019 9:19:57 PM
Modified!
Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89978

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 26
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.06	0.67	36.857	0.000	

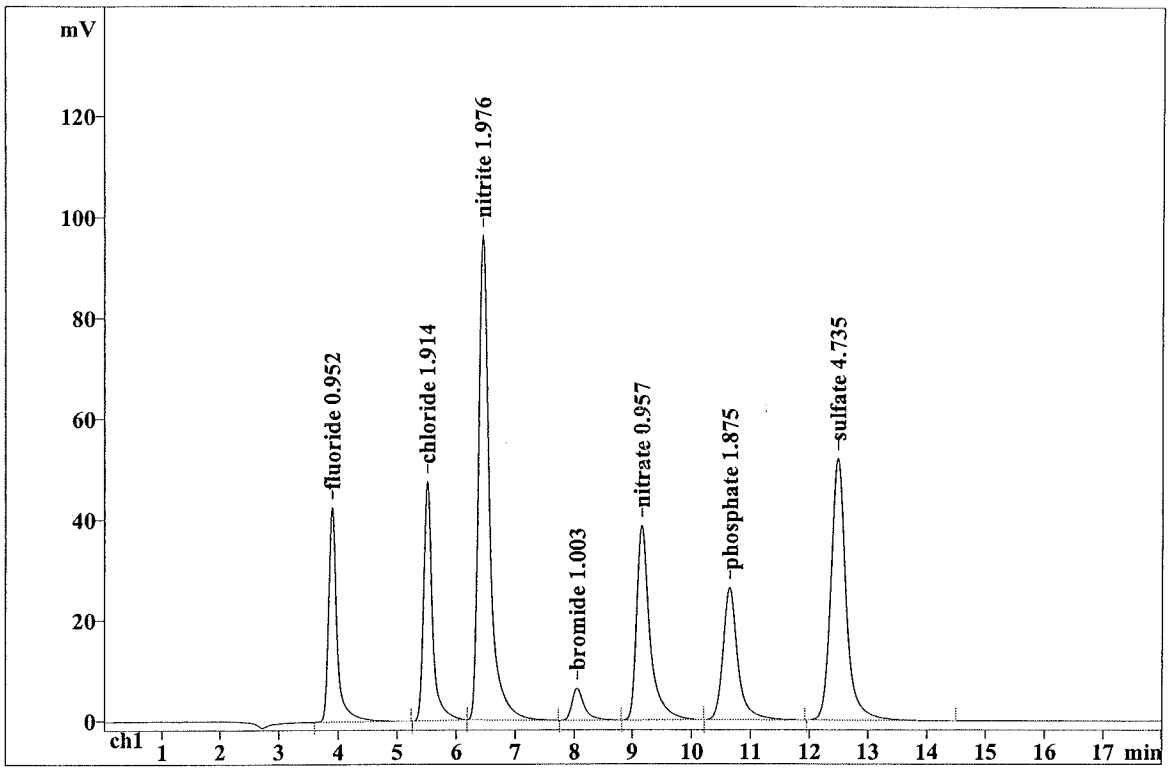
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 11:13:47 AM
Printed by: LDip

Ident: AL14-37 CCV78
Analysis from: 12/18/2019 12:50:10 AM
File: _2019-12-18_00-50.chw Last save: 12/18/2019 1:08:10 AM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89989

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 37
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

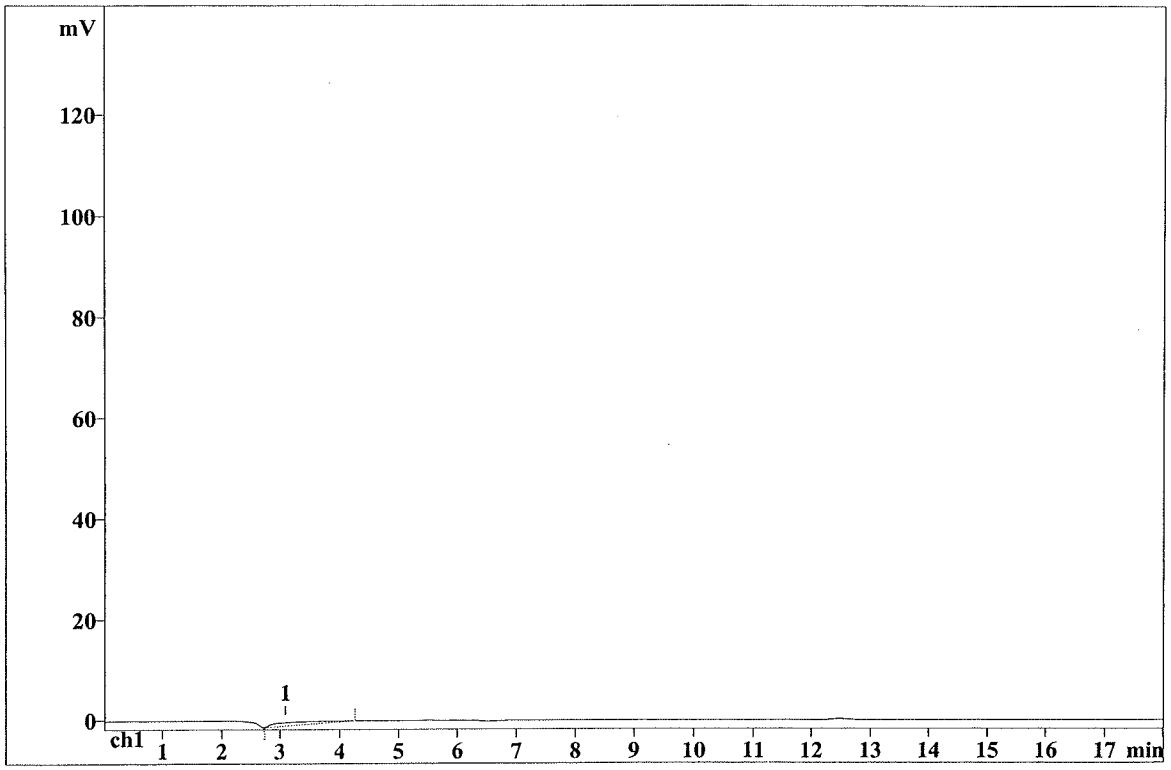
No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.89	42.67	428.495	0.952	fluoride
2	5.50	47.55	490.371	1.914	chloride
3	6.44	96.16	1254.668	1.976	nitrite
4	8.05	6.38	92.068	1.003	bromide
5	9.15	38.70	603.342	0.957	nitrate
6	10.64	26.25	459.781	1.875	phosphate
7	12.47	51.96	947.233	4.735	sulfate
7	18.00	309.67	4275.957	13.411	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 11:13:59 AM
Printed by: LDip

Ident: AL14-38 CCB78
Analysis from: 12/18/2019 1:10:55 AM
File: _2019-12-18_01-10.chw Last save: 12/18/2019 1:28:55 AM
Modified!
Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 89990

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 38
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.10	0.66	38.524	0.000	

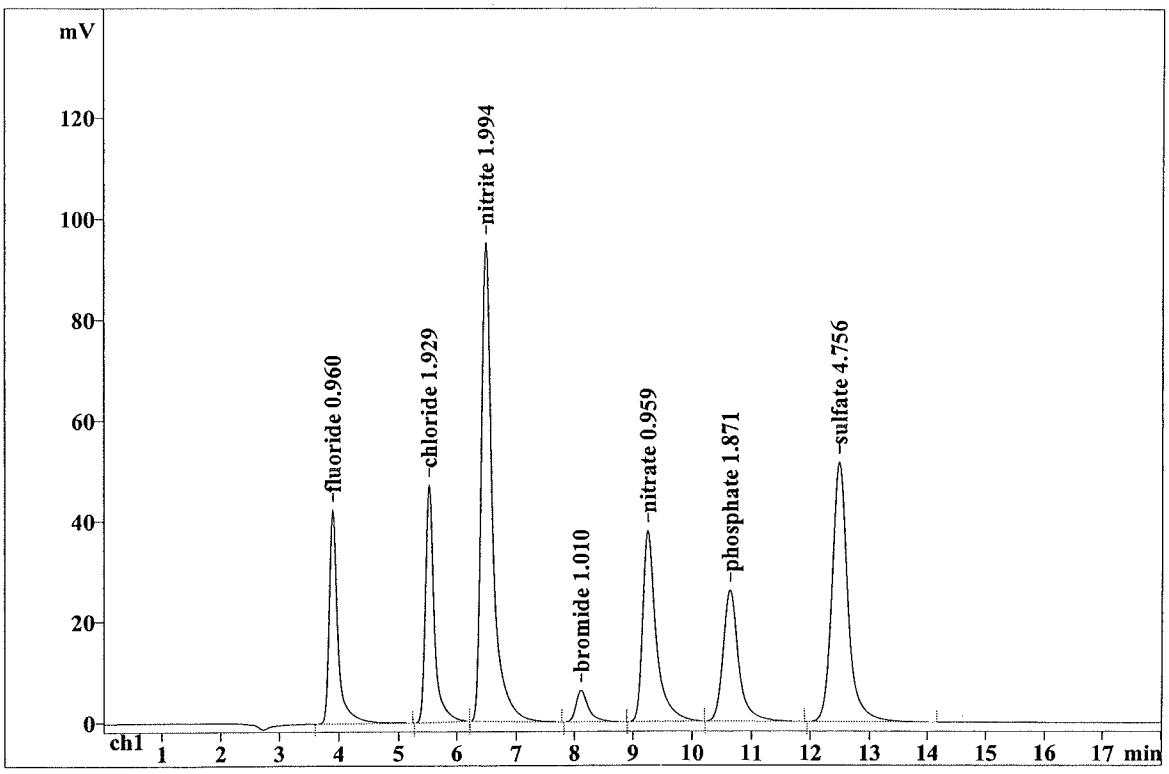
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 11:14:09 AM
Printed by: LDip

Ident: AL14-49 CCV80
Analysis from: 12/18/2019 4:59:07 AM
File: _2019-12-18_04-59.chw Last save: 12/18/2019 5:17:07 AM

Method: ICD7-L04.mtw Last save: 12/17/2019 12:02:15 PM
Run operator: LDip
Analysis number: 90001

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 49
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000

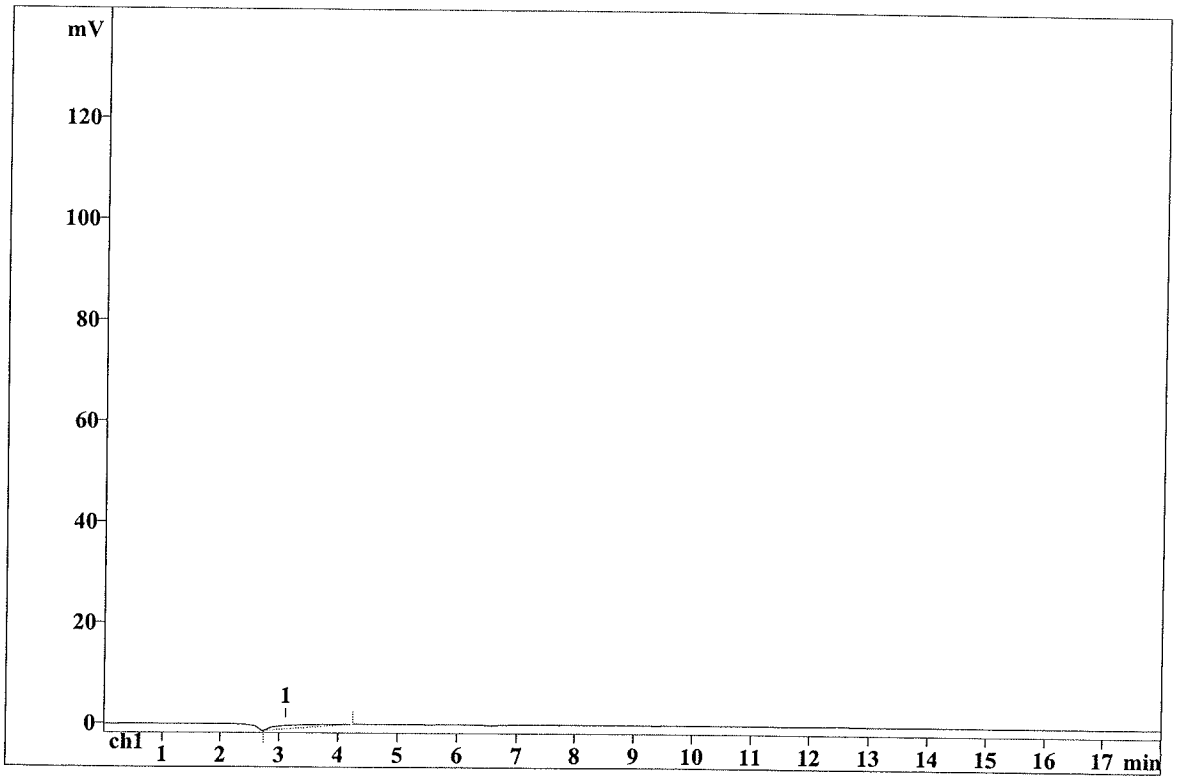


Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.90	42.40	432.500	0.960	fluoride
2	5.52	47.10	494.317	1.929	chloride
3	6.48	95.08	1266.696	1.994	nitrite
4	8.11	6.26	92.886	1.010	bromide
5	9.24	37.83	604.787	0.959	nitrate
6	10.64	25.96	458.861	1.871	phosphate
7	12.47	51.54	951.617	4.756	sulfate
7	18.00	306.18	4301.665	13.479	

This report has been created by IC Net
METROHM LTD

Report date:	12/18/2019 11:14:22 AM		
Printed by:	LDip		
Ident:	AL14-50 CCB80		
Analysis from:	12/18/2019 5:19:52 AM		
File:	_2019-12-18_05-19.chw	Last save:	12/18/2019 5:37:52 AM
Modified!			
Method:	ICD7-L04.mtw	Last save:	12/17/2019 12:02:15 PM
Run operator:	LDip		
Analysis number:	90002		
SAMPLE:	METHOD 300/9056/4110B		
:			
Vial number:	50		
Volume:	1.0 µL		
Dilution:	1.00		
Amount:	1.0000		



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.11	0.65	37.552	0.000	

This report has been created by IC Net
METROHM LTD

IC Result Check FormVersion : L04/AL02(2019)

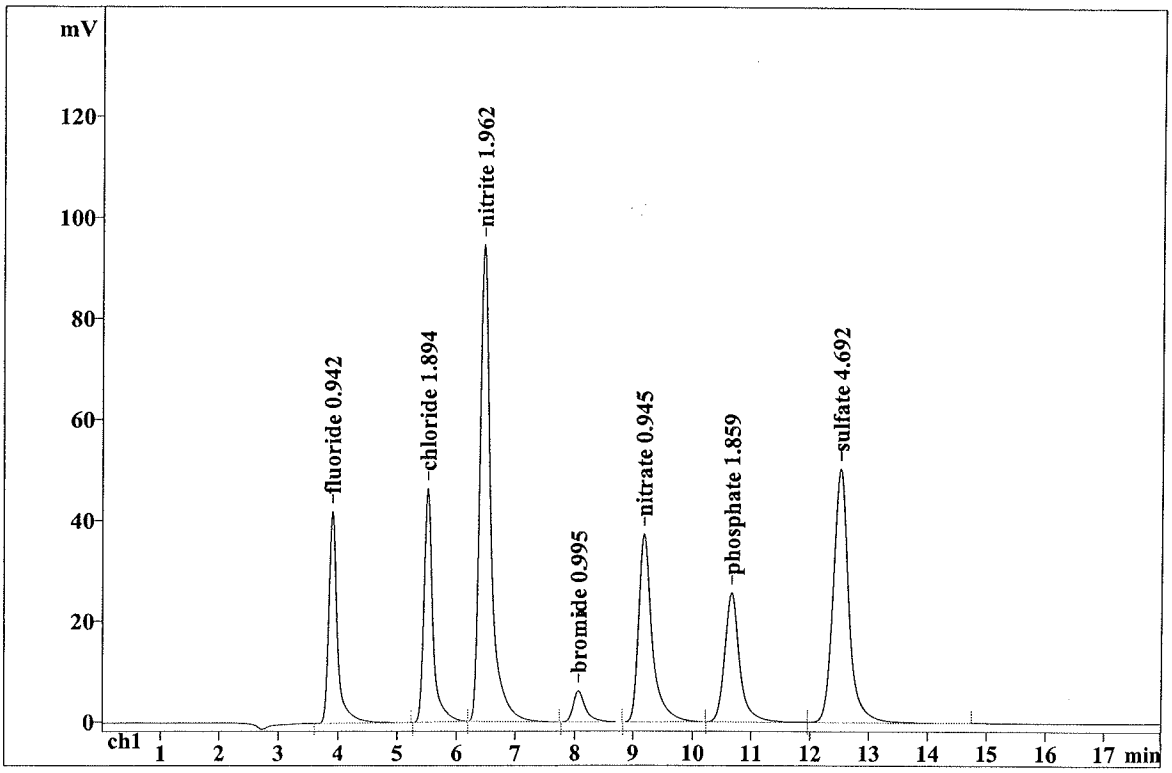
LFID	LSID	Selection	nitrite	phosphate	fluoride	iodide	chloride	bromide	nitrate	sulfate	RawNetID	DF
AL16-01	CCV84	IPFOCBNS	98.1%	92.9%	94.2%	0%*	94.7%	99.5%	94.5%	93.8%	_2019-12-18_13-00	1
AL16-02	CCB84	IPFOCBNS	0	0	0	0	0	0	0	0	_2019-12-18_13-21	1
AL16-13	CCV86	IPFOCBNS	97.7%	93.5%	94%	0%*	95%	100.2%	94.9%	93.7%	_2019-12-18_17-53	1
AL16-14	CCB86	IPFOCBNS	0	0	0	0	0	0	0	0	_2019-12-18_18-14	1
AL16-23	CCV90	IPFOCBNS	97.2%	92.6%	93.6%	0%*	94.2%	99%	94.4%	93.3%	_2019-12-18_21-22	1
AL16-24	CCB90	IPFOCBNS	0	0	0	0	0	0	0	0	_2019-12-18_21-43	1

Report date: 12/19/2019 12:25:04 PM
Printed by: LDip

Ident: AL16-01 CCV84
Analysis from: 12/18/2019 1:00:56 PM
File: _2019-12-18_13-00.chw Last save: 12/18/2019 1:18:56 PM

Method: ICD7-L04.mtw Last save: 12/18/2019 12:36:35 PM
Run operator: LDip
Analysis number: 90012

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 1
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

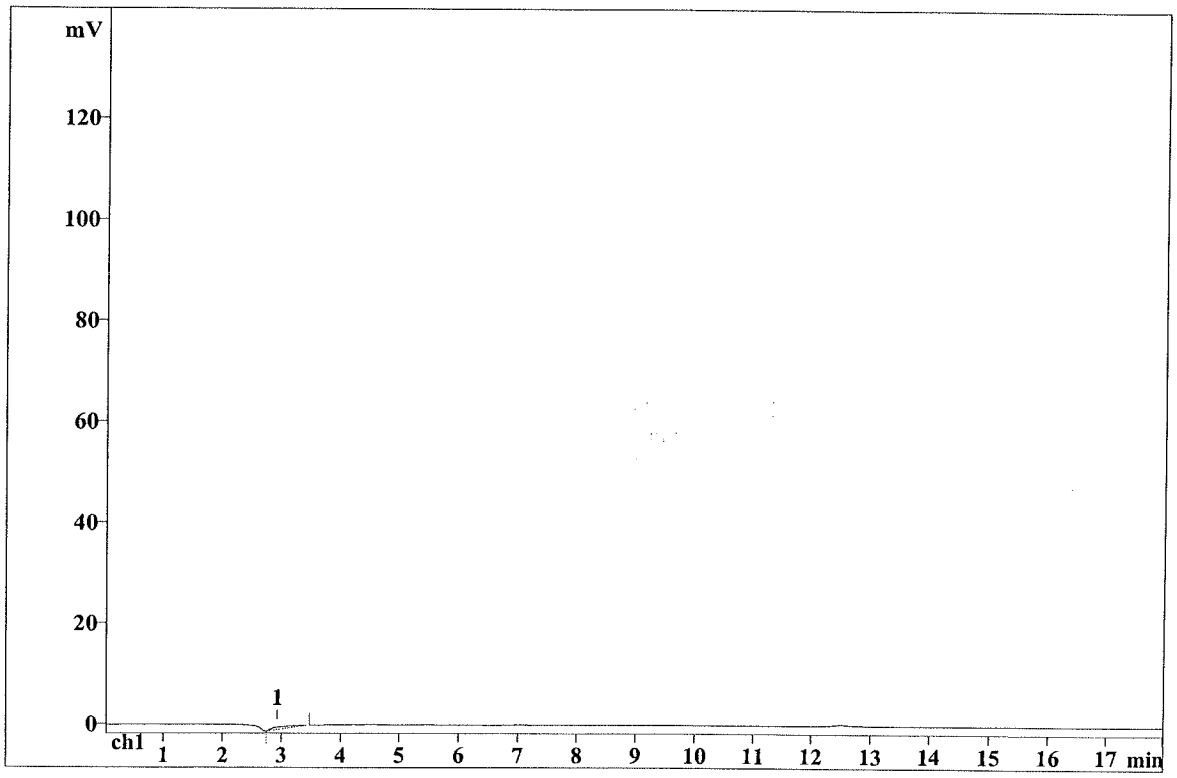
No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.90	42.01	423.915	0.942	fluoride
2	5.51	46.40	485.002	1.894	chloride
3	6.46	94.59	1245.860	1.962	nitrite
4	8.06	6.18	91.129	0.995	bromide
5	9.17	37.31	595.785	0.945	nitrate
6	10.66	25.63	455.598	1.859	phosphate
7	12.50	50.36	938.351	4.692	sulfate
7	18.00	302.48	4235.641	13.290	

This report has been created by IC Net
METROHM LTD

Report date: 12/19/2019 12:25:21 PM
Printed by: LDip

Ident: AL16-02 CCB84
Analysis from: 12/18/2019 1:21:41 PM
File: _2019-12-18_13-21.chw Last save: 12/18/2019 1:39:41 PM
Modified!
Method: ICD7-L04.mtw Last save: 12/18/2019 12:36:35 PM
Run operator: LDip
Analysis number: 90013

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 2
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	2.92	0.49	13.127	0.000	

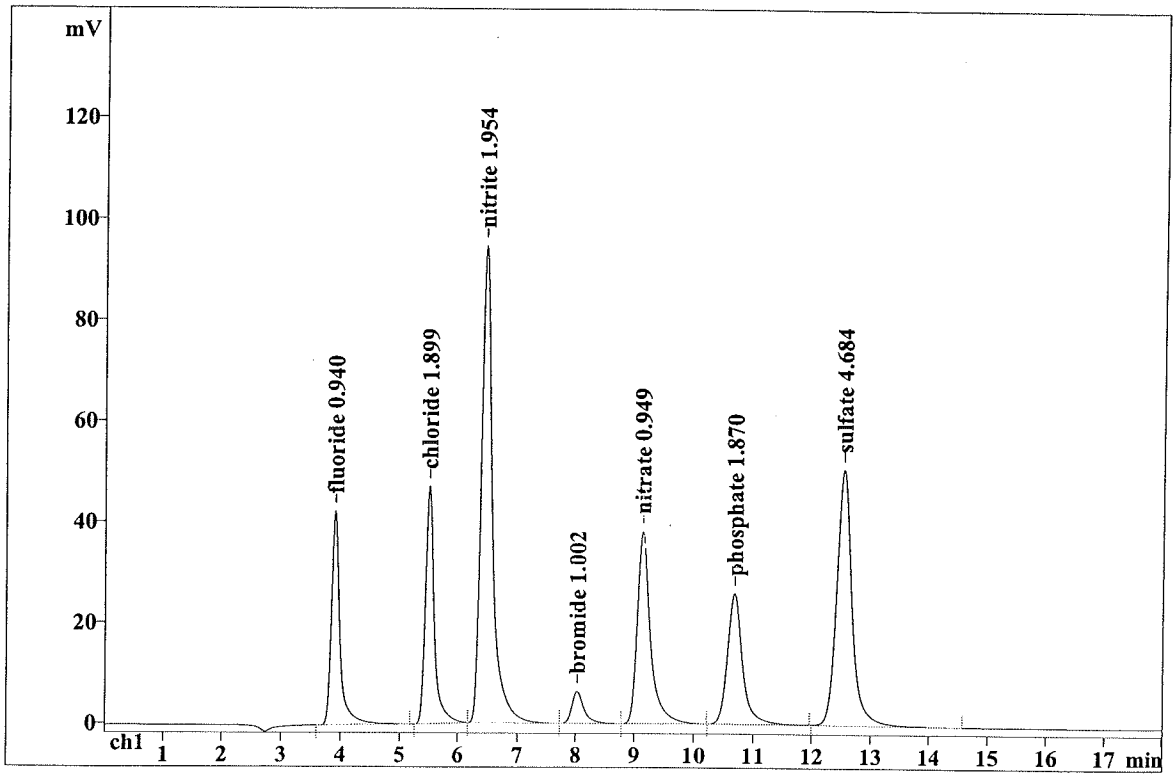
This report has been created by IC Net
METROHM LTD

Report date: 12/19/2019 12:26:01 PM
Printed by: LDip

Ident: AL16-13 CCV86
Analysis from: 12/18/2019 5:53:35 PM
File: _2019-12-18_17-53.chw Last save: 12/18/2019 6:11:35 PM

Method: ICD7-L04.mtw Last save: 12/18/2019 12:36:35 PM
Run operator: LDip
Analysis number: 90024

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 13
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

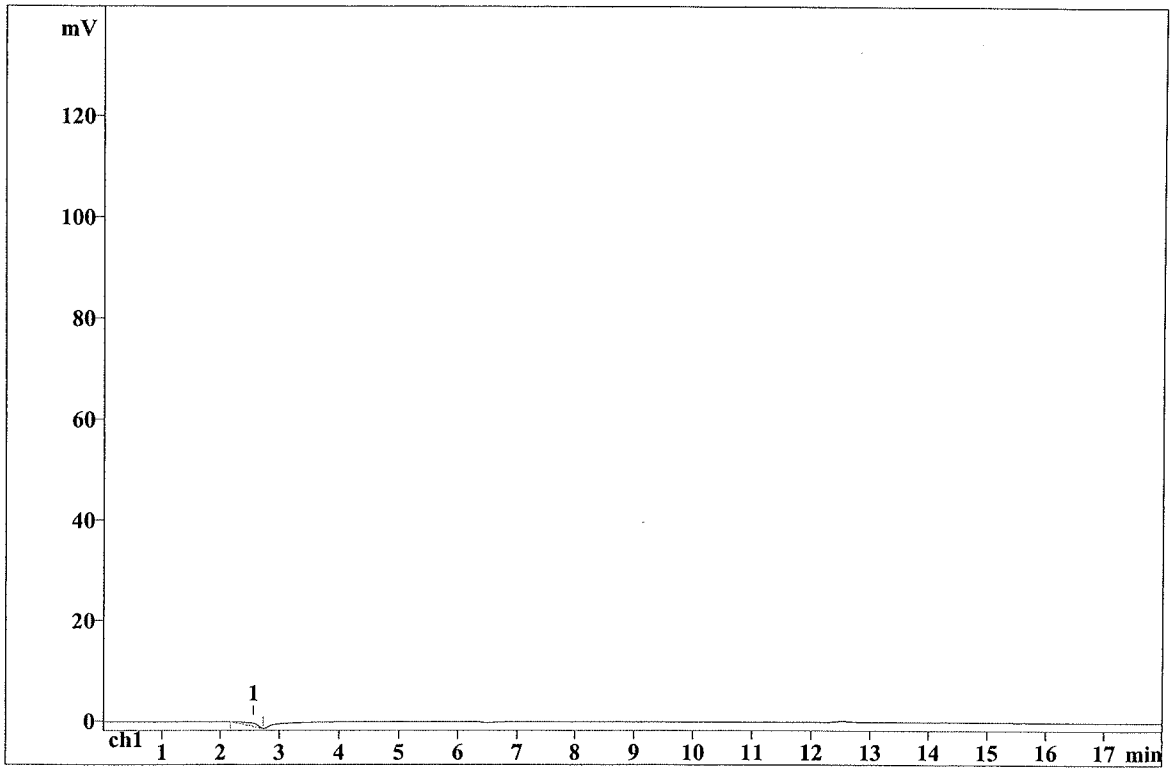
No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	3.90	42.37	423.136	0.940	fluoride
2	5.50	47.05	486.477	1.899	chloride
3	6.44	94.53	1240.910	1.954	nitrite
4	8.03	6.34	91.946	1.002	bromide
5	9.13	38.11	598.548	0.949	nitrate
6	10.67	25.96	458.599	1.870	phosphate
7	12.52	50.74	936.620	4.684	sulfate
7	18.00	305.08	4236.235	13.300	

This report has been created by IC Net
METROHM LTD

Report date: 12/19/2019 12:26:18 PM
Printed by: LDip

Ident: AL16-14 CCB86
Analysis from: 12/18/2019 6:14:20 PM
File: _2019-12-18_18-14.chw Last save: 12/18/2019 6:32:20 PM
Modified!
Method: ICD7-L04.mtw Last save: 12/18/2019 12:36:35 PM
Run operator: LDip
Analysis number: 90025

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 14
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height mV	Area mV*sec	Conc. mg/L	Name
1	2.56	0.64	12.554	0.000	

This report has been created by IC Net
METROHM LTD

ANALYTICAL LOG(S)

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ION CHROMATOGRAPHY

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

Book #: AD7-031
Instrument No.: D7
Pipette ID's: 039380124
SW3-02-02-02
439350100
Analytical Sequence: AL02
Method File: ICD7-L04.mtw
Analytical Batch: N/A

	Concentrations (ppm)
S1	0.05
S2	0.1
S3	0.2
S4	0.5
S5	1.0
S6	2.0
S7	5.0
S8	10.0
S9	20.0

	LINEARITY (ppm)
F	10
Cl	5
NO2	10
Br	20
NO3	2
PO4	5
SO4	20

SOP #	Rev. #
☑ EMAX-300.0	13
☑ EMAX-4110B	6
☑ EMAX-9056	9
☐ EMAX-	

STANDARDS ID	
ICAL	SW3B-10-46-02
ICV	SW3B-10-45-01
~~CCV~~ ICV2 (LO 12/4/19)	SW3B-10-46-03
LCS	—
MS	—

Filters Lot #:
0.45 µm: —
0.2 µm: —

Snap Seal Containers Lot #:
4 oz: 04119002
1.5 oz: —

Column: Metrosep A Supp 5-150
Flow Rate: 0.70 ml/min

IC ELUENT PREPARATION — Expiration Date: 12/19/19

Std ID	Aliquot	Final Vol*
SP2-01-11-01	20 mL	2 L
SP2-01-11-02	20 mL	

IC REGENERANT PREPARATION — Expiration Date: 12/19/19

Std ID	Aliquot	Final Vol*
SP2-01-16-04	100 mL	1 L

* Reagent Water ID: SMSA-04-04-08

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC-METROHM	
☐ External Hard Drive	

Analyzed By: LO
Date: 12/5/19 12/4/19
LO 12/4/19

File Name	Method	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Calibration Level	Sample Info 1	Sample Info 2
2019-12-04_14-40.chw	ICD7-L04.mtw	AL02-01 IB	1	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
2019-12-04_15-00.chw	ICD7-L04.mtw	AL02-02 S0	2	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
2019-12-04_15-21.chw	ICD7-L04.mtw	AL02-03 S1	3	1.0	1.0	1.0	100.0	1	METHOD300/9056/4110B	0.05 PPM
2019-12-04_15-42.chw	ICD7-L04.mtw	AL02-04 S2	4	1.0	1.0	1.0	100.0	2	METHOD300/9056/4110B	0.1 PPM
2019-12-04_16-03.chw	ICD7-L04.mtw	AL02-05 S3	5	1.0	1.0	1.0	100.0	3	METHOD309/9056/4110B	0.2 PPM
2019-12-04_16-23.chw	ICD7-L04.mtw	AL02-06 S4	6	1.0	1.0	1.0	100.0	4	METHOD300/9056/4110B	0.5 PPM
2019-12-04_16-44.chw	ICD7-L04.mtw	AL02-07 S5	7	1.0	1.0	1.0	100.0	5	METHOD300/9056/4110B	1.0 PPM
2019-12-04_17-05.chw	ICD7-L04.mtw	AL02-08 S6	8	1.0	1.0	1.0	100.0	6	METHOD300/9056/4110B	2.0 PPM
2019-12-04_17-26.chw	ICD7-L04.mtw	AL02-09 S7	9	1.0	1.0	1.0	100.0	7	METHOD300/9056/4110B	5.0 PPM
2019-12-04_17-46.chw	ICD7-L04.mtw	AL02-10 S8	10	1.0	1.0	1.0	100.0	8	METHOD300/9056/4110B	10.0 PPM
2019-12-04_18-07.chw	ICD7-L04.mtw	AL02-11 S9	11	1.0	1.0	1.0	100.0	9	METHOD300/9056/4110B	20.0 PPM
2019-12-04_18-28.chw	ICD7-L04.mtw	AL02-12 ICV	12	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
2019-12-04_18-49.chw	ICD7-L04.mtw	AL02-13 ICV1	13	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	1.0 PPM
2019-12-04_19-09.chw	ICD7-L04.mtw	AL02-14 ICB	14	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	

FINAL Lo 12/5/19

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ION CHROMATOGRAPHY

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

Book #:	AD7-031
Instrument No.:	D7
Pipette ID's:	039380124
	SW3-02-02-02
	439350100
Analytical Sequence:	AL14
Method File:	ICD7 - L04.mtw
Analytical Batch:	ICL012W

SOP #	Rev. #
☑ EMAX-300.0	13
☐ EMAX-4110B	6
☑ EMAX-9056	9
☐ EMAX-	
STANDARDS ID	
ICAL	—
ICV	—
CCV	SW3B-11-02-01
LCS	SW3B-11-02-02
MS	SCP Refer to LCS parent ID

Filters Lot #:	Snap Seal Containers Lot #:
0.45 µm: 9094103	4 oz:
0.2 µm: 90060103	1.5 oz: 10419004

Column: Metrosep A Supp 5-150

Flow Rate: 0.70 ml/min

IC ELUENT PREPARATION Expiration Date: 01/16/19

Std ID	Aliquot	Final Vol*
SP2-01-11-01	20 mL	2 L
SP2-01-11-02	20 mL	

IC REGENERANT PREPARATION Expiration Date: 01/13/19

Std ID	Aliquot	Final Vol*
SP2-01-16-04	100 mL	1 L

* Reagent Water ID: SMSA-04-04-08

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC-METROHM	
☐ External Hard Drive	

Analyzed By: LD

Date: 12/17/19

File Name	Method	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Calibration Level	Sample Info 1	Sample Info 2
2019-12-17_11-41.chw	ICD7-L04.mtw	AL14-01 CCV72	1	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_12-01.chw	ICD7-L04.mtw	AL14-02 CCB72	2	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_12-22.chw	ICD7-L04.mtw	AL14-03 ICL012WB	3	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_12-43.chw	ICD7-L04.mtw	AL14-04 ICL012WL	4	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_13-04.chw	ICD7-L04.mtw	AL14-05 ICL012WC	5	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_13-27.chw	ICD7-L04.mtw	AL14-06 L057-01	6	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_13-57.chw	ICD7-L04.mtw	AL14-07 QC WATER	7	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	BDH WATER, LOT # 19D0456641
2019-12-17_14-17.chw	ICD7-L04.mtw	AL14-08 L441-01I DF=5000	8	1.0	5000.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_14-38.chw	ICD7-L04.mtw	AL14-09 L057-01I DF=10	9	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_14-59.chw	ICD7-L04.mtw	AL14-10 L057-01IM DF=10	10	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_15-20.chw	ICD7-L04.mtw	AL14-11 L057-01IS DF=10	11	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_15-40.chw	ICD7-L04.mtw	AL14-12 L057-01ID DF=10	12	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_16-01.chw	ICD7-L04.mtw	AL14-13 CCV74	13	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_16-22.chw	ICD7-L04.mtw	AL14-14 CCB74	14	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_16-44.chw	ICD7-L04.mtw	AL14-15 L123-01I DF=5	15	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_17-14.chw	ICD7-L04.mtw	AL14-16 L121-01I DF=10	16	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_17-47.chw	ICD7-L04.mtw	AL14-17 L121-08I DF=100	17	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_18-15.chw	ICD7-L04.mtw	AL14-18 L121-02I DF=100	18	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_18-36.chw	ICD7-L04.mtw	AL14-19 L121-03I DF=100	19	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_18-57.chw	ICD7-L04.mtw	AL14-20 L121-04I DF=100	20	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_19-18.chw	ICD7-L04.mtw	AL14-21 L121-05I DF=100	21	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_19-38.chw	ICD7-L04.mtw	AL14-22 L121-09I DF=100	22	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_19-59.chw	ICD7-L04.mtw	AL14-23 L121-10I DF=100	23	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_20-20.chw	ICD7-L04.mtw	AL14-24 L123-01J DF=50	24	1.0	50.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_20-41.chw	ICD7-L04.mtw	AL14-25 CCV76	25	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_21-01.chw	ICD7-L04.mtw	AL14-26 CCB76	26	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_21-22.chw	ICD7-L04.mtw	AL14-27 L121-11I DF=100	27	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_21-43.chw	ICD7-L04.mtw	AL14-28 L121-01I DF=100	28	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_22-04.chw	ICD7-L04.mtw	AL14-29 L057-01J DF=200	29	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_22-24.chw	ICD7-L04.mtw	AL14-30 L057-01JD DF=200	30	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_22-45.chw	ICD7-L04.mtw	AL14-31 L057-01JM DF=200	31	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_23-06.chw	ICD7-L04.mtw	AL14-32 L057-01JS DF=200	32	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_23-27.chw	ICD7-L04.mtw	AL14-33 L057-02I DF=10	33	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-17_23-47.chw	ICD7-L04.mtw	AL14-34 L057-02J DF=200	34	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_00-08.chw	ICD7-L04.mtw	AL14-35 L057-03I DF=10	35	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_00-29.chw	ICD7-L04.mtw	AL14-36 L057-03J DF=200	36	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_00-50.chw	ICD7-L04.mtw	AL14-37 CCV78	37	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_01-10.chw	ICD7-L04.mtw	AL14-38 CCB78	38	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_01-31.chw	ICD7-L04.mtw	AL14-39 L057-04I DF=10	39	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_01-52.chw	ICD7-L04.mtw	AL14-40 L057-04J DF=200	40	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_02-13.chw	ICD7-L04.mtw	AL14-41 L057-05I DF=10	41	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_02-33.chw	ICD7-L04.mtw	AL14-42 L057-05J DF=200	42	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_02-54.chw	ICD7-L04.mtw	AL14-43 L057-07I DF=10	43	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_03-15.chw	ICD7-L04.mtw	AL14-44 L057-07J DF=200	44	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_03-36.chw	ICD7-L04.mtw	AL14-45 L057-08I DF=10	45	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_03-56.chw	ICD7-L04.mtw	AL14-46 L057-08J DF=200	46	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_04-17.chw	ICD7-L04.mtw	AL14-47 L057-09I DF=10	47	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_04-38.chw	ICD7-L04.mtw	AL14-48 L057-09J DF=200	48	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_04-59.chw	ICD7-L04.mtw	AL14-49 CCV80	49	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_05-19.chw	ICD7-L04.mtw	AL14-50 CCB80	50	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_05-40.chw	ICD7-L04.mtw	AL14-51 L121-08ID DF=100	51	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_06-01.chw	ICD7-L04.mtw	AL14-52 L121-08IM DF=100	52	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_06-22.chw	ICD7-L04.mtw	AL14-53 L121-08IS DF=100	53	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_06-42.chw	ICD7-L04.mtw	AL14-54 CCV82	44	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	BAD INJECTION
2019-12-18_07-03.chw	ICD7-L04.mtw	AL14-55 CCB82	45	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	BAD INJECTION

FINAL 12/18/19

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ION CHROMATOGRAPHY

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

Book #:	AD7-031
Instrument No.:	D7
Pipette ID's:	039380124
	SW3-02-02-02
	439350100
Analytical Sequence:	AL16
Method File:	ICD7-L04.mtw
Analytical Batch:	ICL014W

SOP #	Rev. #
☑ EMAX-300.0	13
☐ EMAX-4110B	6
☑ EMAX-9056	9
☐ EMAX-	
STANDARDS ID	
ICAL	—
ICV	—
CCV	SW3B-11-02-03
LCS	SW3B-11-03-01
MS	SCP refer to LCS Parent ID

Filters Lot #:
0.45 µm: 9094103
0.2 µm: 90060103

Snap Seal Containers Lot #:
4 oz:
1.5 oz: 10419004

Column: Metrosep A Supp 5-150

Flow Rate: 0.70 ml/min

IC ELUENT PREPARATION — Expiration Date: 01/16/19

Std ID	Aliquot	Final Vol*
SP2-01-11-01	20 mL	2 L
SP2-01-11-02	20 mL	

IC REGENERANT PREPARATION — Expiration Date: 01/18/20

Std ID	Aliquot	Final Vol*
SP2-01-16-04	100 mL	1 L

* Reagent Water ID: SMSA-04-04-08

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC-METROHM	
☐ External Hard Drive	

Analyzed By: LD

Date: 12/18/19

File Name	Method	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Calibration Level	Sample Info 1	Sample Info 2
2019-12-18_13-00.chw	ICD7-L04.mtw	AL16-01 CCV84	1	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_13-21.chw	ICD7-L04.mtw	AL16-02 CCB84	2	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_13-42.chw	ICD7-L04.mtw	AL16-03 ICL014WB	3	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_14-03.chw	ICD7-L04.mtw	AL16-04 ICL014WL	4	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_14-23.chw	ICD7-L04.mtw	AL16-05 ICL014WC	5	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_15-20.chw	ICD7-L04.mtw	AL16-06 L057-10I DF=10	6	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_15-41.chw	ICD7-L04.mtw	AL16-07 L057-10J DF=200	7	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_16-02.chw	ICD7-L04.mtw	AL16-08 L121-08I DF=100	8	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_16-22.chw	ICD7-L04.mtw	AL16-09 L121-08IM DF=100	9	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_16-43.chw	ICD7-L04.mtw	AL16-10 L121-08IS DF=100	10	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_17-04.chw	ICD7-L04.mtw	AL16-11 L121-08ID DF=100	11	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_17-32.chw	ICD7-L04.mtw	AL16-12 L133-07	12	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_17-53.chw	ICD7-L04.mtw	AL16-13 CCV86	13	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_18-14.chw	ICD7-L04.mtw	AL16-14 CCB86	14	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_18-35.chw	ICD7-L04.mtw	AL16-15 L133-06	15	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_18-55.chw	ICD7-L04.mtw	AL16-16 L133-05	16	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_19-17.chw	ICD7-L04.mtw	AL16-17 L133-05I DF=5	17	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_19-38.chw	ICD7-L04.mtw	AL16-18 L133-06I DF=5	18	1.0	5.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_19-59.chw	ICD7-L04.mtw	AL16-19 L133-07I DF=2	19	1.0	2.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_20-20.chw	ICD7-L04.mtw	AL16-20 L133-05J DF=40	20	1.0	40.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_20-40.chw	ICD7-L04.mtw	AL16-21 L133-06J DF=40	21	1.0	40.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_21-01.chw	ICD7-L04.mtw	AL16-22 L133-07J DF=40	22	1.0	40.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_21-22.chw	ICD7-L04.mtw	AL16-23 CCV90	23	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
2019-12-18_21-43.chw	ICD7-L04.mtw	AL16-24 CCB90	24	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	

FINAL LD 12/19/19

RETENTION TIME WINDOW

RETENTION TIME WINDOW
METHOD 300.0

Lab name:	**EMAX**	**Method:**	**EMAX-300.0**
Instrument ID:	D7 (800IC)	IC column:	METROSEP A SUPP 5
		Column size:	150X4.0mm

Compound		Retention time Window
FLUORIDE	**(+/-)**	**0.151**
CHLORIDE	**(+/-)**	**0.195**
NITRITE	**(+/-)**	**0.242**
BROMIDE	**(+/-)**	**0.345**
NITRATE	**(+/-)**	**0.420**
PHOSPHATE	(+/-)	**0.601**
SULFATE	**(+/-)**	**0.840**
IODIDE	**(+/-)**	**0.920**

8/6/13/14

RETENTION TIME WINDOW
METHOD 300.0

Lab name: EMAX **Method:** EMAX-300.0

Instrument ID: D7 (800 IC) IC column: METROSEP A SUPP 5
Column size: 150X4.0mm

Compound	ICAL Mean RT	from	to	RTW
FLUORIDE	3.97	3.81	4.12	0.151
CHLORIDE	5.58	5.39	5.78	0.195
NITRITE	6.54	6.30	6.78	0.242
BROMIDE	8.13	7.79	8.48	0.345
NITRATE	9.23	8.81	9.65	0.420
PHOSPHATE	10.99	10.39	11.59	0.601
SULFATE	12.88	12.04	13.72	0.840

ICD7-L04.MTW

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L057

METHOD SM2320B
TOTAL ALKALINITY

A total of nine(9) water samples were received on 12/07/19 to be analyzed for Total Alkalinity in accordance with Method SM2320B and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Alkalinity was not detected in ALL003WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. ALL003WL/ALL003WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Sample duplicate was analyzed and RPD was within expected value.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SM2320B
TOTAL ALKALINITY

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L057

Matrix : WATER
InstrumentID : E5

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	PREP. FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ALL003WB	ND	1	NA	5	5	12/16/1918:06	NA	19E5L0303	19E5L03	ALL003W	NA	NA
LCS1W	ALL003WL	96.1	1	NA	5	5	12/16/1918:13	NA	19E5L0304	19E5L03	ALL003W	NA	NA
LCD1W	ALL003WC	97.6	1	NA	5	5	12/16/1918:20	NA	19E5L0305	19E5L03	ALL003W	NA	NA
OU2-MW12S-GW120619	L057-01	352	1	NA	5	5	12/16/1918:28	NA	19E5L0306	19E5L03	ALL003W	12/06/1914:15	12/07/19
OU2-MW12D-GW120619	L057-02	282	1	NA	5	5	12/16/1918:35	NA	19E5L0307	19E5L03	ALL003W	12/06/1912:50	12/07/19
OU2-MW16S-GW120619	L057-03	284	1	NA	5	5	12/16/1918:44	NA	19E5L0308	19E5L03	ALL003W	12/06/1910:55	12/07/19
OU2-MW16D-GW120619	L057-04	233	1	NA	5	5	12/16/1918:51	NA	19E5L0309	19E5L03	ALL003W	12/06/1910:10	12/07/19
OU2-MW06-GW120619	L057-05	278	1	NA	5	5	12/16/1918:58	NA	19E5L0310	19E5L03	ALL003W	12/06/1909:30	12/07/19
OU2-FD01-GW120519	L057-07	241	1	NA	5	5	12/16/1919:06	NA	19E5L0311	19E5L03	ALL003W	12/05/1913:00	12/07/19
OU2-MW13S-GW120519	L057-08	348	1	NA	5	5	12/16/1919:15	NA	19E5L0312	19E5L03	ALL003W	12/05/1914:40	12/07/19
OU2-MW13D-GW120519	L057-09	241	1	NA	5	5	12/16/1919:22	NA	19E5L0313	19E5L03	ALL003W	12/05/1916:55	12/07/19
OU2-MW04-GW120519	L057-10	293	1	NA	5	5	12/16/1919:30	NA	19E5L0314	19E5L03	ALL003W	12/05/1916:05	12/07/19
OU2-MW04-GW120519DUP	L057-10D	301	1	NA	5	5	12/16/1919:39	NA	19E5L0315	19E5L03	ALL003W	12/05/1916:05	12/07/19

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L057
METHOD : METHOD SM2320B

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ALL003WB	ALL003WL	ALL003WC
LAB FILE ID :	19E5L0303	19E5L0304	19E5L0305
DATE EXTRACTED :	NA	NA	NA
DATE ANALYZED :	12/16/1918:06	12/16/1918:13	12/16/1918:20
PREP BATCH :	ALL003W	ALL003W	ALL003W
CALIBRATION REF:	19E5L03	19E5L03	19E5L03

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
ALKALINITY	ND	98.8	96.1	97	98.8	97.6	99	2	80-120	20

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L057
METHOD : METHOD SM2320B

MATRIX : WATER

DILUTION FACTOR:	1	1
SAMPLE ID :	OU2-MW04-GW120519	OU2-MW04-GW120519DUP
LAB SAMPLE ID :	L057-10	L057-10D
LAB FILE ID :	19E5L0314	19E5L0315
DATE PREPARED :	NA	NA
DATE ANALYZED :	12/16/1919:30	12/16/1919:39
PREP BATCH :	ALL003W	ALL003W
CALIBRATION REF:	19E5L031	19E5L031

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	RPD (%)	MAX RPD (%)
ALKALINITY	293	301	3	20

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ALKALINITY

Note: For samples and relevent QCs/Standards analyzed, refer to attached analytical sequence.

☑ Titration end point: pH 4.5 ± 0.04

☑ Low alkalinity: pH 4.2 ± 0.04

Micropipette ID: NA

MS/MSD amount of spike: NA

Comments:

Reagent Water: RW1-19-003

Book#: AAL-042

Instrument No.: ☐ 53 ☐ 97 ☑ E5

Analytical Batch: 19E5L03

Analytical Sequence: ALL003/ALL004

SOP #	Rev. #
☑ EMAX-2320B	5
☐ EMAX-	

STANDARDS ID	Conc. (mg/L)
0.02N HCL SWR1-02-20-03	0.02N
LCS SW1-02-02-30	98.8
MS/MSD NA	NA
ICV NA	NA

pH Buffer	ID
pH 4	SW1-02-04-21
pH 7	SW1-02-04-22
pH 10	SW1-02-04-23
pH 7.96 ~~pH 8.0~~ (Check)	SW1-02-04-28
~~TR 11/02/20~~ pH Strip	14C863463

Analyzed By: TK

Date: 12/16/19

PC-TitratION PLUS

pH and Alkalinity In-Run Report

Run Number 1123 **Analytical Batch#** 19E5L03

Seq. #	SampleID	Data File Name	RunDate	RunTime	pH	Volume @pH 8.3	Volume @pH 4.5	Volume @pH 4.2	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	Review Notes
1	ICV PH8	19E5L03	12/16/19	5:52 PM	7.93	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	pH Cert. value = 7.96
2	ICB	19E5L03	12/16/19	6:00 PM	7.67	.00	.79	-1.00	.00	31.69	31.69	.00	.00	
3	ALL003WB	19E5L03	12/16/19	6:06 PM	5.88	.00	.04	.07	.00	.59	.59	.00	.00	
4	ALL003WL	19E5L03	12/16/19	6:13 PM	8.62	.79	2.40	-1.00	31.77	96.15	32.61	63.53	.00	
5	ALL003WC	19E5L03	12/16/19	6:20 PM	8.65	.85	2.44	-1.00	34.20	97.65	29.25	68.40	.00	
6	L057-01	19E5L03	12/16/19	6:28 PM	7.06	.00	8.80	-1.00	.00	351.97	351.97	.00	.00	
7	L057-02	19E5L03	12/16/19	6:35 PM	7.17	.00	7.06	-1.00	.00	282.24	282.24	.00	.00	
8	L057-03	19E5L03	12/16/19	6:44 PM	7.13	.00	7.10	-1.00	.00	284.16	284.16	.00	.00	
9	L057-04	19E5L03	12/16/19	6:51 PM	7.29	.00	5.83	-1.00	.00	233.38	233.38	.00	.00	
10	L057-05	19E5L03	12/16/19	6:58 PM	7.34	.00	6.95	-1.00	.00	278.10	278.10	.00	.00	
11	L057-07	19E5L03	12/16/19	7:06 PM	7.30	.00	6.02	-1.00	.00	240.64	240.64	.00	.00	
12	L057-08	19E5L03	12/16/19	7:15 PM	7.10	.00	8.70	-1.00	.00	347.86	347.86	.00	.00	
13	L057-09	19E5L03	12/16/19	7:22 PM	7.22	.00	6.02	-1.00	.00	240.84	240.84	.00	.00	
14	L057-10	19E5L03	12/16/19	7:30 PM	7.19	.00	7.33	-1.00	.00	293.20	293.20	.00	.00	
15	L057-10D	19E5L03	12/16/19	7:39 PM	7.23	.00	7.52	-1.00	.00	300.67	300.67	.00	.00	
16	L100-02	19E5L03	12/16/19	7:46 PM	7.28	.00	3.15	-1.00	.00	125.89	125.89	.00	.00	
17	L100-04	19E5L03	12/16/19	7:52 PM	7.21	.00	3.12	-1.00	.00	124.84	124.84	.00	.00	
18	L108-01	19E5L03	12/16/19	7:59 PM	7.14	.00	5.56	-1.00	.00	222.37	222.37	.00	.00	

Analyzed by: IK Reviewed by: IK Date: 12/17/19

PC-TitratION PLUS by Man-Tech Associates, Inc.

pH AND ALKALINITY IN-RUN REPORT.SRW

Run Number 1123 **Analytical Batch#** 19E5L03

Seq. #	SampleID	Data File Name	RunDate	RunTime	pH	Volume @pH 8.3	Volume @pH 4.5	Volume @pH 4.2	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	Review Notes
19	RINSE	19E5L03	12/16/19	8:06 PM	6.14	.00	.06	.10	.00	.99	.99	.00	.00	
20	ALL004WB	19E5L03	12/16/19	8:12 PM	5.87	.00	.05	.08	.00	.49	.49	.00	.00	
21	ALL004WL	19E5L03	12/16/19	8:18 PM	8.68	.91	2.44	-1.00	36.29	97.59	25.01	72.58	.00	
22	ALL004WC	19E5L03	12/16/19	8:25 PM	8.69	.93	2.46	-1.00	37.39	98.36	23.58	74.78	.00	
23	L064-01	19E5L03	12/16/19	8:34 PM	7.21	.00	6.52	-1.00	.00	260.98	260.98	.00	.00	
24	L064-02	19E5L03	12/16/19	8:41 PM	7.23	.00	6.16	-1.00	.00	246.33	246.33	.00	.00	
25	L064-03	19E5L03	12/16/19	8:48 PM	7.31	.00	5.70	-1.00	.00	227.84	227.84	.00	.00	
26	L064-04	19E5L03	12/16/19	8:56 PM	7.09	.00	8.92	-1.00	.00	356.64	356.64	.00	.00	
27	L064-06	19E5L03	12/16/19	9:06 PM	7.05	.00	9.82	-1.00	.00	392.87	392.87	.00	.00	
28	L064-07	19E5L03	12/16/19	9:14 PM	7.09	.00	8.94	-1.00	.00	357.41	357.41	.00	.00	
29	L064-07D	19E5L03	12/16/19	9:23 PM	7.14	.00	9.10	-1.00	.00	364.09	364.09	.00	.00	
30	L064-08	19E5L03	12/16/19	9:31 PM	7.21	.00	6.84	-1.00	.00	273.68	273.68	.00	.00	
31	L064-09	19E5L03	12/16/19	9:38 PM	7.38	.00	5.77	-1.00	.00	230.88	230.88	.00	.00	
32	L064-10	19E5L03	12/16/19	9:45 PM	7.39	.00	6.33	-1.00	.00	253.28	253 28	.00	.00	
33	L064-11	19E5L03	12/16/19	9:54 PM	7.23	.00	7.46	-1.00	.00	298.21	298 21	.CO	.00	
34	L064-12	19E5L03	12/16/19	10:02 PM	7.33	.00	8.27	-1.00	.00	330.95	330 95	.CO	.00	
35	L064-14	19E5L03	12/16/19	10:10 PM	7.37	.00	6.05	-1.00	.00	241.82	241.82	.CO	.00	
36	L064-15	19E5L03	12/16/19	10:18 PM	7.45	.00	6.04	-1.00	.00	241.54	241.54	.CO	.00	
37	L064-17	19E5L03	12/16/19	10:26 PM	7.23	.00	6.51	-1.00	.00	260.57	260.57	.CO	.00	
38	L064-18	19E5L03	12/16/19	10:33 PM	7.38	.00	6.42	-1.00	.00	256.86	256.86	.CO	.00	

Analyzed by: IK Reviewed by: IK Date: 12/17/19

PC-TitratION PLUS by Man-Tech Associates, Inc.

pH AND ALKALINITY IN-RUN REPORT.SRW

Run Number 1123 **Analytical Batch#** 19E5L03

Seq. #	SampleID	Data File Name	RunDate	RunTime	pH	Volume @pH 8.3	Volume @pH 4.5	Volume @pH 4.2	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	Review Notes
39	L064-20	19E5L03	12/16/19	10:41 PM	7.28	.00	7.66	-1.00	.00	306.39	306.39	.00	.00	
40	L064-21	19E5L03	12/16/19	10:50 PM	7.46	.00	6.22	-1.00	.00	248.60	248.60	.00	.00	
41	RINSE	19E5L03	12/16/19	10:57 PM	6.37	.00	.06	.10	.00	1.04	1.04	.00	.00	

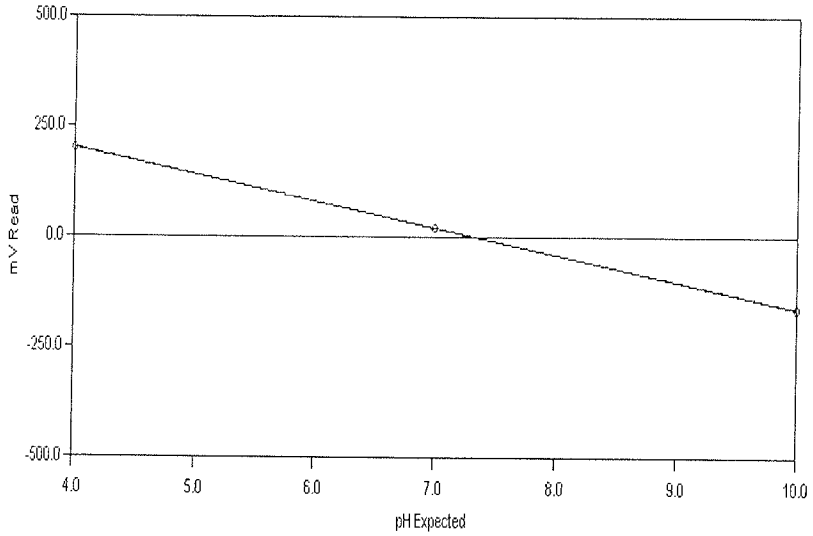
Analyzed by: JK Reviewed by: JK Date: 12/17/19

PC-TitratION PLUS by Man-Tech Associates, Inc.

pH AND ALKALINITY IN-RUN REPORT.SRW

PC-TitratION PLUS
Calibration Report

Calibration Record # 782



Calibration Settings

Calibration ID	PH CAL 4-7-10	Date	12/16/2019
Channel	1	Time	5:49 PM
Probe Type	pH	Temperature	297.89 K 24.74 C
Probe ID	PH ELECTRODE	Analysis Type	Single Line Fit

Calibration Results

Slope	-60.525	CorrCoeff	0.9999
Intercept	19.653	Equation: Y = (-60.525) X + (19.653)	

Calibration Validity True Operator

	Result	Minimum	Maximum
Slope	-60.525	-65.00	-53.00
Intercept	19.653	-40.00	40.00
Correlation Coefficient	0.9999	0.99	1.00

Note: "True" means the calibration was within the specified ranges
"False" means the calibration was NOT within the specified ranges

Calibration Data	Standard	Reading
	4.00	199.95
	7.00	22.21
	10.00	-163.20

PC-Titrate For Windows

Running List Report

Order Number - 19E5L03

	Schedule	Sample Id	Vial	Weight	Volume
1	PH CAL	CAL	1	.00	25.00
2	PH ONLY	ICV PH8	4	.00	25.00
3	PH-ALK	ICB	5	.00	25.00
4	PH-ALK	ALL003WB	6	.00	25.00
5	PH-ALK	ALL003WL	7	.00	25.00
6	PH-ALK	ALL003WC	8	.00	25.00
7	PH-ALK	L057-01	9	.00	25.00
8	PH-ALK	L057-02	10	.00	25.00
9	PH-ALK	L057-03	11	.00	25.00
10	PH-ALK	L057-04	12	.00	25.00
11	PH-ALK	L057-05	13	.00	25.00
12	PH-ALK	L057-07	14	.00	25.00
13	PH-ALK	L057-08	15	.00	25.00
14	PH-ALK	L057-09	16	.00	25.00
15	PH-ALK	L057-10	17	.00	25.00
16	PH-ALK	L057-10D	18	.00	25.00
17	PH-ALK	L100-02	19	.00	25.00
18	PH-ALK	L100-04	20	.00	25.00
19	PH-ALK	L108-01	21	.00	25.00
20	PH-ALK	RINSE	22	.00	25.00
21	PH-ALK	ALL004WB	23	.00	25.00
22	PH-ALK	ALL004WL	24	.00	25.00
23	PH-ALK	ALL004WC	25	.00	25.00
24	PH-ALK	L064-01	26	.00	25.00
25	PH-ALK	L064-02	27	.00	25.00
26	PH-ALK	L064-03	28	.00	25.00
27	PH-ALK	L064-04	29	.00	25.00
28	PH-ALK	L064-06	30	.00	25.00
29	PH-ALK	L064-07	31	.00	25.00
30	PH-ALK	L064-07D	32	.00	25.00
31	PH-ALK	L064-08	33	.00	25.00
32	PH-ALK	L064-09	34	.00	25.00
33	PH-ALK	L064-10	35	.00	25.00
34	PH-ALK	L064-11	36	.00	25.00
35	PH-ALK	L064-12	37	.00	25.00
36	PH-ALK	L064-14	38	.00	25.00
37	PH-ALK	L064-15	39	.00	25.00
38	PH-ALK	L064-17	40	.00	25.00
39	PH-ALK	L064-18	41	.00	25.00
40	PH-ALK	L064-20	42	.00	25.00

Running List Report

Order Number - 19E5L03

	Schedule	Sample Id	Vial	Weight	Volume
41	PH-ALK	L064-21	43	.00	25.00
42	PH-ALK	RINSE	44	.00	25.00

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L057

METHOD SM2540C
TOTAL DISSOLVED SOLIDS

A total of nine(9) water samples were received on 12/07/19 to be analyzed for Total Dissolved Solids in accordance with Method SM2540C and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Balance calibration verifications were carried out on a frequency specified by the method. All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Total Dissolved Solids was not detected in TDL003WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) LCS was analyzed. Percent recovery for Total Dissolved Solids was within LCS QC limits in TDL003WL. Refer to LCS summary form for details.

Matrix QC Sample
Sample duplicate was analyzed and RPD was within expected value.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SM2540C
TOTAL DISSOLVED SOLIDS

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L057

Matrix : WATER
InstrumentID : 402426

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	TDL003WB	ND	1	NA	10	10	12/11/1917:23	NA	19TDL00301	19TDL003	TDL003W	NA	NA
LCS1W	TDL003WL	1020	1	NA	10	10	12/11/1917:23	NA	19TDL00302	19TDL003	TDL003W	NA	NA
OU2-MW12S-GW120619	L057-01	1000	1	NA	10	10	12/11/1917:23	NA	19TDL00303	19TDL003	TDL003W	12/06/1914:15	12/07/19
OU2-MW12D-GW120619	L057-02	915	1	NA	10	10	12/11/1917:23	NA	19TDL00304	19TDL003	TDL003W	12/06/1912:50	12/07/19
OU2-MW16S-GW120619	L057-03	862	1	NA	10	10	12/11/1917:23	NA	19TDL00305	19TDL003	TDL003W	12/06/1910:55	12/07/19
OU2-MW16D-GW120619	L057-04	641	1	NA	10	10	12/11/1917:23	NA	19TDL00306	19TDL003	TDL003W	12/06/1910:10	12/07/19
OU2-MW06-GW120619	L057-05	656	1	NA	10	10	12/11/1917:23	NA	19TDL00307	19TDL003	TDL003W	12/06/1909:30	12/07/19
OU2-FD01-GW120519	L057-07	596	1	NA	10	10	12/11/1917:23	NA	19TDL00308	19TDL003	TDL003W	12/05/1913:00	12/07/19
OU2-MW13S-GW120519	L057-08	1270	1	NA	10	10	12/11/1917:23	NA	19TDL00309	19TDL003	TDL003W	12/05/1914:40	12/07/19
OU2-MW13D-GW120519	L057-09	917	1	NA	10	10	12/11/1917:23	NA	19TDL00310	19TDL003	TDL003W	12/05/1916:55	12/07/19
OU2-MW04-GW120519	L057-10	919	1	NA	10	10	12/11/1917:23	NA	19TDL00311	19TDL003	TDL003W	12/05/1916:05	12/07/19
OU2-MW04-GW120519DUP	L057-10D	924	1	NA	10	10	12/11/1917:23	NA	19TDL00312	19TDL003	TDL003W	12/05/1916:05	12/07/19

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L057
METHOD : SM2540C

MATRIX : WATER

DILUTION FACTOR:	1	1
SAMPLE ID	: MBLK1W	LCS1W
LAB SAMPLE ID	: TDL003WB	TDL003WL
LAB FILE ID	: 19TDL00301	19TDL00302
DATE PREPARED	: NA	NA
DATE ANALYZED	: 12/11/1917:23	12/11/1917:23
PREP BATCH	: TDL003W	TDL003W
CALIBRATION REF:	19TDL003	19TDL003

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	QC LIMIT (%)
Total Dissolved Solids	ND	1000	1020	102	80-120

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L057
METHOD : SM2540C

MATRIX : WATER

DILUTION FACTOR:	1	1
SAMPLE ID :	OU2-MW04-GW120519	OU2-MW04-GW120519DUP
LAB SAMPLE ID :	L057-10	L057-10D
LAB FILE ID :	19TDL00311	19TDL00312
DATE PREPARED :	NA	NA
DATE ANALYZED :	12/11/1917:23	12/11/1917:23
PREP BATCH :	TDL003W	TDL003W
CALIBRATION REF:	19TDL003	19TDL003

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	RPD (%)	MAX RPD (%)
Total Dissolved Solids	919	924	0	20

EMAX LABORATORIES, INC.

TOTAL DISSOLVED SOLIDS

19TDL003

DataFileID	Sample ID	Sample Amt(ml)	Dish #	Dish (g)	1stDry Wt+Dish(g)	DateTime	2ndDry Wt+Dish(g)	DateTime	FinalDry Wt+Dish(g)	DateTime	Rdgs(<0.5mg)	Solids (mg)	TDS (mg/L)	Result (mg/L)
19TDL00301	TDL003WB	100	B	84.3855	84.3855	12/12/19 14:11	84.3858	12/12/19 16:13			0.3	0.3	3	ND
19TDL00302	TDL003WL	20	L	21.32788	21.34824	12/12/19 14:11	21.34832	12/12/19 16:13			0.08	20.44	1022	1020
19TDL00303	L057-01	20	1	21.19826	21.21845	12/12/19 14:11	21.21835	12/12/19 16:13			0.1	20.09	1004.5	1000
19TDL00304	L057-02	20	2	21.27881	21.29703	12/12/19 14:12	21.29712	12/12/19 16:13			0.09	18.31	915.5	915
19TDL00305	L057-03	20	3	21.44295	21.46029	12/12/19 14:12	21.46018	12/12/19 16:14			0.11	17.23	861.5	862
19TDL00306	L057-04	100	4	90.1023	90.1666	12/12/19 14:12	90.1664	12/12/19 16:14			0.2	64.1	641	641
19TDL00307	L057-05	50	5	42.16015	42.19269	12/12/19 14:13	42.19295	12/12/19 16:14			0.26	32.8	656	656
19TDL00308	L057-07	100	6	88.9486	89.0078	12/12/19 14:13	89.0082	12/12/19 16:14			0.4	59.6	596	596
19TDL00309	L057-08	20	7	21.34558	21.3713	12/12/19 14:13	21.37106	12/12/19 16:15			0.24	25.48	1274	1270
19TDL00310	L057-09	20	8	21.40771	21.42617	12/12/19 14:13	21.42605	12/12/19 16:15			0.12	18.34	917	917
19TDL00311	L057-10	20	9	21.37126	21.38968	12/12/19 14:14	21.38963	12/12/19 16:15			0.05	18.37	918.5	919
19TDL00312	L057-10D	20	10	21.10607	21.12463	12/12/19 14:14	21.12456	12/12/19 16:15			0.07	18.49	924.5	924
19TDL00313	L064-01	50	11	42.64446	42.68002	12/12/19 14:14	42.67984	12/12/19 16:15			0.18	35.38	707.6	708
19TDL00314	L064-02	50	12	42.47226	42.51372	12/12/19 14:14	42.51361	12/12/19 16:16			0.11	41.35	827	827
19TDL00315	L064-03	100	13	90.1503	90.2156	12/12/19 14:15	90.2153	12/12/19 16:16			0.3	65	650	650
19TDL00316	L064-04	20	14	21.37986	21.40361	12/12/19 14:15	21.40375	12/12/19 16:16			0.14	23.89	1194.5	1190
19TDL00317	L064-06	20	15	21.09389	21.12265	12/12/19 14:16	21.12246	12/12/19 16:16	UA	12/19/19	0.19	28.57	1428.5	1430
19TDL00318	L064-06D	20	16	21.36251	21.39229	12/12/19 14:16	21.39219	12/12/19 16:17			0.1	29.68	1484	1480

UA 12/19/19

Beginning Balance Check

Std. Wt. (g)	Balance Rdg (g)	Date	Comments
0.1	0.0999	12/11/19 17:23	PASSED
5	4.9997	12/11/19 17:23	PASSED
100	100.0004	12/11/19 17:23	PASSED

Ending Balance Check

Std. Wt (g)	Balance Rdg (g)	Date	Comments
0.1	0.1000	12/11/19 17:38	PASSED
5	5.0000	12/11/19 17:39	PASSED
100	100.0011	12/11/19 17:39	PASSED

Beginning Balance Check

Std. Wt (g)	Balance Rdg (g)	Date	Comments
0.1	0.1002	12/12/19 14:09	PASSED
5	4.9998	12/12/19 14:10	PASSED
100	100.0001	12/12/19 14:10	PASSED

Ending Balance Check

Std. Wt (g)	Balance Rdg (g)	Date	Comments
0.1	0.1001	12/12/19 16:22	PASSED
5	5.0001	12/12/19 16:22	PASSED
100	100.0011	12/12/19 16:22	PASSED

Balance ID: 402426 Weight ID: HN4977 / 62785

Acceptance Criteria: +/- 0.1% or +/- 0.5 mg whichever is greater

StandardID	Desc.	Conc. (mg/L)	ExpDate
RW1-19-003	MB	ND	NA
SW2B-28-08-09	LCS	1000	08/07/20
HC863463	pH strip	0-14	08/09/29

QC Check

LabSampleID	Result	Expected Value	QC Result
TDL003WB	3	ND	MB Passed
TDL003WL	1022	1000	%R=102
#N/A	#N/A	#N/A	#N/A
L057-10D	924.5	918.5	%D=1
L064-06D	1484	1428.5	%D=4

Oven Drying Thermometer ID: 3078

Evaporating			
☑ Start	12/11/2019 18:15	Temp	94 °C
☑ End	12/12/2019 12:00	Temp	94 °C
1st Drying			
☑ Start	12/12/19 12:18	Temp	180 °C
☑ End	12/12/19 13:18	Temp	180 °C
2nd Drying			
☑ Start	12/12/19 14:21	Temp	180 °C
☑ End	12/12/19 15:22	Temp	180 °C
Final Drying			
☐ Start		Temp	°C
☐ End		Temp	°C

Notes:

Samples were evaporated at 90°C (±5°C) and dried at 180°C (±2°C).

SOP

Analyzedby: YAquin

Checked by: UA

☑ EMAX-2540C Rev. 9

Date: 12/19/19

LOQ: 10 mg/L

0.45 micron Filter Lot#: UJ341342-20190515PZ79M-070

Micropipette ID: NA

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L057

METHOD SM4500-NO3E
NITRATE/NITRITE-N

A total of nine(9) water samples were received on 12/07/19 to be analyzed for Nitrate/Nitrite-N in accordance with Method SM4500-NO3E and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Nitrogen, Nitrate-Nitrite was not detected in NAL002WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. NAL002WL/NAL002WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SM4500-NO3E
NITRATE/NITRITE-N

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L057
Matrix : WATER
InstrumentID : 70

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	NAL002WB	ND	1	NA	0.05	0.01	12/12/1918:40	NA	19NAL00210	19NAL002	NAL002W	NA	NA
LCS1W	NAL002WL	0.479	1	NA	0.05	0.01	12/12/1918:40	NA	19NAL00211	19NAL002	NAL002W	NA	NA
LCD1W	NAL002WC	0.522	1	NA	0.05	0.01	12/12/1918:40	NA	19NAL00212	19NAL002	NAL002W	NA	NA
OU2-MW12S-GW120619	L057-01I	2.34	10	NA	0.5	0.1	12/12/1920:01	NA	19NAL00225	19NAL002	NAL002W	12/06/1914:15	12/07/19
OU2-MW12D-GW120619	L057-02I	2.27	5	NA	0.25	0.05	12/12/1920:01	NA	19NAL00226	19NAL002	NAL002W	12/06/1912:50	12/07/19
OU2-MW16S-GW120619	L057-03I	2.97	10	NA	0.5	0.1	12/12/1920:01	NA	19NAL00227	19NAL002	NAL002W	12/06/1910:55	12/07/19
OU2-MW16D-GW120619	L057-04I	3.25	10	NA	0.5	0.1	12/12/1920:02	NA	19NAL00228	19NAL002	NAL002W	12/06/1910:10	12/07/19
OU2-MW06-GW120619	L057-05	0.849	1	NA	0.05	0.01	12/12/1920:10	NA	19NAL00229	19NAL002	NAL002W	12/06/1909:30	12/07/19
OU2-FD01-GW120519	L057-07I	3.75	10	NA	0.5	0.1	12/12/1920:25	NA	19NAL00230	19NAL002	NAL002W	12/05/1913:00	12/07/19
OU2-MW13S-GW120519	L057-08	0.678	1	NA	0.05	0.01	12/12/1920:26	NA	19NAL00231	19NAL002	NAL002W	12/05/1914:40	12/07/19
OU2-MW13D-GW120519	L057-09I	3.18	10	NA	0.5	0.1	12/12/1920:32	NA	19NAL00234	19NAL002	NAL002W	12/05/1916:55	12/07/19
OU2-MW04-GW120519	L057-10I	1.45	5	NA	0.25	0.05	12/12/1920:39	NA	19NAL00235	19NAL002	NAL002W	12/05/1916:05	12/07/19

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L057
METHOD : SM4500-NO3E

MATRIX : WATER % MOISTURE:NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : MBLK1W LCS1W LCD1W
LAB SAMPLE ID : NAL002WB NAL002WL NAL002WC
LAB FILE ID : 19NAL00210 19NAL00211 19NAL00212
DATE PREPARED : NA NA NA
DATE ANALYZED : 12/12/1918:40 12/12/1918:40 12/12/1918:40
PREP BATCH : NAL002W NAL002W NAL002W
CALIBRATION REF: 19NAL002 19NAL002 19NAL002

ACCESSION:

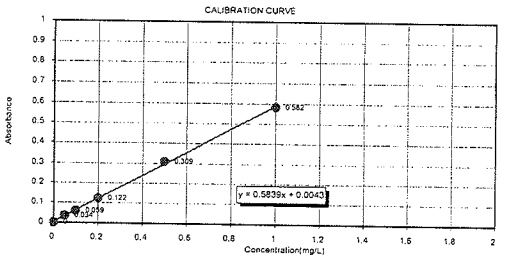
PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Nitrogen, Nitrate-Nitrite	ND	0.500	0.479	96	0.500	0.522	104	9	80-120	10

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

Data File Name	Calibration ID	Conc. mg/L	WL	Abs	CalDate	FC	%Rec
19NAL00201	S0	0	543nm	0	12/12/19 18:21	-0.007345316	ND
19NAL00202	S1	0.05	543nm	0.034	12/12/19 18:21	0.050881126	102
19NAL00203	S2	0.1	543nm	0.059	12/12/19 18:21	0.093694686	94
19NAL00204	S3	0.2	543nm	0.122	12/12/19 18:21	0.201584857	101
19NAL00205	S4	0.5	543nm	0.309	12/12/19 18:22	0.521830286	104
19NAL00206	S5	1	543nm	0.582	12/12/19 18:22	0.989354361	99
19NAL00207	NO2-N Std Check	0.5	543nm	0.321	12/12/19 18:22	0.542380795	108
19NAL00208	ICV	0.5	544nm	0.287	12/12/19 18:22	0.484154353	97
19NAL00209	ICB	0	543nm	0.004	12/12/19 18:22	-0.000495146	ND
19NAL00220	CCV1	0.5	543nm	0.29	12/12/19 19:22	0.48929198	98
19NAL00221	CCB1	0	543nm	0	12/12/19 19:22	-0.007345316	ND
19NAL00232	CCV2	0.5	543nm	0.315	12/12/19 20:26	0.53210554	106
19NAL00233	CCB2	0	543nm	0	12/12/19 20:26	-0.007345316	ND
19NAL00239	CCV3	0.5	543nm	0.295	12/12/19 20:59	0.497854692	100
19NAL00240	CCB3	0	543nm	0	12/12/19 20:59	-0.007345316	ND

Reduction Time	Coloring Time
12/12/19 17:04	12/12/19 17:06
12/12/19 17:09	12/12/19 17:10
12/12/19 17:12	12/12/19 17:14
12/12/19 17:16	12/12/19 17:18
12/12/19 17:20	12/12/19 17:23
12/12/19 17:24	12/12/19 17:26
NA	12/12/19 17:26
12/12/19 17:29	12/12/19 17:31
12/12/19 17:38	12/12/19 17:40

InstrumentID: 70



$$FC = [(A * CF) - Y] * DF$$

CF= 1.712542399 Y= 0.00735 r= 0.999531

DL Water(mg/L) 0.01 DL Soil(mg/Kg) 0.1

LOD Water(mg/L) 0.02 LOD Soil(mg/Kg) 0.2

LOQ Water(mg/L) 0.05 LOQ Soil(mg/Kg) 0.5

SOP

☑ EMAX-4500-NO3E Rev. 3

Standard / Reagent ID	Description	Conc.	Exp.Date
SW2B-29-14-03	ICAL CCV (mg/L)	10	12/12/19
SW2B-29-14-04	ICV LCS MS Std (mg/L)	10	12/12/19
SW2B-29-14-05	NO2 CHK	10	12/12/19
SM5A-04-04-08	Reagent Water	N/A	03/31/20
N/A	Sand	N/A	N/A
SWP1-51-47-03	Coloring Reagent	**	12/19/19
SWP1-54-06-01	NH4Cl-EDTA Soln	**	06/12/20
SWP1-47-45-01	HCl	1N	03/04/20
SWR1-01-819	NH4OH	CONC	04/30/25
N/A	Extraction Solvent	N/A	N/A
N/A	ZnSO4	N/A	N/A
SWP1-46-39-01	NaOH	10N	03/01/20
SWP1-47-44-03	NaOH	1N	03/01/20
SWP1-48-33-02	Cadmium Reduction Column	N/A	08/01/22
22319008	Snap Seal	1.5 OZ	N/A

Standard Prep	Intermediate Std Aliquot (ml)	Final Vol (ml)	DateTime
S0	0	20	12/12/19 10:42
S1	0.1	20	12/12/19 10:42
S2	0.2	20	12/12/19 10:42
S3	0.4	20	12/12/19 10:42
S4	1	20	12/12/19 10:42
S5	2	20	12/12/19 10:42
ICV	1	20	12/12/19 10:42
CCV	1	20	12/12/19 10:42
NO2 CHK	1	20	12/12/19 10:42
LCS EV	1	20	12/12/19 10:42
MS EV	1	20	12/12/19 10:42

MicropipetteID: 842750082 239360174 342780143

Expected Sample Amount: 20

Notes: **Concentration can be found in Reagent Log SWP1-51 and SWP1-54

LAB QC CHECK

DataFileID	LabSampleID	Result	Expected Value	QC Result
19NAL00210	NAL002WB	ND	ND	MB Passed
19NAL00211	NAL002WL	0.479	0.5	%R=96
19NAL00212	NAL002WC	0.522	0.5	%R=104

MS CHECK

DataFileID	LabSampleID	Result	Expected Value	QC Result
19NAL00219	L043-07I	3.13		
19NAL00223	L043-07IM	6.13	5	%R=60

DUP CHECK

DataFileID	LabSampleID	Result	Expected Value	RPD
19NAL00219	L043-07I	3.13		1
19NAL00222	L043-07ID	3.11	3.13	

CALIBRATION CHECK pH Meter ID: 53

Buffer ID	Buffer	Rdg	Date
SW1-02-04-12	0.99	0.98	12/12/19 13:28
SW1-02-04-22	7.01	7	12/12/19 13:30
SW1-02-04-23	10.02	10.02	12/12/19 13:32
SW1-02-04-28	Check Std (7.96)	7.96	12/12/19 13:34

☐ Leaching Date Time Start: ☐ End:

Filter: 0.45 µm 90941103

Blank and LCS were filtered Analyzed by: NCrist

The following samples were filtered: L030-01, L037-01, L046-01, L086-01

Reviewed by: NNC

Date: 12/19/19

DataFileID	LabSampleID	Result	Flag	RUnit	Sample Amt	SUnit	PDateTime	FinalVol (ml)	WL	Abs	ADateTime	Sample Bkgnd	DF	%M	Conc.	DFxPrep Factor	Notes	Analyst	Sample pH	Sample pH Adj	Reduction Time	Coloring Time
19NAL00210	NAL002WB	ND		mg/L	20	ml	NA	20	543nm	0.002 a	12/12/19 18:40	0	1		-0.00392	1		NCrist	5.65	8.68	12/12/19 17:42	12/12/19 17:43
19NAL00211	NAL002WL	0.479		mg/L	20	ml	NA	20	543nm	0.284 a	12/12/19 18:40	0	1		0.479017	1		NCrist	5.65	8.68	12/12/19 17:47	12/12/19 17:48
19NAL00212	NAL002WC	0.522		mg/L	20	ml	NA	20	543nm	0.309 a	12/12/19 18:40	0	1		0.52183	1		NCrist	5.65	8.68	12/12/19 17:51	12/12/19 17:52
19NAL00213	L030-01	0.0954		mg/L	20	ml	NA	20	543nm	0.06 a	12/12/19 18:41	0	1		0.095407	1		NCrist	1.45	8.7	12/12/19 17:58	12/12/19 18:00
19NAL00214	L037-01	0.172		mg/L	20	ml	NA	20	543nm	0.105 a	12/12/19 18:41	0	1		0.172472	1		NCrist	1.52	8.86	12/12/19 18:03	12/12/19 18:05
19NAL00215	L043-01I	4.653		mg/L	20	ml	NA	20	543nm	0.276 a	12/12/19 18:41	0	10		4.653164	10		NCrist	1.48	8.38	12/12/19 18:16	12/12/19 18:19
19NAL00216	L043-02I	3.097		mg/L	20	ml	NA	20	543nm	0.366 a	12/12/19 18:41	0	5		3.097226	5		NCrist	1.42	8.39	12/12/19 18:23	12/12/19 18:25
19NAL00217	L043-04I	3.643		mg/L	20	ml	NA	20	543nm	0.217 a	12/12/19 19:22	0	10		3.642764	10		NCrist	1.43	8.58	12/12/19 18:31	12/12/19 18:32
19NAL00218	L043-05I	3.215		mg/L	20	ml	NA	20	543nm	0.192 a	12/12/19 19:22	0	10		3.214628	10		NCrist	1.48	8.54	12/12/19 18:37	12/12/19 18:38
19NAL00219	L043-07I	3.129		mg/L	20	ml	NA	20	543nm	0.187 a	12/12/19 19:22	0	10		3.129001	10		NCrist	1.43	8.33	12/12/19 18:41	12/12/19 18:43
19NAL00220	CCV1	0.489		mg/L	20	ml	NA	20	543nm	0.29 a	12/12/19 19:22	0	1		0.489292	1		NCrist			12/12/19 18:45	12/12/19 18:47
19NAL00221	CCB1	ND		mg/L	20	ml	NA	20	543nm	0 a	12/12/19 19:22	0	1		-0.00735	1		NCrist			12/12/19 18:51	12/12/19 18:52
19NAL00222	L043-07ID	3.112		mg/L	20	ml	NA	20	543nm	0.186 a	12/12/19 19:23	0	10		3.111876	10		NCrist	1.43	8.33	12/12/19 18:55	12/12/19 18:56
19NAL00223	L043-07IM	6.126		mg/L	20	ml	NA	20	543nm	0.362 a	12/12/19 19:33	0	10		6.12595	10		NCrist	1.43	8.33	12/12/19 19:06	12/12/19 19:08
19NAL00224	L046-01	0.212		mg/L	20	ml	NA	20	543nm	0.128 a	12/12/19 20:01	0	1		0.21186	1		NCrist	1.43	8.65	12/12/19 19:12	12/12/19 19:14
19NAL00225	L057-01I	2.341		mg/L	20	ml	NA	20	543nm	0.141 a	12/12/19 20:01	0	10		2.341232	10		NCrist	1.38	8.39	12/12/19 19:17	12/12/19 19:19
19NAL00226	L057-02I	2.267		mg/L	20	ml	NA	20	543nm	0.269 a	12/12/19 20:01	0	5		2.266643	5		NCrist	1.63	8.58	12/12/19 19:22	12/12/19 19:24
19NAL00227	L057-03I	2.975		mg/L	20	ml	NA	20	543nm	0.178 a	12/12/19 20:01	0	10		2.974872	10		NCrist	1.6	8.37	12/12/19 19:35	12/12/19 19:36
19NAL00228	L057-04I	3.249		mg/L	20	ml	NA	20	543nm	0.194 a	12/12/19 20:02	0	10		3.248879	10		NCrist	1.43	8.53	12/12/19 19:45	12/12/19 19:46
19NAL00229	L057-05	0.849		mg/L	20	ml	NA	20	543nm	0.5 a	12/12/19 20:10	0	1		0.848926	1		NCrist	1.52	8.59	12/12/19 19:50	12/12/19 19:52
19NAL00230	L057-07I	3.746		mg/L	20	ml	NA	20	543nm	0.223 a	12/12/19 20:25	0	10		3.745516	10		NCrist	1.63	8.75	12/12/19 19:56	12/12/19 19:57
19NAL00231	L057-08	0.678		mg/L	20	ml	NA	20	543nm	0.4 a	12/12/19 20:26	0	1		0.677672	1		NCrist	1.42	8.46	12/12/19 20:00	12/12/19 20:02
19NAL00232	CCV2	0.532		mg/L	20	ml	NA	20	543nm	0.315 a	12/12/19 20:26	0	1		0.532106	1		NCrist			12/12/19 20:05	12/12/19 20:07
19NAL00233	CCB2	ND		mg/L	20	ml	NA	20	543nm	0 a	12/12/19 20:26	0	1		-0.00735	1		NCrist			12/12/19 20:11	12/12/19 20:12
19NAL00234	L057-09I	3.18		mg/L	20	ml	NA	20	543nm	0.19 a	12/12/19 20:32	0	10		3.180377	10		NCrist	1.45	8.67	12/12/19 20:15	12/12/19 20:17
19NAL00235	L057-10I	1.445		mg/L	20	ml	NA	20	543nm	0.173 a	12/12/19 20:39	0	5		1.444623	5		NCrist	1.41	8.79	12/12/19 20:20	12/12/19 20:22
19NAL00236	L086-01	0.558		mg/L	20	ml	NA	20	543nm	0.33 a	12/12/19 20:59	0	1		0.557794	1		NCrist	1.46	8.39	12/12/19 20:24	12/12/19 20:26
19NAL00237	L412-01	0.092		mg/L	20	ml	NA	20	543nm	0.058 a	12/12/19 20:59	0	1		0.091982	1		NCrist	1.26	8.81	12/12/19 20:30	12/12/19 20:31
19NAL00238	L412-02	0.0612		mg/L	20	ml	NA	20	543nm	0.04 a	12/12/19 20:59	0	1		0.061156	1		NCrist	1.22	8.24	12/12/19 20:35	12/12/19 20:36
19NAL00239	CCV3	0.498		mg/L	20	ml	NA	20	543nm	0.295 a	12/12/19 20:59	0	1		0.497855	1		NCrist			12/12/19 20:39	12/12/19 20:40
19NAL00240	CCB3	ND		mg/L	20	ml	NA	20	543nm	0 a	12/12/19 20:59	0	1		-0.00735	1		NCrist			12/12/19 20:45	12/12/19 20:46

Reviewed by: NNC

Date: 12/16/19

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L057

METHOD SW9060
TOC

A total of nine(9) water samples were received on 12/07/19 to be analyzed for TOC in accordance with Method SW9060 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Total Organic Carbon was not detected in TCL002WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. TCL002WL/TCL002WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SW9060
TOC

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L057

Matrix : WATER
Instrument ID : I62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCL002WB	ND	1	NA	1.00	0.250	12/13/1920:58	NA	TCL002-05	TCL002-02	TCL002W	NA	NA
LCS1W	TCL002WL	25.8	1	NA	1.00	0.250	12/13/1921:14	NA	TCL002-06	TCL002-02	TCL002W	NA	NA
LCD1W	TCL002WC	25.8	1	NA	1.00	0.250	12/13/1921:30	NA	TCL002-07	TCL002-02	TCL002W	NA	NA
OU2-MW12S-GW120619	L057-01	0.673J	1	NA	1.00	0.250	12/14/1900:44	NA	TCL002-19	TCL002-14	TCL002W	12/06/1914:15	12/07/19
OU2-MW12D-GW120619	L057-02	0.531J	1	NA	1.00	0.250	12/14/1900:59	NA	TCL002-20	TCL002-14	TCL002W	12/06/1912:50	12/07/19
OU2-MW16S-GW120619	L057-03	0.561J	1	NA	1.00	0.250	12/14/1901:14	NA	TCL002-21	TCL002-14	TCL002W	12/06/1910:55	12/07/19
OU2-MW16D-GW120619	L057-04	0.710J	1	NA	1.00	0.250	12/14/1901:32	NA	TCL002-22	TCL002-14	TCL002W	12/06/1910:10	12/07/19
OU2-MW06-GW120619	L057-05	0.498J	1	NA	1.00	0.250	12/14/1901:47	NA	TCL002-23	TCL002-14	TCL002W	12/06/1909:30	12/07/19
OU2-FD01-GW120519	L057-07	0.488J	1	NA	1.00	0.250	12/14/1902:02	NA	TCL002-24	TCL002-14	TCL002W	12/05/1913:00	12/07/19
OU2-MW13S-GW120519	L057-08	1.13	1	NA	1.00	0.250	12/14/1902:17	NA	TCL002-25	TCL002-14	TCL002W	12/05/1914:40	12/07/19
OU2-MW13D-GW120519	L057-09	0.382J	1	NA	1.00	0.250	12/14/1903:16	NA	TCL002-28	TCL002-26	TCL002W	12/05/1916:55	12/07/19
OU2-MW04-GW120519	L057-10	0.472J	1	NA	1.00	0.250	12/14/1903:31	NA	TCL002-29	TCL002-26	TCL002W	12/05/1916:05	12/07/19

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L057
METHOD: SW9060

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCL002WB	TCL002WL	TCL002WC		
LAB FILE ID:	TCL002-05	TCL002-06	TCL002-07		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	12/13/1920:58	12/13/1921:14	12/13/1921:30	DATE RECEIVED:	NA
PREP. BATCH:	TCL002W	TCL002W	TCL002W		
CALIB. REF:	TCL002-02	TCL002-02	TCL002-02		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Total Organic Carbon	ND	25	25.8	103	25	25.8	103	0	80-120	20

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
TOC

	Date	Time
Start	12/13/19	18:06
End	12/14/19	13:33

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

☐ Sample was filtered. Filter ID: N/A

Comments: TCL002W: 19L014
19L043
19L057
19L071
TCL003W: 19L071

Reagent Water ID #: RW1-19-003

pH Strips Lot #: HC863463

2 M HCl SWP1-50-38-02

Book #: A62-038

Instrument No.: 62

Micropipette ID: ☑ 439350020

Micropipette ID: ☑ 539360056

Micropipette ID: ☑ 642780221

Micropipette ID: ☐

Analytical Sequence: TCL002

Method File: TCL002

Analytical Batch: TCL002W/TCL003W

SOP #	Rev. #
☑ EMAX-5310B	4
☑ EMAX-9060	4
☐ EMAX-	

STANDARDS ID	CONC. (mg/L)
S0 RW1-19-003	0
S1 SW7B-01-14-05	1
S2	5
S3	10
S4	40
S5	80
S6 —	—
ICV/LCS SW7B-01-14-07	25
CCV SW7B-01-14-04	25
—	—

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ TOC	
☐	

Analyzed By: YA

Date: ~~0~~ 12/13/19

YA 12/13/19

	Type	Analysis	Sample Name	Sample ID	Dilutio	Result	Comment
1	Standard	NPOC	ICAL - Instrument	TCL002-01	1.000		TOC METHOD 9060/5130B
2	Control	NPOC	ICV	TCL002-02	1.000	NPOC:26.10 mg/L	
3	Unknown	NPOC	ICB	TCL002-03	1.000	NPOC:0.05792 mg/L	
4	Unknown	NPOC	HCO3/CO3	TCL002-04	1.000	NPOC:0.03730 mg/L	
5	Unknown	NPOC	TCL002WB	TCL002-05	1.000	NPOC:0.03444 mg/L	
6	Unknown	NPOC	TCL002WL	TCL002-06	1.000	NPOC:25.84 mg/L	
7	Unknown	NPOC	TCL002WC	TCL002-07	1.000	NPOC:25.84 mg/L	
8	Unknown	NPOC	L014-01I	TCL002-08	20.00	NPOC:14.05 mg/L	DF=20, ODOR, PH<2
9	Unknown	NPOC	L043-01	TCL002-09	1.000	NPOC:0.6428 mg/L	PH<2
10	Unknown	NPOC	L043-02	TCL002-10	1.000	NPOC:0.4063 mg/L	PH<2
11	Unknown	NPOC	L043-04	TCL002-11	1.000	NPOC:0.4775 mg/L	PH<2
12	Unknown	NPOC	L043-05	TCL002-12	1.000	NPOC:0.5392 mg/L	PH<2
13	Unknown	NPOC	L043-07	TCL002-13	1.000	NPOC:0.5760 mg/L	PH<2
14	Control	NPOC	CCV1	TCL002-14	1.000	NPOC:24.89 mg/L	
15	Unknown	NPOC	CCB1	TCL002-15	1.000	NPOC:0.06506 mg/L	
16	Unknown	NPOC	L043-07D	TCL002-16	1.000	NPOC:0.5050 mg/L	PH<2
17	Unknown	NPOC	L043-07M	TCL002-17	1.000	NPOC:24.53 mg/L	PH<2
18	Unknown	NPOC	L043-07S	TCL002-18	1.000	NPOC:25.11 mg/L	PH<2
19	Unknown	NPOC	L057-01	TCL002-19	1.000	NPOC:0.6732 mg/L	PH<2
20	Unknown	NPOC	L057-02	TCL002-20	1.000	NPOC:0.5309 mg/L	PH<2
21	Unknown	NPOC	L057-03	TCL002-21	1.000	NPOC:0.5614 mg/L	PH<2
22	Unknown	NPOC	L057-04	TCL002-22	1.000	NPOC:0.7097 mg/L	PH<2
23	Unknown	NPOC	L057-05	TCL002-23	1.000	NPOC:0.4979 mg/L	PH<2
24	Unknown	NPOC	L057-07	TCL002-24	1.000	NPOC:0.4876 mg/L	PH<2
25	Unknown	NPOC	L057-08	TCL002-25	1.000	NPOC:1.128 mg/L	PH<2
26	Control	NPOC	CCV2	TCL002-26	1.000	NPOC:24.81 mg/L	
27	Unknown	NPOC	CCB2	TCL002-27	1.000	NPOC:0.08285 mg/L	
28	Unknown	NPOC	L057-09	TCL002-28	1.000	NPOC:0.3817 mg/L	PH<2
29	Unknown	NPOC	L057-10	TCL002-29	1.000	NPOC:0.4724 mg/L	PH<2
30	Unknown	NPOC	L071-02I	TCL002-30	3.000	NPOC:7.349 mg/L	DF=3, ODOR, PH<2
31	Unknown	NPOC	L071-03	TCL002-31	1.000	NPOC:1.070 mg/L	PH<2
32	Unknown	NPOC	L071-04	TCL002-32	1.000	NPOC:1.169 mg/L	PH<2
33	Unknown	NPOC	L071-05	TCL002-33	1.000	NPOC:1.859 mg/L	PH<2
34	Unknown	NPOC	L071-06	TCL002-34	1.000	NPOC:1.724 mg/L	PH<2
35	Unknown	NPOC	L071-06D	TCL002-35	1.000	NPOC:1.767 mg/L	PH<2
36	Unknown	NPOC	L071-06M	TCL002-36	1.000	NPOC:26.04 mg/L	PH<2
37	Unknown	NPOC	L071-06S	TCL002-37	1.000	NPOC:25.82 mg/L	PH<2
38	Control	NPOC	CCV3	TCL002-38	1.000	NPOC:24.56 mg/L	
39	Unknown	NPOC	CCB3	TCL002-39	1.000	NPOC:0.07116 mg/L	
40	Unknown	NPOC	TCL003WB	TCL002-40	1.000	NPOC:0.08938 mg/L	
41	Unknown	NPOC	TCL003WL	TCL002-41	1.000	NPOC:25.94 mg/L	
42	Unknown	NPOC	TCL004WC	TCL002-42	1.000	NPOC:26.15 mg/L	
43	Unknown	NPOC	L071-07	TCL002-43	1.000	NPOC:1.967 mg/L	PH<2
44	Unknown	NPOC	L071-08	TCL002-44	1.000	NPOC:1.750 mg/L	PH<2
45	Unknown	NPOC	L071-09	TCL002-45	1.000	NPOC:1.698 mg/L	PH<2
46	Unknown	NPOC	L071-10	TCL002-46	1.000	NPOC:0.7356 mg/L	PH<2
47	Unknown	NPOC	L071-11	TCL002-47	1.000	NPOC:5.086 mg/L	PH<2
48	Unknown	NPOC	L071-12	TCL002-48	1.000	NPOC:1.325 mg/L	PH<2
49	Unknown	NPOC	L071-12D	TCL002-49	1.000	NPOC:1.248 mg/L	PH<2
50	Control	NPOC	CCV4	TCL002-50	1.000	NPOC:24.55 mg/L	
51	Unknown	NPOC	CCB4	TCL002-51	1.000	NPOC:0.09612 mg/L	
52	Unknown	NPOC	L071-12M	TCL002-52	1.000	NPOC:24.38 mg/L	PH<2
53	Unknown	NPOC	L071-12S	TCL002-53	1.000	NPOC:25.01 mg/L	PH<2
54	Unknown	NPOC	L071-13	TCL002-54	1.000	NPOC:1.272 mg/L	PH<2
55	Unknown	NPOC	L071-14	TCL002-55	1.000	NPOC:1.481 mg/L	PH<2
56	Unknown	NPOC	L071-15	TCL002-56	1.000	NPOC:1.271 mg/L	PH<2
57	Unknown	NPOC	L071-16	TCL002-57	1.000	NPOC:1.525 mg/L	PH<2
58	Unknown	NPOC	L071-17	TCL002-58	1.000	NPOC:3.266 mg/L	PH<2
59	Unknown	NPOC	L071-18	TCL002-59	1.000	NPOC:7.340 mg/L	PH<2
60	Unknown	NPOC	L071-18D	TCL002-60	1.000	NPOC:7.330 mg/L	PH<2
61	Unknown	NPOC	L071-18M	TCL002-61	1.000	NPOC:31.03 mg/L	PH<2
62	Control	NPOC	CCV5	TCL002-62	1.000	NPOC:24.57 mg/L	
63	Unknown	NPOC	CCB5	TCL002-63	1.000	NPOC:0.1155 mg/L	
64	Unknown	NPOC	L071-18S	TCL002-64	1.000	NPOC:31.51 mg/L	PH<2
65	Control	NPOC	CCV6	TCL002-65	1.000	NPOC:24.44 mg/L	
66	Unknown	NPOC	CCB6	TCL002-66	1.000	NPOC:0.1266 mg/L	FINAL
67							

AA 12/19/19

Instr.Information

System	TOC-9060/415.1/5310B
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

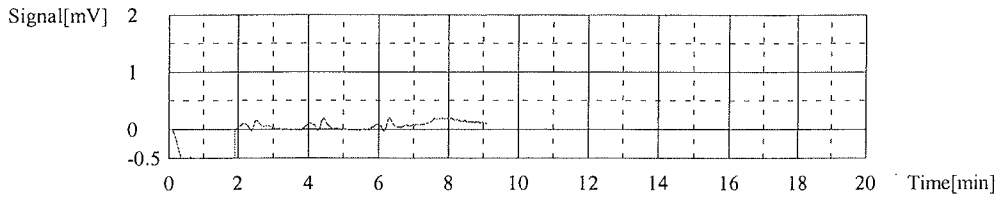
Sample Name:	ICAL - Instrument 62
Sample ID:	TCL002-01
Cal. Curve:	TCL002.2019_12_13_17_58_16.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.1991	50uL	1	*******		12/13/19 06:06:50 PM
2	0.2906	50uL	1	*******		12/13/19 06:08:54 PM
3	0.2830	50uL	1	*******		12/13/19 06:10:58 PM
4	1.037	50uL	1	*******		12/13/19 06:14:32 PM

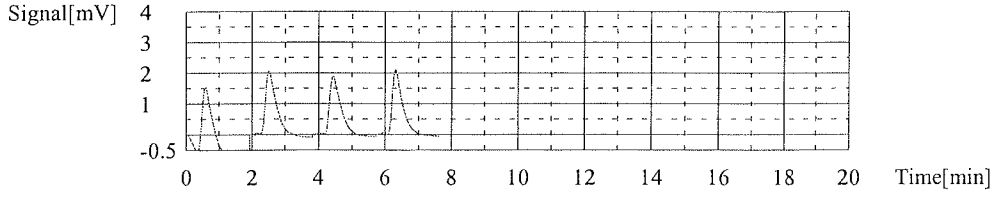
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 0.4524



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	4.164	50uL	1	*******		12/13/19 06:23:29 PM
2	4.577	50uL	1	*******		12/13/19 06:25:33 PM
3	4.352	50uL	1	*******		12/13/19 06:27:38 PM
4	4.107	50uL	1	*******		12/13/19 06:29:42 PM

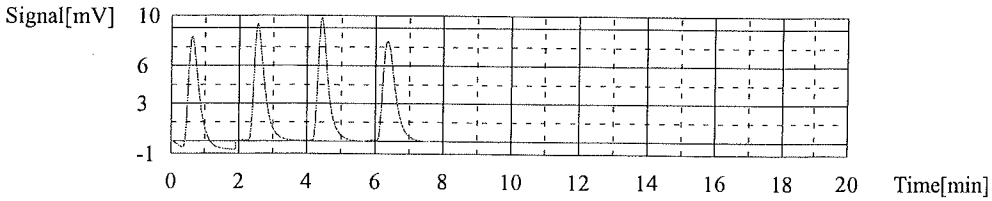
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 4.300



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	20.00	50uL	1	*******		12/13/19 06:38:28 PM
2	21.02	50uL	1	*******		12/13/19 06:40:32 PM
3	20.36	50uL	1	*******		12/13/19 06:42:37 PM
4	20.80	50uL	1	*******		12/13/19 06:44:42 PM

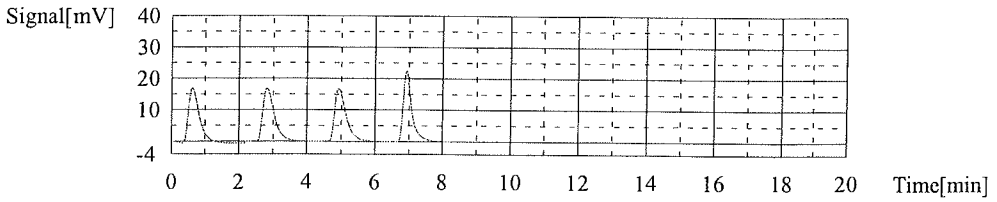
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 20.54



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	39.27	50uL	1	*******		12/13/19 06:53:45 PM
2	41.35	50uL	1	*******		12/13/19 06:56:03 PM
3	41.02	50uL	1	*******		12/13/19 06:58:14 PM
4	41.13	50uL	1	*******		12/13/19 07:00:19 PM

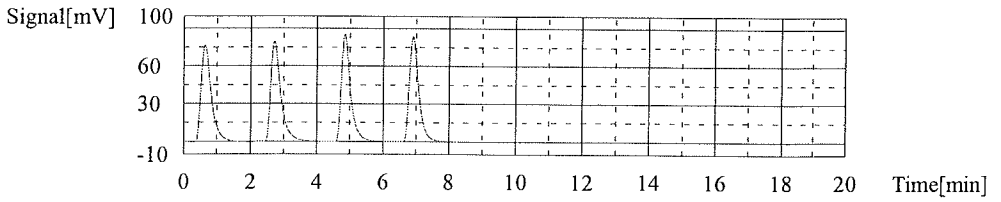
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 40.69



Conc: 40.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	168.9	50uL	1	*******		12/13/19 07:09:20 PM
2	172.6	50uL	1	*******		12/13/19 07:11:36 PM
3	172.1	50uL	1	*******		12/13/19 07:13:51 PM
4	173.7	50uL	1	*******		12/13/19 07:16:01 PM

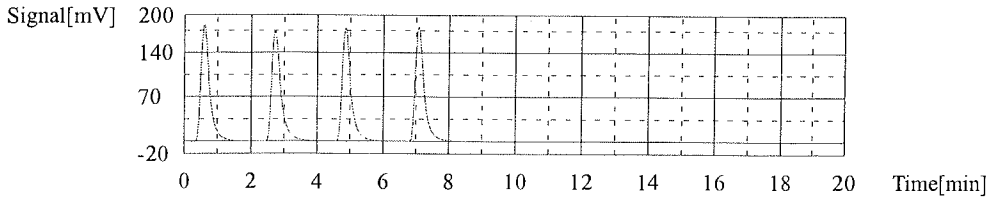
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 171.8



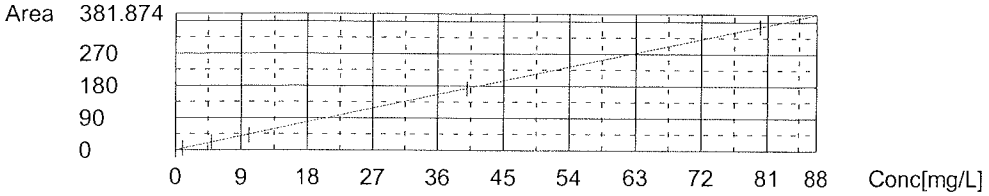
Conc: 80.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	343.1	50uL	1	*******		12/13/19 07:25:02 PM
2	347.3	50uL	1	*******		12/13/19 07:27:20 PM
3	347.1	50uL	1	*******		12/13/19 07:29:45 PM
4	350.1	50uL	1	*******		12/13/19 07:32:01 PM

Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 346.9



Slope: 4.339
Intercept 0.000
r^2 0.999926



Control Sample

Sample Name: ICV
Sample ID: TCL002-02
Method: TCL002.tpl
Chk. Result Control value: 26.10 / Control exceeds range!

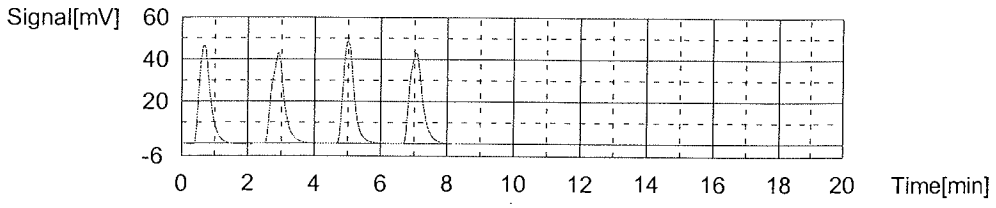
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:26.10 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	111.9	25.79mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 07:41:12 PM
2	114.2	26.32mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 07:43:31 PM
3	113.3	26.11mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 07:45:43 PM
4	113.7	26.20mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 07:48:00 PM

Mean Area 113.3
Mean Conc. 26.10mg/L



Sample

Sample Name: ICB
Sample ID: TCL002-03
Origin: TCL002.cal
Chk. Result

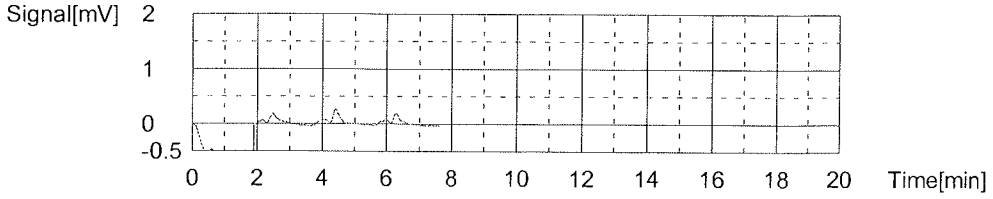
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.05792 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.1386	0.03194mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 07:56:43 PM
2	0.3531	0.08137mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 07:58:47 PM
3	0.2896	0.06674mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:00:51 PM
4	0.2240	0.05162mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:02:56 PM

Mean Area 0.2513
Mean Conc. 0.05792mg/L



Sample

Sample Name: HCO3/CO3
Sample ID: TCL002-04
Origin: TCL002.cal
Chk. Result

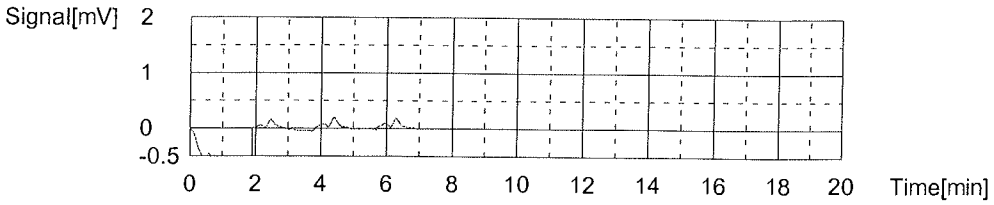
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.03730 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.000	0.000mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:24:45 PM
2	0.1819	0.04192mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:26:49 PM
3	0.2880	0.06637mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:28:53 PM
4	0.1775	0.04090mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:30:58 PM

Mean Area 0.1619
Mean Conc. 0.03730mg/L



Sample

Sample Name: TCL002WB
Sample ID: TCL002-05
Origin: TCL002.cal
Chk. Result

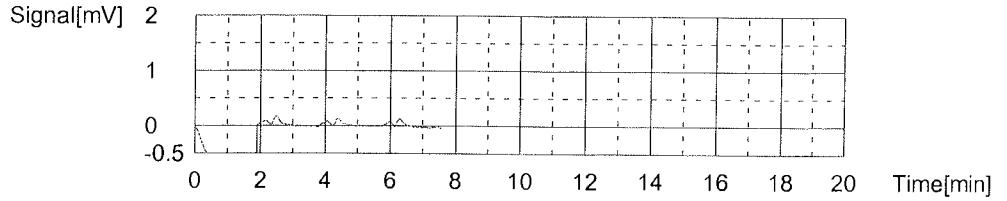
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.03444 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.000	0.000mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:52:32 PM
2	0.2032	0.04683mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:54:37 PM
3	0.1860	0.04286mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:56:41 PM
4	0.2086	0.04807mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 08:58:46 PM

Mean Area 0.1495
Mean Conc. 0.03444mg/L



Sample

Sample Name: TCL002WL
Sample ID: TCL002-06
Origin: TCL002.cal
Chk. Result

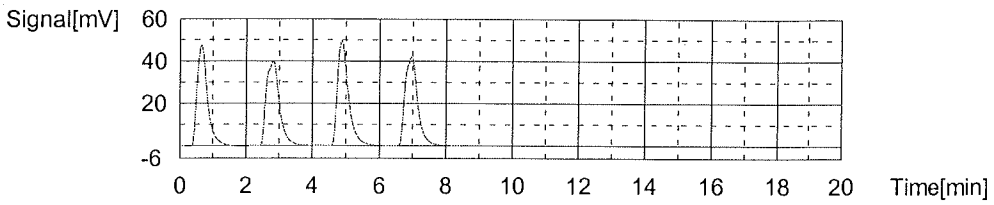
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:25.84 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	108.9	25.10mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:07:42 PM
2	113.1	26.06mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:10:02 PM
3	113.0	26.04mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:12:12 PM
4	113.5	26.16mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:14:34 PM

Mean Area 112.1
Mean Conc. 25.84mg/L



Sample

Sample Name: TCL002WC
Sample ID: TCL002-07
Origin: TCL002.cal
Chk. Result

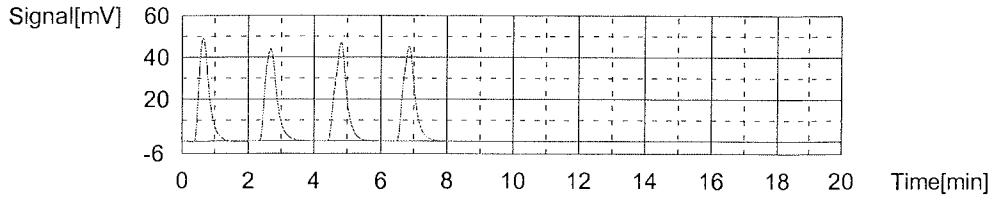
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:25.84 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	109.1	25.14mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:23:24 PM
2	112.6	25.95mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:25:39 PM
3	113.8	26.22mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:27:54 PM
4	113.0	26.04mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:30:06 PM

Mean Area 112.1
Mean Conc. 25.84mg/L



Sample

Sample Name: L014-01I
Sample ID: TCL002-08
Origin: TCL002.cal
Chk. Result

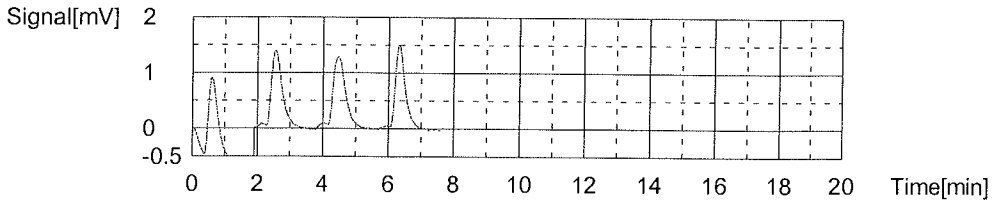
Type	Anal.	Dil.	Result
Unknown	NPOC	20.00	NPOC:14.05 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.663	12.27mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:38:52 PM
2	3.299	15.20mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:40:57 PM
3	3.277	15.10mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:43:01 PM
4	2.957	13.63mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:45:06 PM

Mean Area 3.049
Mean Conc. 14.05mg/L



Sample

Sample Name: L043-01
Sample ID: TCL002-09
Origin: TCL002.cal
Chk. Result

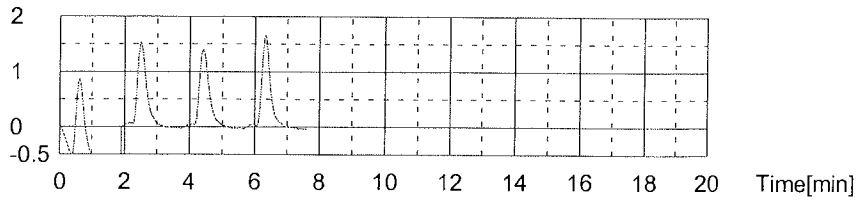
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.6428 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.400	0.5531mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:53:51 PM
2	2.939	0.6773mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:55:56 PM
3	2.967	0.6837mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 09:58:00 PM
4	2.852	0.6572mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:00:04 PM

Mean Area 2.790
Mean Conc. 0.6428mg/L



Sample

Sample Name: L043-02
Sample ID: TCL002-10
Origin: TCL002.cal
Chk. Result

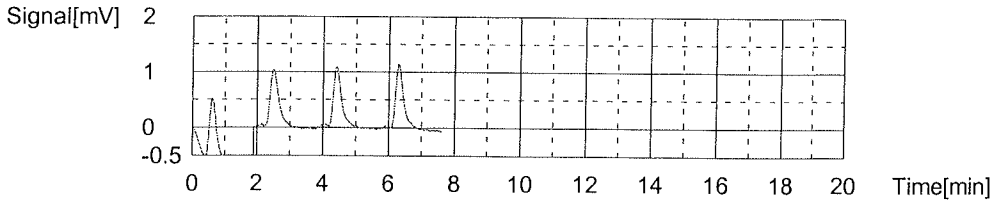
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.4063 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.578	0.3636mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:08:50 PM
2	1.792	0.4130mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:10:55 PM
3	1.798	0.4143mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:12:59 PM
4	1.884	0.4342mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:15:03 PM

Mean Area 1.763
Mean Conc. 0.4063mg/L



Sample

Sample Name: L043-04
Sample ID: TCL002-11
Origin: TCL002.cal
Chk. Result

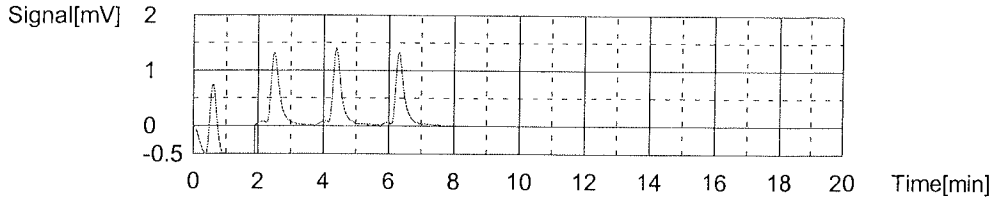
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.4775 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.853	0.4270mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:23:55 PM
2	2.156	0.4968mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:26:00 PM
3	2.144	0.4941mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:28:04 PM
4	2.136	0.4922mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:30:08 PM

Mean Area 2.072
Mean Conc. 0.4775mg/L



Sample

Sample Name: L043-05
Sample ID: TCL002-12
Origin: TCL002.cal
Chk. Result

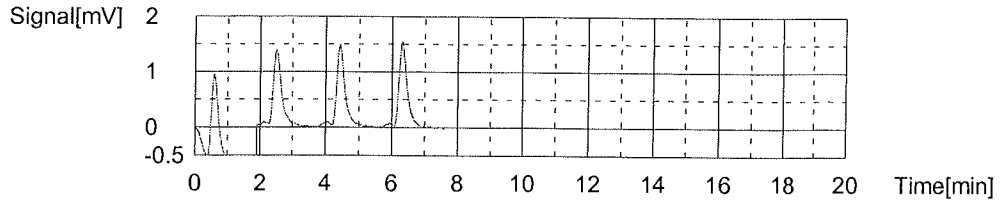
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.5392 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.258	0.5203mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:39:00 PM
2	2.399	0.5528mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:41:04 PM
3	2.238	0.5157mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:43:09 PM
4	2.465	0.5680mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:45:13 PM

Mean Area 2.340
Mean Conc. 0.5392mg/L



Sample

Sample Name: L043-07
Sample ID: TCL002-13
Origin: TCL002.cal
Chk. Result

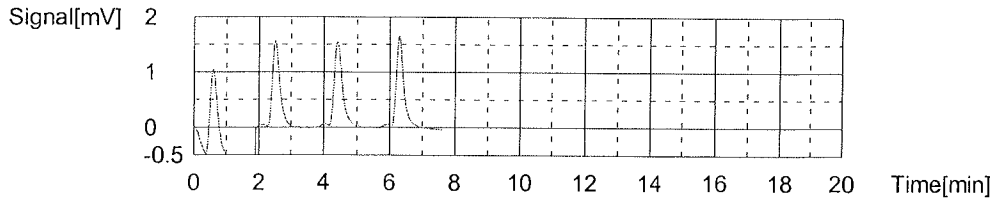
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.5760 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.538	0.5849mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:54:05 PM
2	2.504	0.5770mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:56:09 PM
3	2.442	0.5627mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 10:58:14 PM
4	2.514	0.5793mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:00:18 PM

Mean Area 2.500
Mean Conc. 0.5760mg/L



Control Sample

Sample Name: CCV1
Sample ID: TCL002-14
Method: TCL002.tpl
Chk. Result Control value: 24.89 / Control exceeds range!

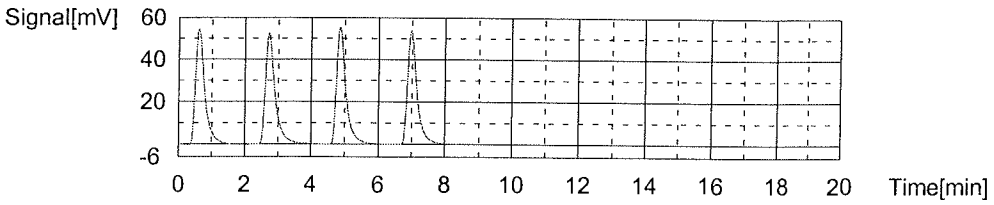
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.89 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	107.4	24.75mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:09:22 PM
2	107.9	24.86mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:11:41 PM
3	108.6	25.03mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:13:59 PM
4	108.2	24.93mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:16:11 PM

Mean Area 108.0
Mean Conc. 24.89mg/L



Sample

Sample Name: CCB1
Sample ID: TCL002-15
Origin: TCL002.cal
Chk. Result

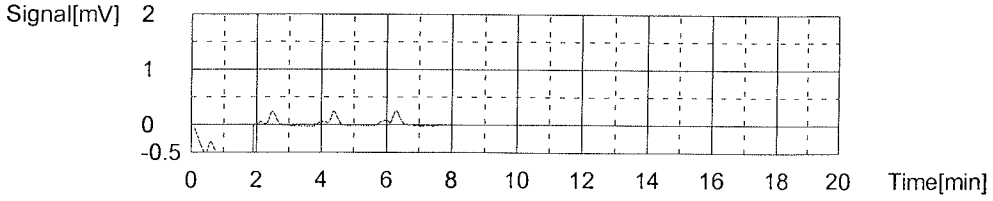
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.06506 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.2046	0.04715mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:24:57 PM
2	0.4022	0.09268mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:27:01 PM
3	0.2490	0.05738mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:29:06 PM
4	0.2735	0.06303mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:31:10 PM

Mean Area 0.2823
Mean Conc. 0.06506mg/L



Sample

Sample Name: L043-07D
Sample ID: TCL002-16
Origin: TCL002.cal
Chk. Result

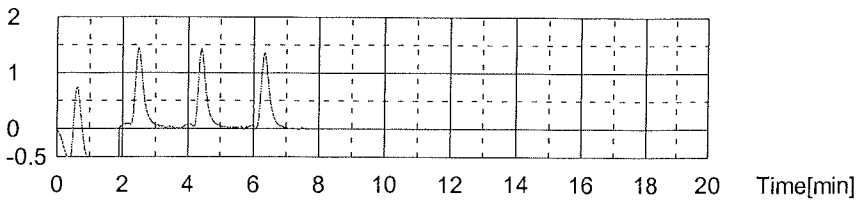
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.5050 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.160	0.4978mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:52:52 PM
2	2.160	0.4978mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:54:56 PM
3	2.223	0.5123mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:57:01 PM
4	2.222	0.5120mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/13/19 11:59:05 PM

Mean Area 2.191
Mean Conc. 0.5050mg/L



Sample

Sample Name: L043-07M
Sample ID: TCL002-17
Origin: TCL002.cal
Chk. Result

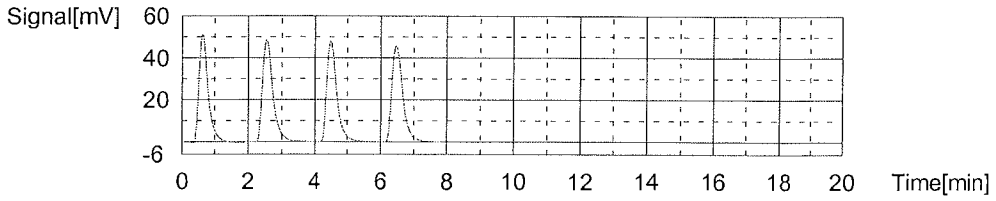
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:24.53 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	105.1	24.22mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:07:57 AM
2	106.6	24.57mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:10:04 AM
3	106.4	24.52mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:12:12 AM
4	107.7	24.82mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:14:23 AM

Mean Area 106.5
Mean Conc. 24.53mg/L



Sample

Sample Name: L043-07S
Sample ID: TCL002-18
Origin: TCL002.cal
Chk. Result

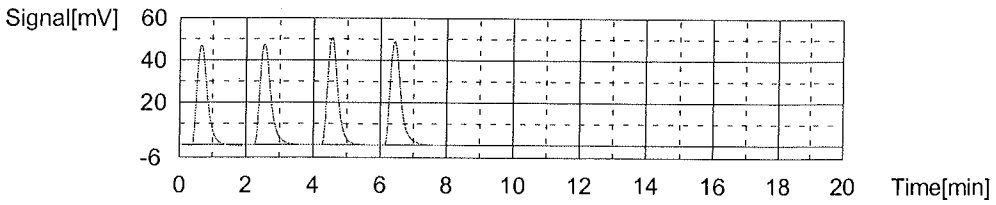
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:25.11 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	108.3	24.96mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:23:10 AM
2	109.1	25.14mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:25:19 AM
3	108.6	25.03mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:27:23 AM
4	109.8	25.30mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:29:34 AM

Mean Area 109.0
Mean Conc. 25.11mg/L



Sample

Sample Name: L057-01
Sample ID: TCL002-19
Origin: TCL002.cal
Chk. Result

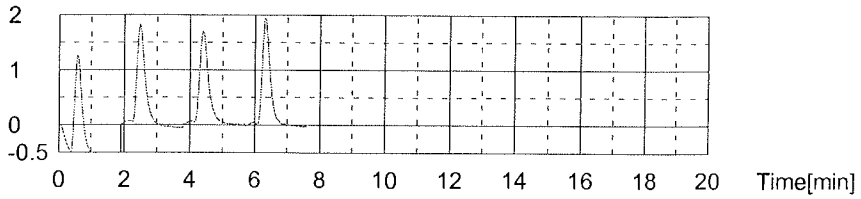
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.6732 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.534	0.5839mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:38:26 AM
2	3.041	0.7008mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:40:30 AM
3	3.010	0.6936mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:42:34 AM
4	3.101	0.7146mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:44:39 AM

Mean Area 2.922
Mean Conc. 0.6732mg/L



Sample

Sample Name: L057-02
Sample ID: TCL002-20
Origin: TCL002.cal
Chk. Result

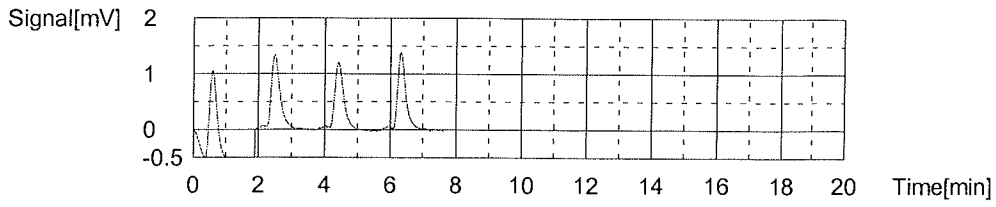
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.5309 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.498	0.5756mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:53:26 AM
2	2.273	0.5238mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:55:30 AM
3	2.102	0.4844mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:57:34 AM
4	2.343	0.5399mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 12:59:39 AM

Mean Area 2.304
Mean Conc. 0.5309mg/L



Sample

Sample Name: L057-03
Sample ID: TCL002-21
Origin: TCL002.cal
Chk. Result

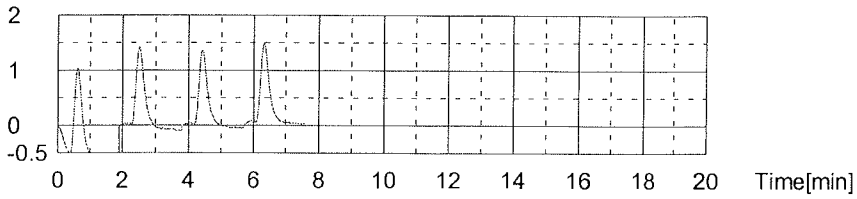
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.5614 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.563	0.5906mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:08:26 AM
2	2.327	0.5362mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:10:30 AM
3	2.329	0.5367mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:12:34 AM
4	2.526	0.5821mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:14:39 AM

Mean Area 2.436
Mean Conc. 0.5614mg/L



Sample

Sample Name: L057-04
Sample ID: TCL002-22
Origin: TCL002.cal
Chk. Result

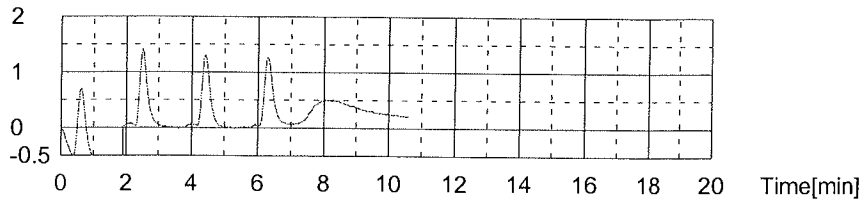
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.7097 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.089	0.4814mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:23:26 AM
2	2.104	0.4849mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:25:30 AM
3	2.144	0.4941mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:27:34 AM
4	5.982	1.379mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:32:39 AM

Mean Area 3.080
Mean Conc. 0.7097mg/L



Sample

Sample Name: L057-05
Sample ID: TCL002-23
Origin: TCL002.cal
Chk. Result

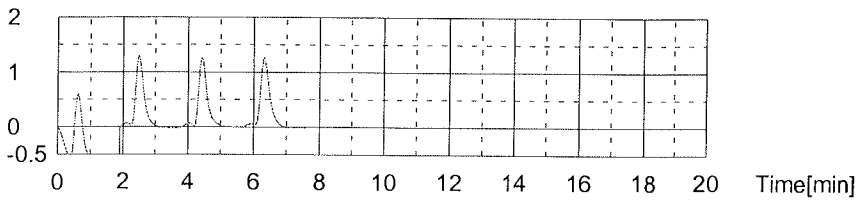
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.4979 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.895	0.4367mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:41:25 AM
2	2.197	0.5063mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:43:30 AM
3	2.285	0.5266mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:45:34 AM
4	2.265	0.5220mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:47:39 AM

Mean Area 2.161
Mean Conc. 0.4979mg/L



Sample

Sample Name: L057-07
Sample ID: TCL002-24
Origin: TCL002.cal
Chk. Result

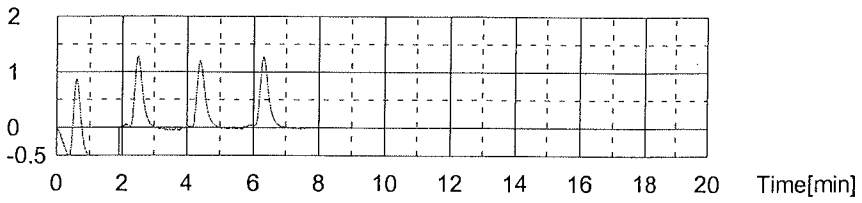
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.4876 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.163	0.4984mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:56:30 AM
2	2.067	0.4763mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 01:58:35 AM
3	2.053	0.4731mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:00:39 AM
4	2.181	0.5026mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:02:44 AM

Mean Area 2.116
Mean Conc. 0.4876mg/L



Sample

Sample Name: L057-08
Sample ID: TCL002-25
Origin: TCL002.cal
Chk. Result

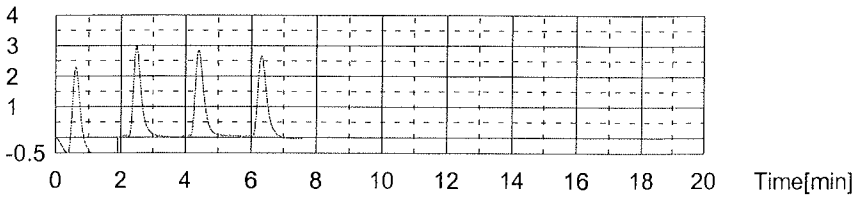
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.128 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4.650	1.072mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:11:30 AM
2	4.864	1.121mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:13:35 AM
3	4.998	1.152mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:15:39 AM
4	5.075	1.169mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:17:44 AM

Mean Area 4.897
Mean Conc. 1.128mg/L



Control Sample

Sample Name: CCV2
Sample ID: TCL002-26
Method: TCL002.tpl
Chk. Result Control value: 24.81 / Control exceeds range!

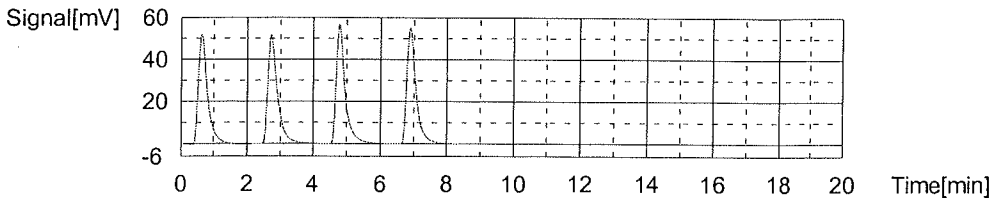
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.81 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	107.8	24.84mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:26:48 AM
2	107.3	24.73mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:29:03 AM
3	107.2	24.70mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:31:19 AM
4	108.3	24.96mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:33:32 AM

Mean Area 107.7
Mean Conc. 24.81mg/L



Sample

Sample Name: CCB2
Sample ID: TCL002-27
Origin: TCL002.cal
Chk. Result

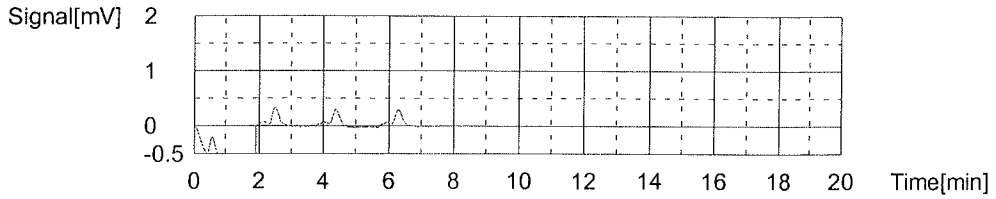
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.08285 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.3003	0.06920mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:42:12 AM
2	0.4097	0.09441mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:44:17 AM
3	0.3618	0.08337mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:46:21 AM
4	0.3663	0.08441mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 02:48:25 AM

Mean Area 0.3595
Mean Conc. 0.08285mg/L



Sample

Sample Name: L057-09
Sample ID: TCL002-28
Origin: TCL002.cal
Chk. Result

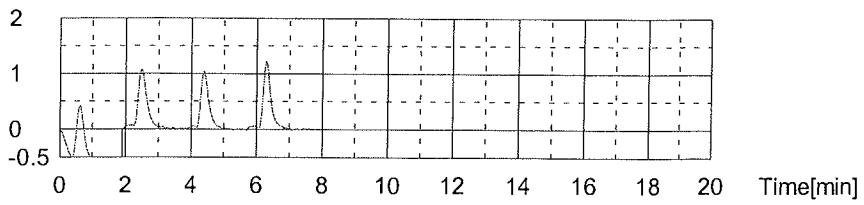
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.3817 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.457	0.3358mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:10:07 AM
2	1.686	0.3885mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:12:11 AM
3	1.696	0.3908mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:14:16 AM
4	1.786	0.4116mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:16:20 AM

Mean Area 1.656
Mean Conc. 0.3817mg/L



Sample

Sample Name: L057-10
Sample ID: TCL002-29
Origin: TCL002.cal
Chk. Result

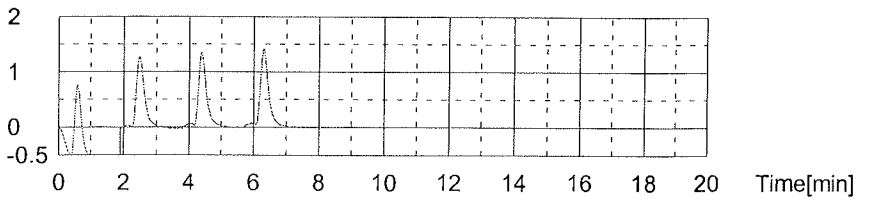
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.4724 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.845	0.4252mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:25:12 AM
2	2.041	0.4703mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:27:16 AM
3	2.135	0.4920mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:29:21 AM
4	2.179	0.5021mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:31:25 AM

Mean Area 2.050
Mean Conc. 0.4724mg/L



Sample

Sample Name: L071-02I
Sample ID: TCL002-30
Origin: TCL002.cal
Chk. Result

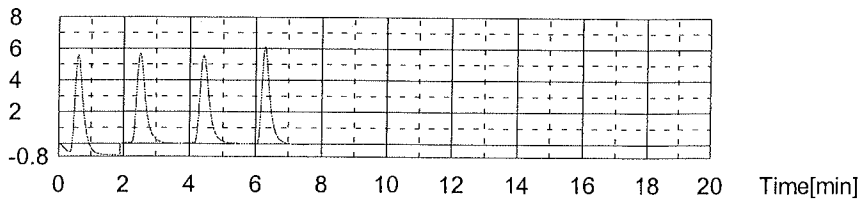
Type	Anal.	Dil.	Result
Unknown	NPOC	3.000	NPOC:7.349 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	10.35	7.155mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:40:12 AM
2	10.65	7.363mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:42:16 AM
3	10.72	7.411mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:44:21 AM
4	10.80	7.466mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:46:25 AM

Mean Area 10.63
Mean Conc. 7.349mg/L



Sample

Sample Name: L071-03
Sample ID: TCL002-31
Origin: TCL002.cal
Chk. Result

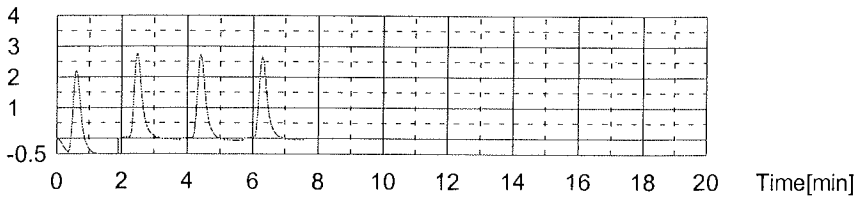
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.070 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4.467	1.029mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:55:17 AM
2	4.620	1.065mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:57:21 AM
3	4.758	1.096mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 03:59:26 AM
4	4.735	1.091mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:01:30 AM

Mean Area 4.645
Mean Conc. 1.070mg/L



Sample

Sample Name: L071-04
Sample ID: TCL002-32
Origin: TCL002.cal
Chk. Result

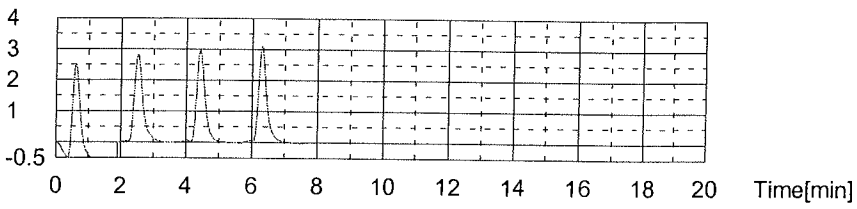
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.169 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4.941	1.139mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:10:43 AM
2	5.052	1.164mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:12:47 AM
3	5.070	1.168mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:14:52 AM
4	5.235	1.206mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:16:56 AM

Mean Area 5.075
Mean Conc. 1.169mg/L



Sample

Sample Name: L071-05
Sample ID: TCL002-33
Origin: TCL002.cal
Chk. Result

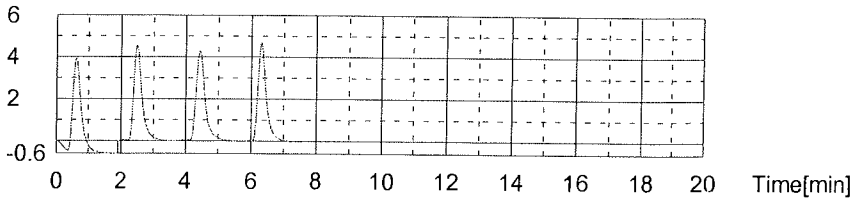
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.859 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.836	1.806mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:26:00 AM
2	8.003	1.844mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:28:04 AM
3	8.199	1.889mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:30:09 AM
4	8.235	1.898mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:32:13 AM

Mean Area 8.068
Mean Conc. 1.859mg/L



Sample

Sample Name: L071-06
Sample ID: TCL002-34
Origin: TCL002.cal
Chk. Result

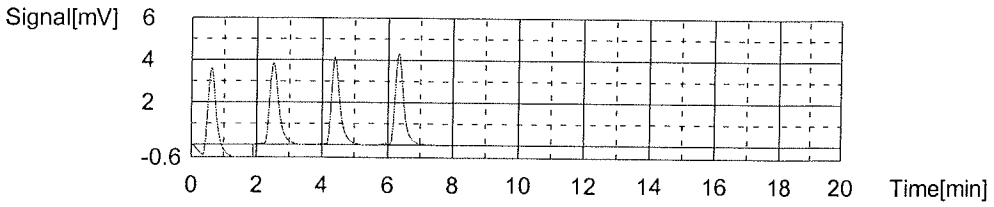
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.724 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.070	1.629mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:41:06 AM
2	7.375	1.700mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:43:10 AM
3	7.572	1.745mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:45:15 AM
4	7.914	1.824mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:47:19 AM

Mean Area 7.483
Mean Conc. 1.724mg/L



Sample

Sample Name: L071-06D
Sample ID: TCL002-35
Origin: TCL002.cal
Chk. Result

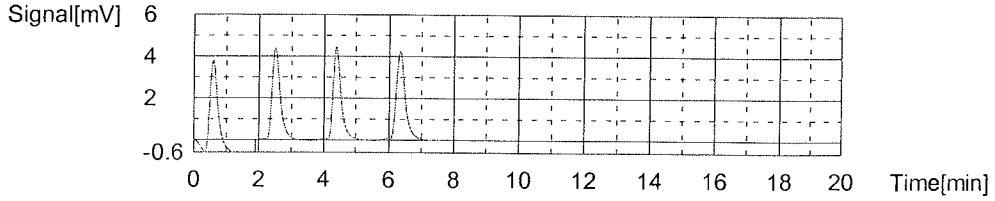
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.767 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.297	1.682mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:56:12 AM
2	7.675	1.769mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 04:58:16 AM
3	7.571	1.745mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:00:20 AM
4	8.126	1.873mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:02:25 AM

Mean Area 7.667
Mean Conc. 1.767mg/L



Sample

Sample Name: L071-06M
Sample ID: TCL002-36
Origin: TCL002.cal
Chk. Result

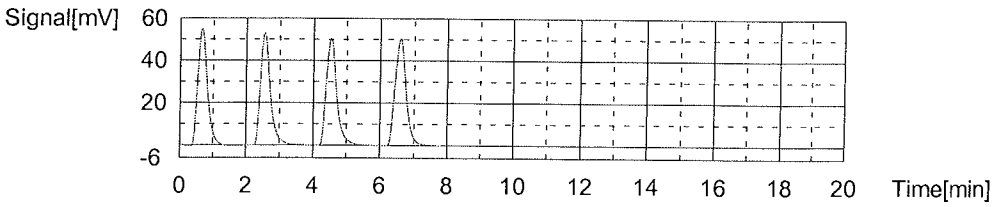
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:26.04 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	113.4	26.13mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:11:29 AM
2	111.9	25.79mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:13:37 AM
3	113.2	26.09mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:15:48 AM
4	113.5	26.16mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:17:56 AM

Mean Area 113.0
Mean Conc. 26.04mg/L



Sample

Sample Name: L071-06S
Sample ID: TCL002-37
Origin: TCL002.cal
Chk. Result

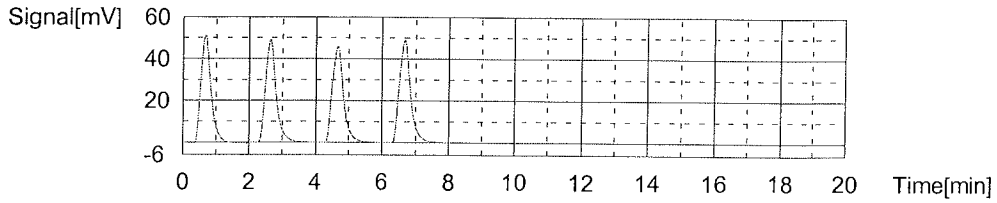
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:25.82 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	112.2	25.86mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:26:54 AM
2	111.4	25.67mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:29:05 AM
3	111.9	25.79mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:31:17 AM
4	112.6	25.95mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:33:33 AM

Mean Area 112.0
Mean Conc. 25.82mg/L



Control Sample

Sample Name: CCV3
Sample ID: TCL002-38
Method: TCL002.tpl
Chk. Result Control value: 24.56 / Control exceeds range!

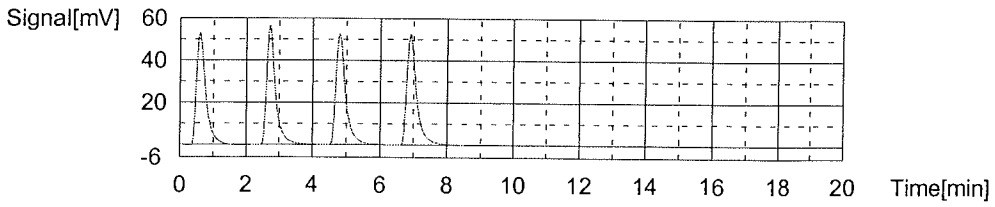
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.56 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	105.5	24.31mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:42:34 AM
2	106.5	24.54mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:44:48 AM
3	106.7	24.59mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:47:04 AM
4	107.6	24.80mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:49:27 AM

Mean Area 106.6
Mean Conc. 24.56mg/L



Sample

Sample Name: CCB3
Sample ID: TCL002-39
Origin: TCL002.cal
Chk. Result

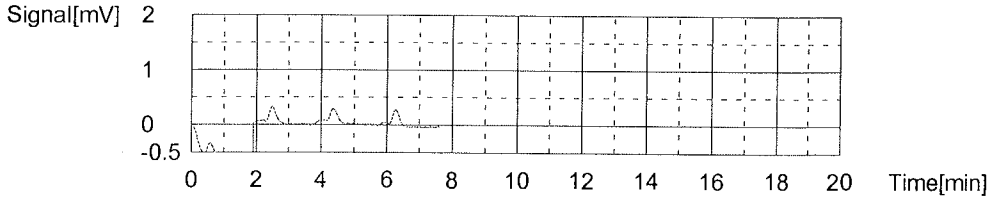
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.07116 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.2261	0.05210mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 05:58:13 AM
2	0.3810	0.08780mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 06:00:18 AM
3	0.2993	0.06897mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 06:02:22 AM
4	0.3288	0.07577mg/L	50uL	1		TCL002.2019_12_13_17_58_16.cal	12/14/19 06:04:27 AM

Mean Area 0.3088
Mean Conc. 0.07116mg/L



Sample

Sample Name: TCL003WB
Sample ID: TCL002-40
Origin: TCL002.cal
Chk. Result

Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.08938 mg/L

1. Det

Anal.: NPOC

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889

Date: 01-13-2020
EMAX Batch No.: 19L064

Attn: Cherie Zakowski

CDM Smith
555 17th Street, Suite 500
Denver, CO 80202

Subject: Laboratory Report
Project: VA SALT LAKE CITY

Enclosed is the Laboratory report for samples received on 12/10/19.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
OU2-MW01D-GW120619	L064-01	12/06/19	WATER	VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON
OU2-MW14D-GW120719	L064-02	12/07/19	WATER	VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON
OU2-MW03RC-GW120719	L064-03	12/07/19	WATER	VOCS BY 8260C DISSOLVED GAS 1,4-DIOXANE BY 8270D SIM TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON
OU2-FD03-GW120719	L064-04	12/07/19	WATER	VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889

Sample ID	Control #	Col Date	Matrix	Analysis
OU2-TB06-GW120918	L064-05	12/09/19	WATER	VOCS BY 8260C
OU2-MW15S-GW120719	L064-06	12/07/19	WATER	VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON
OU2-MW15D-GW120719	L064-07	12/07/19	WATER	VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON
OU2-MW03RA-GW120719	L064-08	12/07/19	WATER	VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON
OU2-MW03RB-GW120819	L064-09	12/08/19	WATER	VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON
OU2-MW03RD-GW120719	L064-10	12/07/19	WATER	VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON
OU2-MW17D-GW120819	L064-11	12/08/19	WATER	VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON

EMAX LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889

Sample ID	Control #	Col Date	Matrix	Analysis
OU2-MW17S-GW120819	L064-12	12/08/19	WATER	VOCS BY 8260C
				1,4-DIOXANE BY 8270D SIM
				DISSOLVED GAS
				TOTAL METALS BY ICP-MS
				MERCURY
				ANIONS BY IC
				NITRATE/NITRITE AS N
				TOTAL ALKALINITY
				TOTAL DISSOLVED SOLIDS
				TOTAL ORGANIC CARBON
OU2-FB01-GW120819	L064-13	12/08/19	WATER	VOCS BY 8260C
				1,4-DIOXANE BY 8270D SIM
OU2-FD02-GW120819	L064-14	12/08/19	WATER	VOCS BY 8260C
				1,4-DIOXANE BY 8270D SIM
				DISSOLVED GAS
				TOTAL METALS BY ICP-MS
				MERCURY
				ANIONS BY IC
				NITRATE/NITRITE AS N
				TOTAL ALKALINITY
				TOTAL DISSOLVED SOLIDS
				TOTAL ORGANIC CARBON
OU2-MW08C-GW120819	L064-15	12/08/19	WATER	VOCS BY 8260C
				1,4-DIOXANE BY 8270D SIM
				DISSOLVED GAS
				TOTAL METALS BY ICP-MS
				MERCURY
				ANIONS BY IC
				NITRATE/NITRITE AS N
				TOTAL ALKALINITY
				TOTAL DISSOLVED SOLIDS
				TOTAL ORGANIC CARBON
OU2-TB09-GW120919	L064-16	12/09/19	WATER	VOCS BY 8260C
OU2-MW08A-GW120819	L064-17	12/08/19	WATER	VOCS BY 8260C
				1,4-DIOXANE BY 8270D SIM
				DISSOLVED GAS
				TOTAL METALS BY ICP-MS
				MERCURY
				ANIONS BY IC
				NITRATE/NITRITE AS N
				TOTAL ALKALINITY
				TOTAL DISSOLVED SOLIDS
				TOTAL ORGANIC CARBON
OU2-MW14S-GW120719	L064-18	12/07/19	WATER	VOCS BY 8260C
				1,4-DIOXANE BY 8270D SIM
				DISSOLVED GAS
				TOTAL METALS BY ICP-MS
				MERCURY
				ANIONS BY IC
				NITRATE/NITRITE AS N
				TOTAL ALKALINITY
				TOTAL DISSOLVED SOLIDS
				TOTAL ORGANIC CARBON
OU2-TB07-GW120919	L064-19	12/09/19	WATER	VOCS BY 8260C

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889

Sample ID	Control #	Col Date	Matrix	Analysis
OU2-MW05R-GW120819	L064-20	12/08/19	WATER	VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON
OU2-MW08B-GW120819	L064-21	12/08/19	WATER	VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON
OU2-TB08-GW120919	L064-22	12/09/19	WATER	VOCS BY 8260C
OU2-MW15D-GW120719MS	L064-07M	12/07/19	WATER	VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC NITRATE/NITRITE AS N TOTAL ORGANIC CARBON
OU2-MW15D-GW120719MSD	L064-07S	12/07/19	WATER	VOCS BY 8260C 1,4-DIOXANE BY 8270D SIM DISSOLVED GAS TOTAL METALS BY ICP-MS MERCURY ANIONS BY IC TOTAL ORGANIC CARBON
OU2-MW15D-GW120719DUP	L064-07D	12/07/19	WATER	NITRATE/NITRITE AS N TOTAL ALKALINITY TOTAL DISSOLVED SOLIDS

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Caspar J. Pang
Laboratory Director

EMAX certifies that results included in this report meets all TNI & DOD requirements unless noted in the Case Narrative.

NELAP Accredited Certificate Number CA002912018-15
ANAB Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing
California ELAP Accredited Certificate Number 2672

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. * 19L064

PROJECT CODE:

CLIENT CDM Smith

PROJECT 700 South 1600 East PCE Plume

COORDINATOR Cherie Zakowski

TEL 720-264-1109 FAX EMAIL zakowskica@cdmsmith.com

SEND REPORT TO

COMPANY CDM Smith

ADDRESS 555 17th St Suite 500
Denver, CO 80201

EMAX PM Rama Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs 8260C; 1,4-Dioxane 8270DSIM; Gases (CAE) RSK-175; Nitrate, Nitrite (as N) 300.0A; Chloride, Sulfate 300.0; Nitrate + Nitrite (as N) 353.2; Alkalinity 310.2; TDS 160.1

TAT: ☐ Rush ____hrs. ☐ Rush ____days ☐ 7 days ☒ 14 days ☐ 21 days ☐ 30 days ☐ ____days ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	PRESERVATIVE CODE HC	IC	HC	HN	IC	HS	IC	HS	COMMENTS
1	OU2-MW01D-GW120619		12/6/19	1605	7			GW			X		X	X	X	X	X	
2	OU2-MW14D-GW120719		12/7/19	1305	7			GW			X		X	X	X	X	X	
3	OU2-MW03R-GW120719		12/7/19	1140	7			GW										
4																		
5																		
6																		
7																		
8																		
9																		
0																		

Instructions

Cooler #	Temp. (°C)	Sample #s
1	4.8	
2	2.5	
3	2.2	
4	3.8	
5	3.6	
6	3.3	
7	3.8	
8	2.5	

SAMPLER Rama Losile 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/9/19	1000	Jenessa Nakagawa 12/10/19 0000

NOTICE: Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. * 19L064

PROJECT CODE:

CLIENT CDM Smith

PROJECT 700 South 1600 East PCE Plume

COORDINATOR Cherie Zakowski

TEL 720-264-1109 FAX EMAIL zakowskica@cdmsmith.com

SEND REPORT TO

COMPANY CDM Smith

ADDRESS 555 17th St Suite 500
Denver, CO 80201

EMAX PM Rama Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs/8260C; 1,4-Dioxane/8270DSIM; Gases(CAE)/RSK-175; Nitrate+Nitrite/353.2; Chloride/SM4500; Alkalinity/310.2; TDS/160.1; TOC/9060

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	PRESERVATIVE CODE	COMMENTS
1	OU2-MW01D-GW120619		12/6/19	1605	6			GW		HC	
4	OU2-FD03-GW120719		12/7/19	1100	13			GW		IC, HC, HN, IC, HS, IC, HS	
3	~~OU2-195-MW125-GW~~ KC Dec 9/19		—	—				—			
2	OU2-MW14D-GW120719		12/7/19	1305	6			GW		HC	
5	OU2-TB06-GW120918		12/9/19	0800	3			GW		HC, HN KC 12/9/19	
3	OU2-MW03RC-GW120719		12/7/19	1140	6			GW		HC	
6	OU2-MW15S-GW120719		12/7/19	1145	13			GW		IC, HC, HN, IC, HS, IC, HS	
8											
9											
0											

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Rama Losile 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/9/19	1000	Jenessa Nakagawa 12/10/19 1000

NOTICE: Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. * 19L064

PROJECT CODE:

CLIENT CDM Smith

PROJECT 700 South 1600 East PCE Plume

COORDINATOR Cherie Zakoski

TEL 720-264-1109 FAX EMAIL zakoskica@cdmsmith.com

SEND REPORT TO

COMPANY CDM Smith

ADDRESS 555 17th St Suite 500
Denver, CO 80201

EMAX PM Rama Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs/8260 QC; 1,4-Dioxane/8270 SIM; Gases (RSK-175); Metals (Keggy)/6020A/7470; Chloride/Sulfate/300; Nitrate + Nitrite/353.2; Alkalinity/310.1; TDS/160.1

TAT
- ☐ Rush ____ hrs.
- ☐ Rush ____ days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____ days
- ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	SAMPLING DATE	SAMPLING TIME	CONTAINER NO.	CONTAINER SIZE	CONTAINER TYPE	MATRIX CODE	QC	PRESERVATIVE CODE								COMMENTS
										HC	IC	HC	HN	IC	HS	IC	HS	
7 • 1	002-MW15D-GW120719		12/7/19	1000	21			GW			X		X	X	X	X	X	MS/MSD
• 2																		
• 3																		
• 4																		
• 5																		
• 6																		
• 7																		
• 8																		
• 9																		
• 0																		

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Rama Lesile 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/9/19	1000	Jenessa Nakagawa 12/10/19 1000

NOTICE: Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associated with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. * 19L064

PROJECT CODE:

CLIENT CDM Smith
PROJECT 700 South 1600 East ACE Pipe
COORDINATOR Cherie Zakowski
TEL 720-264-1109 FAX EMAIL zakowskica@cdmsmith.com
SEND REPORT TO
COMPANY CDM Smith
ADDRESS 555 17th St Suite 500
Denver, CO 80201
EMAX PM Rama Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs/8260C; 1,4-Dioxane 8270DSIM; Gases (RSK-175); Metals (Mercury) 6020A 7470; Chloride, Sulfate 300; Nitrate + Nitrite 353.2; Alkalinity 2320; TOC 9060

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

	LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	PRESERVATIVE CODE HC	IC	HC	HN	IC	HS	IC	HS	COMMENTS
8	1	OU2-MW03Ra-GW120719		12/7/19	1000						X		X						
9	2	OU2-MW03Rb-GW120819		12/8/19	1450						X		X						
10	3	OU2-MW03Rd-GW120819		12/7/19	1450						X		X						
20	4	OU2-MW05R-GW120819		12/8/19	1015						X	X	X	X	X	X	X	X	
21	5	OU2-MW08b-GW120819		12/8/19	1105						X	X	X	X	X	X	X	X	
22	6	OU2-TB08-GW120919		12/9/19	810	3					X								
	7																		
	8																		
	9																		
	0																		

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Kania Losile 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/9/19	1000	Jenessa Nakagawa 12/10/19 1000

NOTICE: Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepancies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associated with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC. 1835 W. 205th Street, Torrance, CA 90501 Tel #: 310-618-8889 Fax #: 310-618-0818 Email: info@emaxlabs.com

PO NUMBER:
SAMPLE STORAGE
EMAX CONTROL NO. * 19L064
PROJECT CODE:

CLIENT CDM Smith
PROJECT 700 South 1600 East PCE Plume
COORDINATOR Cherie Zakowski
TEL 720-264-1109 FAX EMAIL zakowskica@cdmsmith.com
SEND REPORT TO
COMPANY CDM Smith
ADDRESS 555 17th St Suite 500
Denver, CO 80202
EMAX PM Rama Singh

MATRIX CODE: DW=Drinking Water; GW=Ground Water; WW=Waste Water; SD=Solid Waste SL=Sludge; SS=Soil/ Sediment; WP=Wipes PP=Pure Products; AR=Air; O=

PRESERVATIVE CODE: IC = Ice; HC = HCl; HN=HNO3; SH=NaOH; ST=Na2S2O3; ZA=Zinc Acetate; HS=H_2SO_4

ANALYSIS REQUIRED: VOCs/8260C; 1,4-Dioxane/8270DSIM; Gases (MEE)/RSK-175; Metals: Mercury/6020A/7470; Chloride/Sulfate 1300; Nitrate+Nitrite 1SM4500; Alkalinity/TDS; TOC 1906D

TAT: ☐ Rush ____hrs. ☐ Rush ____days ☐ 7 days ☒ 14 days ☐ 21 days ☐ 30 days ☐ ____days ☐

	LAB	SAMPLE ID CLIENT	LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	VOCs (HC)	1,4-Dioxane (IC)	Gases (HC)	Metals (HN)	Chloride/Sulfate (IC)	Nitrate+Nitrite (HS)	Alkalinity/TDS (IC)	TOC (HS)	COMMENTS
8	1	002-MW03Ra-GW120719		12/7/19	1000							X		X	X	X	X	X	
9	2	002-MW03Rb-GW120719		12/8/19	1450							X		X	X	X	X	X	
10	3	002-MW03Rd-GW120719		12/7/19	1450							X		X	X	X	X	X	
	4																		
	5																		
	6																		
	7																		
	8																		
	9																		
	0																		

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Karla Leslie 785-727-0107
COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
[signature]	12/9/19	1000	Jenessa Nakagawa 10/10/19 1000

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of a soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. * 19L064

PROJECT CODE:

CLIENT CDM Smith

PROJECT 700 South 1600 East PCE Plume

COORDINATOR Cherie Zakowski

TEL 720-264-1109 FAX EMAIL zakowskica@cdmsmith.com

SEND REPORT TO

COMPANY CDM Smith

ADDRESS 555 17th St Suite 1100
Denver, CO 80201

EMAX PM Rama Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs/8260C; 1,4-Dioxane/8270DSIM; Gases (CAE)/RSK-175; Nitrate, Nitrite (as N)/300.0/4500-NO3 F; Chloride, Sulfate/300.0; Nitrate + Nitrite (as N)/353.2; Alkalinity/310.2; TOC/9060

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	SAMPLING DATE	SAMPLING TIME	CONTAINER NO.	CONTAINER SIZE	CONTAINER TYPE	MATRIX CODE	QC	PRESERVATIVE CODE								COMMENTS
										HC	IC	HC	HN	IC	HS	IC	HS	
1	OU2-MW15D-GW120719		12/7/19	1000	19			GW		X		X						MS/MSD
2	OU2-MW08a-GW120819		12/8/19	1215	13			GW		X	X	X	X	X	X	X	X	
3	OU2-MW14S-GW120719		12/7/19	1410	13			GW		X	X	X	X	X	X	X	X	
4	OU2-TB07-GW120918		12/9/18	805	3				X	X								
5																		
6																		
7																		
8																		
9																		
0																		

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Karla Losile 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/9/19	1000	Jenessa Nakagawa 12/10/19 1000

NOTICE: Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. * 19L064

PROJECT CODE:

CLIENT CDM Smith

PROJECT 700 South 1600 East PCE Plume

COORDINATOR Cheré Zakowski

TEL 720-264-1109 FAX EMAIL zakowskica@cdmsmith.com

SEND REPORT TO

COMPANY CDM Smith

ADDRESS 555 17th St Suite 500

Denver CO 80201

EMAX PM Raman Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs 8260C; 1,4-Dioxane 8270C SIM; Gases (AEE) RSK-175; Metals: Mercury 7470A 7471B; Chloride, Sulfate 300; Nitrate 353.2; Alkalinity; TDS; TOC 9060

TAT
- ☐ Rush ____hrs.
- ☐ Rush ____days
- ☐ 7 days
- ☒ 14 days
- ☐ 21 days
- ☐ 30 days
- ☐ ____days
- ☐

	SAMPLE ID		SAMPLING			CONTAINER			MATRIX CODE	QC	PRESERVATIVE CODE								COMMENTS
LAB	CLIENT	LOCATION	DATE	TIME	NO.	SIZE	TYPE			HC	IC	HC	HN	IC	HS	IC	HS	
11	1 OU2-MW17D-GW120819		12/18/19	1105	7			GW			X		X	X	X	X	X	
12	2 OU2-MW17S-GW120819		12/18/19	1000	7			GW			X		X	X	X	X	X	
13	3 OU2-FB01-GW120819		12/18/19	1505	2			GW			X							
	4																		
	5																		
	6																		
	7																		
	8																		
	9																		
	0																		

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Kara Leslie 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
[signature]	12/9/19	1000	Jenessa Nakagawa 12/10/19 1000

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepancies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. * 19L064

PROJECT CODE:

CLIENT DaSath

PROJECT 700 South 1600 East PCE Plume

COORDINATOR Cherie Zakowski

TEL 720-264-1109 FAX EMAIL zakowskica@dasath.com

SEND REPORT TO

COMPANY CDM Smith

ADDRESS 555 17th St Suite 500
Denver, CO 80201

EMAX PM Rama Singh

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs 8260C; 1,4-Dioxane 8270DSIM; Gases (ME/E)/BSK-175; Metals-Mercury 6020A 7470A; Chloride 9251 Sulfate 1300; Nitrate + Nitrite 353.2 4500; Alkalinity 2320B; TDS 160.1; TOC 9060

TAT: ☐ Rush ____hrs. ☐ Rush ____days ☐ 7 days ☒ 14 days ☐ 21 days ☐ 30 days ☐ ____days ☐

	SAMPLE ID		SAMPLING			CONTAINER			MATRIX CODE	QC	PRESERVATIVE CODE								COMMENTS
LAB	CLIENT	LOCATION	DATE	TIME	NO.	SIZE	TYPE				HC	IC	HC	HN	IC	HS	IC	HS	
14 • 1	OU2-FD02-GW120819		12/18/19	12:20	13			GW			X	X	X	X	X	X	X	X	
15 • 2	OU2-MW08C-GW120819		12/18/19	955	13			GW			X	X	X	X	X	X	X	X	
11 • 3	OU2-MW17D-GW120819		12/18/19	1105	6			GW			X		X						
12 • 4	OU2-MW17S-GW120819		12/18/19	1000	6			GW			X		X						
13 • 5	OU2-FB01-GW120819		12/18/19	1505	3			GW/B			X		X		KL 12/19/19				
16 • 6	OU2-TB09-GW120919		12/19/19	815	3			GW/B	X		X								
• 7																			
• 8																			
• 9																			
• 0																			

Instructions

Cooler #	Temp. (°C)	Sample #s

SAMPLER Rama Losile 785-727-0107

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	12/19/19	1000	Jenelisa Nakagawa 12/10/19 1000

NOTICE: Turn-around-time (TAT) for samples shall not begin until all discrepancies have been resolved. For samples received and discrepancies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associated with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

Type of Delivery	Airbill / Tracking Number	ECN 19L064
☑ Fedex ☐ UPS ☐ GSO ☐ Others	7787 2953 7340	Recipient Jenessa Nakagawa
☐ EMAX Courier ☐ Client Delivery		Date 12/10/19 Time 1000

COC INSPECTION

☑ Client Name	☑ Client PM/FC	☑ Sampler Name	☑ Sampling Date/Time	☑ Sample ID	☑ Matrix
☑ Address	☑ Tel # / Fax #	☐ Courier Signature	☑ Analysis Required	☑ Preservative (if any)	☑ TAT
Safety Issues (if any)	☐ High concentrations expected	☐ From Superfund Site	☐ Rad screening required		

Note: no analyses for sample #3 on CoC

PACKAGING INSPECTION

Container	☑ Cooler	☐ Box	☐ Other		
Condition	☑ Custody Seal	☐ Intact	☐ Damaged		
Packaging	☑ Bubble Pack	☐ Styrofoam	☐ Popcorn	☐ Sufficient	☐ _____
Temperatures (Cool, ≤6 °C but not frozen)	☑ Cooler 1 4.0 °C	☑ Cooler 2 2.5 °C	☑ Cooler 3 2.2 °C	☑ Cooler 4 3.8 °C	☑ Cooler 5 3.6 °C
	☐ Cooler 6 3.3 °C	☑ Cooler 7 3.8 °C	☑ Cooler 8 2.5 °C	☐ Cooler 9 _____ °C	☐ Cooler 10 _____ °C
Thermometer:	(A) S/N 192381464	B - S/N _____	C - S/N 192381462	D - S/N _____	

Comments: ☐ **Temperature is out of range. PM was informed IMMEDIATELY.**

Note: _____

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
12		D5	Received broken TOC amber	R2
3	34	D17	Label reads 'HCl'	
4	46	D17	Label reads unpreserved	
3	32-35	D1	See SRF2 for bottle detail	
3	26-35	D10/D3	Per Label: 002-MW3RL-GW120719	
20	241,242,244	D6		
6,7,8,9	55-67, 107-119, 120-132	D10		
9	120-132	D3	Per label - 002-MW3RL-GW120519	
10	133-145	D10		
14	183,184,186	D3/D7	Label - 12/5/19 - Suffix reads "GW120719"	

☐ pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.

NOTES/OBSERVATIONS:

LEGEND:

Code	Description- Sample Management
D1	Analysis is not indicated in COC
D2	Analysis mismatch COC vs label
D3	Sample ID mismatch COC vs label
D4	Sample ID is not indicated in _____
D5	Container -[improper] [leaking] [broken]
D6	Date/Time is not indicated in label
D7	Date/Time mismatch COC vs label
D8	Sample listed in COC is not received
D9	Sample received is not listed in COC
D10	No initial/date on corrections in COC/label
D11	Container count mismatch COC vs received
D12	Container size mismatch COC vs received

Code	Description-Sample Management
D13	Out of Holding Time
D14	Bubble is >6mm
D15	No trip blank in cooler
D16	Preservation not indicated in _____
D17	Preservation mismatch COC vs label
D18	Insufficient chemical preservative
D19	Insufficient Sample
D20	No filtration info for dissolved analysis
D21	No sample for moisture determination
D22	_____
D23	_____
D24	_____

☐ Continue to next page.

Code	Description-Sample Management
R1	Proceed as indicated in ☐ COC ☐ Label
R2	Refer to attached instruction
R3	Cancel the analysis
R4	Use vial with smallest bubble first
R5	Log-in with latest sampling date and time+1 min
R6	Adjust pH as necessary
R7	Filter and preserved as necessary
R8	_____
R9	_____
R10	_____
R11	_____
R12	_____

REVIEWS:

Sample Labeling Jenessa Nakagawa Date 12/10/19

SRF Date 12/11/19

PM Date 12/11/19

Raman Singh

From: Leslie, Karla L. <lesliekl@cdmsmith.com>
Sent: Wednesday, December 11, 2019 7:18 AM
To: Raman Singh; Zakowski, Cherie
Cc: Cecilia Chavez
Subject: RE: VA SLC; 19L064 discrepancies

Raman, please see responses below in red.

From: Raman Singh <RSingh@emaxlabs.com>
Sent: Tuesday, December 10, 2019 2:58 PM
To: Zakowski, Cherie <ZakowskiCA@cdmsmith.com>; Leslie, Karla L. <lesliekl@cdmsmith.com>
Cc: Cecilia Chavez <CChavez@emaxlabs.com>
Subject: VA SLC; 19L064 discrepancies

Hi Cherie/Karla,

Attached are the COCs and SRFs for SDG 19L064. We found the following discrepancies; please let us know how to proceed:

- For minor discrepancies, we plan to follow the COC.
- Please confirm the sample ID for Sample #3: COC=OU2-MW03RC-GW120719 vs. Label= OU2-MW3RC-GW120719 Sample ID is OU2-MW03Rc-GW120719
- Sample #3 did not request 1,4-Dioxane/Metals/Hg/Anions/SM4500/Alkalinity/TDS/TOC on the COC, but bottles were received. We plan to analyze for all analyses above. Please proceed.
- Please confirm the Sample ID for Sample #9: COC = OU2-MW03RB-GW120819 vs. Label= OU2-MW3RB-GW120819 Sample ID is OU2-MW03Rb-GW120819
- The bottle for TOC for Sample #12 (OU2-MW17S-GW120819) was received broken. Similar to the last SDG, would you like us to proceed to use the preserved SM4500 bottle for the TOC analysis? Please proceed.
- Some bottles have labels and collection date/suffix of 12/07/19/ -GW120719 for sample # 14 (OU2-FD02-GW120819). We plan to follow the COC unless otherwise instructed. Please follow the COC, collection date of 12/08/19 and suffix -GW120819 are correct.

Please let us know how to proceed with the above discrepancies at your earliest convenience.

Thanks!

Raman Singh
Project Manager
EMAX Laboratories, Inc.
1835 W 205th St
Torrance, CA 90501
Tel: 310-618-8889 ext. 119
RSingh@emaxlabs.com

EMAX is interested in your feedback; please provide your comments to: customerservice@emaxlabs.com.

Note:
EMAX will be closed for the following holidays. Please contact me in advance if you will have short hold samples including BOD.

Company Day Off- 12/14 (Saturday)

ORIGIN ID:NPHA (513) 602-1619
JOE MILLER

555 17TH ST STE 500

DENVER, CO 80202
UNITED STATES US

SHIP DATE: 09DEC19
ACTWGT: 61.70 LB
CAD: 6998084/SSF02021
DIMS: 24x13x13 IN

BILL THIRD PARTY

TO **EMAX LABORATORIES, INC**
ATTN: SAMPLE RECEIVING
1835 W 205TH ST
REF:238824-6495-F3048-05.SAMPL
TORRANCE CA 90501
(310) 618-8889 REF:
INV:
PO: DEPT:

FedEx Express

1 of 8

TRK 0201 7787 2953 7348

MASTER

WZ HHRA

TUE - 10 DEC 10:30A
PRIORITY OVERNIGHT
DSR
90501
CA-US **LAX**

Part # 156297-2565 REV 09/20

ORIGIN ID:NPHA (513) 602-1619
JOE MILLER

555 17TH ST STE 500

DENVER, CO 80202
UNITED STATES US

SHIP DATE: 09DEC19
ACTWGT: 61.70 LB
CAD: 6998084/SSF02021
DIMS: 24x13x13 IN

BILL THIRD PARTY

TO **EMAX LABORATORIES, INC**
ATTN: SAMPLE RECEIVING
1835 W 205TH ST
REF:238824-6495-F3048-05.SAMPL
TORRANCE CA 90501
(310) 618-8889 REF:
INV:
PO: DEPT:

FedEx Express

2 of 8

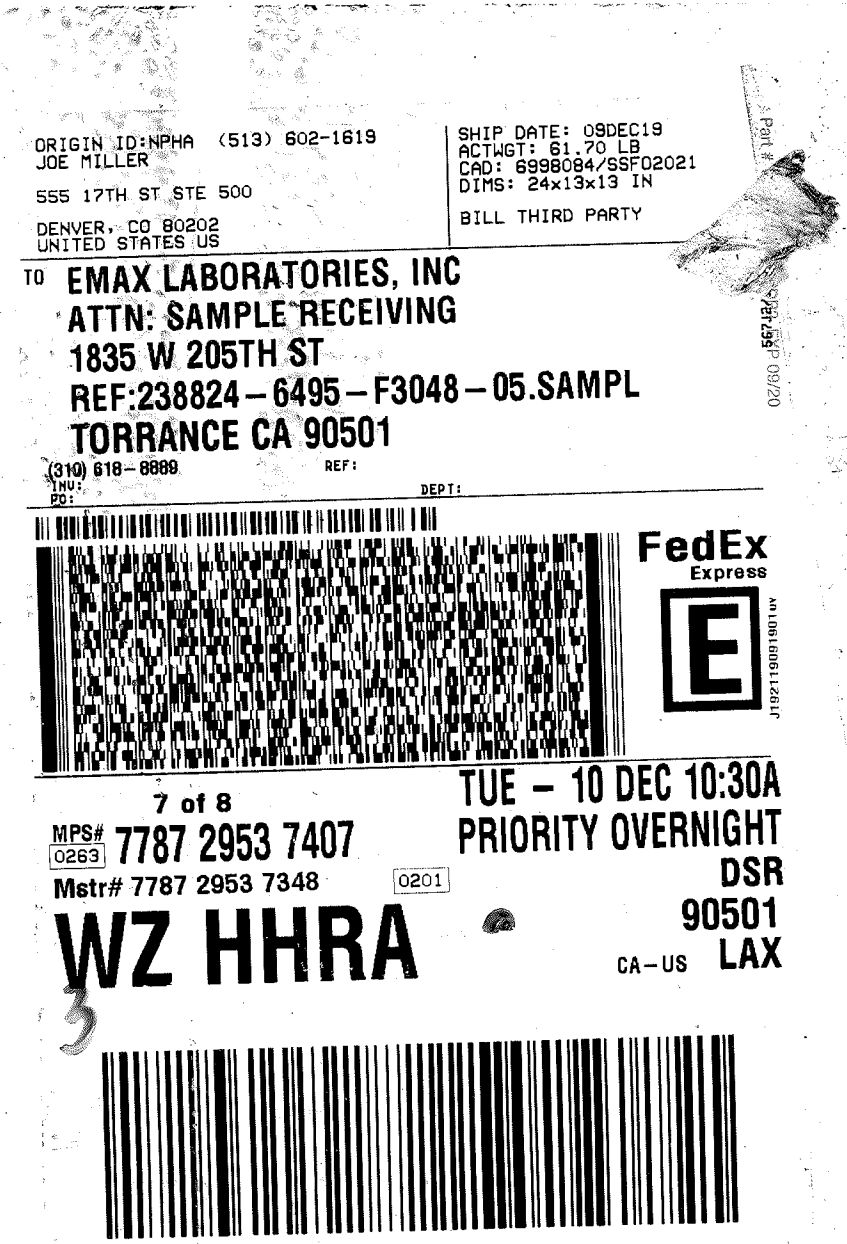
MPS# 0263 7787 2953 7359

Mstr# 7787 2953 7348 0201

WZ HHRA

TUE - 10 DEC 10:30A
PRIORITY OVERNIGHT
DSR
90501
CA-US **LAX**

Part # 156297-2565 REV 09/20



ORIGIN ID:NPHA (513) 602-1619
JOE MILLER

555 17TH ST STE 500

DENVER, CO 80202
UNITED STATES US

SHIP DATE: 09DEC19
ACTWGT: 61.70 LB
CAD: 6998084/SSF02021
DIMS: 24x13x13 IN

BILL THIRD PARTY

TO EMAX LABORATORIES, INC
ATTN: SAMPLE RECEIVING
1835 W 205TH ST
REF:238824-6495-F3048-05.SAMPL
TORRANCE CA 90501

(310) 618-8889 REF:
INV:
PO: DEPT:

FedEx Express

7 of 8
MPS# 0263 7787 2953 7407
Mstr# 7787 2953 7348 0201

TUE - 10 DEC 10:30A
PRIORITY OVERNIGHT
DSR
90501
CA-US LAX

WZ HHRA

ORIGIN ID:NPHA (513) 602-1619
JOE MILLER

555 17TH ST STE 500

DENVER, CO 80202
UNITED STATES US

SHIP DATE: 09DEC19
ACTWGT: 61.70 LB
CAD: 6998084/SSF02021
DIMS: 24x13x13 IN

BILL THIRD PARTY

TO EMAX LABORATORIES, INC
ATTN: SAMPLE RECEIVING
1835 W 205TH ST
REF:238824-6495-F3048-05.SAMPL
TORRANCE CA 90501

(310) 618-8889 REF:
INV:
PO: DEPT:

FedEx Express

8 of 8
MPS# 0263 7787 2953 7418
Mstr# 7787 2953 7348 0201

TUE - 10 DEC 10:30A
PRIORITY OVERNIGHT
DSR
90501
CA-US LAX

WZ HHRA


ORIGIN ID:NPHA (513) 602-1619
JOE MILLER

555 17TH ST STE 500

DENVER, CO 80202
UNITED STATES US

6

SHIP DATE: 09DEC19
ACTWGT: 64.70 LB
CAD: 6998084/SSF02021
DIMS: 24x13x13 IN

BILL THIRD PARTY

TO EMAX LABORATORIES, INC
ATTN: SAMPLE RECEIVING
1835 W 205TH ST
REF:238824-6495-F3048-05.SAMPL
TORRANCE CA 90501
(310) 618-8889
INV:
PO:
REF:
DEPT:

FedEx Express

6 of 8
MPS# 0263 7787 2953 7392
Mstr# 7787 2953 7348
0201

TUE - 10 DEC 10:30A
PRIORITY OVERNIGHT
DSR
90501
CA-US LAX

WZ HHRA


ORIGIN ID:NPHA (513) 602-1619
JOE MILLER

555 17TH ST STE 500

DENVER, CO 80202
UNITED STATES US

SHIP DATE: 09DEC19
ACTWGT: 64.70 LB
CAD: 6998084/SSF02021
DIMS: 24x13x13 IN

BILL THIRD PARTY

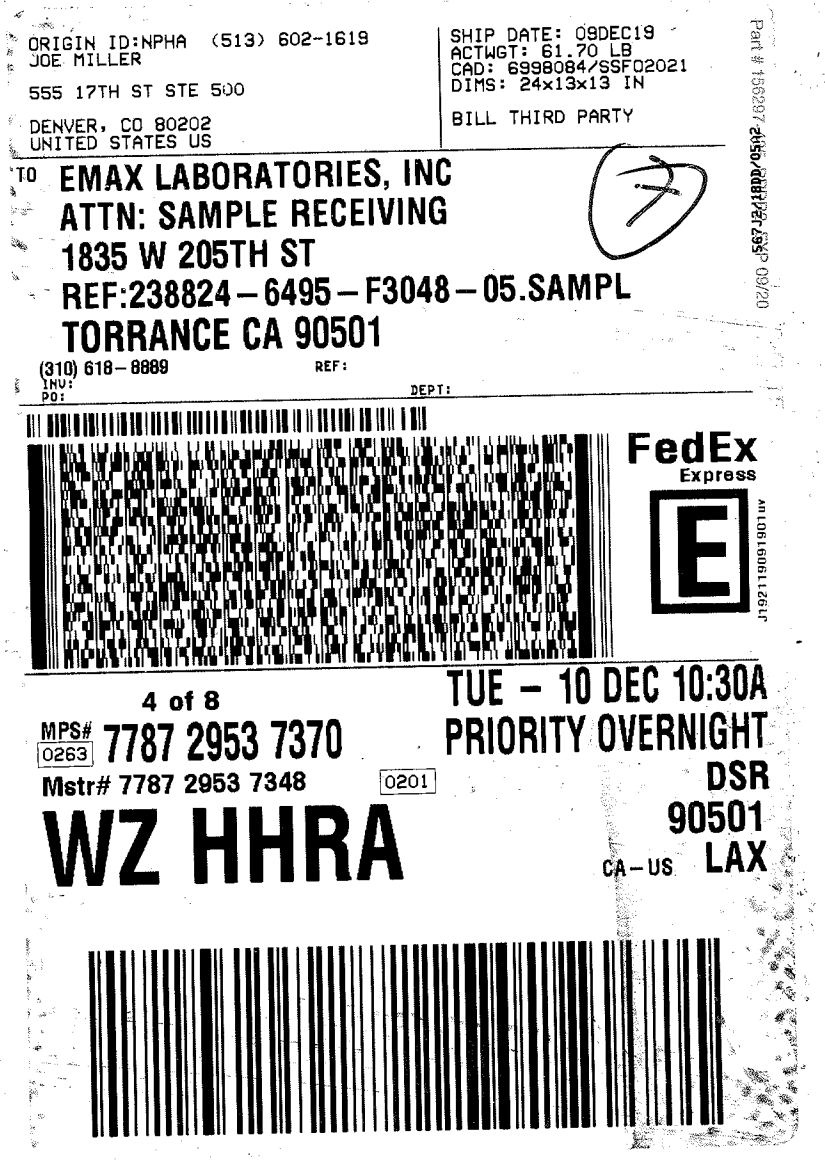
TO EMAX LABORATORIES, INC
ATTN: SAMPLE RECEIVING
1835 W 205TH ST
REF:238824-6495-F3048-05.SAMPL
TORRANCE CA 90501
(310) 618-8889
INV:
PO:
REF:
DEPT:

FedEx Express

3 of 8
MPS# 0263 7787 2953 7360
Mstr# 7787 2953 7348
0201

TUE - 10 DEC 10:30A
PRIORITY OVERNIGHT
DSR
90501
CA-US LAX

WZ HHRA



ORIGIN ID:NPHA (513) 602-1619
JOE MILLER

555 17TH ST STE 500

DENVER, CO 80202
UNITED STATES US

SHIP DATE: 09DEC19
ACTWGT: 61.70 LB
CAD: 6998084/SSF02021
DIMS: 24x13x13 IN

BILL THIRD PARTY

TO EMAX LABORATORIES, INC
ATTN: SAMPLE RECEIVING
1835 W 205TH ST
REF:238824-6495-F3048-05.SAMPL
TORRANCE CA 90501

(310) 618-8889 REF:
INV:
PO: DEPT:

FedEx Express

4 of 8

MPS# 0263 7787 2953 7370
Mstr# 7787 2953 7348 0201

TUE - 10 DEC 10:30A
PRIORITY OVERNIGHT
DSR
90501
CA-US LAX

WZ HHRA

ORIGIN ID:NPHA (513) 602-1619
JOE MILLER

555 17TH ST STE 500

DENVER, CO 80202
UNITED STATES US

SHIP DATE: 09DEC19
ACTWGT: 61.70 LB
CAD: 6998084/SSF02021
DIMS: 24x13x13 IN

BILL THIRD PARTY

TO EMAX LABORATORIES, INC
ATTN: SAMPLE RECEIVING
1835 W 205TH ST
REF:238824-6495-F3048-05.SAMPL
TORRANCE CA 90501

(310) 618-8889 REF:
INV:
PO: DEPT:

FedEx Express

5 of 8

MPS# 0263 7787 2953 7381
Mstr# 7787 2953 7348 0201

TUE - 10 DEC 10:30A
PRIORITY OVERNIGHT
DSR
90501
CA-US LAX

WZ HHRA

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range or estimated value.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

CDM SMITH

VA SALT LAKE CITY

METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

SDG#: 19L064

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L064

METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

A total of twenty-two(22) water samples were received on 12/10/19 to be analyzed for Volatile Organics by GC/MS in accordance with Method SW5030B/8260C and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Instrument Performance and Calibration
Instrument tune check was performed prior to calibration. Result was within acceptance criteria. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried out at a frequency required by the project. All project calibration requirements were satisfied except for Methyl Acetate was detected biased high (%D=28.5) in CCV(data file ID RLV092). However, note that Methyl Acetate was not detected in any of the associated field samples. Average response factors for all analytes were within method recommended response factors with the exception of Acetone and 2-Butanone. However, percent recoveries for all target analytes were within 70-130% on all calibration points. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, three(3) method blanks were analyzed. VO01L04B, VO01L05B and VO01L06B were compliant to project requirement. Refer to sample result summary forms for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, three(3) sets of LCS/LCD were analyzed. VO01L04L/VO01L04C, VO01L05L/VO01L05C and VO01L06L/VO01L06C were within LCS limits. Refer to LCS summary forms for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD (L064-07M/L064-07S) was analyzed. All analytes were within project QC limits except for RPDs for 2-Butanone (RPD=22*) and Aetone (RPD=22*) were >RPD limit. Refer to Matrix QC summary form for details.

Surrogate
Surrogates were added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met with the exception of those that were discussed within the associated QC parameter.

LAB CHRONICLE
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH
Project : VA SALT LAKE CITY

SDG NO. : 19L064
Instrument ID : 01

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	VO01L04B	1	NA	12/12/1911:53	12/12/1911:53	RLV078	RKV038	VO01L04	Method Blank
LCS1W	VO01L04L	1	NA	12/12/1910:26	12/12/1910:26	RLV075	RKV038	VO01L04	Lab Control Sample (LCS)
LCD1W	VO01L04C	1	NA	12/12/1910:54	12/12/1910:54	RLV076	RKV038	VO01L04	LCS Duplicate
OU2-TB06-GW120918	L064-05	1	NA	12/12/1912:22	12/12/1912:22	RLV079	RKV038	VO01L04	Field Sample
OU2-TB09-GW120919	L064-16	1	NA	12/12/1914:09	12/12/1914:09	RLV080	RKV038	VO01L04	Field Sample
OU2-TB07-GW120919	L064-19	1	NA	12/12/1914:36	12/12/1914:36	RLV081	RKV038	VO01L04	Field Sample
OU2-TB08-GW120919	L064-22	1	NA	12/12/1915:05	12/12/1915:05	RLV082	RKV038	VO01L04	Field Sample
OU2-FB01-GW120819	L064-13	1	NA	12/12/1915:33	12/12/1915:33	RLV083	RKV038	VO01L04	Field Sample
OU2-MW01D-GW120619	L064-01	1	NA	12/12/1916:00	12/12/1916:00	RLV084	RKV038	VO01L04	Field Sample
OU2-MW03RC-GW120719	L064-03	1	NA	12/12/1916:57	12/12/1916:57	RLV086	RKV038	VO01L04	Field Sample
OU2-FD03-GW120719	L064-04	1	NA	12/12/1917:56	12/12/1917:56	RLV088	RKV038	VO01L04	Field Sample
OU2-MW15S-GW120719	L064-06	1	NA	12/12/1918:24	12/12/1918:24	RLV089	RKV038	VO01L04	Field Sample
MBLK2W	VO01L05B	1	NA	12/13/1914:21	12/13/1914:21	RLV096	RKV038	VO01L05	Method Blank
LCS2W	VO01L05L	1	NA	12/13/1912:25	12/13/1912:25	RLV093	RKV038	VO01L05	Lab Control Sample (LCS)
LCD2W	VO01L05C	1	NA	12/13/1913:22	12/13/1913:22	RLV094	RKV038	VO01L05	LCS Duplicate
OU2-MW14D-GW120719	L064-02N	1	NA	12/13/1918:36	12/13/1918:36	RLV105	RKV038	VO01L05	Field Sample
OU2-MW15D-GW120719	L064-07N	1	NA	12/13/1919:04	12/13/1919:04	RLV106	RKV038	VO01L05	Field Sample
OU2-MW15D-GW120719MS	L064-07M	1	NA	12/13/1919:31	12/13/1919:31	RLV107	RKV038	VO01L05	Matrix Spike Sample (MS)
OU2-MW15D-GW120719MSD	L064-07S	1	NA	12/13/1919:59	12/13/1919:59	RLV108	RKV038	VO01L05	MS Duplicate (MSD)
OU2-MW03RB-GW120819	L064-09	1	NA	12/13/1920:55	12/13/1920:55	RLV110	RKV038	VO01L05	Field Sample
OU2-MW03RD-GW120719	L064-10	1	NA	12/13/1921:23	12/13/1921:23	RLV111	RKV038	VO01L05	Field Sample
OU2-MW17D-GW120819	L064-11	1	NA	12/13/1921:51	12/13/1921:51	RLV112	RKV038	VO01L05	Field Sample
OU2-MW17S-GW120819	L064-12	1	NA	12/13/1922:19	12/13/1922:19	RLV113	RKV038	VO01L05	Field Sample
OU2-FD02-GW120819	L064-14	1	NA	12/13/1922:47	12/13/1922:47	RLV114	RKV038	VO01L05	Field Sample
OU2-MW08C-GW120819	L064-15	1	NA	12/13/1923:15	12/13/1923:15	RLV115	RKV038	VO01L05	Field Sample
MBLK3W	VO01L06B	1	NA	12/16/1911:47	12/16/1911:47	RLV124	RKV038	VO01L06	Method Blank
LCS3W	VO01L06L	1	NA	12/16/1910:24	12/16/1910:24	RLV121	RKV038	VO01L06	Lab Control Sample (LCS)
LCD3W	VO01L06C	1	NA	12/16/1910:52	12/16/1910:52	RLV122	RKV038	VO01L06	LCS Duplicate
OU2-MW03RB-GW120819DL	L064-09I	10	NA	12/16/1912:16	12/16/1912:16	RLV125	RKV038	VO01L06	Diluted Sample
OU2-MW08A-GW120819	L064-17	1	NA	12/16/1912:43	12/16/1912:43	RLV126	RKV038	VO01L06	Field Sample
OU2-MW14S-GW120719	L064-18	1	NA	12/16/1913:11	12/16/1913:11	RLV127	RKV038	VO01L06	Field Sample
OU2-MW05R-GW120819	L064-20	1	NA	12/16/1913:40	12/16/1913:40	RLV128	RKV038	VO01L06	Field Sample
OU2-MW08B-GW120819	L064-21	1	NA	12/16/1916:01	12/16/1916:01	RLV133	RKV038	VO01L06	Field Sample
OU2-MW03RA-GW120719	L064-08N	1	NA	12/16/1917:21	12/16/1917:21	RLV134	RKV038	VO01L06	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected:	12/06/19
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/12/19 16:00
Sample ID	: OU2-MW01D-GW120619	Date Analyzed:	12/12/19 16:00
Lab Samp ID	: L064-01	Dilution Factor:	1
Lab File ID	: RLV084	Matrix	: WATER
Ext Btch ID	: VO01L04	% Moisture	: NA
Calib. Ref.	: RKV038	Instrument ID	: T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	0.15J	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.22	10.00	92.2	70-130
BROMOFLUOROBENZENE	9.14	10.00	91.4	70-130
TOLUENE-D8	9.55	10.00	95.5	70-130
DIBROMOFLUOROMETHANE	10.0	10.00	100	70-130

^ Incorporated by analysis using ICAL ID VO01K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV084.D Vial: 12
Acq On : 12 Dec 2019 4:00 pm Operator: JCorea
Sample : 19L064-01 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:57 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

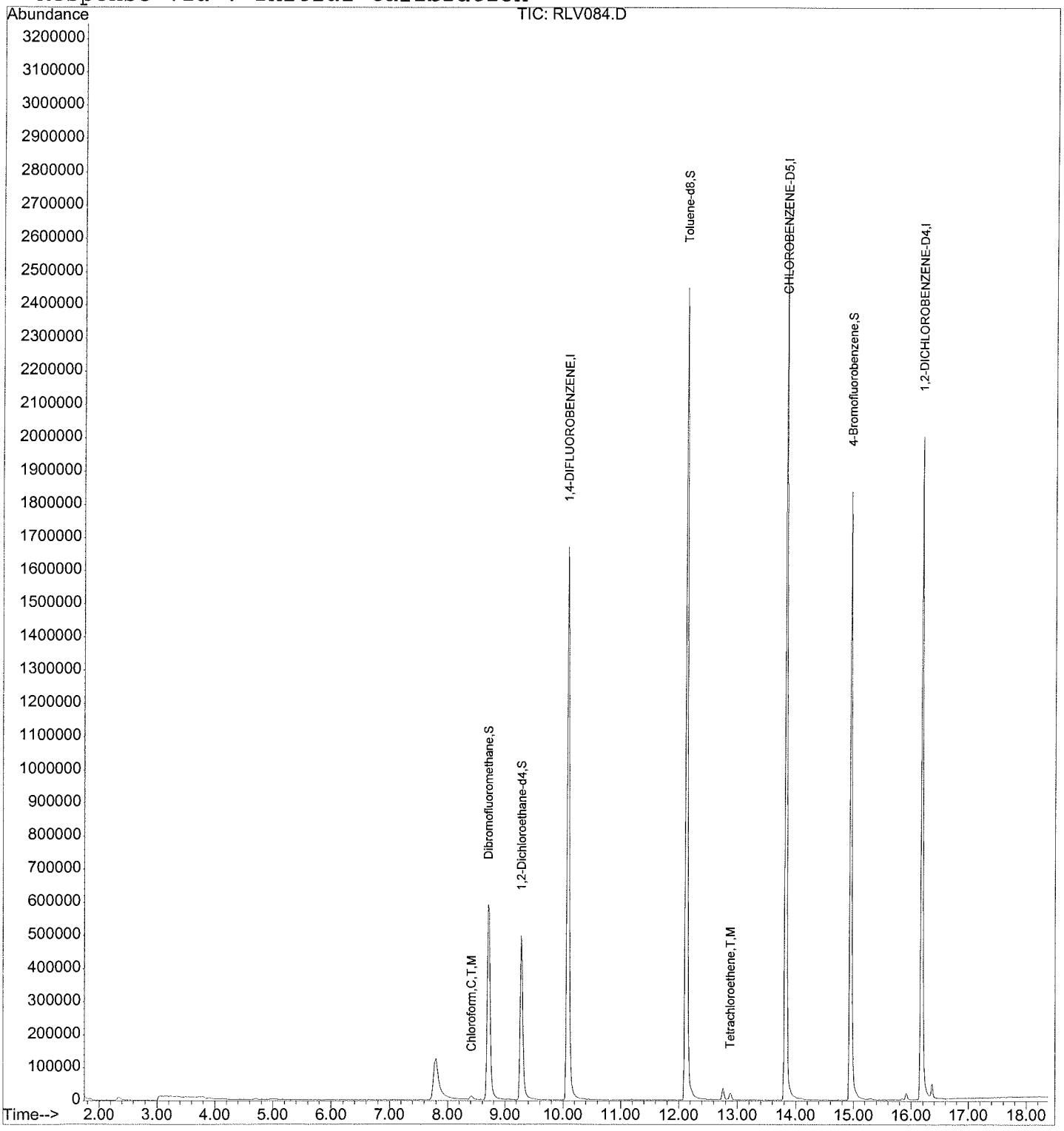
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2140474	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	1913701	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.18	152	761289	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.70	111	680810	10.00	ug/l	-0.03
Spiked Amount 10.000			Recovery = 100.00%			
38) 1,2-Dichloroethane-d4	9.28	65	548674	9.22	ug/l	-0.01
Spiked Amount 10.000			Recovery = 92.20%			
54) Toluene-d8	12.12	98	2332902	9.55	ug/l	-0.01
Spiked Amount 10.000			Recovery = 95.50%			
74) 4-Bromofluorobenzene	14.95	95	855013	9.14	ug/l	-0.01
Spiked Amount 10.000			Recovery = 91.40%			
Target Compounds						Qvalue
33) Chloroform	8.41	83	20781	0.15	ug/l	96
59) Tetrachloroethene	12.87	164	7032	0.11	ug/l	91

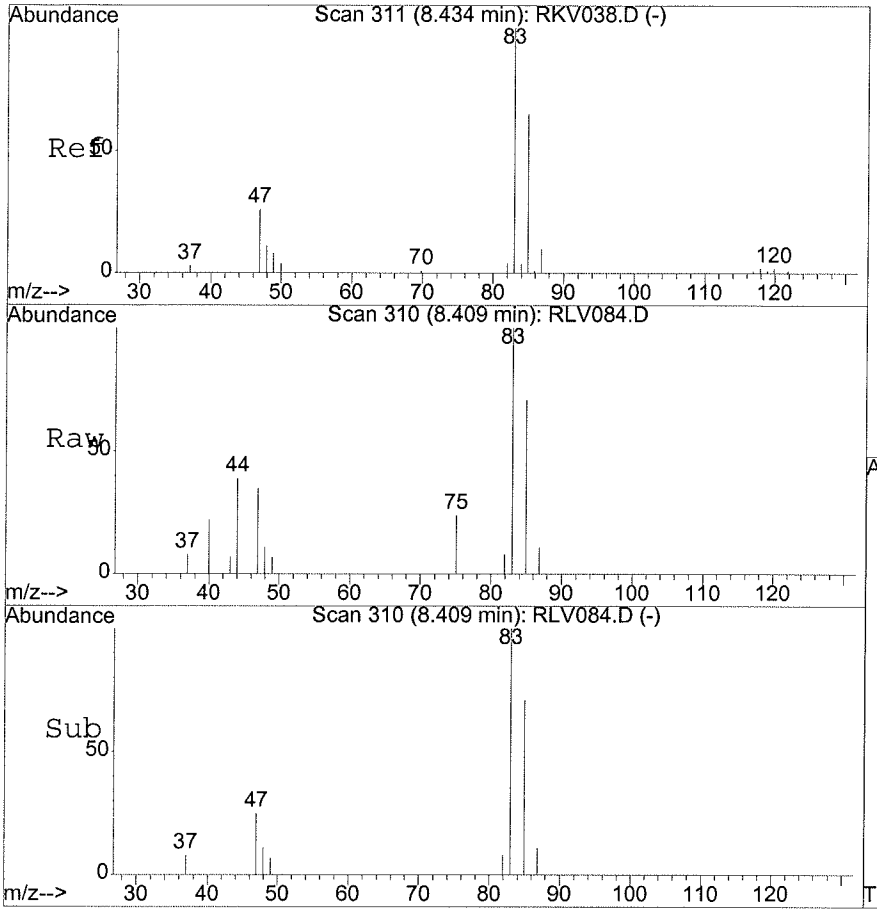
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV084.D Vial: 12
Acq On : 12 Dec 2019 4:00 pm Operator: JCorea
Sample : 19L064-01 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:57 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

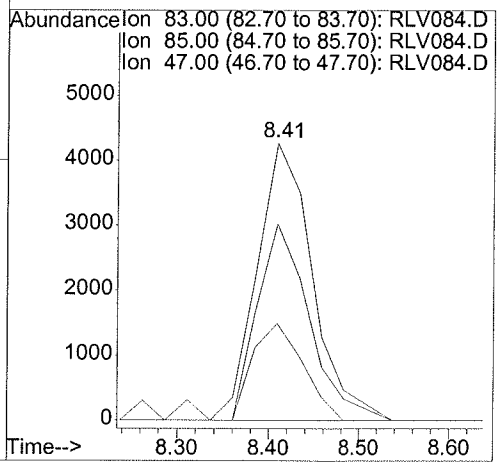


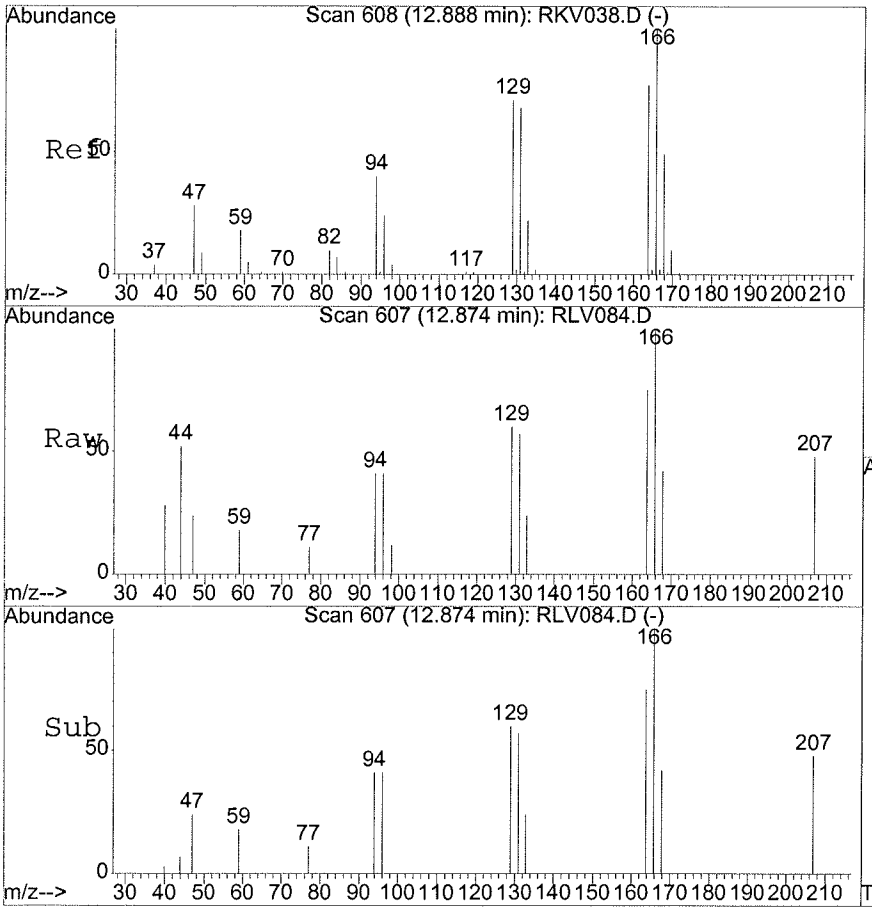


#33
Chloroform
Concen: 0.15 ug/l
RT: 8.41 min Scan# 310
Delta R.T. -0.02 min
Lab File: RLV084.D
Acq: 12 Dec 2019 4:00 pm

Tgt Ion: 83 Resp: 20781

Ion	Ratio	Lower	Upper
83	100		
85	68.3	34.5	94.5
47	27.8	0.0	59.1

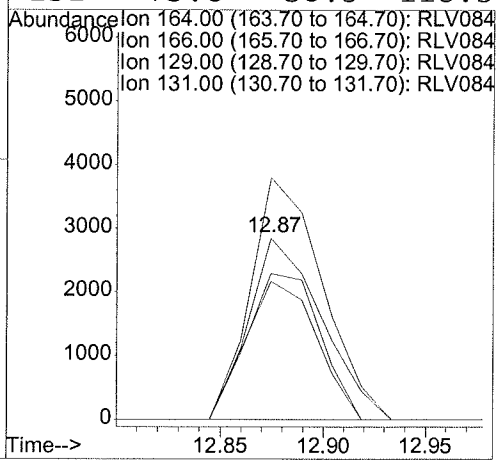




#59
Tetrachloroethene
Concen: 0.11 ug/l
RT: 12.87 min Scan# 607
Delta R.T. -0.01 min
Lab File: RLV084.D
Acq: 12 Dec 2019 4:00 pm

Tgt Ion:164 Resp: 7032

Ion	Ratio	Lower	Upper
164	100		
166	131.4	100.3	160.3
129	80.4	64.1	124.1
131	73.8	58.3	118.3



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV084.D Vial: 12
Acq On : 12 Dec 2019 4:00 pm Operator: JCorea
Sample : 19L064-01 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2140474	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	1913701	10.00	ug/l	-0.01
4) 1,2-DICHLOROBENZENE-D4	16.18	152	761289	10.00	ug/l	-0.01

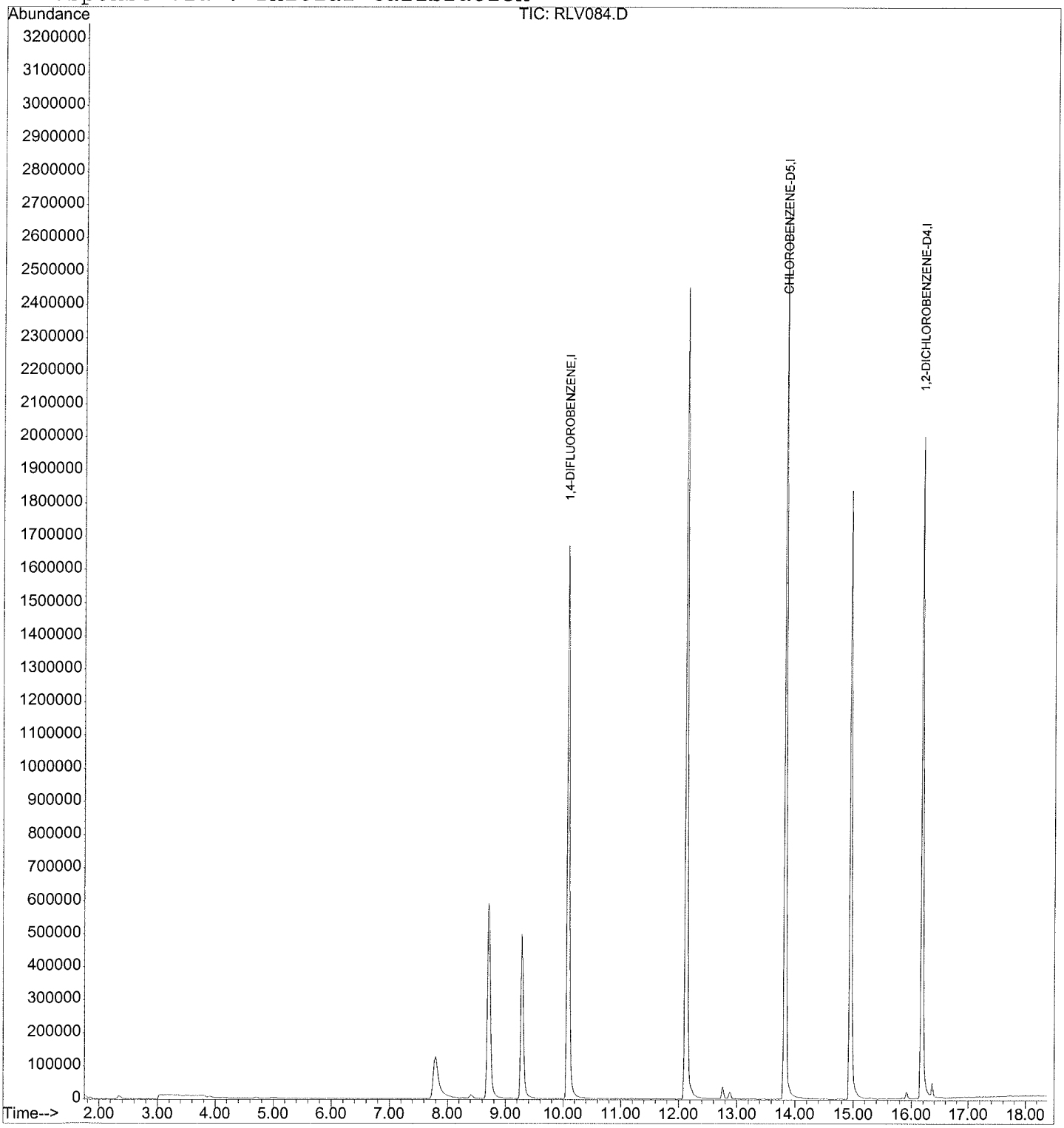
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV084.D VO01K06.M Fri Dec 13 10:23:15 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV084.D Vial: 12
Acq On : 12 Dec 2019 4:00 pm Operator: JCorea
Sample : 19L064-01 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/07/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/13/19 18:36
Sample ID: OU2-MW14D-GW120719	Date Analyzed: 12/13/19 18:36
Lab Samp ID: L064-02N	Dilution Factor: 1
Lab File ID: RLV105	Matrix : WATER
Ext Btch ID: V001L05	% Moisture : NA
Calib. Ref.: RKV038	Instrument ID : T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	0.43J	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	0.11J	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.19J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	1.4	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	0.26J	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	22	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	0.19J	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.04	10.00	90.4	70-130
BROMOFLUOROBENZENE	9.15	10.00	91.5	70-130
TOLUENE-D8	9.60	10.00	96.0	70-130
DIBROMOFLUOROMETHANE	9.87	10.00	98.7	70-130

^ Incorporated by analysis using ICAL ID V001K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV105.D Vial: 15
Acq On : 13 Dec 2019 6:36 pm Operator: JCorea
Sample : 19L064-02N 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 15:42 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

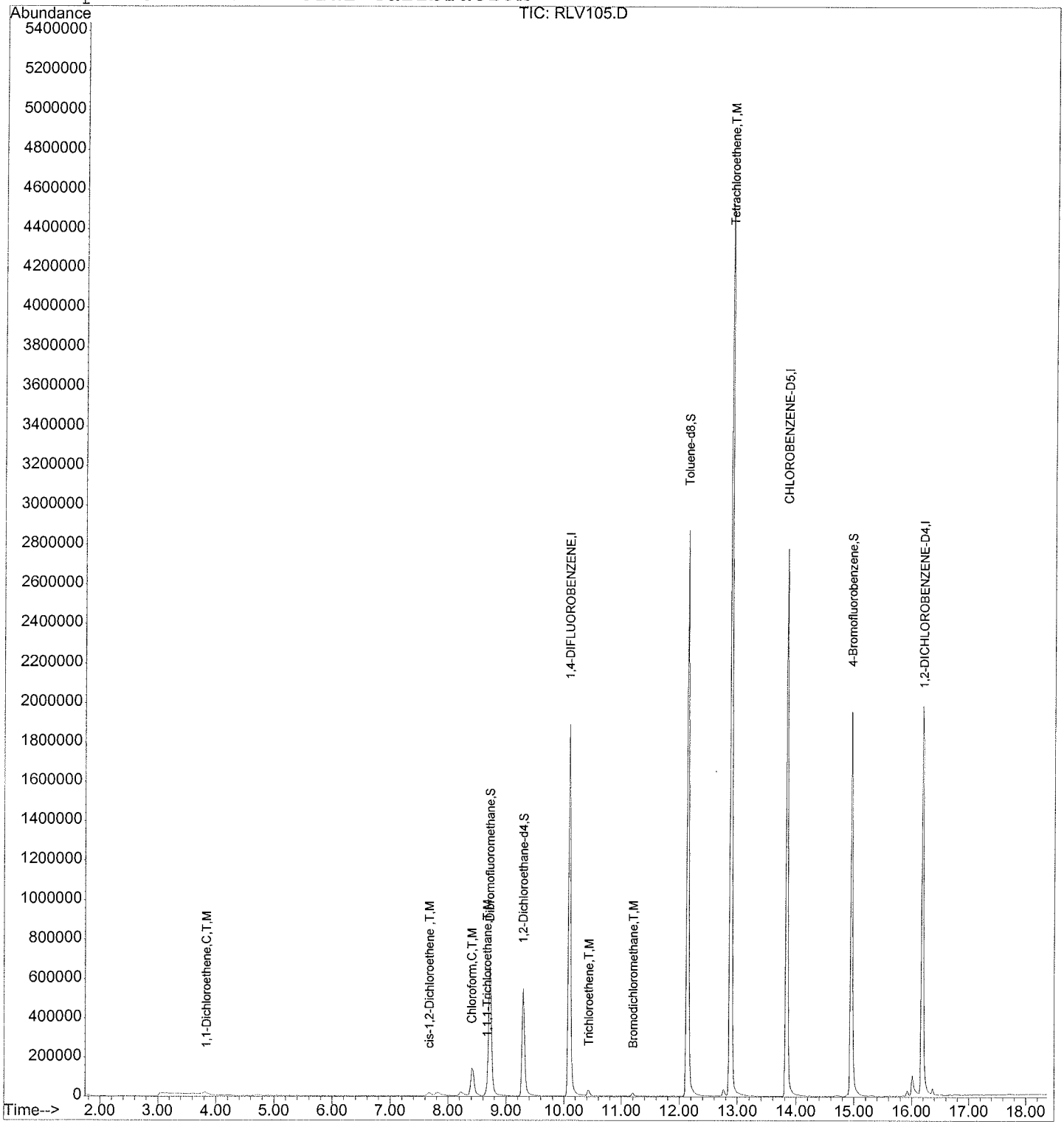
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	2354965	10.00	ug/l	-0.01
53) CHLOROBENZENE-D5	13.84	117	2140178	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	849967	10.00	ug/l	0.00
System Monitoring Compounds						
34) Dibromofluoromethane	8.71	111	739525	9.87	ug/l	-0.01
Spiked Amount 10.000			Recovery =	98.70%		
38) 1,2-Dichloroethane-d4	9.29	65	591754	9.04	ug/l	0.00
Spiked Amount 10.000			Recovery =	90.40%		
54) Toluene-d8	12.13	98	2620553	9.60	ug/l	0.00
Spiked Amount 10.000			Recovery =	96.00%		
74) 4-Bromofluorobenzene	14.95	95	955964	9.15	ug/l	-0.01
Spiked Amount 10.000			Recovery =	91.50%		
Target Compounds						Qvalue
14) 1,1-Dichloroethene	3.83	61	14435	0.11	ug/l	83
29) cis-1,2-Dichloroethene	7.67	96	21343	0.26	ug/l	83
33) Chloroform	8.41	83	217153	1.41	ug/l	92
35) 1,1,1-Trichloroethane	8.67	97	47011	0.43	ug/l	99
44) Trichloroethene	10.43	130	17775	0.19	ug/l	96
49) Bromodichloromethane	11.20	83	18362	0.19	ug/l	99
59) Tetrachloroethene	12.89	164	1593060	21.85	ug/l	96

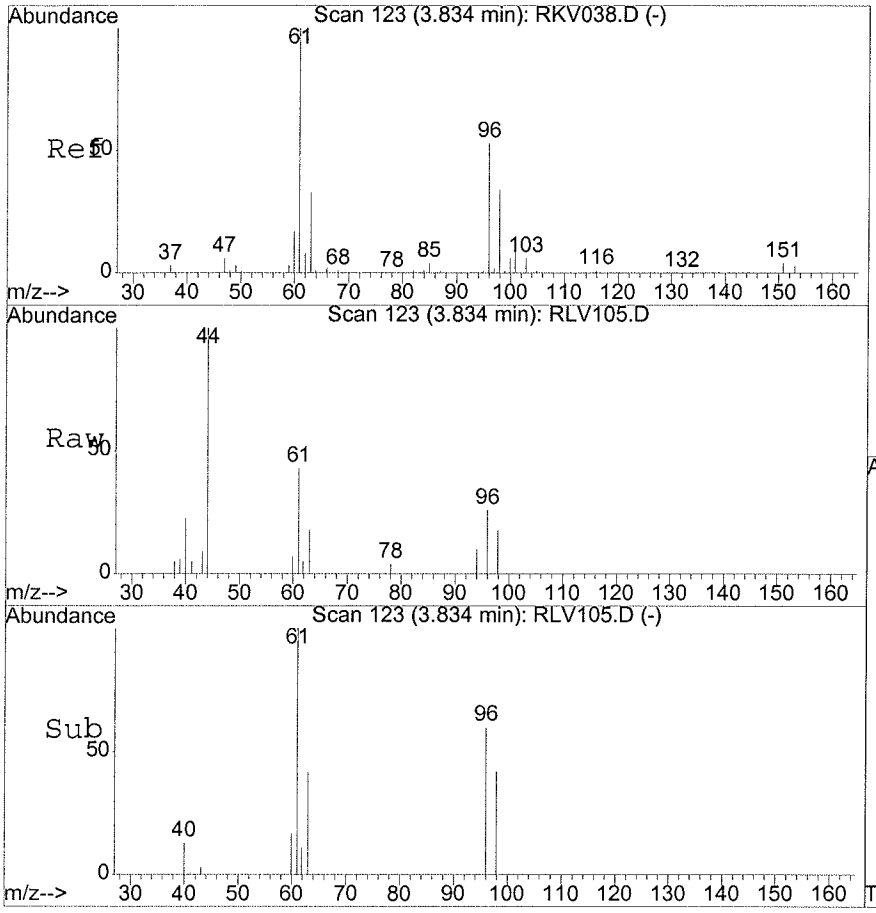
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV105.D Vial: 15
Acq On : 13 Dec 2019 6:36 pm Operator: JCorea
Sample : 19L064-02N 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 15:42 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

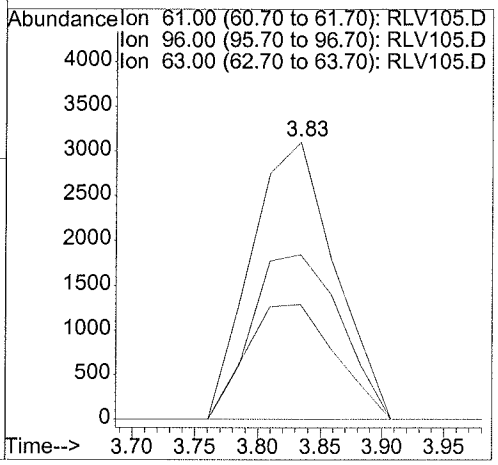


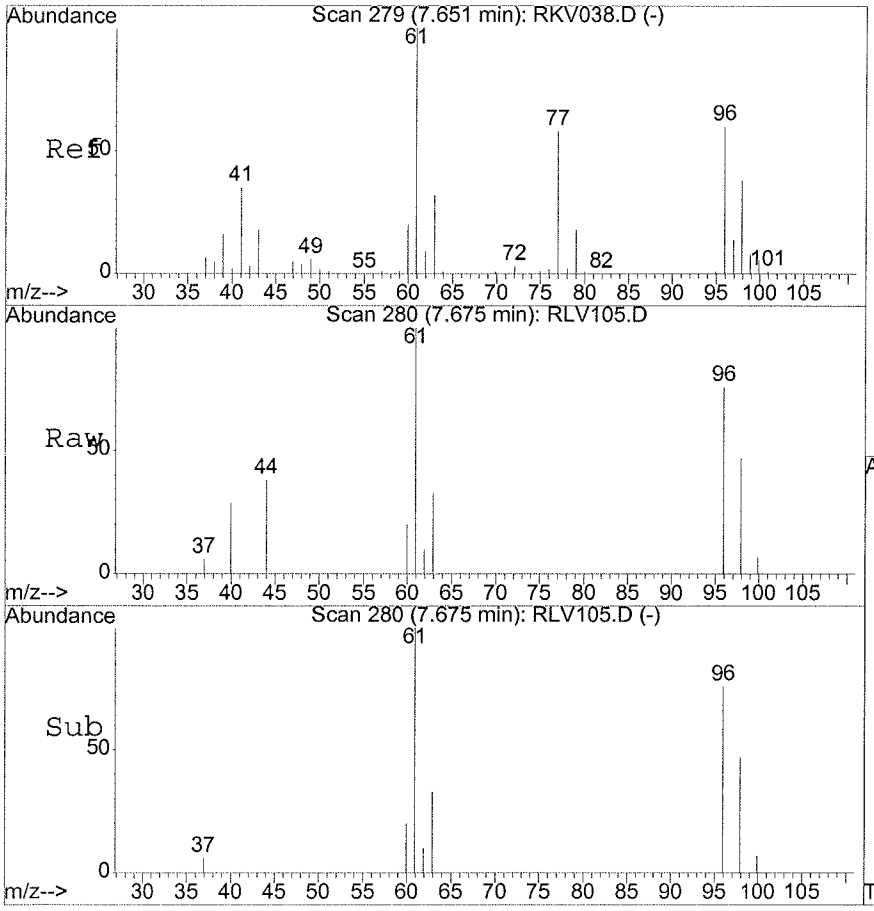


#14
1,1-Dichloroethene
Concen: 0.11 ug/l
RT: 3.83 min Scan# 123
Delta R.T. -0.00 min
Lab File: RLV105.D
Acq: 13 Dec 2019 6:36 pm

Tgt Ion: 61 Resp: 14435

Ion	Ratio	Lower	Upper
61	100		
96	63.3	22.5	82.5
63	44.3	2.6	62.6

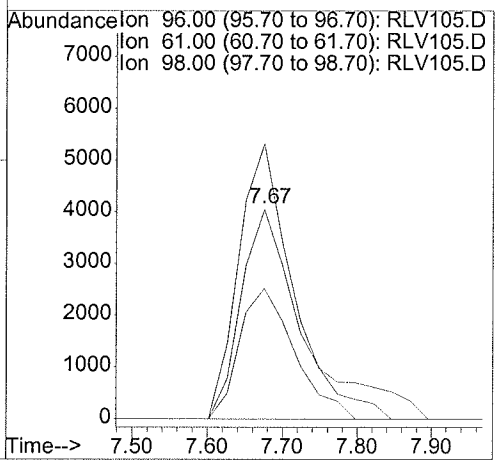


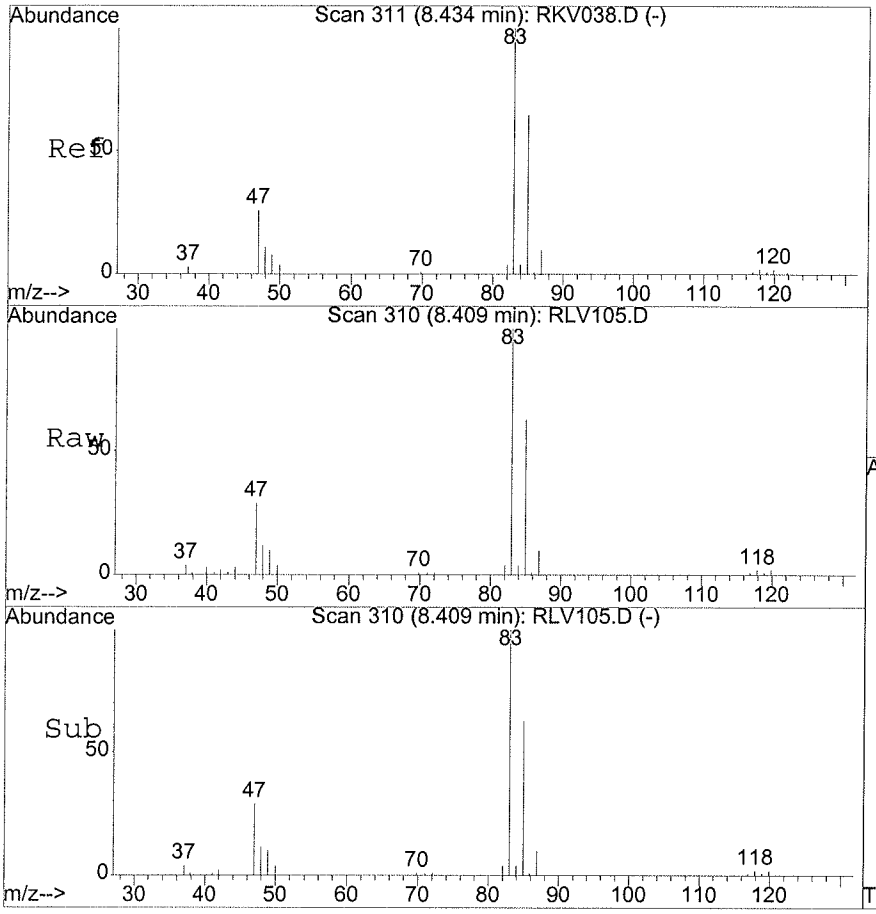


#29
cis-1,2-Dichloroethene
Concen: 0.26 ug/l
RT: 7.67 min Scan# 280
Delta R.T. 0.02 min
Lab File: RLV105.D
Acq: 13 Dec 2019 6:36 pm

Tgt Ion: 96 Resp: 21343

Ion	Ratio	Lower	Upper
96	100		
61	138.6	136.8	196.8
98	60.3	35.6	95.6

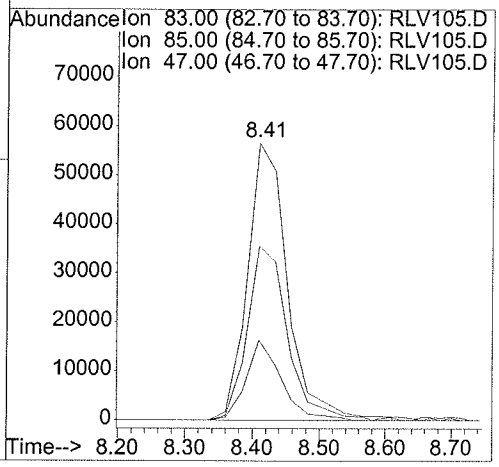


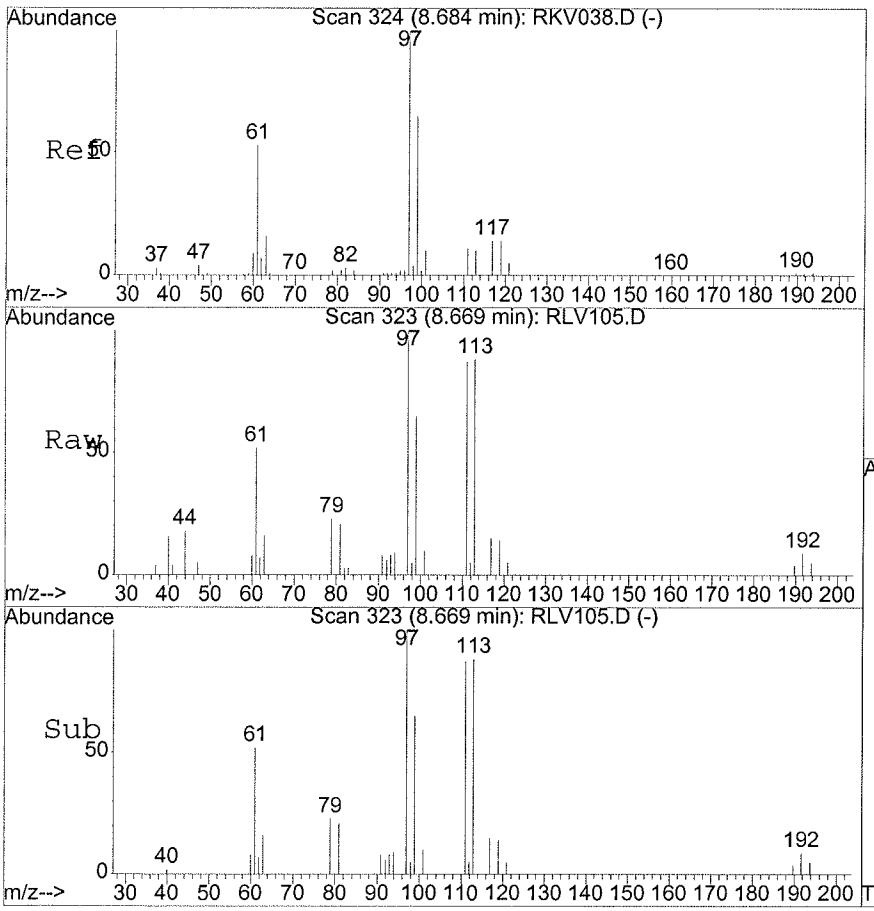


#33
Chloroform
Concen: 1.41 ug/l
RT: 8.41 min Scan# 310
Delta R.T. -0.02 min
Lab File: RLV105.D
Acq: 13 Dec 2019 6:36 pm

Tgt Ion: 83 Resp: 217153

Ion	Ratio	Lower	Upper
83	100		
85	73.2	34.5	94.5
47	29.6	0.0	59.1

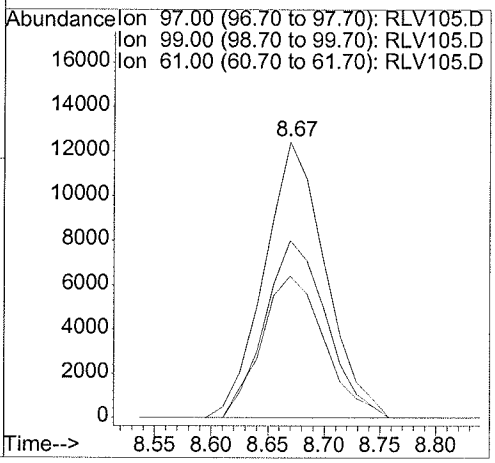


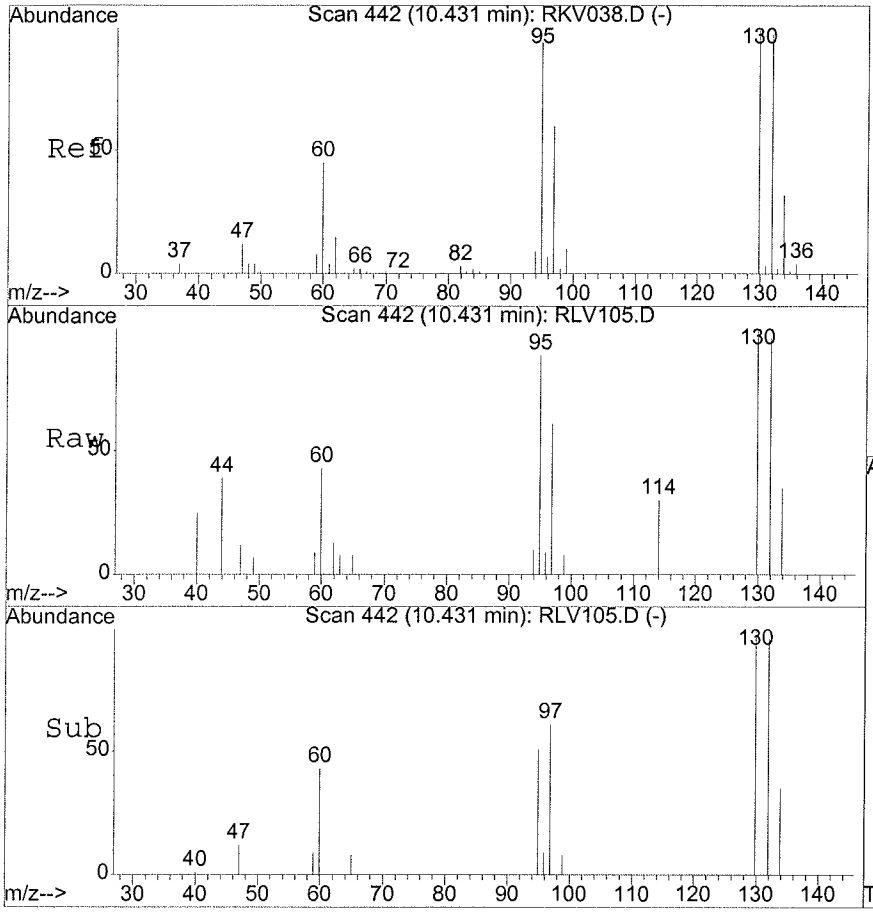


#35
1,1,1-Trichloroethane
Concen: 0.43 ug/l
RT: 8.67 min Scan# 323
Delta R.T. -0.01 min
Lab File: RLV105.D
Acq: 13 Dec 2019 6:36 pm

Tgt Ion: 97 Resp: 47011

Ion	Ratio	Lower	Upper
97	100		
99	64.7	35.7	95.7
61	53.2	23.8	83.8

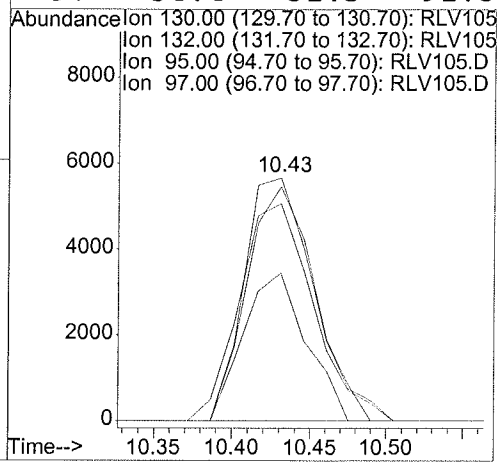


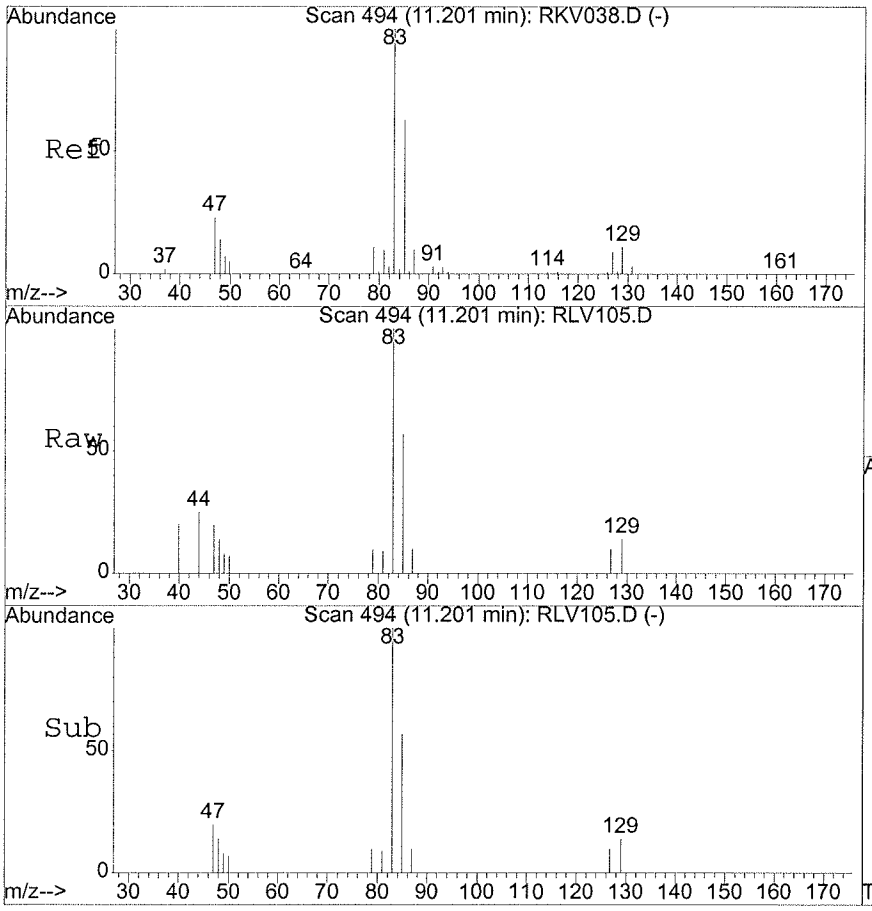


#44
Trichloroethene
Concen: 0.19 ug/l
RT: 10.43 min Scan# 442
Delta R.T. -0.00 min
Lab File: RLV105.D
Acq: 13 Dec 2019 6:36 pm

Tgt Ion:130 Resp: 17775

Ion	Ratio	Lower	Upper
130	100		
132	93.4	66.9	126.9
95	94.1	66.3	126.3
97	54.4	31.3	91.3

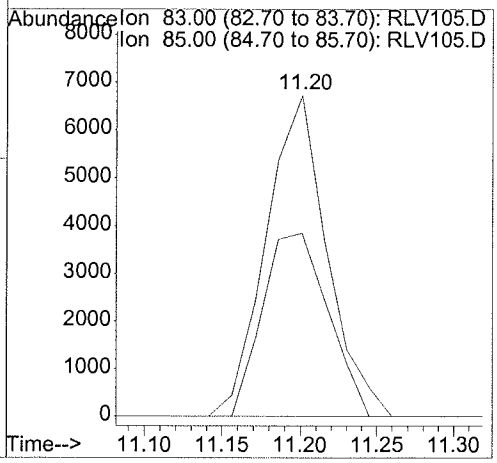


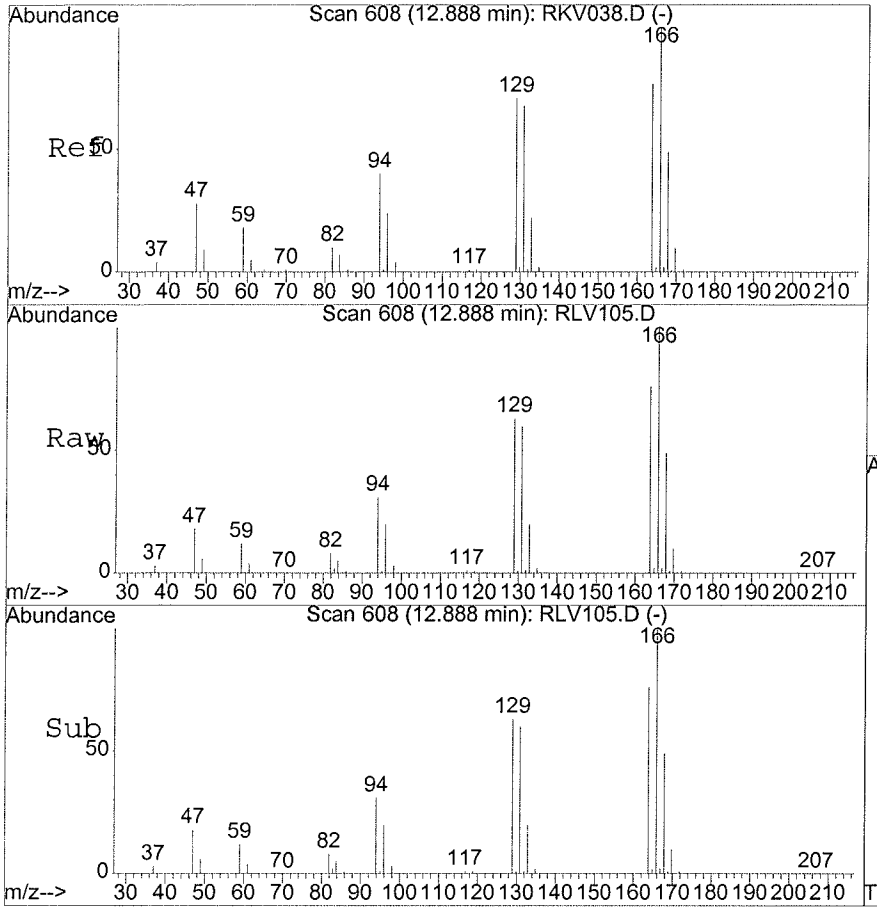


#49
Bromodichloromethane
Concen: 0.19 ug/l
RT: 11.20 min Scan# 494
Delta R.T. -0.00 min
Lab File: RLV105.D
Acq: 13 Dec 2019 6:36 pm

Tgt Ion: 83 Resp: 18362

Ion	Ratio	Lower	Upper
83	100		
85	61.7	32.7	92.7

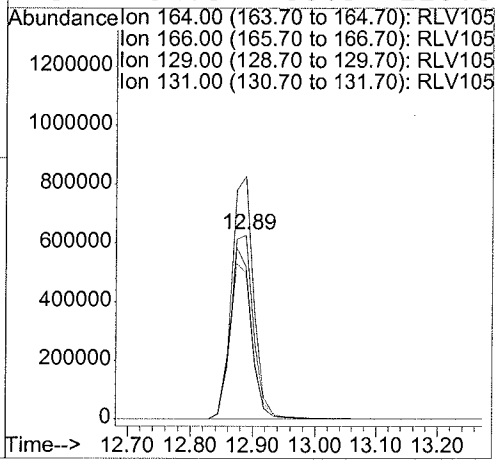




#59
Tetrachloroethene
Concen: 21.85 ug/l
RT: 12.89 min Scan# 608
Delta R.T. -0.00 min
Lab File: RLV105.D
Acq: 13 Dec 2019 6:36 pm

Tgt Ion:164 Resp: 1593060

Ion	Ratio	Lower	Upper
164	100		
166	129.7	100.3	160.3
129	88.0	64.1	124.1
131	82.5	58.3	118.3



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV105.D Vial: 15
Acq On : 13 Dec 2019 6:36 pm Operator: JCorea
Sample : 19L064-02N 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	2354965	10.00	ug/l	-0.02
3) CHLOROBENZENE-D5	13.84	117	2140178	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.19	152	849967	10.00	ug/l	0.00

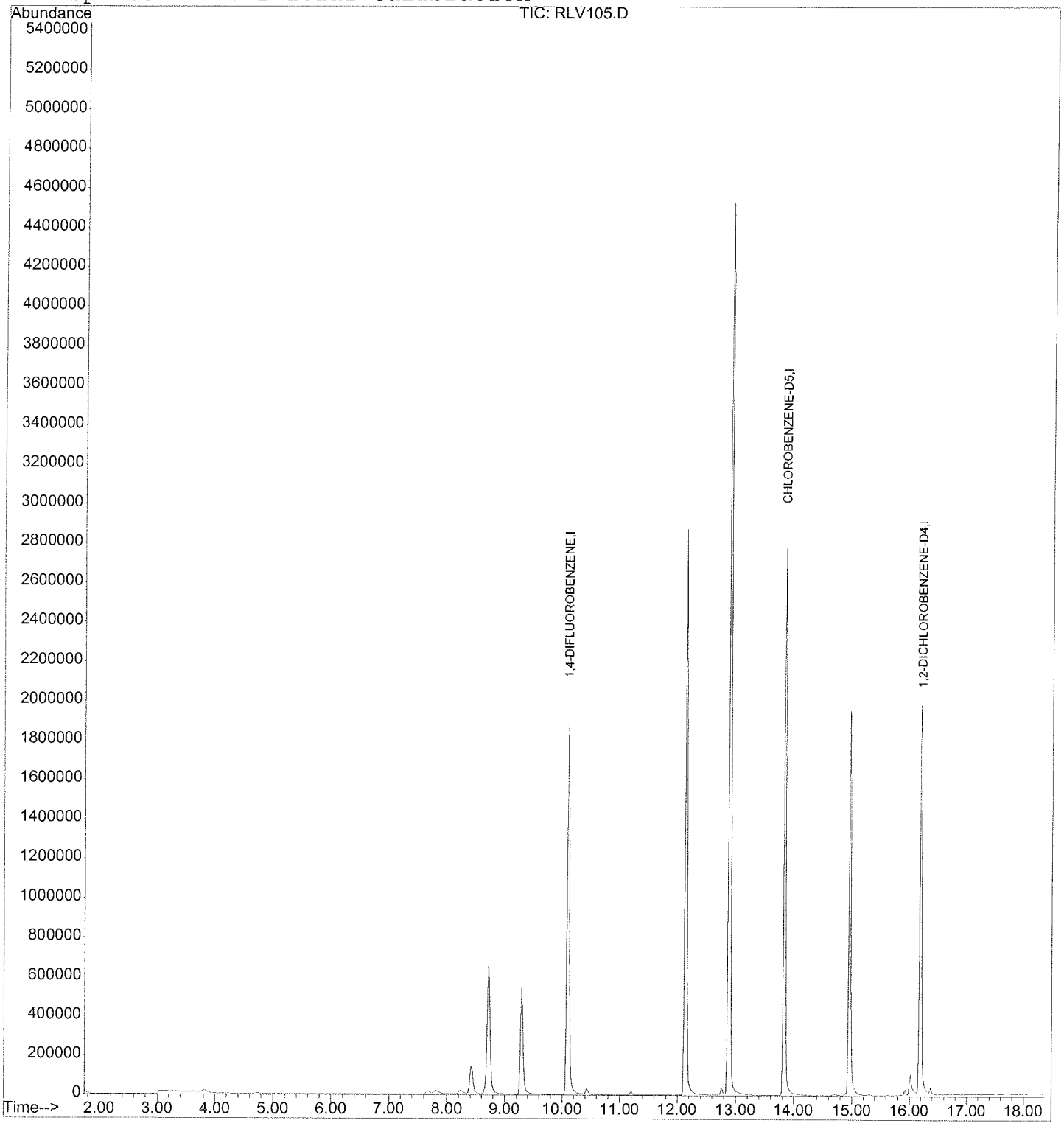
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV105.D VO01K06.M Mon Dec 16 09:43:43 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV105.D Vial: 15
Acq On : 13 Dec 2019 6:36 pm Operator: JCorea
Sample : 19L064-02N 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected:	12/07/19
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/12/19 16:57
Sample ID:	OU2-MW03RC-GW120719	Date Analyzed:	12/12/19 16:57
Lab Samp ID:	L064-03	Dilution Factor:	1
Lab File ID:	RLV086	Matrix	: WATER
Ext Btch ID:	VO01L04	% Moisture	: NA
Calib. Ref.:	RKV038	Instrument ID	: T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	0.14J	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.13J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	1.3	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	5.6	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.68	10.00	96.8	70-130
BROMOFLUOROBENZENE	9.30	10.00	93.0	70-130
TOLUENE-D8	10.0	10.00	100	70-130
DIBROMOFLUOROMETHANE	10.1	10.00	101	70-130

^ Incorporated by analysis using ICAL ID VO01K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV086.D Vial: 14
Acq On : 12 Dec 2019 4:57 pm Operator: JCorea
Sample : 19L064-03 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:57 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

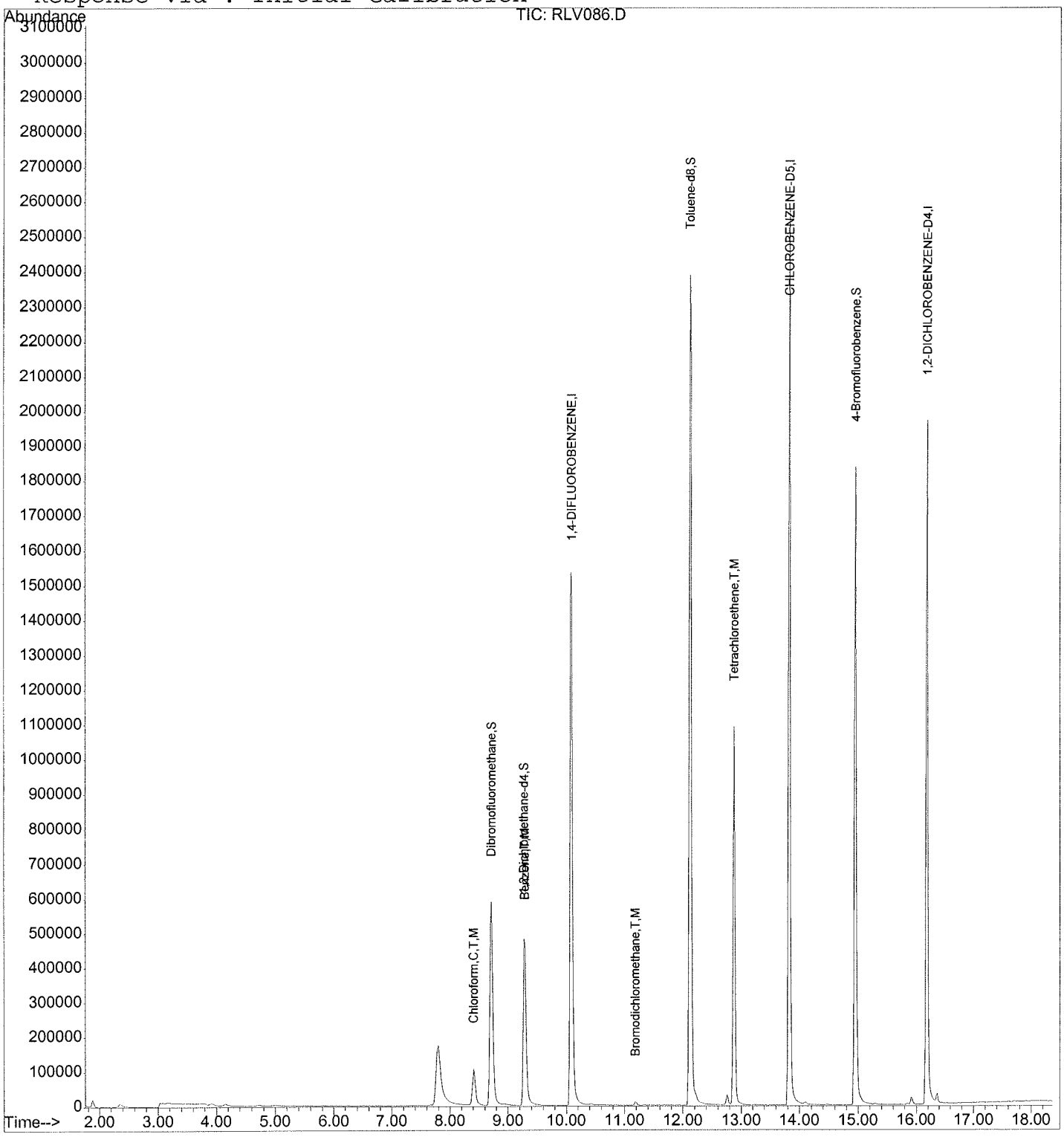
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	2030324	10.00	ug/l	-0.02
53) CHLOROBENZENE-D5	13.82	117	1815163	10.00	ug/l	-0.02
71) 1,2-DICHLOROBENZENE-D4	16.17	152	730239	10.00	ug/l	-0.02
System Monitoring Compounds						
34) Dibromofluoromethane	8.71	111	651399	10.08	ug/l	-0.02
Spiked Amount 10.000			Recovery =	100.80%		
38) 1,2-Dichloroethane-d4	9.28	65	546134	9.68	ug/l	-0.02
Spiked Amount 10.000			Recovery =	96.80%		
54) Toluene-d8	12.12	98	2320152	10.02	ug/l	-0.02
Spiked Amount 10.000			Recovery =	100.20%		
74) 4-Bromofluorobenzene	14.95	95	834094	9.30	ug/l	-0.02
Spiked Amount 10.000			Recovery =	93.00%		
Target Compounds						Qvalue
33) Chloroform	8.41	83	171211	1.29	ug/l	99
41) Benzene	9.29	78	34776	0.14	ug/l	95
49) Bromodichloromethane	11.19	83	10880	0.13	ug/l	96
59) Tetrachloroethene	12.87	164	344068	5.56	ug/l	97

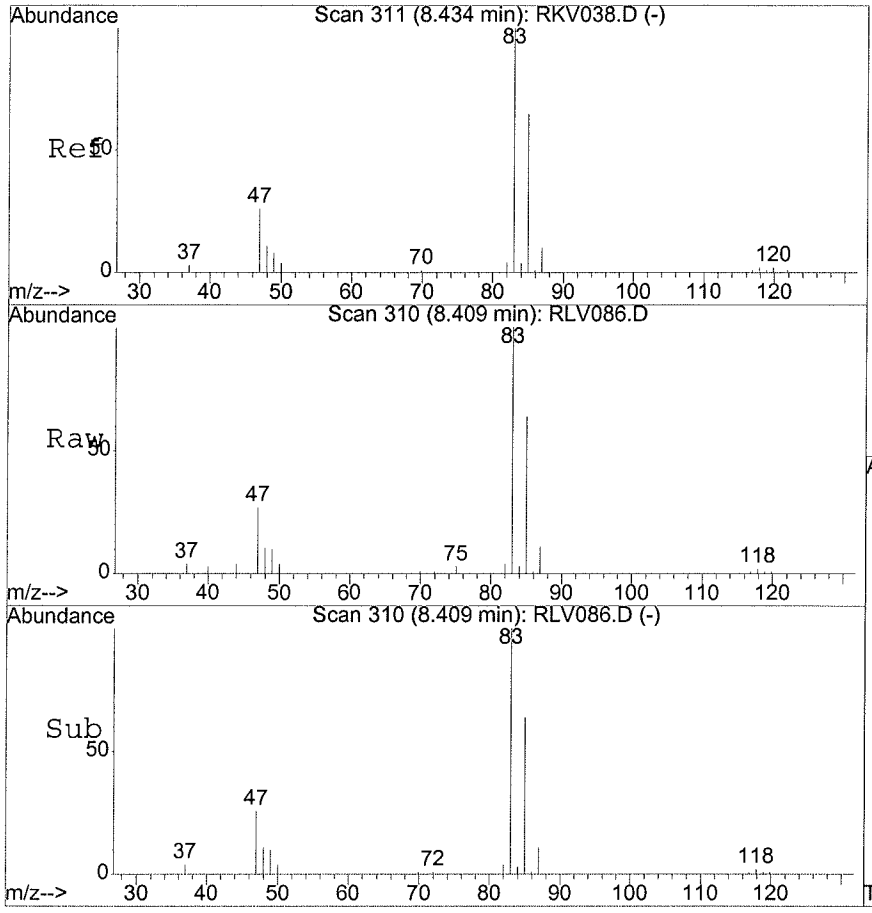
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV086.D Vial: 14
Acq On : 12 Dec 2019 4:57 pm Operator: JCorea
Sample : 19L064-03 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:57 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

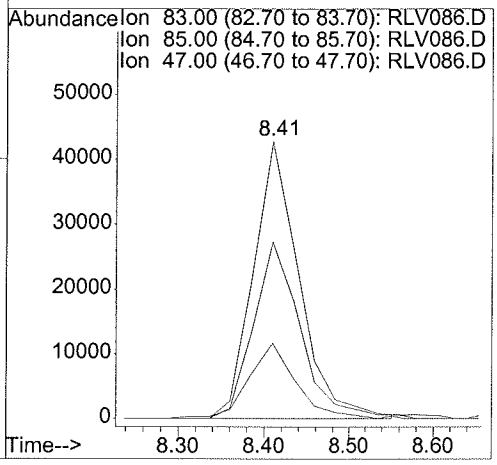


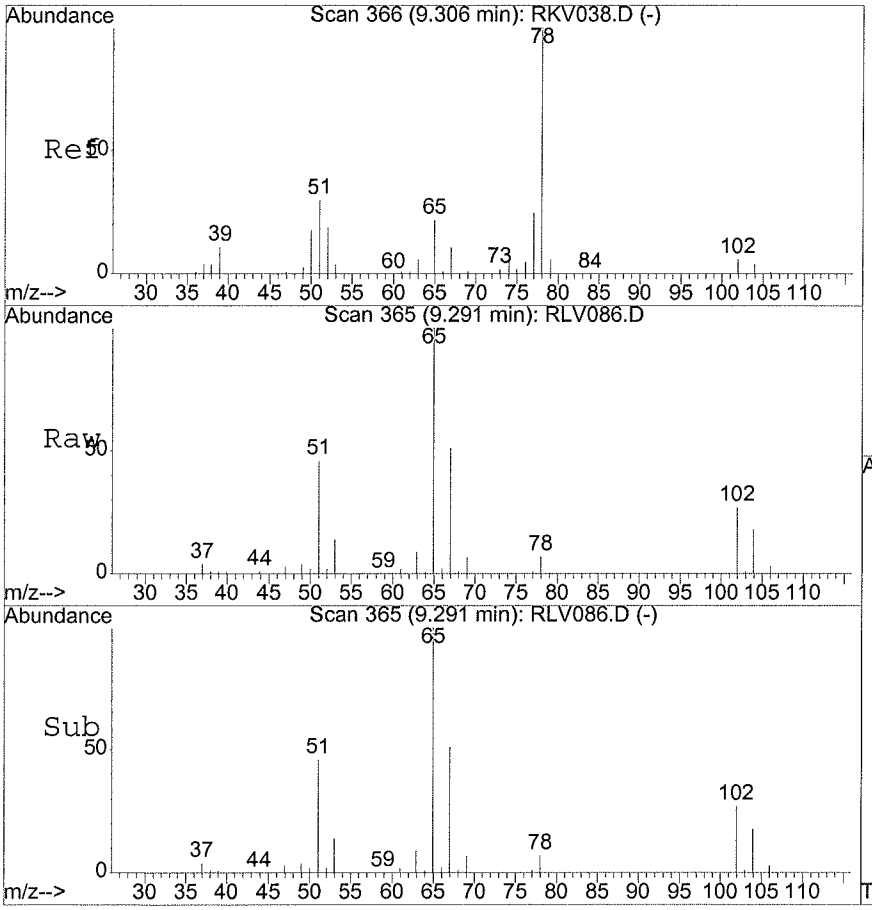


#33
Chloroform
Concen: 1.29 ug/l
RT: 8.41 min Scan# 310
Delta R.T. -0.02 min
Lab File: RLV086.D
Acq: 12 Dec 2019 4:57 pm

Tgt Ion: 83 Resp: 171211

Ion	Ratio	Lower	Upper
83	100		
85	65.4	34.5	94.5
47	28.5	0.0	59.1

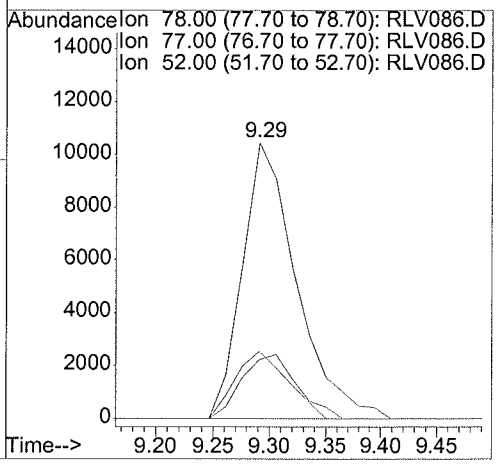


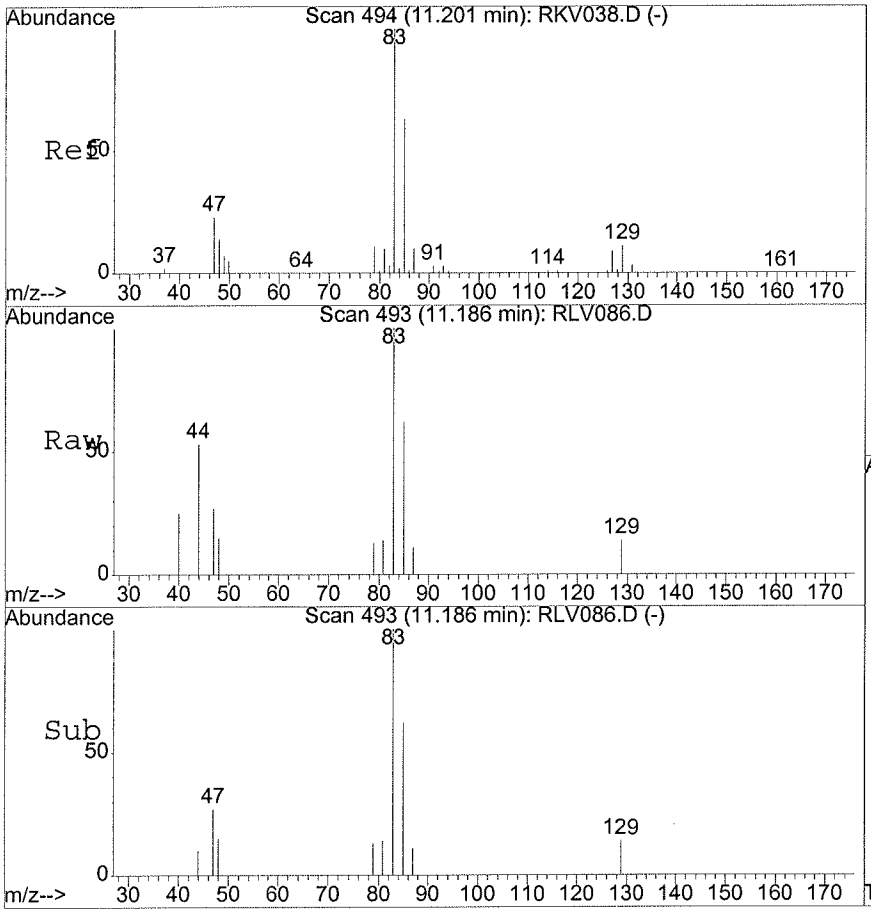


#41
Benzene
Concen: 0.14 ug/l
RT: 9.29 min Scan# 365
Delta R.T. -0.02 min
Lab File: RLV086.D
Acq: 12 Dec 2019 4:57 pm

Tgt Ion: 78 Resp: 34776

Ion	Ratio	Lower	Upper
78	100		
77	23.5	0.0	54.4
52	23.3	0.0	49.1

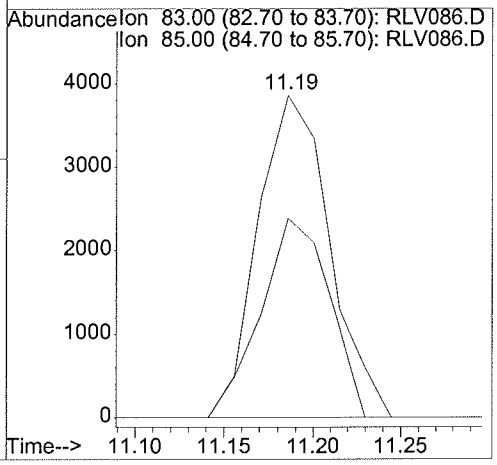


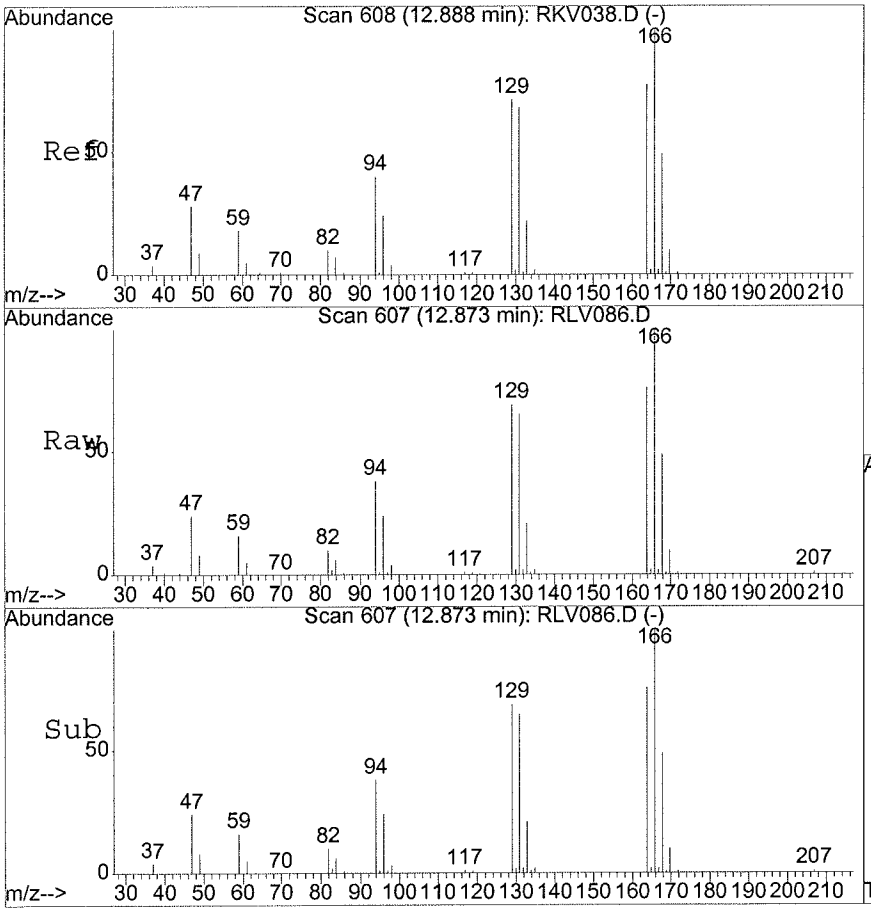


#49
Bromodichloromethane
Concen: 0.13 ug/l
RT: 11.19 min Scan# 493
Delta R.T. -0.02 min
Lab File: RLV086.D
Acq: 12 Dec 2019 4:57 pm

Tgt Ion: 83 Resp: 10880

Ion	Ratio	Lower	Upper
83	100		
85	59.5	32.7	92.7

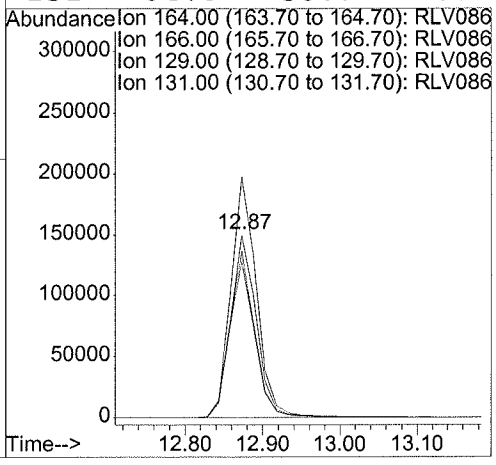




#59
Tetrachloroethene
Concen: 5.56 ug/l
RT: 12.87 min Scan# 607
Delta R.T. -0.02 min
Lab File: RLV086.D
Acq: 12 Dec 2019 4:57 pm

Tgt Ion:164 Resp: 344068

Ion	Ratio	Lower	Upper
164	100		
166	131.0	100.3	160.3
129	88.6	64.1	124.1
131	84.3	58.3	118.3



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV086.D Vial: 14
Acq On : 12 Dec 2019 4:57 pm Operator: JCorea
Sample : 19L064-03 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	2030324	10.00	ug/l	-0.02
3) CHLOROBENZENE-D5	13.82	117	1815163	10.00	ug/l	-0.02
4) 1,2-DICHLOROBENZENE-D4	16.17	152	730239	10.00	ug/l	-0.02

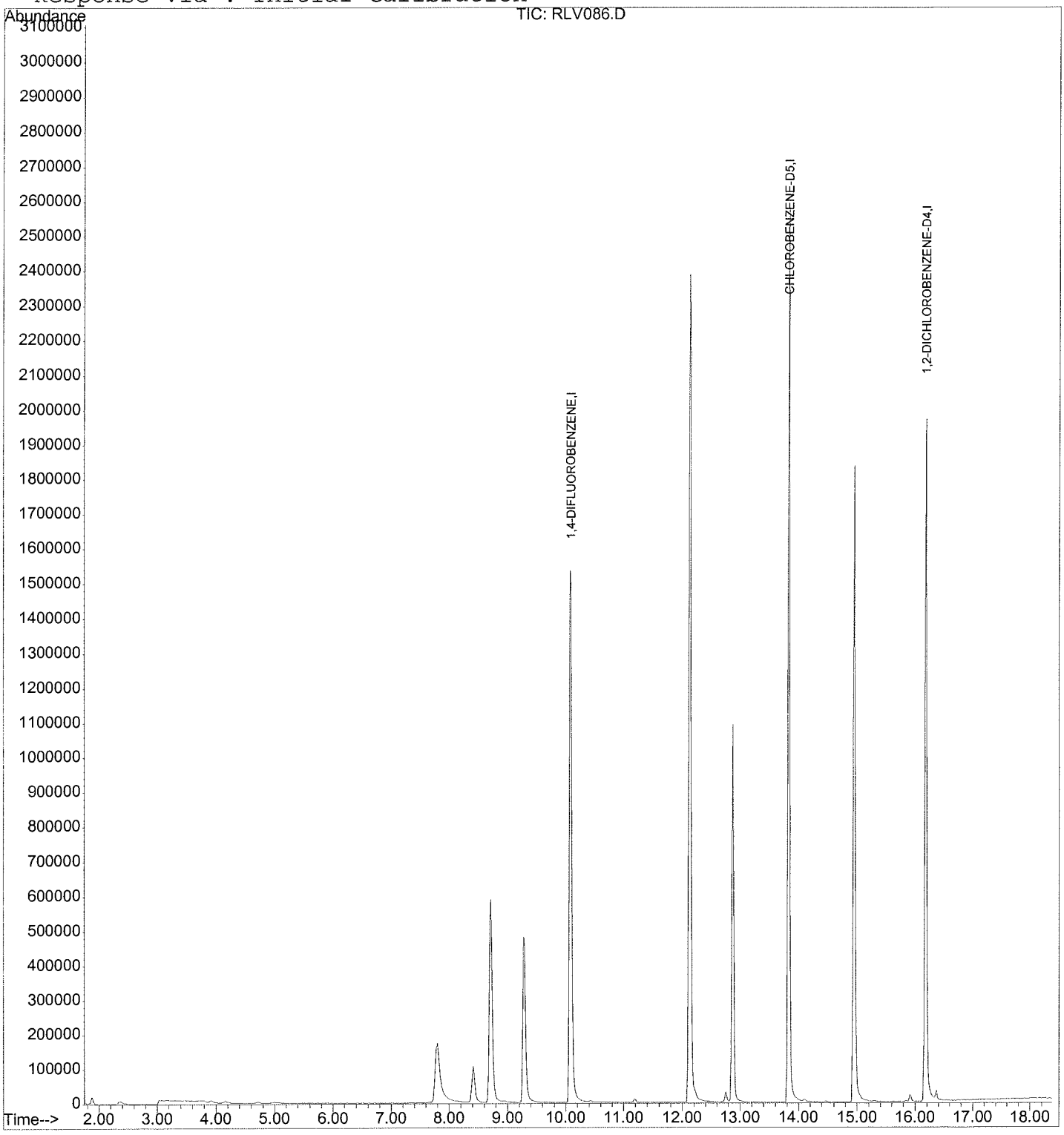
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV086.D VO01K06.M Fri Dec 13 10:23:23 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV086.D Vial: 14
Acq On : 12 Dec 2019 4:57 pm Operator: JCorea
Sample : 19L064-03 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/07/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 17:56
Sample ID: OU2-FD03-GW120719	Date Analyzed: 12/12/19 17:56
Lab Samp ID: L064-04	Dilution Factor: 1
Lab File ID: RLV088	Matrix : WATER
Ext Btch ID: V001L04	% Moisture : NA
Calib. Ref.: RKV038	Instrument ID : T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	2.4	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.64	10.00	96.4	70-130
BROMOFLUOROBENZENE	9.34	10.00	93.4	70-130
TOLUENE-D8	9.90	10.00	99.0	70-130
DIBROMOFLUOROMETHANE	10.2	10.00	102	70-130

^ Incorporated by analysis using ICAL ID V001K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV088.D Vial: 16
Acq On : 12 Dec 2019 5:56 pm Operator: JCorea
Sample : 19L064-04 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:58 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

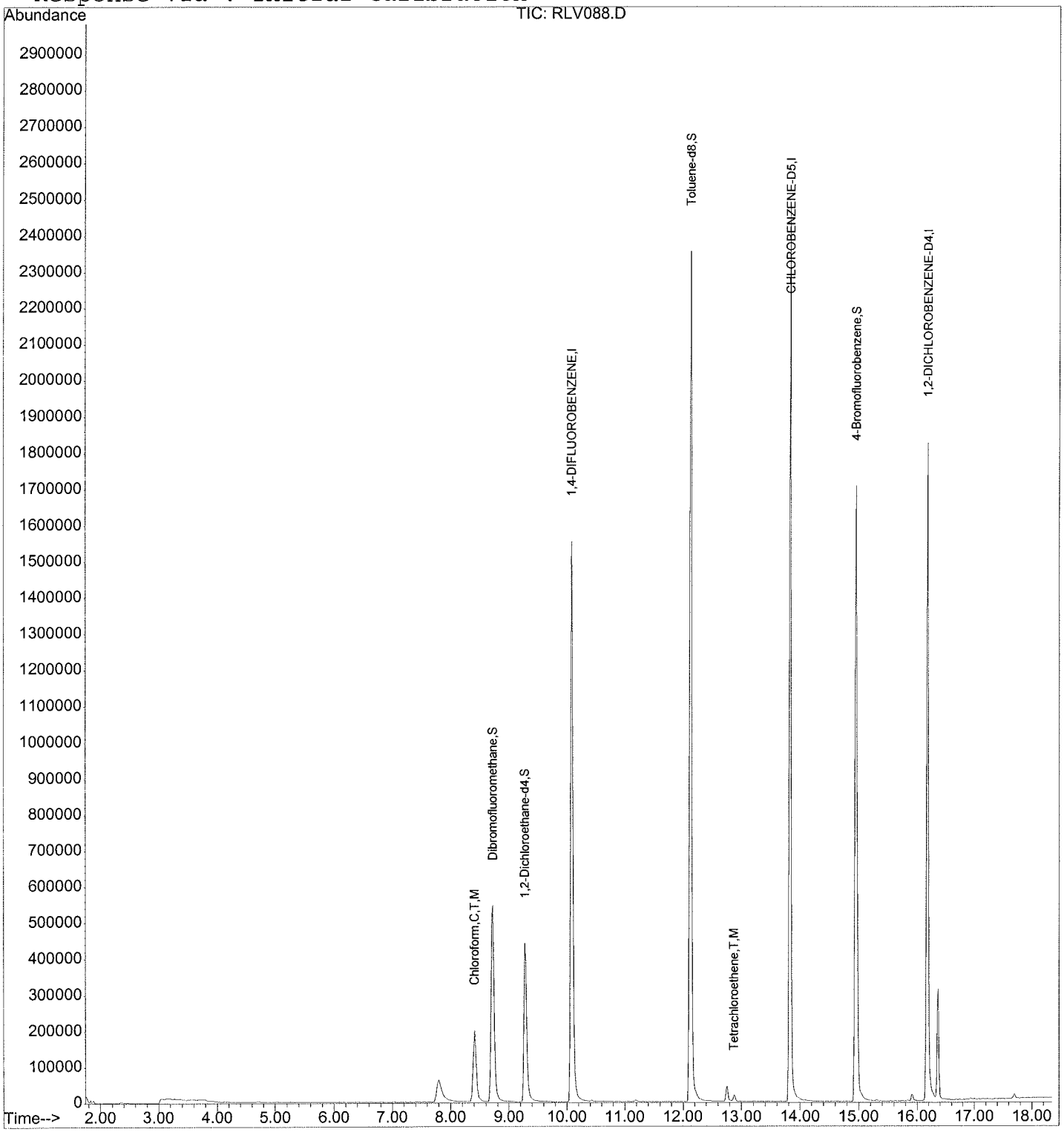
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1905679	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	1727986	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.18	152	671685	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.71	111	618311	10.20	ug/l	-0.01
Spiked Amount 10.000			Recovery =	102.00%		
38) 1,2-Dichloroethane-d4	9.28	65	510623	9.64	ug/l	-0.01
Spiked Amount 10.000			Recovery =	96.40%		
54) Toluene-d8	12.12	98	2181825	9.90	ug/l	-0.01
Spiked Amount 10.000			Recovery =	99.00%		
74) 4-Bromofluorobenzene	14.95	95	770754	9.34	ug/l	-0.01
Spiked Amount 10.000			Recovery =	93.40%		
Target Compounds						Qvalue
33) Chloroform	8.41	83	304427	2.44	ug/l	93
59) Tetrachloroethene	12.87	164	6030	0.10	ug/l	94

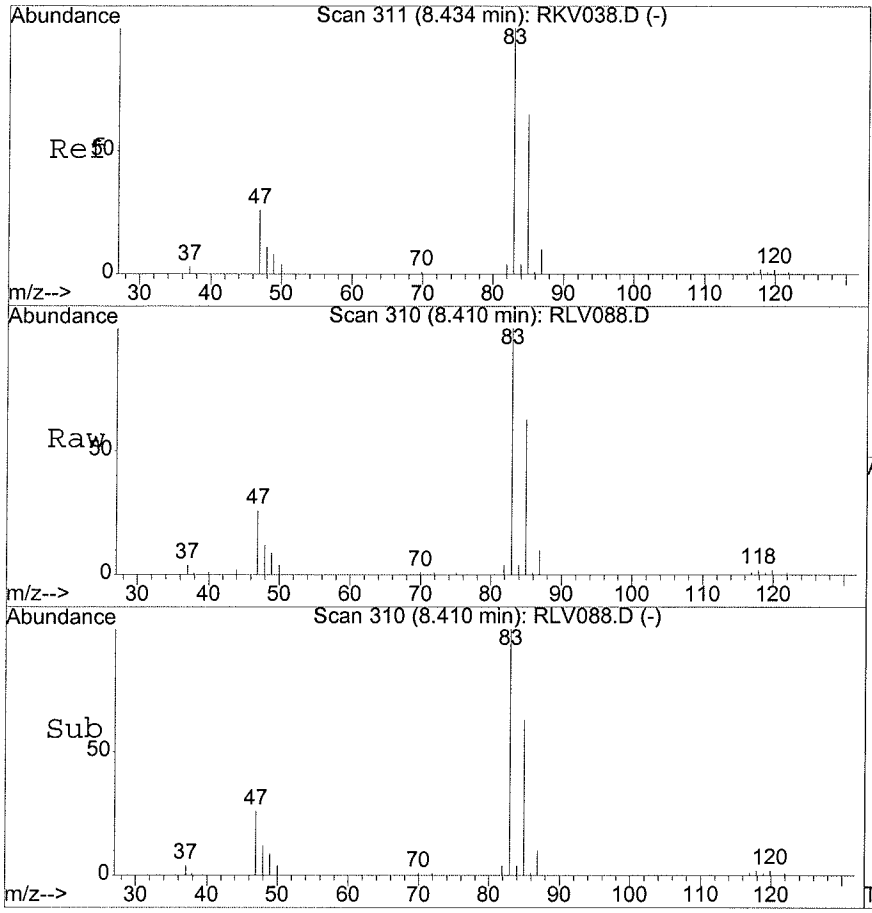
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV088.D Vial: 16
Acq On : 12 Dec 2019 5:56 pm Operator: JCorea
Sample : 19L064-04 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:58 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

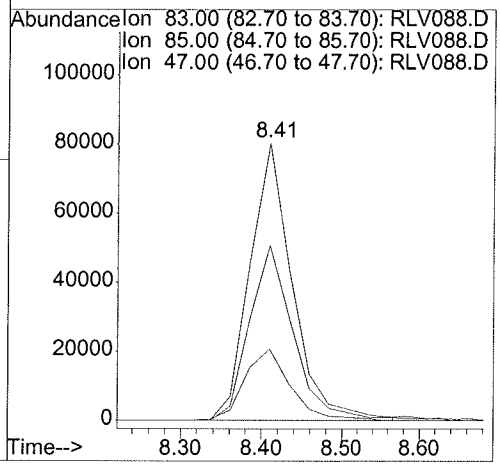


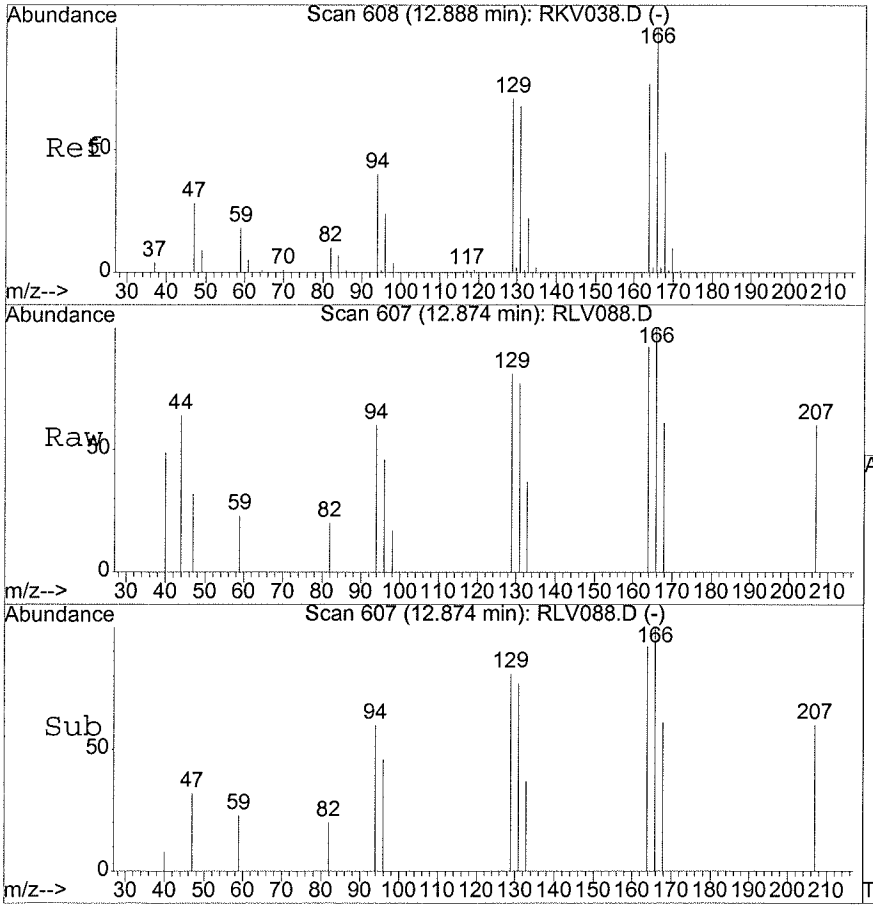


#33
Chloroform
Concen: 2.44 ug/l
RT: 8.41 min Scan# 310
Delta R.T. -0.02 min
Lab File: RLV088.D
Acq: 12 Dec 2019 5:56 pm

Tgt Ion: 83 Resp: 304427

Ion	Ratio	Lower	Upper
83	100		
85	71.9	34.5	94.5
47	28.8	0.0	59.1

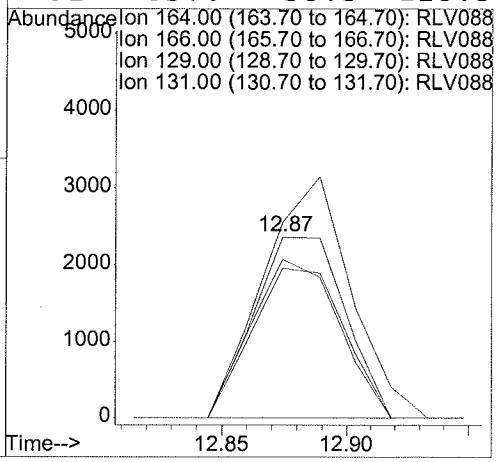




#59
Tetrachloroethene
Concen: 0.10 ug/l
RT: 12.87 min Scan# 607
Delta R.T. -0.01 min
Lab File: RLV088.D
Acq: 12 Dec 2019 5:56 pm

Tgt Ion:164 Resp: 6030

Ion	Ratio	Lower	Upper
164	100		
166	128.1	100.3	160.3
129	83.9	64.1	124.1
131	83.0	58.3	118.3



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV088.D Vial: 16
Acq On : 12 Dec 2019 5:56 pm Operator: JCorea
Sample : 19L064-04 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1905679	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	1727986	10.00	ug/l	-0.01
4) 1,2-DICHLOROBENZENE-D4	16.18	152	671685	10.00	ug/l	-0.01

Target Compounds Qvalue

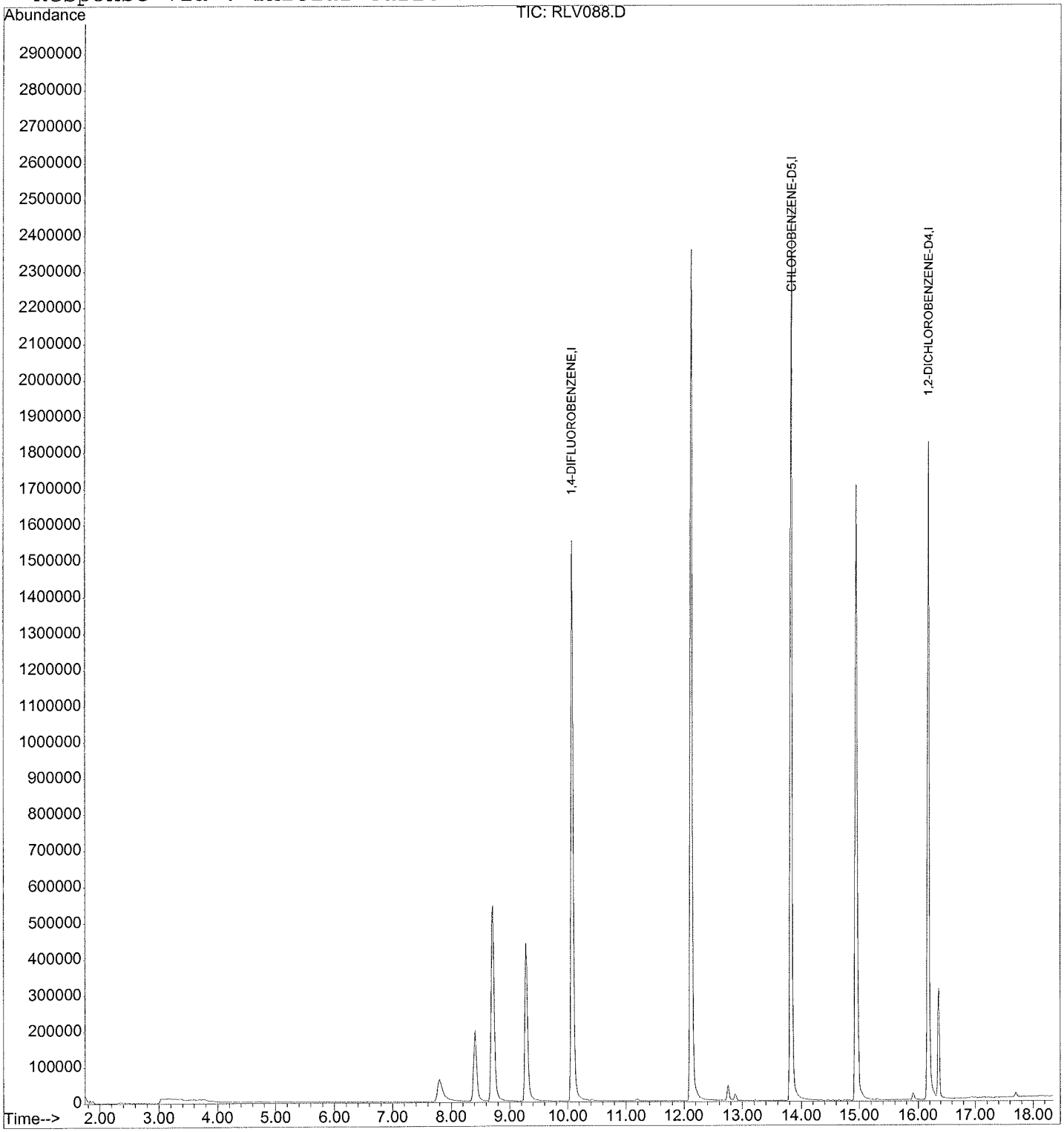
(#) = qualifier out of range (m) = manual integration
RLV088.D VO01K06.M Fri Dec 13 10:23:31 2019 Page 1

Data File : D:\HPCHEM\1\DATA\19L12\RLV088.D
Acq On : 12 Dec 2019 5:56 pm
Sample : 19L064-04 25mL
Misc : DF=1.0
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019

Vial: 16
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/09/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 12:22
Sample ID: OU2-TB06-GW120918	Date Analyzed: 12/12/19 12:22
Lab Samp ID: L064-05	Dilution Factor: 1
Lab File ID: RLV079	Matrix : WATER
Ext Btch ID: V001L04	% Moisture : NA
Calib. Ref.: RKV038	Instrument ID : T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	ND	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.43	10.00	84.3	70-130
BROMOFLUOROBENZENE	8.87	10.00	88.7	70-130
TOLUENE-D8	9.85	10.00	98.5	70-130
DIBROMOFLUOROMETHANE	9.65	10.00	96.5	70-130

^ Incorporated by analysis using ICAL ID V001K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV079.D Vial: 7
Acq On : 12 Dec 2019 12:22 pm Operator: JCorea
Sample : 19L064-05 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:35 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

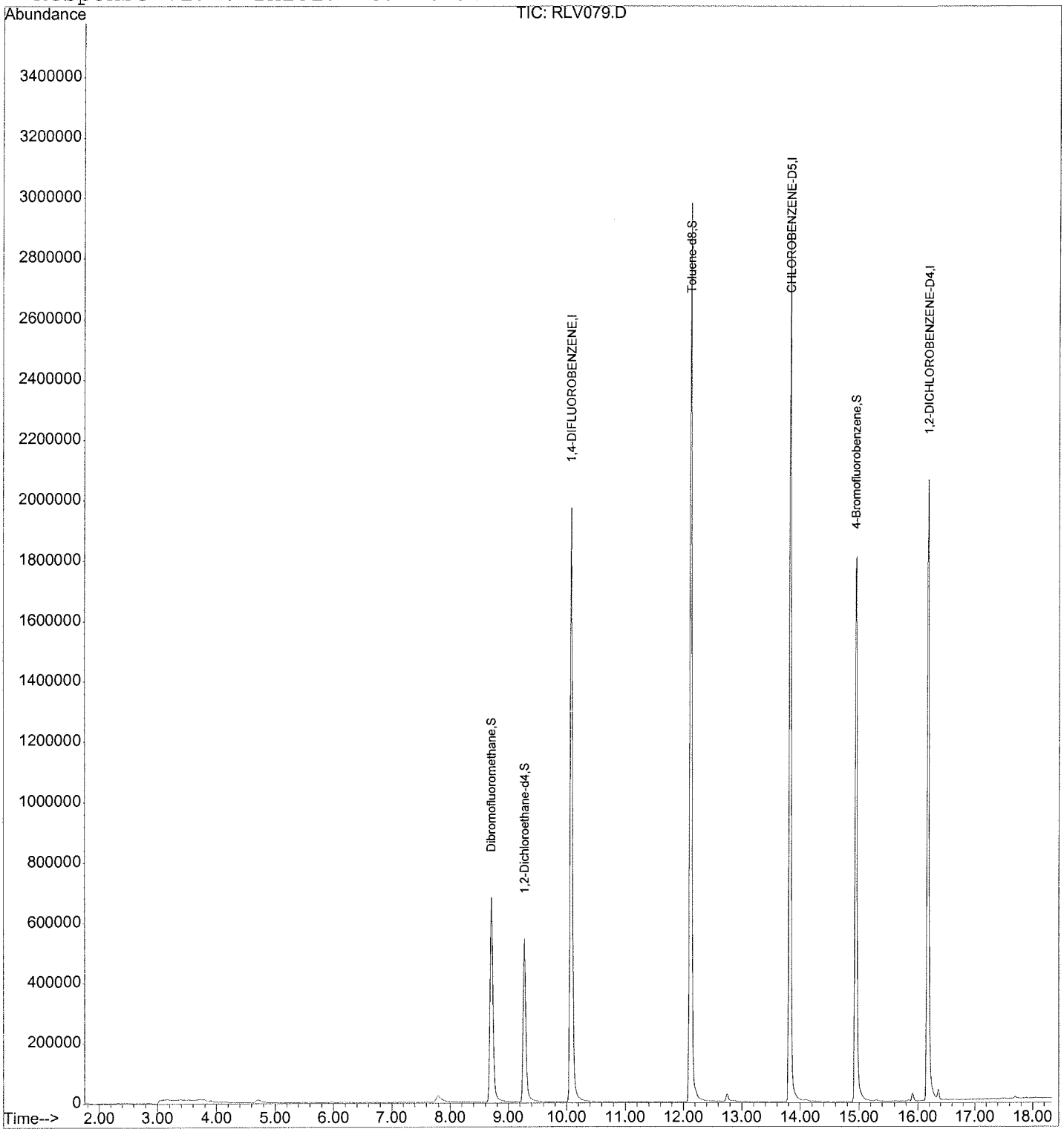
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2462311	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	2165943	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.18	152	884118	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.70	111	755989	9.65	ug/l	-0.03
Spiked Amount 10.000			Recovery =	96.50%		
38) 1,2-Dichloroethane-d4	9.28	65	577142	8.43	ug/l	-0.01
Spiked Amount 10.000			Recovery =	84.30%		
54) Toluene-d8	12.12	98	2722400	9.85	ug/l	-0.01
Spiked Amount 10.000			Recovery =	98.50%		
74) 4-Bromofluorobenzene	14.93	95	963901	8.87	ug/l	-0.03
Spiked Amount 10.000			Recovery =	88.70%		

Target Compounds Qvalue

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

Data File : D:\HPCHEM\1\DATA\19L12\RLV079.D Vial: 7
Acq On : 12 Dec 2019 12:22 pm Operator: JCorea
Sample : 19L064-05 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:35 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV079.D Vial: 7
Acq On : 12 Dec 2019 12:22 pm Operator: JCorea
Sample : 19L064-05 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2462311	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	2165943	10.00	ug/l	-0.01
4) 1,2-DICHLOROBENZENE-D4	16.18	152	884118	10.00	ug/l	-0.01

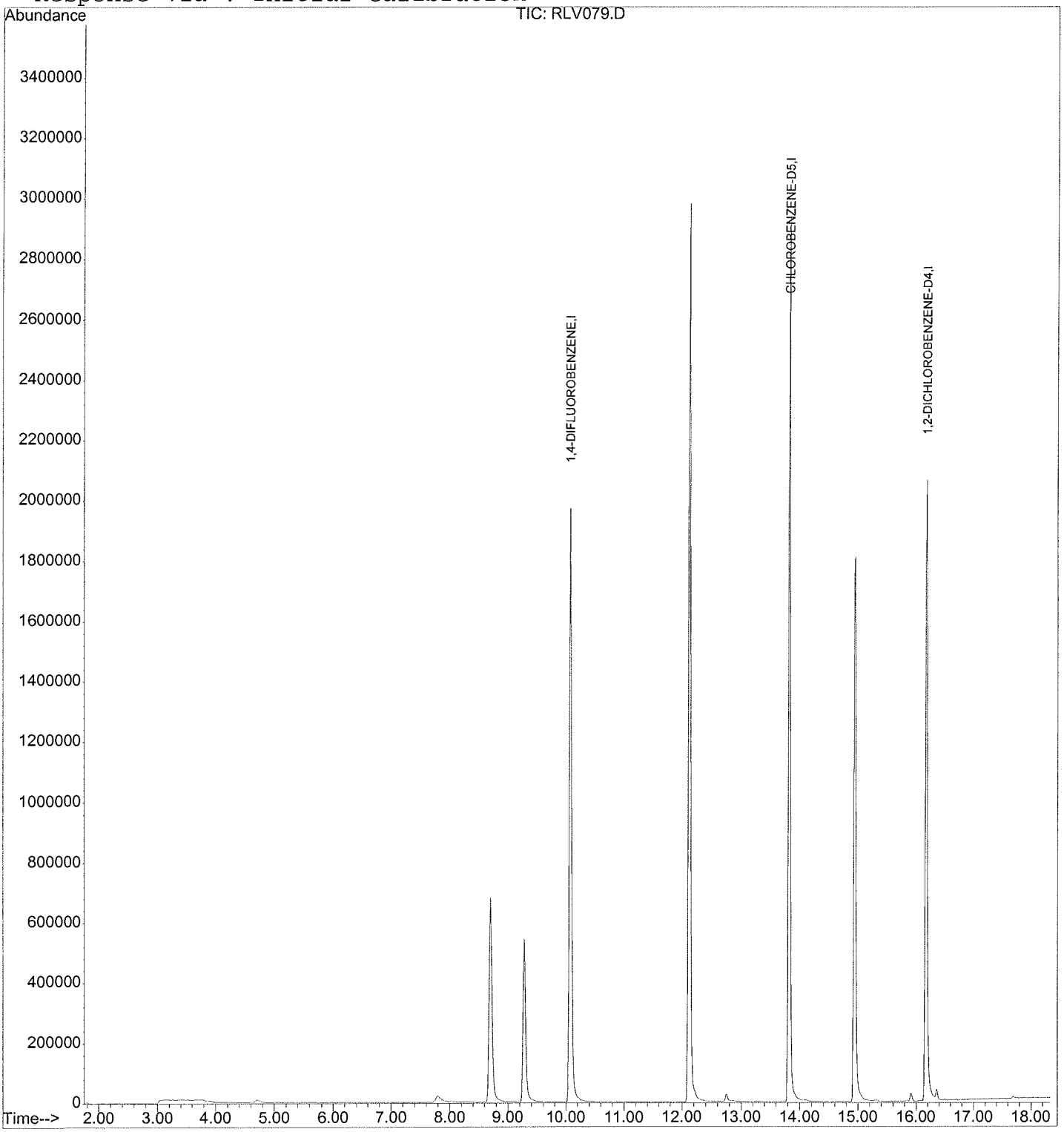
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV079.D VO01K06.M Fri Dec 13 10:22:51 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV079.D Vial: 7
Acq On : 12 Dec 2019 12:22 pm Operator: JCorea
Sample : 19L064-05 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected	: 12/07/19
Project	: VA SALT LAKE CITY	Date Received	: 12/10/19
Batch No.	: 19L064	Date Extracted	: 12/12/19 18:24
Sample ID	: OU2-MW15S-GW120719	Date Analyzed	: 12/12/19 18:24
Lab Samp ID	: L064-06	Dilution Factor	: 1
Lab File ID	: RLV089	Matrix	: WATER
Ext Btch ID	: V001L04	% Moisture	: NA
Calib. Ref.	: RKV038	Instrument ID	: T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	1.6	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	0.26J	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.77	10.00	97.7	70-130
BROMOFLUOROBENZENE	9.17	10.00	91.7	70-130
TOLUENE-D8	9.88	10.00	98.8	70-130
DIBROMOFLUOROMETHANE	10.3	10.00	103	70-130

^ Incorporated by analysis using ICAL ID V001K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV089.D Vial: 17
Acq On : 12 Dec 2019 6:24 pm Operator: JCorea
Sample : 19L064-06 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:59 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1821539	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	1651192	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.17	152	667818	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.70	111	597241	10.31	ug/l	-0.03
Spiked Amount 10.000			Recovery =	103.10%		
38) 1,2-Dichloroethane-d4	9.28	65	494612	9.77	ug/l	-0.01
Spiked Amount 10.000			Recovery =	97.70%		
54) Toluene-d8	12.12	98	2081569	9.88	ug/l	-0.01
Spiked Amount 10.000			Recovery =	98.80%		
74) 4-Bromofluorobenzene	14.95	95	752478	9.17	ug/l	-0.01
Spiked Amount 10.000			Recovery =	91.70%		
Target Compounds						Qvalue
33) Chloroform	8.41	83	196397	1.65	ug/l	96
59) Tetrachloroethene	12.87	164	14669	0.26	ug/l	94

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

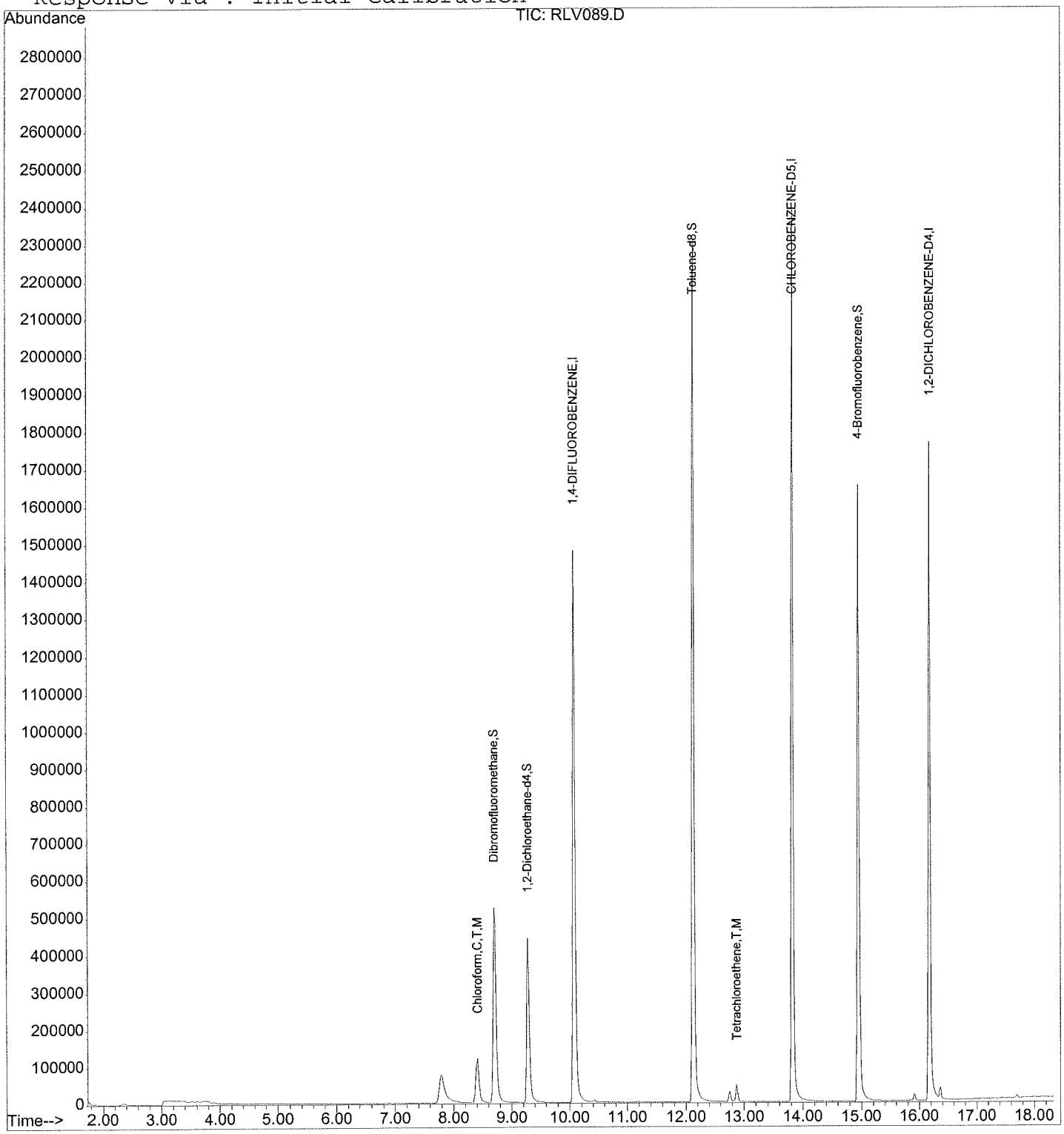
Quantitation Report

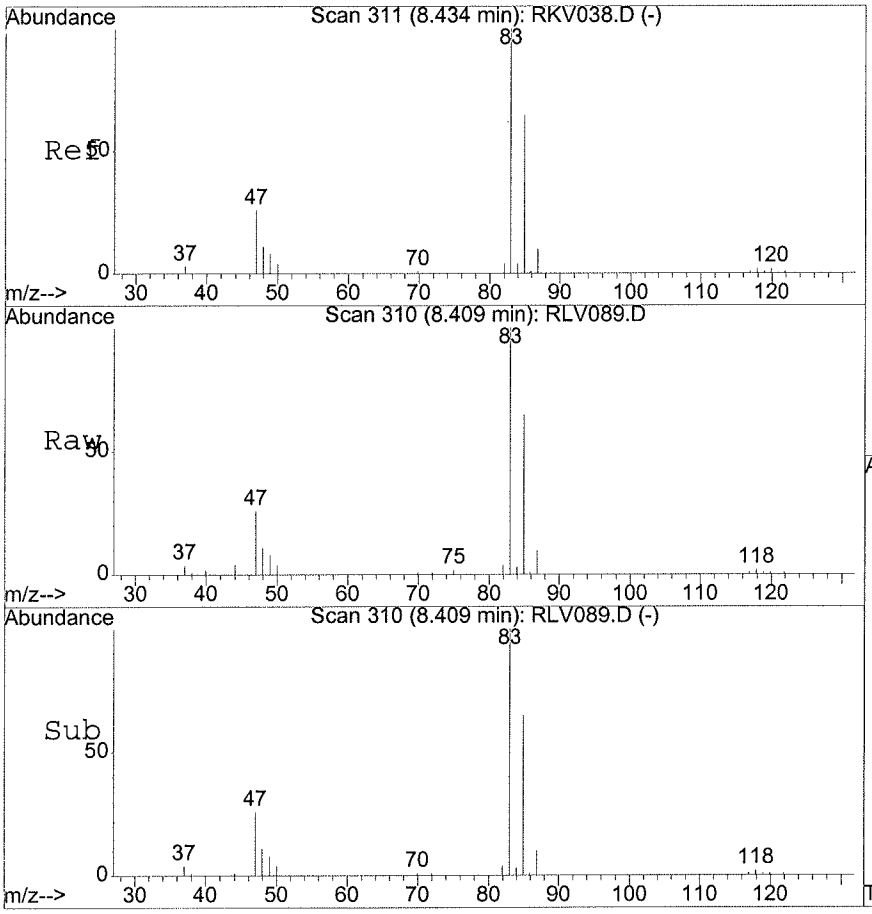
Data File : D:\HPCHEM\1\DATA\19L12\RLV089.D
Acq On : 12 Dec 2019 6:24 pm
Sample : 19L064-06 25mL
Misc : DF=1.0
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:59 2019

Vial: 17
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

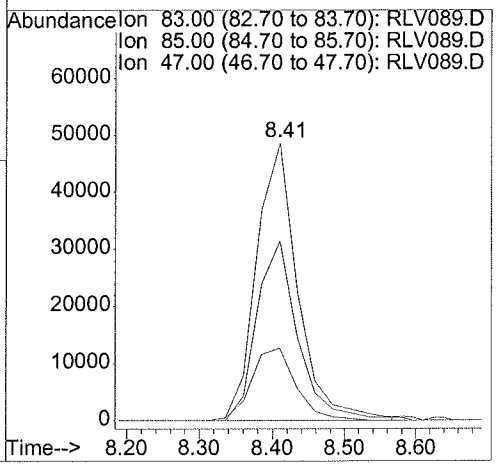


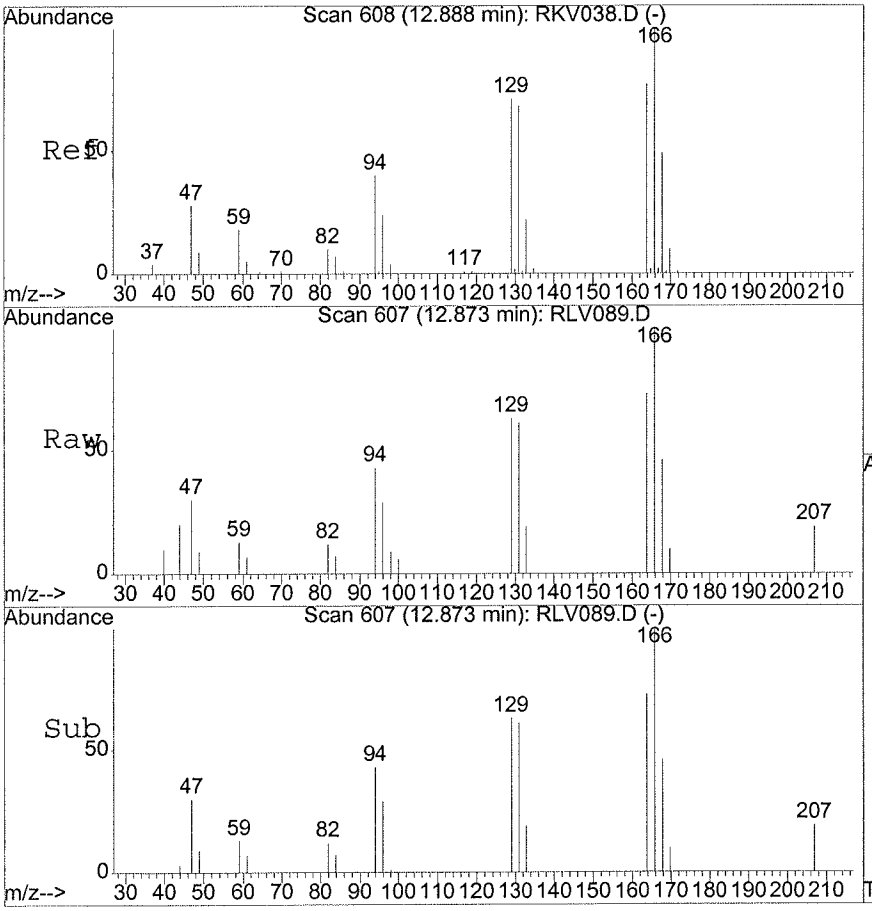


#33
Chloroform
Concen: 1.65 ug/l
RT: 8.41 min Scan# 310
Delta R.T. -0.02 min
Lab File: RLV089.D
Acq: 12 Dec 2019 6:24 pm

Tgt Ion: 83 Resp: 196397

Ion	Ratio	Lower	Upper
83	100		
85	67.6	34.5	94.5
47	30.9	0.0	59.1

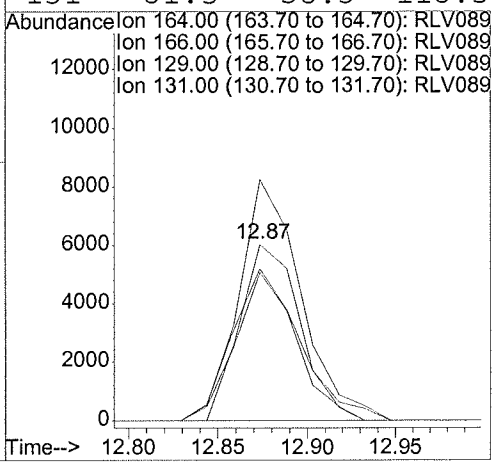




#59
Tetrachloroethene
Concen: 0.26 ug/l
RT: 12.87 min Scan# 607
Delta R.T. -0.01 min
Lab File: RLV089.D
Acq: 12 Dec 2019 6:24 pm

Tgt Ion:164 Resp: 14669

Ion	Ratio	Lower	Upper
164	100		
166	136.1	100.3	160.3
129	89.4	64.1	124.1
131	81.5	58.3	118.3



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV089.D Vial: 17
Acq On : 12 Dec 2019 6:24 pm Operator: JCorea
Sample : 19L064-06 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1821539	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	1651192	10.00	ug/l	-0.02
4) 1,2-DICHLOROBENZENE-D4	16.17	152	667818	10.00	ug/l	-0.01

Target Compounds Qvalue

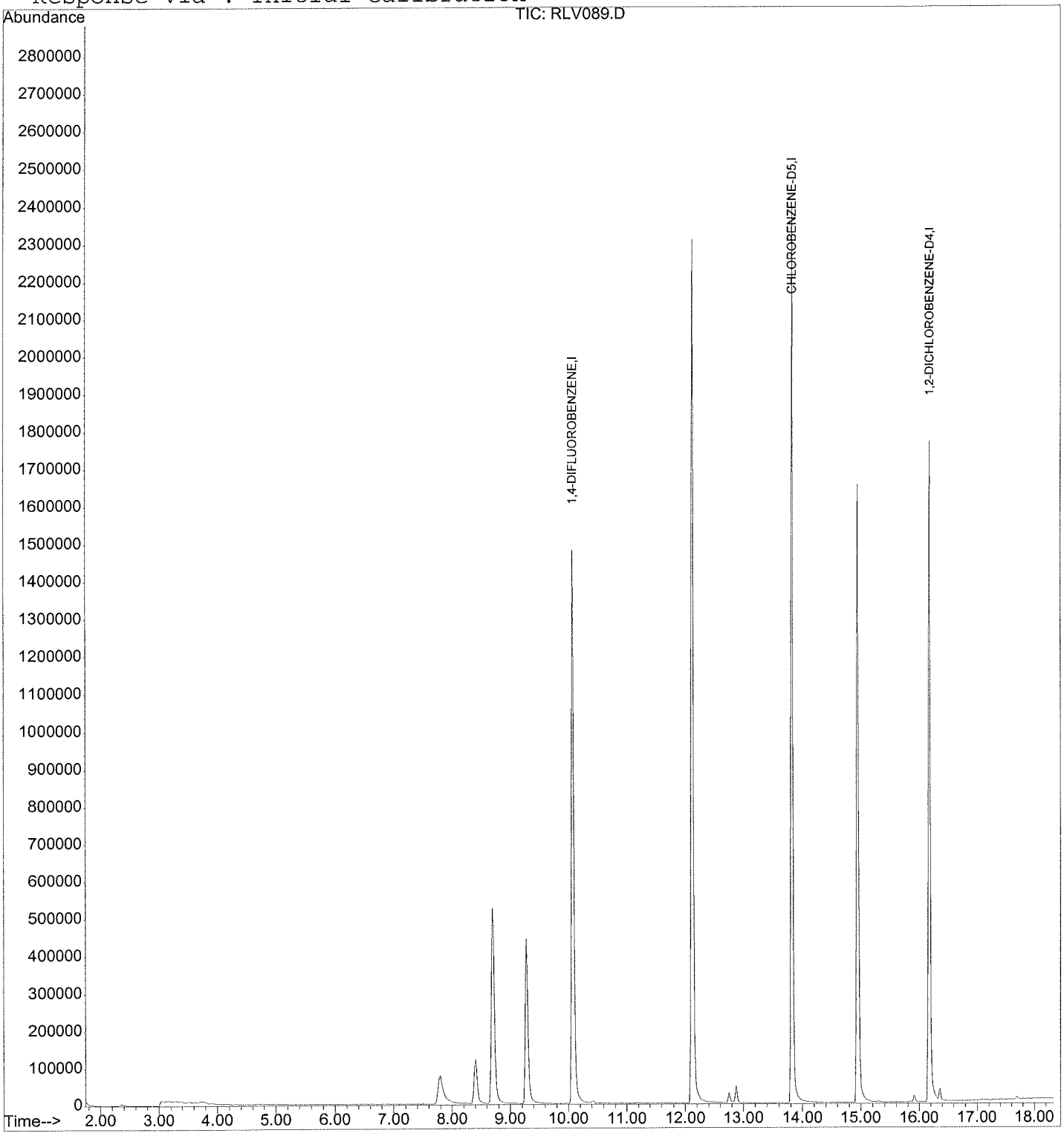
(#) = qualifier out of range (m) = manual integration
RLV089.D VO01K06.M Fri Dec 13 10:23:35 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV089.D
Acq On : 12 Dec 2019 6:24 pm
Sample : 19L064-06 25mL
Misc : DF=1.0
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019

Vial: 17
Operator: JCorea
Inst : 01
Multiplr: 1.00
Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected:	12/07/19
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/13/19 19:04
Sample ID:	OU2-MW15D-GW120719	Date Analyzed:	12/13/19 19:04
Lab Samp ID:	L064-07N	Dilution Factor:	1
Lab File ID:	RLV106	Matrix :	WATER
Ext Btch ID:	VO01L05	% Moisture :	NA
Calib. Ref.:	RKV038	Instrument ID :	T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	2.5	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.71	10.00	97.1	70-130
BROMOFLUOROBENZENE	8.85	10.00	88.5	70-130
TOLUENE-D8	9.73	10.00	97.3	70-130
DIBROMOFLUOROMETHANE	10.2	10.00	102	70-130

^ Incorporated by analysis using ICAL ID VO01K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV106.D Vial: 16
Acq On : 13 Dec 2019 7:04 pm Operator: JCorea
Sample : 19L064-07N 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 11:23 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

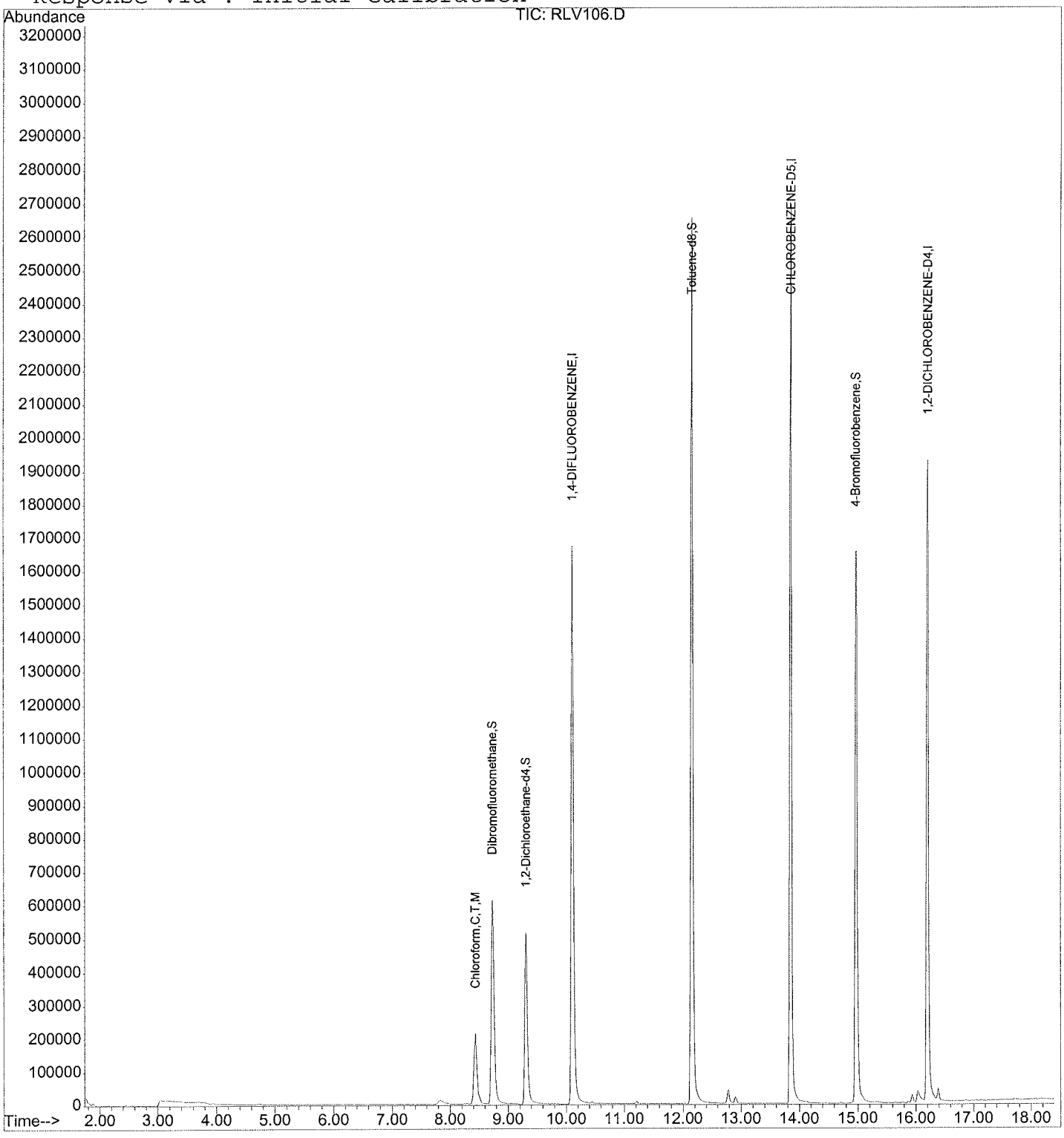
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.11	114	2096424	10.00	ug/l	0.00
53) CHLOROBENZENE-D5	13.85	117	1951873	10.00	ug/l	0.02
71) 1,2-DICHLOROBENZENE-D4	16.20	152	801029	10.00	ug/l	0.02
System Monitoring Compounds						
34) Dibromofluoromethane	8.73	111	682273	10.23	ug/l	0.00
Spiked Amount 10.000			Recovery = 102.30%			
38) 1,2-Dichloroethane-d4	9.31	65	565483	9.71	ug/l	0.02
Spiked Amount 10.000			Recovery = 97.10%			
54) Toluene-d8	12.15	98	2423783	9.73	ug/l	0.02
Spiked Amount 10.000			Recovery = 97.30%			
74) 4-Bromofluorobenzene	14.96	95	871333	8.85	ug/l	0.00
Spiked Amount 10.000			Recovery = 88.50%			
Target Compounds						Qvalue
33) Chloroform	8.43	83	340859	2.49	ug/l	97

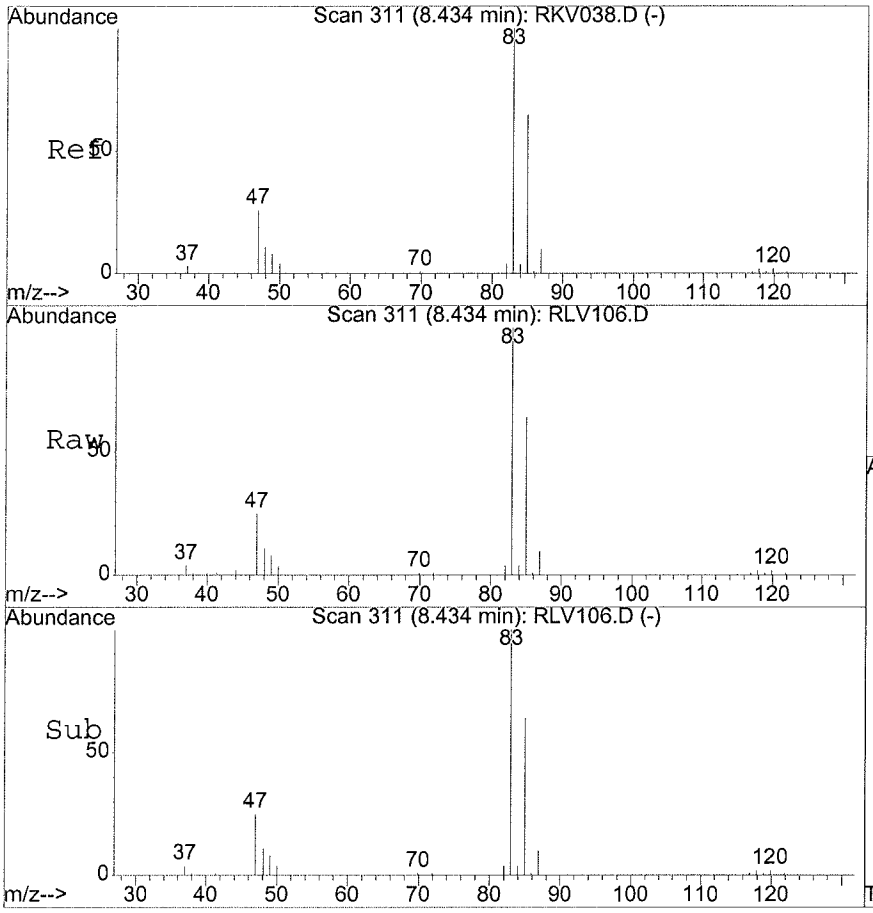
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV106.D Vial: 16
Acq On : 13 Dec 2019 7:04 pm Operator: JCorea
Sample : 19L064-07N 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 11:23 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

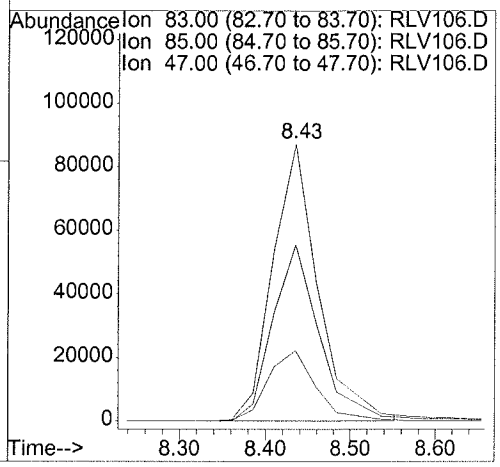




#33
Chloroform
Concen: 2.49 ug/l
RT: 8.43 min Scan# 311
Delta R.T. 0.00 min
Lab File: RLV106.D
Acq: 13 Dec 2019 7:04 pm

Tgt Ion: 83 Resp: 340859

Ion	Ratio	Lower	Upper
83	100		
85	65.9	34.5	94.5
47	25.8	0.0	59.1



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV106.D Vial: 16
Acq On : 13 Dec 2019 7:04 pm Operator: JCorea
Sample : 19L064-07N 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.11	114	2096424	10.00	ug/l	0.00
3) CHLOROBENZENE-D5	13.85	117	1951873	10.00	ug/l	0.01
4) 1,2-DICHLOROBENZENE-D4	16.20	152	801029	10.00	ug/l	0.02

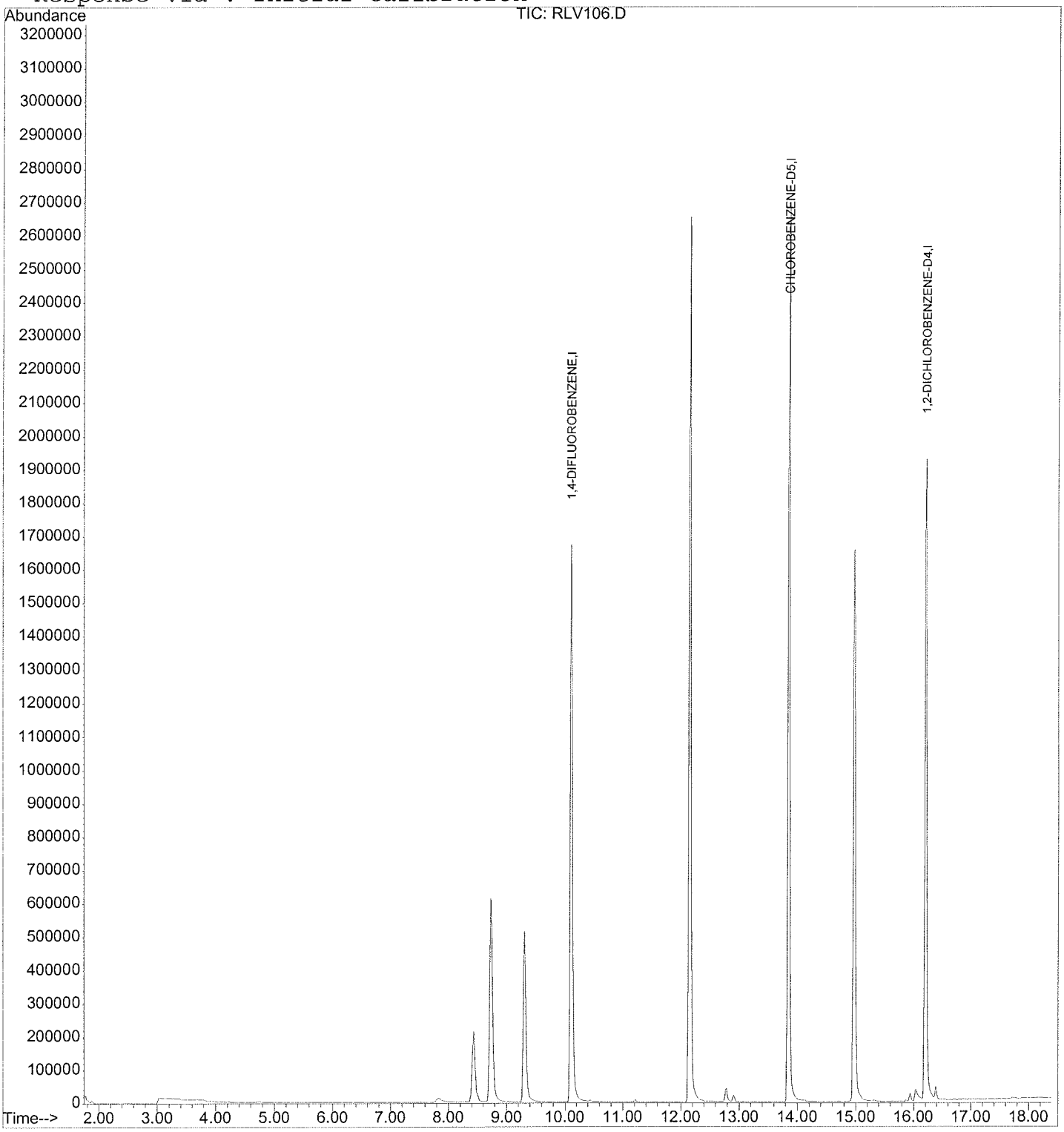
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV106.D VO01K06.M Mon Dec 16 09:43:47 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV106.D Vial: 16
Acq On : 13 Dec 2019 7:04 pm Operator: JCorea
Sample : 19L064-07N 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected	: 12/07/19
Project	: VA SALT LAKE CITY	Date Received	: 12/10/19
Batch No.	: 19L064	Date Extracted	: 12/16/19 17:21
Sample ID	: OU2-MW03RA-GW120719	Date Analyzed	: 12/16/19 17:21
Lab Samp ID	: L064-08N	Dilution Factor	: 1
Lab File ID	: RLV134	Matrix	: WATER
Ext Btch ID	: V001L06	% Moisture	: NA
Calib. Ref.	: RKV038	Instrument ID	: T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	5.1	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	32	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	0.18J	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	10.3	10.00	103	70-130
BROMOFLUOROBENZENE	9.32	10.00	93.2	70-130
TOLUENE-D8	9.79	10.00	97.9	70-130
DIBROMOFLUOROMETHANE	10.6	10.00	106	70-130

^ Incorporated by analysis using ICAL ID V001K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV134.D Vial: 16
Acq On : 16 Dec 2019 5:21 pm Operator: JCorea
Sample : 19L064-08N 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 15:11 2019 Quant Results File: VO01K05A.RES

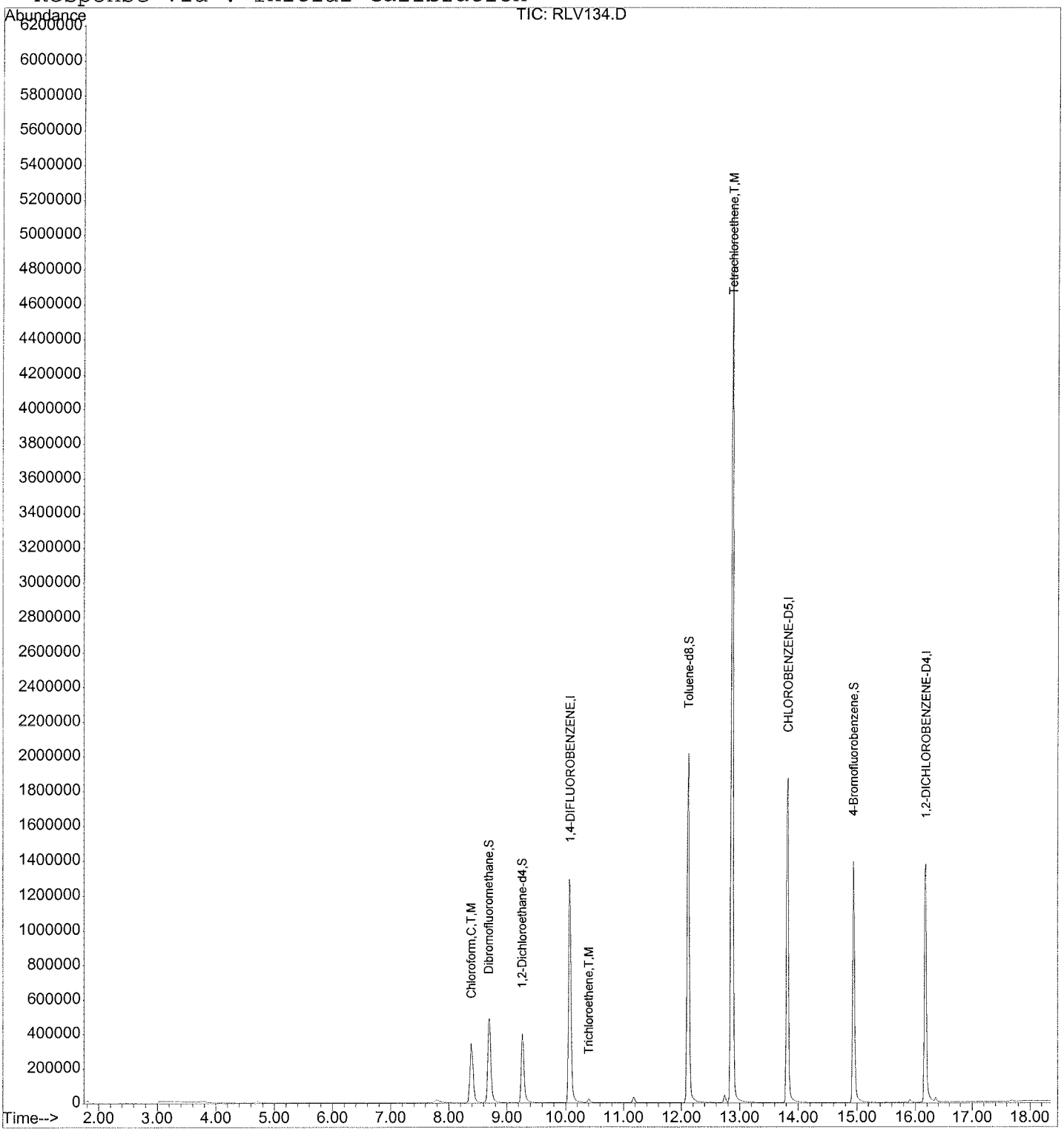
Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

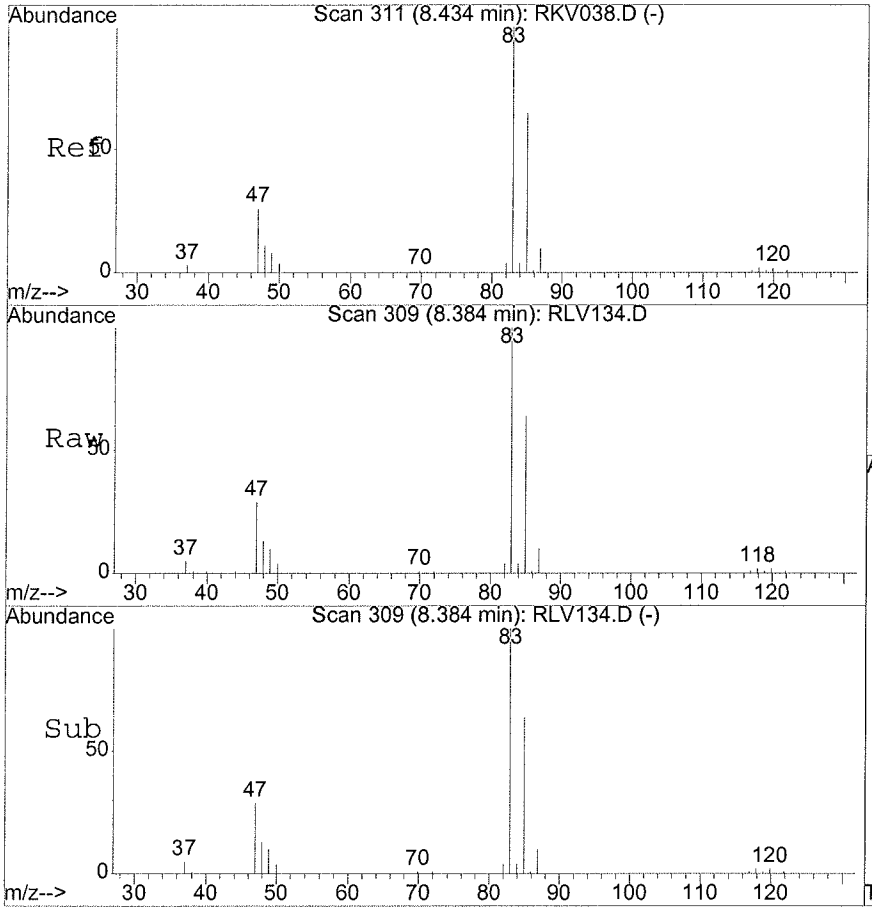
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1650558	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	1497673	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.17	152	595687	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.68	111	556349	10.60	ug/l	-0.04
Spiked Amount 10.000			Recovery = 106.00%			
38) 1,2-Dichloroethane-d4	9.26	65	473400	10.32	ug/l	-0.03
Spiked Amount 10.000			Recovery = 103.20%			
54) Toluene-d8	12.12	98	1871546	9.79	ug/l	-0.01
Spiked Amount 10.000			Recovery = 97.90%			
74) 4-Bromofluorobenzene	14.93	95	682229	9.32	ug/l	-0.03
Spiked Amount 10.000			Recovery = 93.20%			
Target Compounds						Qvalue
33) Chloroform	8.38	83	551310	5.11	ug/l	97
44) Trichloroethene	10.40	130	11568	0.18	ug/l	96
59) Tetrachloroethene	12.86	164	1630311	31.95	ug/l	96

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

Data File : D:\HPCHEM\1\DATA\19L16\RLV134.D Vial: 16
Acq On : 16 Dec 2019 5:21 pm Operator: JCorea
Sample : 19L064-08N 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 15:11 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

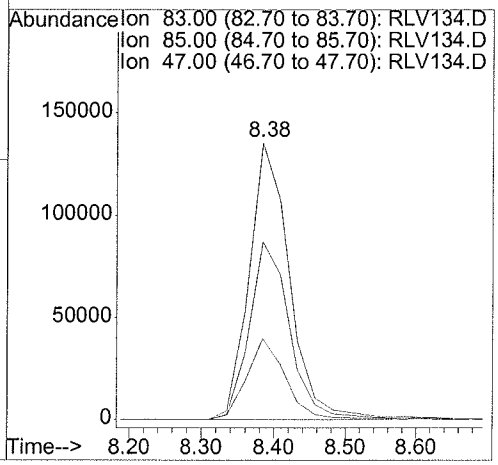


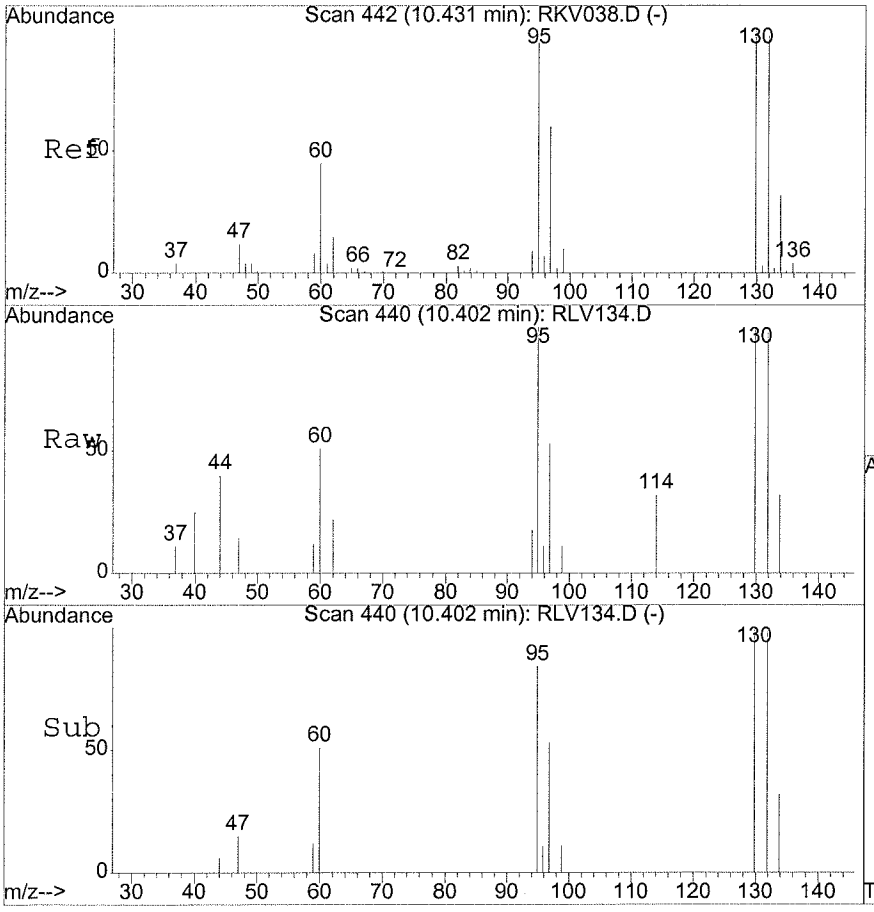


#33
Chloroform
Concen: 5.11 ug/l
RT: 8.38 min Scan# 309
Delta R.T. -0.05 min
Lab File: RLV134.D
Acq: 16 Dec 2019 5:21 pm

Tgt Ion: 83 Resp: 551310

Ion	Ratio	Lower	Upper
83	100		
85	62.0	34.5	94.5
47	31.0	0.0	59.1

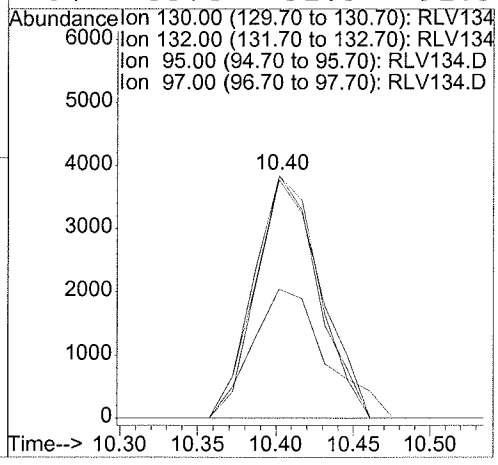


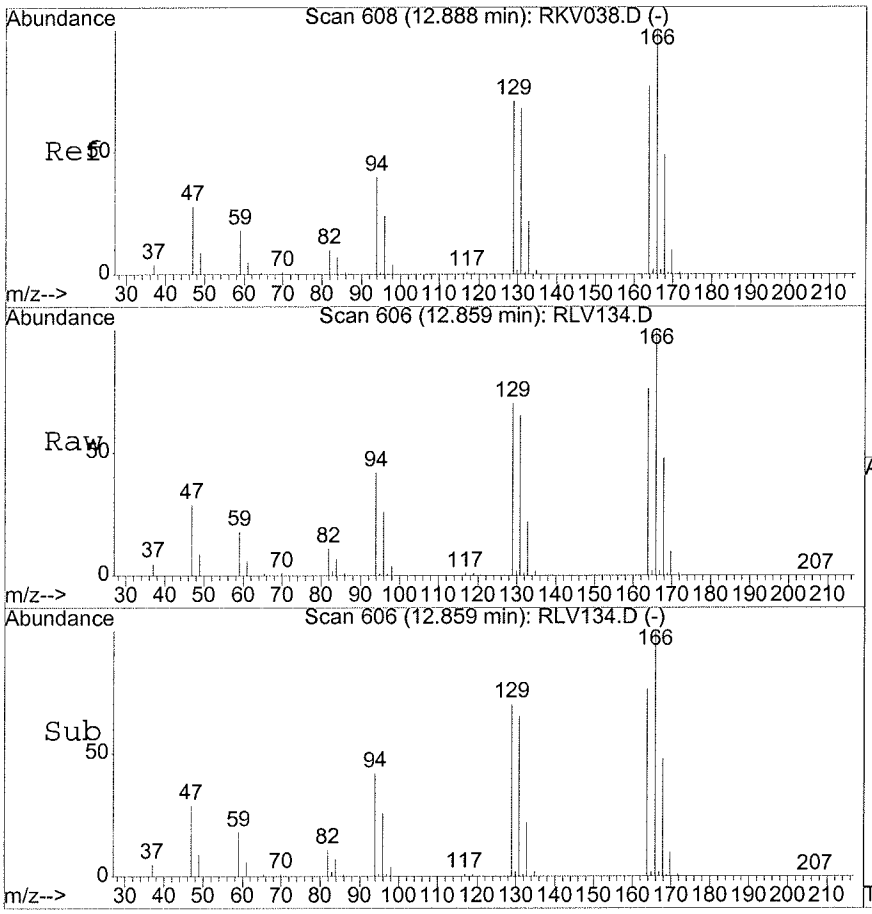


#44
Trichloroethene
Concen: 0.18 ug/l
RT: 10.40 min Scan# 440
Delta R.T. -0.03 min
Lab File: RLV134.D
Acq: 16 Dec 2019 5:21 pm

Tgt Ion:130 Resp: 11568

Ion	Ratio	Lower	Upper
130	100		
132	94.6	66.9	126.9
95	93.8	66.3	126.3
97	55.4	31.3	91.3

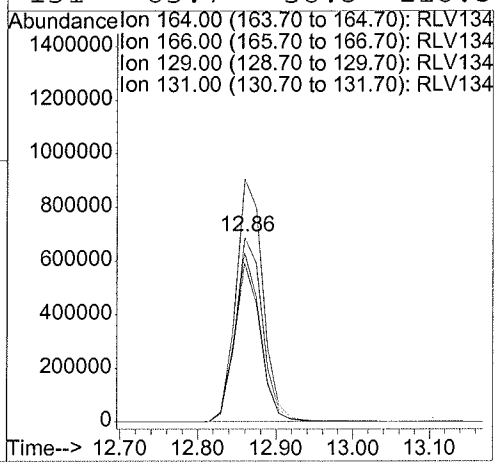




#59
Tetrachloroethene
Concen: 31.95 ug/l
RT: 12.86 min Scan# 606
Delta R.T. -0.03 min
Lab File: RLV134.D
Acq: 16 Dec 2019 5:21 pm

Tgt Ion:164 Resp: 1630311

Ion	Ratio	Lower	Upper
164	100		
166	133.6	100.3	160.3
129	89.0	64.1	124.1
131	83.7	58.3	118.3



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV134.D Vial: 16
Acq On : 16 Dec 2019 5:21 pm Operator: JCorea
Sample : 19L064-08N 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

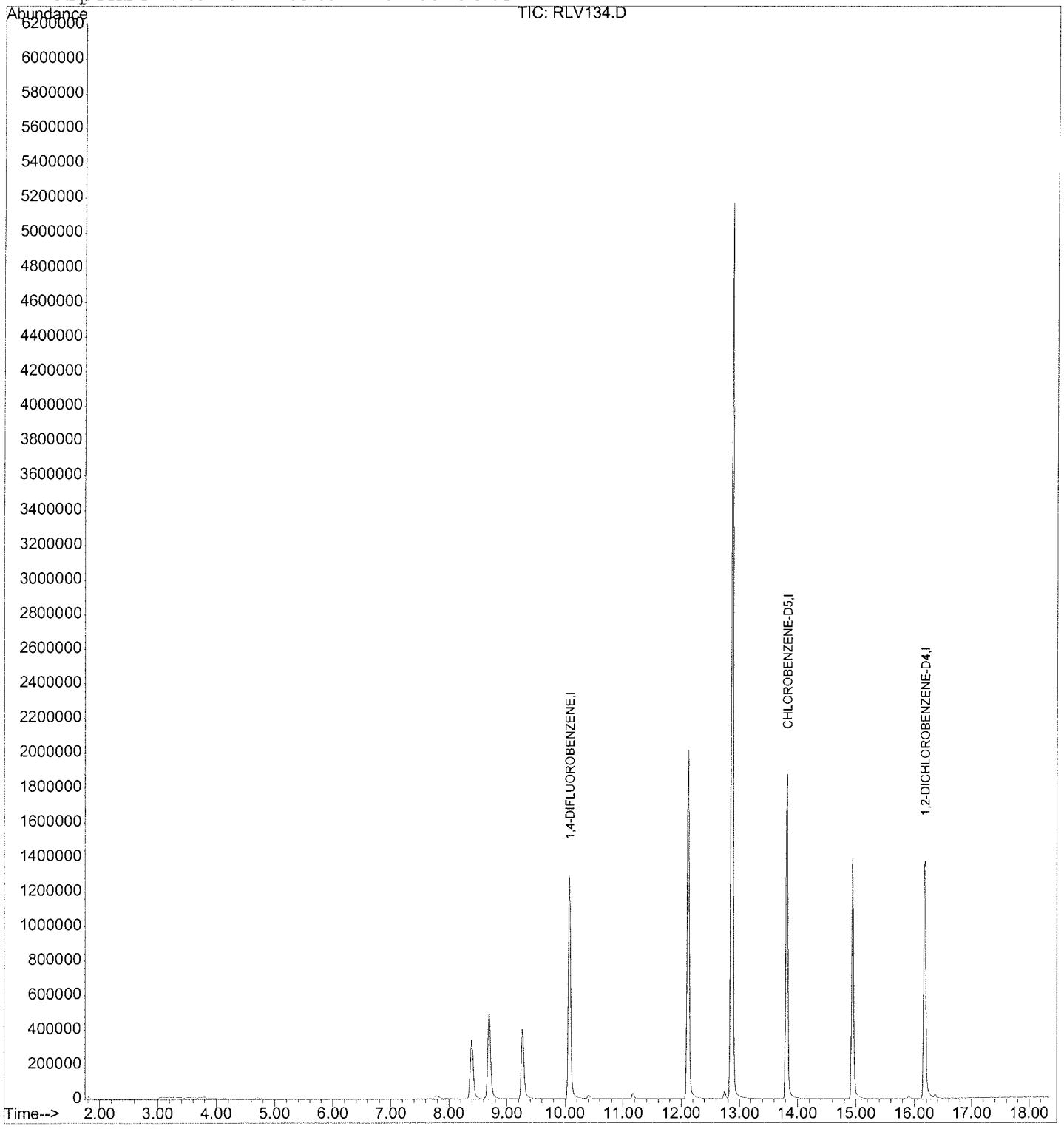
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1650558	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	1497673	10.00	ug/l	-0.01
4) 1,2-DICHLOROBENZENE-D4	16.17	152	595687	10.00	ug/l	-0.01

Target Compounds Qvalue

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

Data File : D:\HPCHEM\1\DATA\19L16\RLV134.D Vial: 16
Acq On : 16 Dec 2019 5:21 pm Operator: JCorea
Sample : 19L064-08N 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected	: 12/08/19
Project	: VA SALT LAKE CITY	Date Received	: 12/10/19
Batch No.	: 19L064	Date Extracted	: 12/13/19 20:55 # 12/16/19 12:16
Sample ID	: OU2-MW03RB-GW120819	Date Analyzed	: 12/13/19 20:55 # 12/16/19 12:16
Lab Samp ID	: L064-09 #L064-09I	Dilution Factor	: 1 # 10
Lab File ID	: RLV110 #RLV125	Matrix	: WATER
Ext Btch ID	: V001L05 #V001L06	% Moisture	: NA
Calib. Ref.	: RKV038 #RKV038	Instrument ID	: T-001

	PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
	1,1,1-TRICHLOROETHANE	0.12J	1.0	0.10
	1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
	1,1,2-TRICHLOROETHANE	ND	1.0	0.10
	1,1-DICHLOROETHANE	ND	1.0	0.10
	1,1-DICHLOROETHENE	0.11J	1.0	0.10
	1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
	1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
	1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
	1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
	1,2-DICHLOROBENZENE	ND	1.0	0.10
	1,2-DICHLOROETHANE	ND	1.0	0.10
	1,2-DICHLOROPROPANE	ND	1.0	0.10
	1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
	1,3-DICHLOROBENZENE	ND	1.0	0.11
	1,4-DICHLOROBENZENE	ND	1.0	0.10
	2-BUTANONE	ND	20	2.5
	2-HEXANONE	ND	20	2.5
	ACETONE	ND	20	2.5
	BENZENE	ND	1.0	0.10
	BROMOCHLOROMETHANE	ND	1.0	0.11
	BROMODICHLOROMETHANE	0.44J	1.0	0.10
	BROMOFORM	ND	1.0	0.15
	BROMOMETHANE	ND	1.0	0.16
	CARBON DISULFIDE	ND	1.0	0.25
	CARBON TETRACHLORIDE	ND	1.0	0.10
	CHLOROBENZENE	ND	1.0	0.10
	CHLOROETHANE	ND	1.0	0.27
	CHLOROFORM	3.1	1.0	0.10
	CHLOROMETHANE	ND	1.0	0.15
	CIS-1,2-DICHLOROETHYLENE	1.4	1.0	0.10
	DIBROMOCHLOROMETHANE	ND	1.0	0.10
	DICHLORODIFLUOROMETHANE	ND	1.0	0.15
	ETHYLBENZENE	ND	1.0	0.10
	ISOPROPYLBENZENE	ND	1.0	0.10
	M,P-XYLENE	ND	2.0	0.21
	4-METHYL-2-PENTANONE	ND	20	2.5
	METHYLENE CHLORIDE	ND	2.0	0.50
	TERT-BUTYL METHYL ETHER	ND	1.0	0.13
	O-XYLENE	ND	1.0	0.10
	STYRENE	ND	1.0	0.25
#	TETRACHLOROETHENE	200	10	1.5
	TOLUENE	ND	1.0	0.10
	TRANS-1,2-DCE	ND	1.0	0.10
	CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
	TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
	TCE	1.9	1.0	0.10
	TRICHLOROFLUOROMETHANE	ND	1.0	0.15
	VINYL CHLORIDE	ND	1.0	0.12
	1,2-DIBROMOETHANE	ND	1.0	0.10
	VINYL ACETATE^	ND	2.0	0.25
	TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
	METHYL ACETATE	ND	2.0	0.25

	SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
	1,2-DICHLOROETHANE-D4	10.1	10.00	101	70-130
	BROMOFLUOROBENZENE	9.02	10.00	90.2	70-130
	TOLUENE-D8	9.55	10.00	95.5	70-130
	DIBROMOFLUOROMETHANE	10.4	10.00	104	70-130
#	1,2-DICHLOROETHANE-D4	97.3	100.0	97.3	70-130
#	BROMOFLUOROBENZENE	90.0	100.0	90.0	70-130
#	TOLUENE-D8	96.4	100.0	96.4	70-130
#	DIBROMOFLUOROMETHANE	103	100.0	103	70-130

Members of the Associated File
^ Incorporated by analysis using ICAL ID V001K06

METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected:	12/08/19
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/13/19 20:55
Sample ID:	OU2-MW03RB-GW120819	Date Analyzed:	12/13/19 20:55
Lab Samp ID:	L064-09	Dilution Factor:	1
Lab File ID:	RLV110	Matrix	: WATER
Ext Btch ID:	VO01L05	% Moisture	: NA
Calib. Ref.:	RKV038	Instrument ID	: T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	0.12J	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	0.11J	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.44J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	3.1	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	1.4	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	190E	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	1.9	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	10.1	10.00	101	70-130
BROMOFLUOROBENZENE	9.02	10.00	90.2	70-130
TOLUENE-D8	9.55	10.00	95.5	70-130
DIBROMOFLUOROMETHANE	10.4	10.00	104	70-130

^ Incorporated by analysis using ICAL ID VO01K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV110.D Vial: 20
Acq On : 13 Dec 2019 8:55 pm Operator: JCorea
Sample : 19L064-09 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:43 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

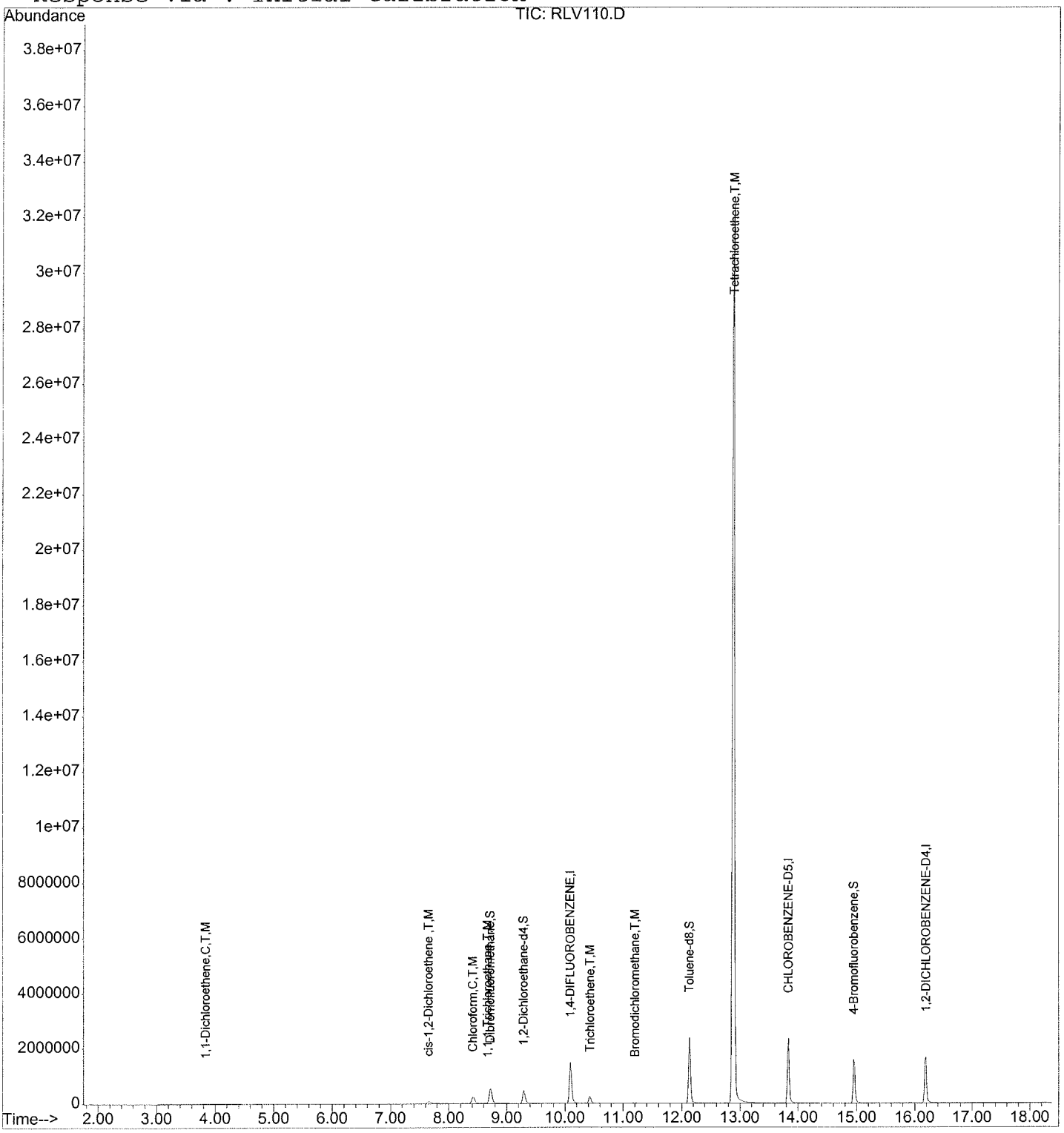
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1842485	10.00	ug/l	-0.01
53) CHLOROBENZENE-D5	13.84	117	1767757	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	711854	10.00	ug/l	0.00
System Monitoring Compounds						
34) Dibromofluoromethane	8.71	111	610060	10.41	ug/l	-0.01
Spiked Amount 10.000			Recovery =	104.10%		
38) 1,2-Dichloroethane-d4	9.29	65	514675	10.05	ug/l	0.00
Spiked Amount 10.000			Recovery =	100.50%		
54) Toluene-d8	12.13	98	2154687	9.55	ug/l	0.00
Spiked Amount 10.000			Recovery =	95.50%		
74) 4-Bromofluorobenzene	14.95	95	788832	9.02	ug/l	-0.01
Spiked Amount 10.000			Recovery =	90.20%		
Target Compounds						Qvalue
14) 1,1-Dichloroethene	3.83	61	11370	0.11	ug/l	89
29) cis-1,2-Dichloroethene	7.65	96	89463	1.37	ug/l	84
33) Chloroform	8.41	83	372843	3.09	ug/l	92
35) 1,1,1-Trichloroethane	8.67	97	10190	0.12	ug/l	98
44) Trichloroethene	10.43	130	135916	1.86	ug/l	99
49) Bromodichloromethane	11.20	83	34094	0.44	ug/l	97
59) Tetrachloroethene	12.89	164	11631261	193.14	ug/l E	93

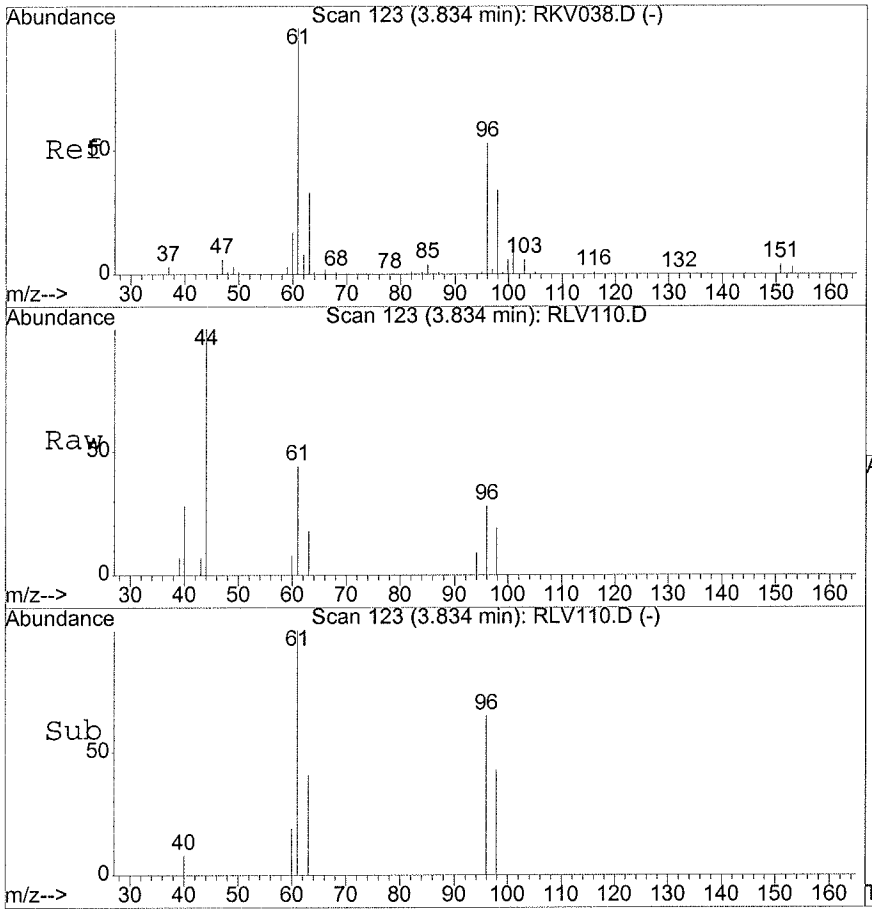
(#) = qualifier out of range (m) = manual integration
RLV110.D VO01K05A.M Tue Dec 17 15:36:12 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV110.D Vial: 20
Acq On : 13 Dec 2019 8:55 pm Operator: JCorea
Sample : 19L064-09 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:43 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

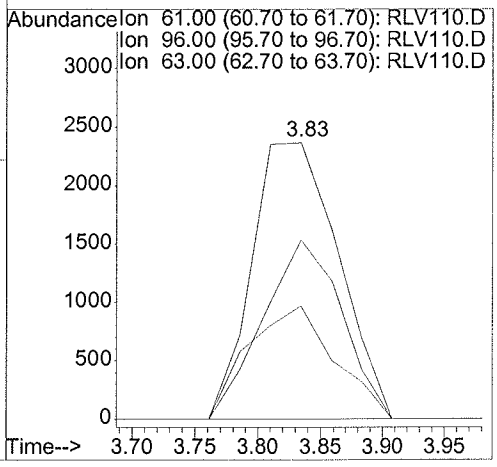


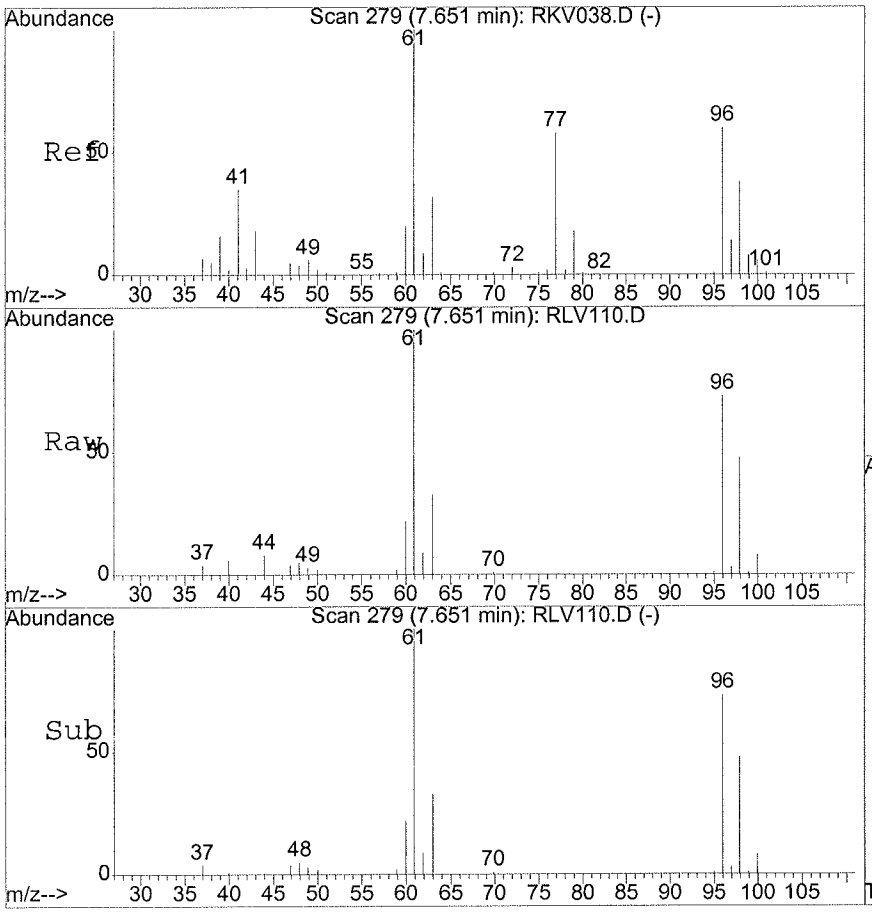


#14
1,1-Dichloroethene
Concen: 0.11 ug/l
RT: 3.83 min Scan# 123
Delta R.T. 0.00 min
Lab File: RLV110.D
Acq: 13 Dec 2019 8:55 pm

Tgt Ion: 61 Resp: 11370

Ion	Ratio	Lower	Upper
61	100		
96	58.9	22.5	82.5
63	40.8	2.6	62.6

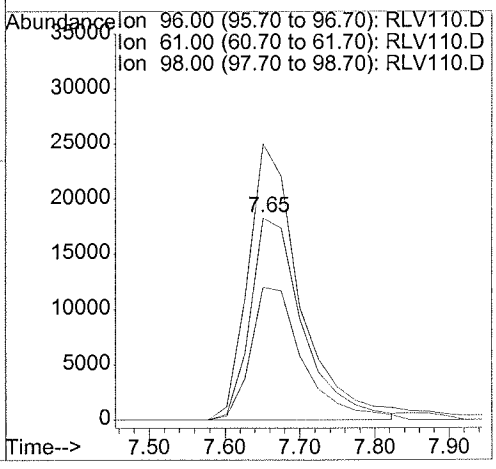


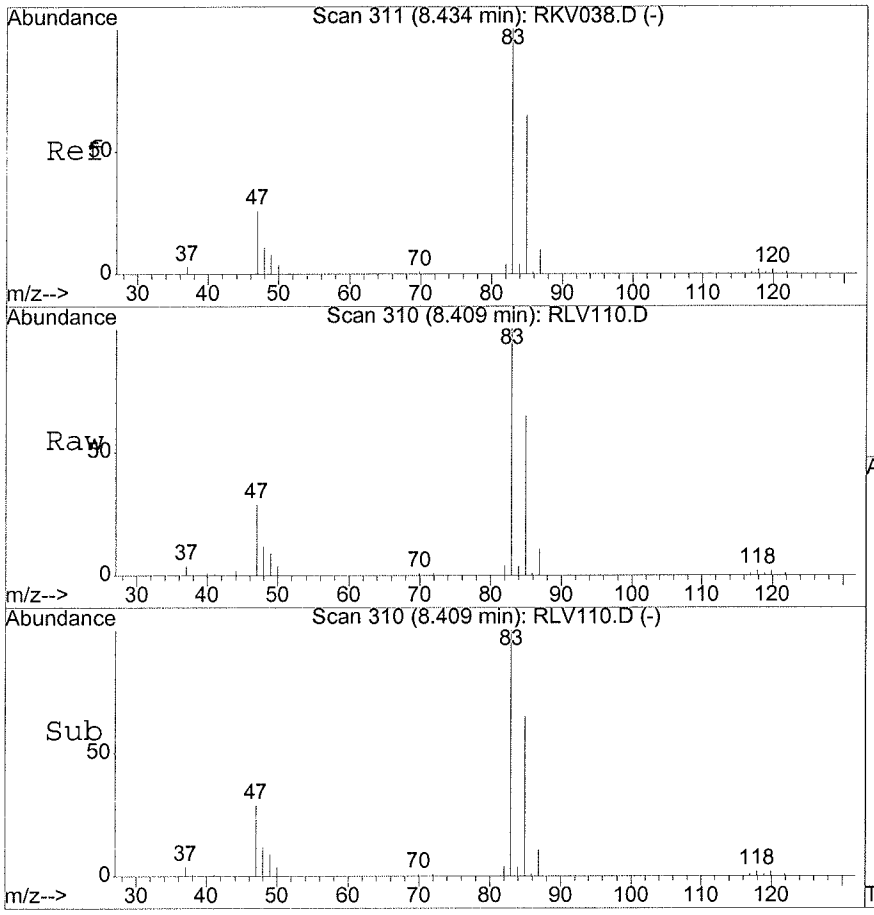


#29
cis-1,2-Dichloroethene
Concen: 1.37 ug/l
RT: 7.65 min Scan# 279
Delta R.T. 0.00 min
Lab File: RLV110.D
Acq: 13 Dec 2019 8:55 pm

Tgt Ion: 96 Resp: 89463

Ion	Ratio	Lower	Upper
96	100		
61	137.6	136.8	196.8
98	65.7	35.6	95.6

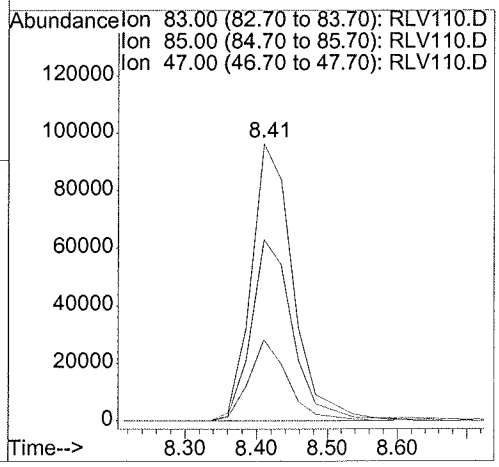


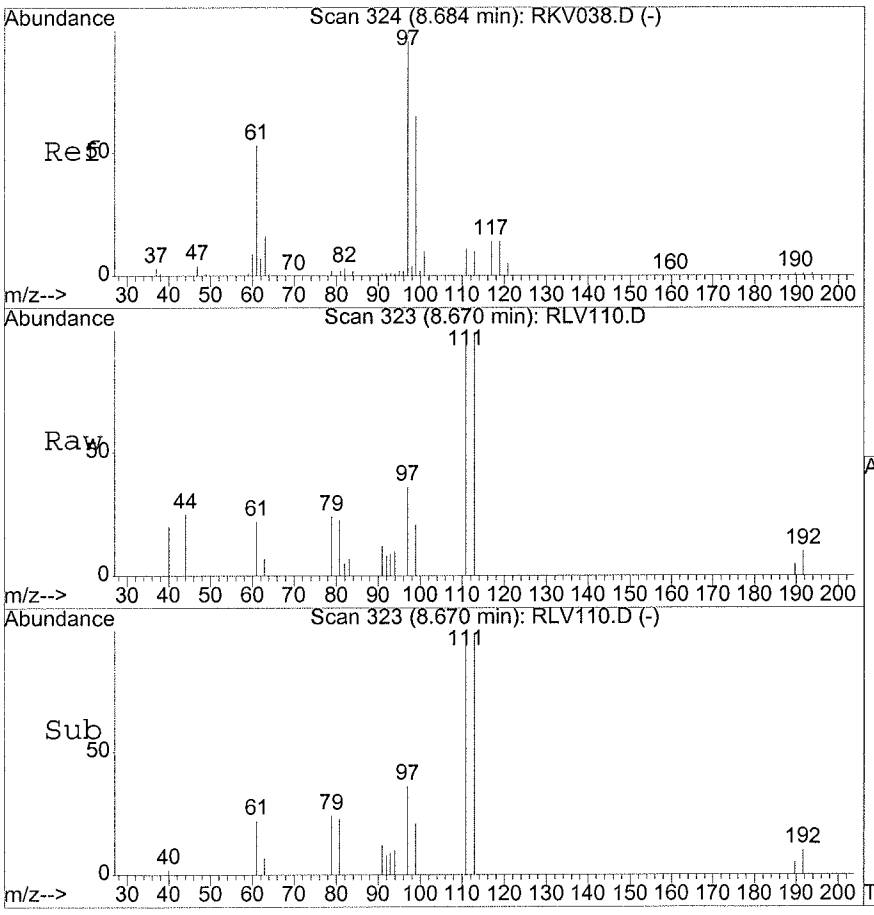


#33
Chloroform
Concen: 3.09 ug/l
RT: 8.41 min Scan# 310
Delta R.T. -0.02 min
Lab File: RLV110.D
Acq: 13 Dec 2019 8:55 pm

Tgt Ion: 83 Resp: 372843

Ion	Ratio	Lower	Upper
83	100		
85	73.1	34.5	94.5
47	29.3	0.0	59.1

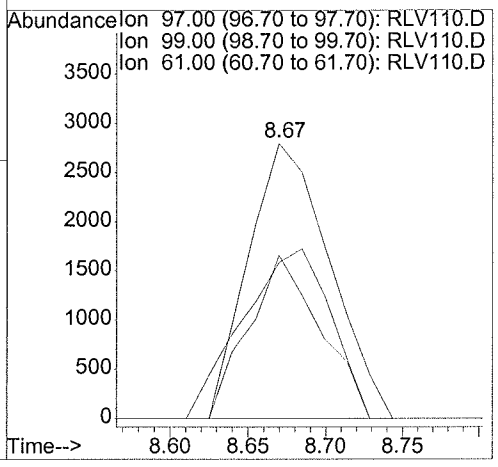


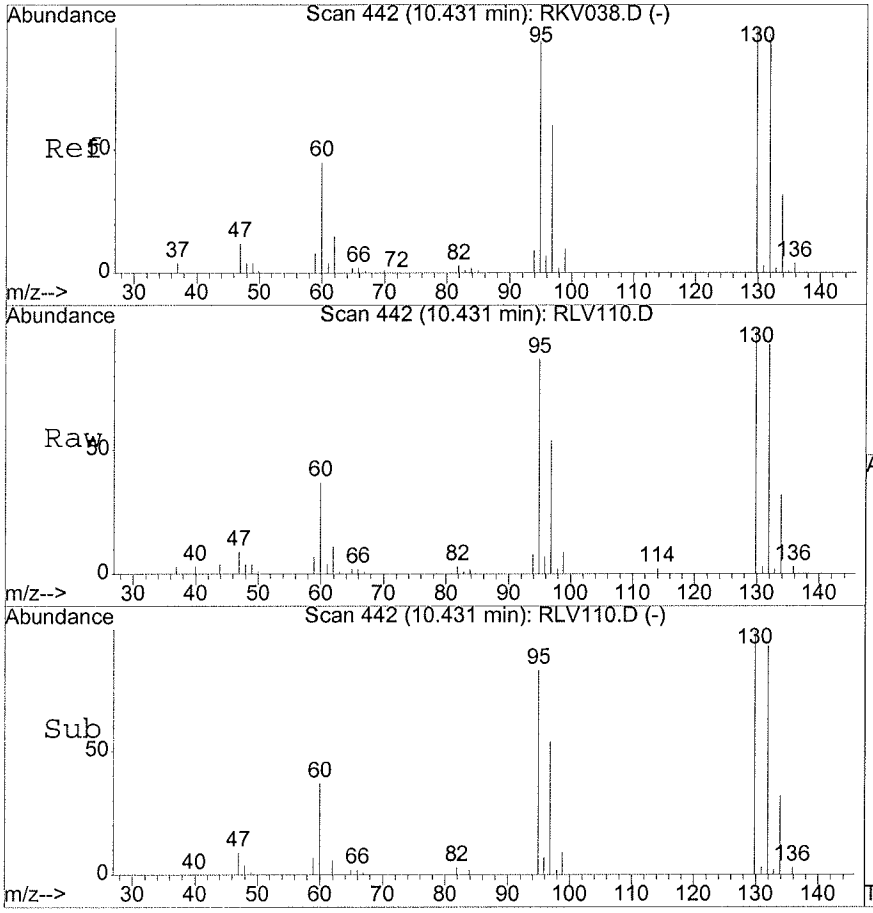


#35
1,1,1-Trichloroethane
Concen: 0.12 ug/l
RT: 8.67 min Scan# 323
Delta R.T. -0.01 min
Lab File: RLV110.D
Acq: 13 Dec 2019 8:55 pm

Tgt Ion: 97 Resp: 10190

Ion	Ratio	Lower	Upper
97	100		
99	66.6	35.7	95.7
61	52.0	23.8	83.8

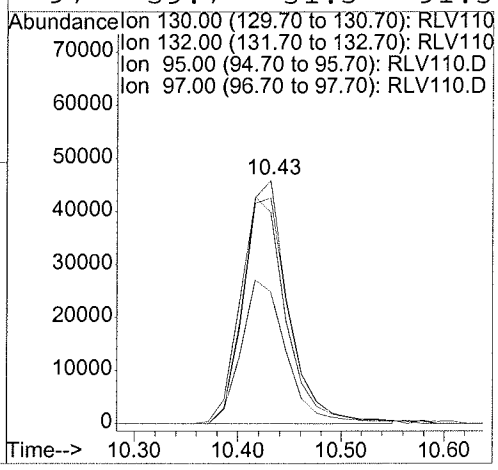


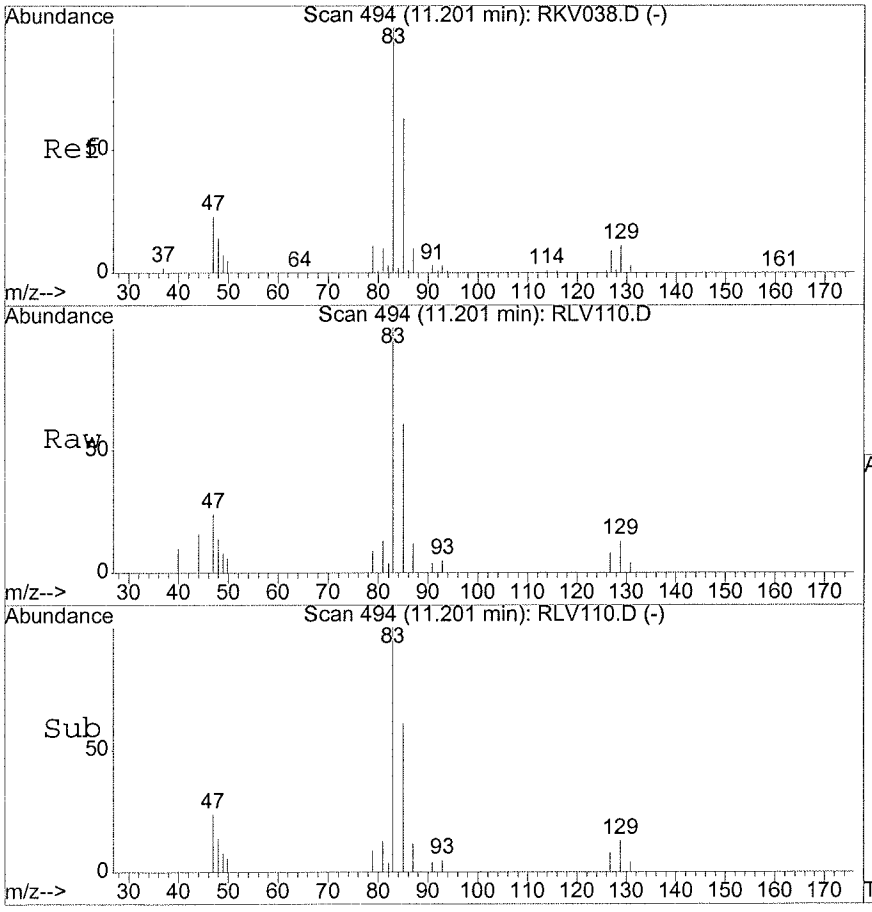


#44
Trichloroethene
Concen: 1.86 ug/l
RT: 10.43 min Scan# 442
Delta R.T. 0.00 min
Lab File: RLV110.D
Acq: 13 Dec 2019 8:55 pm

Tgt Ion:130 Resp: 135916

Ion	Ratio	Lower	Upper
130	100		
132	95.9	66.9	126.9
95	95.5	66.3	126.3
97	59.7	31.3	91.3

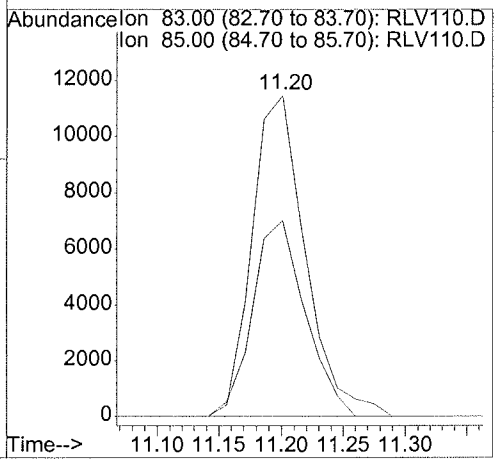


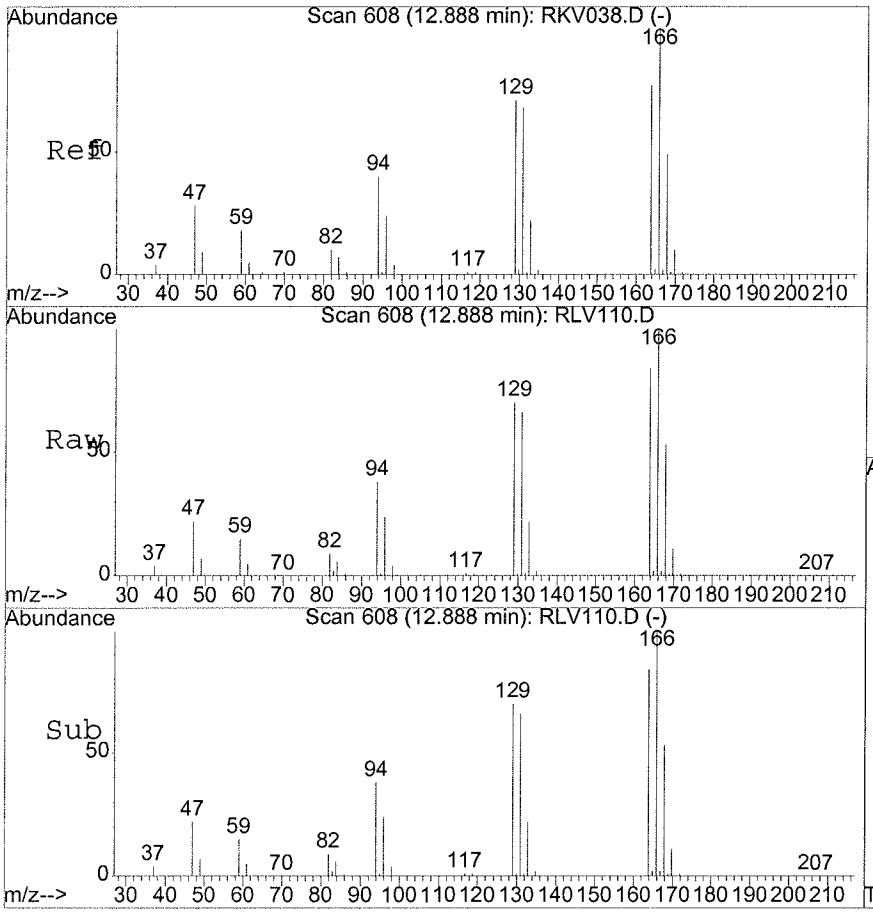


#49
Bromodichloromethane
Concen: 0.44 ug/l
RT: 11.20 min Scan# 494
Delta R.T. 0.00 min
Lab File: RLV110.D
Acq: 13 Dec 2019 8:55 pm

Tgt Ion: 83 Resp: 34094

Ion	Ratio	Lower	Upper
83	100		
85	60.6	32.7	92.7

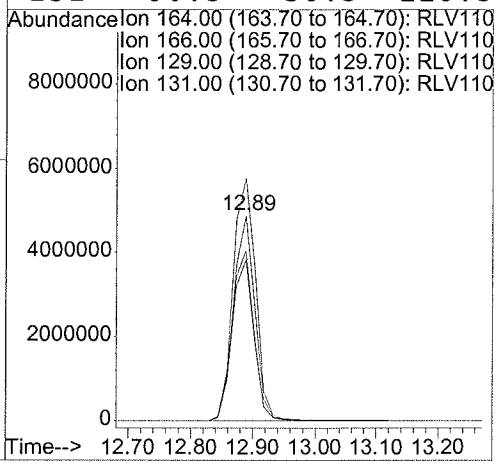




#59
Tetrachloroethene
Concen: 193.14 ug/l
RT: 12.89 min Scan# 608
Delta R.T. 0.00 min
Lab File: RLV110.D
Acq: 13 Dec 2019 8:55 pm

Tgt Ion:164 Resp:11631261

Ion	Ratio	Lower	Upper
164	100		
166	126.1	100.3	160.3
129	85.1	64.1	124.1
131	80.3	58.3	118.3



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV110.D Vial: 20
Acq On : 13 Dec 2019 8:55 pm Operator: JCorea
Sample : 19L064-09 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

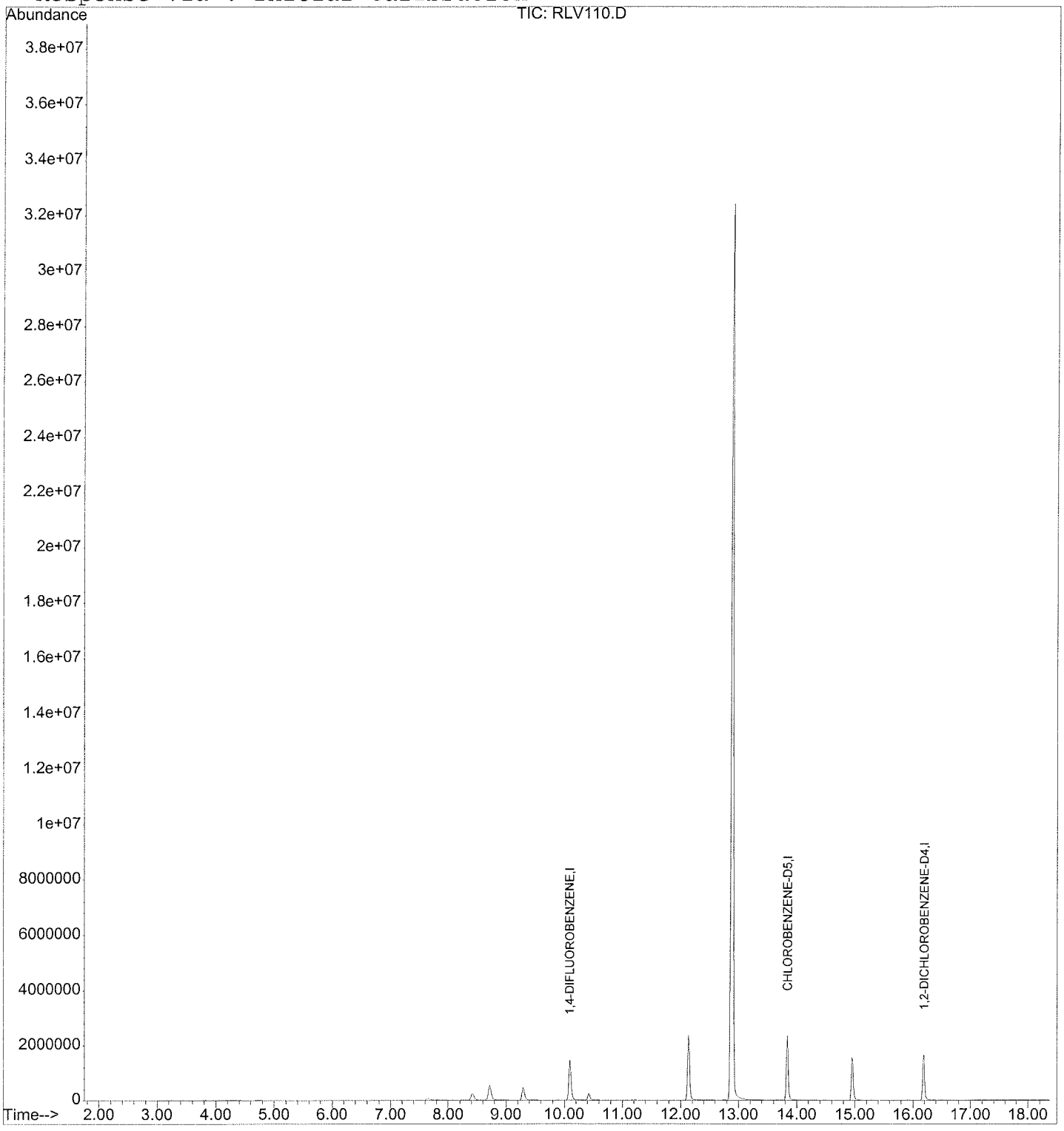
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1842485	10.00	ug/l	-0.02
3) CHLOROBENZENE-D5	13.84	117	1767757	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.19	152	711854	10.00	ug/l	0.00

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV110.D VO01K06.M Mon Dec 16 09:44:04 2019 Page 1

Data File : D:\HPCHEM\1\DATA\19L13\RLV110.D Vial: 20
Acq On : 13 Dec 2019 8:55 pm Operator: JCorea
Sample : 19L064-09 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected	: 12/08/19
Project	: VA SALT LAKE CITY	Date Received	: 12/10/19
Batch No.	: 19L064	Date Extracted	: 12/16/19 12:16
Sample ID	: OU2-MW03RB-GW120819DL	Date Analyzed	: 12/16/19 12:16
Lab Samp ID	: L064-09I	Dilution Factor	: 10
Lab File ID	: RLV125	Matrix	: WATER
Ext Btch ID	: V001L06	% Moisture	: NA
Calib. Ref.	: RKV038	Instrument ID	: T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	10	1.0
1,1,2,2-TETRACHLOROETHANE	ND	10	1.1
1,1,2-TRICHLOROETHANE	ND	10	1.0
1,1-DICHLOROETHANE	ND	10	1.0
1,1-DICHLOROETHENE	ND	10	1.0
1,2,3-TRICHLOROBENZENE	ND	10	1.5
1,2,4-TRICHLOROBENZENE	ND	10	1.5
1,2,4-TRIMETHYLBENZENE	ND	10	1.1
1,2-DIBROMO-3-CHLOROPROPANE	ND	20	2.5
1,2-DICHLOROBENZENE	ND	10	1.0
1,2-DICHLOROETHANE	ND	10	1.0
1,2-DICHLOROPROPANE	ND	10	1.0
1,3,5-TRIMETHYLBENZENE	ND	10	1.2
1,3-DICHLOROBENZENE	ND	10	1.1
1,4-DICHLOROBENZENE	ND	10	1.0
2-BUTANONE	ND	200	25
2-HEXANONE	ND	200	25
ACETONE	ND	200	25
BENZENE	ND	10	1.0
BROMOCHLOROMETHANE	ND	10	1.1
BROMODICHLOROMETHANE	ND	10	1.0
BROMOFORM	ND	10	1.5
BROMOMETHANE	ND	10	1.6
CARBON DISULFIDE	ND	10	2.5
CARBON TETRACHLORIDE	ND	10	1.0
CHLOROBENZENE	ND	10	1.0
CHLOROETHANE	ND	10	2.7
CHLOROFORM	3.4J	10	1.0
CHLOROMETHANE	ND	10	1.5
CIS-1,2-DICHLOROETHYLENE	1.2J	10	1.0
DIBROMOCHLOROMETHANE	ND	10	1.0
DICHLORODIFLUOROMETHANE	ND	10	1.5
ETHYLBENZENE	ND	10	1.0
ISOPROPYLBENZENE	ND	10	1.0
M,P-XYLENE	ND	20	2.1
4-METHYL-2-PENTANONE	ND	200	25
METHYLENE CHLORIDE	ND	20	5.0
TERT-BUTYL METHYL ETHER	ND	10	1.3
O-XYLENE	ND	10	1.0
STYRENE	ND	10	2.5
TETRACHLOROETHENE	200	10	1.5
TOLUENE	ND	10	1.0
TRANS-1,2-DCE	ND	10	1.0
CIS-1,3-DICHLOROPROPENE	ND	10	1.0
TRANS-1,3-DICHLOROPROPENE	ND	10	1.1
TCE	1.7J	10	1.0
TRICHLOROFLUOROMETHANE	ND	10	1.5
VINYL CHLORIDE	ND	10	1.2
1,2-DIBROMOETHANE	ND	10	1.0
VINYL ACETATE^	ND	20	2.5
TRICHLOROTRIFLUOROETHANE	ND	10	1.5
METHYL ACETATE	ND	20	2.5

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	97.3	100.0	97.3	70-130
BROMOFLUOROBENZENE	90.0	100.0	90.0	70-130
TOLUENE-D8	96.4	100.0	96.4	70-130
DIBROMOFLUOROMETHANE	103	100.0	103	70-130

^ Incorporated by analysis using ICAL ID V001K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV125.D Vial: 7
Acq On : 16 Dec 2019 12:16 pm Operator: JCorea
Sample : 19L064-09I 2.5mL Inst : 01
Misc : DF=10 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 15:07 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

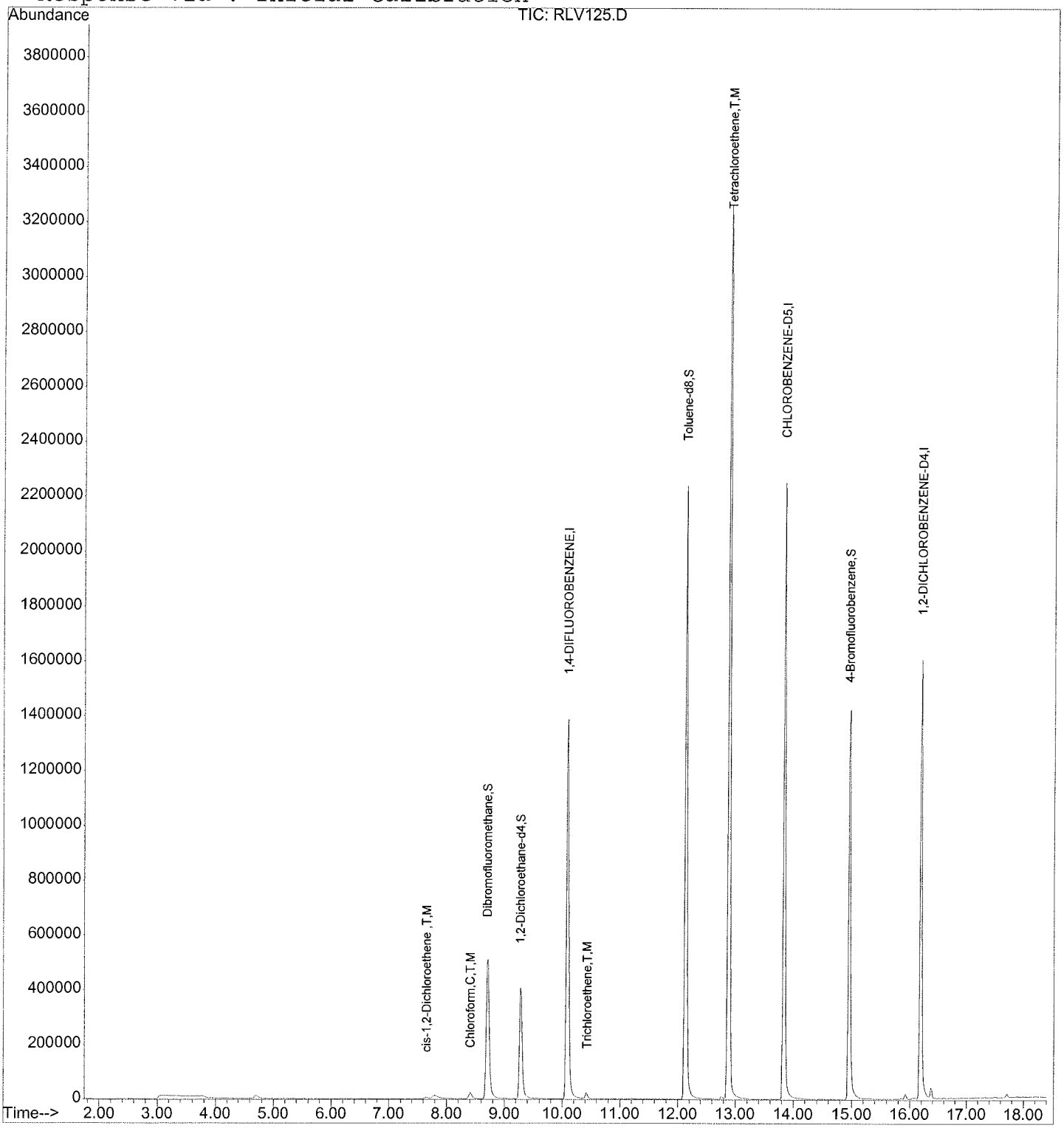
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1787786	10.00	ug/l	-0.02
53) CHLOROBENZENE-D5	13.84	117	1645919	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	652629	10.00	ug/l	0.00
System Monitoring Compounds						
34) Dibromofluoromethane	8.70	111	586836	10.32	ug/l	-0.03
Spiked Amount 10.000			Recovery =	103.20%		
38) 1,2-Dichloroethane-d4	9.28	65	483320	9.73	ug/l	-0.02
Spiked Amount 10.000			Recovery =	97.30%		
54) Toluene-d8	12.13	98	2024594	9.64	ug/l	0.00
Spiked Amount 10.000			Recovery =	96.40%		
74) 4-Bromofluorobenzene	14.95	95	721370	9.00	ug/l	-0.02
Spiked Amount 10.000			Recovery =	90.00%		
Target Compounds						Qvalue
29) cis-1,2-Dichloroethene	7.65	96	7711	0.12	ug/l	88
33) Chloroform	8.41	83	39866	0.34	ug/l	93
44) Trichloroethene	10.43	130	12061	0.17	ug/l	97
59) Tetrachloroethene	12.89	164	1124340	20.05	ug/l	95

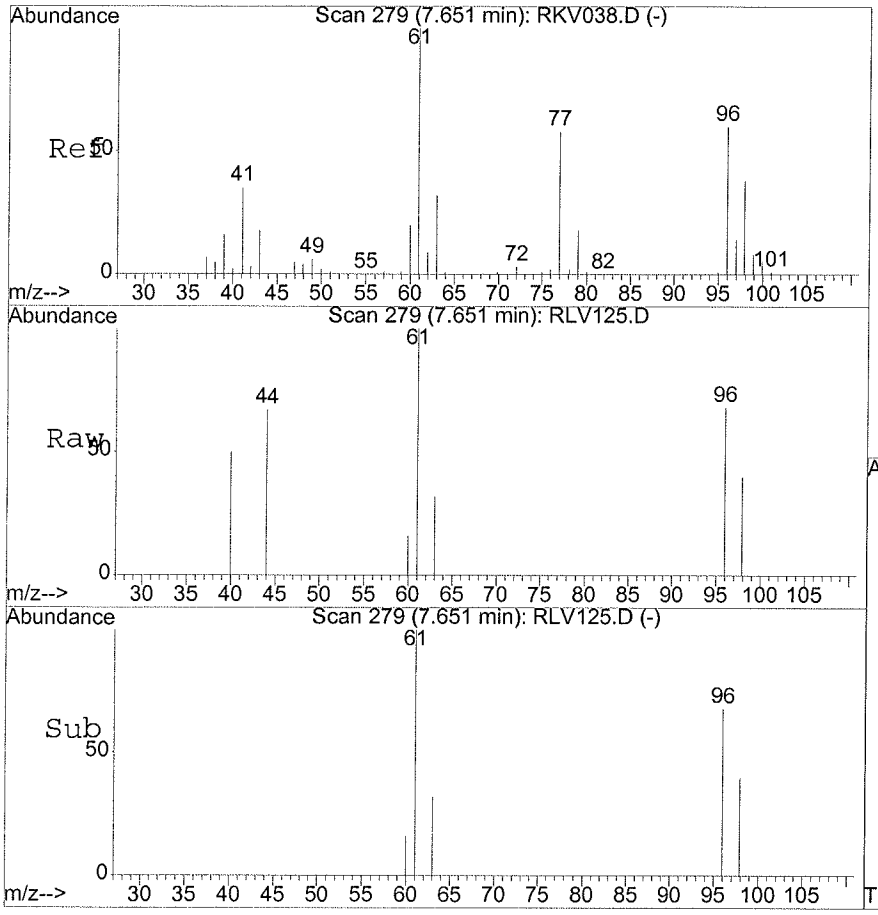
(#) = qualifier out of range (m) = manual integration
RLV125.D VO01K05A.M Tue Dec 17 15:37:21 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV125.D Vial: 7
Acq On : 16 Dec 2019 12:16 pm Operator: JCorea
Sample : 19L064-09I 2.5mL Inst : 01
Misc : DF=10 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 15:07 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

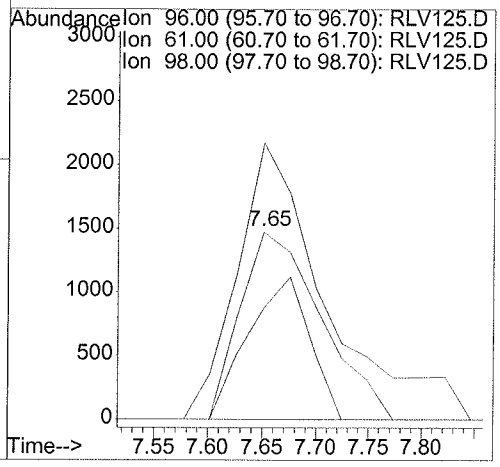


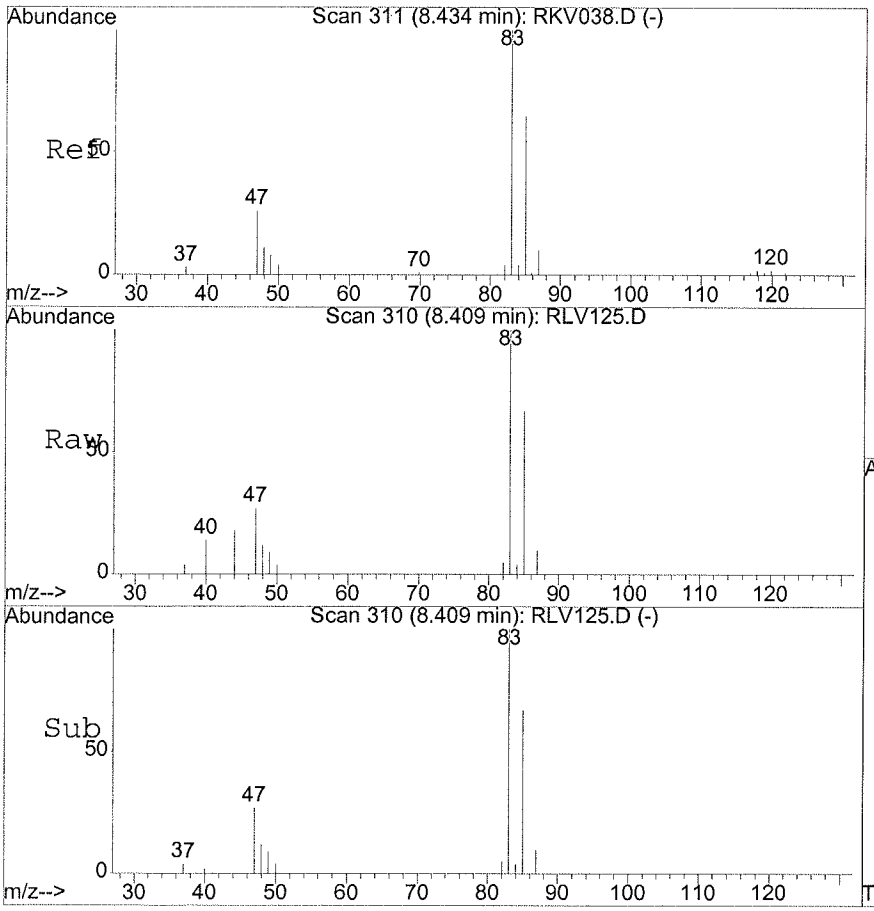


#29
cis-1,2-Dichloroethene
Concen: 0.12 ug/l
RT: 7.65 min Scan# 279
Delta R.T. -0.00 min
Lab File: RLV125.D
Acq: 16 Dec 2019 12:16 pm

Tgt Ion: 96 Resp: 7711

Ion	Ratio	Lower	Upper
96	100		
61	150.1	136.8	196.8
98	57.2	35.6	95.6

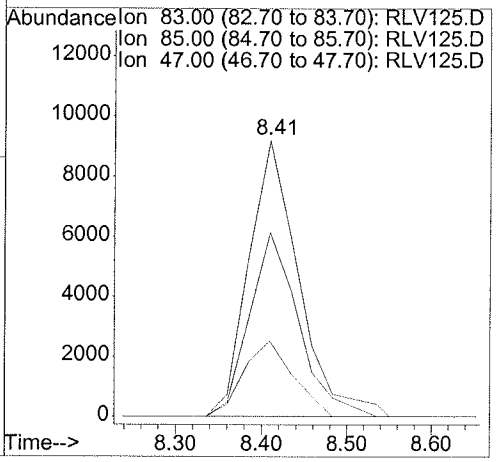


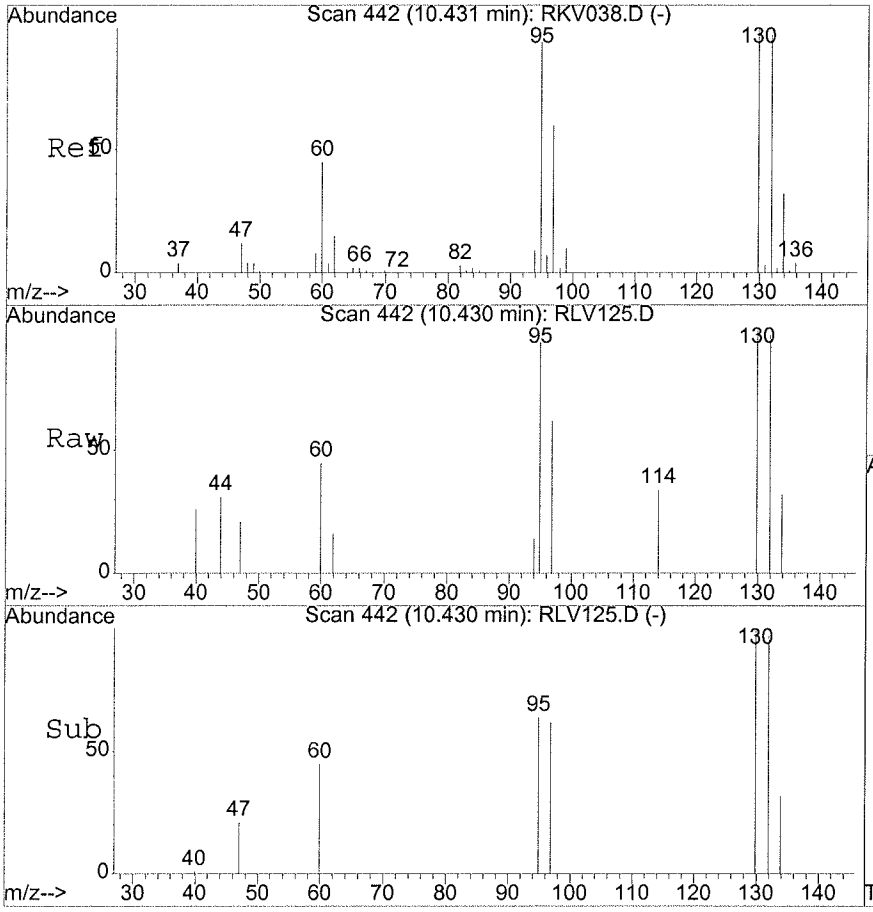


#33
Chloroform
Concen: 0.34 ug/l
RT: 8.41 min Scan# 310
Delta R.T. -0.02 min
Lab File: RLV125.D
Acq: 16 Dec 2019 12:16 pm

Tgt Ion: 83 Resp: 39866

Ion	Ratio	Lower	Upper
83	100		
85	69.8	34.5	94.5
47	25.3	0.0	59.1

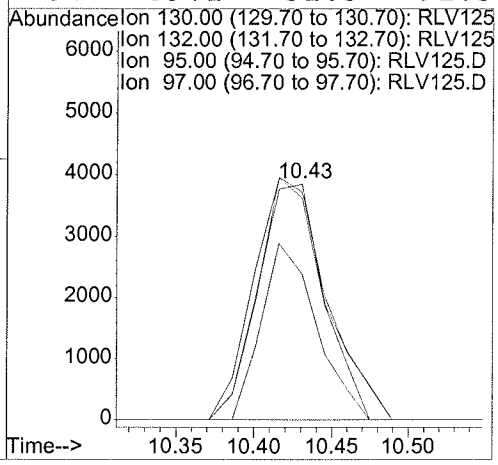


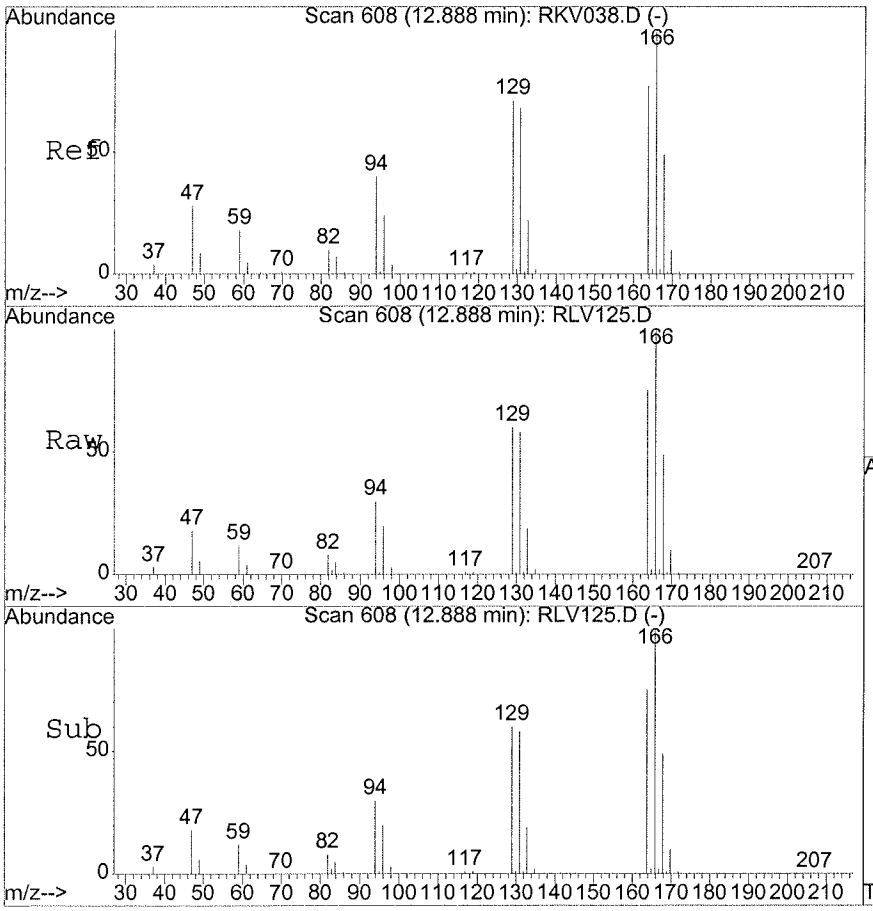


#44
Trichloroethene
Concen: 0.17 ug/l
RT: 10.43 min Scan# 442
Delta R.T. -0.00 min
Lab File: RLV125.D
Acq: 16 Dec 2019 12:16 pm

Tgt Ion:130 Resp: 12061

Ion	Ratio	Lower	Upper
130	100		
132	100.9	66.9	126.9
95	99.3	66.3	126.3
97	59.1	31.3	91.3

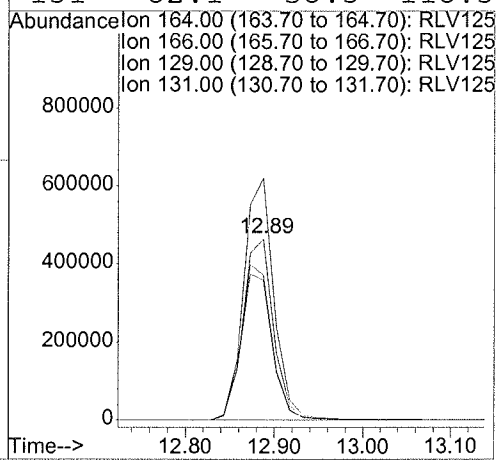




#59
Tetrachloroethene
Concen: 20.05 ug/l
RT: 12.89 min Scan# 608
Delta R.T. -0.00 min
Lab File: RLV125.D
Acq: 16 Dec 2019 12:16 pm

Tgt Ion:164 Resp: 1124340

Ion	Ratio	Lower	Upper
164	100		
166	132.5	100.3	160.3
129	86.5	64.1	124.1
131	82.1	58.3	118.3



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV125.D Vial: 7
Acq On : 16 Dec 2019 12:16 pm Operator: JCorea
Sample : 19L064-09I 2.5mL Inst : 01
Misc : DF=10 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1787786	10.00	ug/l	-0.02
3) CHLOROBENZENE-D5	13.84	117	1645919	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.19	152	652629	10.00	ug/l	0.00

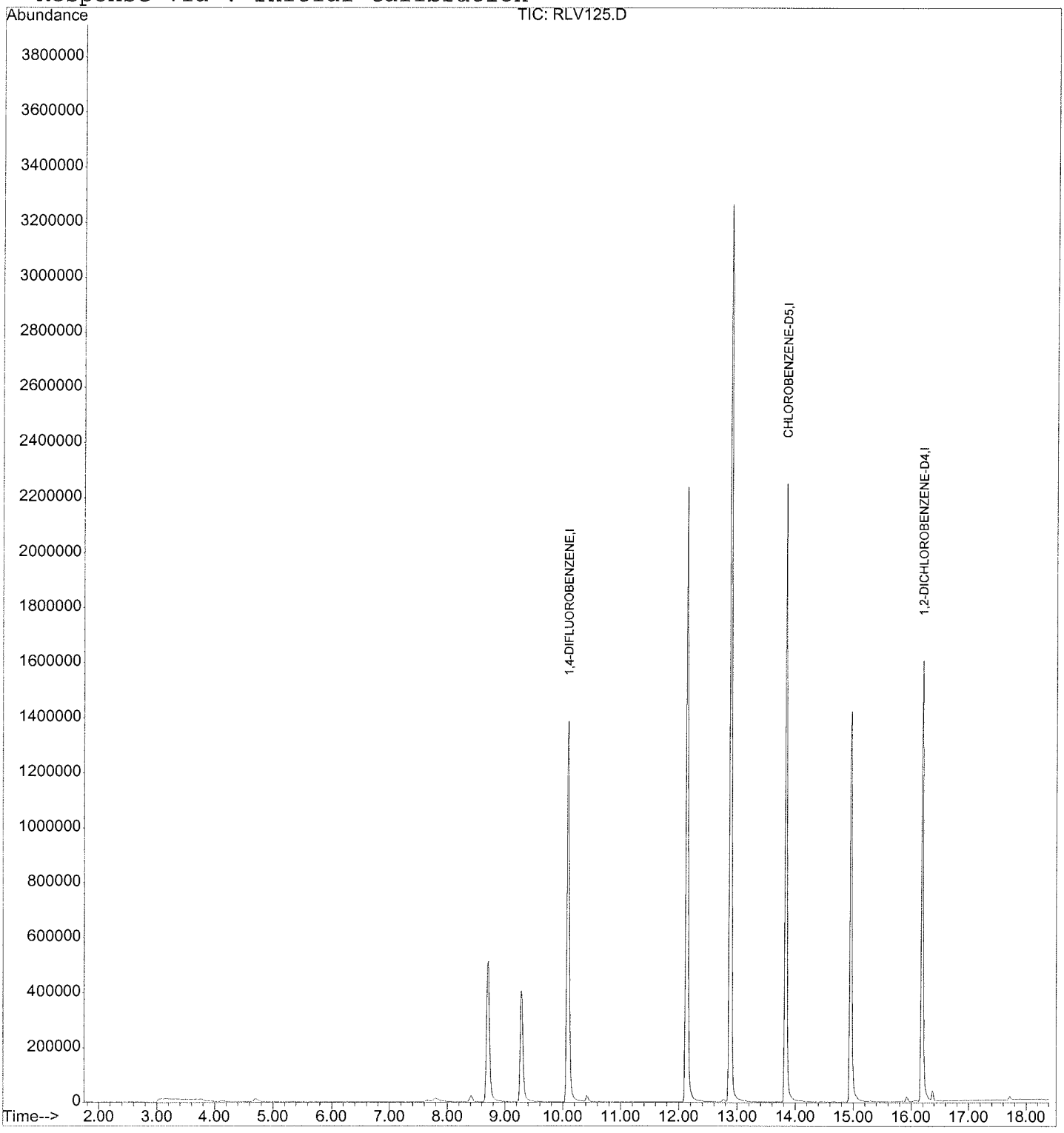
Target Compounds Qvalue

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV125.D Vial: 7
Acq On : 16 Dec 2019 12:16 pm Operator: JCorea
Sample : 19L064-09I 2.5mL Inst : 01
Misc : DF=10 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/07/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/13/19 21:23
Sample ID: OU2-MW03RD-GW120719	Date Analyzed: 12/13/19 21:23
Lab Samp ID: L064-10	Dilution Factor: 1
Lab File ID: RLV111	Matrix : WATER
Ext Btch ID: VO01L05	% Moisture : NA
Calib. Ref.: RKV038	Instrument ID : T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	ND	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.33	10.00	93.3	70-130
BROMOFLUOROBENZENE	8.67	10.00	86.7	70-130
TOLUENE-D8	9.85	10.00	98.5	70-130
DIBROMOFLUOROMETHANE	9.95	10.00	99.5	70-130

^ Incorporated by analysis using ICAL ID VO01K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV111.D Vial: 21
Acq On : 13 Dec 2019 9:23 pm Operator: JCorea
Sample : 19L064-10 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:43 2019 Quant Results File: VO01K05A.RES

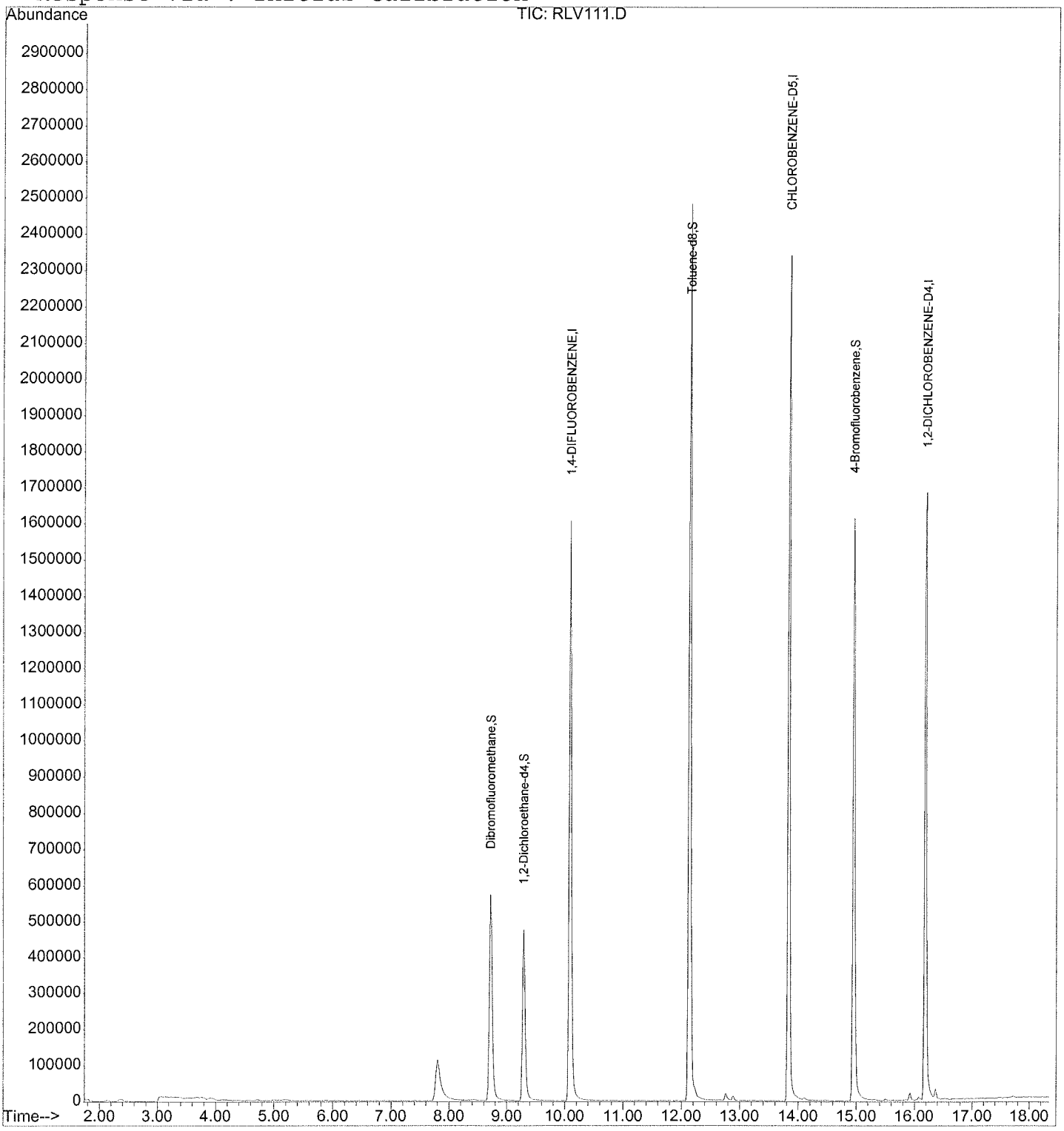
Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1994114	10.00	ug/l	-0.02
53) CHLOROBENZENE-D5	13.84	117	1796873	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	739084	10.00	ug/l	0.00
System Monitoring Compounds						
34) Dibromofluoromethane	8.71	111	630990	9.95	ug/l	-0.02
Spiked Amount 10.000			Recovery =	99.50%		
38) 1,2-Dichloroethane-d4	9.29	65	516816	9.33	ug/l	0.00
Spiked Amount 10.000			Recovery =	93.30%		
54) Toluene-d8	12.13	98	2257050	9.85	ug/l	0.00
Spiked Amount 10.000			Recovery =	98.50%		
74) 4-Bromofluorobenzene	14.95	95	787166	8.67	ug/l	-0.02
Spiked Amount 10.000			Recovery =	86.70%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration
RLV111.D VO01K05A.M Tue Dec 17 15:36:23 2019 Page 1

Data File : D:\HPCHEM\1\DATA\19L13\RLV111.D Vial: 21
Acq On : 13 Dec 2019 9:23 pm Operator: JCorea
Sample : 19L064-10 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:43 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV111.D Vial: 21
Acq On : 13 Dec 2019 9:23 pm Operator: JCorea
Sample : 19L064-10 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1994114	10.00	ug/l	-0.02
3) CHLOROBENZENE-D5	13.84	117	1796873	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.19	152	739084	10.00	ug/l	0.00

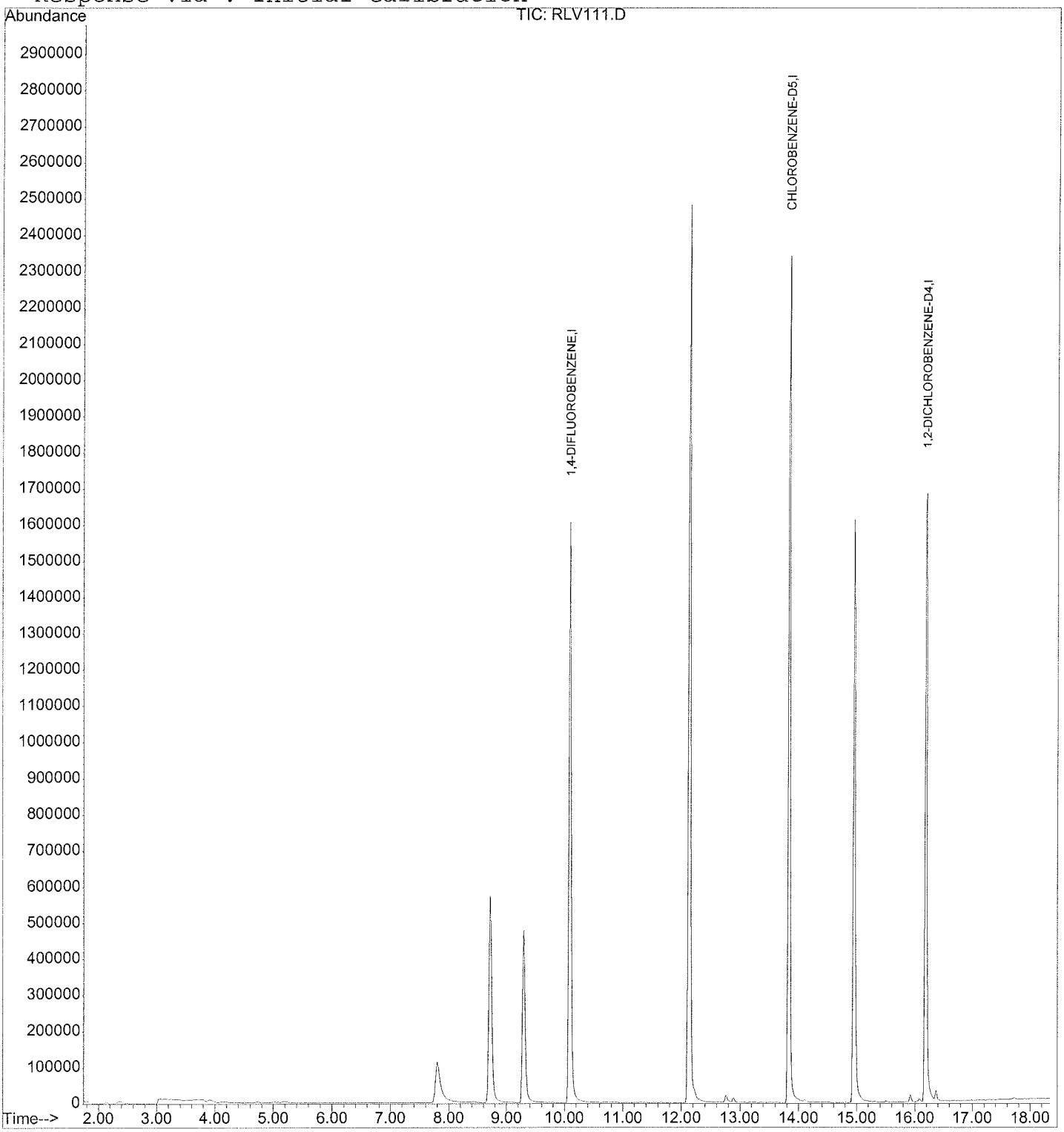
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV111.D VO01K06.M Mon Dec 16 09:44:08 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV111.D Vial: 21
Acq On : 13 Dec 2019 9:23 pm Operator: JCorea
Sample : 19L064-10 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/08/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/13/19 21:51
Sample ID: OU2-MW17D-GW120819	Date Analyzed: 12/13/19 21:51
Lab Samp ID: L064-11	Dilution Factor: 1
Lab File ID: RLV112	Matrix : WATER
Ext Btch ID: V001L05	% Moisture : NA
Calib. Ref.: RKV038	Instrument ID : T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.18J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	2.2	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	1.8	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.29	10.00	92.9	70-130
BROMOFLUOROBENZENE	9.35	10.00	93.5	70-130
TOLUENE-D8	10.2	10.00	102	70-130
DIBROMOFLUOROMETHANE	10.3	10.00	103	70-130

^ Incorporated by analysis using ICAL ID V001K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV112.D Vial: 22
Acq On : 13 Dec 2019 9:51 pm Operator: JCorea
Sample : 19L064-11 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:44 2019 Quant Results File: VO01K05A.RES

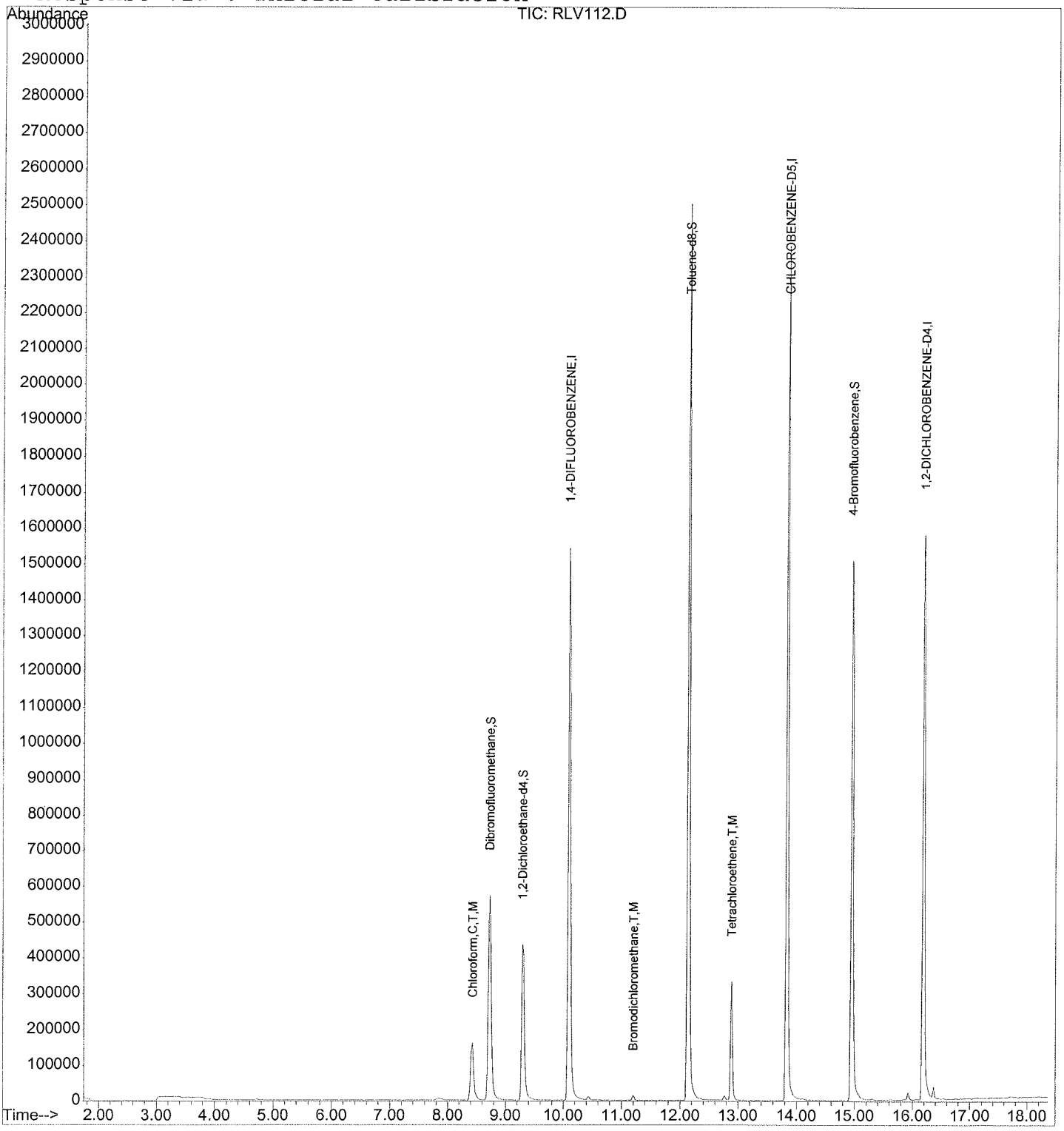
Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

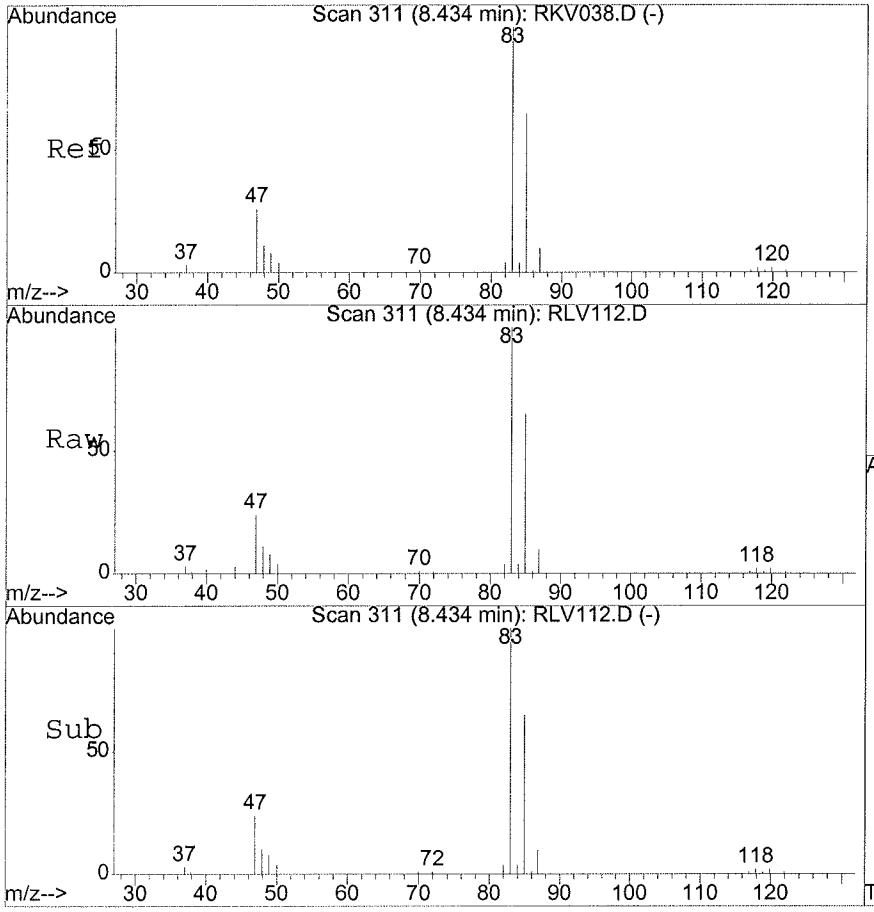
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1954029	10.00	ug/l	-0.02
53) CHLOROBENZENE-D5	13.84	117	1733149	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	687739	10.00	ug/l	0.00
System Monitoring Compounds						
34) Dibromofluoromethane	8.73	111	639851	10.29	ug/l	0.00
Spiked Amount 10.000			Recovery = 102.90%			
38) 1,2-Dichloroethane-d4	9.29	65	504562	9.29	ug/l	0.00
Spiked Amount 10.000			Recovery = 92.90%			
54) Toluene-d8	12.13	98	2256460	10.20	ug/l	0.00
Spiked Amount 10.000			Recovery = 102.00%			
74) 4-Bromofluorobenzene	14.95	95	789819	9.35	ug/l	-0.02
Spiked Amount 10.000			Recovery = 93.50%			
Target Compounds						Qvalue
33) Chloroform	8.43	83	276333	2.16	ug/l	95
49) Bromodichloromethane	11.20	83	14814	0.18	ug/l	99
59) Tetrachloroethene	12.89	164	107987	1.83	ug/l	96

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

Data File : D:\HPCHEM\1\DATA\19L13\RLV112.D Vial: 22
Acq On : 13 Dec 2019 9:51 pm Operator: JCorea
Sample : 19L064-11 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:44 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

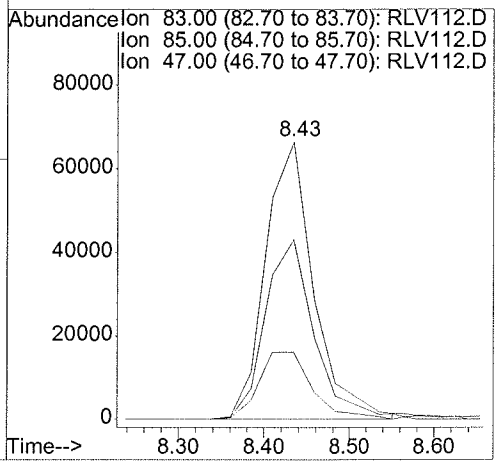


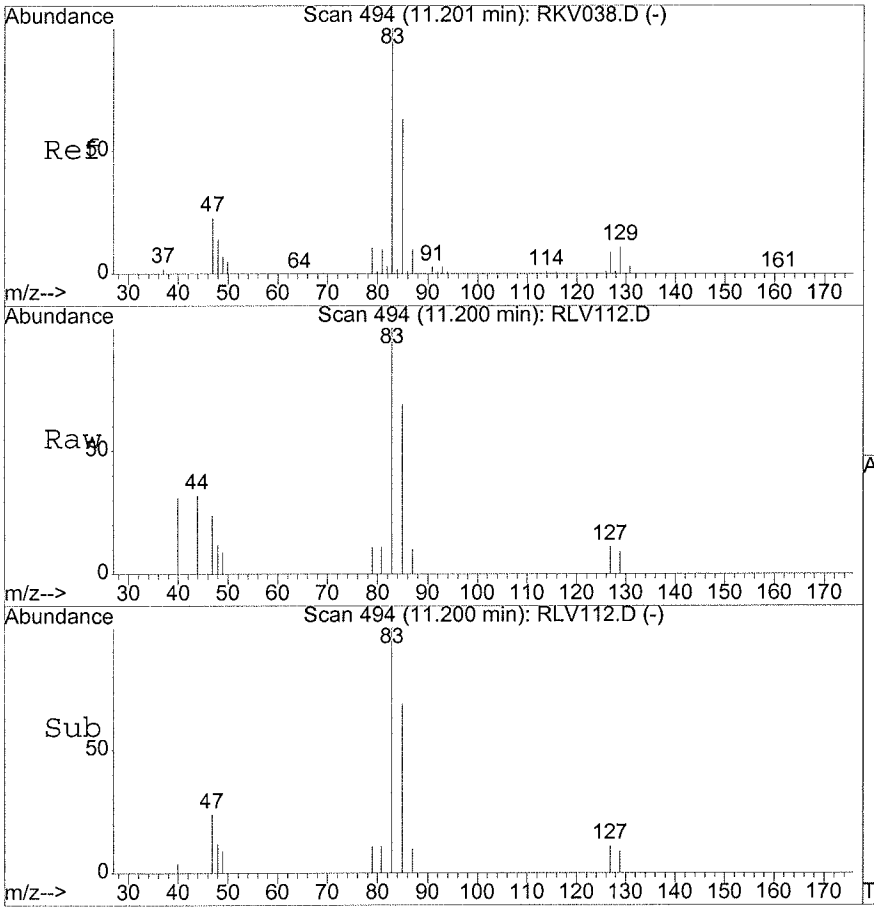


#33
Chloroform
Concen: 2.16 ug/l
RT: 8.43 min Scan# 311
Delta R.T. 0.00 min
Lab File: RLV112.D
Acq: 13 Dec 2019 9:51 pm

Tgt Ion: 83 Resp: 276333

Ion	Ratio	Lower	Upper
83	100		
85	69.2	34.5	94.5
47	26.8	0.0	59.1

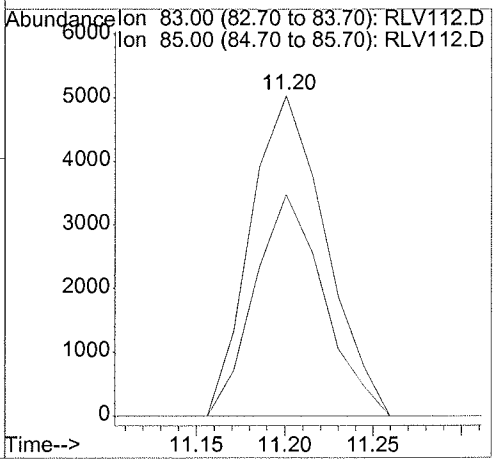


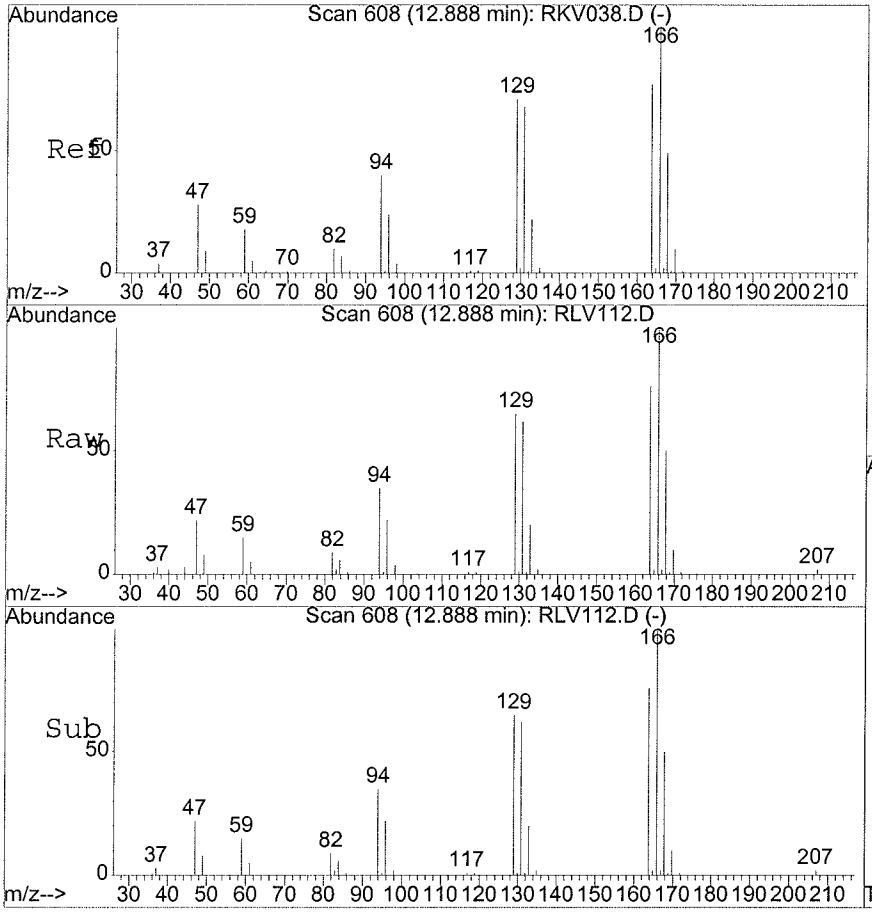


#49
Bromodichloromethane
Concen: 0.18 ug/l
RT: 11.20 min Scan# 494
Delta R.T. -0.00 min
Lab File: RLV112.D
Acq: 13 Dec 2019 9:51 pm

Tgt Ion: 83 Resp: 14814

Ion	Ratio	Lower	Upper
83	100		
85	63.5	32.7	92.7

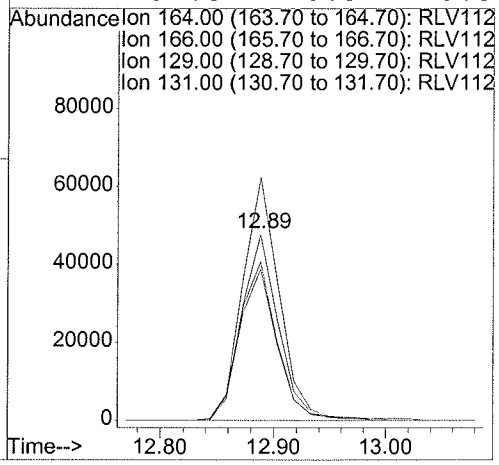




#59
Tetrachloroethene
Concen: 1.83 ug/l
RT: 12.89 min Scan# 608
Delta R.T. -0.00 min
Lab File: RLV112.D
Acq: 13 Dec 2019 9:51 pm

Tgt Ion:164 Resp: 107987

Ion	Ratio	Lower	Upper
164	100		
166	129.5	100.3	160.3
129	87.6	64.1	124.1
131	83.3	58.3	118.3



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV112.D Vial: 22
Acq On : 13 Dec 2019 9:51 pm Operator: JCorea
Sample : 19L064-11 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1954029	10.00	ug/l	-0.02
3) CHLOROBENZENE-D5	13.84	117	1733149	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.19	152	687739	10.00	ug/l	0.00

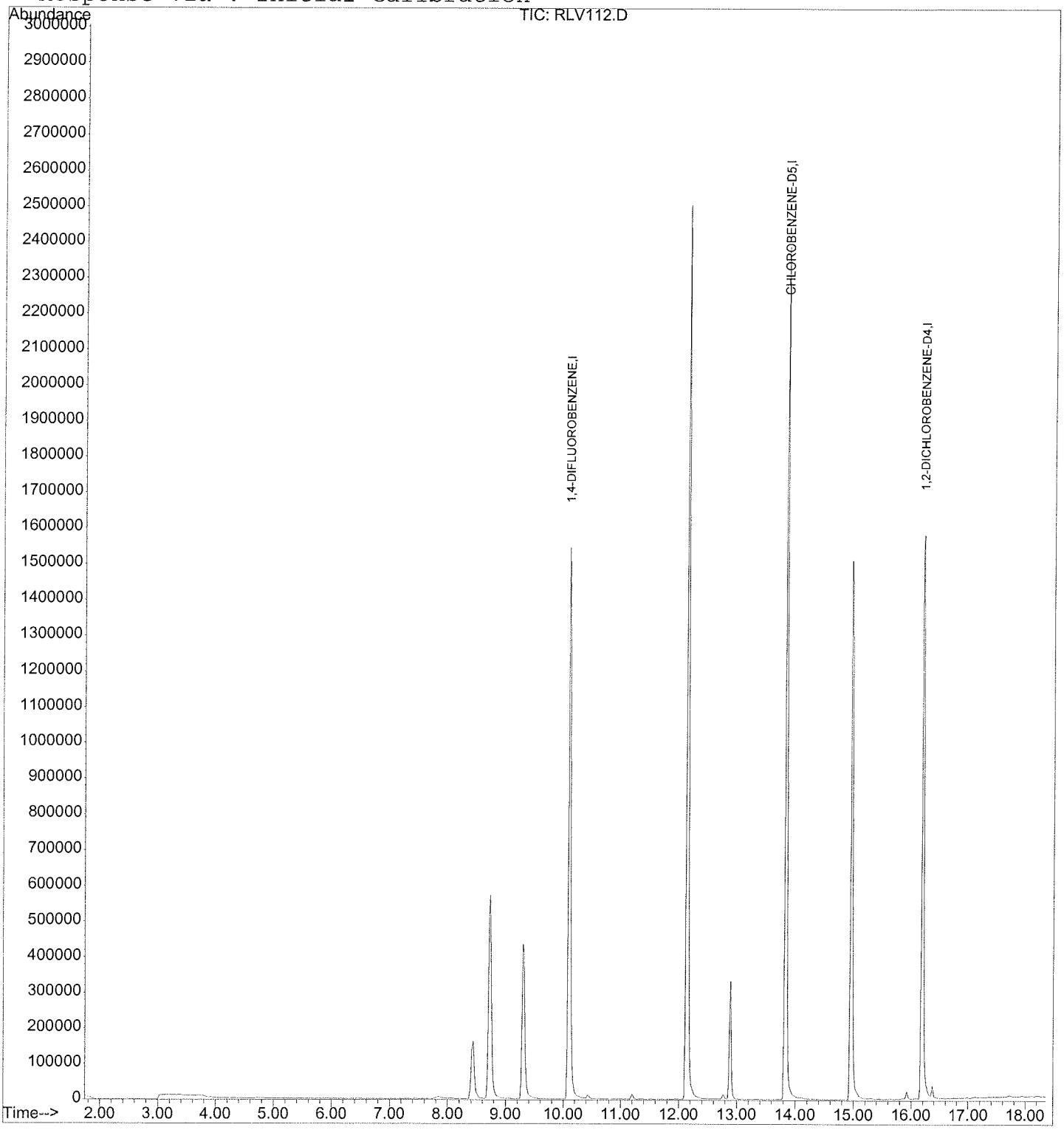
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV112.D VO01K06.M Mon Dec 16 09:44:12 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV112.D Vial: 22
Acq On : 13 Dec 2019 9:51 pm Operator: JCorea
Sample : 19L064-11 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected:	12/08/19
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/13/19 22:19
Sample ID	: OU2-MW17S-GW120819	Date Analyzed:	12/13/19 22:19
Lab Samp ID	: L064-12	Dilution Factor:	1
Lab File ID	: RLV113	Matrix	: WATER
Ext Btch ID	: VO01L05	% Moisture	: NA
Calib. Ref.	: RKV038	Instrument ID	: T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	1.2	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	0.65J	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	10.0	10.00	100	70-130
BROMOFLUOROBENZENE	9.34	10.00	93.4	70-130
TOLUENE-D8	10.0	10.00	100	70-130
DIBROMOFLUOROMETHANE	10.4	10.00	104	70-130

^ Incorporated by analysis using ICAL ID VO01K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV113.D Vial: 23
Acq On : 13 Dec 2019 10:19 pm Operator: JCorea
Sample : 19L064-12 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:44 2019 Quant Results File: VO01K05A.RES

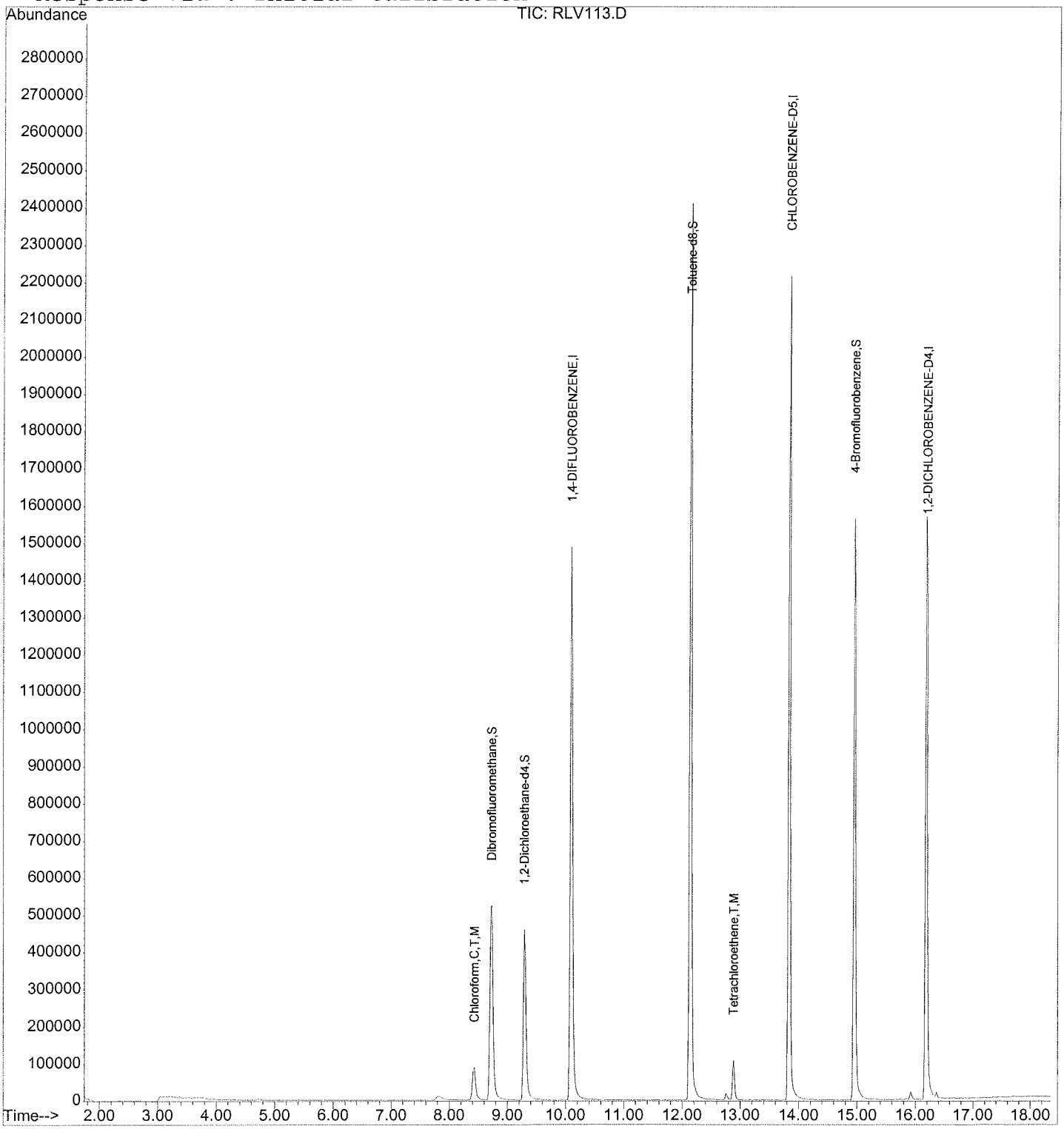
Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

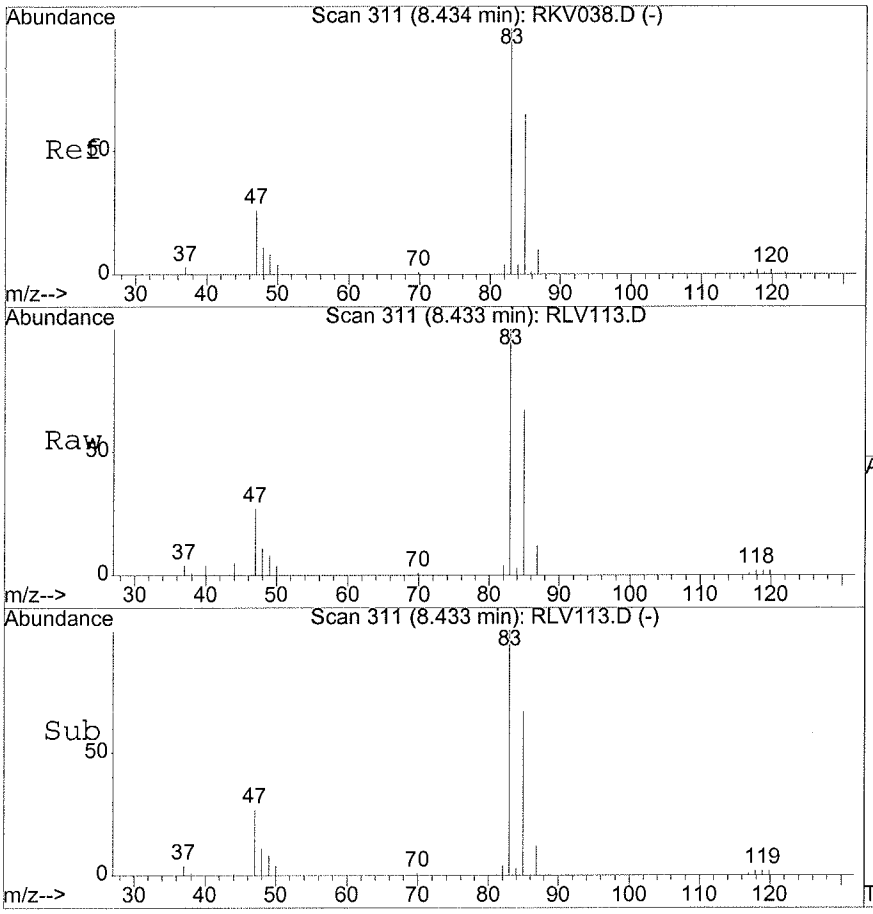
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1846297	10.00	ug/l	-0.01
53) CHLOROBENZENE-D5	13.84	117	1663033	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	662343	10.00	ug/l	0.00
System Monitoring Compounds						
34) Dibromofluoromethane	8.73	111	613289	10.44	ug/l	0.00
Spiked Amount 10.000			Recovery = 104.40%			
38) 1,2-Dichloroethane-d4	9.29	65	512921	10.00	ug/l	0.00
Spiked Amount 10.000			Recovery = 100.00%			
54) Toluene-d8	12.13	98	2132006	10.05	ug/l	0.00
Spiked Amount 10.000			Recovery = 100.50%			
74) 4-Bromofluorobenzene	14.95	95	759834	9.34	ug/l	-0.01
Spiked Amount 10.000			Recovery = 93.40%			
Target Compounds						Qvalue
33) Chloroform	8.43	83	145180	1.20	ug/l	92
59) Tetrachloroethene	12.89	164	36892	0.65	ug/l	96

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

Data File : D:\HPCHEM\1\DATA\19L13\RLV113.D Vial: 23
Acq On : 13 Dec 2019 10:19 pm Operator: JCorea
Sample : 19L064-12 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:44 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

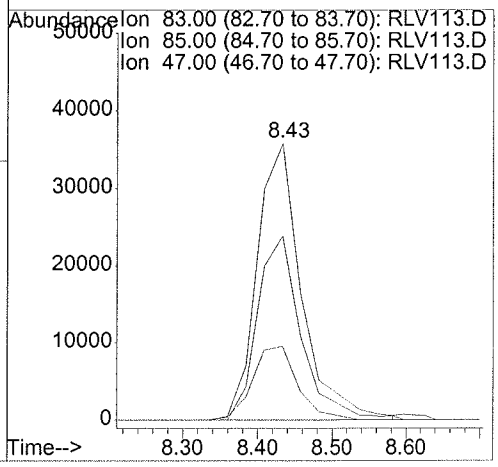


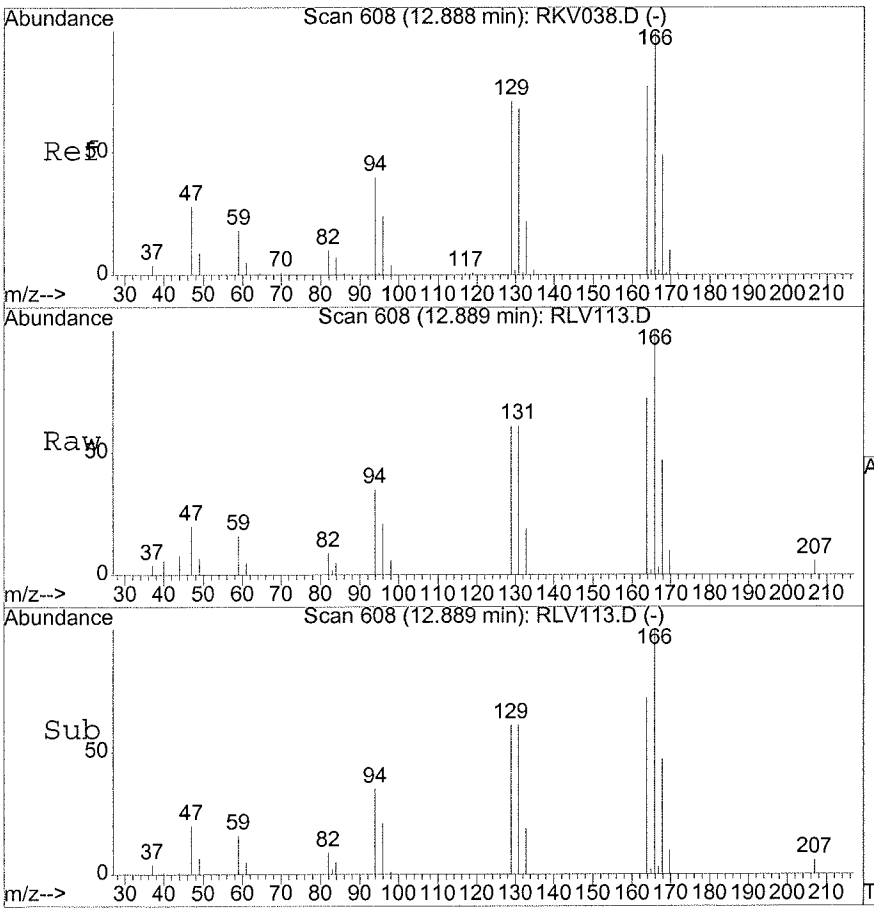


#33
Chloroform
Concen: 1.20 ug/l
RT: 8.43 min Scan# 311
Delta R.T. -0.00 min
Lab File: RLV113.D
Acq: 13 Dec 2019 10:19 pm

Tgt Ion: 83 Resp: 145180

Ion	Ratio	Lower	Upper
83	100		
85	72.0	34.5	94.5
47	31.8	0.0	59.1

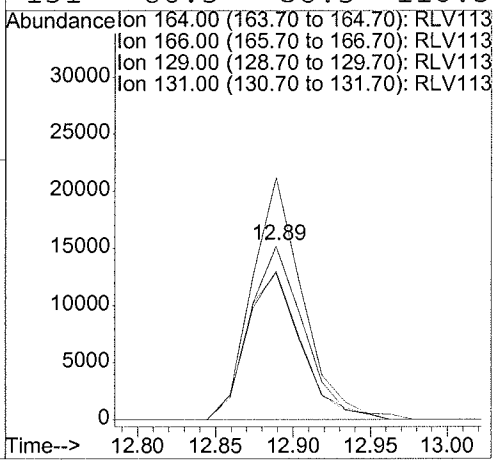




#59
Tetrachloroethene
Concen: 0.65 ug/l
RT: 12.89 min Scan# 608
Delta R.T. 0.00 min
Lab File: RLV113.D
Acq: 13 Dec 2019 10:19 pm

Tgt Ion:164 Resp: 36892

Ion	Ratio	Lower	Upper
164	100		
166	131.7	100.3	160.3
129	86.1	64.1	124.1
131	86.3	58.3	118.3



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV113.D Vial: 23
Acq On : 13 Dec 2019 10:19 pm Operator: JCorea
Sample : 19L064-12 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1846297	10.00	ug/l	-0.01
3) CHLOROBENZENE-D5	13.84	117	1663033	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.19	152	662343	10.00	ug/l	0.00

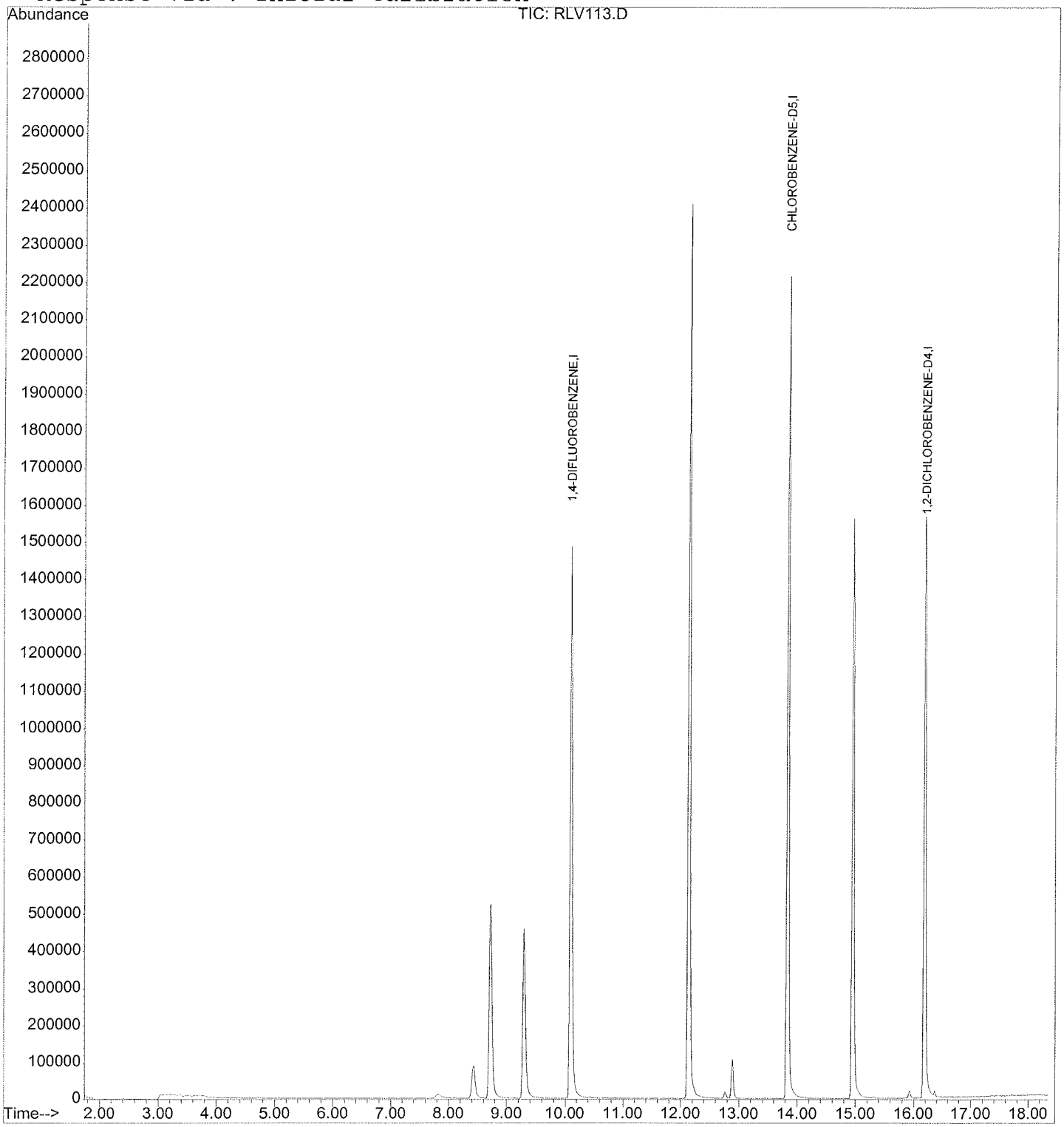
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV113.D VO01K06.M Mon Dec 16 09:44:15 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV113.D Vial: 23
Acq On : 13 Dec 2019 10:19 pm Operator: JCorea
Sample : 19L064-12 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected:	12/08/19
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/12/19 15:33
Sample ID:	OU2-FB01-GW120819	Date Analyzed:	12/12/19 15:33
Lab Samp ID:	L064-13	Dilution Factor:	1
Lab File ID:	RLV083	Matrix	: WATER
Ext Btch ID:	VO01L04	% Moisture	: NA
Calib. Ref.:	RKV038	Instrument ID	: T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	ND	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.70	10.00	87.0	70-130
BROMOFLUOROBENZENE	9.27	10.00	92.7	70-130
TOLUENE-D8	9.89	10.00	98.9	70-130
DIBROMOFLUOROMETHANE	9.65	10.00	96.5	70-130

^ Incorporated by analysis using ICAL ID VO01K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV083.D Vial: 11
Acq On : 12 Dec 2019 3:33 pm Operator: JCorea
Sample : 19L064-13 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:38 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

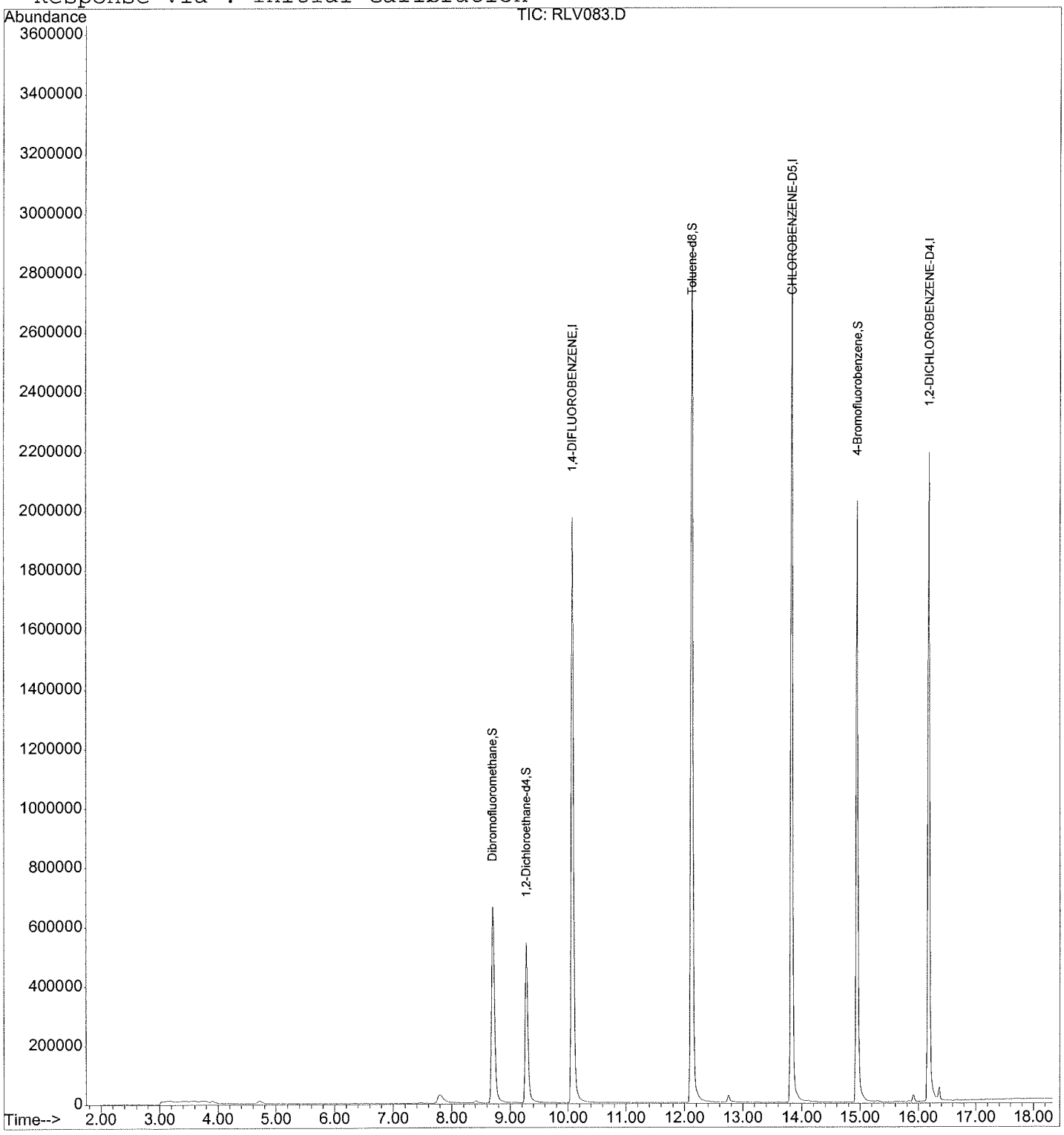
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2461279	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	2169829	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.17	152	829674	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.70	111	755639	9.65	ug/l	-0.03
Spiked Amount 10.000			Recovery =	96.50%		
38) 1,2-Dichloroethane-d4	9.28	65	594957	8.70	ug/l	-0.01
Spiked Amount 10.000			Recovery =	87.00%		
54) Toluene-d8	12.12	98	2738398	9.89	ug/l	-0.01
Spiked Amount 10.000			Recovery =	98.90%		
74) 4-Bromofluorobenzene	14.95	95	945022	9.27	ug/l	-0.01
Spiked Amount 10.000			Recovery =	92.70%		

Target Compounds Qvalue

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

Data File : D:\HPCHEM\1\DATA\19L12\RLV083.D Vial: 11
Acq On : 12 Dec 2019 3:33 pm Operator: JCorea
Sample : 19L064-13 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:38 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV083.D Vial: 11
Acq On : 12 Dec 2019 3:33 pm Operator: JCorea
Sample : 19L064-13 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2461279	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	2169829	10.00	ug/l	-0.01
4) 1,2-DICHLOROBENZENE-D4	16.17	152	829674	10.00	ug/l	-0.01

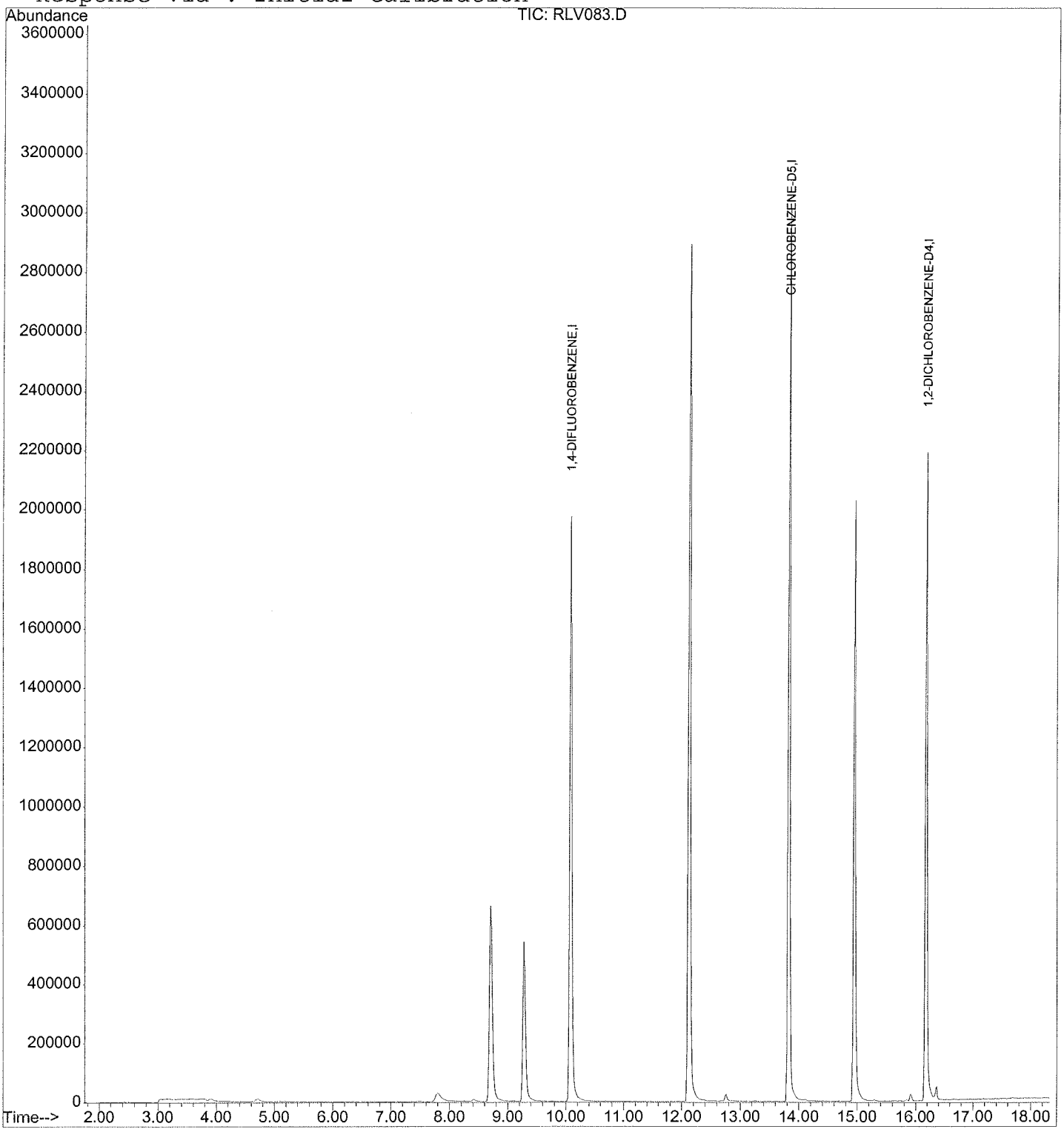
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV083.D VO01K06.M Fri Dec 13 10:23:11 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV083.D Vial: 11
Acq On : 12 Dec 2019 3:33 pm Operator: JCorea
Sample : 19L064-13 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected	: 12/08/19
Project	: VA SALT LAKE CITY	Date Received	: 12/10/19
Batch No.	: 19L064	Date Extracted	: 12/13/19 22:47
Sample ID	: OU2-FD02-GW120819	Date Analyzed	: 12/13/19 22:47
Lab Samp ID	: L064-14	Dilution Factor	: 1
Lab File ID	: RLV114	Matrix	: WATER
Ext Btch ID	: V001L05	% Moisture	: NA
Calib. Ref.	: RKV038	Instrument ID	: T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.14J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	1.5	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	4.5	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	10.4	10.00	104	70-130
BROMOFLUOROBENZENE	9.12	10.00	91.2	70-130
TOLUENE-D8	9.81	10.00	98.1	70-130
DIBROMOFLUOROMETHANE	10.5	10.00	105	70-130

^ Incorporated by analysis using ICAL ID V001K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV114.D Vial: 24
Acq On : 13 Dec 2019 10:47 pm Operator: JCorea
Sample : 19L064-14 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:45 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

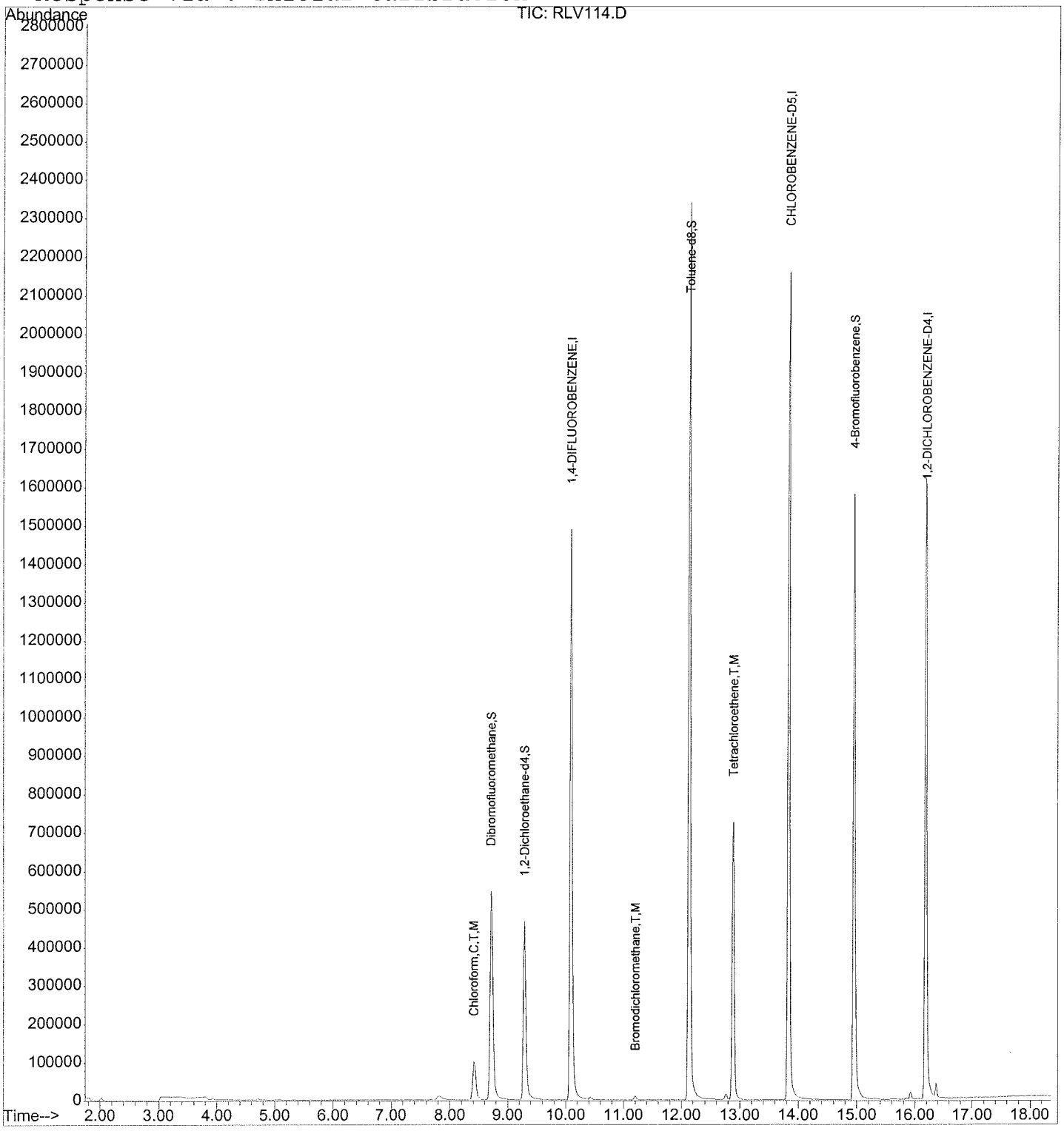
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1814935	10.00	ug/l	-0.01
53) CHLOROBENZENE-D5	13.84	117	1651448	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	676326	10.00	ug/l	0.00
System Monitoring Compounds						
34) Dibromofluoromethane	8.71	111	608069	10.53	ug/l	-0.01
Spiked Amount 10.000			Recovery =	105.30%		
38) 1,2-Dichloroethane-d4	9.29	65	524006	10.39	ug/l	0.00
Spiked Amount 10.000			Recovery =	103.90%		
54) Toluene-d8	12.13	98	2067724	9.81	ug/l	0.00
Spiked Amount 10.000			Recovery =	98.10%		
74) 4-Bromofluorobenzene	14.95	95	758096	9.12	ug/l	-0.01
Spiked Amount 10.000			Recovery =	91.20%		
Target Compounds						Qvalue
33) Chloroform	8.41	83	178157	1.50	ug/l	99
49) Bromodichloromethane	11.20	83	10944	0.14	ug/l	97
59) Tetrachloroethene	12.89	164	253155	4.50	ug/l	96

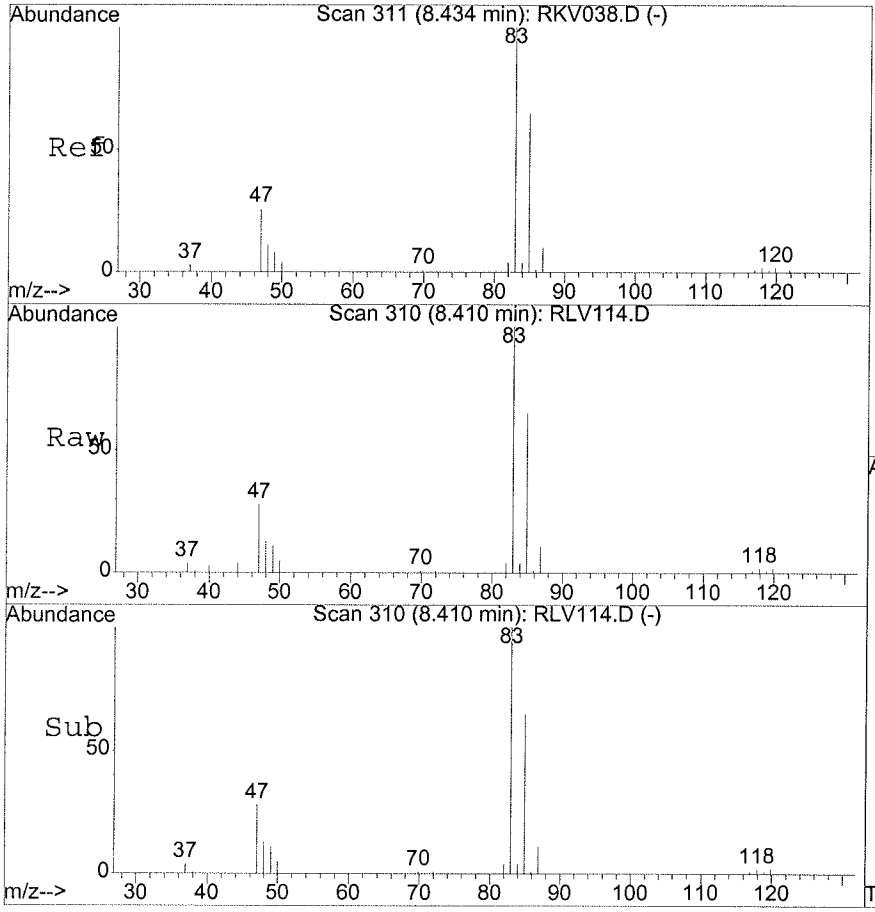
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV114.D Vial: 24
Acq On : 13 Dec 2019 10:47 pm Operator: JCorea
Sample : 19L064-14 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:45 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

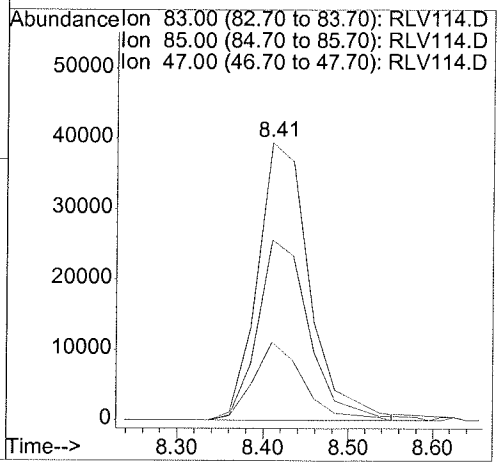


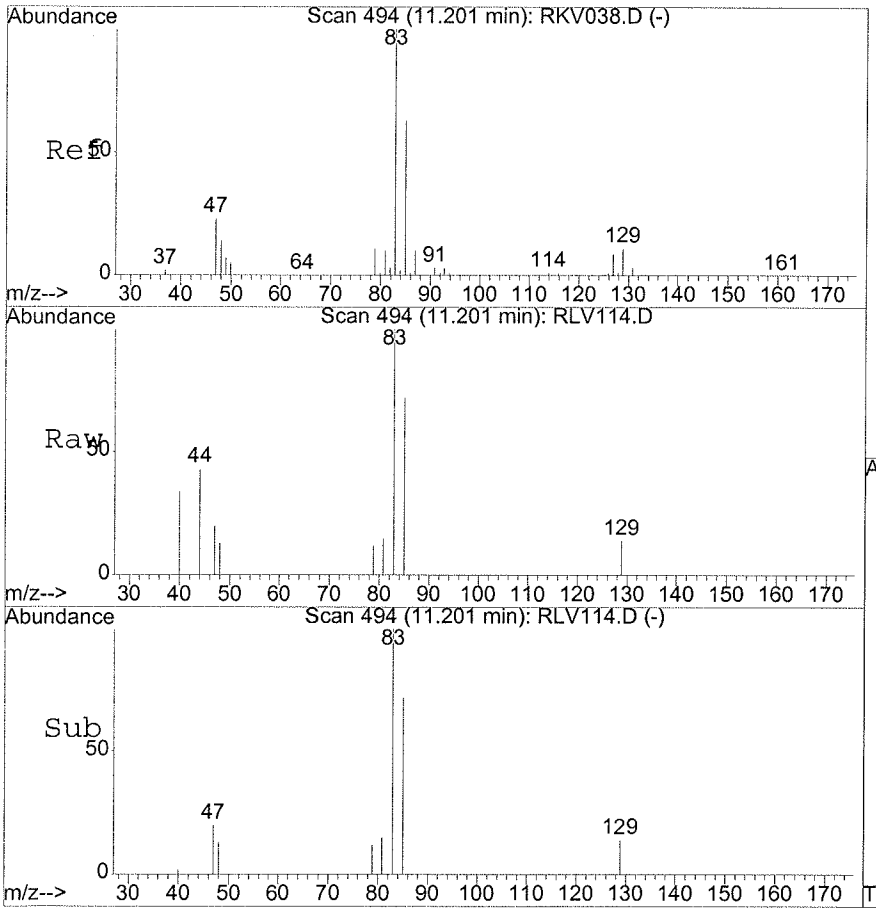


#33
Chloroform
Concen: 1.50 ug/l
RT: 8.41 min Scan# 310
Delta R.T. -0.02 min
Lab File: RLV114.D
Acq: 13 Dec 2019 10:47 pm

Tgt Ion: 83 Resp: 178157

Ion	Ratio	Lower	Upper
83	100		
85	64.6	34.5	94.5
47	26.9	0.0	59.1

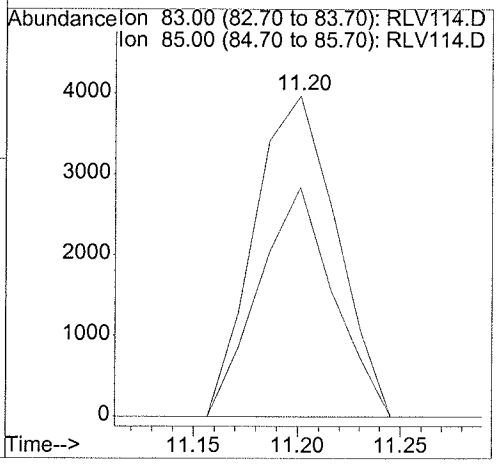


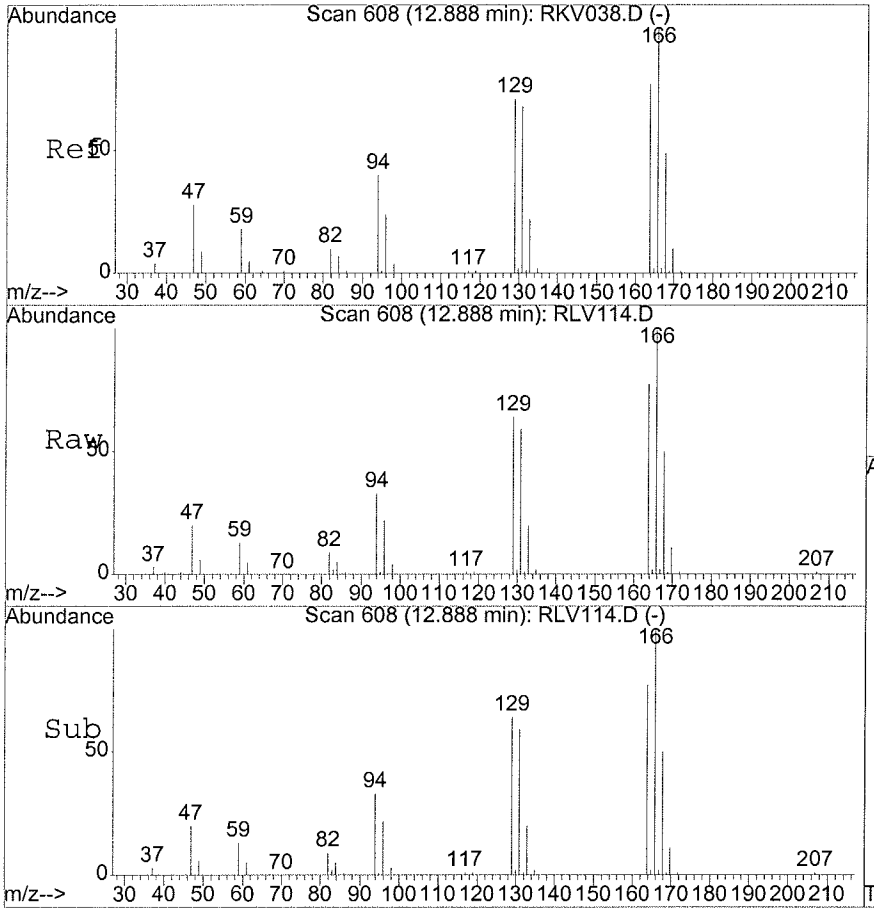


#49
Bromodichloromethane
Concen: 0.14 ug/l
RT: 11.20 min Scan# 494
Delta R.T. 0.00 min
Lab File: RLV114.D
Acq: 13 Dec 2019 10:47 pm

Tgt Ion: 83 Resp: 10944

Ion	Ratio	Lower	Upper
83	100		
85	64.9	32.7	92.7

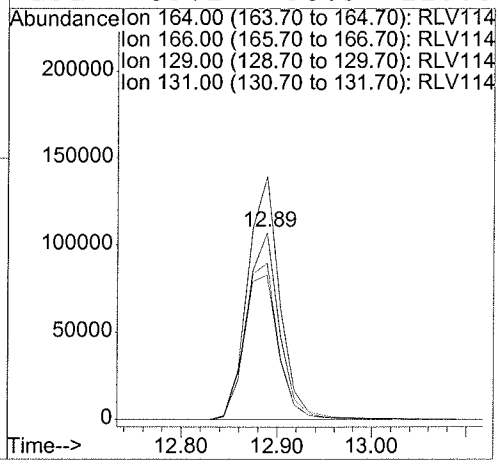




#59
Tetrachloroethene
Concen: 4.50 ug/l
RT: 12.89 min Scan# 608
Delta R.T. 0.00 min
Lab File: RLV114.D
Acq: 13 Dec 2019 10:47 pm

Tgt Ion:164 Resp: 253155

Ion	Ratio	Lower	Upper
164	100		
166	131.2	100.3	160.3
129	88.5	64.1	124.1
131	83.2	58.3	118.3



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV114.D Vial: 24
Acq On : 13 Dec 2019 10:47 pm Operator: JCorea
Sample : 19L064-14 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1814935	10.00	ug/l	-0.01
3) CHLOROBENZENE-D5	13.84	117	1651448	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.19	152	676326	10.00	ug/l	0.00

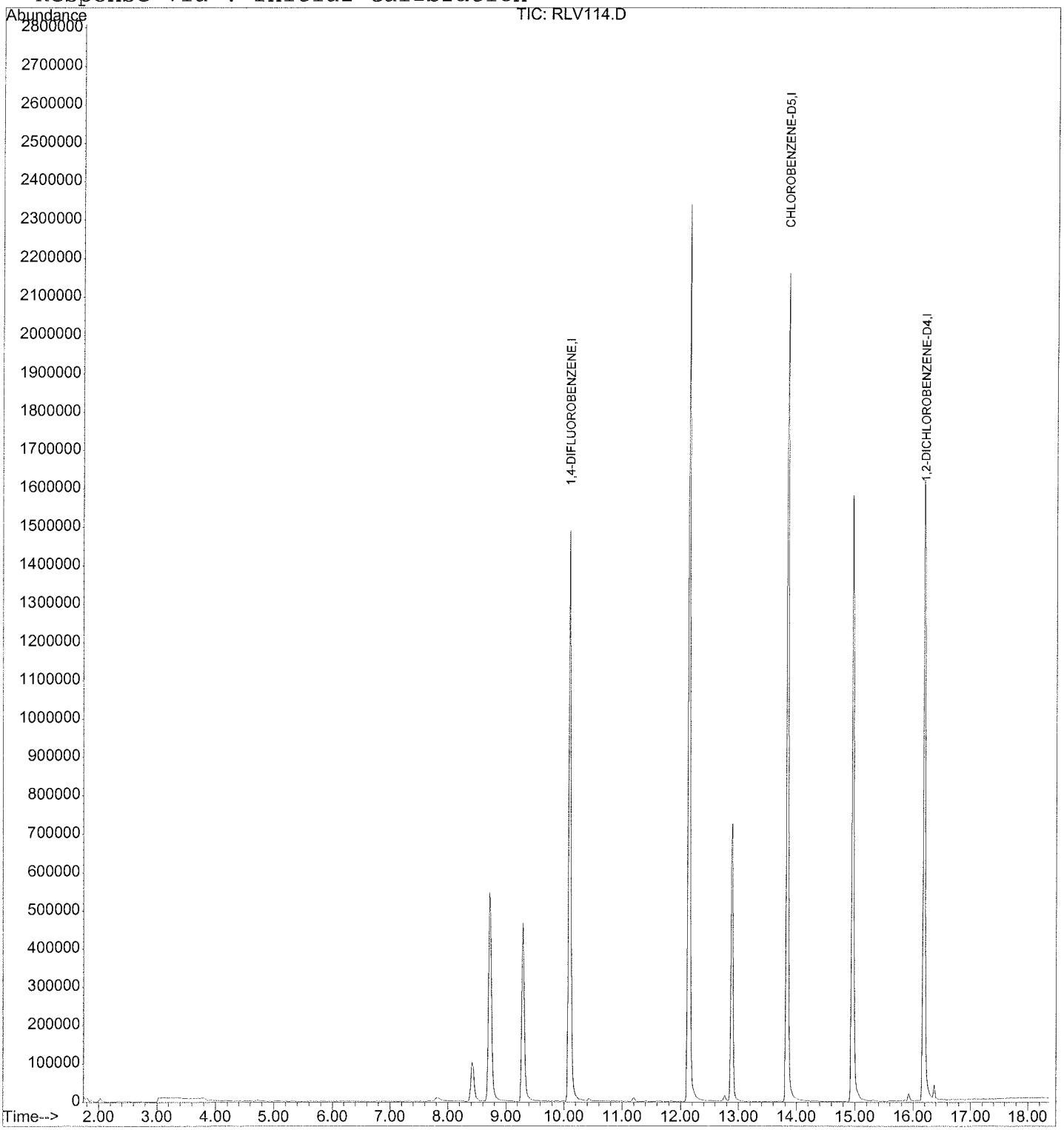
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV114.D VO01K06.M Mon Dec 16 09:44:19 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV114.D Vial: 24
Acq On : 13 Dec 2019 10:47 pm Operator: JCorea
Sample : 19L064-14 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected:	12/08/19
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/13/19 23:15
Sample ID:	OU2-MW08C-GW120819	Date Analyzed:	12/13/19 23:15
Lab Samp ID:	L064-15	Dilution Factor:	1
Lab File ID:	RLV115	Matrix	: WATER
Ext Btch ID:	VO01L05	% Moisture	: NA
Calib. Ref.:	RKV038	Instrument ID	: T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	3.8J	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	0.16J	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	11.3	10.00	113	70-130
BROMOFLUOROBENZENE	9.01	10.00	90.1	70-130
TOLUENE-D8	9.37	10.00	93.7	70-130
DIBROMOFLUOROMETHANE	10.9	10.00	109	70-130

^ Incorporated by analysis using ICAL ID VO01K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV115.D Vial: 25
Acq On : 13 Dec 2019 11:15 pm Operator: JCorea
Sample : 19L064-15 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:45 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

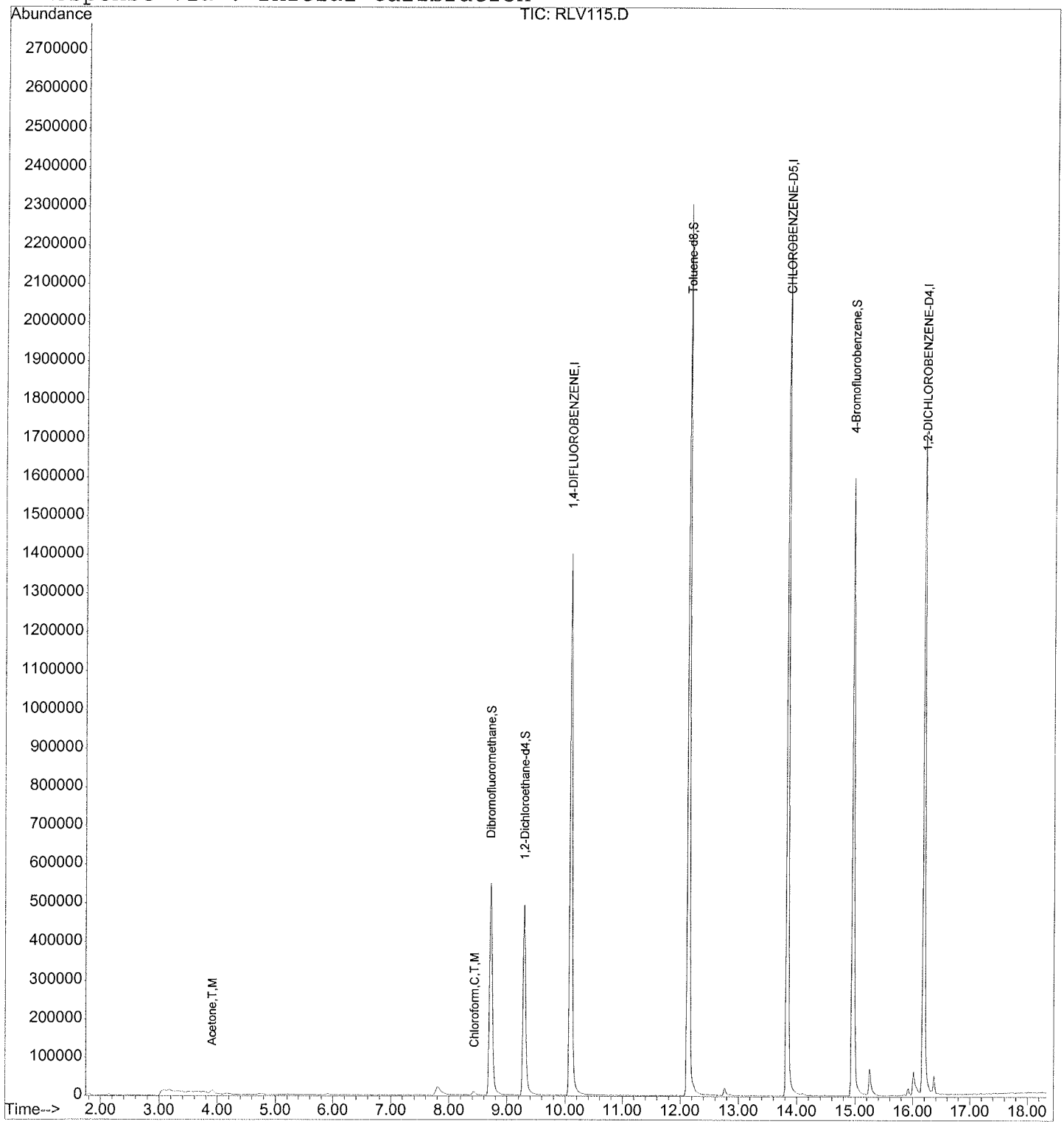
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1746198	10.00	ug/l	-0.01
53) CHLOROBENZENE-D5	13.84	117	1728006	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	696327	10.00	ug/l	0.00
System Monitoring Compounds						
34) Dibromofluoromethane	8.71	111	605815	10.91	ug/l	-0.01
Spiked Amount 10.000			Recovery =	109.10%		
38) 1,2-Dichloroethane-d4	9.29	65	548449	11.30	ug/l	0.00
Spiked Amount 10.000			Recovery =	113.00%		
54) Toluene-d8	12.13	98	2065581	9.37	ug/l	0.00
Spiked Amount 10.000			Recovery =	93.70%		
74) 4-Bromofluorobenzene	14.95	95	770560	9.01	ug/l	-0.01
Spiked Amount 10.000			Recovery =	90.10%		
Target Compounds						Qvalue
13) Acetone	3.91	43	37519	3.81	ug/l	91
33) Chloroform	8.43	83	17885	0.16	ug/l	96

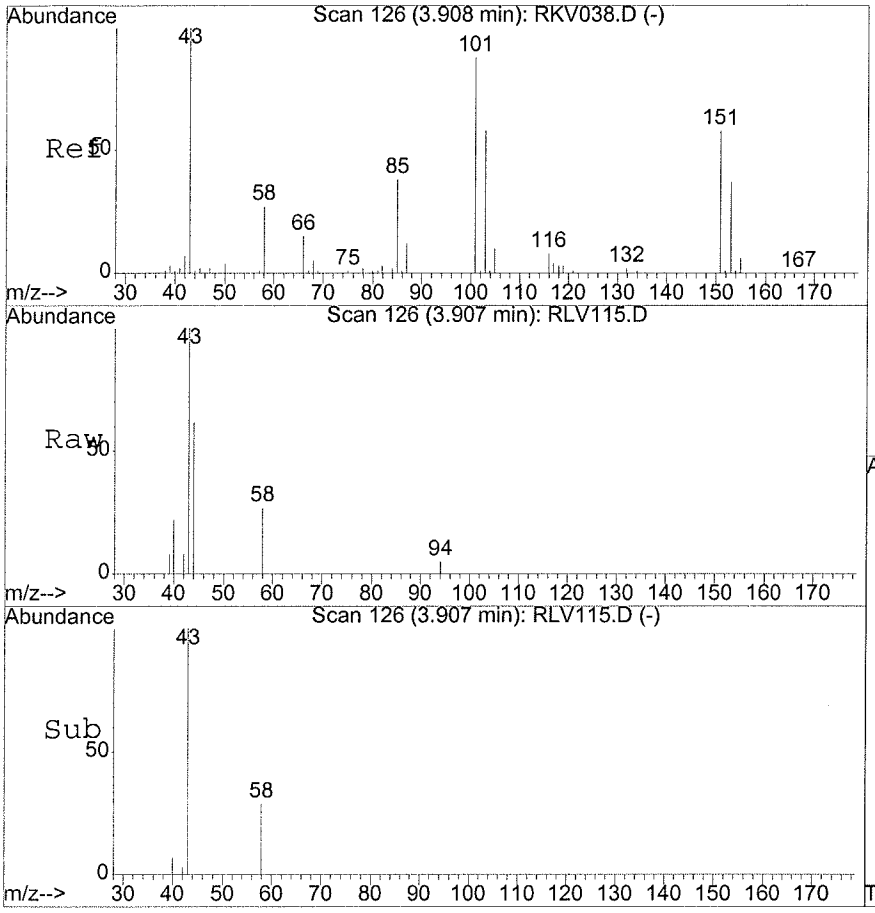
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV115.D Vial: 25
Acq On : 13 Dec 2019 11:15 pm Operator: JCorea
Sample : 19L064-15 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:45 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

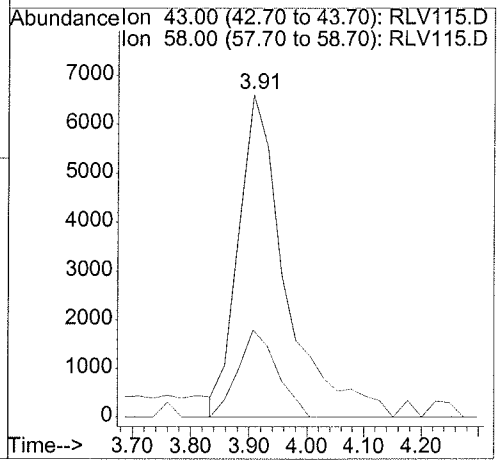


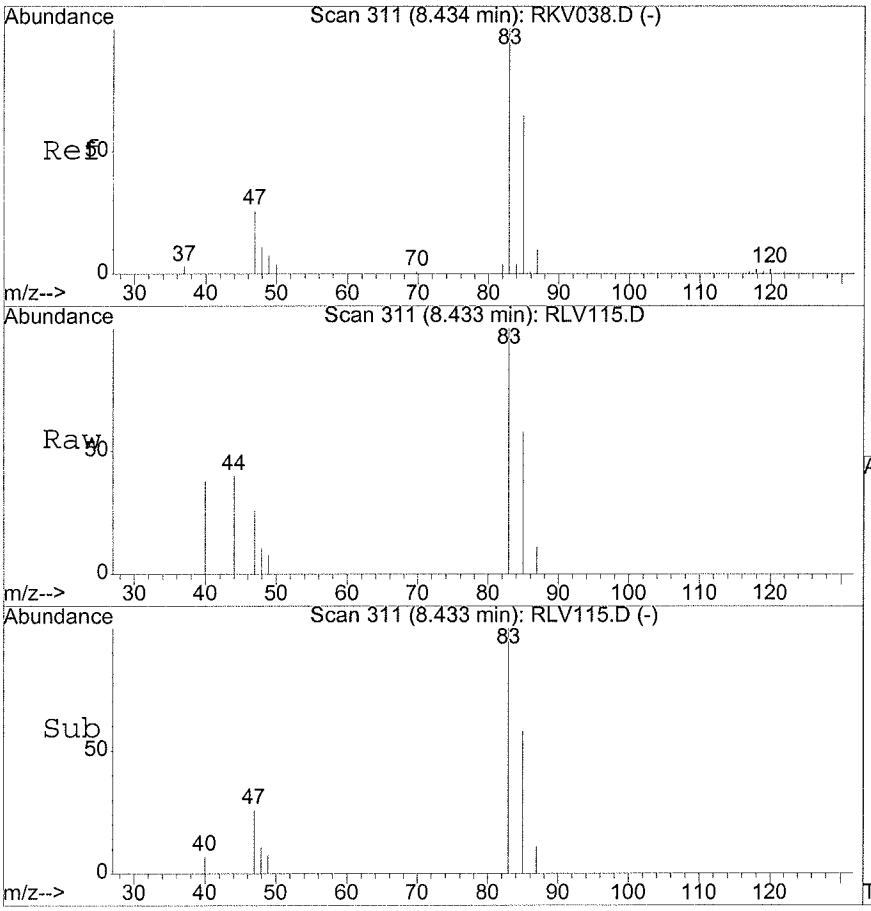


#13
Acetone
Concen: 3.81 ug/l
RT: 3.91 min Scan# 126
Delta R.T. -0.00 min
Lab File: RLV115.D
Acq: 13 Dec 2019 11:15 pm

Tgt Ion: 43 Resp: 37519

Ion	Ratio	Lower	Upper
43	100		
58	22.5	0.0	57.1

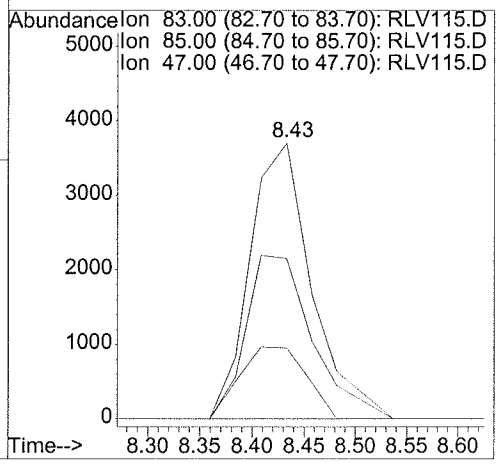




#33
Chloroform
Concen: 0.16 ug/l
RT: 8.43 min Scan# 311
Delta R.T. -0.00 min
Lab File: RLV115.D
Acq: 13 Dec 2019 11:15 pm

Tgt Ion: 83 Resp: 17885

Ion	Ratio	Lower	Upper
83	100		
85	63.5	34.5	94.5
47	23.9	0.0	59.1



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV115.D Vial: 25
Acq On : 13 Dec 2019 11:15 pm Operator: JCorea
Sample : 19L064-15 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1746198	10.00	ug/l	-0.01
3) CHLOROBENZENE-D5	13.84	117	1728006	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.19	152	696327	10.00	ug/l	0.00

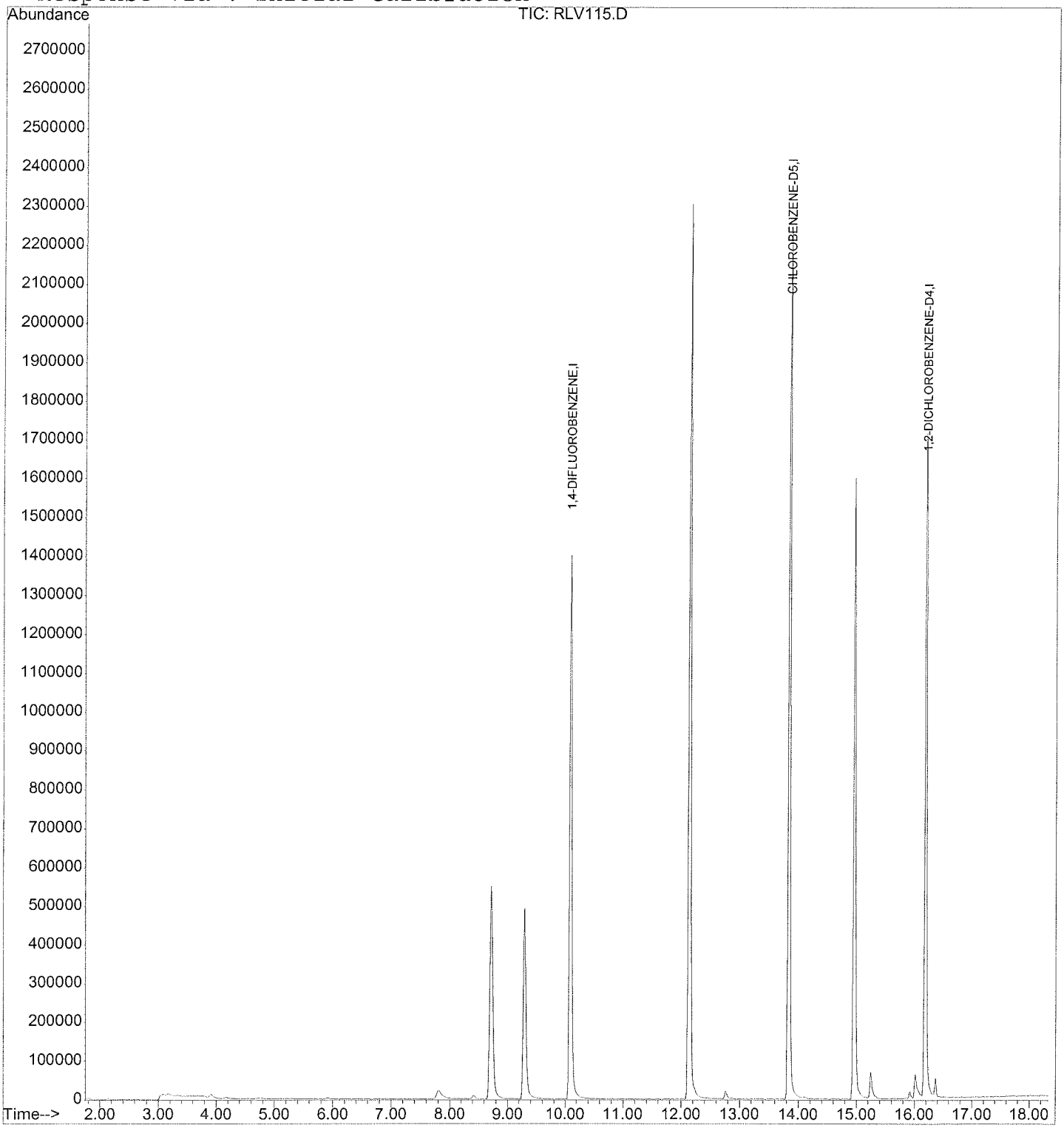
Target Compounds Qvalue

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV115.D Vial: 25
Acq On : 13 Dec 2019 11:15 pm Operator: JCorea
Sample : 19L064-15 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/09/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 14:09
Sample ID: OU2-TB09-GW120919	Date Analyzed: 12/12/19 14:09
Lab Samp ID: L064-16	Dilution Factor: 1
Lab File ID: RLV080	Matrix : WATER
Ext Btch ID: V001L04	% Moisture : NA
Calib. Ref.: RKV038	Instrument ID : T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	5.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	ND	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.46	10.00	94.6	70-130
BROMOFLUOROBENZENE	8.61	10.00	86.1	70-130
TOLUENE-D8	9.64	10.00	96.4	70-130
DIBROMOFLUOROMETHANE	10.3	10.00	103	70-130

^ Incorporated by analysis using ICAL ID V001K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV080.D Vial: 8
Acq On : 12 Dec 2019 2:09 pm Operator: JCorea
Sample : 19L064-16 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:36 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2548762	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	2323868	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.17	152	973772	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.70	111	833163	10.28	ug/l	-0.03
Spiked Amount 10.000			Recovery = 102.80%			
38) 1,2-Dichloroethane-d4	9.28	65	670250	9.46	ug/l	-0.01
Spiked Amount 10.000			Recovery = 94.60%			
54) Toluene-d8	12.12	98	2858006	9.64	ug/l	-0.01
Spiked Amount 10.000			Recovery = 96.40%			
74) 4-Bromofluorobenzene	14.95	95	1030596	8.61	ug/l	-0.01
Spiked Amount 10.000			Recovery = 86.10%			

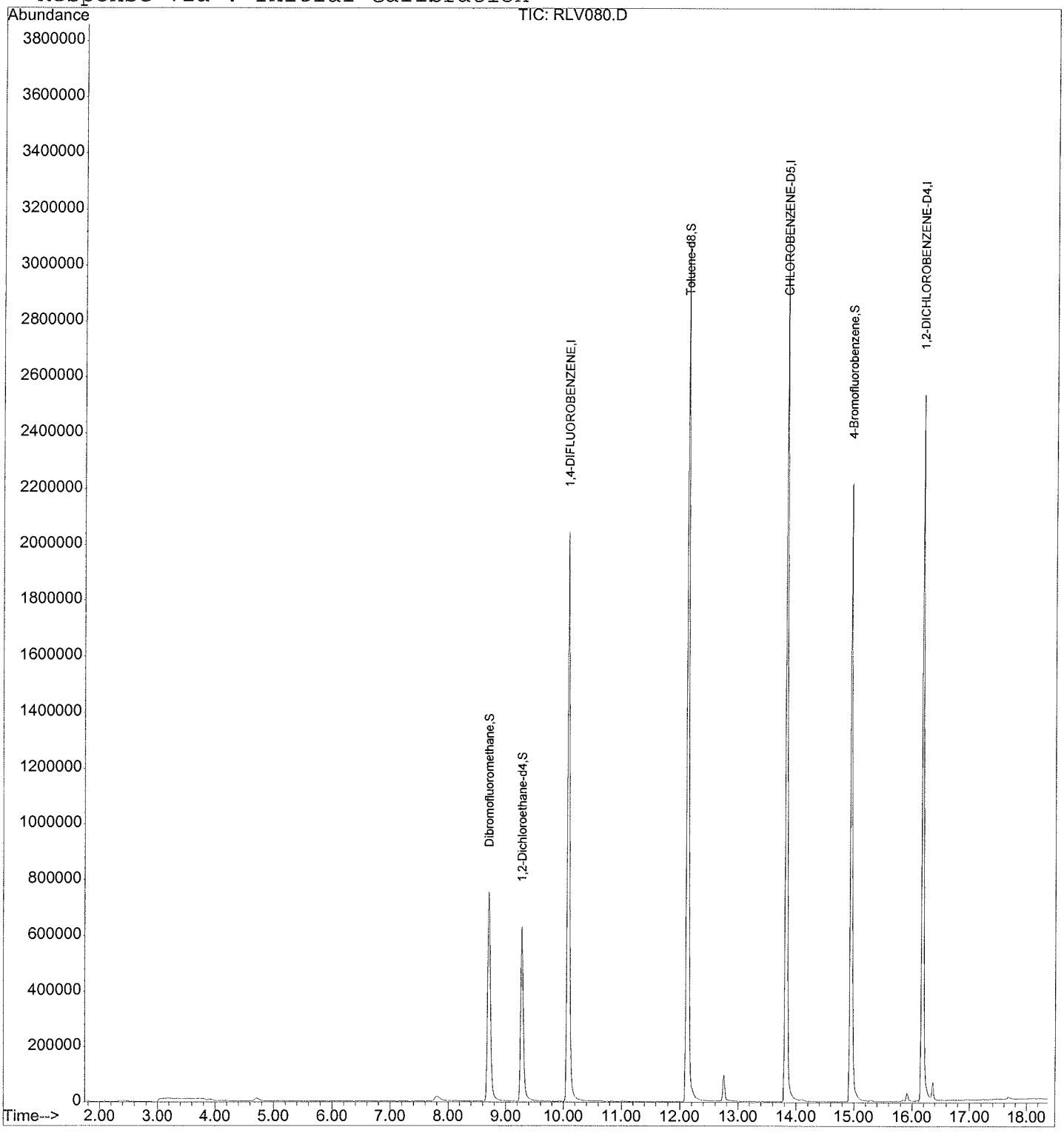
Target Compounds Qvalue

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV080.D Vial: 8
Acq On : 12 Dec 2019 2:09 pm Operator: JCorea
Sample : 19L064-16 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:36 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV080.D Vial: 8
Acq On : 12 Dec 2019 2:09 pm Operator: JCorea
Sample : 19L064-16 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

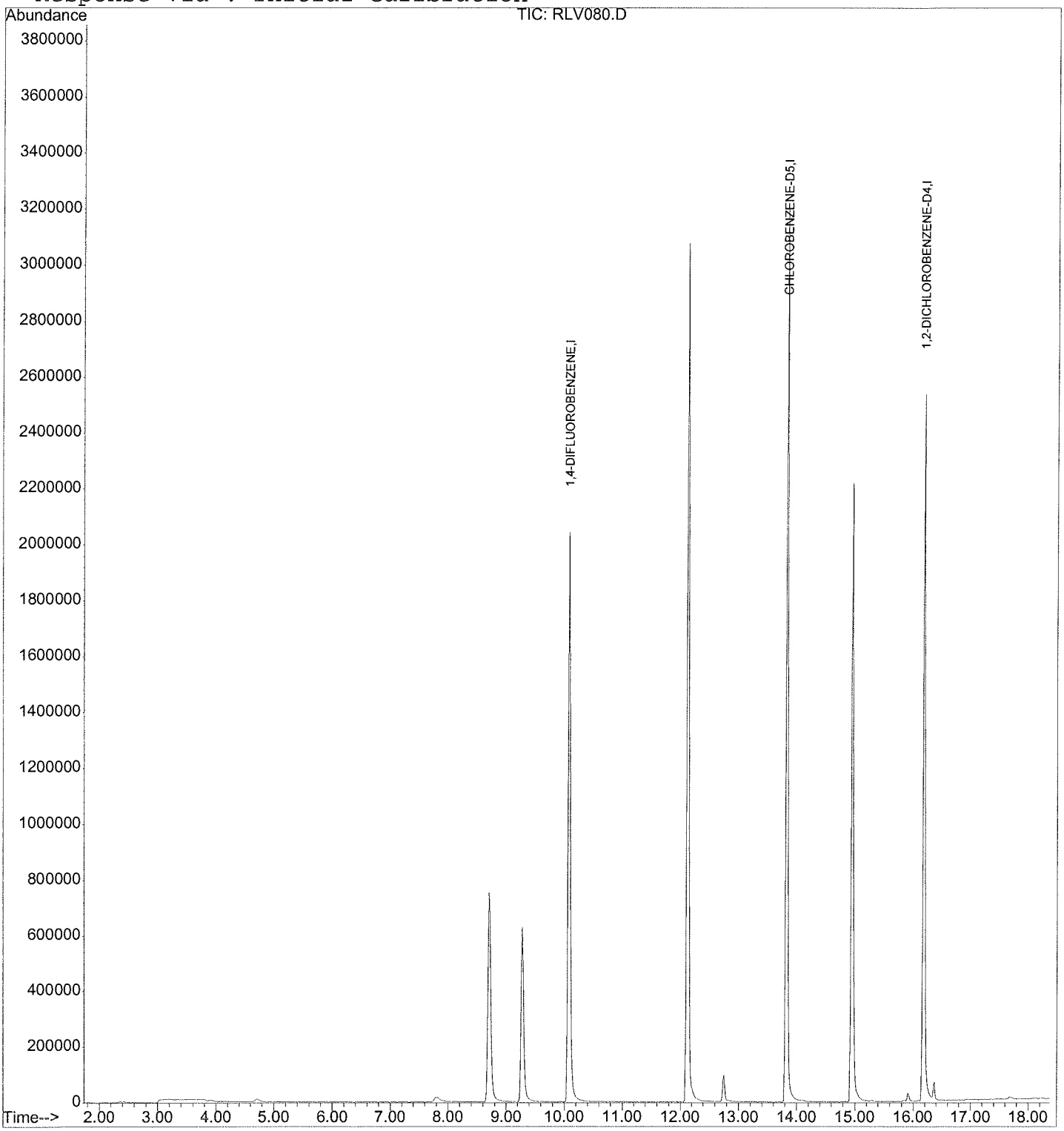
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2548762	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	2323868	10.00	ug/l	-0.02
4) 1,2-DICHLOROBENZENE-D4	16.17	152	973772	10.00	ug/l	-0.01

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV080.D VO01K06.M Fri Dec 13 10:22:57 2019 Page 1

Data File : D:\HPCHEM\1\DATA\19L12\RLV080.D Vial: 8
Acq On : 12 Dec 2019 2:09 pm Operator: JCorea
Sample : 19L064-16 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected:	12/08/19
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/16/19 12:43
Sample ID:	OU2-MW08A-GW120819	Date Analyzed:	12/16/19 12:43
Lab Samp ID:	L064-17	Dilution Factor:	1
Lab File ID:	RLV126	Matrix	: WATER
Ext Btch ID:	VO01L06	% Moisture	: NA
Calib. Ref.:	RKV038	Instrument ID	: T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	0.57J	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	0.15J	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.55J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	4.4	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	0.17J	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	0.25J	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	56	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	0.39J	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	10.9	10.00	109	70-130
BROMOFLUOROBENZENE	8.85	10.00	88.5	70-130
TOLUENE-D8	9.64	10.00	96.4	70-130
DIBROMOFLUOROMETHANE	10.9	10.00	109	70-130

^ Incorporated by analysis using ICAL ID VO01K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV126.D Vial: 8
Acq On : 16 Dec 2019 12:43 pm Operator: JCorea
Sample : 19L064-17 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 15:09 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

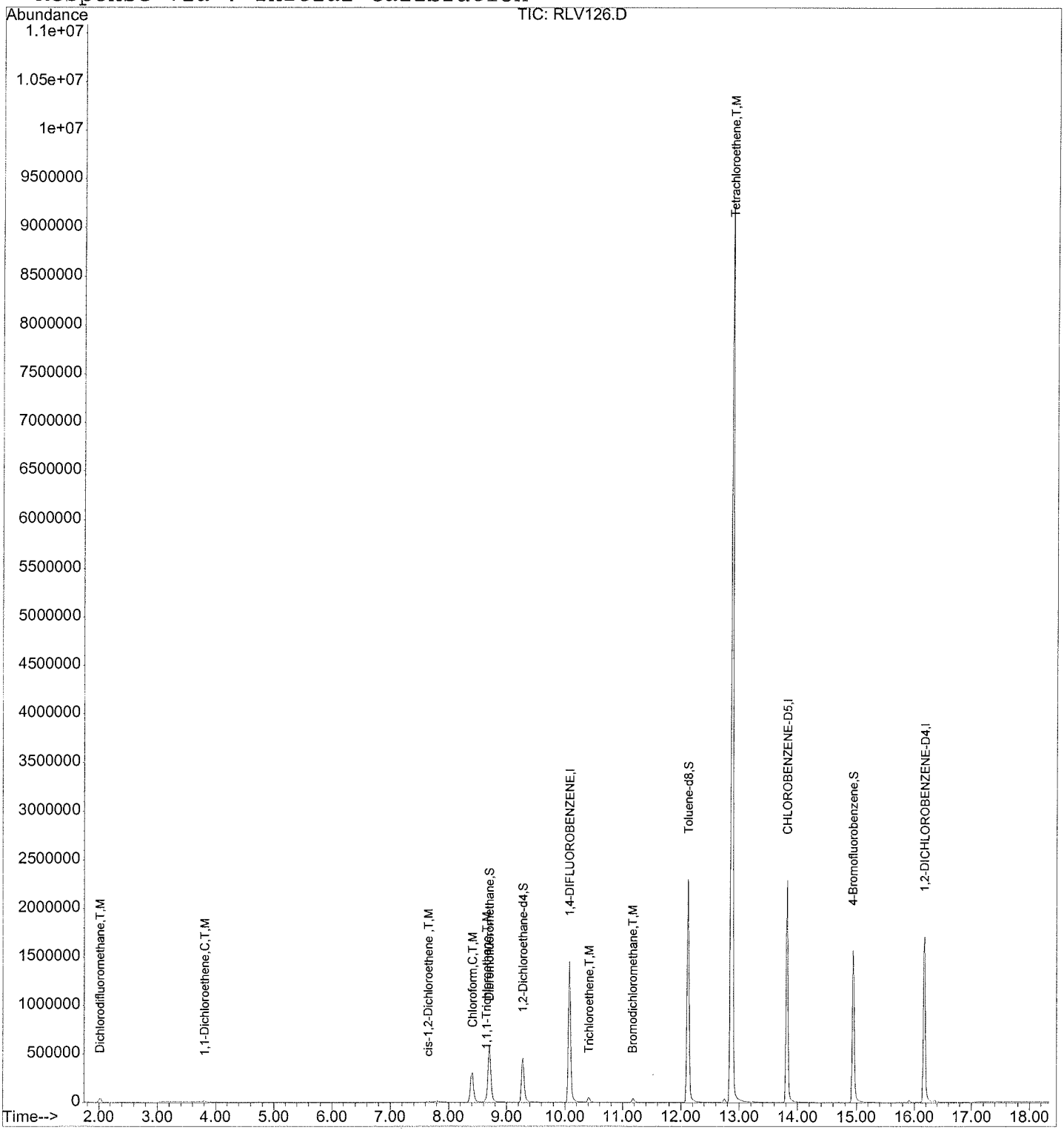
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1759810	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	1683391	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.17	152	712176	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.70	111	612206	10.93	ug/l	-0.03
Spiked Amount 10.000			Recovery =	109.30%		
38) 1,2-Dichloroethane-d4	9.28	65	534996	10.94	ug/l	-0.01
Spiked Amount 10.000			Recovery =	109.40%		
54) Toluene-d8	12.12	98	2071161	9.64	ug/l	-0.01
Spiked Amount 10.000			Recovery =	96.40%		
74) 4-Bromofluorobenzene	14.93	95	774823	8.85	ug/l	-0.03
Spiked Amount 10.000			Recovery =	88.50%		
Target Compounds						Qvalue
3) Dichlorodifluoromethane	2.02	85	12019	0.25	ug/l	87
14) 1,1-Dichloroethene	3.81	61	14030	0.15	ug/l	96
29) cis-1,2-Dichloroethene	7.65	96	10885	0.17	ug/l	91
33) Chloroform	8.41	83	510107	4.43	ug/l	98
35) 1,1,1-Trichloroethane	8.66	97	46888	0.57	ug/l	97
44) Trichloroethene	10.42	130	27169	0.39	ug/l	96
49) Bromodichloromethane	11.17	83	40414	0.55	ug/l	96
59) Tetrachloroethene	12.87	164	3192360	55.67	ug/l	95

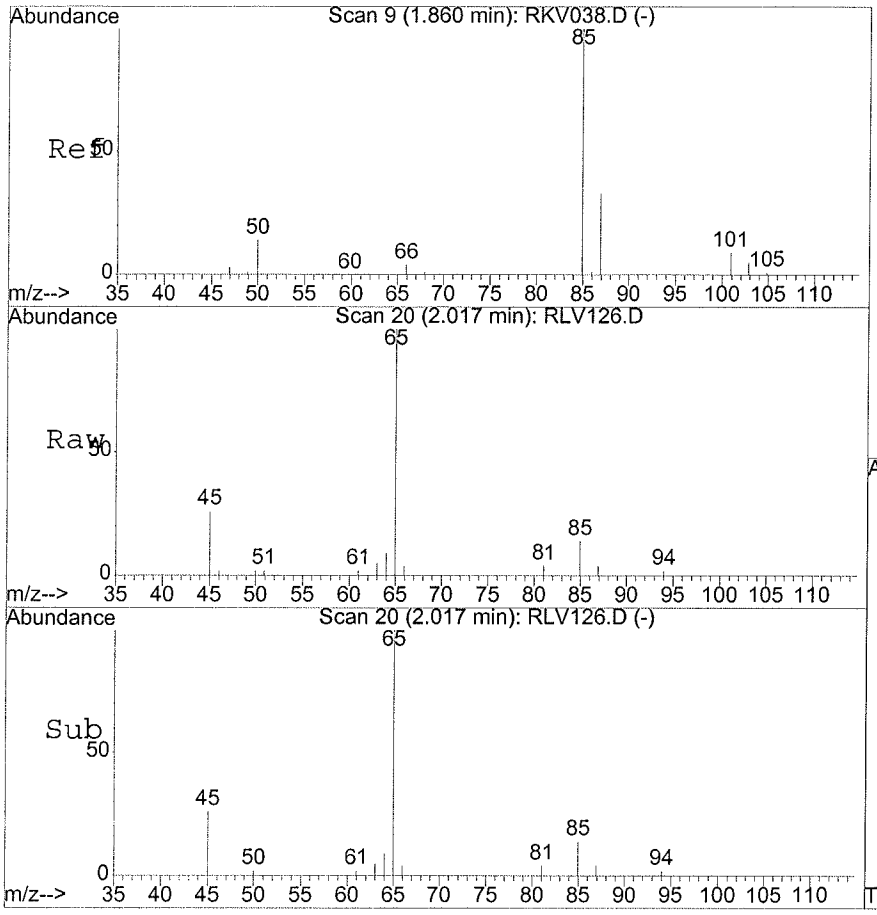
(#) = qualifier out of range (m) = manual integration
RLV126.D VO01K05A.M Tue Dec 17 15:37:32 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV126.D Vial: 8
Acq On : 16 Dec 2019 12:43 pm Operator: JCorea
Sample : 19L064-17 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 15:09 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

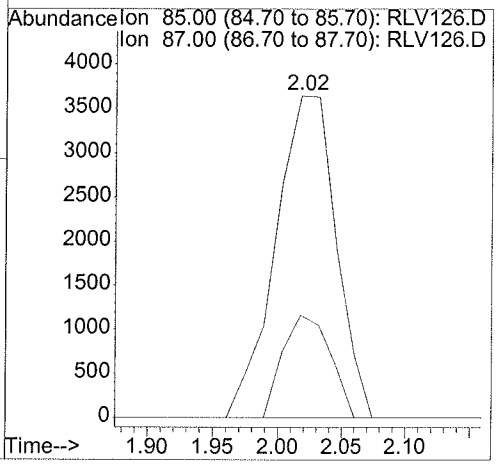


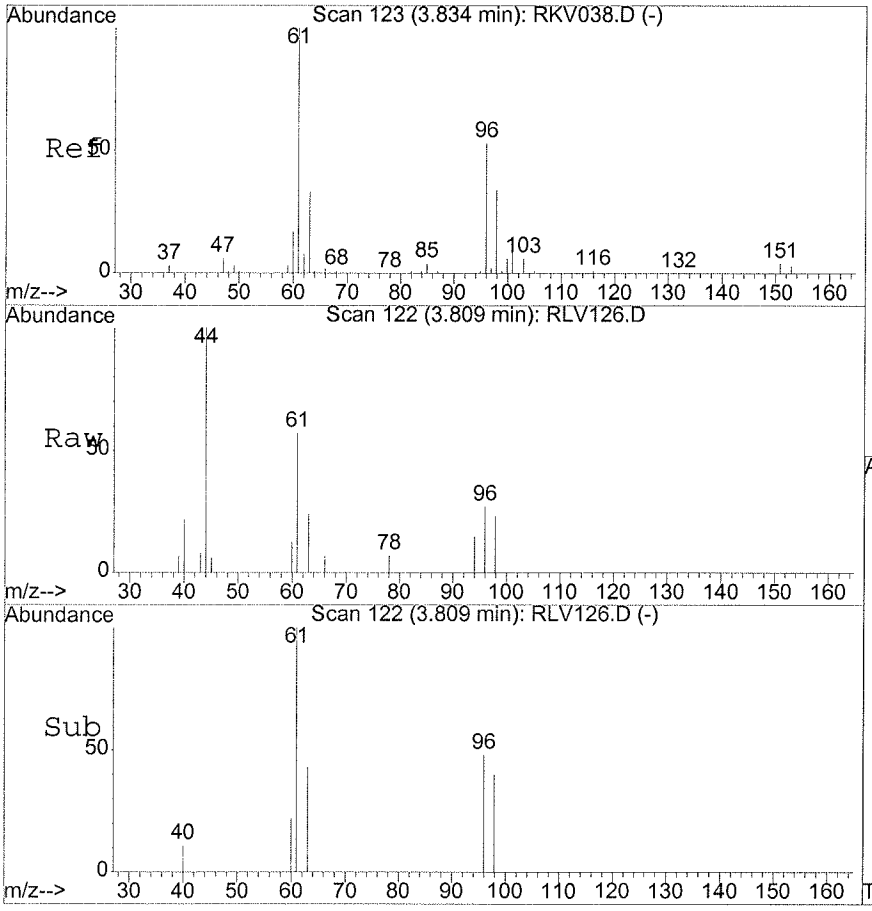


#3
Dichlorodifluoromethane
Concen: 0.25 ug/l
RT: 2.02 min Scan# 20
Delta R.T. 0.16 min
Lab File: RLV126.D
Acq: 16 Dec 2019 12:43 pm

Tgt Ion: 85 Resp: 12019

Ion	Ratio	Lower	Upper
85	100		
87	25.0	2.1	62.1

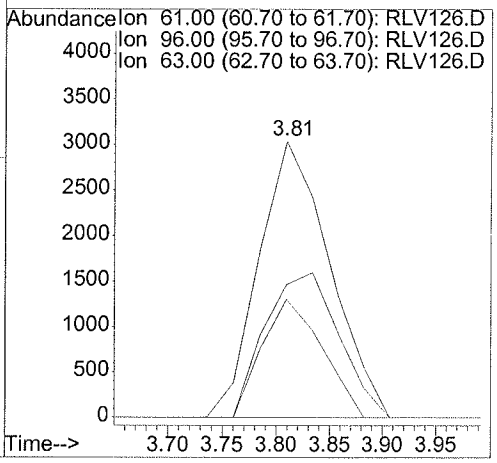


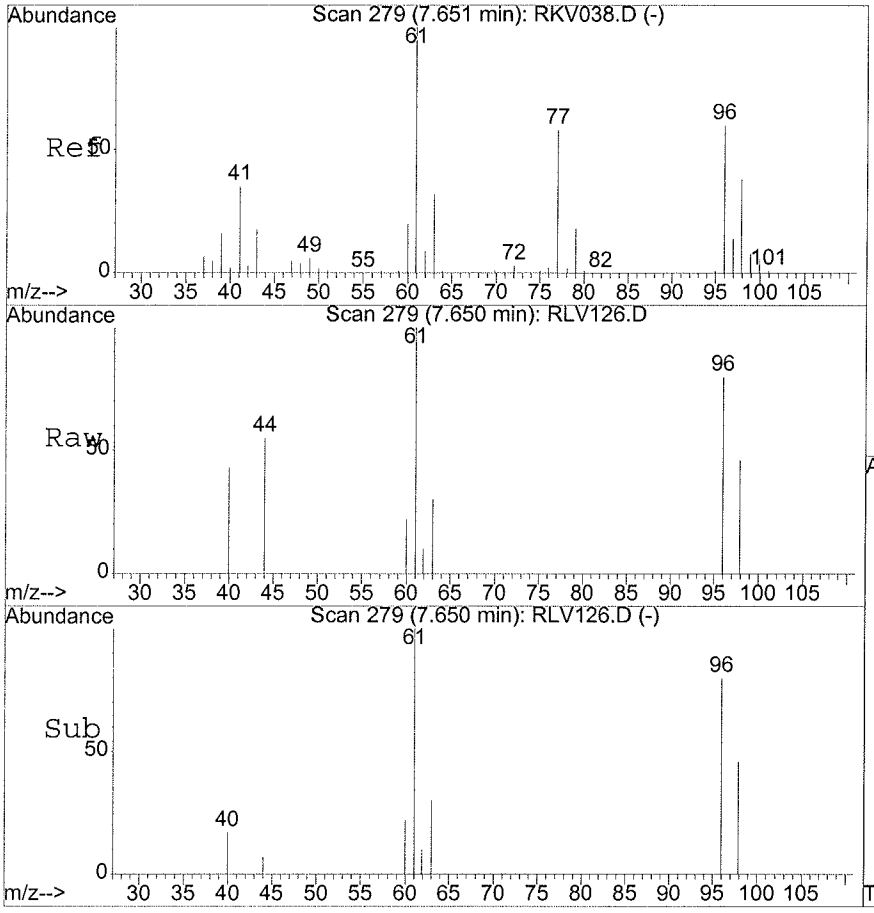


#14
1,1-Dichloroethene
Concen: 0.15 ug/l
RT: 3.81 min Scan# 122
Delta R.T. -0.03 min
Lab File: RLV126.D
Acq: 16 Dec 2019 12:43 pm

Tgt Ion: 61 Resp: 14030

Ion	Ratio	Lower	Upper
61	100		
96	54.5	22.5	82.5
63	36.4	2.6	62.6

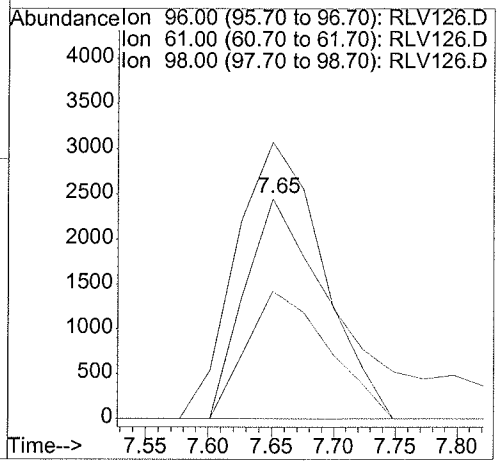


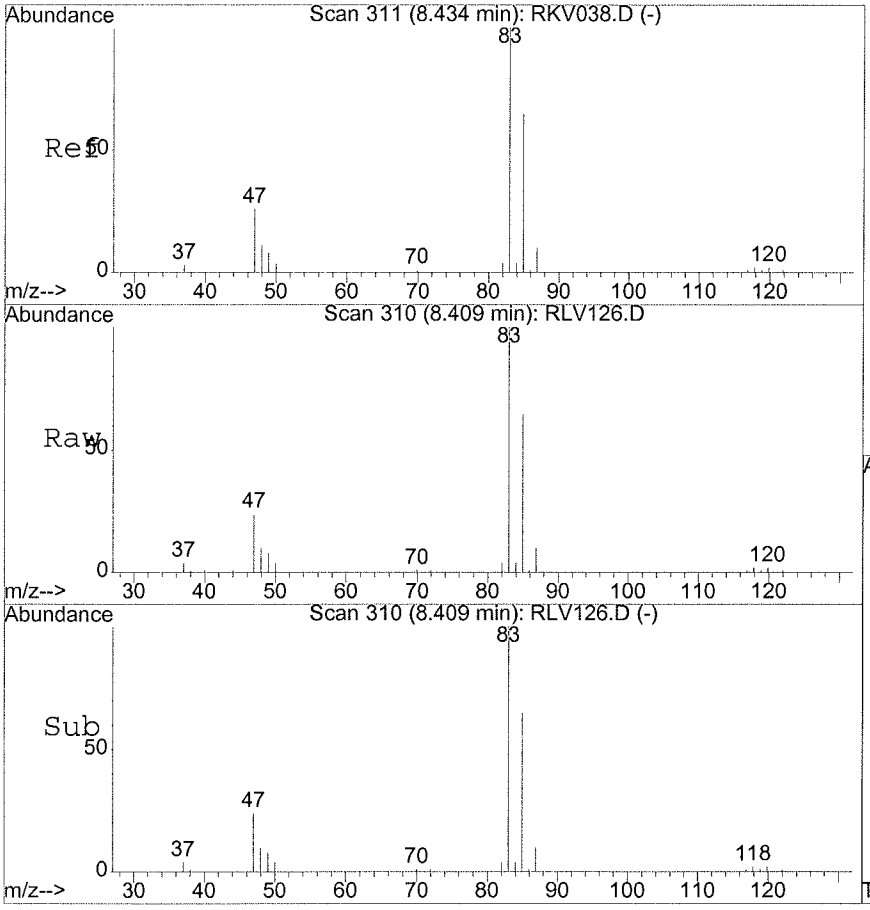


#29
cis-1,2-Dichloroethene
Concen: 0.17 ug/l
RT: 7.65 min Scan# 279
Delta R.T. -0.00 min
Lab File: RLV126.D
Acq: 16 Dec 2019 12:43 pm

Tgt Ion: 96 Resp: 10885

Ion	Ratio	Lower	Upper
96	100		
61	153.1	136.8	196.8
98	59.5	35.6	95.6

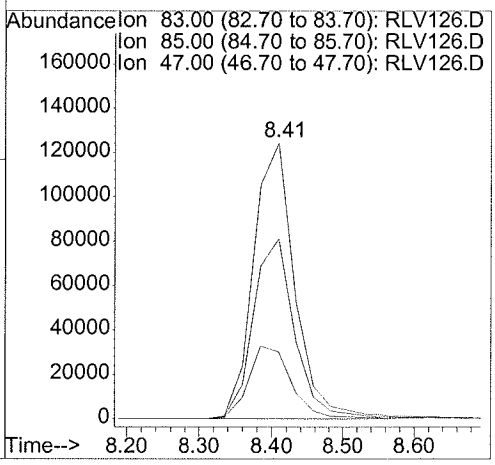


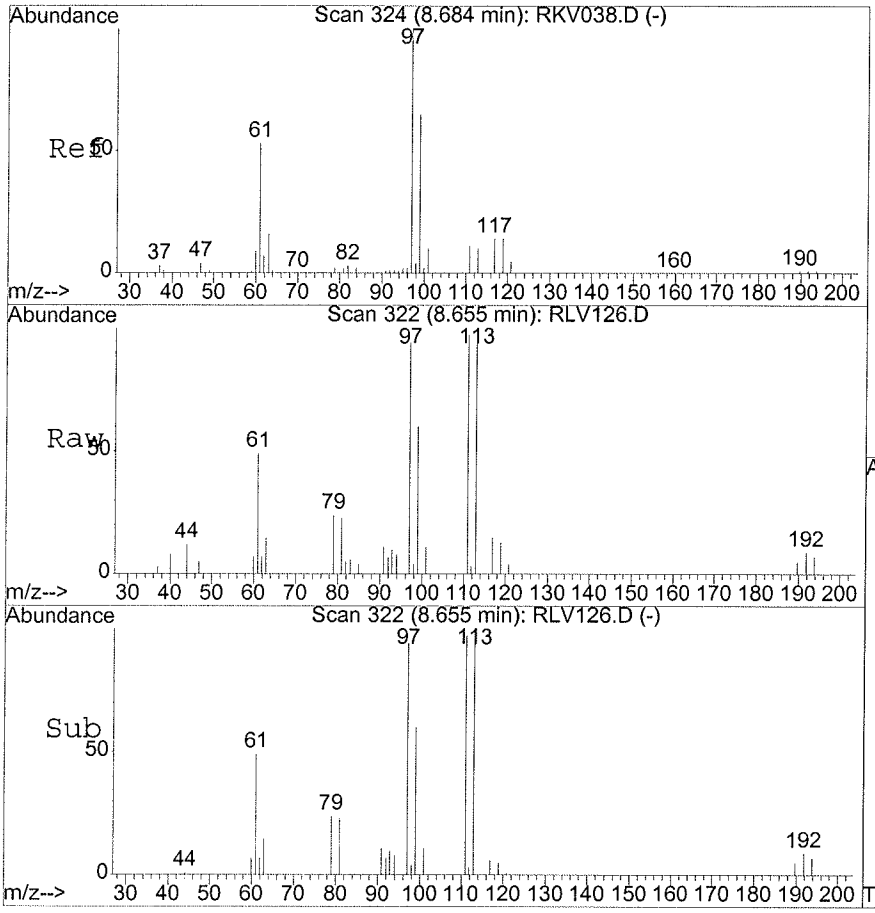


#33
Chloroform
Concen: 4.43 ug/l
RT: 8.41 min Scan# 310
Delta R.T. -0.03 min
Lab File: RLV126.D
Acq: 16 Dec 2019 12:43 pm

Tgt Ion: 83 Resp: 510107

Ion	Ratio	Lower	Upper
83	100		
85	65.4	34.5	94.5
47	27.4	0.0	59.1

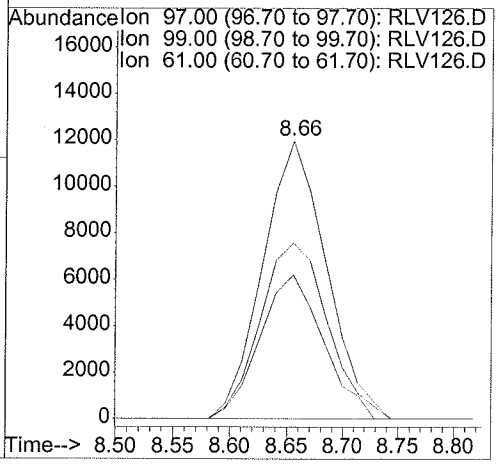


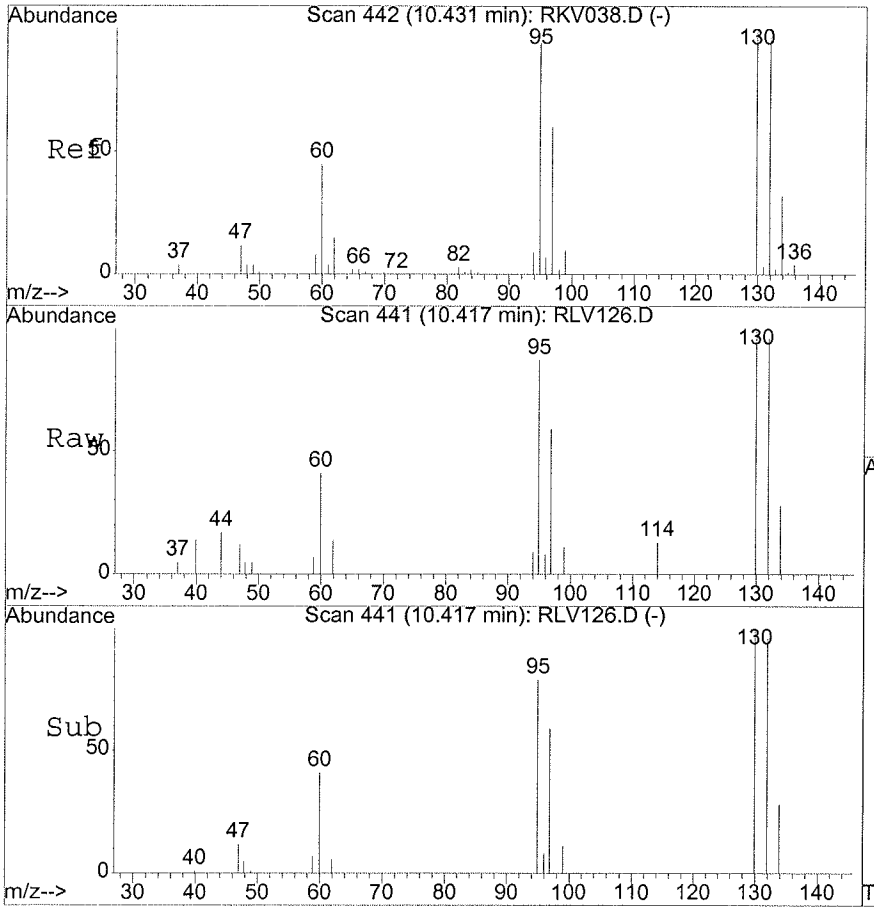


#35
1,1,1-Trichloroethane
Concen: 0.57 ug/l
RT: 8.66 min Scan# 322
Delta R.T. -0.03 min
Lab File: RLV126.D
Acq: 16 Dec 2019 12:43 pm

Tgt Ion: 97 Resp: 46888

Ion	Ratio	Lower	Upper
97	100		
99	67.3	35.7	95.7
61	51.5	23.8	83.8

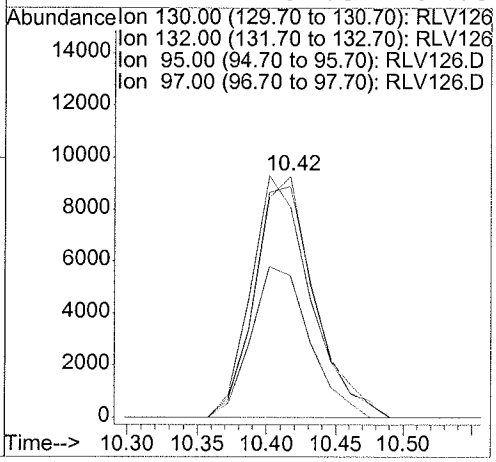


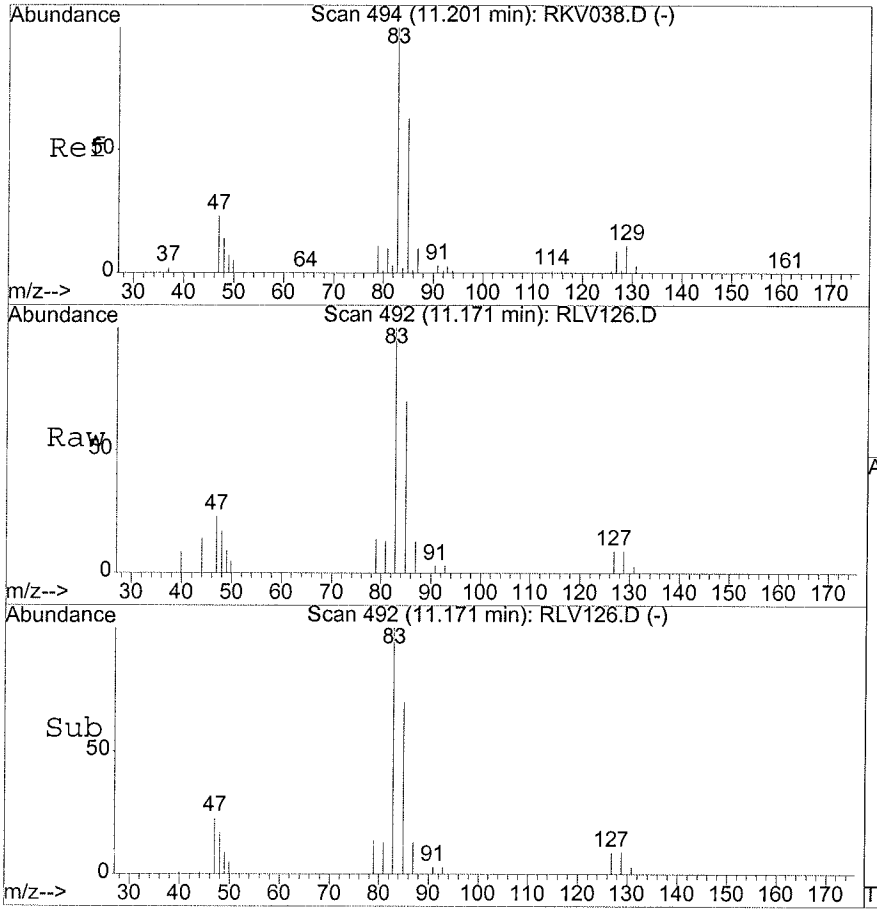


#44
Trichloroethene
Concen: 0.39 ug/l
RT: 10.42 min Scan# 441
Delta R.T. -0.01 min
Lab File: RLV126.D
Acq: 16 Dec 2019 12:43 pm

Tgt Ion:130 Resp: 27169

Ion	Ratio	Lower	Upper
130	100		
132	100.2	66.9	126.9
95	101.2	66.3	126.3
97	62.4	31.3	91.3

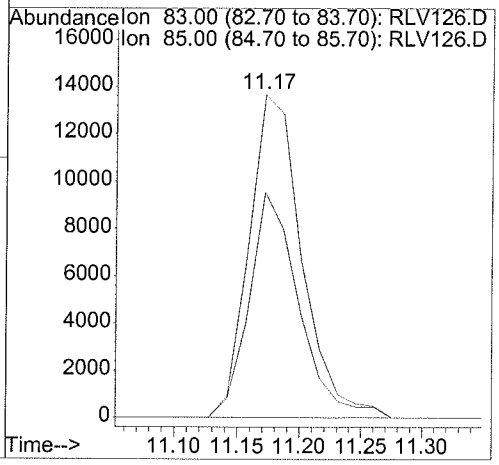


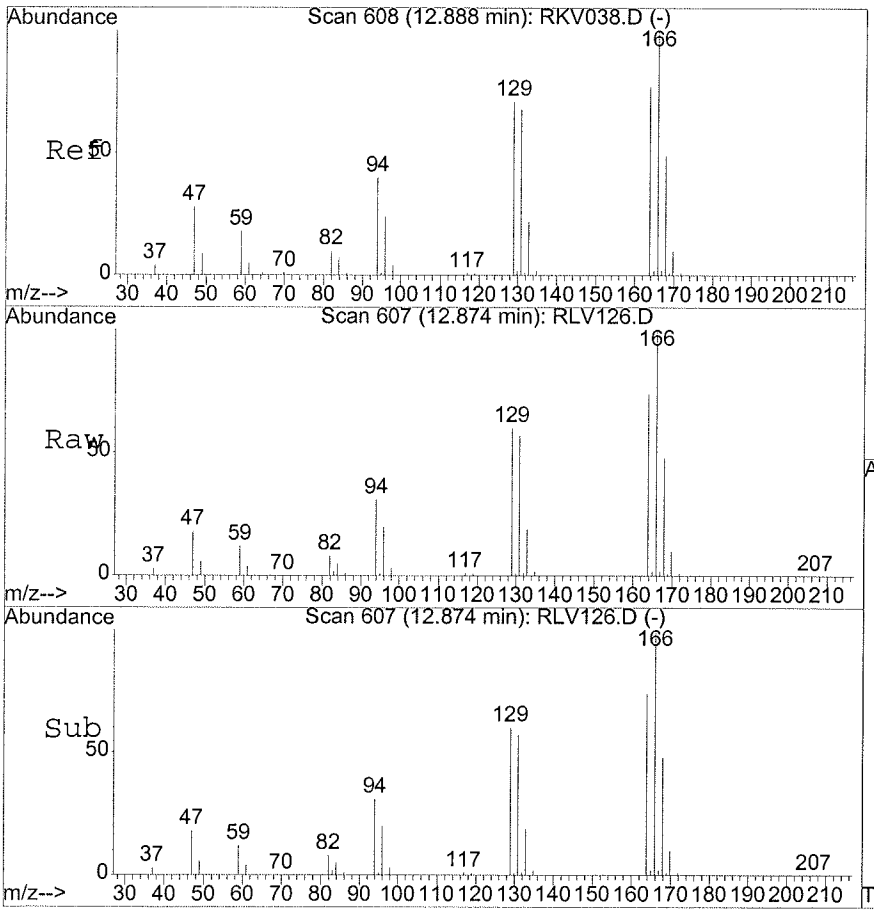


#49
Bromodichloromethane
Concen: 0.55 ug/l
RT: 11.17 min Scan# 492
Delta R.T. -0.03 min
Lab File: RLV126.D
Acq: 16 Dec 2019 12:43 pm

Tgt Ion: 83 Resp: 40414

Ion	Ratio	Lower	Upper
83	100		
85	65.9	32.7	92.7

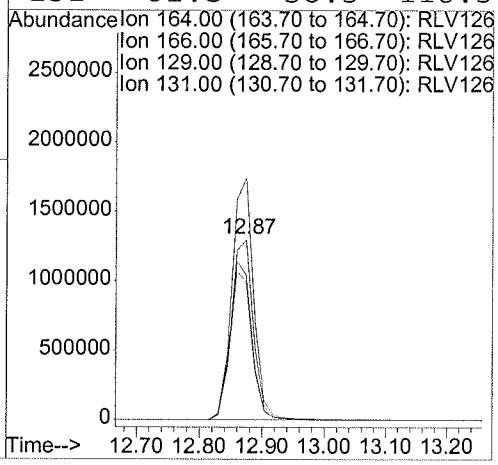




#59
Tetrachloroethene
Concen: 55.67 ug/l
RT: 12.87 min Scan# 607
Delta R.T. -0.01 min
Lab File: RLV126.D
Acq: 16 Dec 2019 12:43 pm

Tgt Ion:164 Resp: 3192360

Ion	Ratio	Lower	Upper
164	100		
166	132.9	100.3	160.3
129	86.6	64.1	124.1
131	81.5	58.3	118.3



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV126.D Vial: 8
Acq On : 16 Dec 2019 12:43 pm Operator: JCorea
Sample : 19L064-17 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1759810	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	1683391	10.00	ug/l	-0.01
4) 1,2-DICHLOROBENZENE-D4	16.17	152	712176	10.00	ug/l	-0.01

Target Compounds Qvalue

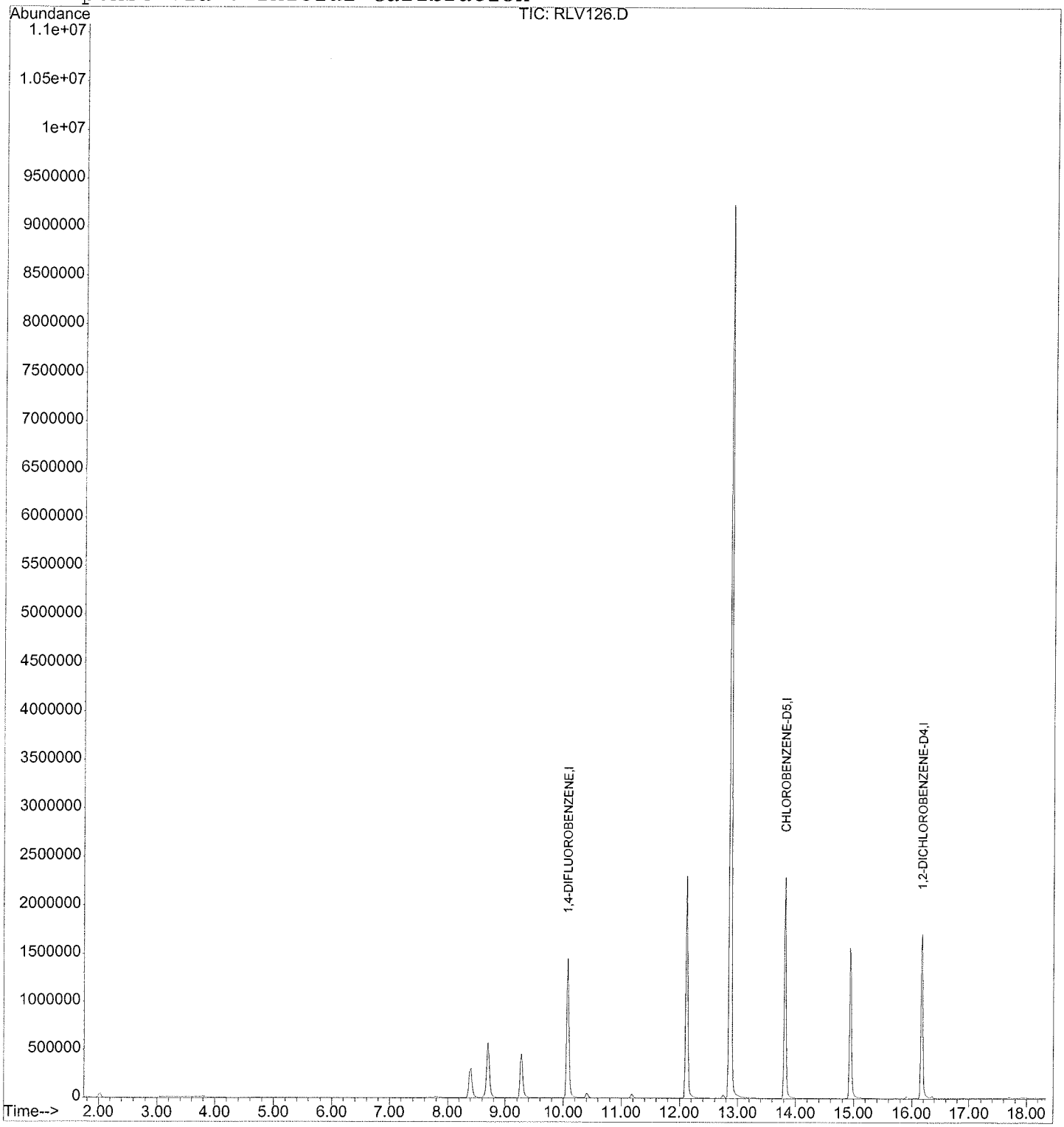
(#) = qualifier out of range (m) = manual integration
RLV126.D VO01K06.M Tue Dec 17 09:49:56 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV126.D
Acq On : 16 Dec 2019 12:43 pm
Sample : 19L064-17 25mL
Misc : DF=1.0
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019

Vial: 8
Operator: JCorea
Inst : 01
Multiplr: 1.00
Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/07/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/16/19 13:11
Sample ID: OU2-MW14S-GW120719	Date Analyzed: 12/16/19 13:11
Lab Samp ID: L064-18	Dilution Factor: 1
Lab File ID: RLV127	Matrix : WATER
Ext Btch ID: V001L06	% Moisture : NA
Calib. Ref.: RKV038	Instrument ID : T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	0.17J	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	1.7	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	3.8	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	6.0	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	10.6	10.00	106	70-130
BROMOFLUOROBENZENE	8.72	10.00	87.2	70-130
TOLUENE-D8	9.51	10.00	95.1	70-130
DIBROMOFLUOROMETHANE	10.7	10.00	107	70-130

^ Incorporated by analysis using ICAL ID V001K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV127.D Vial: 9
Acq On : 16 Dec 2019 1:11 pm Operator: JCorea
Sample : 19L064-18 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 15:09 2019 Quant Results File: VO01K05A.RES

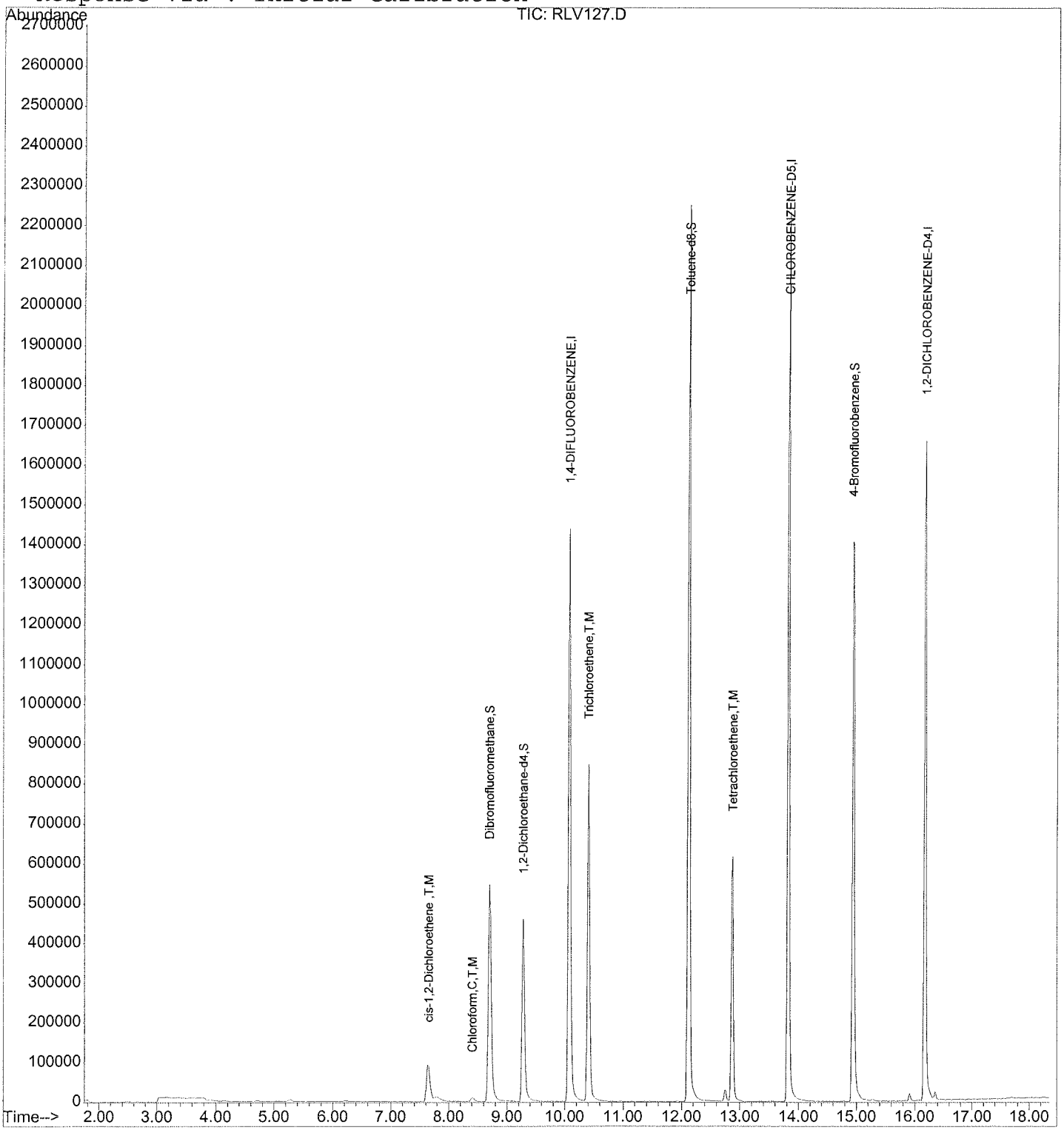
Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

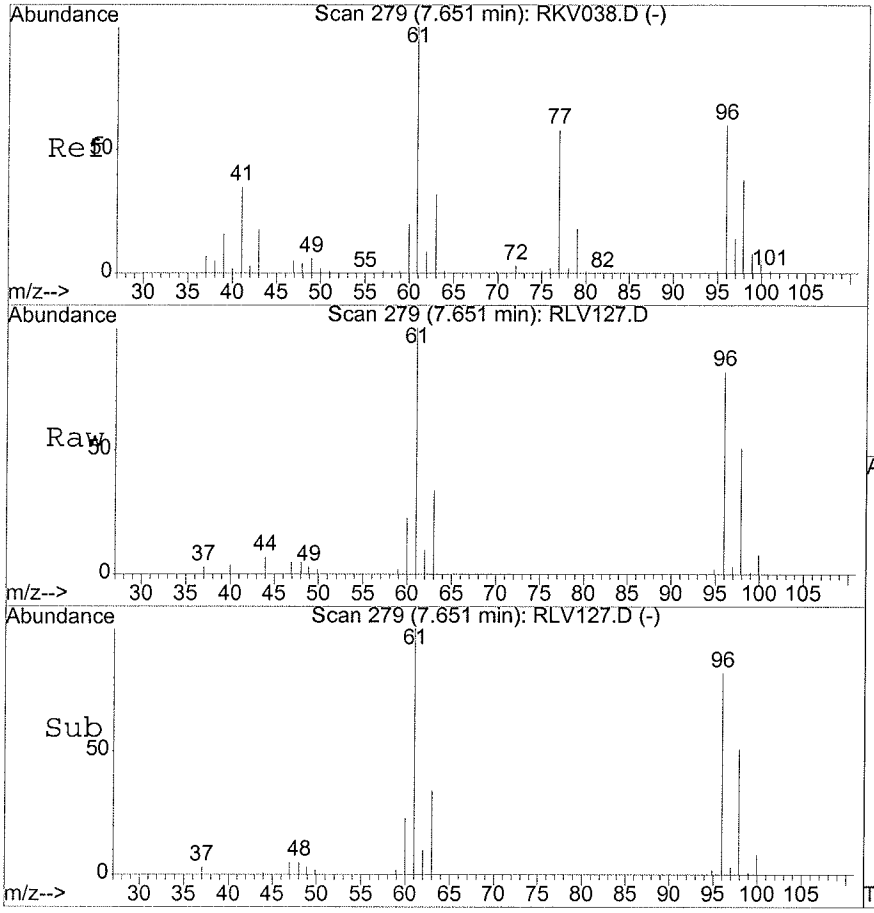
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1773234	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	1629103	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.17	152	675457	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.70	111	603020	10.69	ug/l	-0.03
Spiked Amount 10.000			Recovery =	106.90%		
38) 1,2-Dichloroethane-d4	9.28	65	521649	10.58	ug/l	-0.01
Spiked Amount 10.000			Recovery =	105.80%		
54) Toluene-d8	12.12	98	1977136	9.51	ug/l	-0.01
Spiked Amount 10.000			Recovery =	95.10%		
74) 4-Bromofluorobenzene	14.93	95	723847	8.72	ug/l	-0.03
Spiked Amount 10.000			Recovery =	87.20%		
Target Compounds						Qvalue
29) cis-1,2-Dichloroethene	7.65	96	106247	1.69	ug/l #	82
33) Chloroform	8.41	83	20075	0.17	ug/l	95
44) Trichloroethene	10.40	130	422893	6.00	ug/l	99
59) Tetrachloroethene	12.87	164	211605	3.81	ug/l	96

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

Data File : D:\HPCHEM\1\DATA\19L16\RLV127.D Vial: 9
Acq On : 16 Dec 2019 1:11 pm Operator: JCorea
Sample : 19L064-18 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 15:09 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

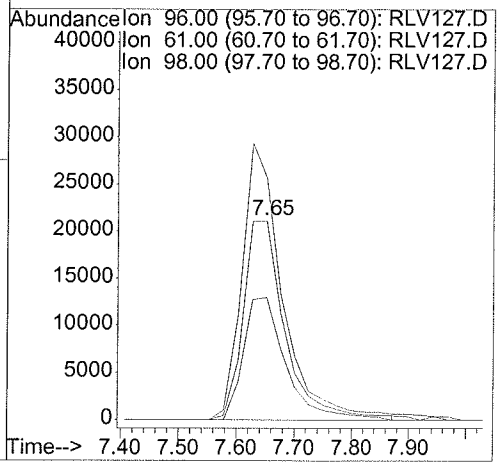


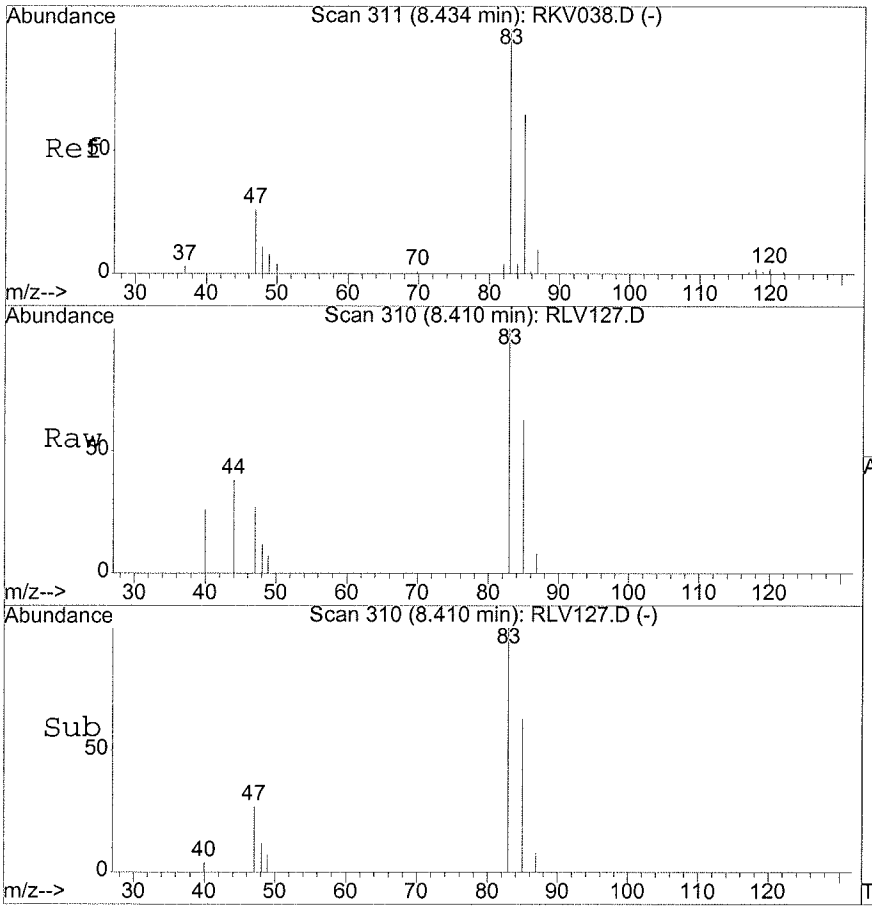


#29
cis-1,2-Dichloroethene
Concen: 1.69 ug/l
RT: 7.65 min Scan# 279
Delta R.T. 0.00 min
Lab File: RLV127.D
Acq: 16 Dec 2019 1:11 pm

Tgt Ion: 96 Resp: 106247

Ion	Ratio	Lower	Upper
96	100		
61	134.2	136.8	196.8#
98	62.5	35.6	95.6

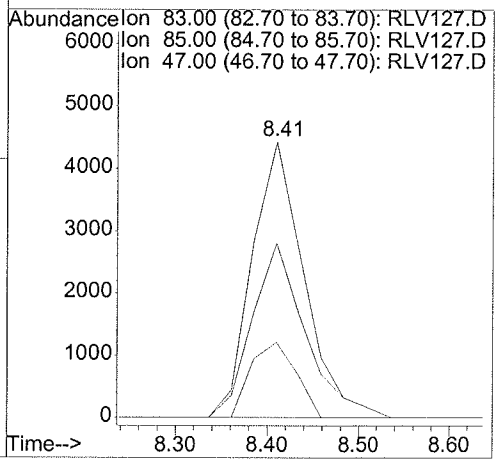


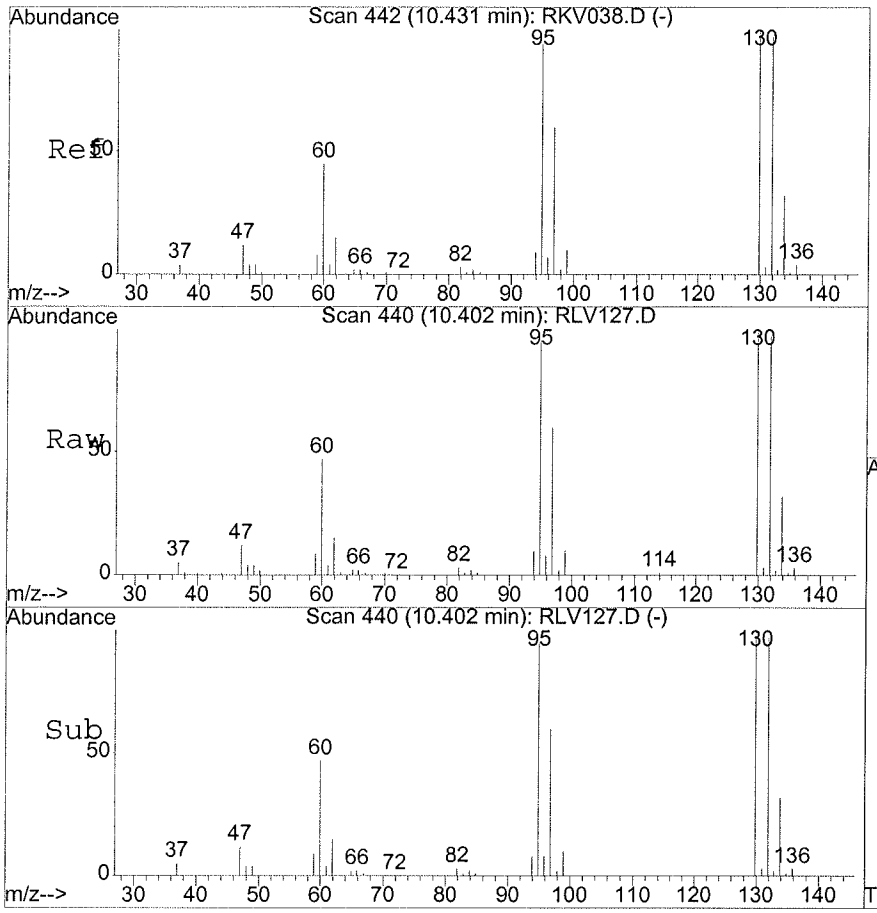


#33
Chloroform
Concen: 0.17 ug/l
RT: 8.41 min Scan# 310
Delta R.T. -0.02 min
Lab File: RLV127.D
Acq: 16 Dec 2019 1:11 pm

Tgt Ion: 83 Resp: 20075

Ion	Ratio	Lower	Upper
83	100		
85	64.5	34.5	94.5
47	20.7	0.0	59.1

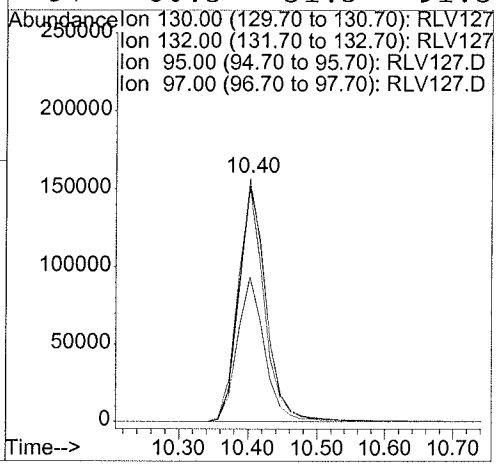


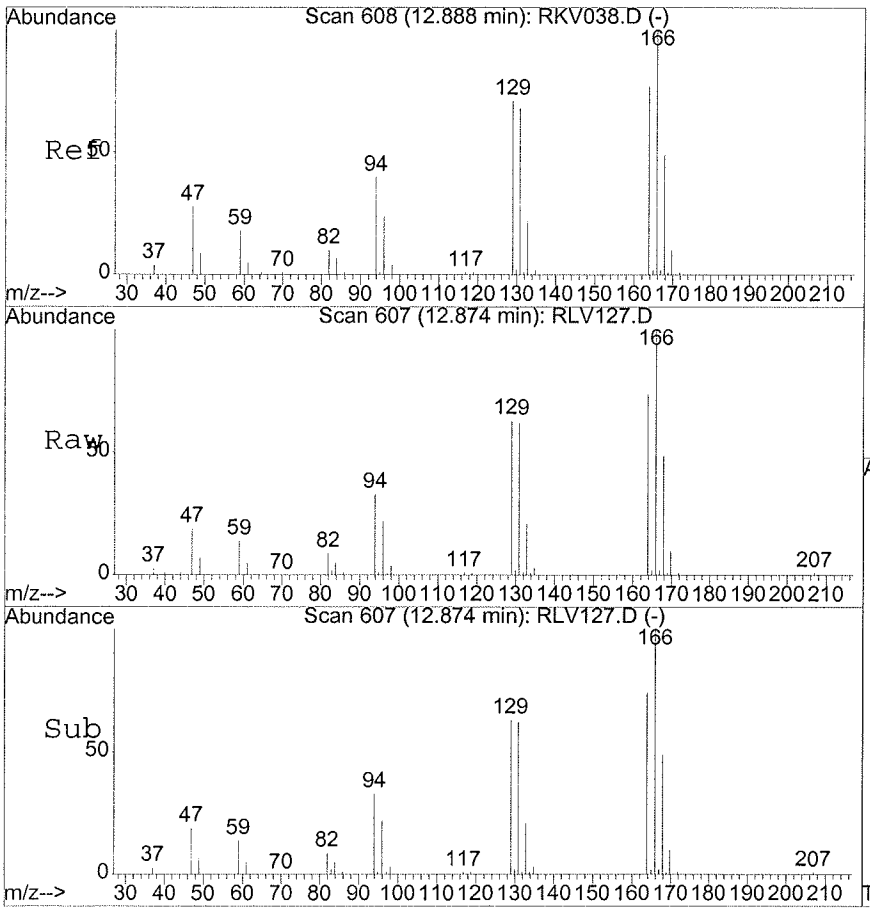


#44
Trichloroethene
Concen: 6.00 ug/l
RT: 10.40 min Scan# 440
Delta R.T. -0.03 min
Lab File: RLV127.D
Acq: 16 Dec 2019 1:11 pm

Tgt Ion:130 Resp: 422893

Ion	Ratio	Lower	Upper
130	100		
132	98.6	66.9	126.9
95	96.1	66.3	126.3
97	60.3	31.3	91.3

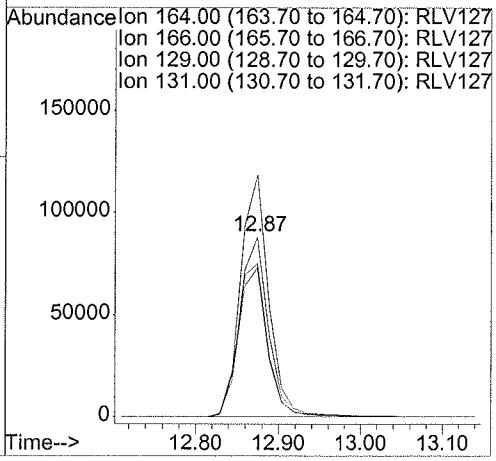




#59
Tetrachloroethene
Concen: 3.81 ug/l
RT: 12.87 min Scan# 607
Delta R.T. -0.01 min
Lab File: RLV127.D
Acq: 16 Dec 2019 1:11 pm

Tgt Ion:164 Resp: 211605

Ion	Ratio	Lower	Upper
164	100		
166	132.3	100.3	160.3
129	88.8	64.1	124.1
131	83.5	58.3	118.3



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV127.D Vial: 9
Acq On : 16 Dec 2019 1:11 pm Operator: JCorea
Sample : 19L064-18 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

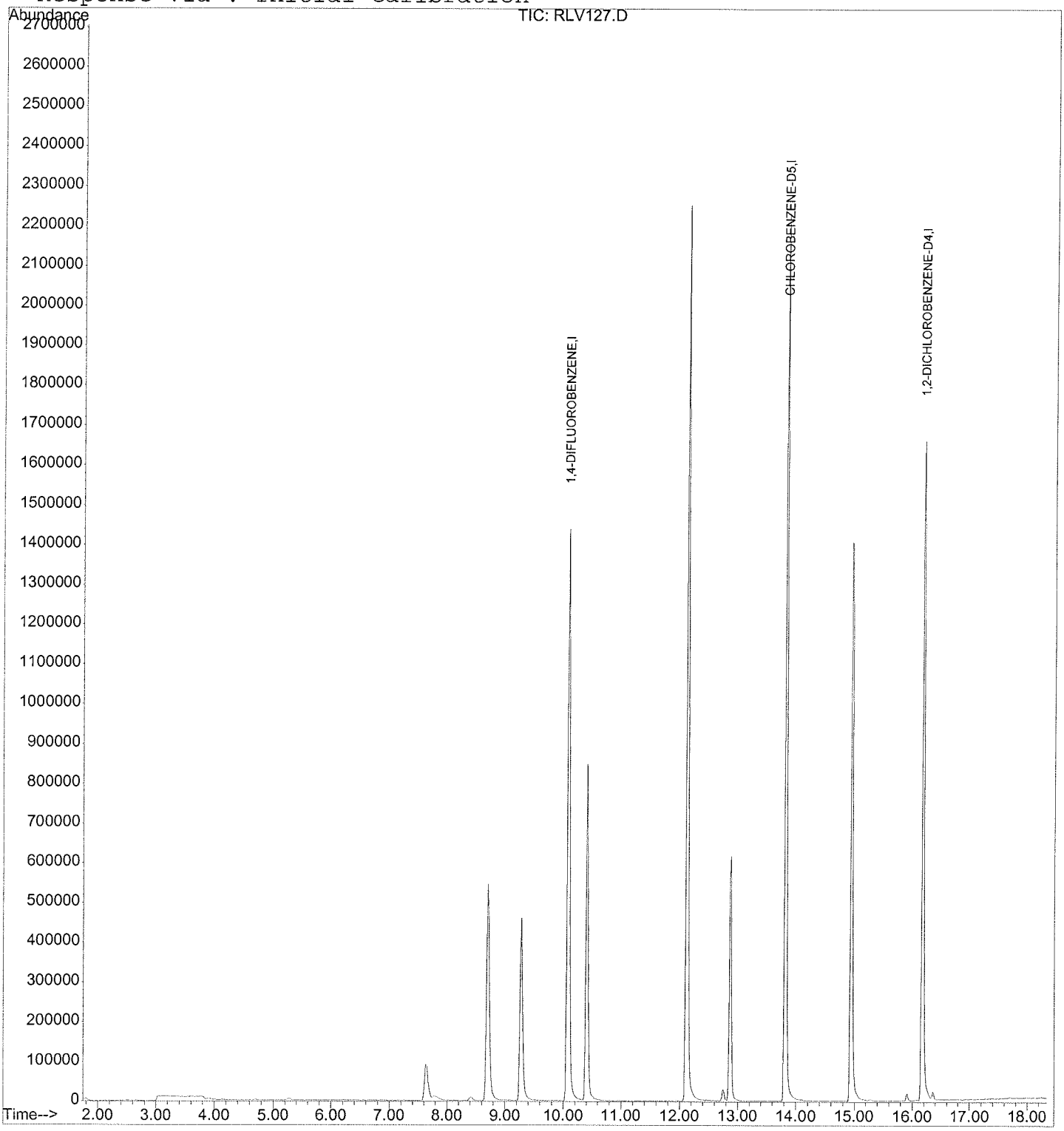
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1773234	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	1629103	10.00	ug/l	-0.01
4) 1,2-DICHLOROBENZENE-D4	16.17	152	675457	10.00	ug/l	-0.01

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV127.D VO01K06.M Tue Dec 17 09:50:00 2019 Page 1

Data File : D:\HPCHEM\1\DATA\19L16\RLV127.D Vial: 9
Acq On : 16 Dec 2019 1:11 pm Operator: JCorea
Sample : 19L064-18 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected:	12/09/19
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/12/19 14:36
Sample ID:	OU2-TB07-GW120919	Date Analyzed:	12/12/19 14:36
Lab Samp ID:	L064-19	Dilution Factor:	1
Lab File ID:	RLV081	Matrix	: WATER
Ext Btch ID:	VO01L04	% Moisture	: NA
Calib. Ref.:	RKV038	Instrument ID	: T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	ND	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.70	10.00	87.0	70-130
BROMOFLUOROBENZENE	8.81	10.00	88.1	70-130
TOLUENE-D8	10.1	10.00	101	70-130
DIBROMOFLUOROMETHANE	9.65	10.00	96.5	70-130

^ Incorporated by analysis using ICAL ID VO01K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV081.D Vial: 9
Acq On : 12 Dec 2019 2:36 pm Operator: JCorea
Sample : 19L064-19 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:36 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2408090	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	2130669	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.18	152	857676	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.70	111	739101	9.65	ug/l	-0.03
Spiked Amount 10.000			Recovery =	96.50%		
38) 1,2-Dichloroethane-d4	9.28	65	582076	8.70	ug/l	-0.01
Spiked Amount 10.000			Recovery =	87.00%		
54) Toluene-d8	12.12	98	2745730	10.10	ug/l	-0.01
Spiked Amount 10.000			Recovery =	101.00%		
74) 4-Bromofluorobenzene	14.95	95	929010	8.81	ug/l	-0.01
Spiked Amount 10.000			Recovery =	88.10%		

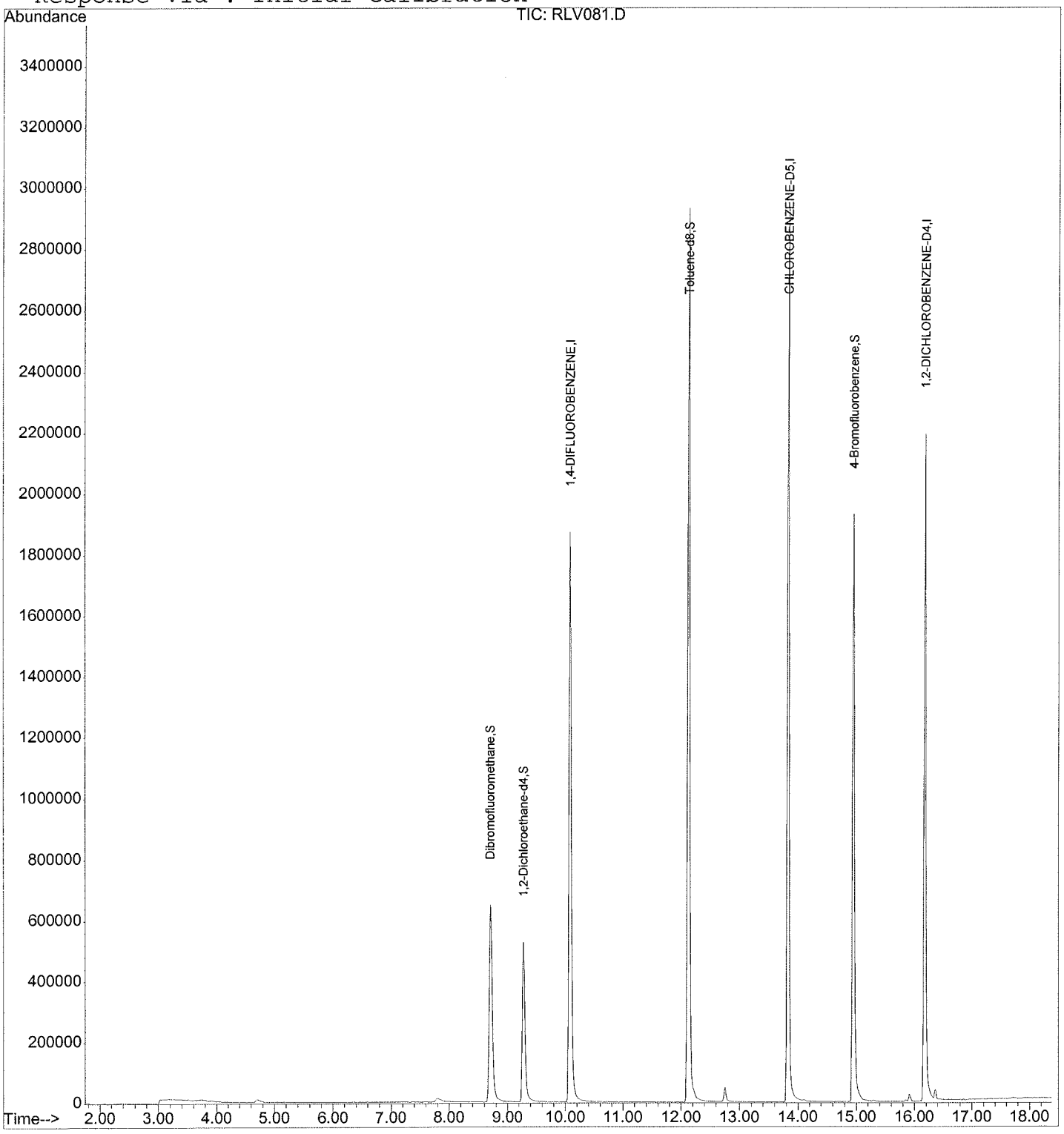
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV081.D VO01K05A.M Fri Dec 13 12:49:16 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV081.D Vial: 9
Acq On : 12 Dec 2019 2:36 pm Operator: JCorea
Sample : 19L064-19 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:36 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV081.D Vial: 9
Acq On : 12 Dec 2019 2:36 pm Operator: JCorea
Sample : 19L064-19 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2408090	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	2130669	10.00	ug/l	-0.01
4) 1,2-DICHLOROBENZENE-D4	16.18	152	857676	10.00	ug/l	-0.01

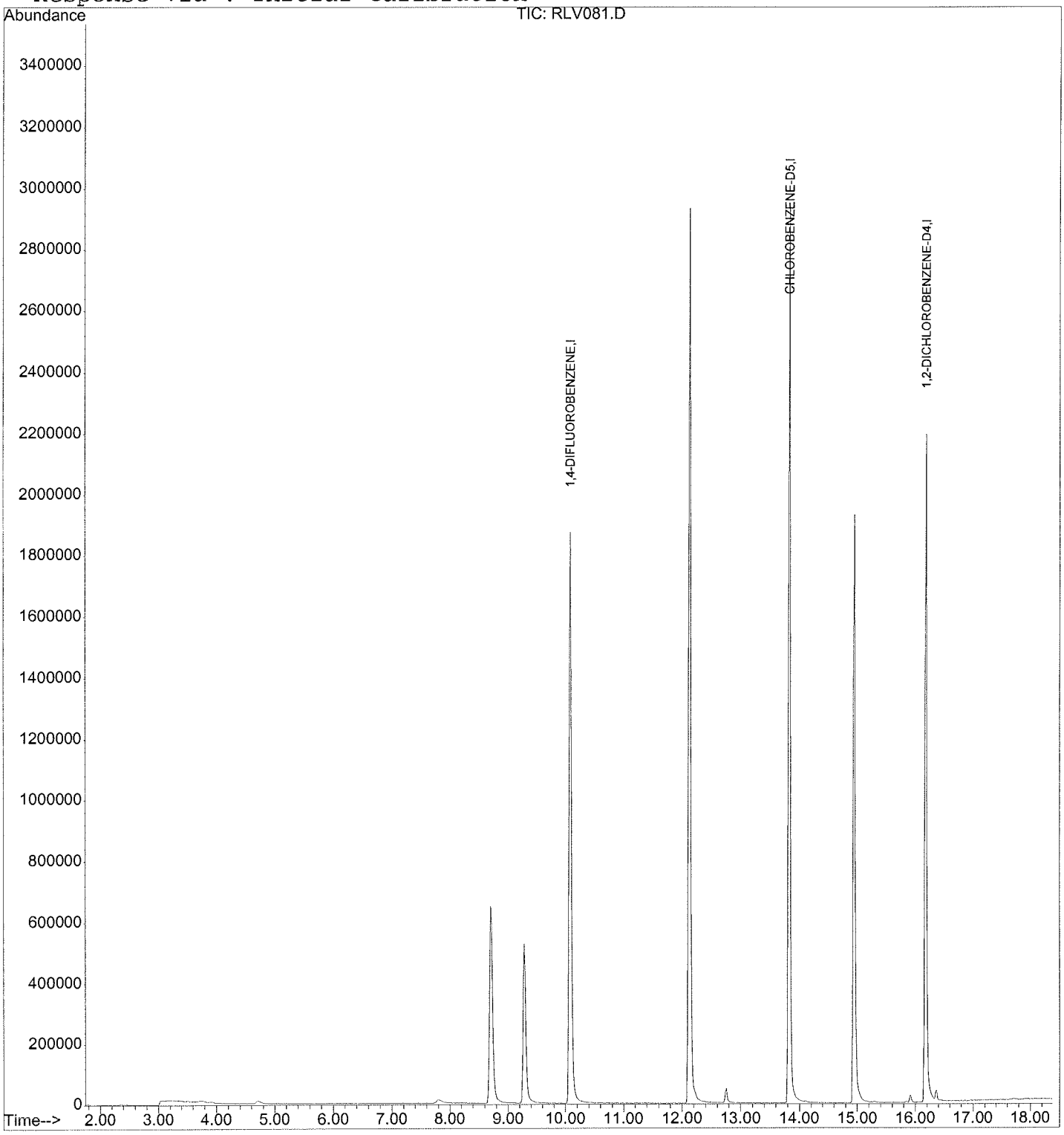
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV081.D VO01K06.M Fri Dec 13 10:23:01 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV081.D Vial: 9
Acq On : 12 Dec 2019 2:36 pm Operator: JCorea
Sample : 19L064-19 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected:	12/08/19
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/16/19 13:40
Sample ID:	OU2-MW05R-GW120819	Date Analyzed:	12/16/19 13:40
Lab Samp ID:	L064-20	Dilution Factor:	1
Lab File ID:	RLV128	Matrix	: WATER
Ext Btch ID:	VO01L06	% Moisture	: NA
Calib. Ref.:	RKV038	Instrument ID	: T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.24J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	5.3	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.74	10.00	97.4	70-130
BROMOFLUOROBENZENE	9.49	10.00	94.9	70-130
TOLUENE-D8	9.93	10.00	99.3	70-130
DIBROMOFLUOROMETHANE	10.3	10.00	103	70-130

^ Incorporated by analysis using ICAL ID VO01K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV128.D Vial: 10
Acq On : 16 Dec 2019 1:40 pm Operator: JCorea
Sample : 19L064-20 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 15:10 2019 Quant Results File: VO01K05A.RES

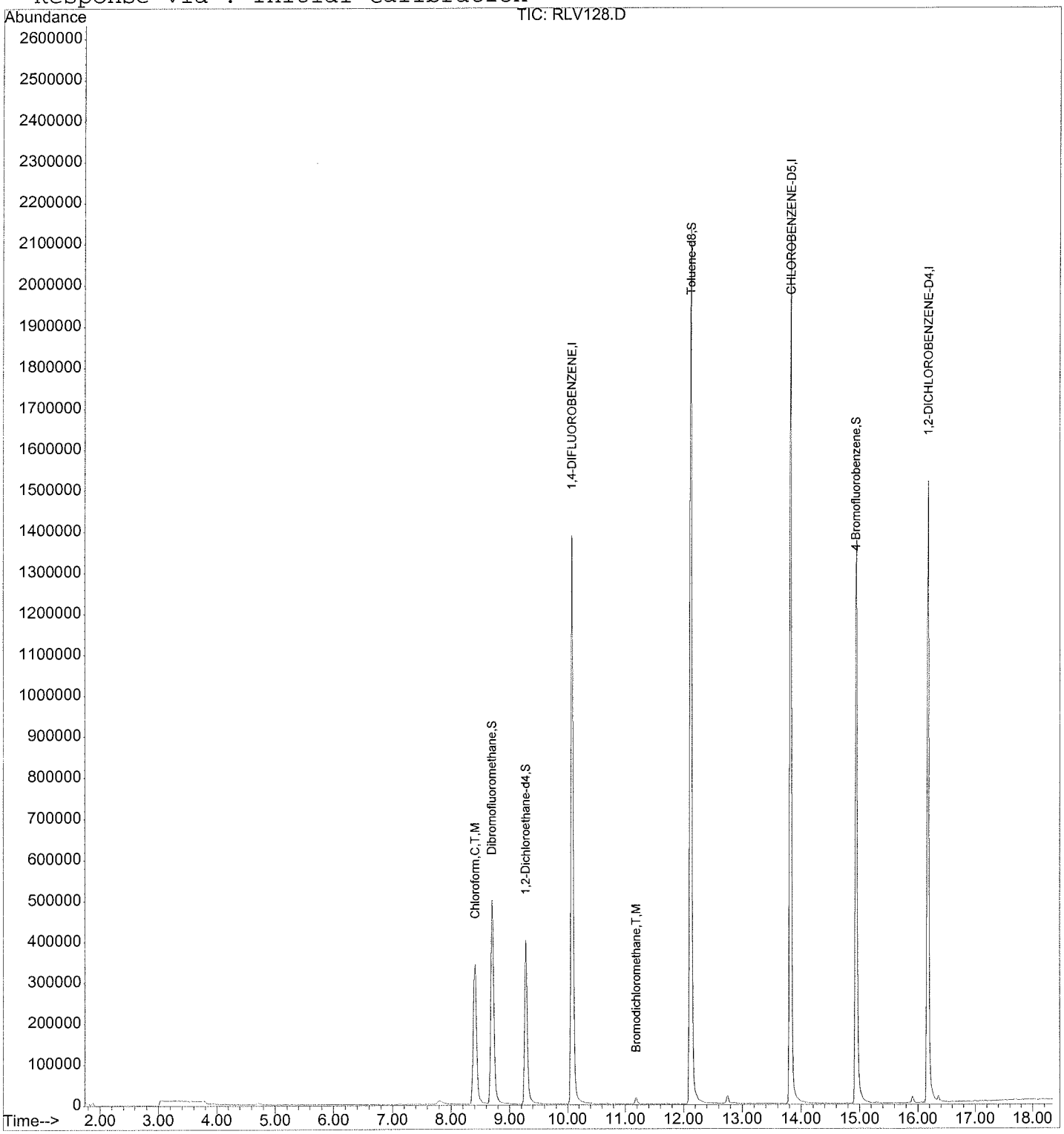
Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

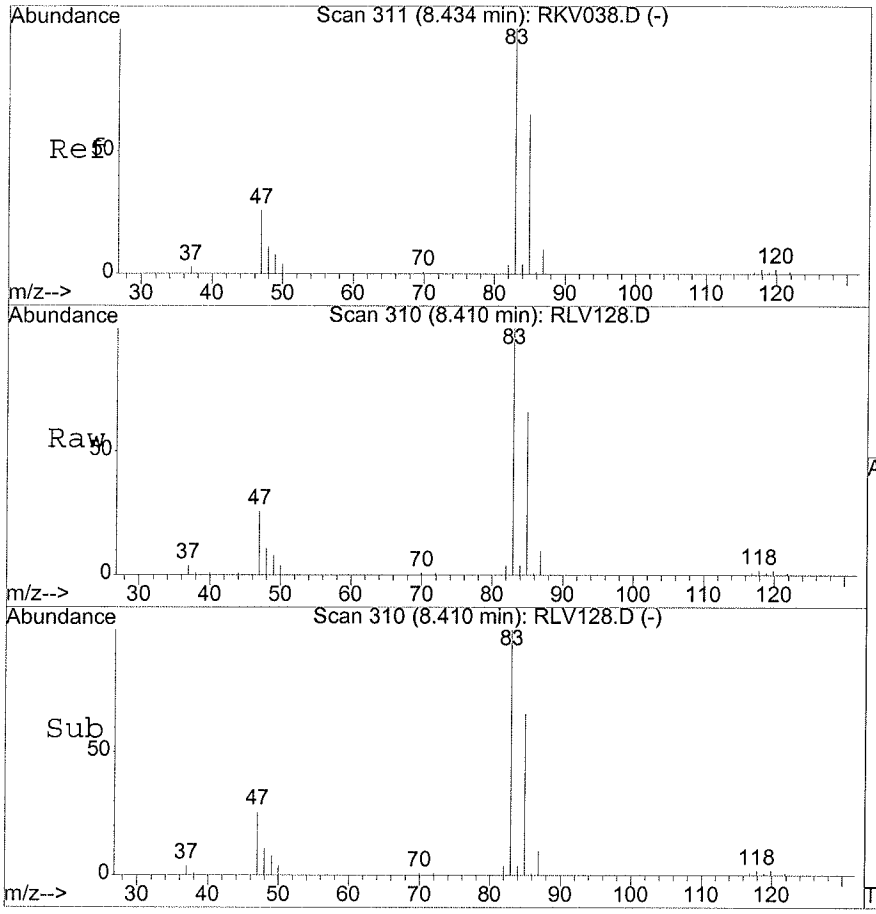
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1683865	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	1521676	10.00	ug/l	-0.02
71) 1,2-DICHLOROBENZENE-D4	16.17	152	592622	10.00	ug/l	-0.02
System Monitoring Compounds						
34) Dibromofluoromethane	8.70	111	552967	10.32	ug/l	-0.03
Spiked Amount 10.000			Recovery = 103.20%			
38) 1,2-Dichloroethane-d4	9.28	65	455700	9.74	ug/l	-0.02
Spiked Amount 10.000			Recovery = 97.40%			
54) Toluene-d8	12.12	98	1928283	9.93	ug/l	-0.02
Spiked Amount 10.000			Recovery = 99.30%			
74) 4-Bromofluorobenzene	14.93	95	691234	9.49	ug/l	-0.03
Spiked Amount 10.000			Recovery = 94.90%			
Target Compounds						Qvalue
33) Chloroform	8.41	83	583237	5.29	ug/l	99
49) Bromodichloromethane	11.19	83	16701	0.24	ug/l	99

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

Data File : D:\HPCHEM\1\DATA\19L16\RLV128.D Vial: 10
Acq On : 16 Dec 2019 1:40 pm Operator: JCorea
Sample : 19L064-20 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 15:10 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

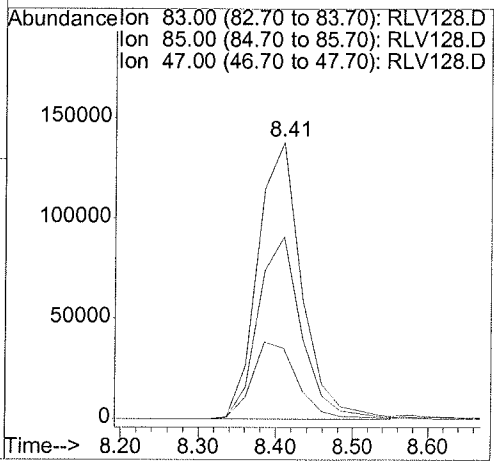


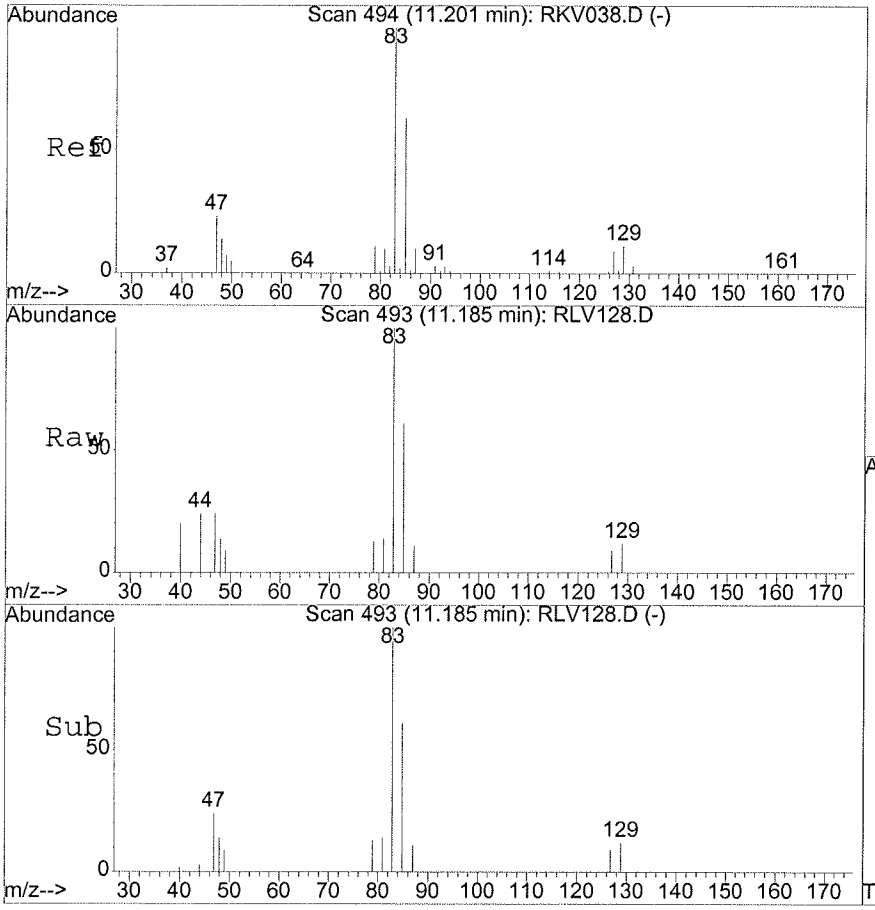


#33
Chloroform
Concen: 5.29 ug/l
RT: 8.41 min Scan# 310
Delta R.T. -0.02 min
Lab File: RLV128.D
Acq: 16 Dec 2019 1:40 pm

Tgt Ion: 83 Resp: 583237

Ion	Ratio	Lower	Upper
83	100		
85	65.1	34.5	94.5
47	28.8	0.0	59.1

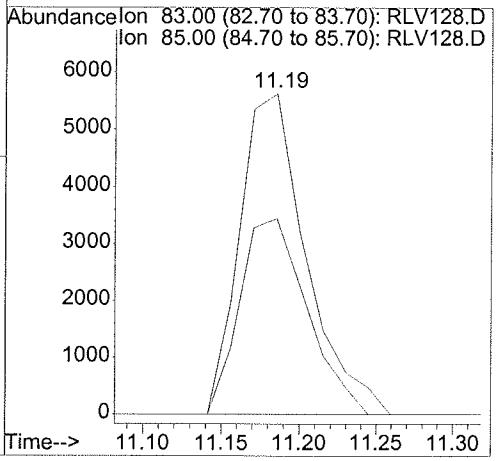




#49
Bromodichloromethane
Concen: 0.24 ug/l
RT: 11.19 min Scan# 493
Delta R.T. -0.02 min
Lab File: RLV128.D
Acq: 16 Dec 2019 1:40 pm

Tgt Ion: 83 Resp: 16701

Ion	Ratio	Lower	Upper
83	100		
85	61.9	32.7	92.7



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV128.D Vial: 10
Acq On : 16 Dec 2019 1:40 pm Operator: JCorea
Sample : 19L064-20 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1683865	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	1521676	10.00	ug/l	-0.02
4) 1,2-DICHLOROBENZENE-D4	16.17	152	592622	10.00	ug/l	-0.02

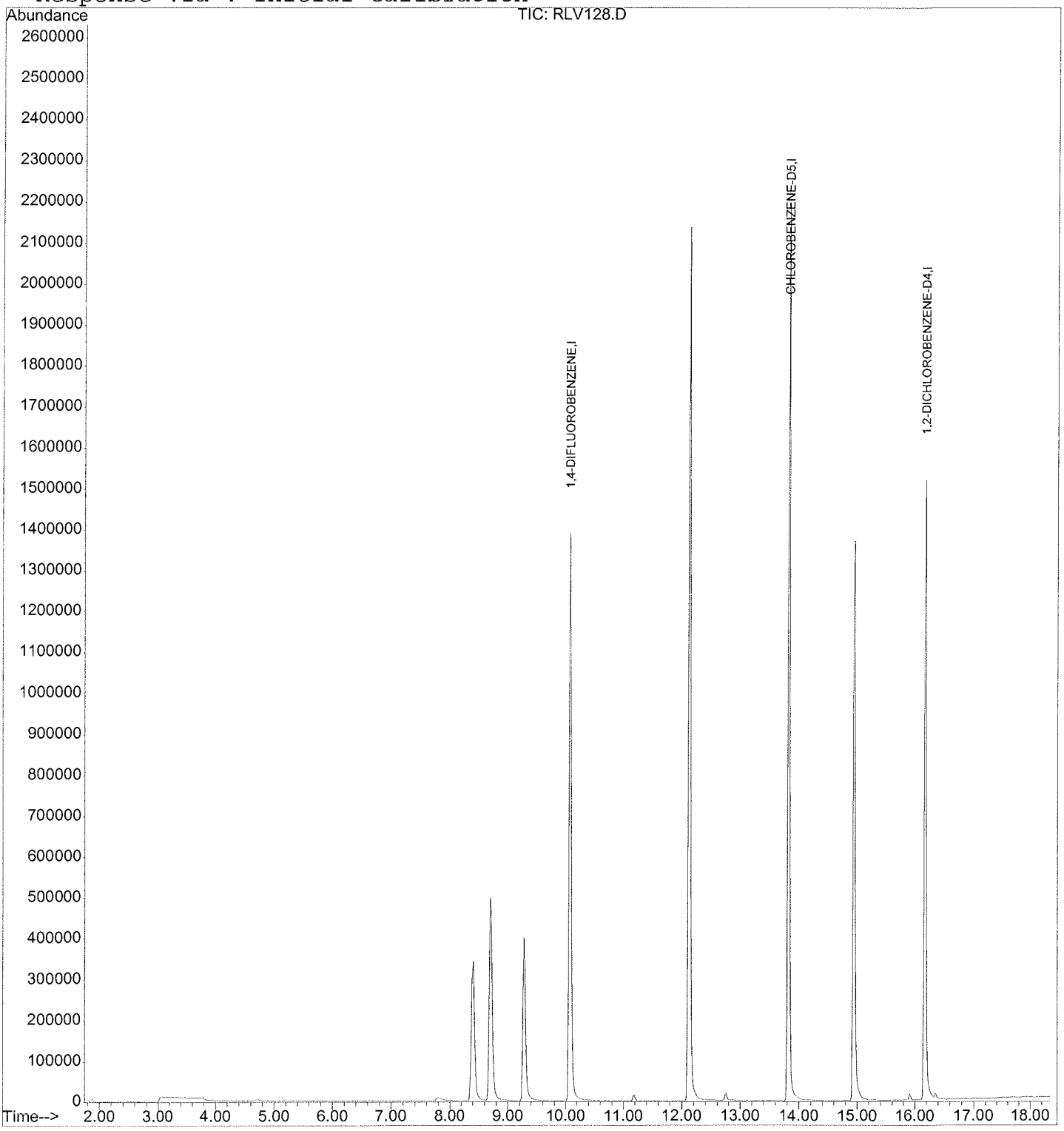
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV128.D VO01K06.M Tue Dec 17 09:50:04 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV128.D Vial: 10
Acq On : 16 Dec 2019 1:40 pm Operator: JCorea
Sample : 19L064-20 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/08/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/16/19 16:01
Sample ID: OU2-MW08B-GW120819	Date Analyzed: 12/16/19 16:01
Lab Samp ID: L064-21	Dilution Factor: 1
Lab File ID: RLV133	Matrix : WATER
Ext Btch ID: VO01L06	% Moisture : NA
Calib. Ref.: RKV038	Instrument ID : T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	0.14J	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	1.4	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	4.7	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	10.5	10.00	105	70-130
BROMOFLUOROBENZENE	9.19	10.00	91.9	70-130
TOLUENE-D8	9.84	10.00	98.4	70-130
DIBROMOFLUOROMETHANE	10.6	10.00	106	70-130

^ Incorporated by analysis using ICAL ID VO01K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV133.D Vial: 15
Acq On : 16 Dec 2019 4:01 pm Operator: JCorea
Sample : 19L064-21 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 15:10 2019 Quant Results File: VO01K05A.RES

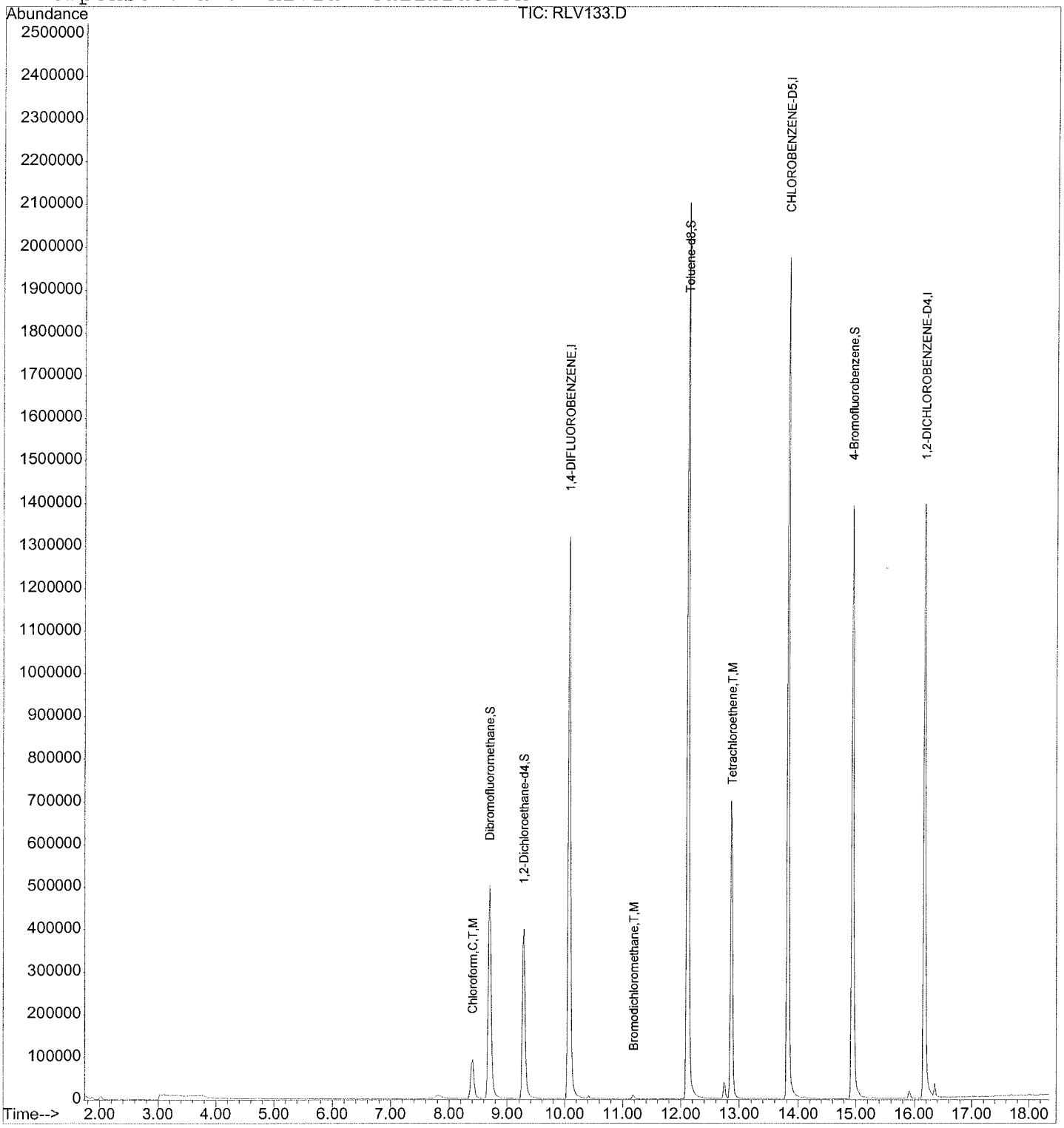
Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

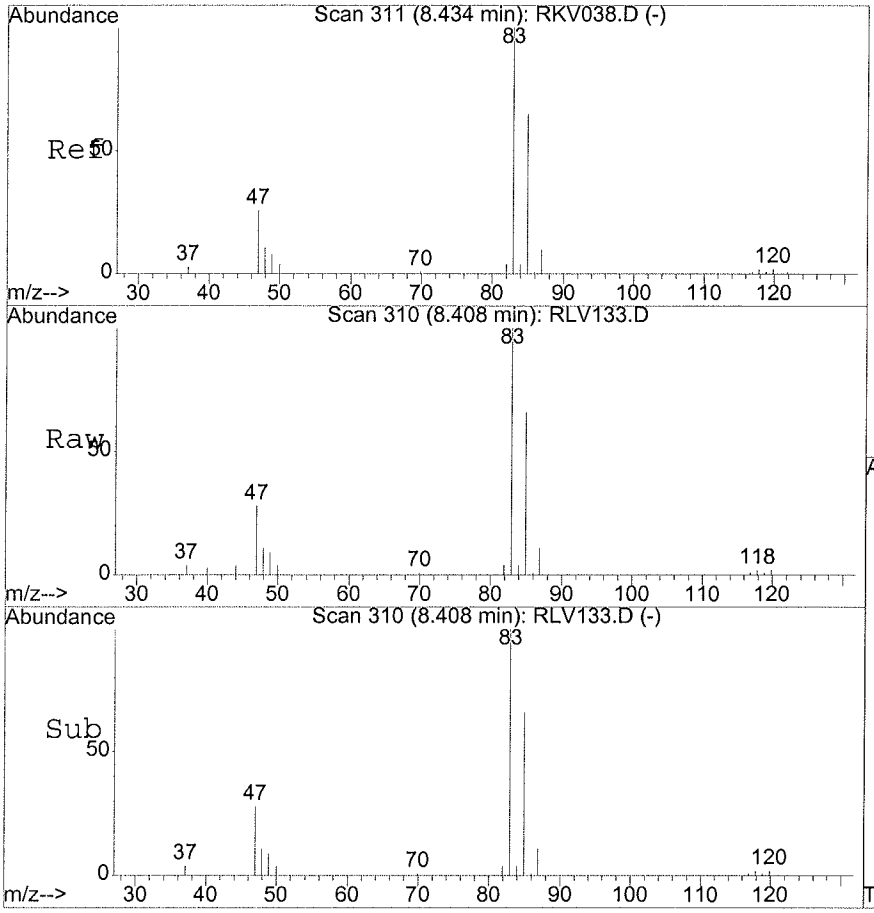
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1618489	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	1505655	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.18	152	599881	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.70	111	547882	10.64	ug/l	-0.03
Spiked Amount 10.000			Recovery = 106.40%			
38) 1,2-Dichloroethane-d4	9.28	65	471069	10.47	ug/l	-0.01
Spiked Amount 10.000			Recovery = 104.70%			
54) Toluene-d8	12.12	98	1890547	9.84	ug/l	-0.01
Spiked Amount 10.000			Recovery = 98.40%			
74) 4-Bromofluorobenzene	14.93	95	677409	9.19	ug/l	-0.03
Spiked Amount 10.000			Recovery = 91.90%			
Target Compounds						Qvalue
33) Chloroform	8.41	83	149740	1.41	ug/l	94
49) Bromodichloromethane	11.19	83	9602	0.14	ug/l	99
59) Tetrachloroethene	12.87	164	242392	4.73	ug/l	95

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

Data File : D:\HPCHEM\1\DATA\19L16\RLV133.D Vial: 15
Acq On : 16 Dec 2019 4:01 pm Operator: JCorea
Sample : 19L064-21 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 15:10 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

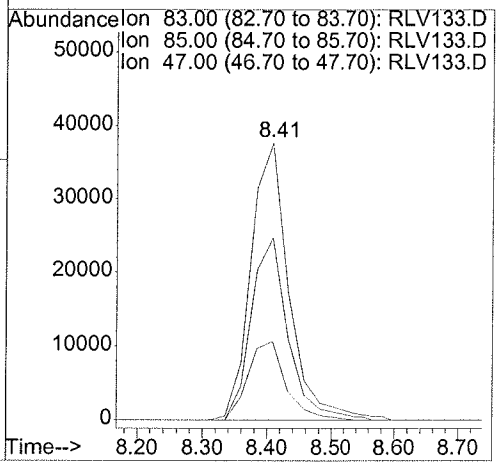


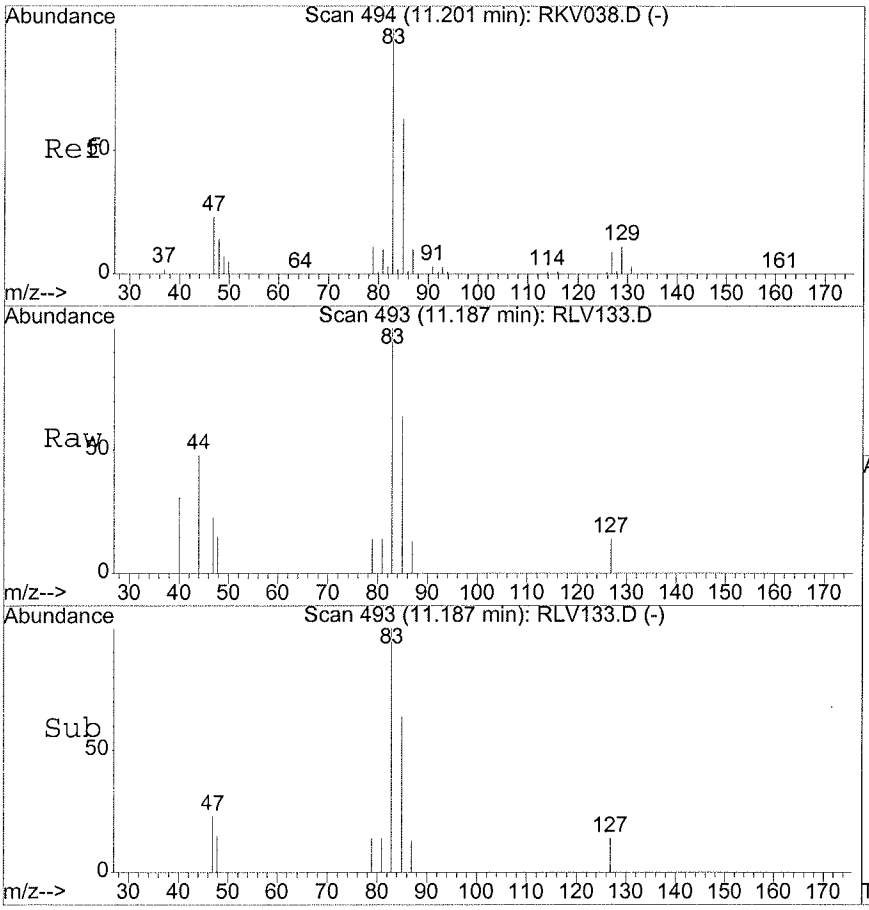


#33
Chloroform
Concen: 1.41 ug/l
RT: 8.41 min Scan# 310
Delta R.T. -0.03 min
Lab File: RLV133.D
Acq: 16 Dec 2019 4:01 pm

Tgt Ion: 83 Resp: 149740

Ion	Ratio	Lower	Upper
83	100		
85	68.4	34.5	94.5
47	33.9	0.0	59.1

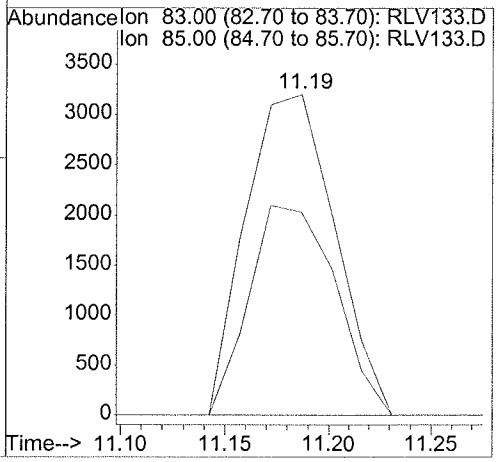


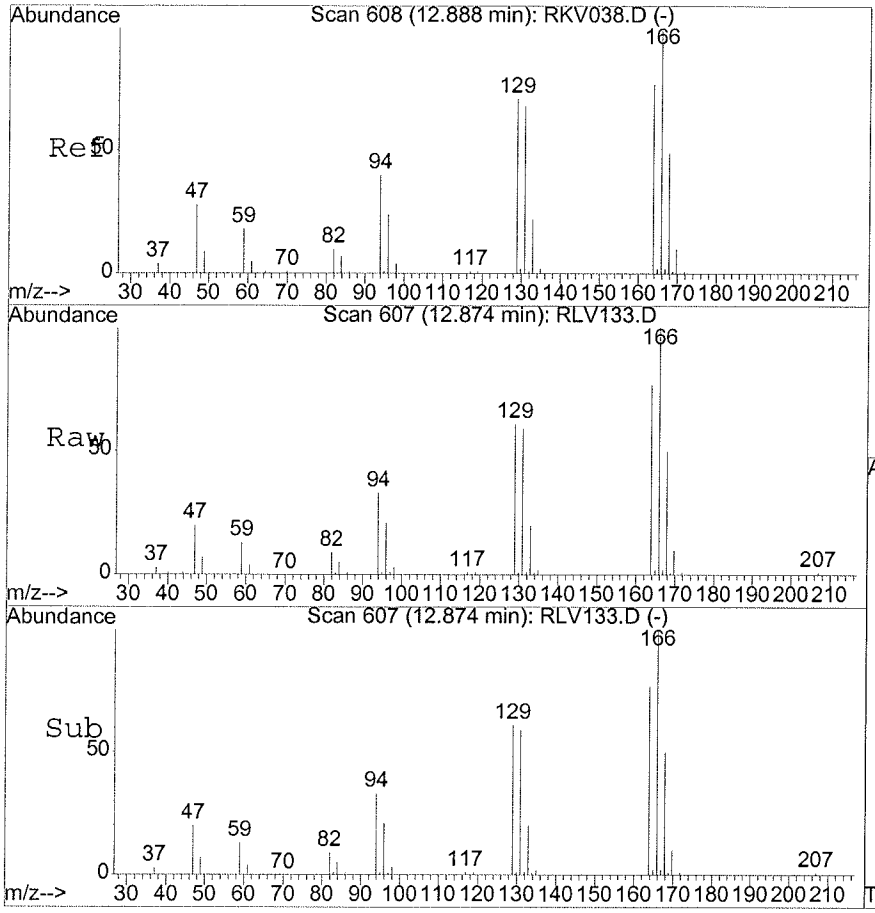


#49
Bromodichloromethane
Concen: 0.14 ug/l
RT: 11.19 min Scan# 493
Delta R.T. -0.01 min
Lab File: RLV133.D
Acq: 16 Dec 2019 4:01 pm

Tgt Ion: 83 Resp: 9602

Ion	Ratio	Lower	Upper
83	100		
85	63.4	32.7	92.7

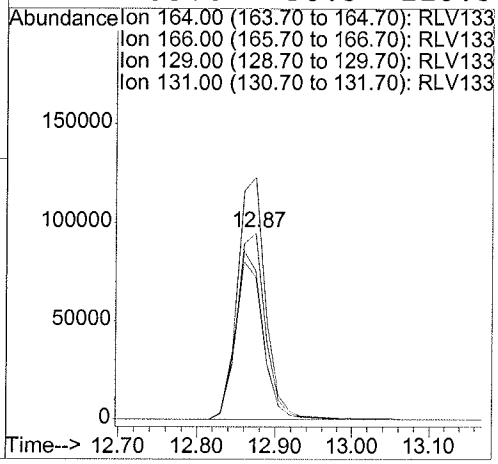




#59
Tetrachloroethene
Concen: 4.73 ug/l
RT: 12.87 min Scan# 607
Delta R.T. -0.01 min
Lab File: RLV133.D
Acq: 16 Dec 2019 4:01 pm

Tgt Ion:164 Resp: 242392

Ion	Ratio	Lower	Upper
164	100		
166	128.2	100.3	160.3
129	86.6	64.1	124.1
131	83.0	58.3	118.3



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV133.D Vial: 15
Acq On : 16 Dec 2019 4:01 pm Operator: JCorea
Sample : 19L064-21 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1618489	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	1505655	10.00	ug/l	-0.01
4) 1,2-DICHLOROBENZENE-D4	16.18	152	599881	10.00	ug/l	-0.01

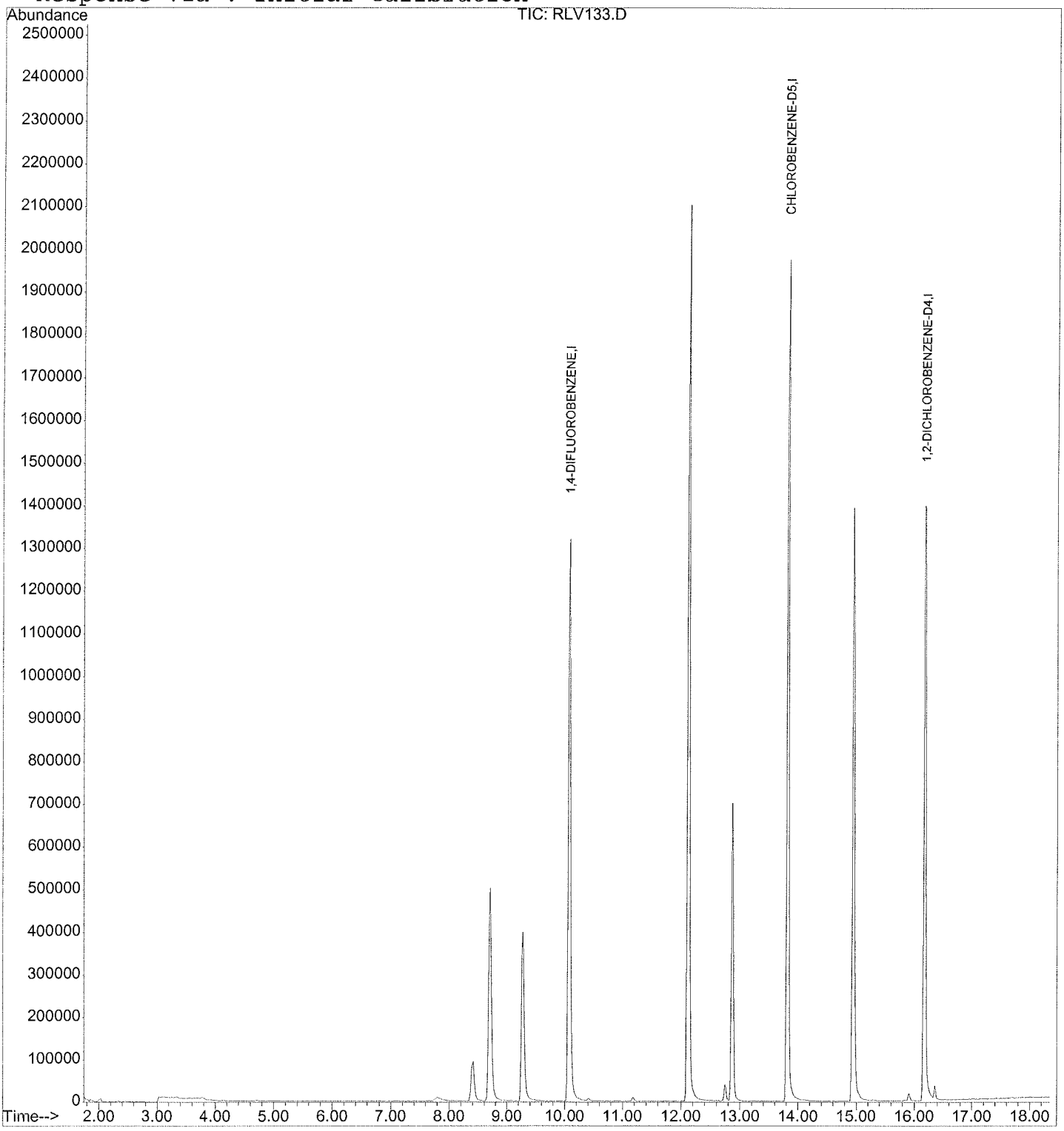
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV133.D VO01K06.M Tue Dec 17 09:50:11 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV133.D Vial: 15
Acq On : 16 Dec 2019 4:01 pm Operator: JCorea
Sample : 19L064-21 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: 12/09/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 15:05
Sample ID: OU2-TB08-GW120919	Date Analyzed: 12/12/19 15:05
Lab Samp ID: L064-22	Dilution Factor: 1
Lab File ID: RLV082	Matrix : WATER
Ext Btch ID: V001L04	% Moisture : NA
Calib. Ref.: RKV038	Instrument ID : T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	ND	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.17	10.00	91.7	70-130
BROMOFLUOROBENZENE	8.50	10.00	85.0	70-130
TOLUENE-D8	9.78	10.00	97.8	70-130
DIBROMOFLUOROMETHANE	9.76	10.00	97.6	70-130

^ Incorporated by analysis using ICAL ID V001K06

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV082.D Vial: 10
Acq On : 12 Dec 2019 3:05 pm Operator: JCorea
Sample : 19L064-22 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:37 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2445589	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	2178812	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.17	152	917946	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.70	111	759685	9.76	ug/l	-0.03
Spiked Amount 10.000			Recovery =	97.60%		
38) 1,2-Dichloroethane-d4	9.28	65	623229	9.17	ug/l	-0.01
Spiked Amount 10.000			Recovery =	91.70%		
54) Toluene-d8	12.12	98	2717378	9.78	ug/l	-0.01
Spiked Amount 10.000			Recovery =	97.80%		
74) 4-Bromofluorobenzene	14.95	95	958533	8.50	ug/l	-0.01
Spiked Amount 10.000			Recovery =	85.00%		

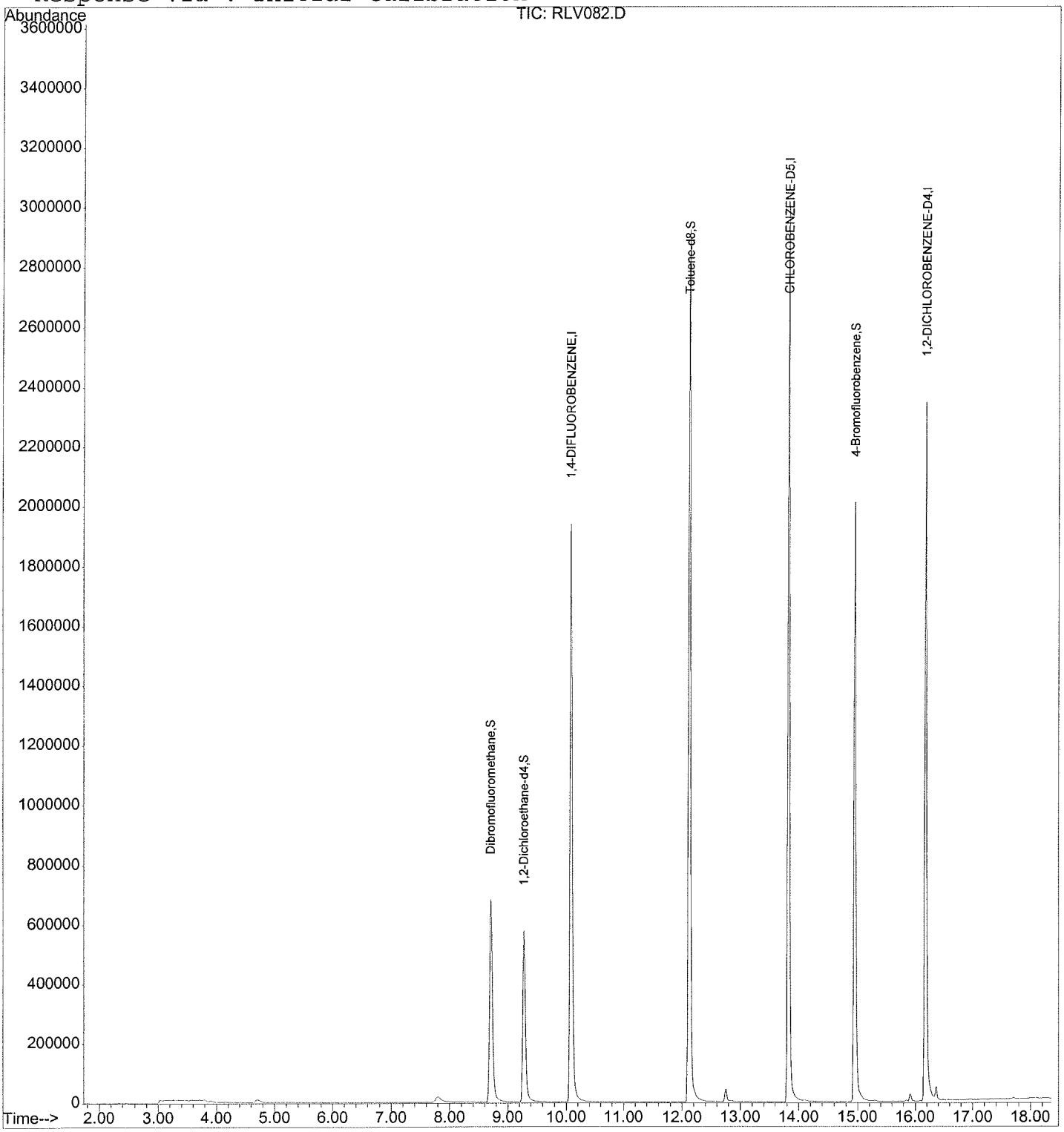
Target Compounds Qvalue

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV082.D Vial: 10
Acq On : 12 Dec 2019 3:05 pm Operator: JCorea
Sample : 19L064-22 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:37 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV082.D Vial: 10
Acq On : 12 Dec 2019 3:05 pm Operator: JCorea
Sample : 19L064-22 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

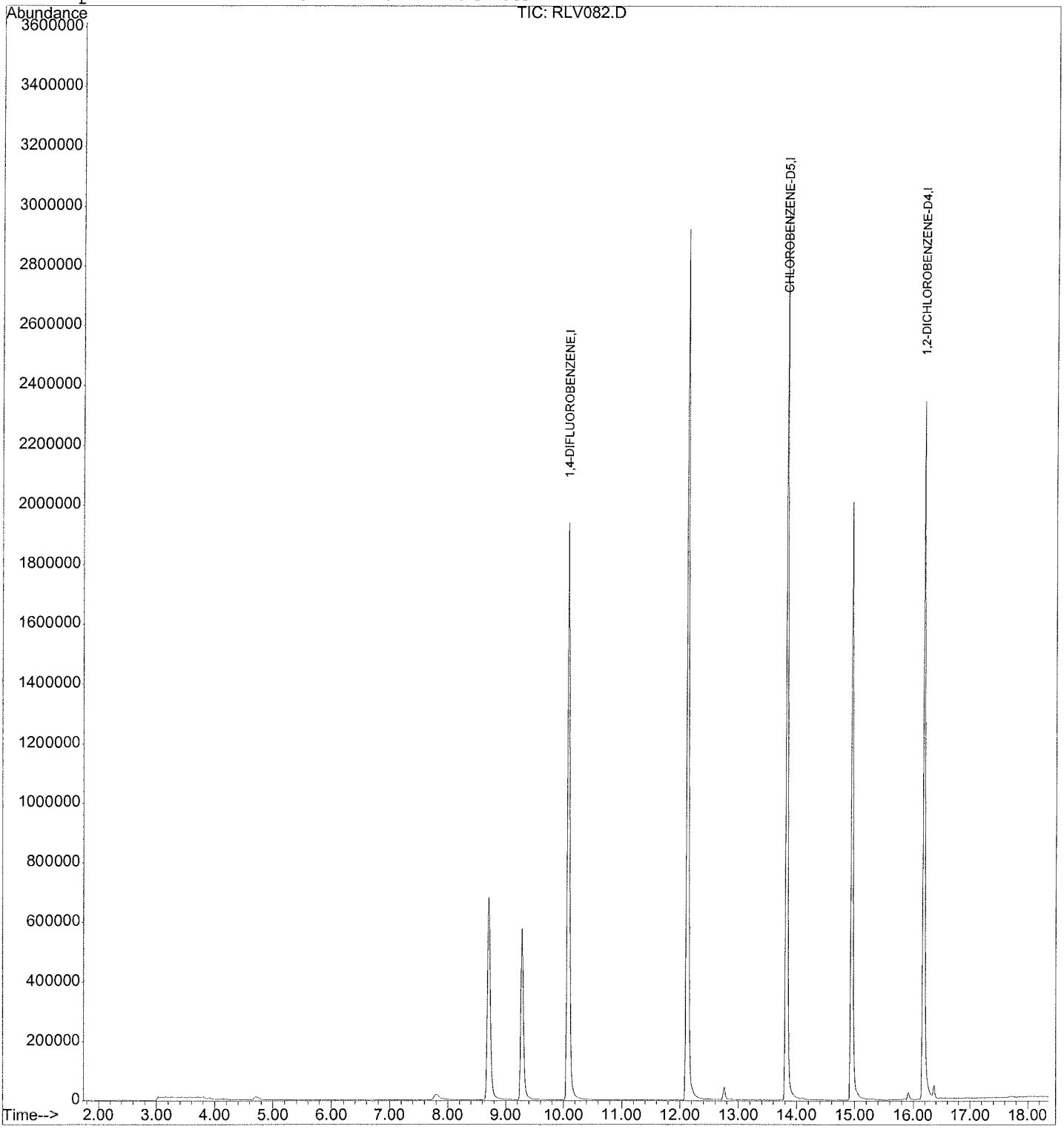
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2445589	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	2178812	10.00	ug/l	-0.01
4) 1,2-DICHLOROBENZENE-D4	16.17	152	917946	10.00	ug/l	-0.01

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV082.D VO01K06.M Fri Dec 13 10:23:05 2019 Page 1

Data File : D:\HPCHEM\1\DATA\19L12\RLV082.D Vial: 10
Acq On : 12 Dec 2019 3:05 pm Operator: JCorea
Sample : 19L064-22 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



QC SUMMARIES

METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client : CDM SMITH	Date Collected: NA
Project : VA SALT LAKE CITY	Date Received: 12/12/19
Batch No. : 19L064	Date Extracted: 12/12/19 11:53
Sample ID: MBLK1W	Date Analyzed: 12/12/19 11:53
Lab Samp ID: V001L04B	Dilution Factor: 1
Lab File ID: RLV078	Matrix : WATER
Ext Btch ID: V001L04	% Moisture : NA
Calib. Ref.: RKV038	Instrument ID : T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	ND	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	8.77	10.00	87.7	70-130
BROMOFLUOROBENZENE	8.53	10.00	85.3	70-130
TOLUENE-D8	9.85	10.00	98.5	70-130
DIBROMOFLUOROMETHANE	9.90	10.00	99.0	70-130

^ Incorporated by analysis using ICAL ID V001K06

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L064
METHOD: SW5030B/8260C

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	VO01L04B	VO01L04L	VO01L04C		
LAB FILE ID:	RLV078	RLV075	RLV076		
DATE EXTRACTED:	12/12/1911:53	12/12/1910:26	12/12/1910:54	DATE COLLECTED:	NA
DATE ANALYZED:	12/12/1911:53	12/12/1910:26	12/12/1910:54	DATE RECEIVED:	12/12/19
PREP. BATCH:	VO01L04	VO01L04	VO01L04		
CALIB. REF:	RKV038	RKV038	RKV038		

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1,1-Trichloroethane	ND	10.0	8.97	90	10.0	9.12	91	2	74-131	20
1,1,2,2-Tetrachloroethane	ND	10.0	9.18	92	10.0	9.46	95	3	71-121	20
1,1,2-Trichloroethane	ND	10.0	9.82	98	10.0	10.6	106	8	80-119	20
1,1-Dichloroethane	ND	10.0	8.71	87	10.0	8.73	87	0	77-125	20
1,1-Dichloroethene	ND	10.0	8.10	81	10.0	7.95	79	2	71-131	20
1,2,3-Trichlorobenzene	ND	10.0	9.51	95	10.0	10.1	101	6	69-129	20
1,2,4-Trichlorobenzene	ND	10.0	9.66	97	10.0	10.1	101	5	69-130	20
1,2,4-Trimethylbenzene	ND	10.0	8.49	85	10.0	8.79	88	3	76-124	20
1,2-Dibromo-3-chloropropane	ND	10.0	10.7	107	10.0	11.2	112	4	62-138	20
1,2-Dichlorobenzene	ND	10.0	9.27	93	10.0	9.66	97	4	80-119	20
1,2-Dichloroethane	ND	10.0	8.75	88	10.0	8.80	88	1	73-128	20
1,2-Dichloropropane	ND	10.0	9.15	91	10.0	9.48	95	4	78-122	20
1,3,5-Trimethylbenzene	ND	10.0	8.40	84	10.0	8.60	86	2	75-124	20
1,3-Dichlorobenzene	ND	10.0	9.23	92	10.0	9.66	97	5	80-119	20
1,4-Dichlorobenzene	ND	10.0	9.48	95	10.0	9.86	99	4	79-118	20
2-Butanone	ND	50.0	52.6	105	50.0	55.0	110	4	56-143	20
2-Hexanone	ND	50.0	45.0	90	50.0	48.6	97	8	57-139	20
Acetone	ND	50.0	47.0	94	50.0	49.1	98	4	39-160	20
Benzene	ND	10.0	10.4	104	10.0	10.4	104	0	79-120	20
Bromochloromethane	ND	10.0	9.12	91	10.0	9.35	94	3	78-120	20
Bromodichloromethane	ND	10.0	9.78	98	10.0	10.0	100	3	79-125	20
Bromoform	ND	10.0	11.0	110	10.0	11.4	114	3	66-130	20
Bromomethane	ND	10.0	8.42	84	10.0	8.61	86	2	53-141	20
Carbon Disulfide	ND	10.0	9.96	100	10.0	9.27	93	7	64-133	20
Carbon Tetrachloride	ND	10.0	9.07	91	10.0	9.28	93	2	72-136	20
Chlorobenzene	ND	10.0	9.80	98	10.0	10.3	103	5	82-118	20
Chloroethane	ND	10.0	9.98	100	10.0	10.0	100	0	60-138	20
Chloroform	ND	10.0	9.02	90	10.0	8.48	85	6	79-124	20
Chloromethane	ND	10.0	7.56	76	10.0	7.45	74	2	50-139	20
cis-1,2-Dichloroethylene	ND	10.0	10.0	100	10.0	10.1	101	1	78-123	20
Dibromochloromethane	ND	10.0	10.4	104	10.0	11.0	110	5	74-126	20
Dichlorodifluoromethane	ND	10.0	8.81	88	10.0	8.29	83	6	32-152	20
Ethylbenzene	ND	10.0	8.89	89	10.0	9.49	95	7	79-121	20
Isopropylbenzene	ND	10.0	8.32	83	10.0	8.72	87	5	72-131	20
m,p-Xylene	ND	20.0	18.3	92	20.0	19.2	96	5	80-121	20
4-Methyl-2-Pentanone	ND	50.0	50.9	102	50.0	52.5	105	3	67-130	20
Methylene Chloride	ND	10.0	8.23	82	10.0	8.44	84	3	74-124	20
tert-Butyl Methyl Ether	ND	10.0	10.0	100	10.0	10.3	103	3	71-124	20
o-Xylene	ND	10.0	9.30	93	10.0	9.56	96	3	78-122	20
Styrene	ND	10.0	9.45	94	10.0	10.1	101	6	78-123	20
Tetrachloroethene	ND	10.0	10.2	102	10.0	10.3	103	1	74-129	20
Toluene	ND	10.0	9.69	97	10.0	10.1	101	4	80-121	20
Trans-1,2-DCE	ND	10.0	8.49	85	10.0	8.43	84	1	75-124	20
cis-1,3-Dichloropropene	ND	10.0	10.2	102	10.0	10.4	104	3	75-124	20
Trans-1,3-Dichloropropene	ND	10.0	9.74	97	10.0	10.3	103	6	73-127	20
TCE	ND	10.0	9.75	98	10.0	9.70	97	1	79-123	20
Trichlorofluoromethane	ND	10.0	9.27	93	10.0	9.02	90	3	65-141	20
Vinyl Chloride	ND	10.0	7.51	75	10.0	7.32	73	3	58-137	20
1,2-Dibromoethane	ND	10.0	9.81	98	10.0	10.7	107	9	77-121	20
Vinyl Acetate^	ND	10.0	9.64	96	10.0	9.89	99	3	54-146	20
Trichlorotrifluoroethane	ND	10.0	10.1	101	10.0	10.2	102	1	70-136	20
Methyl Acetate	ND	10.0	10.1	101	10.0	10.6	106	4	50-136	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	10.0	8.87	89	10.0	8.86	89	70-130
Bromofluorobenzene	10.0	8.32	83	10.0	8.40	84	70-130
Toluene-d8	10.0	9.52	95	10.0	9.78	98	70-130
Dibromofluoromethane	10.0	10.1	101	10.0	9.92	99	70-130

^ Incorporated by analysis using ICAL ID VO01K06

METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected	: NA
Project	: VA SALT LAKE CITY	Date Received	: 12/13/19
Batch No.	: 19L064	Date Extracted	: 12/13/19 14:21
Sample ID	: MBLK2W	Date Analyzed	: 12/13/19 14:21
Lab Samp ID	: V001L05B	Dilution Factor	: 1
Lab File ID	: RLV096	Matrix	: WATER
Ext Btch ID	: V001L05	% Moisture	: NA
Calib. Ref.	: RKV038	Instrument ID	: T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	ND	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.36	10.00	93.6	70-130
BROMOFLUOROBENZENE	9.05	10.00	90.5	70-130
TOLUENE-D8	9.95	10.00	99.5	70-130
DIBROMOFLUOROMETHANE	10.2	10.00	102	70-130

^ Incorporated by analysis using ICAL ID V001K06

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L064
METHOD: SW5030B/8260C

MATRIX: WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID:	MBLK2W		
LAB SAMP ID:	VO01L05B	VO01L05L	VO01L05C
LAB FILE ID:	RLV096	RLV093	RLV094
DATE EXTRACTED:	12/13/1914:21	12/13/1912:25	12/13/1913:22
DATE ANALYZED:	12/13/1914:21	12/13/1912:25	12/13/1913:22
PREP. BATCH:	VO01L05	VO01L05	VO01L05
CALIB. REF:	RKV038	RKV038	RKV038

DATE COLLECTED: NA
DATE RECEIVED: 12/13/19

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1,1-Trichloroethane	ND	10.0	9.98	100	10.0	9.80	98	2	74-131	20
1,1,2,2-Tetrachloroethane	ND	10.0	9.56	96	10.0	9.37	94	2	71-121	20
1,1,2-Trichloroethane	ND	10.0	9.94	99	10.0	9.95	100	0	80-119	20
1,1-Dichloroethane	ND	10.0	8.88	89	10.0	9.18	92	3	77-125	20
1,1-Dichloroethene	ND	10.0	8.60	86	10.0	8.65	87	1	71-131	20
1,2,3-Trichlorobenzene	ND	10.0	11.0	110	10.0	11.0	110	0	69-129	20
1,2,4-Trichlorobenzene	ND	10.0	11.0	110	10.0	10.8	108	1	69-130	20
1,2,4-Trimethylbenzene	ND	10.0	9.28	93	10.0	9.12	91	2	76-124	20
1,2-Dibromo-3-chloropropane	ND	10.0	12.3	123	10.0	12.1	121	1	62-138	20
1,2-Dichlorobenzene	ND	10.0	9.47	95	10.0	9.41	94	1	80-119	20
1,2-Dichloroethane	ND	10.0	10.1	101	10.0	10.0	100	1	73-128	20
1,2-Dichloropropane	ND	10.0	9.27	93	10.0	9.39	94	1	78-122	20
1,3,5-Trimethylbenzene	ND	10.0	9.03	90	10.0	8.87	89	2	75-124	20
1,3-Dichlorobenzene	ND	10.0	9.61	96	10.0	9.67	97	1	80-119	20
1,4-Dichlorobenzene	ND	10.0	9.21	92	10.0	9.61	96	4	79-118	20
2-Butanone	ND	50.0	56.4	113	50.0	53.2	106	6	56-143	20
2-Hexanone	ND	50.0	48.0	96	50.0	45.7	91	5	57-139	20
Acetone	ND	50.0	52.6	105	50.0	50.3	101	5	39-160	20
Benzene	ND	10.0	10.3	103	10.0	10.4	104	1	79-120	20
Bromochloromethane	ND	10.0	9.54	95	10.0	9.46	95	1	78-120	20
Bromodichloromethane	ND	10.0	10.6	106	10.0	10.4	104	1	79-125	20
Bromoform	ND	10.0	11.7	117	10.0	11.4	114	3	66-130	20
Bromomethane	ND	10.0	8.91	89	10.0	9.24	92	4	53-141	20
Carbon Disulfide	ND	10.0	9.55	95	10.0	9.58	96	0	64-133	20
Carbon Tetrachloride	ND	10.0	10.1	101	10.0	10.0	100	1	72-136	20
Chlorobenzene	ND	10.0	10.1	101	10.0	10.0	100	1	82-118	20
Chloroethane	ND	10.0	10.2	102	10.0	10.7	107	5	60-138	20
Chloroform	ND	10.0	9.77	98	10.0	9.93	99	2	79-124	20
Chloromethane	ND	10.0	8.58	86	10.0	8.49	85	1	50-139	20
cis-1,2-Dichloroethylene	ND	10.0	9.99	100	10.0	10.1	101	1	78-123	20
Dibromochloromethane	ND	10.0	10.8	108	10.0	11.0	110	1	74-126	20
Dichlorodifluoromethane	ND	10.0	10.7	107	10.0	10.1	101	6	32-152	20
Ethylbenzene	ND	10.0	9.11	91	10.0	9.30	93	2	79-121	20
Isopropylbenzene	ND	10.0	8.94	89	10.0	8.98	90	0	72-131	20
m,p-Xylene	ND	20.0	18.9	95	20.0	19.1	95	1	80-121	20
4-Methyl-2-Pentanone	ND	50.0	53.9	108	50.0	51.8	104	4	67-130	20
Methylene Chloride	ND	10.0	8.49	85	10.0	8.41	84	1	74-124	20
tert-Butyl Methyl Ether	ND	10.0	10.4	104	10.0	10.2	102	2	71-124	20
o-Xylene	ND	10.0	9.82	98	10.0	9.74	97	1	78-122	20
Styrene	ND	10.0	10.3	103	10.0	10.1	101	1	78-123	20
Tetrachloroethene	ND	10.0	10.3	103	10.0	10.3	103	0	74-129	20
Toluene	ND	10.0	9.51	95	10.0	9.75	98	3	80-121	20
Trans-1,2-DCE	ND	10.0	8.90	89	10.0	8.91	89	0	75-124	20
cis-1,3-Dichloropropene	ND	10.0	10.5	105	10.0	10.3	103	2	75-124	20
Trans-1,3-Dichloropropene	ND	10.0	10.3	103	10.0	10.2	102	0	73-127	20
TCE	ND	10.0	9.76	98	10.0	9.85	99	1	79-123	20
Trichlorofluoromethane	ND	10.0	11.1	111	10.0	11.0	110	1	65-141	20
Vinyl Chloride	ND	10.0	8.29	83	10.0	8.37	84	1	58-137	20
1,2-Dibromoethane	ND	10.0	10.5	105	10.0	10.4	104	1	77-121	20
Vinyl Acetate^	ND	10.0	10.9	109	10.0	10.2	102	7	54-146	20
Trichlorotrifluoroethane	ND	10.0	9.92	99	10.0	10.0	100	1	70-136	20
Methyl Acetate	ND	10.0	10.1	101	10.0	9.77	98	4	50-136	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	10.0	10.5	105	10.0	10.0	100	70-130
Bromofluorobenzene	10.0	9.00	90	10.0	8.78	88	70-130
Toluene-d8	10.0	9.77	98	10.0	9.94	99	70-130
Dibromofluoromethane	10.0	10.5	105	10.0	10.5	105	70-130

^ Incorporated by analysis using ICAL ID VO01K06

METHOD SW5030B/8260C
VOLATILE ORGANICS BY GC/MS

Client	: CDM SMITH	Date Collected:	NA
Project	: VA SALT LAKE CITY	Date Received:	12/16/19
Batch No.	: 19L064	Date Extracted:	12/16/19 11:47
Sample ID:	MBLK3W	Date Analyzed:	12/16/19 11:47
Lab Samp ID:	V001L06B	Dilution Factor:	1
Lab File ID:	RLV124	Matrix	: WATER
Ext Btch ID:	V001L06	% Moisture	: NA
Calib. Ref.:	RKV038	Instrument ID	: T-001

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	1.0	0.10
1,1,2,2-TETRACHLOROETHANE	ND	1.0	0.11
1,1,2-TRICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHANE	ND	1.0	0.10
1,1-DICHLOROETHENE	ND	1.0	0.10
1,2,3-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRICHLOROBENZENE	ND	1.0	0.15
1,2,4-TRIMETHYLBENZENE	ND	1.0	0.11
1,2-DIBROMO-3-CHLOROPROPANE	ND	2.0	0.25
1,2-DICHLOROBENZENE	ND	1.0	0.10
1,2-DICHLOROETHANE	ND	1.0	0.10
1,2-DICHLOROPROPANE	ND	1.0	0.10
1,3,5-TRIMETHYLBENZENE	ND	1.0	0.12
1,3-DICHLOROBENZENE	ND	1.0	0.11
1,4-DICHLOROBENZENE	ND	1.0	0.10
2-BUTANONE	ND	20	2.5
2-HEXANONE	ND	20	2.5
ACETONE	ND	20	2.5
BENZENE	ND	1.0	0.10
BROMOCHLOROMETHANE	ND	1.0	0.11
BROMODICHLOROMETHANE	ND	1.0	0.10
BROMOFORM	ND	1.0	0.15
BROMOMETHANE	ND	1.0	0.16
CARBON DISULFIDE	ND	1.0	0.25
CARBON TETRACHLORIDE	ND	1.0	0.10
CHLOROBENZENE	ND	1.0	0.10
CHLOROETHANE	ND	1.0	0.27
CHLOROFORM	ND	1.0	0.10
CHLOROMETHANE	ND	1.0	0.15
CIS-1,2-DICHLOROETHYLENE	ND	1.0	0.10
DIBROMOCHLOROMETHANE	ND	1.0	0.10
DICHLORODIFLUOROMETHANE	ND	1.0	0.15
ETHYLBENZENE	ND	1.0	0.10
ISOPROPYLBENZENE	ND	1.0	0.10
M,P-XYLENE	ND	2.0	0.21
4-METHYL-2-PENTANONE	ND	20	2.5
METHYLENE CHLORIDE	ND	2.0	0.50
TERT-BUTYL METHYL ETHER	ND	1.0	0.13
O-XYLENE	ND	1.0	0.10
STYRENE	ND	1.0	0.25
TETRACHLOROETHENE	ND	1.0	0.15
TOLUENE	ND	1.0	0.10
TRANS-1,2-DCE	ND	1.0	0.10
CIS-1,3-DICHLOROPROPENE	ND	1.0	0.10
TRANS-1,3-DICHLOROPROPENE	ND	1.0	0.11
TCE	ND	1.0	0.10
TRICHLOROFLUOROMETHANE	ND	1.0	0.15
VINYL CHLORIDE	ND	1.0	0.12
1,2-DIBROMOETHANE	ND	1.0	0.10
VINYL ACETATE^	ND	2.0	0.25
TRICHLOROTRIFLUOROETHANE	ND	1.0	0.15
METHYL ACETATE	ND	2.0	0.25

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	9.66	10.00	96.6	70-130
BROMOFLUOROBENZENE	9.14	10.00	91.4	70-130
TOLUENE-D8	9.71	10.00	97.1	70-130
DIBROMOFLUOROMETHANE	10.5	10.00	105	70-130

^ Incorporated by analysis using ICAL ID V001K06

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L064
METHOD: SW5030B/8260C

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK3W
LAB SAMP ID: VO01L06B VO01L06L VO01L06C
LAB FILE ID: RLV124 RLV121 RLV122
DATE EXTRACTED: 12/16/1911:47 12/16/1910:24 12/16/1910:52 DATE COLLECTED: NA
DATE ANALYZED: 12/16/1911:47 12/16/1910:24 12/16/1910:52 DATE RECEIVED: 12/16/19
PREP. BATCH: VO01L06 VO01L06 VO01L06
CALIB. REF: RKV038 RKV038 RKV038

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1,1-Trichloroethane	ND	10.0	10.4	104	10.0	10.2	102	2	74-131	20
1,1,2,2-Tetrachloroethane	ND	10.0	9.11	91	10.0	9.12	91	0	71-121	20
1,1,2-Trichloroethane	ND	10.0	9.95	99	10.0	10.1	101	2	80-119	20
1,1-Dichloroethane	ND	10.0	9.33	93	10.0	9.04	90	3	77-125	20
1,1-Dichloroethene	ND	10.0	8.55	85	10.0	8.51	85	0	71-131	20
1,2,3-Trichlorobenzene	ND	10.0	11.6	116	10.0	12.0	120	3	69-129	20
1,2,4-Trichlorobenzene	ND	10.0	12.0	120	10.0	12.2	122	2	69-130	20
1,2,4-Trimethylbenzene	ND	10.0	9.41	94	10.0	9.06	91	4	76-124	20
1,2-Dibromo-3-chloropropane	ND	10.0	12.4	124	10.0	13.1	131	5	62-138	20
1,2-Dichlorobenzene	ND	10.0	9.71	97	10.0	9.61	96	1	80-119	20
1,2-Dichloroethane	ND	10.0	10.2	102	10.0	10.3	103	1	73-128	20
1,2-Dichloropropane	ND	10.0	9.66	97	10.0	9.75	98	1	78-122	20
1,3,5-Trimethylbenzene	ND	10.0	9.19	92	10.0	8.91	89	3	75-124	20
1,3-Dichlorobenzene	ND	10.0	9.83	98	10.0	9.71	97	1	80-119	20
1,4-Dichlorobenzene	ND	10.0	9.91	99	10.0	9.99	100	1	79-118	20
2-Butanone	ND	50.0	53.0	106	50.0	54.3	109	2	56-143	20
2-Hexanone	ND	50.0	45.3	91	50.0	46.6	93	3	57-139	20
Acetone	ND	50.0	51.0	102	50.0	51.6	103	1	39-160	20
Benzene	ND	10.0	10.1	101	10.0	10.4	104	2	79-120	20
Bromochloromethane	ND	10.0	9.71	97	10.0	9.65	97	1	78-120	20
Bromodichloromethane	ND	10.0	10.7	107	10.0	11.1	111	3	79-125	20
Bromoform	ND	10.0	11.8	118	10.0	11.7	117	1	66-130	20
Bromomethane	ND	10.0	8.89	89	10.0	8.93	89	1	53-141	20
Carbon Disulfide	ND	10.0	9.47	95	10.0	9.38	94	1	64-133	20
Carbon Tetrachloride	ND	10.0	10.9	109	10.0	10.6	106	2	72-136	20
Chlorobenzene	ND	10.0	10.2	102	10.0	9.97	100	2	82-118	20
Chloroethane	ND	10.0	9.87	99	10.0	10.1	101	3	60-138	20
Chloroform	ND	10.0	9.80	98	10.0	9.30	93	5	79-124	20
Chloromethane	ND	10.0	8.40	84	10.0	8.57	86	2	50-139	20
cis-1,2-Dichloroethylene	ND	10.0	10.3	103	10.0	10.0	100	3	78-123	20
Dibromochloromethane	ND	10.0	11.1	111	10.0	10.9	109	2	74-126	20
Dichlorodifluoromethane	ND	10.0	10.3	103	10.0	10.5	105	2	32-152	20
Ethylbenzene	ND	10.0	9.50	95	10.0	9.27	93	2	79-121	20
Isopropylbenzene	ND	10.0	8.90	89	10.0	8.77	88	1	72-131	20
m,p-Xylene	ND	20.0	19.9	100	20.0	19.1	96	4	80-121	20
4-Methyl-2-Pentanone	ND	50.0	52.0	104	50.0	54.0	108	4	67-130	20
Methylene Chloride	ND	10.0	8.84	88	10.0	8.57	86	3	74-124	20
tert-Butyl Methyl Ether	ND	10.0	10.4	104	10.0	10.6	106	2	71-124	20
o-Xylene	ND	10.0	9.92	99	10.0	9.70	97	2	78-122	20
Styrene	ND	10.0	10.1	101	10.0	9.97	100	1	78-123	20
Tetrachloroethene	ND	10.0	10.3	103	10.0	10.1	101	2	74-129	20
Toluene	ND	10.0	9.52	95	10.0	9.53	95	0	80-121	20
Trans-1,2-DCE	ND	10.0	9.06	91	10.0	9.04	90	0	75-124	20
cis-1,3-Dichloropropene	ND	10.0	10.4	104	10.0	10.6	106	2	75-124	20
Trans-1,3-Dichloropropene	ND	10.0	10.7	107	10.0	10.6	106	1	73-127	20
TCE	ND	10.0	9.83	98	10.0	10.2	102	3	79-123	20
Trichlorofluoromethane	ND	10.0	11.1	111	10.0	11.1	111	0	65-141	20
Vinyl Chloride	ND	10.0	8.12	81	10.0	8.55	86	5	58-137	20
1,2-Dibromoethane	ND	10.0	10.2	102	10.0	10.4	104	3	77-121	20
Vinyl Acetate^	ND	10.0	10.3	103	10.0	10.1	101	2	54-146	20
Trichlorotrifluoroethane	ND	10.0	10.3	103	10.0	10.0	100	2	70-136	20
Methyl Acetate	ND	10.0	9.71	97	10.0	10.1	101	4	50-136	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	10.0	10.3	103	10.0	10.2	102	70-130
Bromofluorobenzene	10.0	8.68	87	10.0	8.51	85	70-130
Toluene-d8	10.0	9.36	94	10.0	9.21	92	70-130
Dibromofluoromethane	10.0	10.7	107	10.0	10.6	106	70-130

^ Incorporated by snalysis using ICAL ID VO01K06

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L064
METHOD: SW5030B/8260C

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: OU2-MW15D-GW120719
LAB SAMP ID: L064-07N L064-07M L064-07S
LAB FILE ID: RLV106 RLV107 RLV108
DATE EXTRACTED: 12/13/1919:04 12/13/1919:31 12/13/1919:59 DATE COLLECTED: 12/07/19
DATE ANALYZED: 12/13/1919:04 12/13/1919:31 12/13/1919:59 DATE RECEIVED: 12/10/19
PREP. BATCH: VO01L05 VO01L05 VO01L05
CALIB. REF: RKV038 RKV038 RKV038

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	SPIKE AMT (ug/L)	MSD RSLT (ug/L)	MSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1,1-Trichloroethane	ND	10.0	9.34	93	10.0	9.37	94	0	74-131	20
1,1,2,2-Tetrachloroethane	ND	10.0	9.49	95	10.0	8.64	86	9	71-121	20
1,1,2-Trichloroethane	ND	10.0	10.1	101	10.0	9.60	96	5	80-119	20
1,1-Dichloroethane	ND	10.0	8.88	89	10.0	8.72	87	2	77-125	20
1,1-Dichloroethene	ND	10.0	8.41	84	10.0	8.35	83	1	71-131	20
1,2,3-Trichlorobenzene	ND	10.0	10.2	102	10.0	10.4	104	1	69-129	20
1,2,4-Trichlorobenzene	ND	10.0	10.3	103	10.0	10.8	108	4	69-130	20
1,2,4-Trimethylbenzene	ND	10.0	9.08	91	10.0	9.42	94	4	76-124	20
1,2-Dibromo-3-chloropropane	ND	10.0	10.9	109	10.0	9.68	97	12	62-138	20
1,2-Dichlorobenzene	ND	10.0	9.57	96	10.0	9.56	96	0	80-119	20
1,2-Dichloroethane	ND	10.0	9.57	96	10.0	8.96	90	7	73-128	20
1,2-Dichloropropane	ND	10.0	9.32	93	10.0	9.15	92	2	78-122	20
1,3,5-Trimethylbenzene	ND	10.0	8.95	90	10.0	9.22	92	3	75-124	20
1,3-Dichlorobenzene	ND	10.0	9.51	95	10.0	9.89	99	4	80-119	20
1,4-Dichlorobenzene	ND	10.0	9.68	97	10.0	10.0	100	3	79-118	20
2-Butanone	ND	50.0	54.9	110	50.0	44.0	88	22*	56-143	20
2-Hexanone	ND	50.0	47.7	95	50.0	39.4	79	19	57-139	20
Acetone	ND	50.0	47.7	95	50.0	38.4	77	22*	39-160	20
Benzene	ND	10.0	10.2	102	10.0	10.2	102	0	79-120	20
Bromochloromethane	ND	10.0	9.45	95	10.0	9.02	90	5	78-120	20
Bromodichloromethane	ND	10.0	10.2	102	10.0	9.79	98	4	79-125	20
Bromoform	ND	10.0	11.3	113	10.0	10.3	103	9	66-130	20
Bromomethane	ND	10.0	8.59	86	10.0	9.24	92	7	53-141	20
Carbon Disulfide	ND	10.0	9.41	94	10.0	9.15	91	3	64-133	20
Carbon Tetrachloride	ND	10.0	9.49	95	10.0	9.42	94	1	72-136	20
Chlorobenzene	ND	10.0	10.4	104	10.0	10.0	100	4	82-118	20
Chloroethane	ND	10.0	10.1	101	10.0	10.3	103	2	60-138	20
Chloroform	2.48	10.0	12.1	96	10.0	12.3	98	1	79-124	20
Chloromethane	ND	10.0	7.64	76	10.0	9.21	92	19	50-139	20
cis-1,2-Dichloroethylene	ND	10.0	9.95	99	10.0	9.76	98	2	78-123	20
Dibromochloromethane	ND	10.0	10.8	108	10.0	10.2	102	5	74-126	20
Dichlorodifluoromethane	ND	10.0	8.99	90	10.0	10.2	102	12	32-152	20
Ethylbenzene	ND	10.0	9.24	92	10.0	9.32	93	1	79-121	20
Isopropylbenzene	ND	10.0	8.75	88	10.0	9.24	92	5	72-131	20
m,p-Xylene	ND	20.0	19.0	95	20.0	19.6	98	3	80-121	20
4-Methyl-2-Pentanone	ND	50.0	51.8	104	50.0	43.9	88	17	67-130	20
Methylene Chloride	ND	10.0	8.16	82	10.0	7.95	80	3	74-124	20
tert-Butyl Methyl Ether	ND	10.0	10.2	102	10.0	8.96	90	13	71-124	20
o-Xylene	ND	10.0	9.80	98	10.0	9.58	96	2	78-122	20
Styrene	ND	10.0	9.77	98	10.0	9.37	94	4	78-123	20
Tetrachloroethene	ND	10.0	10.3	103	10.0	10.5	105	2	74-129	20
Toluene	ND	10.0	9.74	97	10.0	9.68	97	1	80-121	20
Trans-1,2-DCE	ND	10.0	8.80	88	10.0	8.71	87	1	75-124	20
cis-1,3-Dichloropropene	ND	10.0	9.92	99	10.0	9.57	96	4	75-124	20
Trans-1,3-Dichloropropene	ND	10.0	9.77	98	10.0	9.29	93	5	73-127	20
TCE	ND	10.0	9.59	96	10.0	9.72	97	1	79-123	20
Trichlorofluoromethane	ND	10.0	10.4	104	10.0	10.3	103	1	65-141	20
Vinyl Chloride	ND	10.0	7.51	75	10.0	8.87	89	17	58-137	20
1,2-Dibromoethane	ND	10.0	10.6	106	10.0	9.58	96	11	77-121	20
Vinyl Acetate^	ND	10.0	8.28	83	10.0	7.34	73	13	54-146	20
Trichlorotrifluoroethane	ND	10.0	9.94	99	10.0	9.80	98	1	70-136	20
Methyl Acetate	ND	10.0	9.41	94	10.0	7.82	78	18	50-136	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	SPIKE AMT (ug/L)	MSD RSLT (ug/L)	MSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	10.0	9.65	96	10.0	9.10	91	70-130
Bromofluorobenzene	10.0	8.91	89	10.0	9.02	90	70-130
Toluene-d8	10.0	9.61	96	10.0	9.89	99	70-130
Dibromofluoromethane	10.0	10.1	101	10.0	9.93	99	70-130

^ Incorporated by analysis using ICAL ID VO01K06

QC DATA

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV078.D Vial: 6
Acq On : 12 Dec 2019 11:53 am Operator: JCorea
Sample : VO01L04B 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:35 2019 Quant Results File: VO01K05A.RES

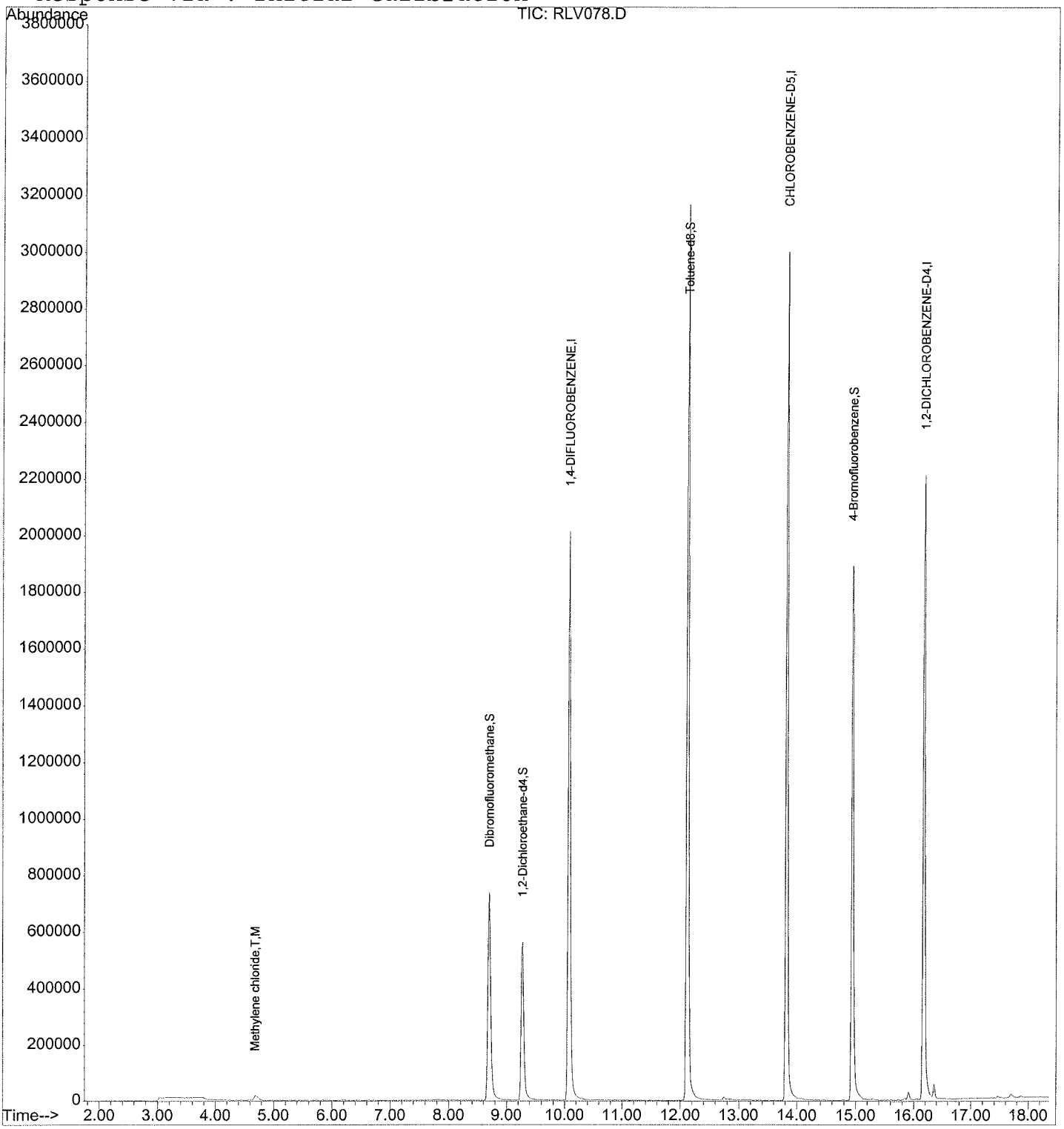
Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

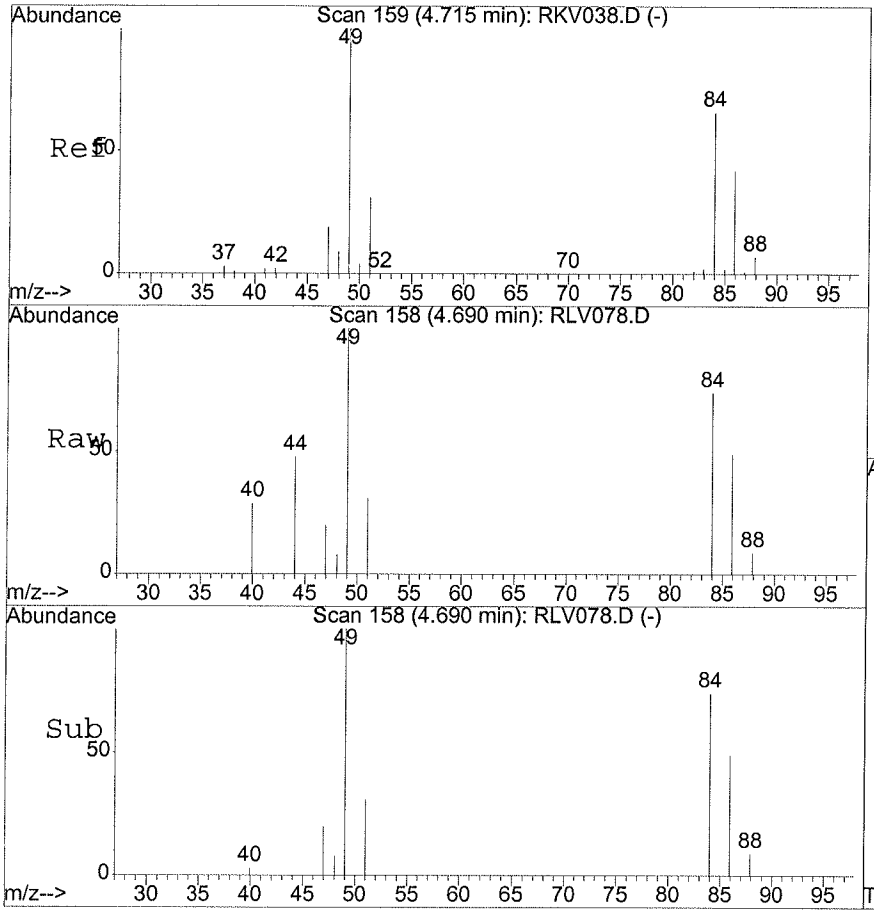
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2568637	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	2301928	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.17	152	953532	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.70	111	808873	9.90	ug/l	-0.03
Spiked Amount 10.000			Recovery =	99.00%		
38) 1,2-Dichloroethane-d4	9.28	65	626185	8.77	ug/l	-0.01
Spiked Amount 10.000			Recovery =	87.70%		
54) Toluene-d8	12.12	98	2893359	9.85	ug/l	-0.01
Spiked Amount 10.000			Recovery =	98.50%		
74) 4-Bromofluorobenzene	14.93	95	999610	8.53	ug/l	-0.03
Spiked Amount 10.000			Recovery =	85.30%		
Target Compounds						Qvalue
18) Methylene chloride	4.69	49	29377	0.22	ug/l	91

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

Data File : D:\HPCHEM\1\DATA\19L12\RLV078.D Vial: 6
Acq On : 12 Dec 2019 11:53 am Operator: JCorea
Sample : VO01L04B 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:35 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

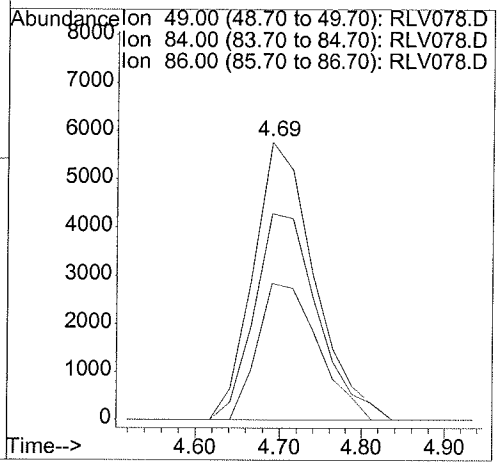




#18
Methylene chloride
Concen: 0.22 ug/l
RT: 4.69 min Scan# 158
Delta R.T. -0.02 min
Lab File: RLV078.D
Acq: 12 Dec 2019 11:53 am

Tgt Ion: 49 Resp: 29377

Ion	Ratio	Lower	Upper
49	100		
84	77.0	39.0	99.0
86	49.0	14.4	74.4



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV078.D Vial: 6
Acq On : 12 Dec 2019 11:53 am Operator: JCorea
Sample : VO01L04B 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2568637	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	2301928	10.00	ug/l	-0.01
4) 1,2-DICHLOROBENZENE-D4	16.17	152	953532	10.00	ug/l	-0.01

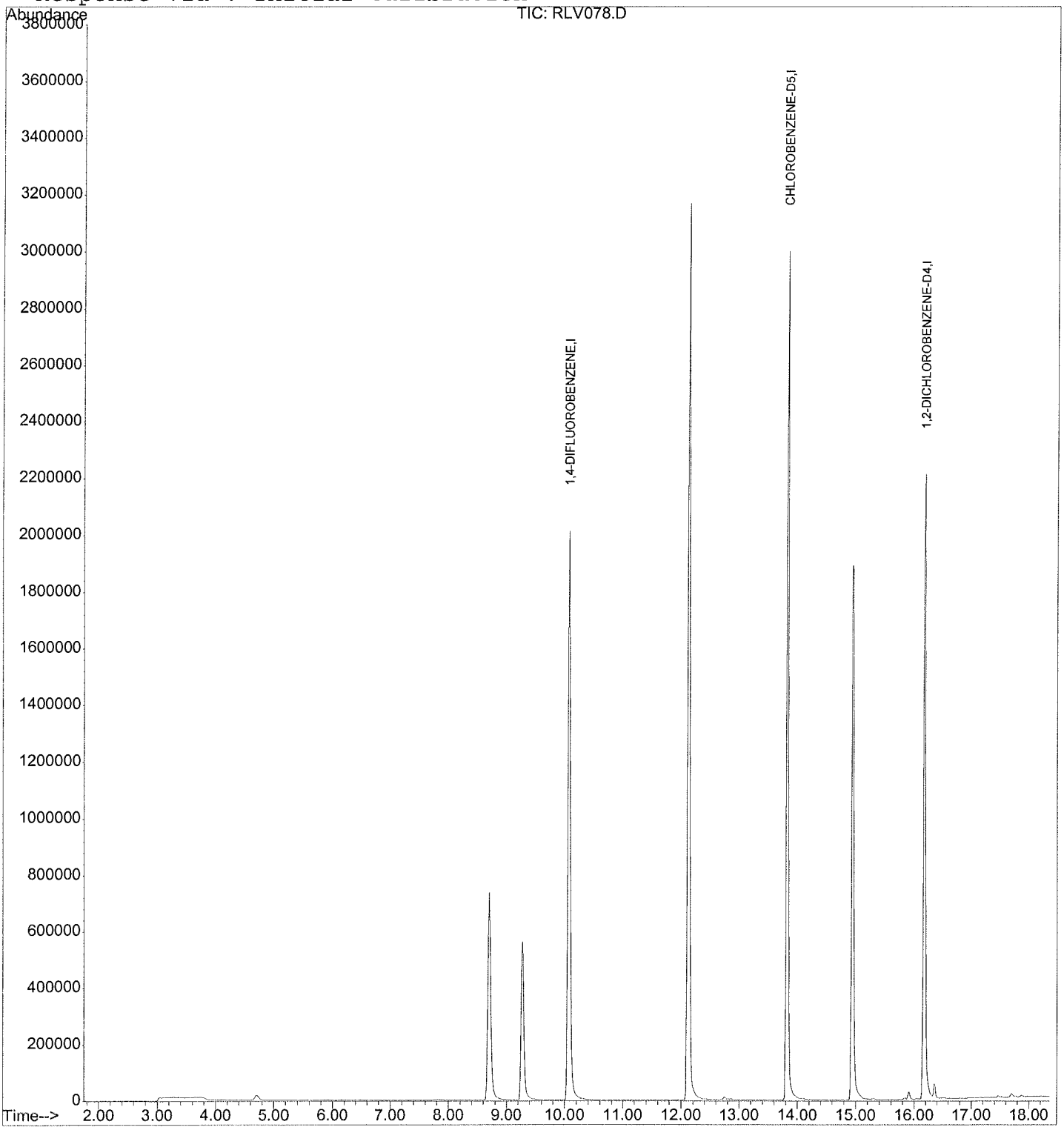
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV078.D VO01K06.M Fri Dec 13 10:22:30 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV078.D Vial: 6
Acq On : 12 Dec 2019 11:53 am Operator: JCorea
Sample : VO01L04B 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:51 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV075.D Vial: 3
Acq On : 12 Dec 2019 10:26 am Operator: JCorea
Sample : VO01L04L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:33 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2511001	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	2338849	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.16	152	1005679	10.00	ug/l	-0.03
System Monitoring Compounds						
34) Dibromofluoromethane	8.70	111	807040	10.10	ug/l	-0.03
Spiked Amount 10.000			Recovery = 101.00%			
38) 1,2-Dichloroethane-d4	9.26	65	619317	8.87	ug/l	-0.03
Spiked Amount 10.000			Recovery = 88.70%			
54) Toluene-d8	12.12	98	2839777	9.52	ug/l	-0.01
Spiked Amount 10.000			Recovery = 95.20%			
74) 4-Bromofluorobenzene	14.93	95	1028428	8.32	ug/l	-0.03
Spiked Amount 10.000			Recovery = 83.20%			
Target Compounds						Qvalue
3) Dichlorodifluoromethane	1.86	85	612451	8.81	ug/l	99
4) Chloromethane	2.07	50	727266	7.56	ug/l	99
5) Vinyl chloride	2.22	62	753481	7.51	ug/l	99
7) Bromomethane	2.59	94	576423	8.42	ug/l	99
8) Chloroethane	2.71	64	554151	9.98	ug/l	96
9) Dichlorofluoromethane	3.03	67	1124324	8.08	ug/l	97
10) Trichlorofluoromethane	3.08	101	899100	9.27	ug/l	95
11) Acrolein	3.64	56	371352	53.09	ug/l	98
12) 1,1,2-Trichloro-1,2,2-trif	3.88	151	538017	10.11	ug/l	98
13) Acetone	3.88	43	665844	47.00	ug/l	96
14) 1,1-Dichloroethene	3.81	61	1117170	8.09	ug/l	91
15) Iodomethane	4.03	142	1572113	11.11	ug/l	92
16) Carbon disulfide	4.15	76	2938030	9.96	ug/l	100
17) Methyl acetate	4.47	43	343465	10.11	ug/l	94
18) Methylene chloride	4.69	49	1051022	8.23	ug/l	88
19) tert-Butyl alcohol	5.01	59	1272265	287.58	ug/l	99
20) Acrylonitrile	5.16	53	730605	50.90	ug/l	96
21) tert-Butyl methyl ether (M	5.28	73	1537709	10.02	ug/l	94
22) trans-1,2-Dichloroethene	5.25	61	1149711	8.49	ug/l	90
24) 1,1-Dichloroethane	6.21	63	1486310	8.71	ug/l	99
25) Isopropyl ether (DIPE)	6.40	45	2904954	9.61	ug/l	94
27) tert-Butyl ethyl ether (ET	7.36	59	2145535	8.75	ug/l	92
28) 2-Butanone	7.65	43	1127054	52.63	ug/l	97
29) cis-1,2-Dichloroethene	7.63	96	895247	10.04	ug/l	86
30) 2,2-Dichloropropane	7.60	77	987443	8.92	ug/l	98
31) Tetrahydrofurane	8.17	42	110420	7.68	ug/l	92
32) Bromochloromethane	8.12	49	709520	9.12	ug/l	85

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

Data File : D:\HPCHEM\1\DATA\19L12\RLV075.D Vial: 3
Acq On : 12 Dec 2019 10:26 am Operator: JCorea
Sample : VO01L04L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:33 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
33)	Chloroform	8.39	83	1482540	9.02	ug/l	97
35)	1,1,1-Trichloroethane	8.65	97	1051240	8.97	ug/l	97
36)	Cyclohexane	8.77	84	1334866	10.67	ug/l	97
37)	tert-Amyl methyl ether (TA	9.60	73	2036396	10.67	ug/l	98
39)	1,1-Dichloropropene	8.97	110	428857	10.22	ug/l	97
40)	Carbon tetrachloride	8.94	119	928357	9.07	ug/l	100
41)	Benzene	9.28	78	3304038	10.38	ug/l	97
42)	1,2-Dichloroethane	9.41	62	750619	8.75	ug/l	99
44)	Trichloroethene	10.40	130	973227	9.75	ug/l	97
45)	Methylcyclohexane	10.73	83	1518784	9.41	ug/l	91
46)	1,2-Dichloropropane	10.77	63	867338	9.15	ug/l	99
47)	1,4-Dioxane	10.92	88	86391	202.96	ug/l	99
48)	Dibromomethane	10.89	93	435471	10.23	ug/l	91
49)	Bromodichloromethane	11.17	83	1029187	9.78	ug/l	99
50)	2-Chloroethyl vinyl ether	11.60	63	320622	9.17	ug/l	97
51)	cis-1,3-Dichloropropene	11.78	75	1332957	10.15	ug/l	97
52)	4-Methyl-2-pentanone	11.97	43	3034171	50.91	ug/l	96
55)	Toluene	12.21	91	3665994	9.69	ug/l	100
56)	Ethyl methacrylate	12.62	69	907882	9.96	ug/l	93
57)	trans-1,3-Dichloropropene	12.53	75	1064903	9.74	ug/l	94
58)	1,1,2-Trichloroethane	12.77	97	592123	9.82	ug/l	99
59)	Tetrachloroethene	12.86	164	810406	10.17	ug/l	95
60)	1,3-Dichloropropane	12.95	76	1123927	9.55	ug/l	100
61)	2-Hexanone	13.02	43	2161125	44.97	ug/l	96
62)	Dibromochloromethane	13.20	129	793943	10.42	ug/l	99
63)	1,2-Dibromoethane	13.32	107	628788	9.81	ug/l	100
64)	1-Chlorohexane	13.84	91	1674489	10.35	ug/l	99
65)	Chlorobenzene	13.85	112	2391208	9.80	ug/l	100
66)	1,1,1,2-Tetrachloroethane	13.94	131	842333	9.96	ug/l	99
67)	Ethylbenzene	13.94	91	4190477	8.89	ug/l	99
68)	m-Xylene & p-Xylene	14.07	91	6289845	18.32	ug/l	99
69)	o-Xylene	14.44	91	3098275	9.30	ug/l	99
70)	Styrene	14.46	104	2579635	9.45	ug/l	98
72)	Bromoform	14.63	173	449792	11.04	ug/l	99
73)	Isopropylbenzene	14.77	105	4150092	8.32	ug/l	98
75)	1,1,2,2-Tetrachloroethane	15.03	83	834126	9.18	ug/l	100
76)	Bromobenzene	15.06	156	1022762	9.68	ug/l	100
77)	trans-1,4-Dichloro-2-buten	15.06	53	180753	10.50	ug/l	97
78)	1,2,3-Trichloropropane	15.09	110	213473	9.38	ug/l	98
79)	n-Propylbenzene	15.14	91	5191240	8.64	ug/l	99
80)	1,3,5-Trimethylbenzene	15.29	105	3189301	8.40	ug/l	98

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV075.D Vial: 3
Acq On : 12 Dec 2019 10:26 am Operator: JCorea
Sample : VO01L04L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:33 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

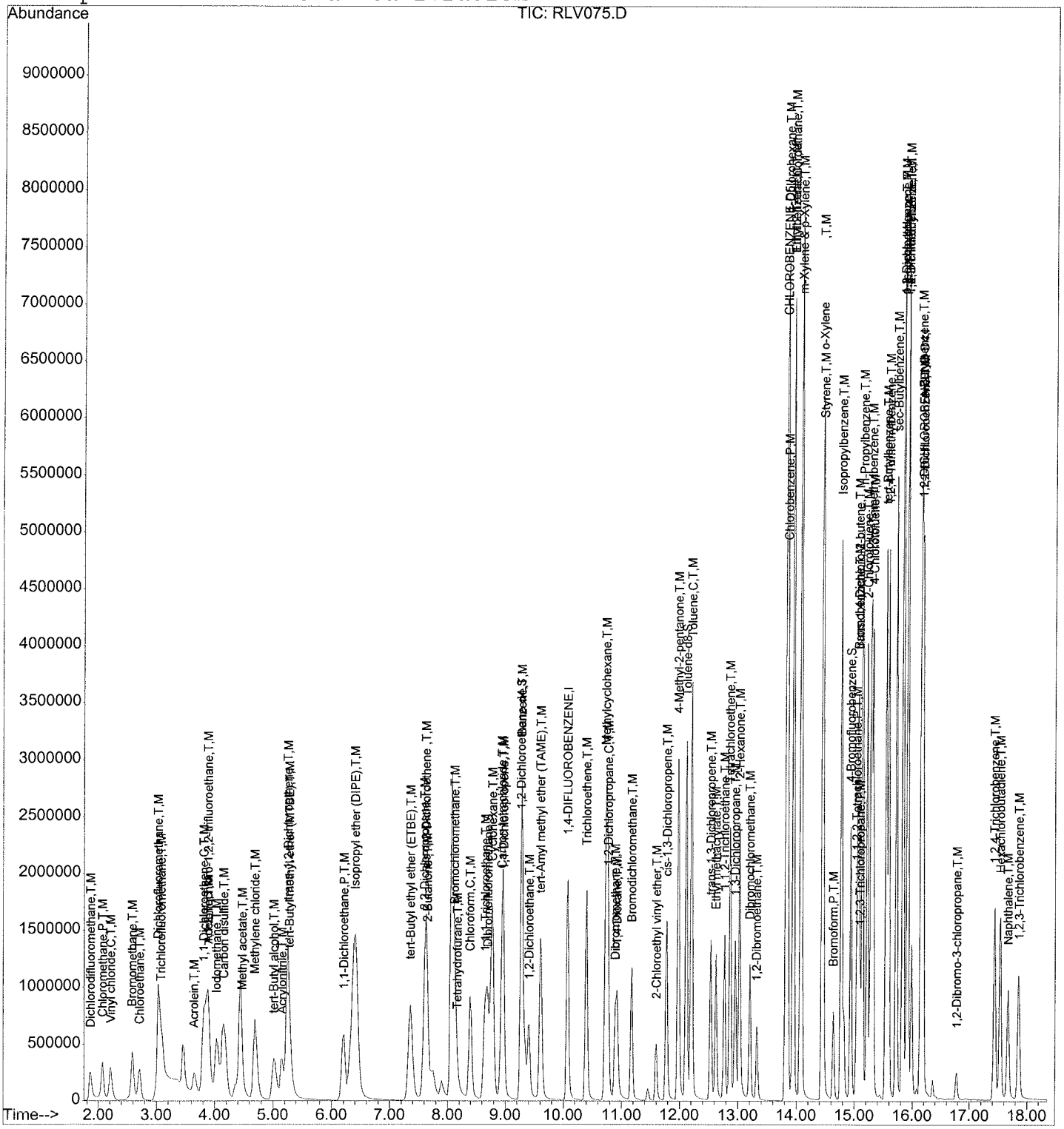
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
81)	2-Chlorotoluene	15.21	91	2572523	8.31	ug/l	96
82)	4-Chlorotoluene	15.32	91	3091148	8.59	ug/l	98
83)	tert-Butylbenzene	15.54	134	804025	8.78	ug/l	99
84)	1,2,4-Trimethylbenzene	15.58	105	3125495	8.49	ug/l	94
85)	sec-Butylbenzene	15.72	105	4780756	8.87	ug/l	98
86)	p-Isopropyltoluene	15.83	119	3524358	8.25	ug/l	98
87)	1,3-Dichlorobenzene	15.83	146	1801006	9.23	ug/l	97
88)	1,4-Dichlorobenzene	15.91	146	1841214	9.48	ug/l	97
89)	1,2,3-Trimethylbenzene	15.91	105	3049073	8.97	ug/l	99
90)	n-Butylbenzene	16.14	91	3479069	8.23	ug/l	99
91)	1,2-Dichlorobenzene	16.17	146	1563695	9.27	ug/l	100
92)	1,2-Dibromo-3-chloropropan	16.78	157	120168	10.73	ug/l	99
93)	1,2,4-Trichlorobenzene	17.43	180	878079	9.66	ug/l	99
94)	Hexachlorobutadiene	17.54	225	565102	8.77	ug/l	99
95)	Naphthalene	17.67	128	1293127	8.96	ug/l	100
96)	1,2,3-Trichlorobenzene	17.86	180	637512	9.51	ug/l	98

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV075.D Vial: 3
Acq On : 12 Dec 2019 10:26 am Operator: JCorea
Sample : VO01L04L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:33 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV075.D Vial: 3
Acq On : 12 Dec 2019 10:26 am Operator: JCorea
Sample : VO01L04L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:50 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

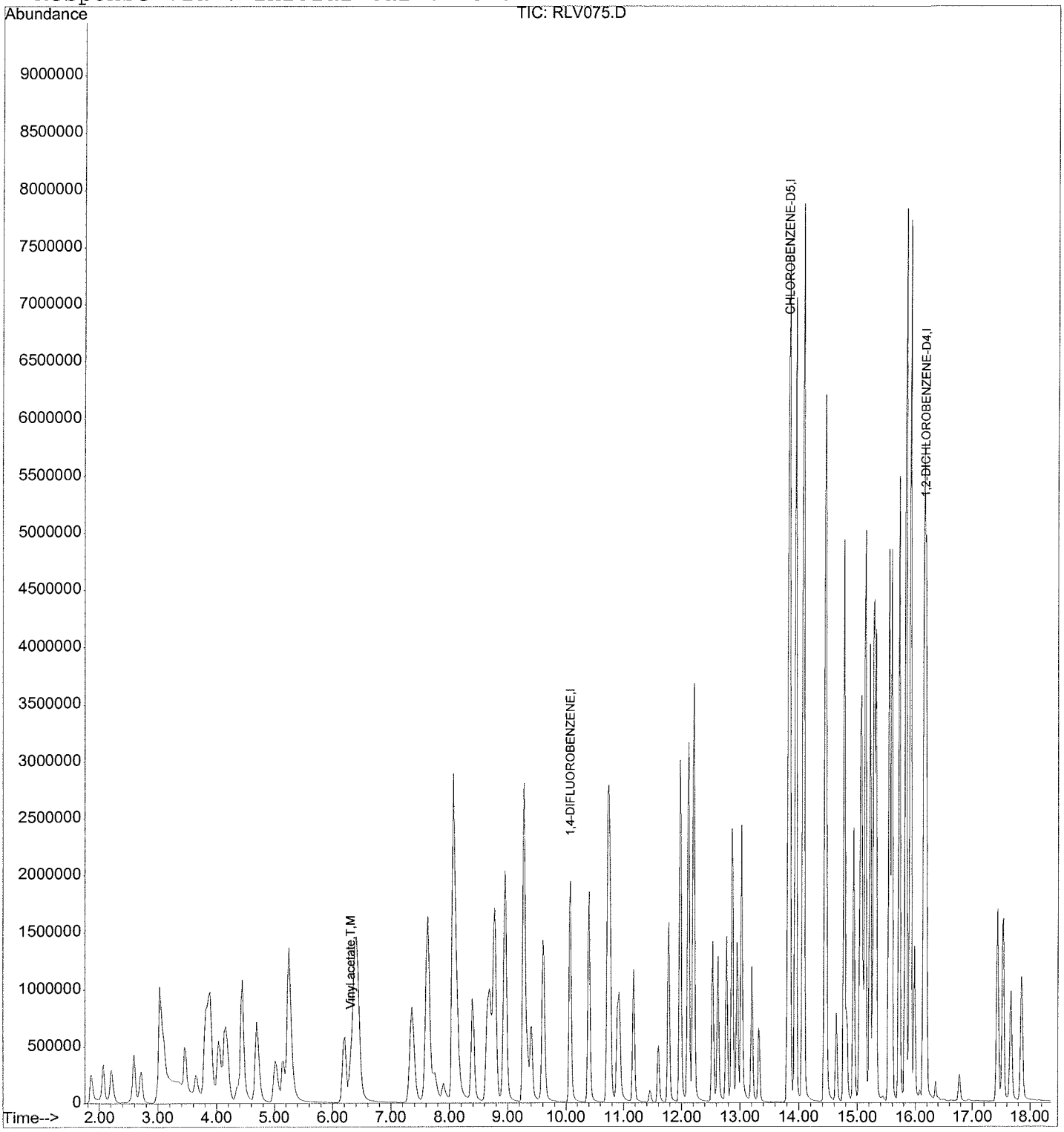
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2511001	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	2338849	10.00	ug/l	-0.02
4) 1,2-DICHLOROBENZENE-D4	16.16	152	1005679	10.00	ug/l	-0.03
Target Compounds						Qvalue
2) Vinyl acetate	6.31	43	1127718	9.64	ug/l	91

(#) = qualifier out of range (m) = manual integration
RLV075.D VO01K06.M Fri Dec 13 10:22:38 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV075.D Vial: 3
Acq On : 12 Dec 2019 10:26 am Operator: JCorea
Sample : VO01L04L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:50 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV076.D Vial: 4
Acq On : 12 Dec 2019 10:54 am Operator: JCorea
Sample : VO01L04C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:33 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2467836	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	2210549	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.16	152	984695	10.00	ug/l	-0.03
System Monitoring Compounds						
34) Dibromofluoromethane	8.68	111	779197	9.92	ug/l	-0.04
Spiked Amount 10.000			Recovery =	99.20%		
38) 1,2-Dichloroethane-d4	9.26	65	607667	8.86	ug/l	-0.03
Spiked Amount 10.000			Recovery =	88.60%		
54) Toluene-d8	12.12	98	2758468	9.78	ug/l	-0.01
Spiked Amount 10.000			Recovery =	97.80%		
74) 4-Bromofluorobenzene	14.93	95	1015866	8.40	ug/l	-0.03
Spiked Amount 10.000			Recovery =	84.00%		
Target Compounds						Qvalue
3) Dichlorodifluoromethane	1.85	85	566574	8.29	ug/l	98
4) Chloromethane	2.07	50	703879	7.45	ug/l	99
5) Vinyl chloride	2.21	62	720371	7.32	ug/l	99
7) Bromomethane	2.59	94	579505	8.61	ug/l	100
8) Chloroethane	2.71	64	546441	10.01	ug/l	96
9) Dichlorofluoromethane	3.03	67	1097339	8.02	ug/l	96
10) Trichlorofluoromethane	3.08	101	859484	9.02	ug/l	95
11) Acrolein	3.64	56	364105	52.96	ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.88	151	535942	10.24	ug/l	98
13) Acetone	3.88	43	683115	49.07	ug/l	96
14) 1,1-Dichloroethene	3.81	61	1078058	7.95	ug/l	91
15) Iodomethane	4.03	142	1581112	11.37	ug/l	91
16) Carbon disulfide	4.15	76	2686877	9.27	ug/l	100
17) Methyl acetate	4.47	43	353077	10.57	ug/l	94
18) Methylene chloride	4.69	49	1060210	8.44	ug/l	89
19) tert-Butyl alcohol	5.01	59	1258847	289.52	ug/l	98
20) Acrylonitrile	5.13	53	750668	53.21	ug/l	96
21) tert-Butyl methyl ether (M	5.28	73	1558296	10.33	ug/l	94
22) trans-1,2-Dichloroethene	5.23	61	1122424	8.43	ug/l	89
24) 1,1-Dichloroethane	6.18	63	1464425	8.73	ug/l	99
25) Isopropyl ether (DIPE)	6.40	45	2849130	9.59	ug/l	94
27) tert-Butyl ethyl ether (ET	7.36	59	2191017	9.09	ug/l	93
28) 2-Butanone	7.65	43	1157194	54.98	ug/l	99
29) cis-1,2-Dichloroethene	7.63	96	888821	10.14	ug/l	87
30) 2,2-Dichloropropane	7.60	77	974096	8.95	ug/l	98
31) Tetrahydrofurane	8.16	42	112493	7.96	ug/l	91
32) Bromochloromethane	8.12	49	715454	9.35	ug/l	85

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

Data File : D:\HPCHEM\1\DATA\19L12\RLV076.D Vial: 4
Acq On : 12 Dec 2019 10:54 am Operator: JCorea
Sample : VO01L04C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:33 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
33)	Chloroform	8.39	83	1369577	8.48	ug/l	92
35)	1,1,1-Trichloroethane	8.64	97	1049931	9.12	ug/l	97
36)	Cyclohexane	8.77	84	1284044	10.44	ug/l	96
37)	tert-Amyl methyl ether (TA	9.60	73	2030423	10.82	ug/l	99
39)	1,1-Dichloropropene	8.95	110	431873	10.47	ug/l	99
40)	Carbon tetrachloride	8.94	119	933155	9.28	ug/l	100
41)	Benzene	9.28	78	3243879	10.37	ug/l	97
42)	1,2-Dichloroethane	9.40	62	741861	8.80	ug/l	99
44)	Trichloroethene	10.40	130	951384	9.70	ug/l	98
45)	Methylcyclohexane	10.73	83	1465573	9.24	ug/l	92
46)	1,2-Dichloropropane	10.76	63	883538	9.48	ug/l	99
47)	1,4-Dioxane	10.92	88	89632	214.26	ug/l	98
48)	Dibromomethane	10.89	93	447054	10.68	ug/l	91
49)	Bromodichloromethane	11.17	83	1037237	10.02	ug/l	99
50)	2-Chloroethyl vinyl ether	11.60	63	328538	9.54	ug/l	97
51)	cis-1,3-Dichloropropene	11.78	75	1346105	10.43	ug/l	98
52)	4-Methyl-2-pentanone	11.97	43	3076881	52.53	ug/l	95
55)	Toluene	12.21	91	3617393	10.11	ug/l	100
56)	Ethyl methacrylate	12.62	69	910224	10.56	ug/l	94
57)	trans-1,3-Dichloropropene	12.53	75	1064786	10.30	ug/l	95
58)	1,1,2-Trichloroethane	12.77	97	604956	10.62	ug/l	98
59)	Tetrachloroethene	12.86	164	775552	10.30	ug/l	95
60)	1,3-Dichloropropane	12.95	76	1154809	10.38	ug/l	99
61)	2-Hexanone	13.02	43	2217265	48.62	ug/l	96
62)	Dibromochloromethane	13.20	129	788779	10.95	ug/l	98
63)	1,2-Dibromoethane	13.32	107	647347	10.68	ug/l	100
64)	1-Chlorohexane	13.84	91	1646637	10.77	ug/l	100
65)	Chlorobenzene	13.85	112	2376690	10.30	ug/l	100
66)	1,1,1,2-Tetrachloroethane	13.94	131	847926	10.60	ug/l	99
67)	Ethylbenzene	13.94	91	4229299	9.49	ug/l	99
68)	m-Xylene & p-Xylene	14.07	91	6244308	19.25	ug/l	99
69)	o-Xylene	14.44	91	3012391	9.56	ug/l	99
70)	Styrene	14.46	104	2600762	10.08	ug/l	98
72)	Bromoform	14.64	173	454031	11.38	ug/l	100
73)	Isopropylbenzene	14.77	105	4259019	8.72	ug/l	99
75)	1,1,2,2-Tetrachloroethane	15.04	83	841982	9.46	ug/l	100
76)	Bromobenzene	15.06	156	1009480	9.75	ug/l	100
77)	trans-1,4-Dichloro-2-buten	15.06	53	182342	10.82	ug/l	96
78)	1,2,3-Trichloropropane	15.09	110	212386	9.53	ug/l	99
79)	n-Propylbenzene	15.14	91	5200125	8.84	ug/l	98
80)	1,3,5-Trimethylbenzene	15.27	105	3200115	8.60	ug/l	99

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

Data File : D:\HPCHEM\1\DATA\19L12\RLV076.D Vial: 4
Acq On : 12 Dec 2019 10:54 am Operator: JCorea
Sample : VO01L04C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:33 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

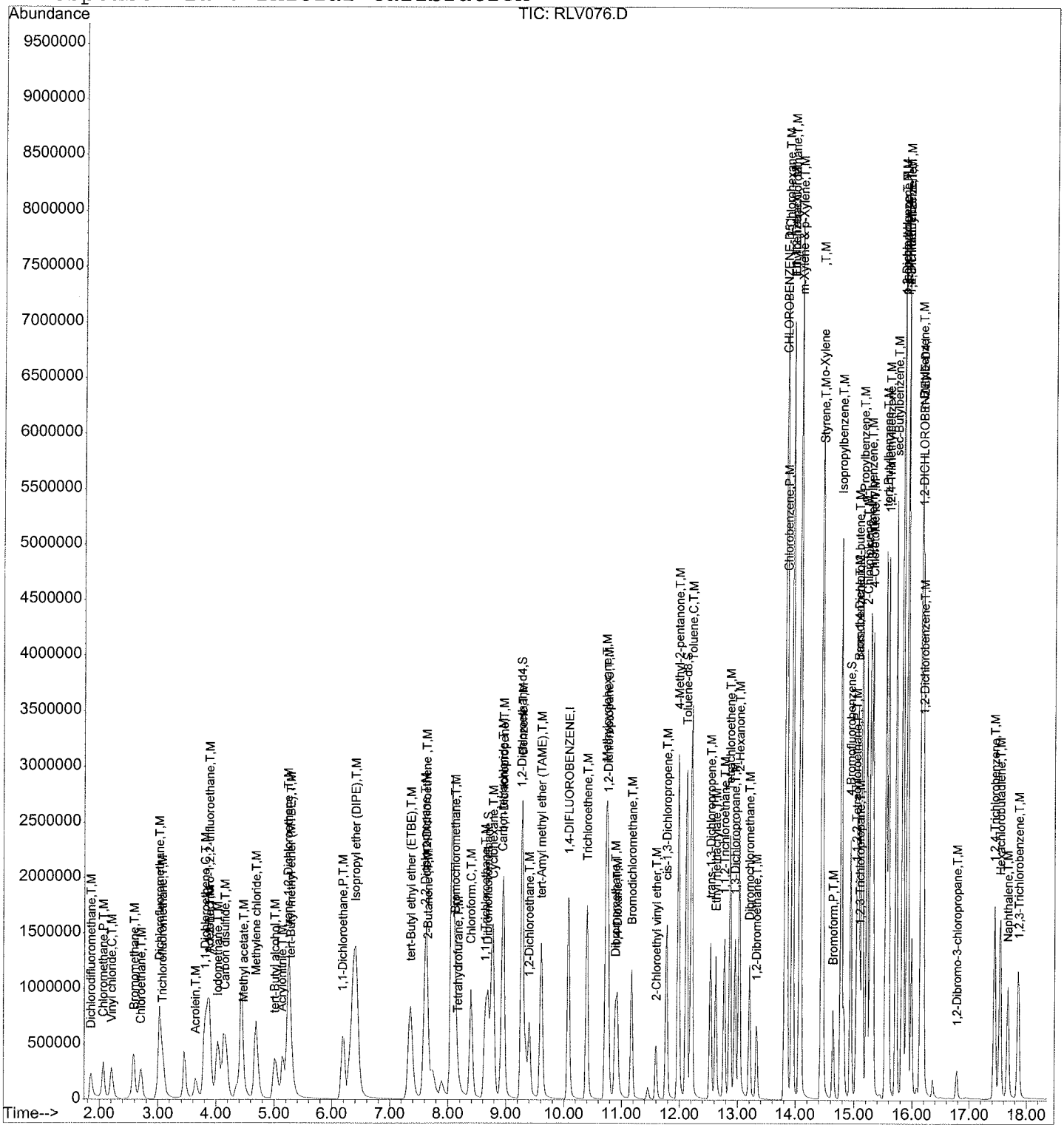
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
81)	2-Chlorotoluene	15.21	91	2566445	8.46	ug/l	97
82)	4-Chlorotoluene	15.32	91	3177576	9.02	ug/l	98
83)	tert-Butylbenzene	15.54	134	811434	9.05	ug/l	98
84)	1,2,4-Trimethylbenzene	15.58	105	3167971	8.79	ug/l	94
85)	sec-Butylbenzene	15.72	105	4596229	8.71	ug/l	99
86)	p-Isopropyltoluene	15.83	119	3603147	8.61	ug/l	98
87)	1,3-Dichlorobenzene	15.83	146	1846085	9.66	ug/l	96
88)	1,4-Dichlorobenzene	15.91	146	1875878	9.86	ug/l	97
89)	1,2,3-Trimethylbenzene	15.91	105	3111188	9.34	ug/l	99
90)	n-Butylbenzene	16.15	91	3524609	8.51	ug/l	99
91)	1,2-Dichlorobenzene	16.19	146	1596205	9.66	ug/l	100
92)	1,2-Dibromo-3-chloropropan	16.78	157	123025	11.22	ug/l	98
93)	1,2,4-Trichlorobenzene	17.43	180	902602	10.14	ug/l	99
94)	Hexachlorobutadiene	17.54	225	570563	9.04	ug/l	100
95)	Naphthalene	17.67	128	1355692	9.60	ug/l	99
96)	1,2,3-Trichlorobenzene	17.86	180	661113	10.07	ug/l	98

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV076.D Vial: 4
Acq On : 12 Dec 2019 10:54 am Operator: JCorea
Sample : VO01L04C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:33 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV076.D Vial: 4
Acq On : 12 Dec 2019 10:54 am Operator: JCorea
Sample : VO01L04C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:50 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

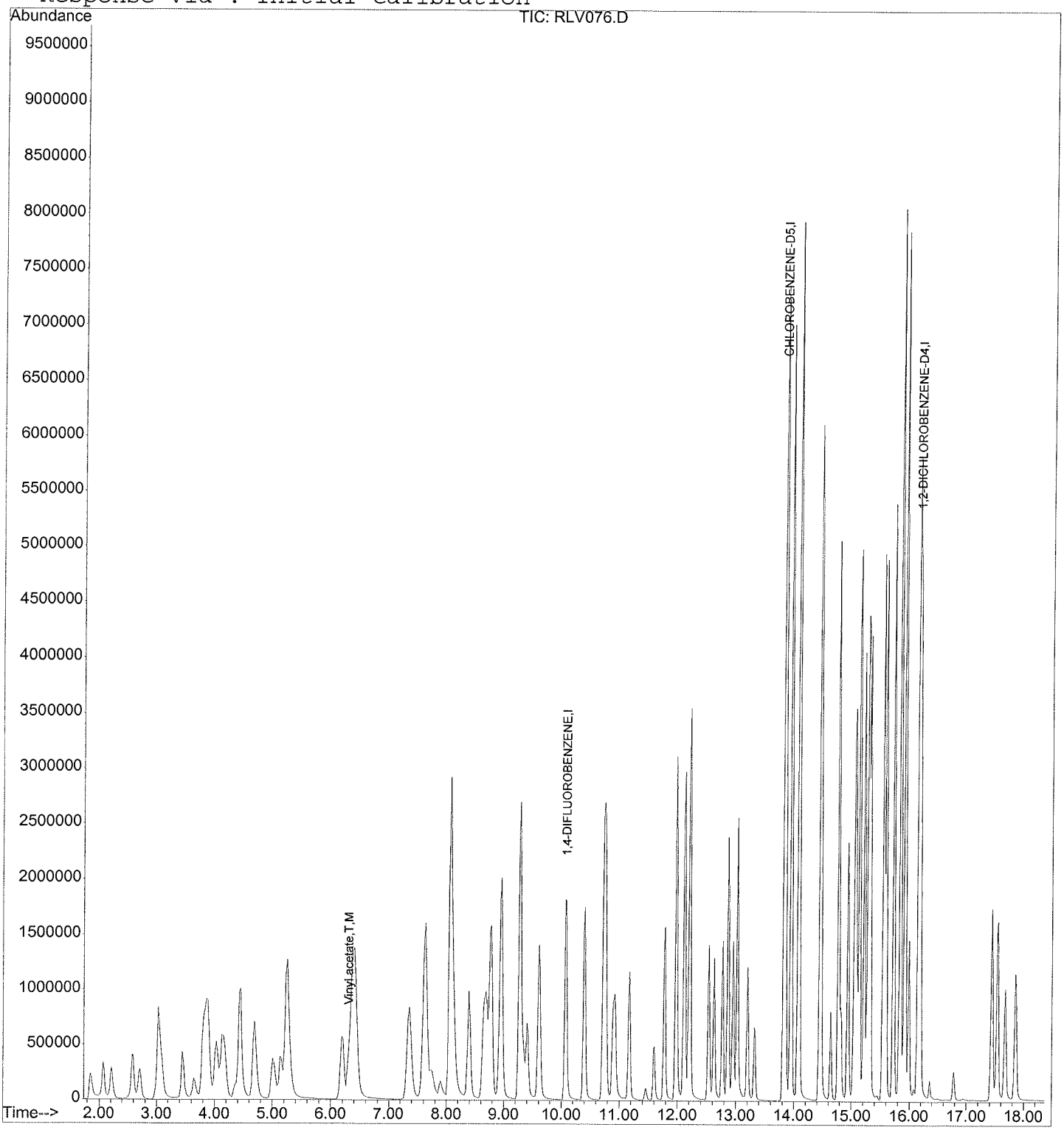
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2467836	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	2210549	10.00	ug/l	-0.01
4) 1,2-DICHLOROBENZENE-D4	16.16	152	984695	10.00	ug/l	-0.03
Target Compounds						Qvalue
2) Vinyl acetate	6.31	43	1137164	9.89	ug/l	92

(#) = qualifier out of range (m) = manual integration
RLV076.D VO01K06.M Fri Dec 13 10:22:42 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV076.D Vial: 4
Acq On : 12 Dec 2019 10:54 am Operator: JCorea
Sample : VO01L04C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:50 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV096.D Vial: 6
Acq On : 13 Dec 2019 2:21 pm Operator: JCorea
Sample : VO01L05B 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 11:54 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1939867	10.00	ug/l	-0.01
53) CHLOROBENZENE-D5	13.84	117	1749836	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.17	152	702372	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.71	111	630085	10.21	ug/l	-0.01
Spiked Amount 10.000			Recovery =	102.10%		
38) 1,2-Dichloroethane-d4	9.29	65	504505	9.36	ug/l	0.00
Spiked Amount 10.000			Recovery =	93.60%		
54) Toluene-d8	12.13	98	2222145	9.95	ug/l	0.00
Spiked Amount 10.000			Recovery =	99.50%		
74) 4-Bromofluorobenzene	14.95	95	781038	9.05	ug/l	-0.01
Spiked Amount 10.000			Recovery =	90.50%		
Target Compounds						Qvalue
18) Methylene chloride	4.72	49	23297	0.24	ug/l	95

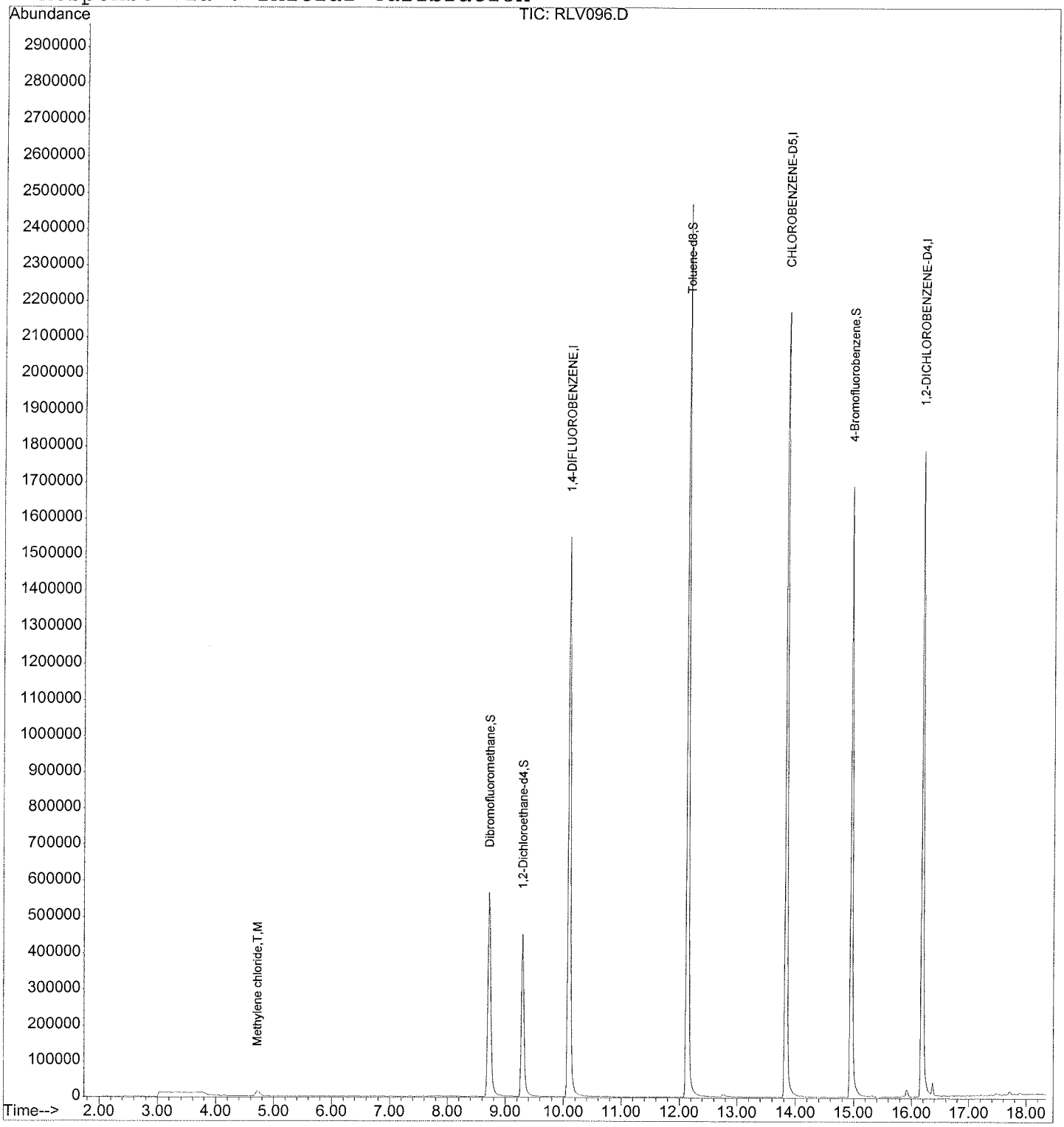
(#) = qualifier out of range (m) = manual integration

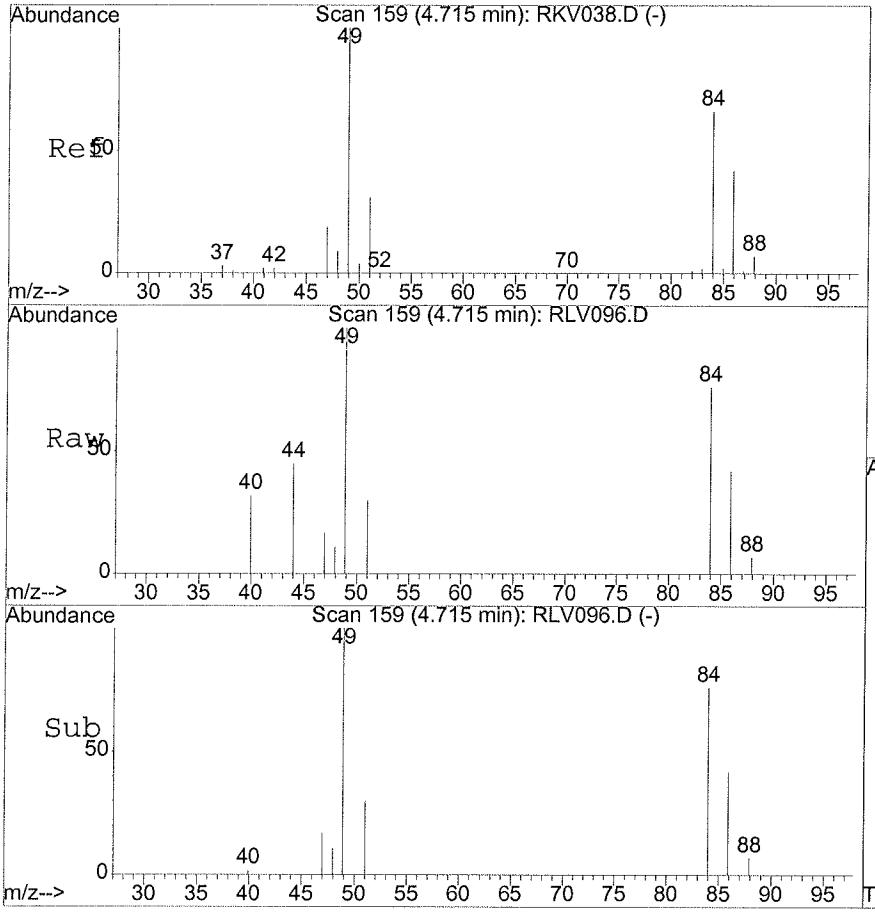
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV096.D
Acq On : 13 Dec 2019 2:21 pm
Sample : VO01L05B 25mL
Misc : DF=1.0
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 11:54 2019

Vial: 6
Operator: JCorea
Inst : 01
Multiplr: 1.00
Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

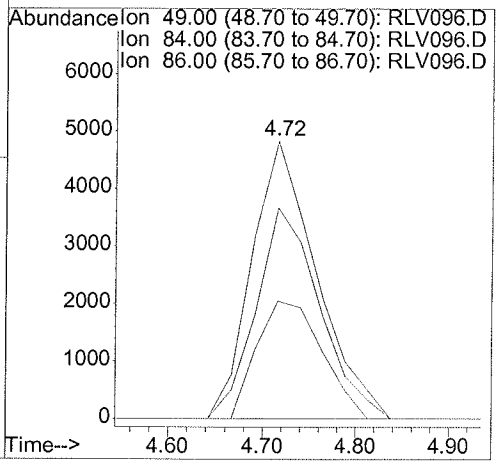




#18
Methylene chloride
Concen: 0.24 ug/l
RT: 4.72 min Scan# 159
Delta R.T. 0.00 min
Lab File: RLV096.D
Acq: 13 Dec 2019 2:21 pm

Tgt Ion: 49 Resp: 23297

Ion	Ratio	Lower	Upper
49	100		
84	74.7	39.0	99.0
86	43.0	14.4	74.4



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV096.D Vial: 6
Acq On : 13 Dec 2019 2:21 pm Operator: JCorea
Sample : VO01L05B 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:37 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1939867	10.00	ug/l	-0.01
3) CHLOROBENZENE-D5	13.84	117	1747520	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.17	152	702372	10.00	ug/l	-0.01

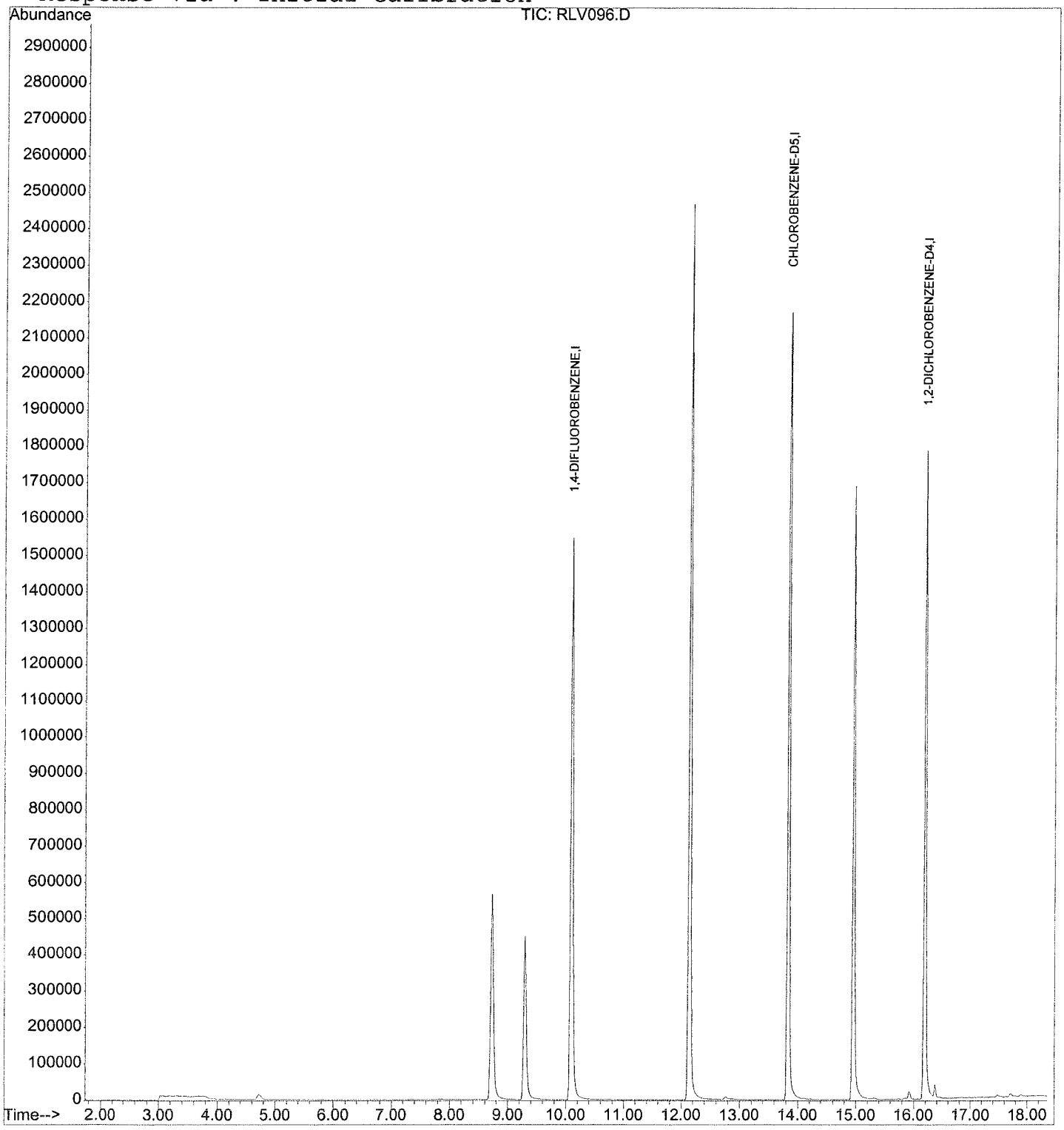
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV096.D VO01K06.M Mon Dec 16 09:42:48 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV096.D Vial: 6
Acq On : 13 Dec 2019 2:21 pm Operator: JCorea
Sample : VO01L05B 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:37 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV093.D Vial: 3
Acq On : 13 Dec 2019 12:25 pm Operator: JCorea
Sample : VO01L05L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 11:52 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1826268	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	1720882	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.18	152	727965	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.72	111	609047	10.48	ug/l	-0.01
Spiked Amount 10.000			Recovery = 104.80%			
38) 1,2-Dichloroethane-d4	9.28	65	533923	10.52	ug/l	-0.01
Spiked Amount 10.000			Recovery = 105.20%			
54) Toluene-d8	12.12	98	2144679	9.77	ug/l	-0.01
Spiked Amount 10.000			Recovery = 97.70%			
74) 4-Bromofluorobenzene	14.95	95	805510	9.00	ug/l	-0.01
Spiked Amount 10.000			Recovery = 90.00%			
Target Compounds						Qvalue
3) Dichlorodifluoromethane	1.86	85	542932	10.74	ug/l	98
4) Chloromethane	2.07	50	600251	8.58	ug/l	100
5) Vinyl chloride	2.21	62	605996	8.29	ug/l	100
7) Bromomethane	2.60	94	443995	8.91	ug/l	99
8) Chloroethane	2.72	64	411714	10.19	ug/l	98
9) Dichlorofluoromethane	3.05	67	918041	9.07	ug/l	97
10) Trichlorofluoromethane	3.10	101	783032	11.10	ug/l	97
11) Acrolein	3.66	56	266874	52.45	ug/l	94
12) 1,1,2-Trichloro-1,2,2-trif	3.91	151	384124	9.92	ug/l	98
13) Acetone	3.88	43	542097	52.62	ug/l	100
14) 1,1-Dichloroethene	3.81	61	863331	8.60	ug/l	96
15) Iodomethane	4.05	142	1099295	10.68	ug/l	98
16) Carbon disulfide	4.15	76	2047516	9.55	ug/l	100
17) Methyl acetate	4.47	43	250701	10.15	ug/l	97
18) Methylene chloride	4.69	49	788624	8.49	ug/l	96
19) tert-Butyl alcohol	5.03	59	1006411	312.78	ug/l	100
20) Acrylonitrile	5.15	53	538001	51.54	ug/l	99
21) tert-Butyl methyl ether (M	5.28	73	1165616	10.44	ug/l	99
22) trans-1,2-Dichloroethene	5.25	61	877445	8.90	ug/l	95
24) 1,1-Dichloroethane	6.21	63	1102013	8.88	ug/l	98
25) Isopropyl ether (DIPE)	6.43	45	2138148	9.73	ug/l	97
27) tert-Butyl ethyl ether (ET	7.38	59	1665319	9.33	ug/l	96
28) 2-Butanone	7.67	43	877948	56.37	ug/l	98
29) cis-1,2-Dichloroethene	7.65	96	647874	9.99	ug/l	93
30) 2,2-Dichloropropane	7.63	77	791120	9.82	ug/l	99
31) Tetrahydrofurane	8.19	42	86765	8.30	ug/l	94
32) Bromochloromethane	8.14	49	539823	9.54	ug/l	91

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV093.D Vial: 3
Acq On : 13 Dec 2019 12:25 pm Operator: JCorea
Sample : VO01L05L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 11:52 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
33)	Chloroform	8.41	83	1166934	9.77	ug/l	99
35)	1,1,1-Trichloroethane	8.66	97	850703	9.98	ug/l	99
36)	Cyclohexane	8.79	84	939128	10.32	ug/l	98
37)	tert-Amyl methyl ether (TA	9.62	73	1480835	10.67	ug/l	99
39)	1,1-Dichloropropene	8.97	110	314185	10.29	ug/l	98
40)	Carbon tetrachloride	8.95	119	752840	10.11	ug/l	100
41)	Benzene	9.29	78	2380034	10.28	ug/l	99
42)	1,2-Dichloroethane	9.41	62	632157	10.14	ug/l	100
44)	Trichloroethene	10.42	130	708523	9.76	ug/l	98
45)	Methylcyclohexane	10.74	83	1078970	9.19	ug/l	95
46)	1,2-Dichloropropane	10.77	63	638971	9.27	ug/l	96
47)	1,4-Dioxane	10.92	88	67742	218.82	ug/l	98
48)	Dibromomethane	10.91	93	334503	10.80	ug/l	94
49)	Bromodichloromethane	11.19	83	808178	10.56	ug/l	99
50)	2-Chloroethyl vinyl ether	11.60	63	229840	9.05	ug/l	98
51)	cis-1,3-Dichloropropene	11.78	75	1000168	10.48	ug/l	99
52)	4-Methyl-2-pentanone	11.99	43	2338049	53.94	ug/l	98
55)	Toluene	12.21	91	2647129	9.51	ug/l	100
56)	Ethyl methacrylate	12.64	69	683510	10.19	ug/l	98
57)	trans-1,3-Dichloropropene	12.55	75	825016	10.25	ug/l	96
58)	1,1,2-Trichloroethane	12.79	97	440979	9.94	ug/l	97
59)	Tetrachloroethene	12.87	164	603973	10.30	ug/l	95
60)	1,3-Dichloropropane	12.96	76	869867	10.04	ug/l	99
61)	2-Hexanone	13.04	43	1704675	48.05	ug/l	99
62)	Dibromochloromethane	13.22	129	607476	10.84	ug/l	100
63)	1,2-Dibromoethane	13.33	107	494104	10.47	ug/l	99
64)	1-Chlorohexane	13.84	91	1273432	10.70	ug/l	100
65)	Chlorobenzene	13.85	112	1810264	10.08	ug/l	100
66)	1,1,1,2-Tetrachloroethane	13.96	131	634473	10.19	ug/l	100
67)	Ethylbenzene	13.96	91	3158706	9.11	ug/l	99
68)	m-Xylene & p-Xylene	14.09	91	4782155	18.93	ug/l	100
69)	o-Xylene	14.44	91	2408618	9.82	ug/l	99
70)	Styrene	14.47	104	2062200	10.26	ug/l	99
72)	Bromoform	14.65	173	343919	11.66	ug/l	100
73)	Isopropylbenzene	14.78	105	3227007	8.94	ug/l	99
75)	1,1,2,2-Tetrachloroethane	15.05	83	628664	9.56	ug/l	99
76)	Bromobenzene	15.07	156	769275	10.05	ug/l	99
77)	trans-1,4-Dichloro-2-buten	15.08	53	149752	12.02	ug/l	92
78)	1,2,3-Trichloropropane	15.10	110	170329	10.34	ug/l	96
79)	n-Propylbenzene	15.14	91	3918511	9.01	ug/l	100
80)	1,3,5-Trimethylbenzene	15.29	105	2482908	9.03	ug/l	99

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV093.D Vial: 3
Acq On : 13 Dec 2019 12:25 pm Operator: JCorea
Sample : VO01L05L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 11:52 2019 Quant Results File: VO01K05A.RES

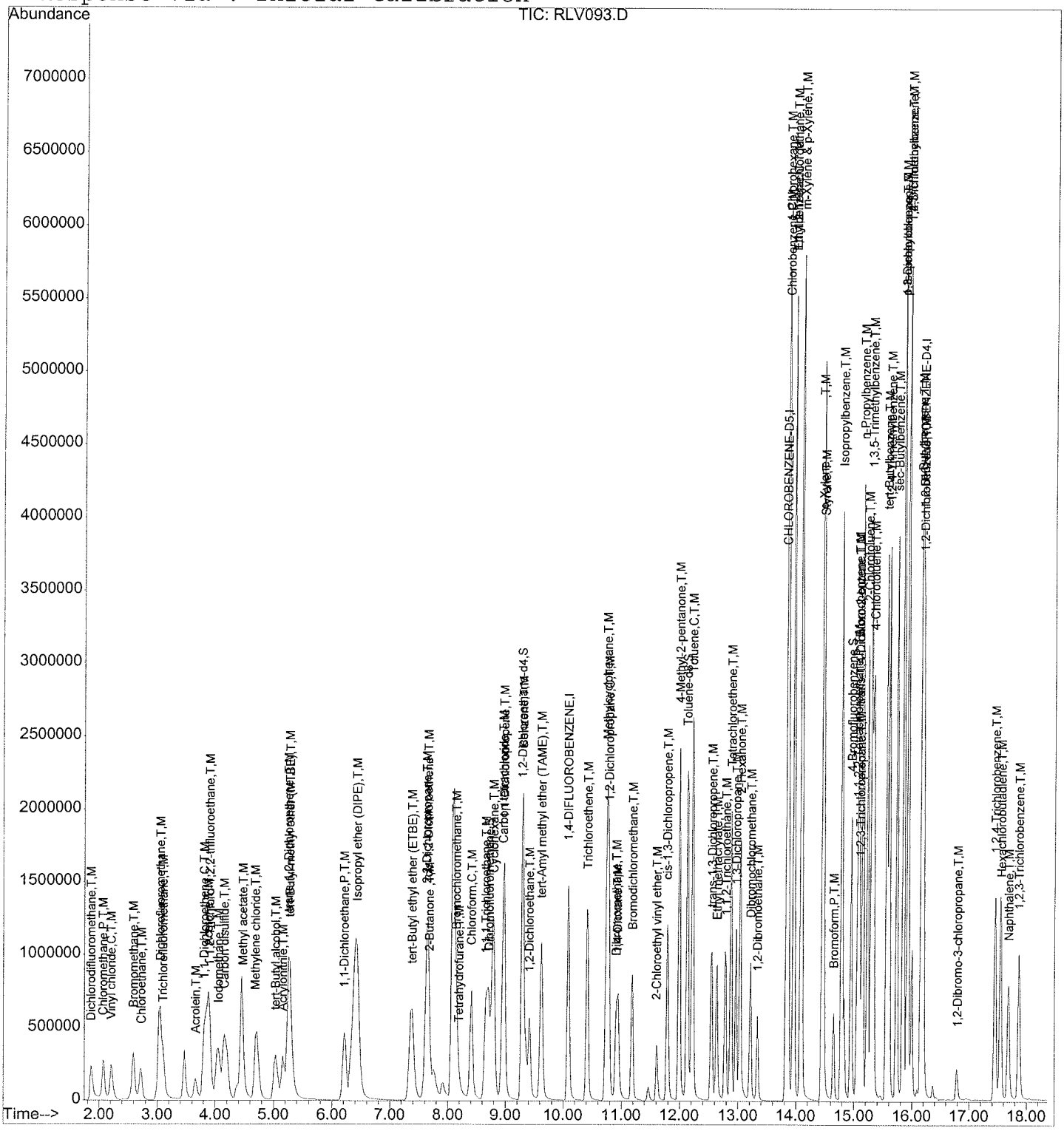
Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
81)	2-Chlorotoluene	15.23	91	2039543	9.10	ug/l	100
82)	4-Chlorotoluene	15.33	91	2460353	9.45	ug/l	98
83)	tert-Butylbenzene	15.55	134	592664	8.94	ug/l	95
84)	1,2,4-Trimethylbenzene	15.60	105	2471426	9.28	ug/l	99
85)	sec-Butylbenzene	15.73	105	3483118	8.92	ug/l	100
86)	p-Isopropyltoluene	15.84	119	2757987	8.92	ug/l	99
87)	1,3-Dichlorobenzene	15.84	146	1357944	9.61	ug/l	98
88)	1,4-Dichlorobenzene	15.92	146	1294406	9.21	ug/l	98
89)	1,2,3-Trimethylbenzene	15.92	105	2357896	9.58	ug/l	99
90)	n-Butylbenzene	16.15	91	2684958	8.77	ug/l	100
91)	1,2-Dichlorobenzene	16.19	146	1156254	9.47	ug/l	99
92)	1,2-Dibromo-3-chloropropan	16.80	157	99649	12.29	ug/l	99
93)	1,2,4-Trichlorobenzene	17.45	180	721774	10.97	ug/l	99
94)	Hexachlorobutadiene	17.55	225	465842	9.99	ug/l	100
95)	Naphthalene	17.69	128	1095694	10.49	ug/l	100
96)	1,2,3-Trichlorobenzene	17.86	180	532957	10.98	ug/l	98

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

Data File : D:\HPCHEM\1\DATA\19L13\RLV093.D Vial: 3
Acq On : 13 Dec 2019 12:25 pm Operator: JCorea
Sample : VO01L05L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 11:52 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV093.D Vial: 3
Acq On : 13 Dec 2019 12:25 pm Operator: JCorea
Sample : VO01L05L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

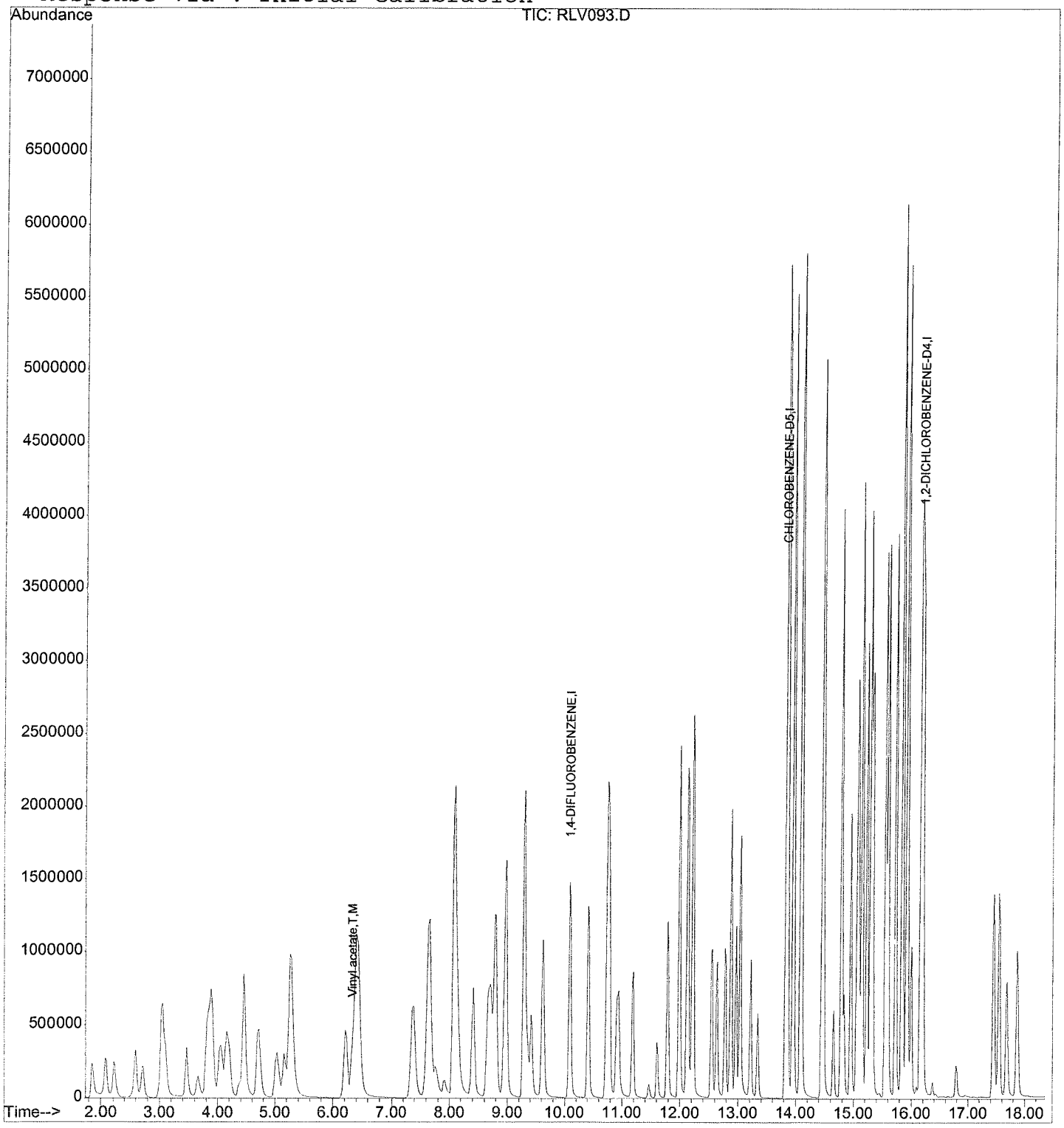
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1826268	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	1720882	10.00	ug/l	-0.01
4) 1,2-DICHLOROBENZENE-D4	16.18	152	727965	10.00	ug/l	-0.01
Target Compounds						Qvalue
2) Vinyl acetate	6.33	43	925829	10.88	ug/l	95

(#) = qualifier out of range (m) = manual integration
RLV093.D VO01K06.M Mon Dec 16 09:42:56 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV093.D Vial: 3
Acq On : 13 Dec 2019 12:25 pm Operator: JCorea
Sample : VO01L05L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV094.D Vial: 4
Acq On : 13 Dec 2019 1:22 pm Operator: JCorea
Sample : VO01L05C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 11:53 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1865986	10.00	ug/l	-0.01
53) CHLOROBENZENE-D5	13.82	117	1743460	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.18	152	745583	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.71	111	625199	10.53	ug/l	-0.01
Spiked Amount 10.000			Recovery =	105.30%		
38) 1,2-Dichloroethane-d4	9.28	65	520269	10.03	ug/l	-0.01
Spiked Amount 10.000			Recovery =	100.30%		
54) Toluene-d8	12.13	98	2210137	9.94	ug/l	0.00
Spiked Amount 10.000			Recovery =	99.40%		
74) 4-Bromofluorobenzene	14.95	95	803968	8.78	ug/l	-0.01
Spiked Amount 10.000			Recovery =	87.80%		
Target Compounds						Qvalue
3) Dichlorodifluoromethane	1.86	85	521031	10.09	ug/l	100
4) Chloromethane	2.07	50	606870	8.49	ug/l	99
5) Vinyl chloride	2.21	62	625670	8.37	ug/l	100
7) Bromomethane	2.60	94	470277	9.24	ug/l	100
8) Chloroethane	2.73	64	443041	10.74	ug/l	100
9) Dichlorofluoromethane	3.05	67	1027808	9.94	ug/l	99
10) Trichlorofluoromethane	3.10	101	794902	11.03	ug/l	100
11) Acrolein	3.66	56	254423	48.94	ug/l	98
12) 1,1,2-Trichloro-1,2,2-trif	3.91	151	395977	10.01	ug/l	100
13) Acetone	3.91	43	529302	50.28	ug/l	100
14) 1,1-Dichloroethene	3.81	61	887303	8.65	ug/l	97
15) Iodomethane	4.05	142	1127571	10.72	ug/l	99
16) Carbon disulfide	4.15	76	2099507	9.58	ug/l	100
17) Methyl acetate	4.47	43	246764	9.77	ug/l	95
18) Methylene chloride	4.71	49	798366	8.41	ug/l	96
19) tert-Butyl alcohol	5.03	59	939248	285.69	ug/l	99
20) Acrylonitrile	5.16	53	536490	50.30	ug/l	100
21) tert-Butyl methyl ether (M	5.30	73	1162922	10.19	ug/l	99
22) trans-1,2-Dichloroethene	5.25	61	897157	8.91	ug/l	95
24) 1,1-Dichloroethane	6.21	63	1163424	9.18	ug/l	99
25) Isopropyl ether (DIPE)	6.43	45	2181687	9.71	ug/l	97
27) tert-Butyl ethyl ether (ET	7.38	59	1665486	9.14	ug/l	96
28) 2-Butanone	7.68	43	846829	53.21	ug/l	99
29) cis-1,2-Dichloroethene	7.65	96	666646	10.06	ug/l	92
30) 2,2-Dichloropropane	7.63	77	797509	9.69	ug/l	99
31) Tetrahydrofurane	8.19	42	94077	8.81	ug/l	96
32) Bromochloromethane	8.14	49	546881	9.46	ug/l	90

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV094.D Vial: 4
Acq On : 13 Dec 2019 1:22 pm Operator: JCorea
Sample : VO01L05C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 11:53 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
33)	Chloroform	8.41	83	1212718	9.93	ug/l	97
35)	1,1,1-Trichloroethane	8.67	97	853545	9.80	ug/l	98
36)	Cyclohexane	8.79	84	980707	10.54	ug/l	98
37)	tert-Amyl methyl ether (TA	9.62	73	1480635	10.44	ug/l	98
39)	1,1-Dichloropropene	8.97	110	321220	10.30	ug/l	99
40)	Carbon tetrachloride	8.95	119	761742	10.01	ug/l	98
41)	Benzene	9.29	78	2466466	10.43	ug/l	99
42)	1,2-Dichloroethane	9.41	62	638715	10.02	ug/l	99
44)	Trichloroethene	10.42	130	730797	9.85	ug/l	99
45)	Methylcyclohexane	10.74	83	1125658	9.38	ug/l	95
46)	1,2-Dichloropropane	10.77	63	661688	9.39	ug/l	96
47)	1,4-Dioxane	10.92	88	68169	215.51	ug/l	98
48)	Dibromomethane	10.91	93	328026	10.37	ug/l	92
49)	Bromodichloromethane	11.19	83	816627	10.44	ug/l	99
50)	2-Chloroethyl vinyl ether	11.60	63	235814	9.08	ug/l	98
51)	cis-1,3-Dichloropropene	11.78	75	1001767	10.27	ug/l	97
52)	4-Methyl-2-pentanone	11.99	43	2292846	51.77	ug/l	98
55)	Toluene	12.22	91	2751811	9.75	ug/l	100
56)	Ethyl methacrylate	12.64	69	695423	10.23	ug/l	98
57)	trans-1,3-Dichloropropene	12.55	75	833380	10.22	ug/l	97
58)	1,1,2-Trichloroethane	12.79	97	447059	9.95	ug/l	99
59)	Tetrachloroethene	12.87	164	612231	10.31	ug/l	96
60)	1,3-Dichloropropane	12.96	76	869901	9.91	ug/l	99
61)	2-Hexanone	13.04	43	1638623	45.70	ug/l	99
62)	Dibromochloromethane	13.21	129	623172	10.97	ug/l	99
63)	1,2-Dibromoethane	13.33	107	495032	10.36	ug/l	100
64)	1-Chlorohexane	13.84	91	1308782	10.85	ug/l	100
65)	Chlorobenzene	13.85	112	1820567	10.01	ug/l	100
66)	1,1,1,2-Tetrachloroethane	13.95	131	641044	10.16	ug/l	99
67)	Ethylbenzene	13.95	91	3266778	9.30	ug/l	99
68)	m-Xylene & p-Xylene	14.09	91	4885242	19.09	ug/l	99
69)	o-Xylene	14.44	91	2419627	9.74	ug/l	98
70)	Styrene	14.47	104	2061448	10.13	ug/l	98
72)	Bromoform	14.65	173	343106	11.36	ug/l	99
73)	Isopropylbenzene	14.78	105	3319925	8.98	ug/l	99
75)	1,1,2,2-Tetrachloroethane	15.05	83	631155	9.37	ug/l	99
76)	Bromobenzene	15.08	156	782494	9.99	ug/l	99
77)	trans-1,4-Dichloro-2-buten	15.08	53	143467	11.24	ug/l	96
78)	1,2,3-Trichloropropane	15.09	110	165563	9.81	ug/l	98
79)	n-Propylbenzene	15.14	91	3985307	8.95	ug/l	99
80)	1,3,5-Trimethylbenzene	15.29	105	2497481	8.87	ug/l	99

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

Data File : D:\HPCHEM\1\DATA\19L13\RLV094.D Vial: 4
Acq On : 13 Dec 2019 1:22 pm Operator: JCorea
Sample : VO01L05C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 11:53 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

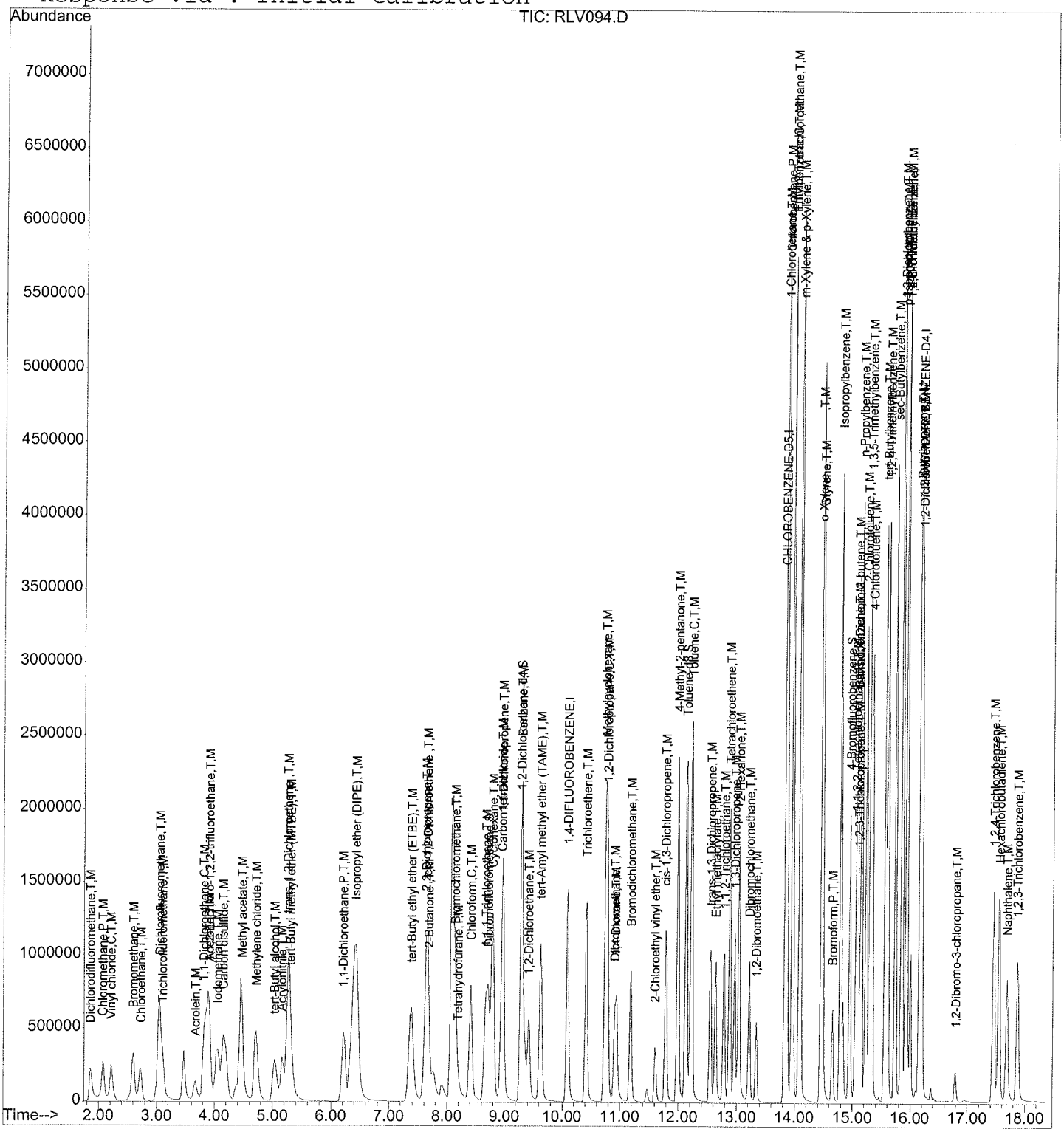
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
81)	2-Chlorotoluene	15.23	91	2075156	9.04	ug/l	99
82)	4-Chlorotoluene	15.33	91	2432371	9.12	ug/l	98
83)	tert-Butylbenzene	15.55	134	627179	9.23	ug/l	94
84)	1,2,4-Trimethylbenzene	15.60	105	2488128	9.12	ug/l	98
85)	sec-Butylbenzene	15.73	105	3746800	9.37	ug/l	99
86)	p-Isopropyltoluene	15.85	119	2829174	8.93	ug/l	99
87)	1,3-Dichlorobenzene	15.83	146	1399705	9.67	ug/l	98
88)	1,4-Dichlorobenzene	15.92	146	1384609	9.61	ug/l	98
89)	1,2,3-Trimethylbenzene	15.92	105	2398773	9.51	ug/l	99
90)	n-Butylbenzene	16.15	91	2741758	8.74	ug/l	99
91)	1,2-Dichlorobenzene	16.19	146	1176901	9.41	ug/l	99
92)	1,2-Dibromo-3-chloropropan	16.80	157	100801	12.14	ug/l	98
93)	1,2,4-Trichlorobenzene	17.45	180	728753	10.82	ug/l	99
94)	Hexachlorobutadiene	17.55	225	480365	10.06	ug/l	100
95)	Naphthalene	17.69	128	1122327	10.49	ug/l	99
96)	1,2,3-Trichlorobenzene	17.86	180	546935	11.00	ug/l	100

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV094.D Vial: 4
Acq On : 13 Dec 2019 1:22 pm Operator: JCorea
Sample : VO01L05C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 11:53 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV094.D Vial: 4
Acq On : 13 Dec 2019 1:22 pm Operator: JCorea
Sample : VO01L05C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

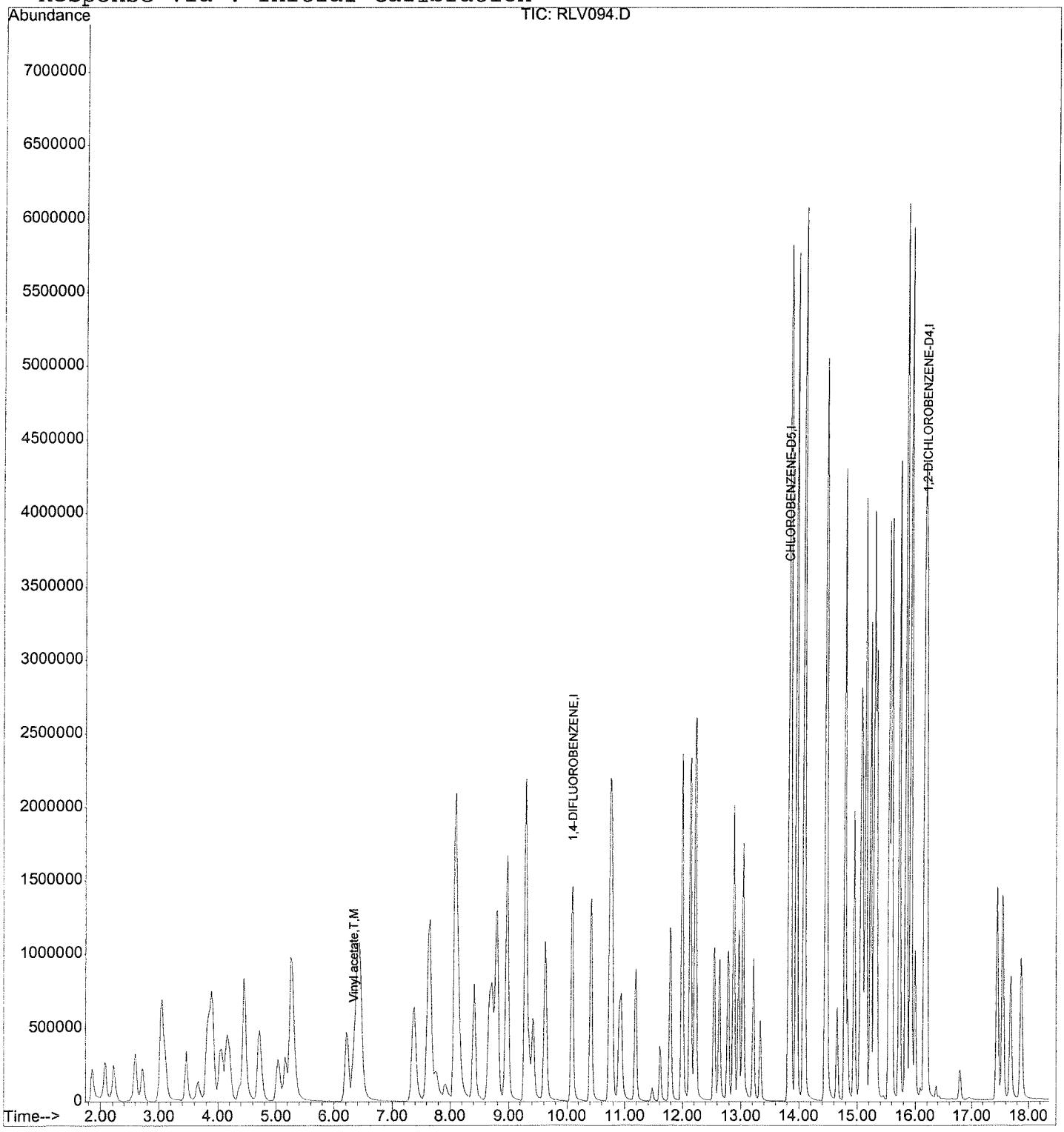
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1865986	10.00	ug/l	-0.01
3) CHLOROBENZENE-D5	13.82	117	1743460	10.00	ug/l	-0.01
4) 1,2-DICHLOROBENZENE-D4	16.18	152	745583	10.00	ug/l	-0.01
Target Compounds						Qvalue
2) Vinyl acetate	6.33	43	882757	10.15	ug/l	94

(#) = qualifier out of range (m) = manual integration
RLV094.D VO01K06.M Mon Dec 16 09:43:00 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV094.D Vial: 4
Acq On : 13 Dec 2019 1:22 pm Operator: JCorea
Sample : VO01L05C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV124.D Vial: 6
Acq On : 16 Dec 2019 11:47 am Operator: JCorea
Sample : VO01L06B 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 10:06 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1856141	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	1692599	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.17	152	687218	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.70	111	620607	10.51	ug/l	-0.03
Spiked Amount 10.000			Recovery =	105.10%		
38) 1,2-Dichloroethane-d4	9.26	65	498326	9.66	ug/l	-0.03
Spiked Amount 10.000			Recovery =	96.60%		
54) Toluene-d8	12.12	98	2097451	9.71	ug/l	-0.01
Spiked Amount 10.000			Recovery =	97.10%		
74) 4-Bromofluorobenzene	14.93	95	771714	9.14	ug/l	-0.03
Spiked Amount 10.000			Recovery =	91.40%		
Target Compounds						Qvalue
18) Methylene chloride	4.69	49	21963	0.23	ug/l	97

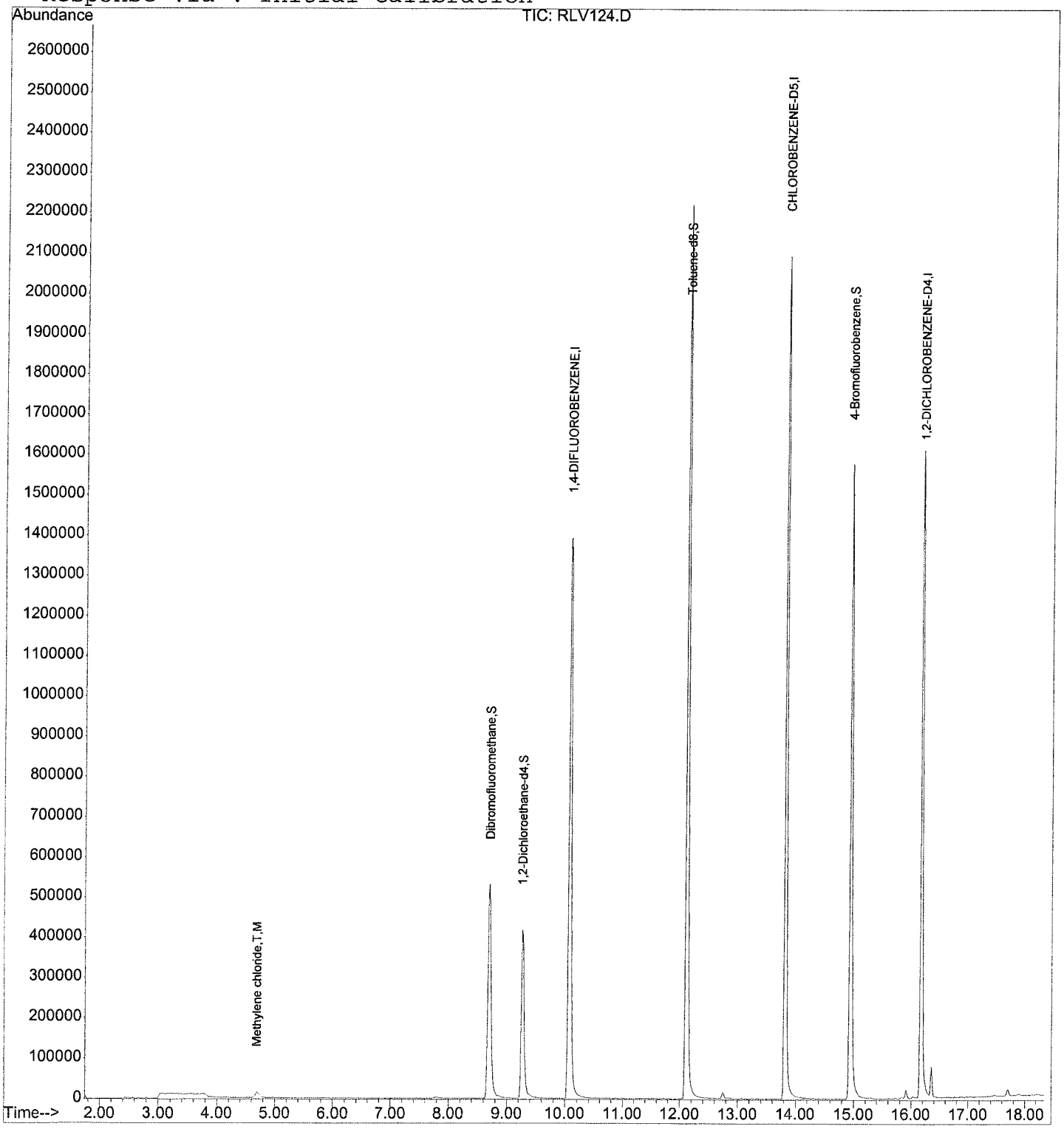
(#) = qualifier out of range (m) = manual integration

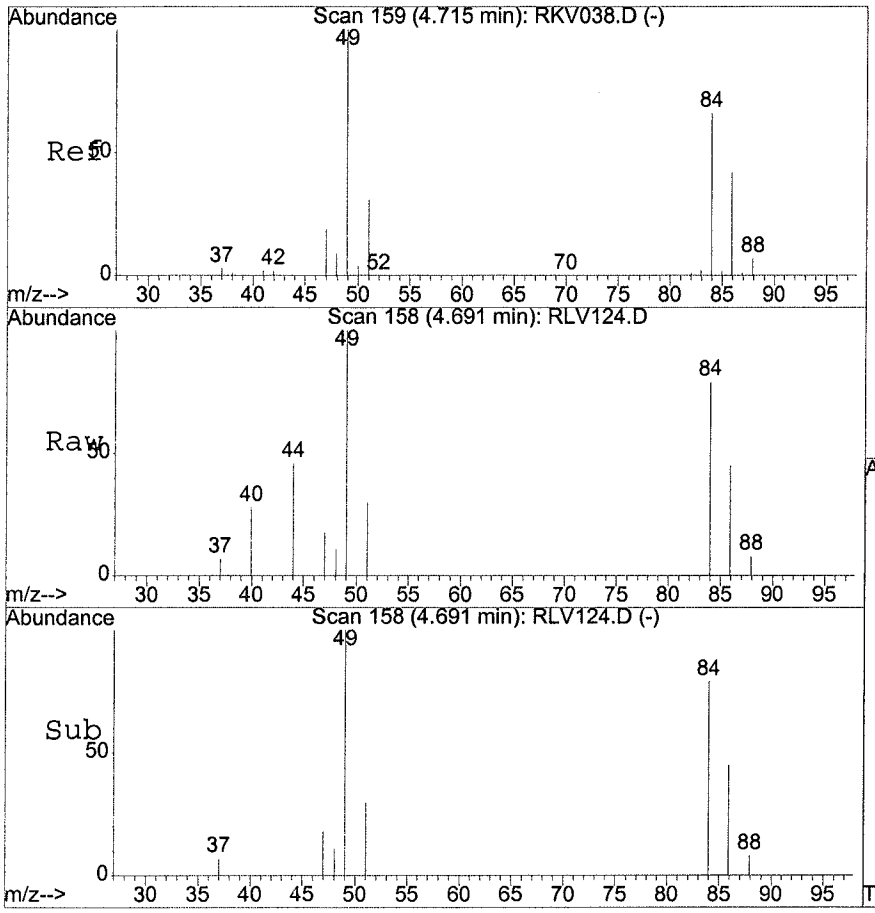
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV124.D
Acq On : 16 Dec 2019 11:47 am
Sample : VO01L06B 25mL
Misc : DF=1.0
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 10:06 2019

Vial: 6
Operator: JCorea
Inst : 01
Multiplr: 1.00
Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration

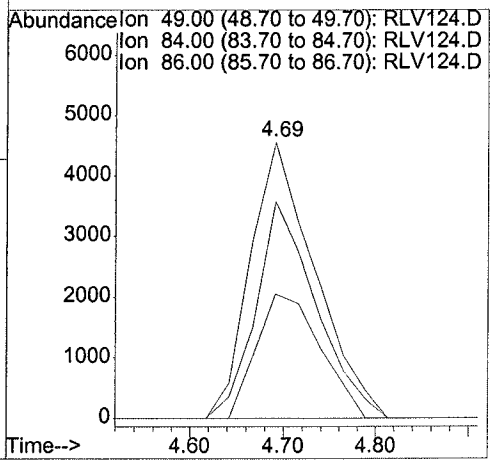




#18
Methylene chloride
Concen: 0.23 ug/l
RT: 4.69 min Scan# 158
Delta R.T. -0.02 min
Lab File: RLV124.D
Acq: 16 Dec 2019 11:47 am

Tgt Ion: 49 Resp: 21963

Ion	Ratio	Lower	Upper
49	100		
84	72.9	39.0	99.0
86	44.6	14.4	74.4



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV124.D Vial: 6
Acq On : 16 Dec 2019 11:47 am Operator: JCorea
Sample : VO01L06B 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1856141	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	1692599	10.00	ug/l	-0.01
4) 1,2-DICHLOROBENZENE-D4	16.17	152	687218	10.00	ug/l	-0.01

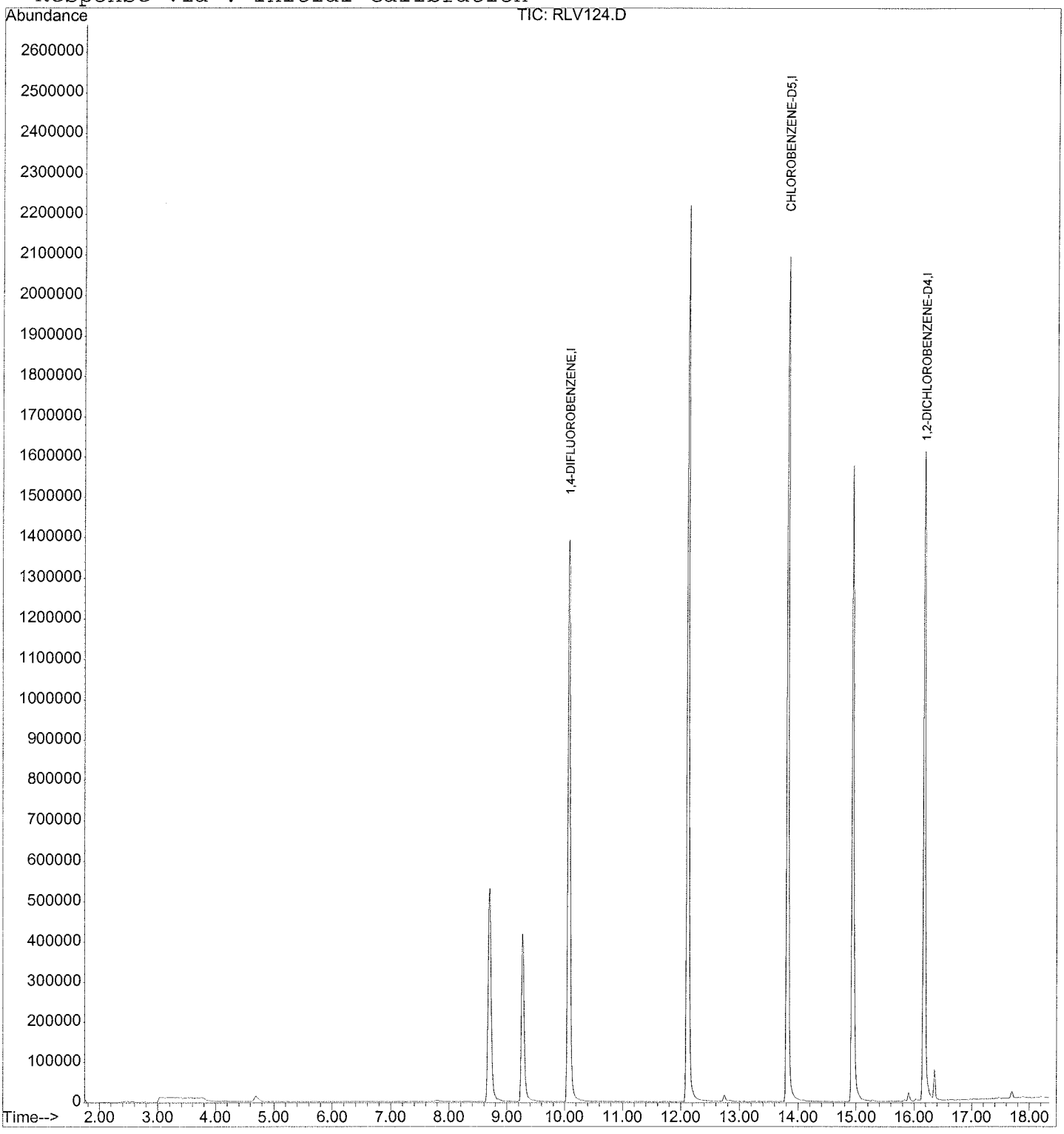
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
RLV124.D VO01K06.M Tue Dec 17 09:49:29 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV124.D Vial: 6
Acq On : 16 Dec 2019 11:47 am Operator: JCorea
Sample : VO01L06B 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV121.D Vial: 3
Acq On : 16 Dec 2019 10:24 am Operator: JCorea
Sample : VO01L06L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 10:04 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.06	114	1708694	10.00	ug/l	-0.04
53) CHLOROBENZENE-D5	13.81	117	1604085	10.00	ug/l	-0.03
71) 1,2-DICHLOROBENZENE-D4	16.16	152	690350	10.00	ug/l	-0.03
System Monitoring Compounds						
34) Dibromofluoromethane	8.68	111	582267	10.71	ug/l	-0.04
Spiked Amount 10.000			Recovery = 107.10%			
38) 1,2-Dichloroethane-d4	9.26	65	487591	10.27	ug/l	-0.03
Spiked Amount 10.000			Recovery = 102.70%			
54) Toluene-d8	12.10	98	1915305	9.36	ug/l	-0.03
Spiked Amount 10.000			Recovery = 93.60%			
74) 4-Bromofluorobenzene	14.93	95	736513	8.68	ug/l	-0.03
Spiked Amount 10.000			Recovery = 86.80%			
Target Compounds						Qvalue
3) Dichlorodifluoromethane	1.85	85	485069	10.26	ug/l	100
4) Chloromethane	2.07	50	549942	8.40	ug/l	99
5) Vinyl chloride	2.20	62	555058	8.12	ug/l	99
7) Bromomethane	2.59	94	414145	8.89	ug/l	100
8) Chloroethane	2.70	64	372998	9.87	ug/l	96
9) Dichlorofluoromethane	3.03	67	848725	8.96	ug/l	97
10) Trichlorofluoromethane	3.08	101	729561	11.05	ug/l	100
11) Acrolein	3.64	56	230523	48.43	ug/l	98
12) 1,1,2-Trichloro-1,2,2-trif	3.88	151	371654	10.26	ug/l	99
13) Acetone	3.88	43	491727	51.01	ug/l	99
14) 1,1-Dichloroethene	3.79	61	802658	8.55	ug/l	96
15) Iodomethane	4.03	142	1059023	11.00	ug/l	100
16) Carbon disulfide	4.13	76	1899946	9.47	ug/l	99
17) Methyl acetate	4.45	43	224376	9.71	ug/l	96
18) Methylene chloride	4.69	49	768313	8.84	ug/l	96
19) tert-Butyl alcohol	5.01	59	885832	294.25	ug/l	99
20) Acrylonitrile	5.13	53	478954	49.04	ug/l	99
21) tert-Butyl methyl ether (M	5.25	73	1084797	10.38	ug/l	99
22) trans-1,2-Dichloroethene	5.23	61	835459	9.06	ug/l	95
24) 1,1-Dichloroethane	6.18	63	1083137	9.33	ug/l	99
25) Isopropyl ether (DIPE)	6.40	45	2025666	9.85	ug/l	97
27) tert-Butyl ethyl ether (ET	7.33	59	1618714	9.70	ug/l	96
28) 2-Butanone	7.65	43	772468	53.01	ug/l	99
29) cis-1,2-Dichloroethene	7.60	96	625176	10.30	ug/l	92
30) 2,2-Dichloropropane	7.60	77	786720	10.44	ug/l	100
31) Tetrahydrofurane	8.16	42	77386	7.91	ug/l	90
32) Bromochloromethane	8.12	49	514045	9.71	ug/l	90

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV121.D Vial: 3
Acq On : 16 Dec 2019 10:24 am Operator: JCorea
Sample : VO01L06L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 10:04 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
33)	Chloroform	8.39	83	1096071	9.80	ug/l	97
35)	1,1,1-Trichloroethane	8.64	97	830757	10.42	ug/l	98
36)	Cyclohexane	8.76	84	877972	10.31	ug/l	99
37)	tert-Amyl methyl ether (TA	9.60	73	1428482	11.00	ug/l	98
39)	1,1-Dichloropropene	8.95	110	304808	10.67	ug/l	98
40)	Carbon tetrachloride	8.92	119	759978	10.91	ug/l	98
41)	Benzene	9.26	78	2188510	10.11	ug/l	100
42)	1,2-Dichloroethane	9.40	62	594900	10.20	ug/l	100
44)	Trichloroethene	10.39	130	667653	9.83	ug/l	98
45)	Methylcyclohexane	10.73	83	1037840	9.45	ug/l	97
46)	1,2-Dichloropropane	10.76	63	623192	9.66	ug/l	94
47)	1,4-Dioxane	10.91	88	59972	207.05	ug/l	99
48)	Dibromomethane	10.89	93	316429	10.92	ug/l	93
49)	Bromodichloromethane	11.16	83	769753	10.74	ug/l	98
50)	2-Chloroethyl vinyl ether	11.59	63	205928	8.69	ug/l	97
51)	cis-1,3-Dichloropropene	11.76	75	928235	10.39	ug/l	98
52)	4-Methyl-2-pentanone	11.97	43	2109231	52.01	ug/l	98
55)	Toluene	12.19	91	2471702	9.52	ug/l	100
56)	Ethyl methacrylate	12.62	69	615596	9.84	ug/l	100
57)	trans-1,3-Dichloropropene	12.52	75	801207	10.68	ug/l	98
58)	1,1,2-Trichloroethane	12.77	97	411188	9.95	ug/l	97
59)	Tetrachloroethene	12.86	164	563300	10.31	ug/l	95
60)	1,3-Dichloropropane	12.95	76	784326	9.71	ug/l	100
61)	2-Hexanone	13.02	43	1493258	45.29	ug/l	100
62)	Dibromochloromethane	13.20	129	581123	11.12	ug/l	99
63)	1,2-Dibromoethane	13.32	107	447390	10.17	ug/l	100
64)	1-Chlorohexane	13.84	91	1192575	10.75	ug/l	100
65)	Chlorobenzene	13.84	112	1707441	10.20	ug/l	100
66)	1,1,1,2-Tetrachloroethane	13.94	131	626116	10.79	ug/l	99
67)	Ethylbenzene	13.94	91	3073179	9.50	ug/l	99
68)	m-Xylene & p-Xylene	14.07	91	4696077	19.95	ug/l	99
69)	o-Xylene	14.43	91	2266017	9.92	ug/l	100
70)	Styrene	14.46	104	1890533	10.10	ug/l	99
72)	Bromoform	14.64	173	329382	11.78	ug/l	99
73)	Isopropylbenzene	14.77	105	3046963	8.90	ug/l	99
75)	1,1,2,2-Tetrachloroethane	15.04	83	568403	9.11	ug/l	98
76)	Bromobenzene	15.06	156	724270	9.98	ug/l	100
77)	trans-1,4-Dichloro-2-buten	15.06	53	138575	11.73	ug/l	97
78)	1,2,3-Trichloropropane	15.09	110	151493	9.70	ug/l	98
79)	n-Propylbenzene	15.12	91	3784583	9.18	ug/l	99
80)	1,3,5-Trimethylbenzene	15.27	105	2395784	9.19	ug/l	99

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV121.D Vial: 3
Acq On : 16 Dec 2019 10:24 am Operator: JCorea
Sample : VO01L06L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 10:04 2019 Quant Results File: VO01K05A.RES

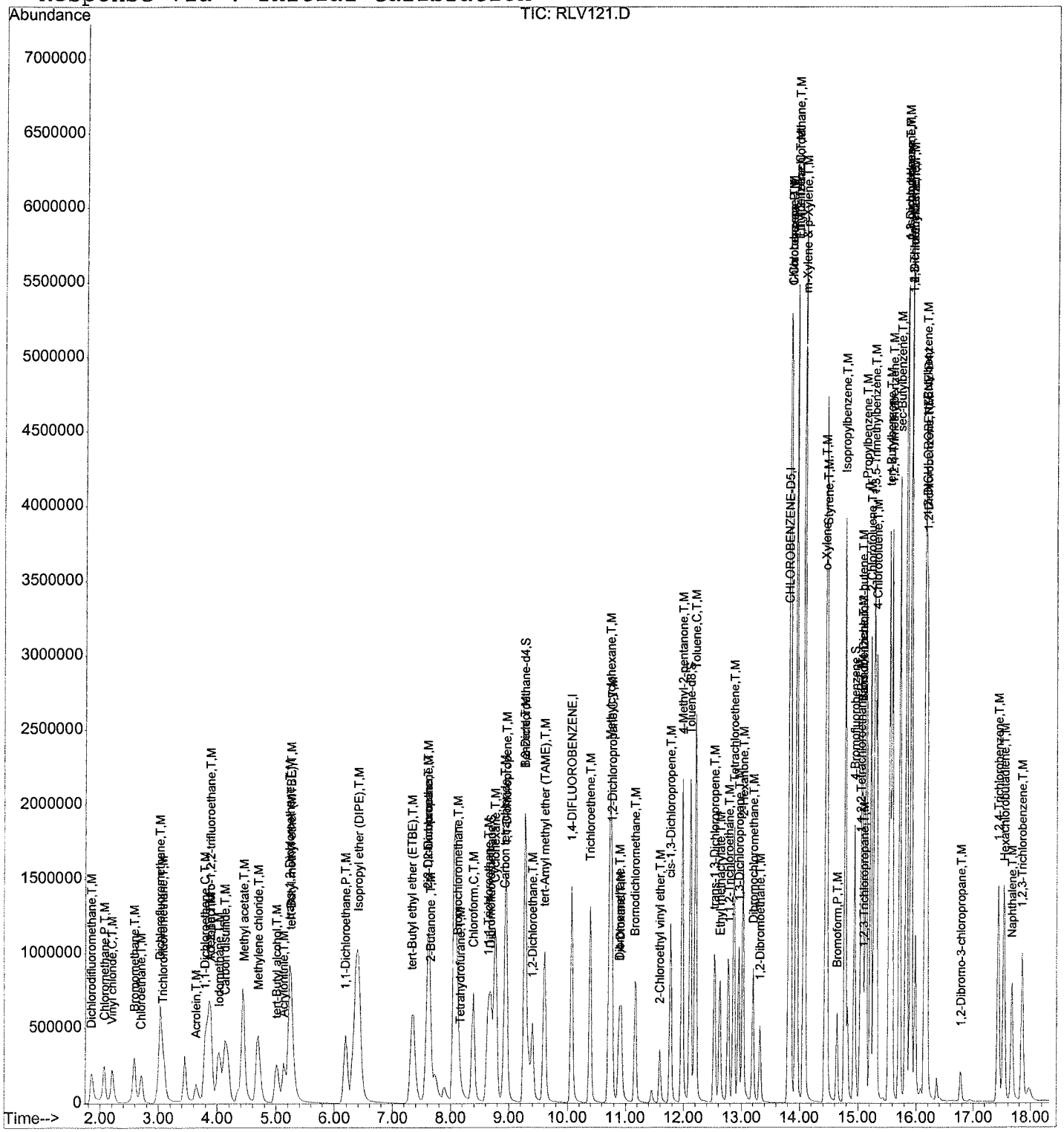
Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
81)	2-Chlorotoluene	15.21	91	1959546	9.22	ug/l	100
82)	4-Chlorotoluene	15.32	91	2345874	9.50	ug/l	100
83)	tert-Butylbenzene	15.54	134	578544	9.20	ug/l	94
84)	1,2,4-Trimethylbenzene	15.58	105	2375993	9.41	ug/l	97
85)	sec-Butylbenzene	15.72	105	3506931	9.47	ug/l	99
86)	p-Isopropyltoluene	15.83	119	2665322	9.09	ug/l	99
87)	1,3-Dichlorobenzene	15.83	146	1317862	9.83	ug/l	98
88)	1,4-Dichlorobenzene	15.91	146	1322034	9.91	ug/l	98
89)	1,2,3-Trimethylbenzene	15.91	105	2282381	9.78	ug/l	100
90)	n-Butylbenzene	16.15	91	2676909	9.22	ug/l	100
91)	1,2-Dichlorobenzene	16.17	146	1124124	9.71	ug/l	99
92)	1,2-Dibromo-3-chloropropan	16.78	157	95738	12.45	ug/l	99
93)	1,2,4-Trichlorobenzene	17.43	180	745880	11.96	ug/l	99
94)	Hexachlorobutadiene	17.54	225	471435	10.66	ug/l	97
95)	Naphthalene	17.67	128	1060918	10.71	ug/l	100
96)	1,2,3-Trichlorobenzene	17.85	180	535318	11.63	ug/l	99

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

Data File : D:\HPCHEM\1\DATA\19L16\RLV121.D Vial: 3
Acq On : 16 Dec 2019 10:24 am Operator: JCorea
Sample : VO01L06L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 10:04 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV121.D Vial: 3
Acq On : 16 Dec 2019 10:24 am Operator: JCorea
Sample : VO01L06L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

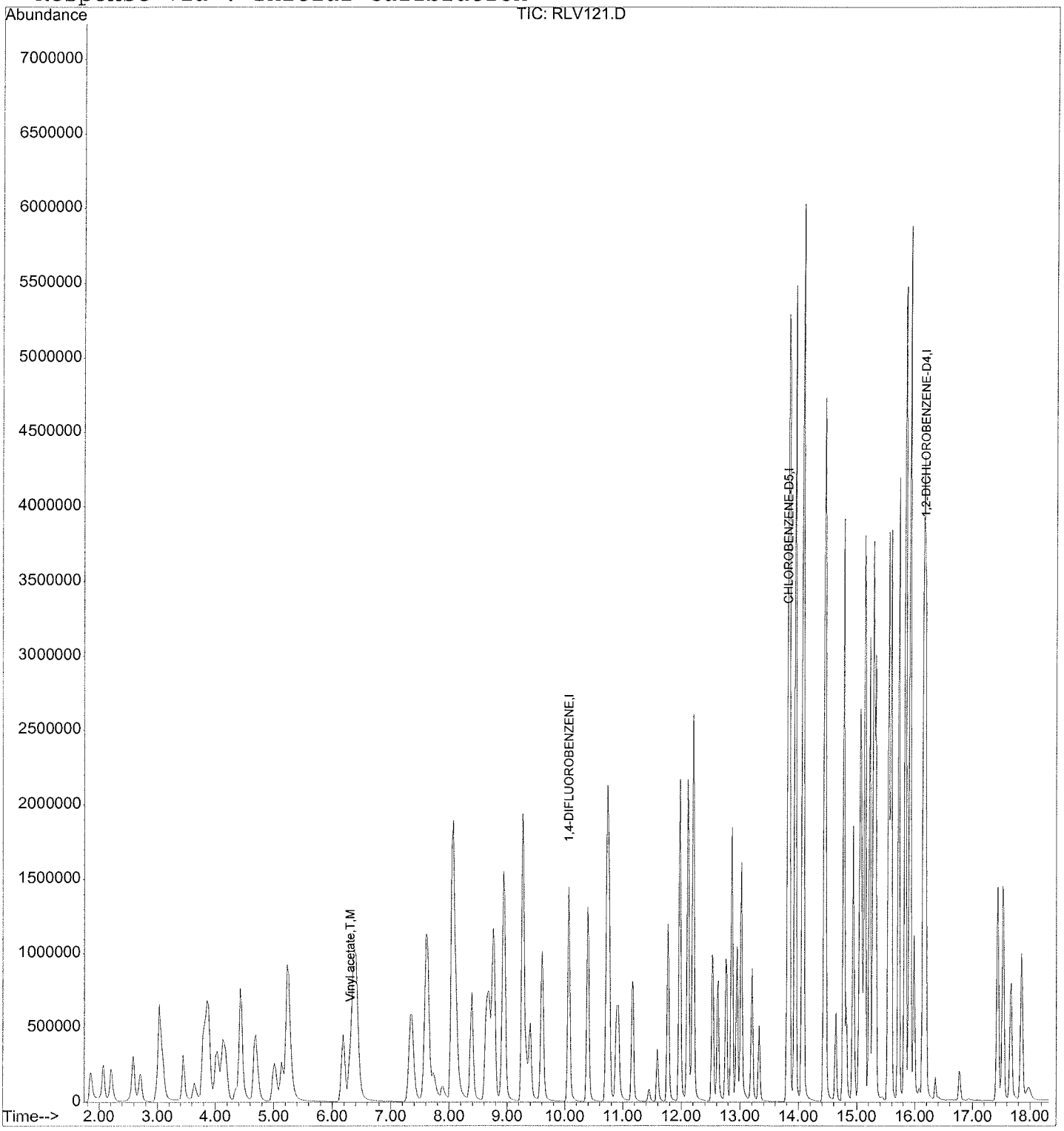
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.06	114	1708694	10.00	ug/l	-0.04
3) CHLOROBENZENE-D5	13.81	117	1604085	10.00	ug/l	-0.03
4) 1,2-DICHLOROBENZENE-D4	16.16	152	690350	10.00	ug/l	-0.03
Target Compounds						Qvalue
2) Vinyl acetate	6.31	43	816064	10.25	ug/l	96

(#) = qualifier out of range (m) = manual integration
RLV121.D VO01K06.M Tue Dec 17 09:49:37 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV121.D Vial: 3
Acq On : 16 Dec 2019 10:24 am Operator: JCorea
Sample : VO01L06L Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV122.D Vial: 4
Acq On : 16 Dec 2019 10:52 am Operator: JCorea
Sample : VO01L06C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 10:05 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.06	114	1791061	10.00	ug/l	-0.04
53) CHLOROBENZENE-D5	13.81	117	1740914	10.00	ug/l	-0.03
71) 1,2-DICHLOROBENZENE-D4	16.16	152	753611	10.00	ug/l	-0.03
System Monitoring Compounds						
34) Dibromofluoromethane	8.68	111	603964	10.60	ug/l	-0.04
Spiked Amount 10.000			Recovery = 106.00%			
38) 1,2-Dichloroethane-d4	9.26	65	508566	10.22	ug/l	-0.03
Spiked Amount 10.000			Recovery = 102.20%			
54) Toluene-d8	12.12	98	2045986	9.21	ug/l	-0.01
Spiked Amount 10.000			Recovery = 92.10%			
74) 4-Bromofluorobenzene	14.93	95	787784	8.51	ug/l	-0.03
Spiked Amount 10.000			Recovery = 85.10%			
Target Compounds						Qvalue
3) Dichlorodifluoromethane	1.85	85	518282	10.45	ug/l	99
4) Chloromethane	2.06	50	588139	8.57	ug/l	99
5) Vinyl chloride	2.20	62	613795	8.55	ug/l	100
7) Bromomethane	2.59	94	436339	8.93	ug/l	99
8) Chloroethane	2.71	64	401760	10.14	ug/l	100
9) Dichlorofluoromethane	3.03	67	890114	8.97	ug/l	98
10) Trichlorofluoromethane	3.07	101	765860	11.07	ug/l	100
11) Acrolein	3.64	56	245086	49.12	ug/l	98
12) 1,1,2-Trichloro-1,2,2-trif	3.88	151	381489	10.05	ug/l	99
13) Acetone	3.88	43	521865	51.65	ug/l	100
14) 1,1-Dichloroethene	3.81	61	837618	8.51	ug/l	95
15) Iodomethane	4.03	142	1102766	10.93	ug/l	99
16) Carbon disulfide	4.15	76	1972028	9.38	ug/l	100
17) Methyl acetate	4.47	43	243961	10.07	ug/l	98
18) Methylene chloride	4.69	49	780628	8.57	ug/l	95
19) tert-Butyl alcohol	5.01	59	976221	309.36	ug/l	99
20) Acrylonitrile	5.13	53	525577	51.34	ug/l	99
21) tert-Butyl methyl ether (M	5.28	73	1164608	10.63	ug/l	99
22) trans-1,2-Dichloroethene	5.23	61	873642	9.04	ug/l	94
24) 1,1-Dichloroethane	6.18	63	1100095	9.04	ug/l	98
25) Isopropyl ether (DIPE)	6.40	45	2141672	9.93	ug/l	95
27) tert-Butyl ethyl ether (ET	7.36	59	1675536	9.57	ug/l	95
28) 2-Butanone	7.65	43	829760	54.32	ug/l	100
29) cis-1,2-Dichloroethene	7.63	96	637918	10.03	ug/l	93
30) 2,2-Dichloropropane	7.60	77	782909	9.91	ug/l	99
31) Tetrahydrofurane	8.16	42	86884	8.47	ug/l	89
32) Bromochloromethane	8.11	49	535774	9.65	ug/l	91

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV122.D Vial: 4
Acq On : 16 Dec 2019 10:52 am Operator: JCorea
Sample : VO01L06C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 10:05 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
33)	Chloroform	8.38	83	1089926	9.30	ug/l	95
35)	1,1,1-Trichloroethane	8.64	97	851733	10.19	ug/l	98
36)	Cyclohexane	8.76	84	910610	10.20	ug/l	100
37)	tert-Amyl methyl ether (TA	9.60	73	1477970	10.85	ug/l	98
39)	1,1-Dichloropropene	8.95	110	323638	10.81	ug/l	97
40)	Carbon tetrachloride	8.94	119	777549	10.65	ug/l	99
41)	Benzene	9.28	78	2350395	10.36	ug/l	99
42)	1,2-Dichloroethane	9.40	62	632508	10.34	ug/l	100
44)	Trichloroethene	10.40	130	723862	10.17	ug/l	99
45)	Methylcyclohexane	10.73	83	1103826	9.59	ug/l	95
46)	1,2-Dichloropropane	10.76	63	659390	9.75	ug/l	96
47)	1,4-Dioxane	10.91	88	67113	221.05	ug/l	99
48)	Dibromomethane	10.89	93	331990	10.93	ug/l	92
49)	Bromodichloromethane	11.17	83	830487	11.06	ug/l	98
50)	2-Chloroethyl vinyl ether	11.59	63	239323	9.58	ug/l	100
51)	cis-1,3-Dichloropropene	11.76	75	995666	10.63	ug/l	98
52)	4-Methyl-2-pentanone	11.97	43	2293662	53.95	ug/l	98
55)	Toluene	12.21	91	2683164	9.53	ug/l	100
56)	Ethyl methacrylate	12.62	69	683732	10.07	ug/l	98
57)	trans-1,3-Dichloropropene	12.53	75	859581	10.56	ug/l	98
58)	1,1,2-Trichloroethane	12.77	97	454502	10.13	ug/l	97
59)	Tetrachloroethene	12.86	164	597241	10.07	ug/l	95
60)	1,3-Dichloropropane	12.95	76	862098	9.84	ug/l	99
61)	2-Hexanone	13.02	43	1668504	46.56	ug/l	100
62)	Dibromochloromethane	13.20	129	620938	10.95	ug/l	98
63)	1,2-Dibromoethane	13.32	107	498323	10.44	ug/l	99
64)	1-Chlorohexane	13.84	91	1281755	10.64	ug/l	99
65)	Chlorobenzene	13.85	112	1811059	9.97	ug/l	100
66)	1,1,1,2-Tetrachloroethane	13.94	131	653148	10.37	ug/l	99
67)	Ethylbenzene	13.94	91	3253384	9.27	ug/l	100
68)	m-Xylene & p-Xylene	14.07	91	4887121	19.13	ug/l	99
69)	o-Xylene	14.44	91	2406234	9.70	ug/l	100
70)	Styrene	14.46	104	2026146	9.97	ug/l	99
72)	Bromoform	14.64	173	357611	11.72	ug/l	99
73)	Isopropylbenzene	14.77	105	3277105	8.77	ug/l	100
75)	1,1,2,2-Tetrachloroethane	15.03	83	621361	9.12	ug/l	99
76)	Bromobenzene	15.06	156	777758	9.82	ug/l	99
77)	trans-1,4-Dichloro-2-buten	15.06	53	148868	11.54	ug/l	96
78)	1,2,3-Trichloropropane	15.09	110	171714	10.07	ug/l	97
79)	n-Propylbenzene	15.12	91	4086918	9.08	ug/l	99
80)	1,3,5-Trimethylbenzene	15.27	105	2535439	8.91	ug/l	100

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

Data File : D:\HPCHEM\1\DATA\19L16\RLV122.D Vial: 4
Acq On : 16 Dec 2019 10:52 am Operator: JCorea
Sample : VO01L06C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 10:05 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

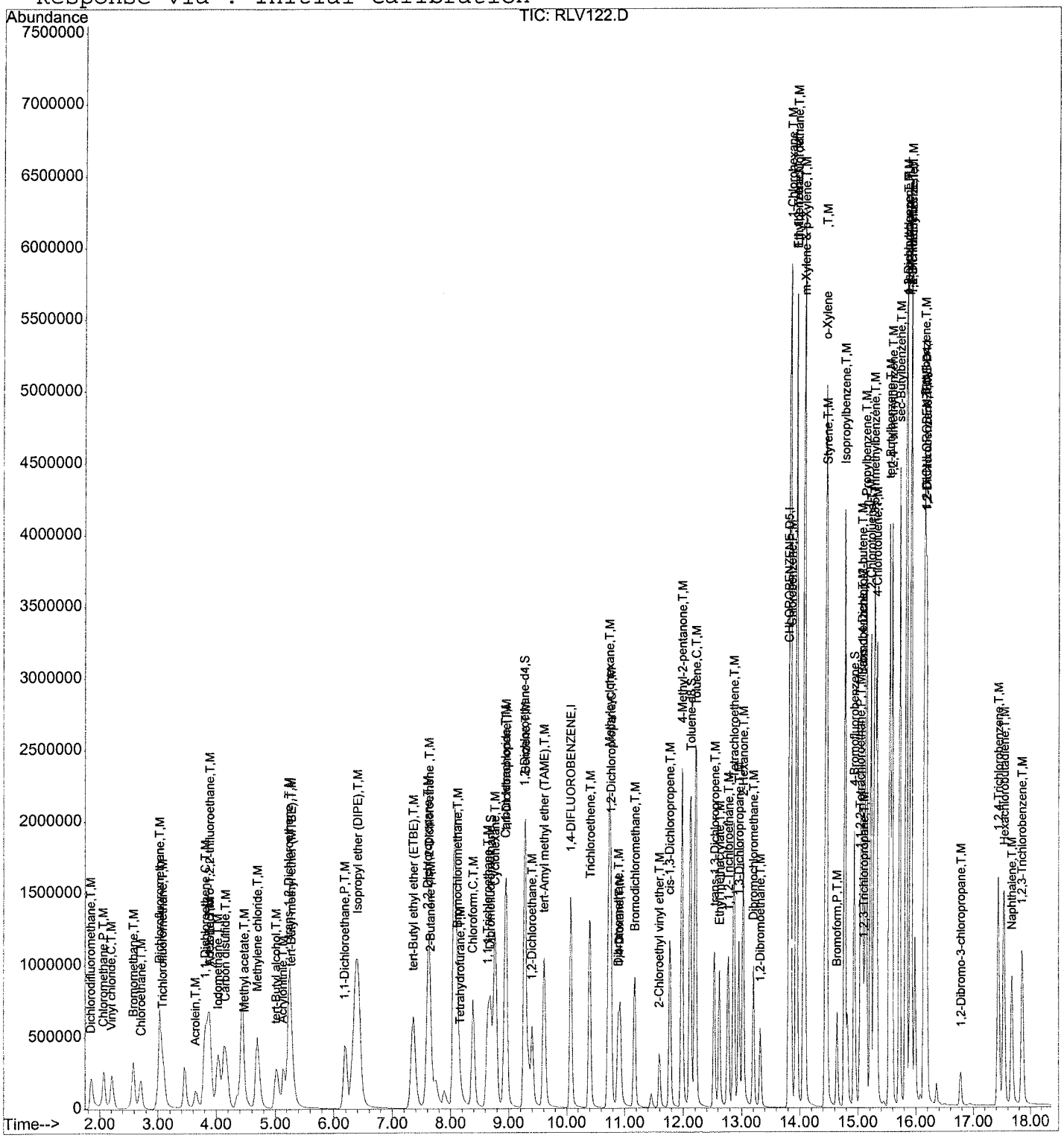
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
81)	2-Chlorotoluene	15.21	91	2067963	8.91	ug/l	99
82)	4-Chlorotoluene	15.32	91	2477333	9.19	ug/l	98
83)	tert-Butylbenzene	15.54	134	626843	9.13	ug/l	95
84)	1,2,4-Trimethylbenzene	15.58	105	2498247	9.06	ug/l	82
85)	sec-Butylbenzene	15.72	105	3680281	9.11	ug/l	99
86)	p-Isopropyltoluene	15.83	119	2803208	8.76	ug/l	99
87)	1,3-Dichlorobenzene	15.83	146	1420543	9.71	ug/l	98
88)	1,4-Dichlorobenzene	15.91	146	1453865	9.99	ug/l	98
89)	1,2,3-Trimethylbenzene	15.91	105	2522761	9.90	ug/l	99
90)	n-Butylbenzene	16.15	91	2837384	8.95	ug/l	100
91)	1,2-Dichlorobenzene	16.17	146	1215098	9.61	ug/l	100
92)	1,2-Dibromo-3-chloropropan	16.78	157	110334	13.14	ug/l	100
93)	1,2,4-Trichlorobenzene	17.43	180	830997	12.20	ug/l	98
94)	Hexachlorobutadiene	17.54	225	514450	10.65	ug/l	99
95)	Naphthalene	17.67	128	1223182	11.32	ug/l	100
96)	1,2,3-Trichlorobenzene	17.85	180	603764	12.01	ug/l	99

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV122.D Vial: 4
Acq On : 16 Dec 2019 10:52 am Operator: JCorea
Sample : VO01L06C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 10:05 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV122.D Vial: 4
Acq On : 16 Dec 2019 10:52 am Operator: JCorea
Sample : VO01L06C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

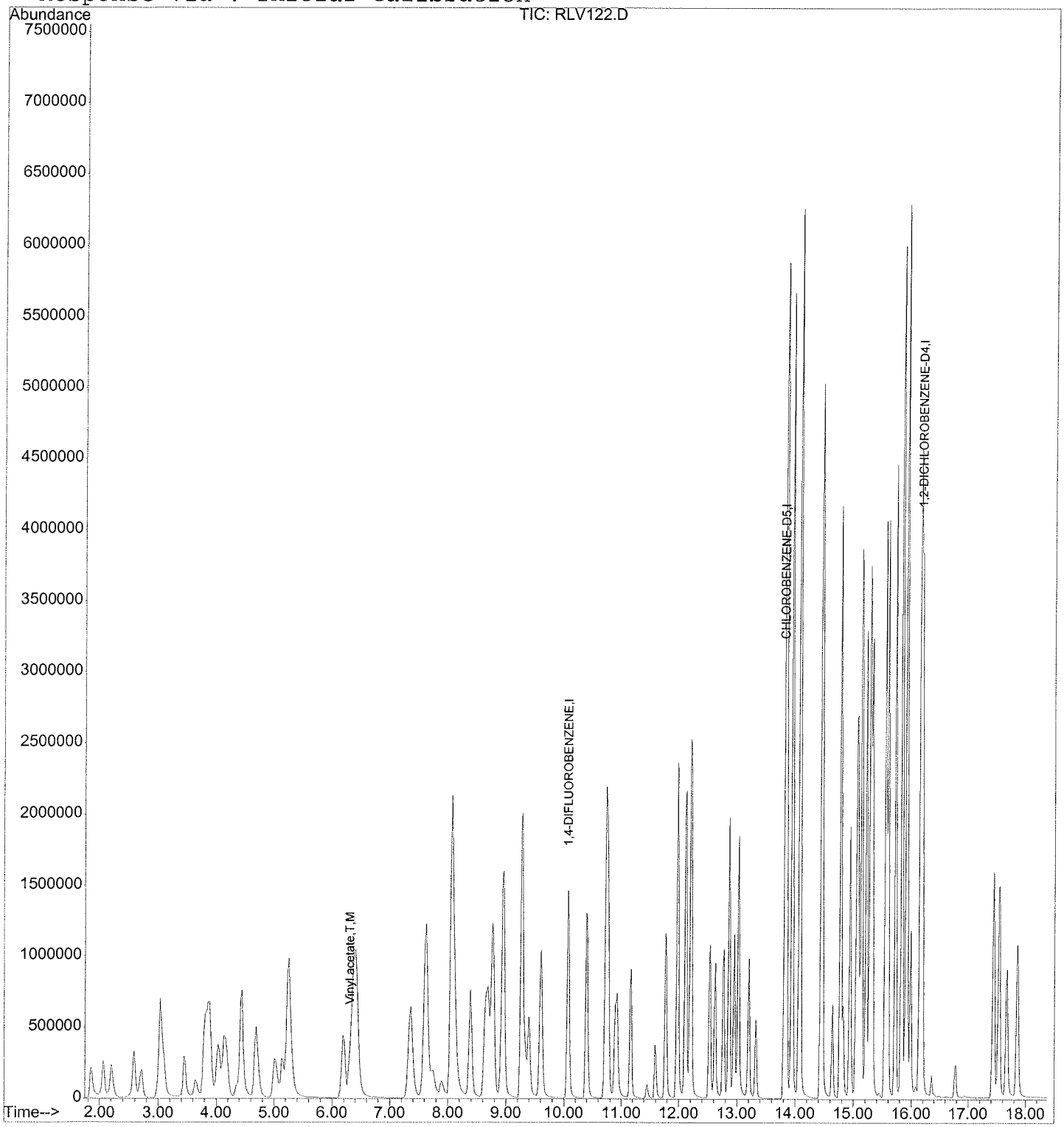
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.06	114	1791061	10.00	ug/l	-0.04
3) CHLOROBENZENE-D5	13.81	117	1740914	10.00	ug/l	-0.03
4) 1,2-DICHLOROBENZENE-D4	16.16	152	753611	10.00	ug/l	-0.03
Target Compounds						Qvalue
2) Vinyl acetate	6.30	43	843679	10.11	ug/l	93

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV122.D Vial: 4
Acq On : 16 Dec 2019 10:52 am Operator: JCorea
Sample : VO01L06C Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV107.D Vial: 17
Acq On : 13 Dec 2019 7:31 pm Operator: JCorea
Sample : 19L064-07M 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:41 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	2002248	10.00	ug/l	-0.01
53) CHLOROBENZENE-D5	13.84	117	1837219	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.18	152	788927	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.72	111	643499	10.10	ug/l	-0.01
Spiked Amount 10.000			Recovery = 101.00%			
38) 1,2-Dichloroethane-d4	9.29	65	536989	9.65	ug/l	0.00
Spiked Amount 10.000			Recovery = 96.50%			
54) Toluene-d8	12.13	98	2251543	9.61	ug/l	0.00
Spiked Amount 10.000			Recovery = 96.10%			
74) 4-Bromofluorobenzene	14.95	95	864020	8.91	ug/l	-0.01
Spiked Amount 10.000			Recovery = 89.10%			
Target Compounds						Qvalue
3) Dichlorodifluoromethane	1.86	85	498537	8.99	ug/l	99
4) Chloromethane	2.07	50	585619	7.64	ug/l	100
5) Vinyl chloride	2.22	62	600407	7.51	ug/l	99
7) Bromomethane	2.60	94	468943	8.59	ug/l	100
8) Chloroethane	2.71	64	448295	10.12	ug/l	99
9) Dichlorofluoromethane	3.05	67	1036118	9.34	ug/l	96
10) Trichlorofluoromethane	3.10	101	806423	10.43	ug/l	97
11) Acrolein	3.66	56	273030	48.95	ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.91	151	422025	9.94	ug/l	100
13) Acetone	3.91	43	538870	47.71	ug/l	99
14) 1,1-Dichloroethene	3.81	61	925847	8.41	ug/l	95
15) Iodomethane	4.05	142	1197498	10.61	ug/l	97
16) Carbon disulfide	4.15	76	2213599	9.41	ug/l	100
17) Methyl acetate	4.49	43	254909	9.41	ug/l	98
18) Methylene chloride	4.71	49	831161	8.16	ug/l	93
19) tert-Butyl alcohol	5.03	59	1018322	288.66	ug/l	98
20) Acrylonitrile	5.16	53	580849	50.75	ug/l	99
21) tert-Butyl methyl ether (M	5.30	73	1254642	10.25	ug/l	97
22) trans-1,2-Dichloroethene	5.25	61	950487	8.80	ug/l	93
24) 1,1-Dichloroethane	6.23	63	1208613	8.88	ug/l	99
25) Isopropyl ether (DIPE)	6.45	45	2359887	9.79	ug/l	96
27) tert-Butyl ethyl ether (ET	7.38	59	1734308	8.87	ug/l	95
28) 2-Butanone	7.68	43	937223	54.88	ug/l	99
29) cis-1,2-Dichloroethene	7.65	96	707466	9.95	ug/l	89
30) 2,2-Dichloropropane	7.65	77	785373	8.90	ug/l	99
31) Tetrahydrofurane	8.19	42	99759	8.70	ug/l	88
32) Bromochloromethane	8.14	49	586673	9.45	ug/l	90

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV107.D Vial: 17
Acq On : 13 Dec 2019 7:31 pm Operator: JCorea
Sample : 19L064-07M 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:41 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
33)	Chloroform	8.41	83	1588632	12.13	ug/l	98
35)	1,1,1-Trichloroethane	8.67	97	872768	9.34	ug/l	98
36)	Cyclohexane	8.79	84	1025552	10.28	ug/l	99
37)	tert-Amyl methyl ether (TA	9.63	73	1546657	10.16	ug/l	99
39)	1,1-Dichloropropene	8.98	110	332851	9.95	ug/l	97
40)	Carbon tetrachloride	8.95	119	774777	9.49	ug/l	100
41)	Benzene	9.31	78	2583280	10.18	ug/l	99
42)	1,2-Dichloroethane	9.43	62	654034	9.57	ug/l	100
44)	Trichloroethene	10.42	130	763569	9.59	ug/l	98
45)	Methylcyclohexane	10.76	83	1165077	9.05	ug/l	95
46)	1,2-Dichloropropane	10.79	63	704419	9.32	ug/l	100
47)	1,4-Dioxane	10.94	88	73745	217.28	ug/l	100
48)	Dibromomethane	10.91	93	353904	10.42	ug/l	94
49)	Bromodichloromethane	11.19	83	859550	10.24	ug/l	100
51)	cis-1,3-Dichloropropene	11.79	75	1038930	9.92	ug/l	98
52)	4-Methyl-2-pentanone	11.99	43	2460038	51.76	ug/l	96
55)	Toluene	12.22	91	2895847	9.74	ug/l	100
56)	Ethyl methacrylate	12.64	69	741102	10.35	ug/l	96
57)	trans-1,3-Dichloropropene	12.55	75	838871	9.77	ug/l	96
58)	1,1,2-Trichloroethane	12.79	97	476542	10.07	ug/l	99
59)	Tetrachloroethene	12.89	164	644297	10.29	ug/l	96
60)	1,3-Dichloropropane	12.96	76	941917	10.18	ug/l	100
61)	2-Hexanone	13.04	43	1805025	47.67	ug/l	99
62)	Dibromochloromethane	13.22	129	644002	10.76	ug/l	99
63)	1,2-Dibromoethane	13.35	107	536370	10.65	ug/l	99
64)	1-Chlorohexane	13.85	91	1383760	10.89	ug/l	100
65)	Chlorobenzene	13.87	112	1995104	10.41	ug/l	100
66)	1,1,1,2-Tetrachloroethane	13.96	131	677389	10.19	ug/l	99
67)	Ethylbenzene	13.96	91	3420291	9.24	ug/l	98
68)	m-Xylene & p-Xylene	14.09	91	5116267	18.97	ug/l	98
69)	o-Xylene	14.46	91	2565733	9.80	ug/l	99
70)	Styrene	14.47	104	2096054	9.77	ug/l	98
72)	Bromoform	14.65	173	361119	11.30	ug/l	100
73)	Isopropylbenzene	14.78	105	3423154	8.75	ug/l	99
75)	1,1,2,2-Tetrachloroethane	15.05	83	676861	9.49	ug/l	99
76)	Bromobenzene	15.08	156	815224	9.83	ug/l	99
77)	trans-1,4-Dichloro-2-buten	15.08	53	158853	11.76	ug/l	99
78)	1,2,3-Trichloropropane	15.11	110	179590	10.06	ug/l	100
79)	n-Propylbenzene	15.15	91	4182382	8.87	ug/l	99
80)	1,3,5-Trimethylbenzene	15.29	105	2667698	8.95	ug/l	99
81)	2-Chlorotoluene	15.23	91	2106134	8.67	ug/l	97

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

Data File : D:\HPCHEM\1\DATA\19L13\RLV107.D Vial: 17
Acq On : 13 Dec 2019 7:31 pm Operator: JCorea
Sample : 19L064-07M 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:41 2019 Quant Results File: VO01K05A.RES

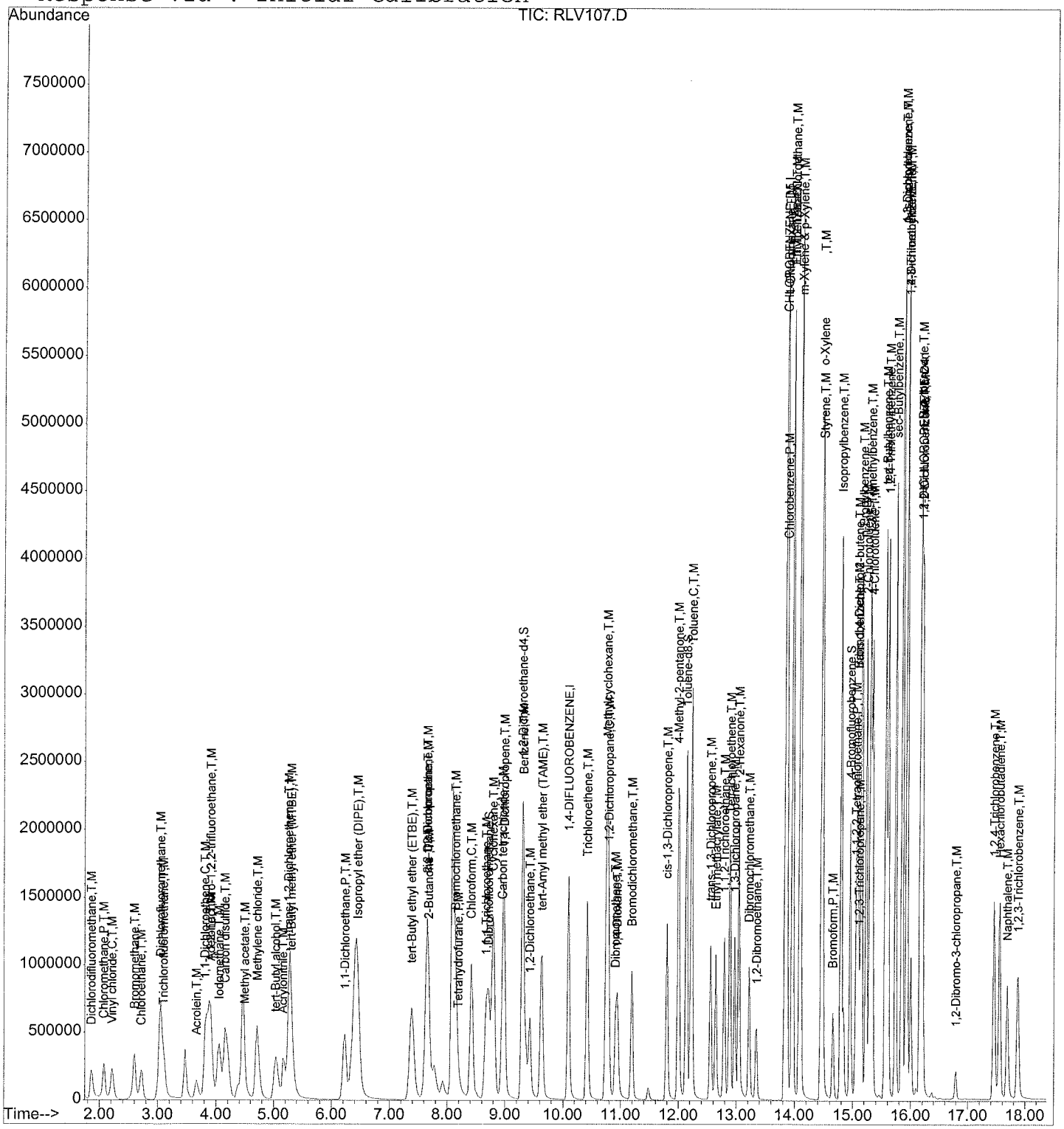
Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
82)	4-Chlorotoluene	15.33	91	2569609	9.11	ug/l	98
83)	tert-Butylbenzene	15.55	134	682949	9.50	ug/l	98
84)	1,2,4-Trimethylbenzene	15.60	105	2622061	9.08	ug/l	83
85)	sec-Butylbenzene	15.73	105	3819407	9.03	ug/l	99
86)	p-Isopropyltoluene	15.85	119	2902525	8.66	ug/l	99
87)	1,3-Dichlorobenzene	15.85	146	1455866	9.51	ug/l	98
88)	1,4-Dichlorobenzene	15.92	146	1475356	9.68	ug/l	98
89)	1,2,3-Trimethylbenzene	15.92	105	2515036	9.43	ug/l	100
90)	n-Butylbenzene	16.16	91	2877023	8.67	ug/l	99
91)	1,2-Dichlorobenzene	16.19	146	1266626	9.57	ug/l	100
92)	1,2-Dibromo-3-chloropropan	16.80	157	95445	10.86	ug/l	100
93)	1,2,4-Trichlorobenzene	17.45	180	735355	10.31	ug/l	99
94)	Hexachlorobutadiene	17.55	225	485477	9.60	ug/l	98
95)	Naphthalene	17.69	128	1099607	9.72	ug/l	99
96)	1,2,3-Trichlorobenzene	17.88	180	539030	10.25	ug/l	98

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

Data File : D:\HPCHEM\1\DATA\19L13\RLV107.D Vial: 17
Acq On : 13 Dec 2019 7:31 pm Operator: JCorea
Sample : 19L064-07M 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:41 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV107.D
Acq On : 13 Dec 2019 7:31 pm
Sample : 19L064-07M 25mL
Misc : DF=1.0
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019

Vial: 17
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

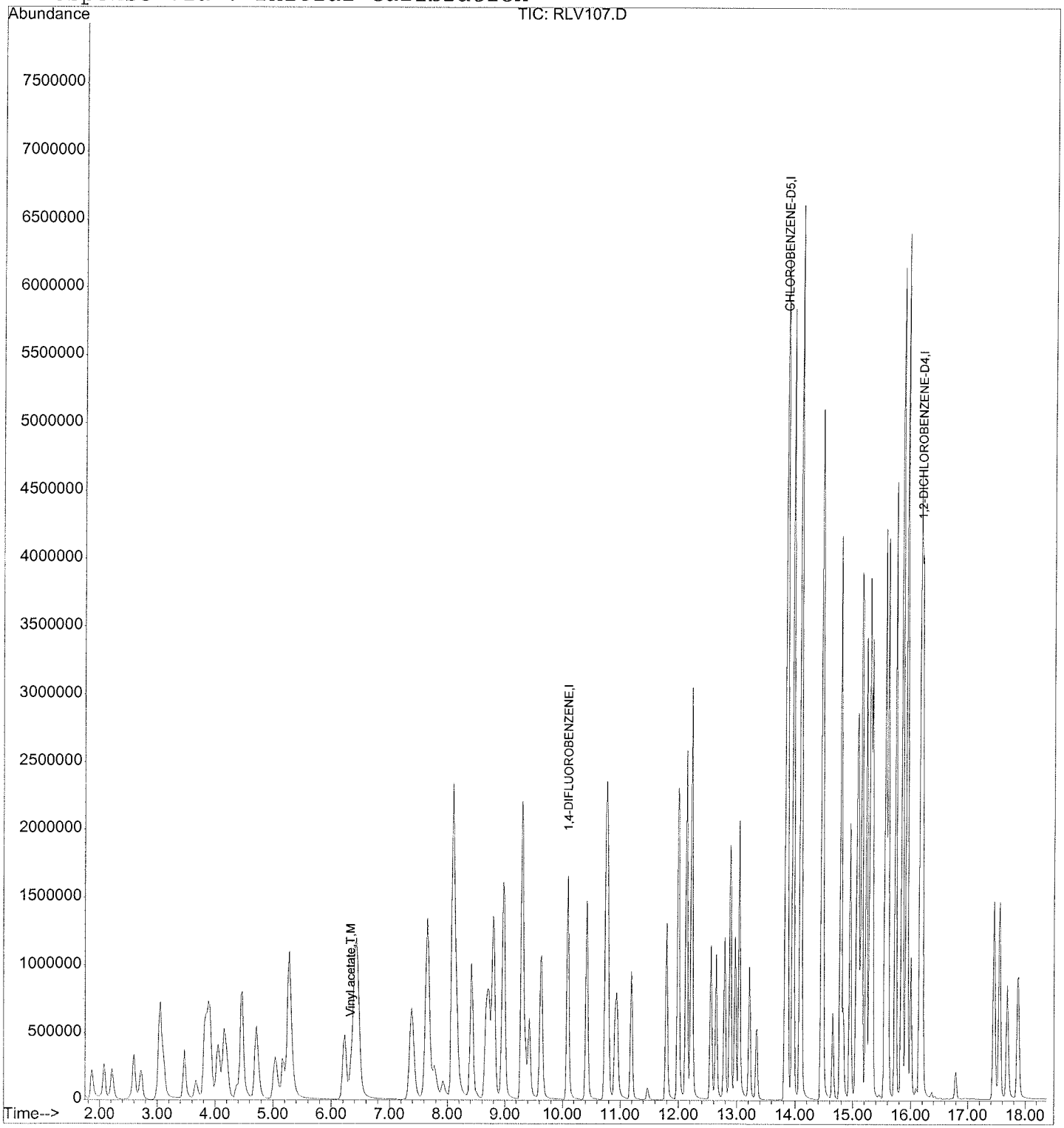
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	2002248	10.00	ug/l	-0.01
3) CHLOROBENZENE-D5	13.84	117	1837219	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.18	152	788927	10.00	ug/l	-0.01
Target Compounds						Qvalue
2) Vinyl acetate	6.33	43	772509	8.28	ug/l	91

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV107.D Vial: 17
Acq On : 13 Dec 2019 7:31 pm Operator: JCorea
Sample : 19L064-07M 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV108.D
Acq On : 13 Dec 2019 7:59 pm
Sample : 19L064-07S 25mL
Misc : DF=1.0
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:41 2019

Vial: 18
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1992801	10.00 ug/l	-0.01
53) CHLOROBENZENE-D5	13.84	117	1792717	10.00 ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.18	152	744256	10.00 ug/l	-0.01
System Monitoring Compounds					
34) Dibromofluoromethane	8.71	111	629232	9.93 ug/l	-0.01
Spiked Amount 10.000			Recovery =	99.30%	
38) 1,2-Dichloroethane-d4	9.29	65	503865	9.10 ug/l	0.00
Spiked Amount 10.000			Recovery =	91.00%	
54) Toluene-d8	12.13	98	2261593	9.89 ug/l	0.00
Spiked Amount 10.000			Recovery =	98.90%	
74) 4-Bromofluorobenzene	14.95	95	824601	9.02 ug/l	-0.01
Spiked Amount 10.000			Recovery =	90.20%	
Target Compounds					Qvalue
3) Dichlorodifluoromethane	1.86	85	560167	10.15 ug/l	98
4) Chloromethane	2.07	50	703308	9.21 ug/l	99
5) Vinyl chloride	2.22	62	709204	8.87 ug/l	100
7) Bromomethane	2.60	94	502100	9.24 ug/l	99
8) Chloroethane	2.73	64	453648	10.29 ug/l	98
9) Dichlorofluoromethane	3.05	67	1011947	9.16 ug/l	100
10) Trichlorofluoromethane	3.10	101	796313	10.34 ug/l	96
11) Acrolein	3.66	56	227884	41.05 ug/l	100
12) 1,1,2-Trichloro-1,2,2-trif	3.91	151	414034	9.80 ug/l	100
13) Acetone	3.91	43	431906	38.42 ug/l	97
14) 1,1-Dichloroethene	3.83	61	914370	8.35 ug/l	95
15) Iodomethane	4.05	142	1174213	10.46 ug/l	96
16) Carbon disulfide	4.15	76	2140294	9.15 ug/l	100
17) Methyl acetate	4.49	43	210977	7.83 ug/l	97
18) Methylene chloride	4.72	49	806026	7.95 ug/l	93
19) tert-Butyl alcohol	5.06	59	735036	209.35 ug/l	97
20) Acrylonitrile	5.18	53	496166	43.56 ug/l	99
21) tert-Butyl methyl ether (M	5.30	73	1092349	8.96 ug/l	97
22) trans-1,2-Dichloroethene	5.28	61	936980	8.71 ug/l	95
24) 1,1-Dichloroethane	6.23	63	1180823	8.72 ug/l	99
25) Isopropyl ether (DIPE)	6.45	45	2256411	9.41 ug/l	96
27) tert-Butyl ethyl ether (ET	7.38	59	1622387	8.33 ug/l	95
28) 2-Butanone	7.68	43	747344	43.97 ug/l	97
29) cis-1,2-Dichloroethene	7.65	96	690790	9.76 ug/l	89
30) 2,2-Dichloropropane	7.65	77	755649	8.60 ug/l	99
31) Tetrahydrofurane	8.21	42	74718	6.55 ug/l	76
32) Bromochloromethane	8.14	49	557263	9.02 ug/l	89

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV108.D Vial: 18
Acq On : 13 Dec 2019 7:59 pm Operator: JCorea
Sample : 19L064-07S 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:41 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
33)	Chloroform	8.41	83	1601868	12.29	ug/l	98
35)	1,1,1-Trichloroethane	8.67	97	871384	9.37	ug/l	98
36)	Cyclohexane	8.80	84	1057330	10.64	ug/l	98
37)	tert-Amyl methyl ether (TA	9.63	73	1450373	9.57	ug/l	98
39)	1,1-Dichloropropene	8.98	110	337450	10.13	ug/l	99
40)	Carbon tetrachloride	8.97	119	765155	9.42	ug/l	98
41)	Benzene	9.31	78	2580238	10.22	ug/l	99
42)	1,2-Dichloroethane	9.43	62	609779	8.96	ug/l	98
44)	Trichloroethene	10.42	130	770280	9.72	ug/l	98
45)	Methylcyclohexane	10.76	83	1185385	9.25	ug/l	94
46)	1,2-Dichloropropane	10.79	63	688849	9.15	ug/l	99
47)	1,4-Dioxane	10.94	88	57241	169.45	ug/l	100
48)	Dibromomethane	10.91	93	325203	9.62	ug/l	94
49)	Bromodichloromethane	11.19	83	817955	9.79	ug/l	99
51)	cis-1,3-Dichloropropene	11.79	75	997382	9.57	ug/l	98
52)	4-Methyl-2-pentanone	11.99	43	2074230	43.85	ug/l	98
55)	Toluene	12.22	91	2807084	9.68	ug/l	100
56)	Ethyl methacrylate	12.64	69	648763	9.28	ug/l	95
57)	trans-1,3-Dichloropropene	12.55	75	778954	9.29	ug/l	95
58)	1,1,2-Trichloroethane	12.79	97	443461	9.60	ug/l	98
59)	Tetrachloroethene	12.89	164	640336	10.48	ug/l	96
60)	1,3-Dichloropropane	12.96	76	839183	9.30	ug/l	98
61)	2-Hexanone	13.04	43	1439261	39.36	ug/l	98
62)	Dibromochloromethane	13.21	129	596875	10.22	ug/l	99
63)	1,2-Dibromoethane	13.35	107	470897	9.58	ug/l	99
64)	1-Chlorohexane	13.85	91	1337835	10.79	ug/l	99
65)	Chlorobenzene	13.87	112	1875637	10.03	ug/l	99
66)	1,1,1,2-Tetrachloroethane	13.96	131	652909	10.07	ug/l	99
67)	Ethylbenzene	13.96	91	3366694	9.32	ug/l	98
68)	m-Xylene & p-Xylene	14.09	91	5154833	19.59	ug/l	99
69)	o-Xylene	14.46	91	2448120	9.58	ug/l	98
70)	Styrene	14.47	104	1960881	9.37	ug/l	99
72)	Bromoform	14.65	173	311069	10.32	ug/l	99
73)	Isopropylbenzene	14.78	105	3411337	9.25	ug/l	99
75)	1,1,2,2-Tetrachloroethane	15.05	83	581488	8.64	ug/l	100
76)	Bromobenzene	15.08	156	779117	9.96	ug/l	100
77)	trans-1,4-Dichloro-2-buten	15.08	53	127582	10.02	ug/l	96
78)	1,2,3-Trichloropropane	15.11	110	147588	8.76	ug/l	97
79)	n-Propylbenzene	15.15	91	4207269	9.46	ug/l	99
80)	1,3,5-Trimethylbenzene	15.29	105	2592619	9.22	ug/l	99
81)	2-Chlorotoluene	15.23	91	2063690	9.00	ug/l	96

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

Data File : D:\HPCHEM\1\DATA\19L13\RLV108.D Vial: 18
Acq On : 13 Dec 2019 7:59 pm Operator: JCorea
Sample : 19L064-07S 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:41 2019 Quant Results File: VO01K05A.RES

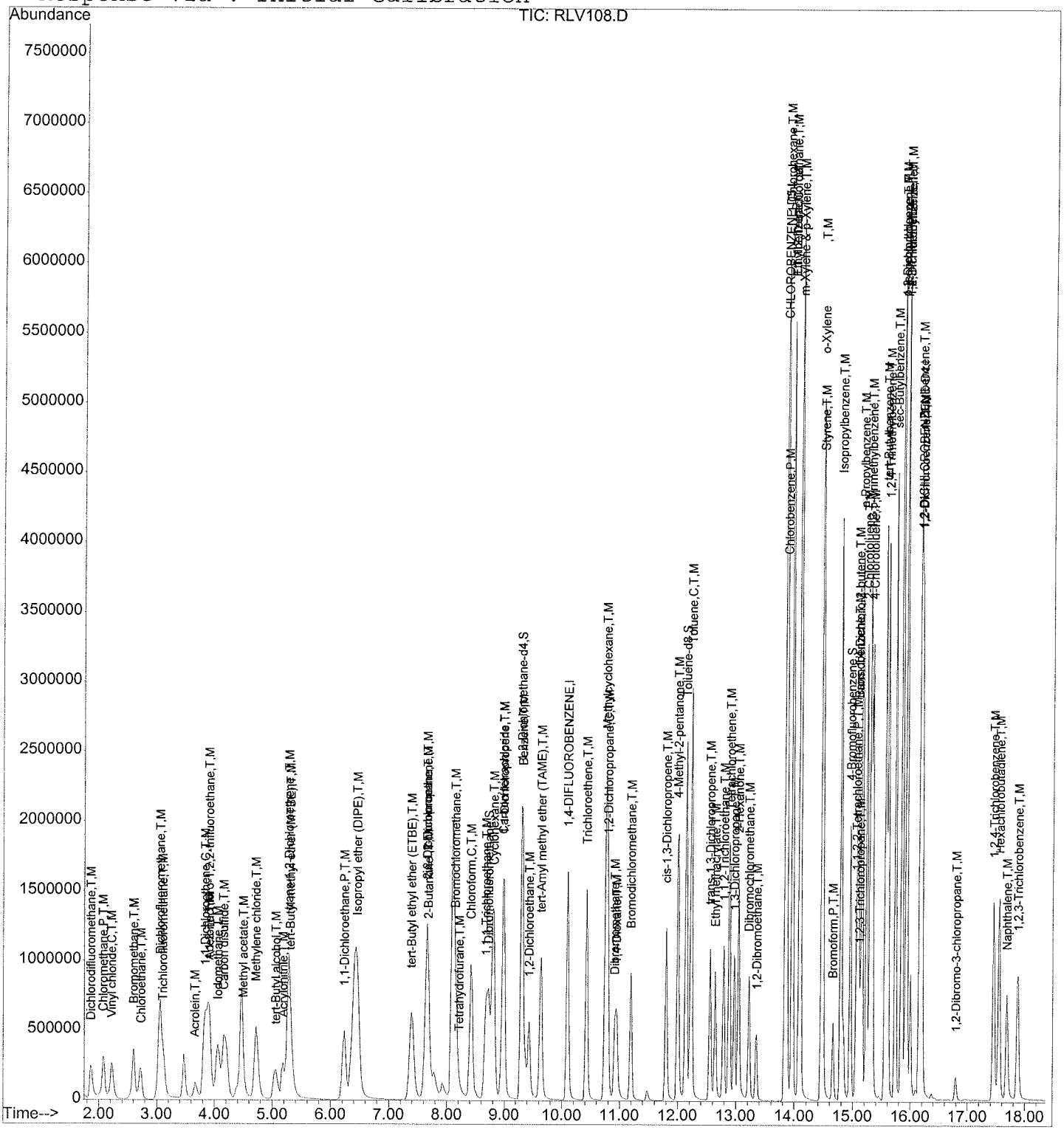
Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
82)	4-Chlorotoluene	15.33	91	2518934	9.46	ug/l	98
83)	tert-Butylbenzene	15.55	134	660909	9.75	ug/l	98
84)	1,2,4-Trimethylbenzene	15.60	105	2565371	9.42	ug/l	84
85)	sec-Butylbenzene	15.73	105	3821152	9.58	ug/l	99
86)	p-Isopropyltoluene	15.85	119	2928550	9.26	ug/l	99
87)	1,3-Dichlorobenzene	15.85	146	1428234	9.89	ug/l	99
88)	1,4-Dichlorobenzene	15.92	146	1439313	10.01	ug/l	97
89)	1,2,3-Trimethylbenzene	15.92	105	2493175	9.91	ug/l	99
90)	n-Butylbenzene	16.16	91	2813014	8.99	ug/l	99
91)	1,2-Dichlorobenzene	16.19	146	1193424	9.56	ug/l	99
92)	1,2-Dibromo-3-chloropropan	16.80	157	80217	9.68	ug/l	98
93)	1,2,4-Trichlorobenzene	17.45	180	723614	10.76	ug/l	99
94)	Hexachlorobutadiene	17.55	225	480335	10.07	ug/l	99
95)	Naphthalene	17.69	128	1004124	9.41	ug/l	99
96)	1,2,3-Trichlorobenzene	17.88	180	514608	10.37	ug/l	98

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

Data File : D:\HPCHEM\1\DATA\19L13\RLV108.D Vial: 18
Acq On : 13 Dec 2019 7:59 pm Operator: JCorea
Sample : 19L064-07S 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 16:41 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV108.D Vial: 18
Acq On : 13 Dec 2019 7:59 pm Operator: JCorea
Sample : 19L064-07S 25mL Inst : 01
Misc : DF=1.0 Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1992801	10.00	ug/l	-0.01
3) CHLOROBENZENE-D5	13.84	117	1792717	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.18	152	744256	10.00	ug/l	-0.01
Target Compounds						Qvalue
2) Vinyl acetate	6.35	43	681281	7.34	ug/l	89

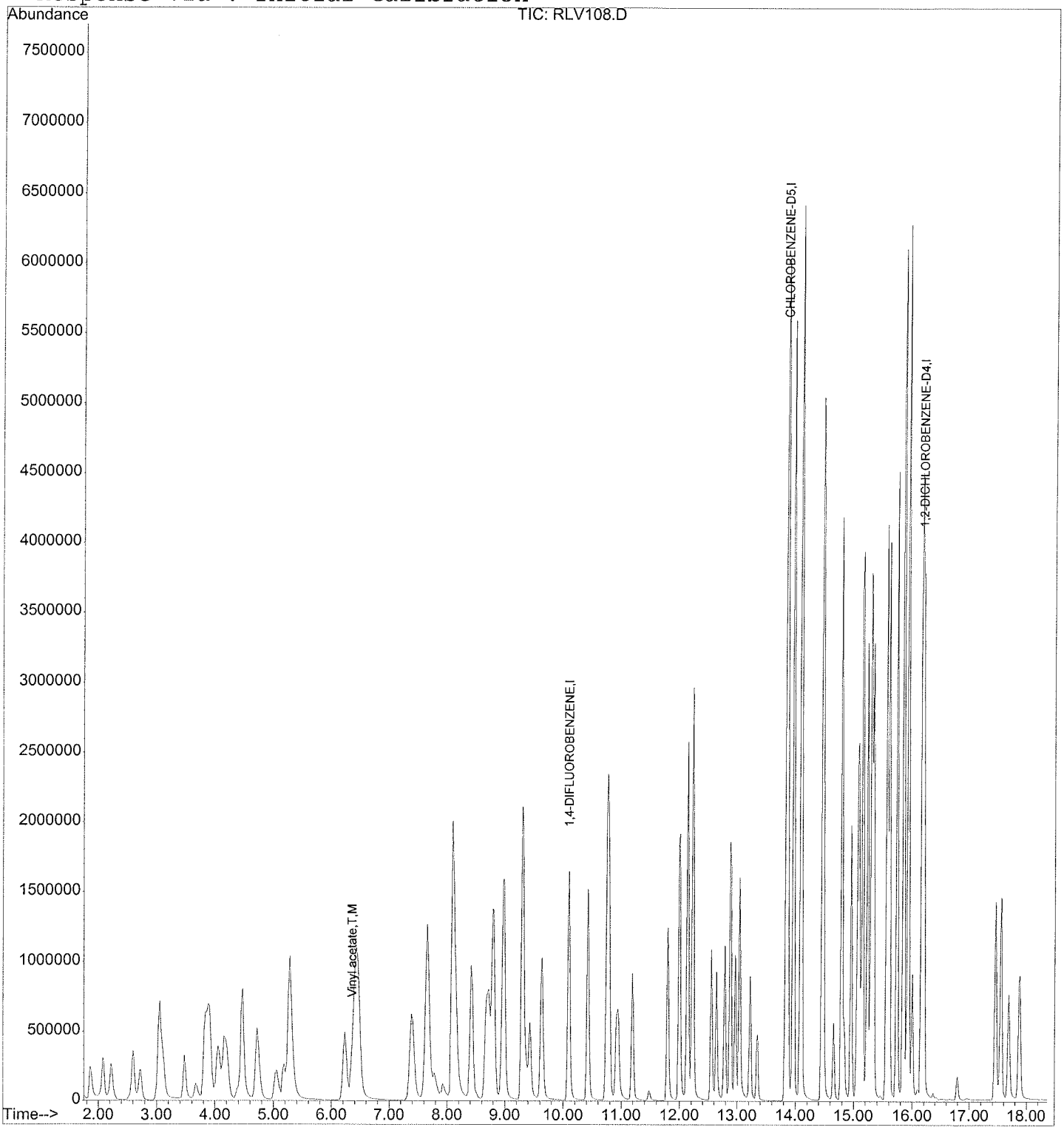
(#) = qualifier out of range (m) = manual integration
RLV108.D VO01K06.M Mon Dec 16 10:01:27 2019 Page 1

Data File : D:\HPCHEM\1\DATA\19L13\RLV108.D
Acq On : 13 Dec 2019 7:59 pm
Sample : 19L064-07S 25mL
Misc : DF=1.0
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019

Vial: 18
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



INITIAL CALIBRATION

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc
Lab Code: EMXT Case No.:
Lab File ID: RKV032
Instrument ID: 01
GC Column:RXI-624SILMSID:0.25mm (mm)

Contract: VA SALT LAKE CITY
SAS No.: SDG No.: 19L064
BFB Injection Date : 11/05/19
BFB Injection Time : 16:13
Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	21.84
75	30.0 - 60.0% of mass 95	48.60
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.24
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	71.44
175	5.0 - 9.0% of mass 174	5.55(7.8)1
176	95.0 - 101.0% of mass 174	70.79(99.1)1
177	5.0 - 9.0% of mass 176	4.51(6.4)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD0.3	VO01K051	RKV033	11/05/19	16:58
2	VSTD0.5	VO01K052	RKV034	11/05/19	17:25
3	VSTD01	VO01K053	RKV035	11/05/19	17:53
4	VSTD02	VO01K054	RKV036	11/05/19	18:20
5	VSTD05	VO01K055	RKV037	11/05/19	18:47
6	VSTD010	VO01K056	RKV038	11/05/19	19:14
7	VSTD020	VO01K057	RKV039	11/05/19	19:42
8	VSTD030	VO01K058	RKV040	11/05/19	20:09
9	VSTD050	VO01K059	RKV041	11/05/19	20:36
10	VSTD100	VO01K0510	RKV042	11/05/19	21:04
11	VSTD010	IVO01K0501	RKV045	11/05/19	22:26

FORM V VOA OLM02.0

INITIAL_CALIBRATION - RELATIVE_RESPONSE_FACTOR

Instrument ID :01
Beginning DateTime :11/05/19 16:58
Spike Units :PPB
IC File :RKV038

Column Spec :RXI-624SILMS ID :0.25MM
Ending DateTime :11/05/19 21:04
HPChem Method :V001K05A

M	IDX	Parameters	.3 16:58 RKV033	.5 17:25 RKV034	1 17:53 RKV035	2 18:20 RKV036	5 18:47 RKV037	10 19:14 RKV038	20 19:42 RKV039	30 20:09 RKV040	50 20:36 RKV041	100 21:04 RKV042	Av_RRF	%_RSD	Av_Rt_M
	1	1,4-DIFLUOROBENZENE	1	1	1	1	1	1	1	1	1	1	1	0	10.1010
	2	Chlorotrifluoroethylene	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
	3	Dichlorodifluoromethane	------	0.235	0.271	0.291	0.281	0.298	0.308	0.268	0.271	0.267	0.277	7.70	1.8592
	4	Chloromethane	------	0.292	0.350	0.352	0.395	0.392	0.434	0.399	0.412	0.421	0.383	11.51	2.0743
	5	Vinyl chloride	------	0.249	0.321	0.352	0.384	0.410	0.453	0.395	0.399	0.409	0.375	16.04	2.2166
	6	2-Chloro-1,1,1-trifluoroethane	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
	7	Bromomethane	------	0.200	0.267	0.282	0.302	0.302	0.284	------	------	------	0.273	13.89	2.6018
	8	Chloroethane	------	0.179	0.217	0.226	0.237	0.242	0.240	0.208	------	------	0.221	10.09	2.7235
	9	Dichlorofluoromethane	0.501	0.557	0.549	0.606	0.599	0.571	0.614	0.521	0.471	------	0.554	8.87	3.0485
	10	Trichlorofluoromethane	------	0.290	0.350	0.393	0.408	0.445	0.440	0.387	0.376	0.386	0.386	12.10	3.0948
5	11	Acrolein	0.027	0.031	0.028	0.028	0.029	0.030	0.027	0.026	0.028	0.024	0.028	6.74	3.6727
	12	1,1,2-Trichloro-1,2,2-trifluoroethane	0.184	0.194	0.210	0.238	0.223	0.215	0.227	0.205	0.207	0.218	0.212	7.49	3.9027
5	13	Acetone	------	------	0.065	0.057	0.059	0.062	0.053	0.051	0.056	0.048	0.056	10.02	3.9107
	14	1,1-Dichloroethene	0.498	0.524	0.568	0.616	0.598	0.561	0.575	0.536	0.512	0.509	0.550	7.32	3.8293
	15	Iodomethane	0.468	0.536	0.572	0.615	0.602	0.563	0.587	0.548	0.565	0.579	0.563	7.28	4.0544
	16	Carbon disulfide	------	------	0.970	1.099	1.149	1.242	1.288	1.231	1.242	------	1.174	9.42	4.1696
	17	Methyl acetate	------	------	0.115	0.118	0.135	0.158	0.131	0.134	0.155	0.136	0.135	11.34	4.4947
	18	Methylene chloride	------	0.565	0.528	0.554	0.534	0.487	0.486	0.472	0.476	0.477	0.509	7.18	4.7150
25	19	tert-Butyl alcohol	0.015	0.016	0.016	0.016	0.018	0.022	0.017	0.017	0.022	0.019	0.018	14.26	5.0673
5	20	Acrylonitrile	------	------	0.045	0.049	0.059	0.062	0.059	0.059	0.066	0.058	0.057	12.12	5.1828
	21	tert-Butyl methyl ether (MTBE)	0.524	0.617	0.625	0.637	0.663	0.661	0.604	0.578	0.628	0.578	0.611	6.95	5.3021
	22	trans-1,2-Dichloroethene	0.458	0.508	0.546	0.595	0.580	0.545	0.568	0.533	0.526	0.537	0.540	7.15	5.2728
	23	Vinyl acetate	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
	24	1,1-Dichloroethane	0.562	0.651	0.698	0.724	0.721	0.684	0.722	0.672	0.674	0.685	0.679	7.06	6.2294
	25	Isopropyl ether (DIPE)	0.990	1.136	1.224	1.272	1.303	1.240	1.228	1.178	1.239	1.228	1.204	7.30	6.4520
25	26	2-Butanol	------	------	0.011	0.012	0.016	0.021	0.016	0.018	0.023	------	0.017	27.13	8.2624
	27	tert-Butyl ethyl ether (ETBE)	1.092	1.111	1.025	1.001	0.976	0.961	0.918	0.877	0.924	0.886	0.977	8.27	7.4013
5	28	2-Butanone	------	------	0.066	0.071	0.086	0.100	0.086	0.086	0.101	0.086	0.085	14.18	7.6937
	29	cis-1,2-Dichloroethene	0.302	0.336	0.352	0.368	0.388	0.359	0.367	0.354	0.360	0.364	0.355	6.46	7.6607
	30	2,2-Dichloropropane	0.392	0.422	0.442	0.483	0.484	0.459	0.471	0.427	0.414	0.416	0.441	7.24	7.6509
	31	Tetrahydrofurane	------	------	------	0.049	0.054	0.065	0.051	0.058	0.070	0.053	0.057	13.30	8.2101
	32	Bromochloromethane	0.267	0.298	0.318	0.326	0.331	0.331	0.312	0.301	0.317	0.300	0.310	6.29	8.1500
	33	Chloroform	0.604	0.625	0.670	0.693	0.695	0.654	0.687	0.632	0.634	0.648	0.654	4.79	8.4289
	34	Dibromofluoromethane	0.271	0.282	0.312	0.328	0.341	0.329	0.339	0.326	0.330	0.322	0.318	7.37	8.7273
	35	1,1,1-Trichloroethane	0.391	0.433	0.467	0.507	0.504	0.479	0.510	0.453	0.458	0.465	0.467	7.85	8.6814
	36	Cyclohexane	------	0.358	0.463	0.482	0.511	0.542	0.549	0.530	0.526	0.525	0.498	11.93	8.8028
	37	tert-Amyl methyl ether (TAME)	0.639	0.760	0.778	0.771	0.812	0.811	0.769	0.732	0.803	0.728	0.760	6.81	9.6361
	38	1,2-Dichloroethane-d4	0.239	0.275	0.281	0.288	0.302	0.299	0.284	0.265	0.282	0.264	0.278	6.65	9.2986
	39	1,1-Dichloropropene	0.131	0.146	0.165	0.177	0.180	0.168	0.187	0.172	0.170	0.173	0.167	10.02	8.9908
	40	Carbon tetrachloride	0.327	0.371	0.402	0.445	0.442	0.420	0.452	0.402	0.401	0.415	0.408	9.16	8.9656
	41	Benzene	1.117	1.229	1.284	1.355	1.358	1.283	1.378	1.279	1.317	1.073	1.267	8.04	9.3090
	42	1,2-Dichloroethane	0.267	0.341	0.352	0.361	0.385	0.364	0.357	0.322	0.338	0.327	0.341	9.41	9.4333
	43	2,2,4-Trimethylpentane	1.455	1.580	1.728	1.844	1.736	1.711	1.885	1.673	1.725	------	1.704	7.56	9.5873
	44	Trichloroethene	0.369	0.363	0.387	0.426	0.410	0.390	0.427	0.400	0.402	0.400	0.397	5.31	10.4266
	45	Methylcyclohexane	------	0.475	0.598	0.616	0.674	0.701	0.713	0.682	0.658	0.669	0.643	11.35	10.7568
	46	1,2-Dichloropropane	0.330	0.373	0.383	0.396	0.405	0.379	0.408	0.371	0.368	0.363	0.378	6.07	10.7907
20	47	1,4-Dioxane	------	------	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	8.03	10.9400
	48	Dibromomethane	0.123	0.158	0.166	0.180	0.183	0.185	0.180	0.165	0.185	0.169	0.170	11.20	10.9180
	49	Bromodichloromethane	0.329	0.379	0.399	0.436	0.460	0.440	0.453	0.414	0.449	0.434	0.419	9.65	11.1963
	50	2-Chloroethyl vinyl ether	------	0.057	0.075	0.090	0.111	0.131	0.135	0.129	0.157	0.149	0.115	29.67	11.6252
	51	cis-1,3-Dichloropropene	0.404	0.457	0.503	0.530	0.563	0.549	0.579	0.528	0.563	0.551	0.523	10.43	11.8002
5	52	4-Methyl-2-pentanone	------	0.209	0.213	0.215	0.248	0.274	0.242	0.235	0.263	------	0.237	10.22	12.0039
	53	CHLOROBENZENE-D5	1	1	1	1	1	1	1	1	1	1	1	0	13.8356
	54	Toluene-d8	1.198	1.197	1.246	1.314	1.353	1.295	1.363	1.384	1.343	1.064	1.276	7.82	12.1392
	55	Toluene	1.433	1.541	1.598	1.716	1.682	1.599	1.739	1.704	1.551	------	1.618	6.22	12.2287
	56	Ethyl methacrylate	------	0.325	0.342	0.357	0.397	0.420	0.392	0.405	0.440	0.431	0.390	10.32	12.6449
	57	trans-1,3-Dichloropropene	------	0.384	0.416	0.449	0.481	0.492	0.490	0.479	0.500	0.517	0.468	9.22	12.5544
	58	1,1,2-Trichloroethane	0.237	0.266	0.251	0.262	0.262	0.260	0.254	0.252	0.267	0.265	0.258	3.54	12.7906

SC
11/25/19

59	Tetrachloroethene	0.306	0.312	0.322	0.349	0.350	0.338	0.358	0.354	0.349	0.370	0.341	6.15	12.8882
60	1,3-Dichloropropane	0.405	0.501	0.490	0.504	0.526	0.530	0.526	0.503	0.529	0.520	0.503	7.38	12.9785
5 61	2-Hexanone	------	------	0.149	0.155	0.184	0.221	0.197	0.200	0.226	------	0.190	15.74	13.0449
62	Dibromochloromethane	0.241	0.286	0.303	0.325	0.351	0.354	0.348	0.337	0.355	0.357	0.326	11.72	13.2287
63	1,2-Dibromoethane	------	0.245	0.253	0.273	0.281	0.290	0.278	0.271	0.290	0.288	0.274	5.85	13.3488
64	1-Chlorohexane	0.661	0.656	0.693	0.732	0.705	0.692	0.742	0.707	0.675	0.656	0.692	4.39	13.8534
65	Chlorobenzene	0.968	1.032	1.096	1.104	1.093	1.083	1.119	1.060	1.032	0.849	1.044	7.83	13.8652
66	1,1,1,2-Tetrachloroethane	0.300	0.320	0.352	0.373	0.379	0.381	0.393	0.372	0.371	0.377	0.362	8.16	13.9688
67	Ethylbenzene	1.805	1.895	1.949	2.127	2.071	2.062	2.231	1.985	------	------	2.016	6.71	13.9688
2 68	m-Xylene & p-Xylene	1.312	1.370	1.432	1.586	1.557	1.542	1.630	1.313	------	------	1.468	8.66	14.0965
69	o-Xylene	1.306	1.411	1.371	1.516	1.507	1.463	1.549	1.467	1.233	------	1.425	7.36	14.4606
70	Styrene	1.048	1.089	1.130	1.224	1.223	1.197	1.254	1.197	1.146	------	1.167	5.88	14.4787
71	1,2-DICHLOROBENZENE-D4	1	1	1	1	1	1	1	1	1	1	1	0	16.1892
72	Bromoform	------	0.333	0.344	0.388	0.401	0.446	0.429	0.414	0.486	------	0.405	12.56	14.6628
73	Isopropylbenzene	4.589	4.550	4.920	5.174	5.030	5.000	5.386	5.015	------	------	4.958	5.62	14.7977
74	4-Bromofluorobenzene	1.259	1.165	1.143	1.239	1.217	1.229	1.240	1.231	1.242	1.323	1.229	4.01	14.9562
75	1,1,2,2-Tetrachloroethane	0.846	0.878	0.909	0.914	0.908	0.973	0.897	0.844	0.963	0.906	0.904	4.68	15.0583
76	Bromobenzene	0.959	0.960	1.029	1.054	1.048	1.077	1.084	1.024	1.098	1.177	1.051	6.16	15.0835
77	trans-1,4-Dichloro-2-butene	------	0.132	0.159	0.155	0.170	0.197	0.181	0.168	0.197	0.182	0.171	12.16	15.0840
78	1,2,3-Trichloropropane	------	0.213	0.212	0.232	0.228	0.247	0.223	0.208	0.244	0.229	0.226	6.03	15.1103
79	n-Propylbenzene	5.511	5.528	5.928	6.307	6.153	6.226	6.784	5.361	------	------	5.975	8.13	15.1549
80	1,3,5-Trimethylbenzene	3.665	3.534	3.725	4.091	3.918	3.789	4.150	3.804	3.315	------	3.777	6.91	15.3011
81	2-Chlorotoluene	2.663	2.924	2.960	3.168	3.148	3.138	3.374	3.216	3.122	------	3.079	6.65	15.2419
82	4-Chlorotoluene	3.455	3.222	3.568	3.856	3.692	3.712	3.785	3.491	3.407	------	3.577	5.68	15.3372
83	tert-Butylbenzene	0.826	0.829	0.909	0.976	0.924	0.939	0.976	0.896	0.885	0.949	0.911	5.87	15.5675
84	1,2,4-Trimethylbenzene	3.207	3.387	3.542	3.980	3.825	3.848	4.087	3.730	3.322	------	3.659	8.43	15.6119
85	sec-Butylbenzene	4.871	4.812	5.272	5.795	5.463	5.435	6.008	5.239	------	------	5.362	7.68	15.7396
86	p-Isopropyltoluene	3.980	4.033	4.271	4.613	4.359	4.372	4.749	4.353	3.501	------	4.248	8.72	15.8521
87	1,3-Dichlorobenzene	1.773	1.777	1.873	2.056	1.971	1.994	2.090	2.000	1.967	1.909	1.941	5.54	15.8517
88	1,4-Dichlorobenzene	1.804	1.886	2.004	2.053	1.931	1.998	2.038	1.832	1.909	1.860	1.932	4.55	15.9301
89	1,2,3-Trimethylbenzene	3.242	3.162	3.393	3.617	3.372	3.500	3.669	3.299	3.179	------	3.382	5.41	15.9376
90	n-Butylbenzene	3.961	3.836	4.079	4.519	4.361	4.277	4.804	4.408	3.604	------	4.206	8.82	16.1629
91	1,2-Dichlorobenzene	1.527	1.617	1.682	1.739	1.705	1.698	1.752	1.660	1.692	1.700	1.677	3.87	16.2040
92	1,2-Dibromo-3-chloropropane	------	------	0.091	0.097	0.105	0.130	0.110	0.109	0.127	0.121	0.111	12.58	16.8018
93	1,2,4-Trichlorobenzene	0.793	0.812	0.867	0.924	0.900	0.982	0.934	0.895	0.950	0.980	0.904	7.14	17.4652
94	Hexachlorobutadiene	0.577	0.602	0.630	0.682	0.632	0.660	0.684	0.635	0.620	0.686	0.641	5.75	17.5614
95	Naphthalene	1.433	1.321	1.337	1.357	1.325	1.613	1.443	1.399	1.565	1.551	1.434	7.49	17.6975
96	1,2,3-Trichlorobenzene	0.616	0.629	0.658	0.675	0.662	0.721	0.666	0.646	0.686	0.709	0.667	4.95	17.8841

Spike Amount = Nominal Amount * M
Ave_%RSD : 8.7 Max_%RSD : 29.7

Use Least Square Linear Regression with weighting factor of inverse concentration for comps with %_RSD > 15
Resp_Ratio = xo + x1 * Amt_Ratio

IDX	Parameter	x0	x1	CCF
5	Vinyl chloride	-0.00821	0.41027	0.9992
26	2-Butanol	-0.03702	0.02057	0.9894*
50	2-Chloroethyl vinyl ether	-0.00739	0.14725	0.9974
61	2-Hexanone	-0.04773	0.21610	0.9976

SA
11/25/19

Use Quadratic Regression of inv conc w.f. for comps of linear reg of inv conc w.f. with CCF < .995
Resp_Ratio = xo + x1 * Amt_Ratio + x2 * Amt_Ratio * Amt_Ratio

IDX	Parameter	x0	x1	x2	CCF2
26	2-Butanol	-0.00838	0.01496	0.00006	0.9953

PROGRAM: ICALMAX
Input: R:RKV038.ICL Output: R:RKV038.MAX

IDX	Parameter	x0	x1	x2	CCF2	MaxMinAmtRatio	MaxMinRespRatio	MaxMinRRF	MaxMinConc
26	2-Butanol	-0.00838	0.01496	0.00006	0.9953	%-124.66667	-0.94089	0.00755	-1246.7

SA
11/25/19

INITIAL_CALIBRATION - RELATIVE_RESPONSE_FACTOR(%REC)

Instrument ID :01
Beginning DateTime :11/05/19 16:58
Spike Units :PPB
IC File :RKV038

Column Spec :RXI-624SILMS ID :0.25MM
Ending DateTime :11/05/19 21:04
HPChem Method :V001K05A

M	IDX	Parameters	.3 16:58 RKV033	.5 17:25 RKV034	1 17:53 RKV035	2 18:20 RKV036	5 18:47 RKV037	10 19:14 RKV038	20 19:42 RKV039	30 20:09 RKV040	50 20:36 RKV041	100 21:04 RKV042	AvDRec	%_RSD	Av_Rt_M
	1	1,4-DIFLUOROBENZENE	1	1	1	1	1	1	1	1	1	1	1	0	10.1010
	2	Chlorotrifluoroethylene	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
	3	Dichlorodifluoromethane	------	85	98	105	101	108	111	97	98	96	5.7	7.70	1.8592
	4	Chloromethane	------	76	91	92	103	102	113	104	108	110	9	11.51	2.0743
	5	Vinyl chloride	------	101	98	96	98	102	112	97	98	100	3.1	16.04	2.2166
	6	2-Chloro-1,1,1-trifluoroethane	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
	7	Bromomethane	------	73	98	103	111	111	104	------	------	------	9.6	13.89	2.6018
	8	Chloroethane	------	81	98	102	107	110	109	94	------	------	7.8	10.09	2.7235
	9	Dichlorofluoromethane	90	101	99	109	108	103	111	94	85	------	7	8.87	3.0485
	10	Trichlorofluoromethane	------	75	91	102	106	115	114	100	97	100	8.2	12.10	3.0948
5	11	Acrolein	96	111	100	100	104	107	96	93	100	86	5	6.74	3.6727
	12	1,1,2-Trichloro-1,2,2-trifluoroethane	87	92	99	112	105	101	107	97	98	103	5.7	7.49	3.9027
5	13	Acetone	------	------	116	102	105	111	95	91	100	86	7.8	10.02	3.9107
	14	1,1-Dichloroethene	91	95	103	112	109	102	105	97	93	93	6.2	7.32	3.8293
	15	Iodomethane	83	95	102	109	107	100	104	97	100	103	5	7.28	4.0544
	16	Carbon disulfide	------	------	83	94	98	106	110	105	106	------	7.4	9.42	4.1696
	17	Methyl acetate	------	------	85	87	100	117	97	99	115	101	8	11.34	4.4947
	18	Methylene chloride	------	111	104	109	105	96	95	93	94	94	6.4	7.18	4.7150
25	19	tert-Butyl alcohol	83	89	89	89	100	122	94	94	122	106	11.1	14.26	5.0673
5	20	Acrylonitrile	------	------	79	86	104	109	104	104	116	102	9	12.12	5.1828
	21	tert-Butyl methyl ether (MTBE)	86	101	102	104	109	108	99	95	103	95	5.3	6.95	5.3021
	22	trans-1,2-Dichloroethene	85	94	101	110	107	101	105	99	97	99	5	7.15	5.2728
	23	Vinyl acetate	------	------	------	------	------	------	------	------	------	------	0.000	0.00	0.0000
	24	1,1-Dichloroethane	83	96	103	107	106	101	106	99	99	101	4.7	7.06	6.2294
	25	Isopropyl ether (DIPE)	82	94	102	106	108	103	102	98	103	102	5.1	7.30	6.4520
25	26	2-Butanol	------	------	124	92	92	109	81	90	113	------	13	27.13	8.2624
	27	tert-Butyl ethyl ether (ETBE)	112	114	105	102	100	98	94	90	95	91	6.6	8.27	7.4013
5	28	2-Butanone	------	------	78	84	101	118	101	101	119	101	10	14.18	7.6937
	29	cis-1,2-Dichloroethene	85	95	99	104	109	101	103	100	101	103	4.3	6.46	7.6607
	30	2,2-Dichloropropane	89	96	100	110	110	104	107	97	94	94	6.1	7.24	7.6509
	31	Tetrahydrofurane	------	------	------	86	95	114	89	102	123	93	10.8	13.30	8.2101
	32	Bromochloromethane	86	96	103	105	107	107	101	97	102	97	4.8	6.29	8.1500
	33	Chloroform	92	96	102	106	106	100	105	97	97	99	3.9	4.79	8.4289
	34	Dibromofluoromethane	85	89	98	103	107	103	107	103	104	101	5.6	7.37	8.7273
	35	1,1,1-Trichloroethane	84	93	100	109	108	103	109	97	98	100	5.7	7.85	8.6814
	36	Cyclohexane	------	72	93	97	103	109	110	106	106	105	8.6	11.93	8.8028
	37	tert-Amyl methyl ether (TAME)	84	100	102	101	107	107	101	96	106	96	4.8	6.81	9.6361
	38	1,2-Dichloroethane-d4	86	99	101	104	109	108	102	95	101	95	4.9	6.65	9.2986
	39	1,1-Dichloropropene	78	87	99	106	108	101	112	103	102	104	7	10.02	8.9908
	40	Carbon tetrachloride	80	91	99	109	108	103	111	99	98	102	6.6	9.16	8.9656
	41	Benzene	88	97	101	107	107	101	109	101	104	85	6.1	8.04	9.3090
	42	1,2-Dichloroethane	78	100	103	106	113	107	105	94	99	96	6.6	9.41	9.4333
	43	2,2,4-Trimethylpentane	85	93	101	108	102	100	111	98	101	------	5.3	7.56	9.5873
	44	Trichloroethene	93	91	97	107	103	98	108	101	101	101	4.1	5.31	10.4266
	45	Methylcyclohexane	------	74	93	96	105	109	111	106	102	104	8.3	11.35	10.7568
	46	1,2-Dichloropropane	87	99	101	105	107	100	108	98	97	96	4.4	6.07	10.7907
20	47	1,4-Dioxane	------	------	100	100	100	100	100	100	100	100	0	8.03	10.9400
	48	Dibromomethane	72	93	98	106	108	109	106	97	109	99	7.8	11.20	10.9180
	49	Bromodichloromethane	79	90	95	104	110	105	108	99	107	104	7.5	9.65	11.1963
	50	2-Chloroethyl vinyl ether	------	139	101	87	86	94	94	89	108	102	11.1	29.67	11.6252
	51	cis-1,3-Dichloropropene	77	87	96	101	108	105	111	101	108	105	7.8	10.43	11.8002
5	52	4-Methyl-2-pentanone	------	88	90	91	105	116	102	99	111	------	8.2	10.22	12.0039
	53	CHLOROBENZENE-D5	1	1	1	1	1	1	1	1	1	1	1	0	13.8356
	54	Toluene-d8	94	94	98	103	106	101	107	108	105	83	6.2	7.82	12.1392
	55	Toluene	89	95	99	106	104	99	107	105	96	------	5.1	6.22	12.2287
	56	Ethyl methacrylate	------	83	88	92	102	108	101	104	113	111	8.3	10.32	12.6449
	57	trans-1,3-Dichloropropene	------	82	89	96	103	105	105	102	107	110	7.3	9.22	12.5544
	58	1,1,2-Trichloroethane	92	103	97	102	102	101	98	98	103	103	2.8	3.54	12.7906

For 8 260C

SM 11/25/19

59	Tetrachloroethene	90	91	94	102	103	99	105	104	102	109	5	6.15	12.8882	
60	1,3-Dichloropropane	81	100	97	100	105	105	105	100	105	103	4.6	7.38	12.9785	
5 61	2-Hexanone	------	------	113	94	94	107	93	94	106	------	7.3	15.74	13.0449	
62	Dibromochloromethane	74	88	93	100	108	109	107	103	109	110	9	11.72	13.2287	
63	1,2-Dibromoethane	------	89	92	100	103	106	101	99	106	105	4.5	5.85	13.3488	
64	1-Chlorohexane	96	95	100	106	102	100	107	102	98	95	3.5	4.39	13.8534	
65	Chlorobenzene	93	99	105	106	105	104	107	102	99	81	5.6	7.83	13.8652	
66	1,1,1,2-Tetrachloroethane	83	88	97	103	105	105	109	103	102	104	6.2	8.16	13.9688	
67	Ethylbenzene	90	94	97	106	103	102	111	98	------	------	5.3	6.71	13.9688	
2 68	m-Xylene & p-Xylene	89	93	98	108	106	105	111	89	------	------	7.6	8.66	14.0965	
69	o-Xylene	92	99	96	106	106	103	109	103	87	------	5.9	7.36	14.4606	
70	Styrene	90	93	97	105	105	103	107	103	98	------	4.9	5.88	14.4787	
71	1,2-DICHLOROBENZENE-D4	1	1	1	1	1	1	1	1	1	1	1	0	16.1892	
72	Bromoform	------	82	85	96	99	110	106	102	120	------	9.5	12.56	14.6628	
73	Isopropylbenzene	93	92	99	104	101	101	109	101	------	------	4.1	5.62	14.7977	
74	4-Bromofluorobenzene	102	95	93	101	99	100	101	100	101	108	2.6	4.01	14.9562	
75	1,1,2,2-Tetrachloroethane	94	97	101	101	100	108	99	93	107	100	3.3	4.68	15.0583	
76	Bromobenzene	91	91	98	100	100	102	103	97	104	112	4.5	6.16	15.0835	
77	trans-1,4-Dichloro-2-butene	------	77	93	91	99	115	106	98	115	106	9.4	12.16	15.0840	
78	1,2,3-Trichloropropane	------	94	94	103	101	109	99	92	108	101	4.8	6.03	15.1103	
79	n-Propylbenzene	92	93	99	106	103	104	114	90	------	------	6.6	8.13	15.1549	
80	1,3,5-Trimethylbenzene	97	94	99	108	104	100	110	101	88	------	5.1	6.91	15.3011	
81	2-Chlorotoluene	86	95	96	103	102	102	110	104	101	------	5	6.65	15.2419	
82	4-Chlorotoluene	97	90	100	108	103	104	106	98	95	------	4.6	5.68	15.3372	
83	tert-Butylbenzene	91	91	100	107	101	103	107	98	97	104	4.6	5.87	15.5675	
84	1,2,4-Trimethylbenzene	88	93	97	109	105	105	112	102	91	------	7.1	8.43	15.6119	
85	sec-Butylbenzene	91	90	98	108	102	101	112	98	------	------	5.8	7.68	15.7396	
86	p-Isopropyltoluene	94	95	101	109	103	103	112	102	82	------	6.4	8.72	15.8521	
87	1,3-Dichlorobenzene	91	92	96	106	102	103	108	103	101	98	4.5	5.54	15.8517	
88	1,4-Dichlorobenzene	93	98	104	106	100	103	105	95	99	96	3.8	4.55	15.9301	
89	1,2,3-Trimethylbenzene	96	93	100	107	100	103	108	98	94	------	4.3	5.41	15.9376	
90	n-Butylbenzene	94	91	97	107	104	102	114	105	86	------	7.1	8.82	16.1629	
91	1,2-Dichlorobenzene	91	96	100	104	102	101	104	99	101	101	2.7	3.87	16.2040	
92	1,2-Dibromo-3-chloropropane	------	------	82	87	95	117	99	98	114	109	9.9	12.58	16.8018	
93	1,2,4-Trichlorobenzene	88	90	96	102	100	109	103	99	105	108	5.6	7.14	17.4652	
94	Hexachlorobutadiene	90	94	98	106	99	103	107	99	97	107	4.6	5.75	17.5614	
95	Naphthalene	100	92	93	95	92	112	101	98	109	108	6.1	7.49	17.6975	
96	1,2,3-Trichlorobenzene	92	94	99	101	99	108	100	97	103	106	3.7	4.95	17.8841	

For 8260C

SA

1V25/19

Compound List Report 01

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
Total Cpnds : 96

PK#		Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I	1,4-DIFLUOROBENZENE	114	10.11	1.000	A	1	A	B
2	T	Chlorotrifluoroethylene	116	1.94	0.192	A	2	A	B
3	T	Dichlorodifluoromethane	85	1.86	0.184	A	1	A	B
4	T	Chloromethane	50	2.07	0.205	A	1	A	B
5	T	Vinyl chloride	62	2.22	0.219	L	1	A	B
6	T	2-Chloro-1,1,1-trifluoroethane	118	2.43	0.241	A	2	A	B
7	T	Bromomethane	94	2.60	0.257	A	1	A	B
8	T	Chloroethane	64	2.71	0.269	A	1	A	B
9	T	Dichlorofluoromethane	67	3.05	0.302	A	1	A	B
10	T	Trichlorofluoromethane	101	3.10	0.307	A	1	A	B
11	T	Acrolein	56	3.66	0.362	A	1	A	B
12	T	1,1,2-Trichloro-1,2,2-trifluor	151	3.91	0.387	A	1	A	B
13	T	Acetone	43	3.91	0.387	A	1	A	B
14	T	1,1-Dichloroethene	61	3.83	0.379	A	2	A	B
15	T	Iodomethane	142	4.05	0.401	A	1	A	B
16	T	Carbon disulfide	76	4.18	0.413	A	1	A	B
17	T	Methyl acetate	43	4.49	0.445	A	1	A	B
18	T	Methylene chloride	49	4.71	0.467	A	2	A	B
19	T	tert-Butyl alcohol	59	5.06	0.500	A	1	A	B
20	T	Acrylonitrile	53	5.18	0.513	A	2	A	B
21	T	tert-Butyl methyl ether (MTBE)	73	5.30	0.525	A	1	A	B
22	T	trans-1,2-Dichloroethene	61	5.28	0.522	A	2	A	B
23	T	Vinyl acetate	86	6.35	0.629	A	1	A	B
24	T	1,1-Dichloroethane	63	6.23	0.617	A	2	A	B
25	T	Isopropyl ether (DIPE)	45	6.45	0.638	A	1	A	B
26	T	2-Butanol	45	8.26	0.818	Q	1	A	B
27	T	tert-Butyl ethyl ether (ETBE)	59	7.41	0.733	A	1	A	B
28	T	2-Butanone	43	7.68	0.760	A	1	A	B
29	T	cis-1,2-Dichloroethene	96	7.65	0.757	A	2	A	B
30	T	2,2-Dichloropropane	77	7.65	0.757	A	2	A	B
31	T	Tetrahydrofurane	42	8.21	0.813	A	2	A	B
32	T	Bromochloromethane	49	8.14	0.806	A	2	A	B
33	T	Chloroform	83	8.43	0.835	A	2	A	B
34	S	Dibromofluoromethane	111	8.73	0.864	A	2	A	B
35	T	1,1,1-Trichloroethane	97	8.68	0.859	A	2	A	B
36	T	Cyclohexane	84	8.80	0.871	A	1	A	B
37	T	tert-Amyl methyl ether (TAME)	73	9.63	0.953	A	1	A	B
38	S	1,2-Dichloroethane-d4	65	9.29	0.919	A	1	A	B
39	T	1,1-Dichloropropene	110	9.00	0.890	A	1	A	B
40	T	Carbon tetrachloride	119	8.97	0.887	A	1	A	B
41	T	Benzene	78	9.31	0.921	A	2	A	B
42	T	1,2-Dichloroethane	62	9.44	0.934	A	1	A	B
43	T	2,2,4-Trimethylpentane	57	9.59	0.949	A	1	A	B
44	T	Trichloroethene	130	10.43	1.032	A	3	A	B
45	T	Methylcyclohexane	83	10.76	1.064	A	2	A	B
46	T	1,2-Dichloropropane	63	10.79	1.067	A	1	A	B
47	T	1,4-Dioxane	88	10.93	1.082	A	1	A	B
48	T	Dibromomethane	93	10.92	1.081	A	2	A	B
49	T	Bromodichloromethane	83	11.20	1.108	A	1	A	B
50	T	2-Chloroethyl vinyl ether	63	11.62	1.149	L	2	A	B
51	T	cis-1,3-Dichloropropene	75	11.79	1.167	A	1	A	B
52	T	4-Methyl-2-pentanone	43	12.00	1.187	A	3	A	B

SM 11/25/19

53	I	CHLOROBENZENE-D5	117	13.84	1.000	A	2	A	B
54	S	Toluene-d8	98	12.13	0.877	A	1	A	B
55	T	Toluene	91	12.22	0.883	A	1	A	B
56	T	Ethyl methacrylate	69	12.64	0.913	A	1	A	B
57	T	trans-1,3-Dichloropropene	75	12.55	0.907	A	1	A	B
58	T	1,1,2-Trichloroethane	97	12.78	0.924	A	2	A	B
59	T	Tetrachloroethene	164	12.89	0.932	A	3	A	B
60	T	1,3-Dichloropropane	76	12.98	0.938	A	1	A	B
61	T	2-Hexanone	43	13.04	0.942	L	1	A	B
62	T	Dibromochloromethane	129	13.23	0.956	A	1	A	B
63	T	1,2-Dibromoethane	107	13.35	0.965	A	1	A	B
64	T	1-Chlorohexane	91	13.85	1.001	A	1	A	B
65	P,M	Chlorobenzene	112	13.87	1.002	A	1	A	B
66	T	1,1,1,2-Tetrachloroethane	131	13.97	1.010	A	1	A	B
67	T	Ethylbenzene	91	13.97	1.010	A	1	A	B
68	T	m-Xylene & p-Xylene	91	14.10	1.019	A	1	A	B
69	T	o-Xylene	91	14.46	1.045	A	1	A	B
70	T	Styrene	104	14.47	1.046	A	2	A	B
71	I	1,2-DICHLOROBENZENE-D4	152	16.19	1.000	A	1	A	B
72	T	Bromoform	173	14.66	0.906	A	2	A	B
73	T	Isopropylbenzene	105	14.80	0.914	A	3	A	B
74	S	4-Bromofluorobenzene	95	14.96	0.924	A	2	A	B
75	T	1,1,2,2-Tetrachloroethane	83	15.05	0.930	A	1	A	B
76	T	Bromobenzene	156	15.08	0.931	A	1	A	B
77	T	trans-1,4-Dichloro-2-butene	53	15.08	0.931	A	1	A	B
78	T	1,2,3-Trichloropropane	110	15.11	0.933	A	1	A	B
79	T	n-Propylbenzene	91	15.15	0.936	A	2	A	B
80	T	1,3,5-Trimethylbenzene	105	15.30	0.945	A	2	A	B
81	T	2-Chlorotoluene	91	15.24	0.941	A	1	A	B
82	T	4-Chlorotoluene	91	15.33	0.947	A	1	A	B
83	T	tert-Butylbenzene	134	15.57	0.962	A	1	A	B
84	T	1,2,4-Trimethylbenzene	105	15.61	0.964	A	1	A	B
85	T	sec-Butylbenzene	105	15.73	0.972	A	1	A	B
86	T	p-Isopropyltoluene	119	15.85	0.979	A	2	A	B
87	T	1,3-Dichlorobenzene	146	15.85	0.979	A	2	A	B
88	T	1,4-Dichlorobenzene	146	15.92	0.984	A	2	A	B
89	T	1,2,3-Trimethylbenzene	105	15.94	0.984	A	2	A	B
90	T	n-Butylbenzene	91	16.16	0.998	A	2	A	B
91	T	1,2-Dichlorobenzene	146	16.20	1.001	A	1	A	B
92	T	1,2-Dibromo-3-chloropropane	157	16.80	1.037	A	1	A	B
93	T	1,2,4-Trichlorobenzene	180	17.46	1.079	A	2	A	B
94	T	Hexachlorobutadiene	225	17.57	1.085	A	1	A	B
95	T	Naphthalene	128	17.70	1.093	A	1	A	B
96	T	1,2,3-Trichlorobenzene	180	17.88	1.104	A	2	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

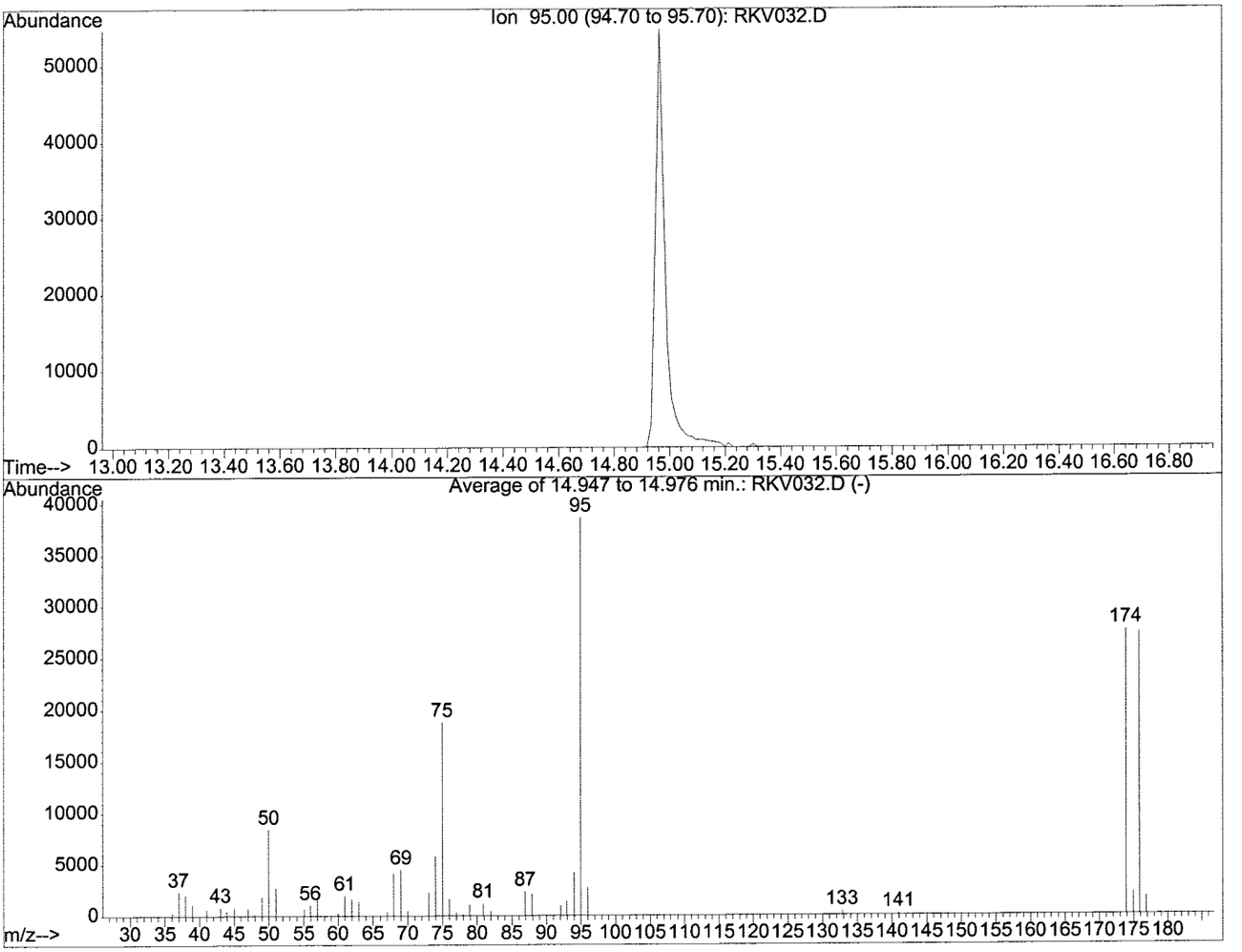
VO01K05A.M Fri Nov 22 13:05:52 2019

SA 11/25/19

BFB

Data File : D:\HPCHEM\1\DATA\19K05\RKV032.D
Acq On : 5 Nov 2019 4:13 pm
Sample : BFB01K02
Misc : T/CHK
MS Integration Params: 524TAIL.P
Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls

Vial: 1
Operator: JCorea
Inst : 01
Multiplr: 1.00



AutoFind: Scans 747, 748, 749; Background Corrected with Scan 744

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	21.8	8446	PASS
75	95	30	60	48.6	18793	PASS
95	95	100	100	100.0	38669	PASS
96	95	5	9	7.2	2798	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	71.4	27627	PASS
175	174	5	9	7.8	2148	PASS
176	174	95	101	99.1	27375	PASS
177	176	5	9	6.4	1745	PASS

RKV032.D VO01K05A.M Fri Nov 22 14:49:26 2019

SA 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV033.D Vial: 2
Acq On : 5 Nov 2019 4:58 pm Operator: JCorea
Sample : VO01K051 Inst : 01
Misc : 0.3ppb 8260/1.5ppb KET-AA/7.5ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:41 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.10	114	1969774	10.00	ug/l		0.00
53) CHLOROBENZENE-D5	13.84	117	1762137	10.00	ug/l		0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	646272	10.00	ug/l		0.00
System Monitoring Compounds							
34) Dibromofluoromethane	8.74	111	16036	0.26	ug/l		0.01
Spiked Amount 10.000			Recovery =	2.60%			
38) 1,2-Dichloroethane-d4	9.31	65	14111	0.26	ug/l		0.01
Spiked Amount 10.000			Recovery =	2.60%			
54) Toluene-d8	12.15	98	63323	0.28	ug/l		0.01
Spiked Amount 10.000			Recovery =	2.80%			
74) 4-Bromofluorobenzene	14.96	95	24403	0.31	ug/l		0.00
Spiked Amount 10.000			Recovery =	3.10%			
Target Compounds							Qvalue
3) Dichlorodifluoromethane	1.86	85	9564	0.18	ug/l		95
4) Chloromethane	2.07	50	10172	0.13	ug/l		79
5) Vinyl chloride	2.23	62	6799	0.28	ug/l		70
8) Chloroethane	2.72	64	5626	0.13	ug/l	#	50
9) Dichlorofluoromethane	3.05	67	29602	0.27	ug/l		97
10) Trichlorofluoromethane	3.10	101	9055	0.12	ug/l	#	48
11) Acrolein	3.69	56	7958	1.45	ug/l	#	54
12) 1,1,2-Trichloro-1,2,2-trif	3.91	151	10868	0.26	ug/l		94
13) Acetone	3.93	43	30884	2.78	ug/l		85
14) 1,1-Dichloroethene	3.83	61	29407	0.27	ug/l		97
15) Iodomethane	4.05	142	27640	0.25	ug/l		100
18) Methylene chloride	4.71	49	34941	0.35	ug/l		94
19) tert-Butyl alcohol	5.08	59	21445	6.18	ug/l		92
20) Acrylonitrile	5.28	53	6672	0.59	ug/l		86
21) tert-Butyl methyl ether (M	5.30	73	30949	0.26	ug/l		63
22) trans-1,2-Dichloroethene	5.28	61	27084	0.25	ug/l		99
24) 1,1-Dichloroethane	6.23	63	33199	0.25	ug/l		97
25) Isopropyl ether (DIPE)	6.45	45	58503	0.25	ug/l		95
26) 2-Butanol	8.41	45	2048	6.28	ug/l	#	56
27) tert-Butyl ethyl ether (ET	7.41	59	64518	0.34	ug/l		100
28) 2-Butanone	7.82	43	13121	0.78	ug/l	#	55
29) cis-1,2-Dichloroethene	7.68	96	17830	0.25	ug/l		95
30) 2,2-Dichloropropane	7.65	77	23157	0.27	ug/l		97
31) Tetrahydrofurane	8.29	42	1285	0.11	ug/l	#	40
32) Bromochloromethane	8.16	49	15759	0.26	ug/l		93
33) Chloroform	8.43	83	35698	0.28	ug/l		97
35) 1,1,1-Trichloroethane	8.68	97	23131	0.25	ug/l		98

(#) = qualifier out of range (m) = manual integration
RKV033.D VO01K05A.M Fri Nov 22 13:03:52 2019 Page 1

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV033.D Vial: 2
Acq On : 5 Nov 2019 4:58 pm Operator: JCorea
Sample : VO01K051 Inst : 01
Misc : 0.3ppb 8260/1.5ppb KET-AA/7.5ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:41 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
36) Cyclohexane	8.80	84	12935	0.13 ug/l	92
37) tert-Amyl methyl ether (TA	9.65	73	37748	0.25 ug/l	98
39) 1,1-Dichloropropene	8.99	110	7751	0.24 ug/l	98
40) Carbon tetrachloride	8.96	119	19352	0.24 ug/l	94
41) Benzene	9.32	78	65984	0.26 ug/l	98
42) 1,2-Dichloroethane	9.44	62	15784	0.23 ug/l	96
43) 2,2,4-Trimethylpentane	9.59	57	85960	0.26 ug/l	98
44) Trichloroethene	10.43	130	21790	0.28 ug/l	99
45) Methylcyclohexane	10.76	83	15793	0.12 ug/l	97
46) 1,2-Dichloropropane	10.80	63	19473	0.26 ug/l	96
47) 1,4-Dioxane	10.96	88	3184	9.54 ug/l	85
48) Dibromomethane	10.92	93	7264	0.22 ug/l	89
49) Bromodichloromethane	11.20	83	19444	0.24 ug/l	100
50) 2-Chloroethyl vinyl ether	11.66	63	2122	0.58 ug/l #	45
51) cis-1,3-Dichloropropene	11.81	75	23893	0.23 ug/l	95
52) 4-Methyl-2-pentanone	12.01	43	43935	0.94 ug/l	92
55) Toluene	12.24	91	75778	0.27 ug/l	98
56) Ethyl methacrylate	12.67	69	12348	0.18 ug/l	64
57) trans-1,3-Dichloropropene	12.58	75	16770	0.20 ug/l	89
58) 1,1,2-Trichloroethane	12.80	97	12548	0.28 ug/l	87
59) Tetrachloroethene	12.89	164	16157	0.27 ug/l	100
60) 1,3-Dichloropropane	12.99	76	21434	0.24 ug/l	97
61) 2-Hexanone	13.08	43	32185	3.05 ug/l	92
62) Dibromochloromethane	13.23	129	12756	0.22 ug/l	99
63) 1,2-Dibromoethane	13.36	107	10634	0.22 ug/l	94
64) 1-Chlorohexane	13.86	91	34945	0.29 ug/l	93
65) Chlorobenzene	13.86	112	51184	0.28 ug/l	100
66) 1,1,1,2-Tetrachloroethane	13.97	131	15857	0.25 ug/l	98
67) Ethylbenzene	13.97	91	95429	0.27 ug/l	100
68) m-Xylene & p-Xylene	14.10	91	138697	0.54 ug/l	99
69) o-Xylene	14.47	91	69022	0.27 ug/l	99
70) Styrene	14.49	104	55401	0.27 ug/l	97
72) Bromoform	14.66	173	5473	0.21 ug/l	87
73) Isopropylbenzene	14.80	105	88967	0.28 ug/l	99
75) 1,1,2,2-Tetrachloroethane	15.06	83	16402	0.28 ug/l	95
76) Bromobenzene	15.09	156	18594	0.27 ug/l	100
77) trans-1,4-Dichloro-2-buten	15.09	53	2304	0.21 ug/l	91
78) 1,2,3-Trichloropropane	15.12	110	3178	0.22 ug/l	97
79) n-Propylbenzene	15.17	91	106849	0.28 ug/l	100
80) 1,3,5-Trimethylbenzene	15.30	105	71064	0.29 ug/l	97
81) 2-Chlorotoluene	15.24	91	51623	0.26 ug/l	96

(#) = qualifier out of range (m) = manual integration
RKV033.D VO01K05A.M Fri Nov 22 13:03:53 2019 SG 11/25/19 Page 2

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV033.D
Acq On : 5 Nov 2019 4:58 pm
Sample : VO01K051
Misc : 0.3ppb 8260/1.5ppb KET-AA/7.5ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:41 2019

Vial: 2
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
82) 4-Chlorotoluene	15.34	91	66989	0.29 ug/l	100
83) tert-Butylbenzene	15.57	134	16015	0.27 ug/l	91
84) 1,2,4-Trimethylbenzene	15.61	105	62181	0.26 ug/l	92
85) sec-Butylbenzene	15.74	105	94438	0.27 ug/l	100
86) p-Isopropyltoluene	15.86	119	77157	0.28 ug/l	96
87) 1,3-Dichlorobenzene	15.86	146	34370	0.27 ug/l	95
88) 1,4-Dichlorobenzene	15.94	146	34982	0.28 ug/l	96
89) 1,2,3-Trimethylbenzene	15.94	105	62858	0.29 ug/l	93
90) n-Butylbenzene	16.17	91	76806	0.28 ug/l	97
91) 1,2-Dichlorobenzene	16.20	146	29615	0.27 ug/l	94
93) 1,2,4-Trichlorobenzene	17.48	180	15384	0.26 ug/l	99
94) Hexachlorobutadiene	17.57	225	11184	0.27 ug/l	98
95) Naphthalene	17.71	128	27777	0.30 ug/l	93
96) 1,2,3-Trichlorobenzene	17.89	180	11943	0.28 ug/l	96

SC 11/25/19

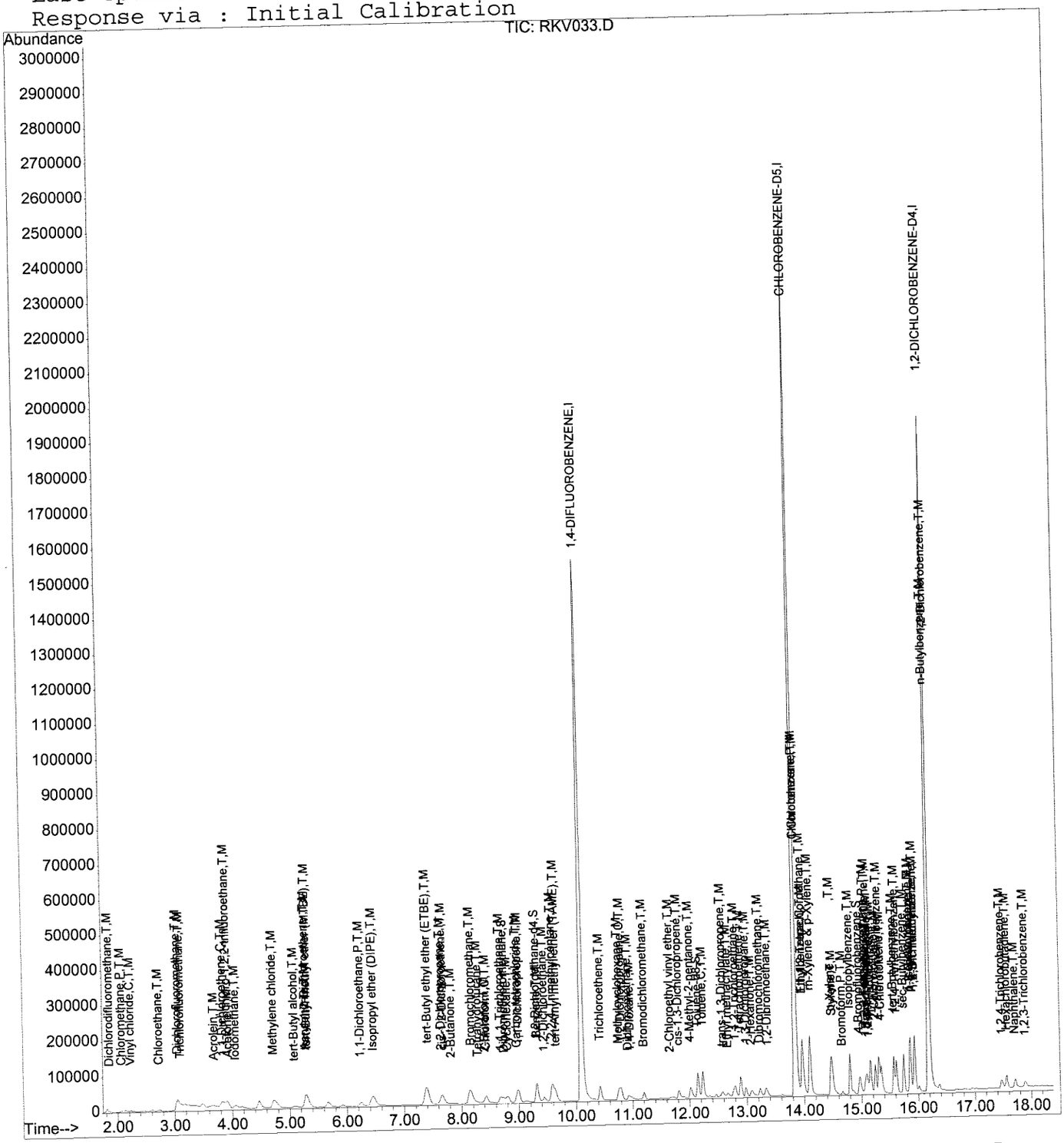
(#) = qualifier out of range (m) = manual integration
RKV033.D VO01K05A.M Fri Nov 22 13:03:53 2019

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K05\RKV033.D
Acq On : 5 Nov 2019 4:58 pm
Sample : VO01K051
Misc : 0.3ppb 8260/1.5ppb KET-AA/7.5ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:41 2019

Vial: 2
Operator: JCorea
Inst : 01
Multiplr: 1.00
Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Sam 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV034.D Vial: 3
Acq On : 5 Nov 2019 5:25 pm Operator: JCorea
Sample : VO01K052 Inst : 01
Misc : 0.5ppb 8260/2.5ppb KET-AA/12.5ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:41 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.10	114	1925562	10.00	ug/l		0.00
53) CHLOROBENZENE-D5	13.84	117	1759109	10.00	ug/l		0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	685304	10.00	ug/l		0.00
System Monitoring Compounds							
34) Dibromofluoromethane	8.73	111	27183	0.44	ug/l		0.00
Spiked Amount 10.000			Recovery =	4.40%			
38) 1,2-Dichloroethane-d4	9.31	65	26494	0.50	ug/l		0.01
Spiked Amount 10.000			Recovery =	5.00%			
54) Toluene-d8	12.15	98	105286	0.47	ug/l		0.01
Spiked Amount 10.000			Recovery =	4.70%			
74) 4-Bromofluorobenzene	14.96	95	39919	0.47	ug/l		0.00
Spiked Amount 10.000			Recovery =	4.70%			
Target Compounds							Qvalue
3) Dichlorodifluoromethane	1.85	85	22615	0.42	ug/l		93
4) Chloromethane	2.08	50	28152	0.38	ug/l		95
5) Vinyl chloride	2.22	62	23990	0.50	ug/l		91
7) Bromomethane	2.61	94	19287	0.37	ug/l		92
8) Chloroethane	2.74	64	17263	0.41	ug/l		99
9) Dichlorofluoromethane	3.05	67	53596	0.50	ug/l		98
10) Trichlorofluoromethane	3.10	101	27962	0.38	ug/l		99
11) Acrolein	3.69	56	14736	2.75	ug/l		68
12) 1,1,2-Trichloro-1,2,2-trif	3.91	151	18635	0.46	ug/l		98
13) Acetone	3.93	43	44165	4.07	ug/l		85
14) 1,1-Dichloroethene	3.83	61	50445	0.48	ug/l		98
15) Iodomethane	4.05	142	51586	0.48	ug/l		99
16) Carbon disulfide	4.18	76	71048	0.31	ug/l		99
17) Methyl acetate	4.52	43	9861	0.38	ug/l	#	57
18) Methylene chloride	4.72	49	54416	0.56	ug/l		98
19) tert-Butyl alcohol	5.08	59	39037	11.51	ug/l		69
20) Acrylonitrile	5.25	53	19118	1.74	ug/l		91
21) tert-Butyl methyl ether (M	5.30	73	59376	0.50	ug/l		76
22) trans-1,2-Dichloroethene	5.28	61	48886	0.47	ug/l		97
24) 1,1-Dichloroethane	6.23	63	62673	0.48	ug/l		96
25) Isopropyl ether (DIPE)	6.45	45	109355	0.47	ug/l		99
26) 2-Butanol	8.34	45	18431	11.94	ug/l		64
27) tert-Butyl ethyl ether (ET	7.41	59	106970	0.57	ug/l		98
28) 2-Butanone	7.77	43	33274	2.03	ug/l		89
29) cis-1,2-Dichloroethene	7.68	96	32397	0.47	ug/l		96
30) 2,2-Dichloropropane	7.65	77	40620	0.48	ug/l		98
31) Tetrahydrofurane	8.26	42	2324	0.21	ug/l	#	40

(#) = qualifier out of range (m) = manual integration
RKV034.D VO01K05A.M Fri Nov 22 13:04:03 2019 Page 1

SC 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV034.D Vial: 3
Acq On : 5 Nov 2019 5:25 pm Operator: JCorea
Sample : VO01K052 Inst : 01
Misc : 0.5ppb 8260/2.5ppb KET-AA/12.5ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:41 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) Bromochloromethane	8.16	49	28674	0.48 ug/l	97
33) Chloroform	8.43	83	60132	0.48 ug/l	92
35) 1,1,1-Trichloroethane	8.68	97	41693	0.46 ug/l	97
36) Cyclohexane	8.80	84	34503	0.36 ug/l	100
37) tert-Amyl methyl ether (TA	9.65	73	73152	0.50 ug/l	97
39) 1,1-Dichloropropene	8.99	110	14019	0.44 ug/l	93
40) Carbon tetrachloride	8.97	119	35754	0.46 ug/l	99
41) Benzene	9.32	78	118320	0.48 ug/l	97
42) 1,2-Dichloroethane	9.44	62	32853	0.50 ug/l	94
43) 2,2,4-Trimethylpentane	9.59	57	152114	0.46 ug/l	98
44) Trichloroethene	10.43	130	34994	0.46 ug/l	98
45) Methylcyclohexane	10.76	83	45729	0.37 ug/l	99
46) 1,2-Dichloropropane	10.80	63	35884	0.49 ug/l	96
47) 1,4-Dioxane	10.96	88	3723	11.41 ug/l	85
48) Dibromomethane	10.93	93	15228	0.47 ug/l	98
49) Bromodichloromethane	11.20	83	36483	0.45 ug/l	96
50) 2-Chloroethyl vinyl ether	11.64	63	5526	0.70 ug/l	89
51) cis-1,3-Dichloropropene	11.81	75	44020	0.44 ug/l	98
52) 4-Methyl-2-pentanone	12.01	43	100406	2.20 ug/l	99
55) Toluene	12.24	91	135544	0.48 ug/l	99
56) Ethyl methacrylate	12.67	69	28600	0.42 ug/l	96
57) trans-1,3-Dichloropropene	12.56	75	33783	0.41 ug/l	94
58) 1,1,2-Trichloroethane	12.80	97	23397	0.52 ug/l	95
59) Tetrachloroethene	12.89	164	27477	0.46 ug/l	98
60) 1,3-Dichloropropane	12.98	76	44084	0.50 ug/l	98
61) 2-Hexanone	13.07	43	63902	3.89 ug/l	98
62) Dibromochloromethane	13.23	129	25131	0.44 ug/l	97
63) 1,2-Dibromoethane	13.36	107	21511	0.45 ug/l	99
64) 1-Chlorohexane	13.86	91	57656	0.47 ug/l	95
65) Chlorobenzene	13.86	112	90757	0.49 ug/l	98
66) 1,1,1,2-Tetrachloroethane	13.97	131	28162	0.44 ug/l	96
67) Ethylbenzene	13.97	91	166711	0.47 ug/l	100
68) m-Xylene & p-Xylene	14.10	91	240950	0.93 ug/l	98
69) o-Xylene	14.47	91	124088	0.50 ug/l	100
70) Styrene	14.49	104	95790	0.47 ug/l	98
72) Bromoform	14.66	173	11416	0.41 ug/l	90
73) Isopropylbenzene	14.80	105	155900	0.46 ug/l	99
75) 1,1,2,2-Tetrachloroethane	15.06	83	30084	0.49 ug/l	94
76) Bromobenzene	15.09	156	32901	0.46 ug/l	97
77) trans-1,4-Dichloro-2-buten	15.09	53	4525	0.39 ug/l	71
78) 1,2,3-Trichloropropane	15.12	110	7289	0.47 ug/l	80

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

SC 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV034.D Vial: 3
Acq On : 5 Nov 2019 5:25 pm Operator: JCorea
Sample : VO01K052 Inst : 01
Misc : 0.5ppb 8260/2.5ppb KET-AA/12.5ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:41 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79)	n-Propylbenzene	15.15	91	189427	0.46 ug/l	99
80)	1,3,5-Trimethylbenzene	15.30	105	121108	0.47 ug/l	100
81)	2-Chlorotoluene	15.24	91	100180	0.47 ug/l	99
82)	4-Chlorotoluene	15.35	91	110413	0.45 ug/l	99
83)	tert-Butylbenzene	15.57	134	28413	0.46 ug/l	98
84)	1,2,4-Trimethylbenzene	15.61	105	116052	0.46 ug/l	96
85)	sec-Butylbenzene	15.74	105	164889	0.45 ug/l	97
86)	p-Isopropyltoluene	15.86	119	138201	0.47 ug/l	99
87)	1,3-Dichlorobenzene	15.86	146	60889	0.46 ug/l	99
88)	1,4-Dichlorobenzene	15.94	146	64622	0.49 ug/l	99
89)	1,2,3-Trimethylbenzene	15.94	105	108355	0.47 ug/l	98
90)	n-Butylbenzene	16.17	91	131433	0.46 ug/l	99
91)	1,2-Dichlorobenzene	16.20	146	55402	0.48 ug/l	97
92)	1,2-Dibromo-3-chloropropan	16.81	157	2690	0.35 ug/l	95
93)	1,2,4-Trichlorobenzene	17.48	180	27816	0.45 ug/l	99
94)	Hexachlorobutadiene	17.57	225	20622	0.47 ug/l	95
95)	Naphthalene	17.71	128	45280	0.46 ug/l	100
96)	1,2,3-Trichlorobenzene	17.89	180	21557	0.47 ug/l	96

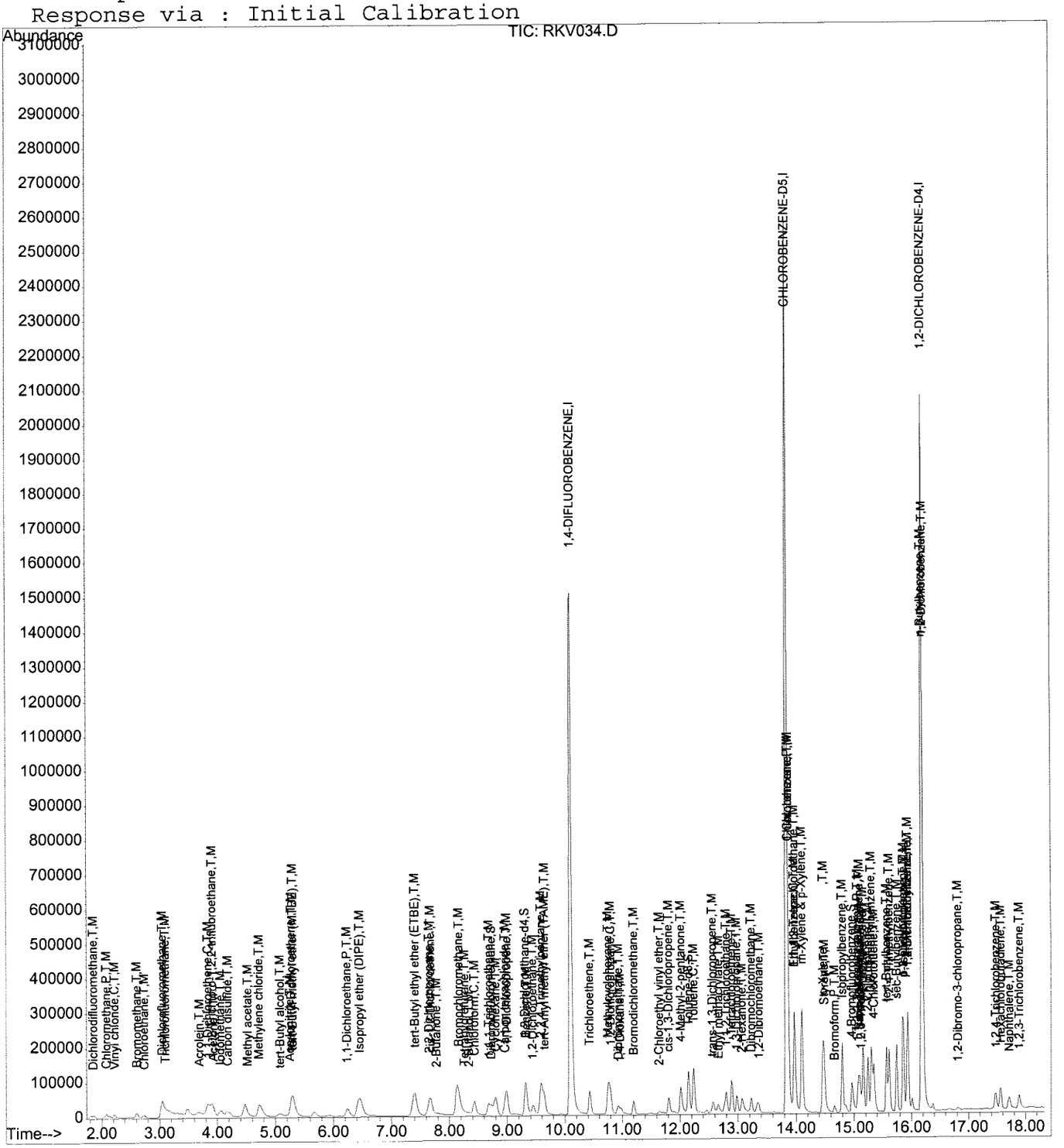
11/25/19

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K05\RKV034.D Vial: 3
Acq On : 5 Nov 2019 5:25 pm Operator: JCorea
Sample : VO01K052 Inst : 01
Misc : 0.5ppb 8260/2.5ppb KET-AA/12.5ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:41 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



SG 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV035.D
Acq On : 5 Nov 2019 5:53 pm
Sample : VO01K053
Misc : 1.0ppb 8260/5.0ppb KET-AA/25ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:41 2019

Vial: 4
Operator: JCorea
Inst : 01
Multiplr: 1.00
Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-DIFLUOROBENZENE	10.11	114	1922135	10.00 ug/l	0.00
53) CHLOROBENZENE-D5	13.84	117	1759908	10.00 ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	681065	10.00 ug/l	0.00
System Monitoring Compounds					
34) Dibromofluoromethane	8.73	111	59913	0.98 ug/l	0.00
Spiked Amount 10.000			Recovery =	9.80%	
38) 1,2-Dichloroethane-d4	9.31	65	53967	1.01 ug/l	0.01
Spiked Amount 10.000			Recovery =	10.10%	
54) Toluene-d8	12.15	98	219361	0.98 ug/l	0.01
Spiked Amount 10.000			Recovery =	9.80%	
74) 4-Bromofluorobenzene	14.96	95	77813	0.93 ug/l	0.00
Spiked Amount 10.000			Recovery =	9.30%	
Target Compounds					Qvalue
3) Dichlorodifluoromethane	1.86	85	52079	0.98 ug/l	96
4) Chloromethane	2.07	50	67343	0.91 ug/l	95
5) Vinyl chloride	2.22	62	61633	0.98 ug/l	93
7) Bromomethane	2.60	94	51297	0.98 ug/l	97
8) Chloroethane	2.73	64	41708	0.98 ug/l	99
9) Dichlorofluoromethane	3.05	67	105587	0.99 ug/l	96
10) Trichlorofluoromethane	3.10	101	67354	0.91 ug/l	99
11) Acrolein	3.69	56	27063	5.05 ug/l	80
12) 1,1,2-Trichloro-1,2,2-trif	3.91	151	40302	0.99 ug/l	99
13) Acetone	3.93	43	62895	5.80 ug/l	96
14) 1,1-Dichloroethene	3.83	61	109232	1.03 ug/l	98
15) Iodomethane	4.05	142	109943	1.02 ug/l	98
16) Carbon disulfide	4.18	76	186450	0.83 ug/l	100
17) Methyl acetate	4.52	43	22095	0.85 ug/l	80
18) Methylene chloride	4.72	49	101447	1.04 ug/l	98
19) tert-Butyl alcohol	5.08	59	74996	22.15 ug/l	99
20) Acrylonitrile	5.23	53	43302	3.94 ug/l	99
21) tert-Butyl methyl ether (M	5.30	73	120148	1.02 ug/l	85
22) trans-1,2-Dichloroethene	5.28	61	104947	1.01 ug/l	96
24) 1,1-Dichloroethane	6.23	63	134195	1.03 ug/l	98
25) Isopropyl ether (DIPE)	6.45	45	235357	1.02 ug/l	99
26) 2-Butanol	8.31	45	51479	23.29 ug/l	99
27) tert-Butyl ethyl ether (ET	7.41	59	197017	1.05 ug/l	98
28) 2-Butanone	7.75	43	63783	3.89 ug/l	75
29) cis-1,2-Dichloroethene	7.68	96	67715	0.99 ug/l	98
30) 2,2-Dichloropropane	7.65	77	84884	1.00 ug/l	98
31) Tetrahydrofurane	8.26	42	6715	0.61 ug/l	89

(#) = qualifier out of range (m) = manual integration
RKV035.D VO01K05A.M Fri Nov 22 13:04:13 2019 Page 1

SA 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV035.D Vial: 4
Acq On : 5 Nov 2019 5:53 pm Operator: JCorea
Sample : VO01K053 Inst : 01
Misc : 1.0ppb 8260/5.0ppb KET-AA/25ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:41 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32)	Bromochloromethane	8.16	49	61150	1.03 ug/l	98
33)	Chloroform	8.43	83	128859	1.02 ug/l	97
35)	1,1,1-Trichloroethane	8.68	97	89798	1.00 ug/l	99
36)	Cyclohexane	8.80	84	88949	0.93 ug/l	99
37)	tert-Amyl methyl ether (TA	9.65	73	149576	1.02 ug/l	99
39)	1,1-Dichloropropene	9.00	110	31766	0.99 ug/l	94
40)	Carbon tetrachloride	8.97	119	77208	0.99 ug/l	98
41)	Benzene	9.31	78	246737	1.01 ug/l	99
42)	1,2-Dichloroethane	9.44	62	67716	1.03 ug/l	96
43)	2,2,4-Trimethylpentane	9.59	57	332076	1.01 ug/l	100
44)	Trichloroethene	10.43	130	74391	0.97 ug/l	98
45)	Methylcyclohexane	10.76	83	114891	0.93 ug/l	100
46)	1,2-Dichloropropane	10.80	63	73619	1.01 ug/l	97
47)	1,4-Dioxane	10.95	88	6809	20.90 ug/l	90
48)	Dibromomethane	10.92	93	31853	0.98 ug/l	98
49)	Bromodichloromethane	11.20	83	76787	0.95 ug/l	99
50)	2-Chloroethyl vinyl ether	11.64	63	14480	1.01 ug/l	88
51)	cis-1,3-Dichloropropene	11.81	75	96726	0.96 ug/l	97
52)	4-Methyl-2-pentanone	12.01	43	204507	4.48 ug/l	96
55)	Toluene	12.24	91	281161	0.99 ug/l	100
56)	Ethyl methacrylate	12.65	69	60148	0.88 ug/l	92
57)	trans-1,3-Dichloropropene	12.56	75	73204	0.89 ug/l	96
58)	1,1,2-Trichloroethane	12.80	97	44186	0.97 ug/l	96
59)	Tetrachloroethene	12.89	164	56582	0.94 ug/l	97
60)	1,3-Dichloropropane	12.98	76	86242	0.97 ug/l	99
61)	2-Hexanone	13.07	43	130918	5.65 ug/l	98
62)	Dibromochloromethane	13.23	129	53397	0.93 ug/l	99
63)	1,2-Dibromoethane	13.35	107	44553	0.92 ug/l	99
64)	1-Chlorohexane	13.85	91	121915	1.00 ug/l	97
65)	Chlorobenzene	13.87	112	192956	1.05 ug/l	99
66)	1,1,1,2-Tetrachloroethane	13.97	131	61868	0.97 ug/l	100
67)	Ethylbenzene	13.97	91	342920	0.97 ug/l	99
68)	m-Xylene & p-Xylene	14.10	91	503929	1.95 ug/l	98
69)	o-Xylene	14.46	91	241330	0.96 ug/l	97
70)	Styrene	14.49	104	198887	0.97 ug/l	98
72)	Bromoform	14.66	173	23407	0.85 ug/l	97
73)	Isopropylbenzene	14.80	105	335086	0.99 ug/l	100
75)	1,1,2,2-Tetrachloroethane	15.06	83	61913	1.01 ug/l	99
76)	Bromobenzene	15.09	156	70087	0.98 ug/l	98
77)	trans-1,4-Dichloro-2-buten	15.09	53	10796	0.93 ug/l	83
78)	1,2,3-Trichloropropane	15.11	110	14457	0.94 ug/l	91

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

SA 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV035.D
Acq On : 5 Nov 2019 5:53 pm
Sample : VO01K053
Misc : 1.0ppb 8260/5.0ppb KET-AA/25ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:41 2019

Vial: 4
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79) n-Propylbenzene	15.15	91	403702	0.99 ug/l	99
80) 1,3,5-Trimethylbenzene	15.30	105	253704	0.99 ug/l	100
81) 2-Chlorotoluene	15.24	91	201627	0.96 ug/l	96
82) 4-Chlorotoluene	15.35	91	243034	1.00 ug/l	99
83) tert-Butylbenzene	15.57	134	61915	1.00 ug/l	100
84) 1,2,4-Trimethylbenzene	15.61	105	241257	0.97 ug/l	95
85) sec-Butylbenzene	15.75	105	359041	0.98 ug/l	99
86) p-Isopropyltoluene	15.85	119	290867	1.01 ug/l	99
87) 1,3-Dichlorobenzene	15.85	146	127596	0.97 ug/l	97
88) 1,4-Dichlorobenzene	15.94	146	136472	1.04 ug/l	100
89) 1,2,3-Trimethylbenzene	15.94	105	231104	1.00 ug/l	98
90) n-Butylbenzene	16.16	91	277807	0.97 ug/l	98
91) 1,2-Dichlorobenzene	16.20	146	114534	1.00 ug/l	100
92) 1,2-Dibromo-3-chloropropan	16.81	157	6206	0.82 ug/l	100
93) 1,2,4-Trichlorobenzene	17.46	180	59080	0.96 ug/l	98
94) Hexachlorobutadiene	17.57	225	42892	0.98 ug/l	100
95) Naphthalene	17.70	128	91068	0.93 ug/l	100
96) 1,2,3-Trichlorobenzene	17.89	180	44806	0.99 ug/l	98

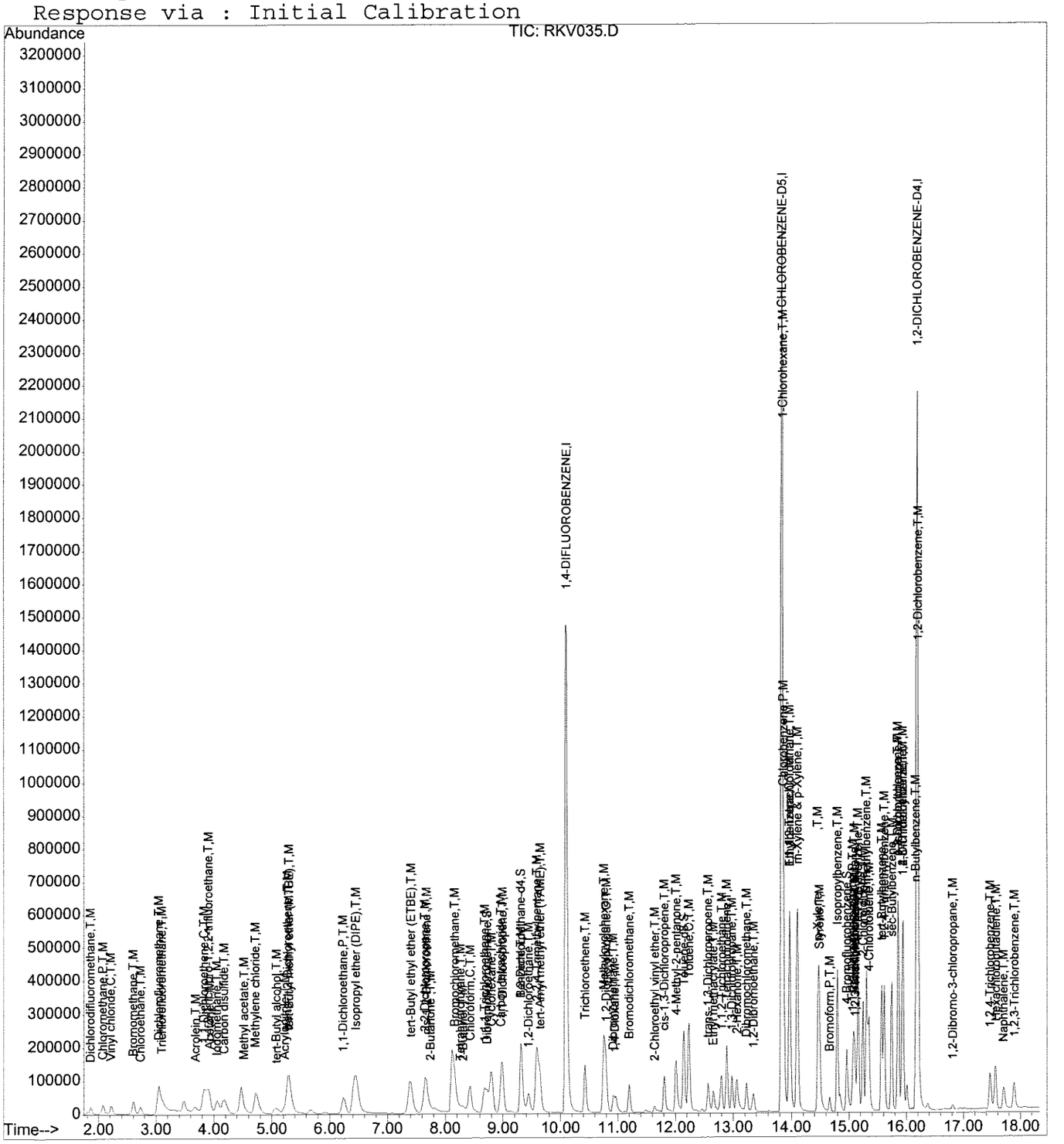
SC 11/25/19

(#) = qualifier out of range (m) = manual integration
RKV035.D VO01K05A.M Fri Nov 22 13:04:14 2019

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K05\RKV035.D Vial: 4
Acq On : 5 Nov 2019 5:53 pm Operator: JCorea
Sample : VO01K053 Inst : 01
Misc : 1.0ppb 8260/5.0ppb KET-AA/25ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:41 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



RKV035.D VO01K05A.M Fri Nov 22 13:04:17 2019 Page 4

SA 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV036.D Vial: 5
Acq On : 5 Nov 2019 6:20 pm Operator: JCorea
Sample : VO01K054 Inst : 01
Misc : 2.0ppb 8260/10ppb KET-AA/50ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:41 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.10	114	1925916	10.00	ug/l	0.00
53) CHLOROBENZENE-D5	13.84	117	1745204	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	688570	10.00	ug/l	0.00
System Monitoring Compounds						
34) Dibromofluoromethane	8.73	111	126372	2.06	ug/l	0.00
Spiked Amount 10.000			Recovery =	20.60%		
38) 1,2-Dichloroethane-d4	9.31	65	110881	2.07	ug/l	0.01
Spiked Amount 10.000			Recovery =	20.70%		
54) Toluene-d8	12.15	98	458774	2.06	ug/l	0.01
Spiked Amount 10.000			Recovery =	20.60%		
74) 4-Bromofluorobenzene	14.96	95	170673	2.02	ug/l	0.00
Spiked Amount 10.000			Recovery =	20.20%		
Target Compounds						Qvalue
3) Dichlorodifluoromethane	1.86	85	112228	2.11	ug/l	99
4) Chloromethane	2.07	50	135680	1.84	ug/l	100
5) Vinyl chloride	2.22	62	135440	1.91	ug/l	96
7) Bromomethane	2.60	94	108596	2.07	ug/l	99
8) Chloroethane	2.73	64	86983	2.04	ug/l	97
9) Dichlorofluoromethane	3.05	67	233244	2.19	ug/l	99
10) Trichlorofluoromethane	3.10	101	151301	2.03	ug/l	96
11) Acrolein	3.69	56	53433	9.96	ug/l	88
12) 1,1,2-Trichloro-1,2,2-trif	3.91	151	91535	2.24	ug/l	98
13) Acetone	3.91	43	110035	10.13	ug/l	99
14) 1,1-Dichloroethene	3.83	61	237277	2.24	ug/l	99
15) Iodomethane	4.05	142	236859	2.18	ug/l	99
16) Carbon disulfide	4.18	76	423198	1.87	ug/l	99
17) Methyl acetate	4.52	43	45509	1.75	ug/l	96
18) Methylene chloride	4.71	49	213443	2.18	ug/l	98
19) tert-Butyl alcohol	5.06	59	150387	44.32	ug/l	99
20) Acrylonitrile	5.20	53	94041	8.54	ug/l	94
21) tert-Butyl methyl ether (M	5.30	73	245542	2.09	ug/l	99
22) trans-1,2-Dichloroethene	5.28	61	229099	2.20	ug/l	98
24) 1,1-Dichloroethane	6.23	63	278995	2.13	ug/l	99
25) Isopropyl ether (DIPE)	6.45	45	489911	2.11	ug/l	100
26) 2-Butanol	8.29	45	110897	43.34	ug/l	97
27) tert-Butyl ethyl ether (ET	7.41	59	385586	2.05	ug/l	100
28) 2-Butanone	7.72	43	136932	8.34	ug/l	100
29) cis-1,2-Dichloroethene	7.68	96	141727	2.07	ug/l	99
30) 2,2-Dichloropropane	7.65	77	186115	2.19	ug/l	99
31) Tetrahydrofurane	8.24	42	18969	1.72	ug/l	96

(#) = qualifier out of range (m) = manual integration
RKV036.D VO01K05A.M Fri Nov 22 13:04:25 2019 Page 1

SC 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV036.D
Acq On : 5 Nov 2019 6:20 pm
Sample : VO01K054
Misc : 2.0ppb 8260/10ppb KET-AA/50ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:41 2019

Vial: 5
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) Bromochloromethane	8.16	49	125380	2.10 ug/l	99
33) Chloroform	8.43	83	266913	2.12 ug/l	99
35) 1,1,1-Trichloroethane	8.68	97	195296	2.17 ug/l	99
36) Cyclohexane	8.80	84	185474	1.93 ug/l	98
37) tert-Amyl methyl ether (TA	9.63	73	297027	2.03 ug/l	99
39) 1,1-Dichloropropene	8.99	110	68332	2.12 ug/l	99
40) Carbon tetrachloride	8.97	119	171391	2.18 ug/l	99
41) Benzene	9.31	78	521974	2.14 ug/l	99
42) 1,2-Dichloroethane	9.44	62	139025	2.11 ug/l	99
43) 2,2,4-Trimethylpentane	9.59	57	710363	2.16 ug/l	100
44) Trichloroethene	10.43	130	164168	2.14 ug/l	98
45) Methylcyclohexane	10.76	83	237286	1.92 ug/l	99
46) 1,2-Dichloropropane	10.79	63	152704	2.10 ug/l	99
47) 1,4-Dioxane	10.95	88	13699	41.96 ug/l	85
48) Dibromomethane	10.92	93	69405	2.13 ug/l	98
49) Bromodichloromethane	11.20	83	167814	2.08 ug/l	99
50) 2-Chloroethyl vinyl ether	11.63	63	34833	1.73 ug/l	94
51) cis-1,3-Dichloropropene	11.81	75	204099	2.03 ug/l	98
52) 4-Methyl-2-pentanone	12.00	43	414420	9.07 ug/l	99
55) Toluene	12.24	91	598846	2.12 ug/l	99
56) Ethyl methacrylate	12.65	69	124675	1.83 ug/l	98
57) trans-1,3-Dichloropropene	12.56	75	156781	1.92 ug/l	97
58) 1,1,2-Trichloroethane	12.80	97	91313	2.03 ug/l	99
59) Tetrachloroethene	12.89	164	121871	2.05 ug/l	99
60) 1,3-Dichloropropane	12.98	76	175819	2.00 ug/l	99
61) 2-Hexanone	13.05	43	270278	9.38 ug/l	100
62) Dibromochloromethane	13.23	129	113529	2.00 ug/l	99
63) 1,2-Dibromoethane	13.35	107	95151	1.99 ug/l	98
64) 1-Chlorohexane	13.85	91	255362	2.12 ug/l	100
65) Chlorobenzene	13.86	112	385272	2.12 ug/l	100
66) 1,1,1,2-Tetrachloroethane	13.97	131	130233	2.06 ug/l	98
67) Ethylbenzene	13.97	91	742305	2.11 ug/l	99
68) m-Xylene & p-Xylene	14.10	91	1107291	4.32 ug/l	99
69) o-Xylene	14.46	91	529308	2.13 ug/l	99
70) Styrene	14.49	104	427126	2.10 ug/l	99
72) Bromoform	14.66	173	53374	1.91 ug/l	97
73) Isopropylbenzene	14.80	105	712467	2.09 ug/l	99
75) 1,1,2,2-Tetrachloroethane	15.06	83	125819	2.02 ug/l	100
76) Bromobenzene	15.08	156	145149	2.01 ug/l	100
77) trans-1,4-Dichloro-2-buten	15.09	53	21391	1.82 ug/l	95
78) 1,2,3-Trichloropropane	15.11	110	31941	2.05 ug/l	95

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

S 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV036.D
Acq On : 5 Nov 2019 6:20 pm
Sample : VO01K054
Misc : 2.0ppb 8260/10ppb KET-AA/50ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:41 2019

Vial: 5
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79) n-Propylbenzene	15.15	91	868513	2.11 ug/l	99
80) 1,3,5-Trimethylbenzene	15.30	105	563329	2.17 ug/l	100
81) 2-Chlorotoluene	15.24	91	436243	2.06 ug/l	96
82) 4-Chlorotoluene	15.35	91	531071	2.16 ug/l	100
83) tert-Butylbenzene	15.57	134	134450	2.14 ug/l	99
84) 1,2,4-Trimethylbenzene	15.61	105	548166	2.18 ug/l	98
85) sec-Butylbenzene	15.74	105	797997	2.16 ug/l	98
86) p-Isopropyltoluene	15.85	119	635207	2.17 ug/l	100
87) 1,3-Dichlorobenzene	15.85	146	283114	2.12 ug/l	99
88) 1,4-Dichlorobenzene	15.94	146	282675	2.13 ug/l	98
89) 1,2,3-Trimethylbenzene	15.94	105	498153	2.14 ug/l	98
90) n-Butylbenzene	16.16	91	622348	2.15 ug/l	99
91) 1,2-Dichlorobenzene	16.20	146	239544	2.07 ug/l	97
92) 1,2-Dibromo-3-chloropropan	16.81	157	13403	1.75 ug/l	98
93) 1,2,4-Trichlorobenzene	17.46	180	127209	2.04 ug/l	98
94) Hexachlorobutadiene	17.57	225	93867	2.13 ug/l	99
95) Naphthalene	17.70	128	186927	1.89 ug/l	100
96) 1,2,3-Trichlorobenzene	17.89	180	92940	2.02 ug/l	96

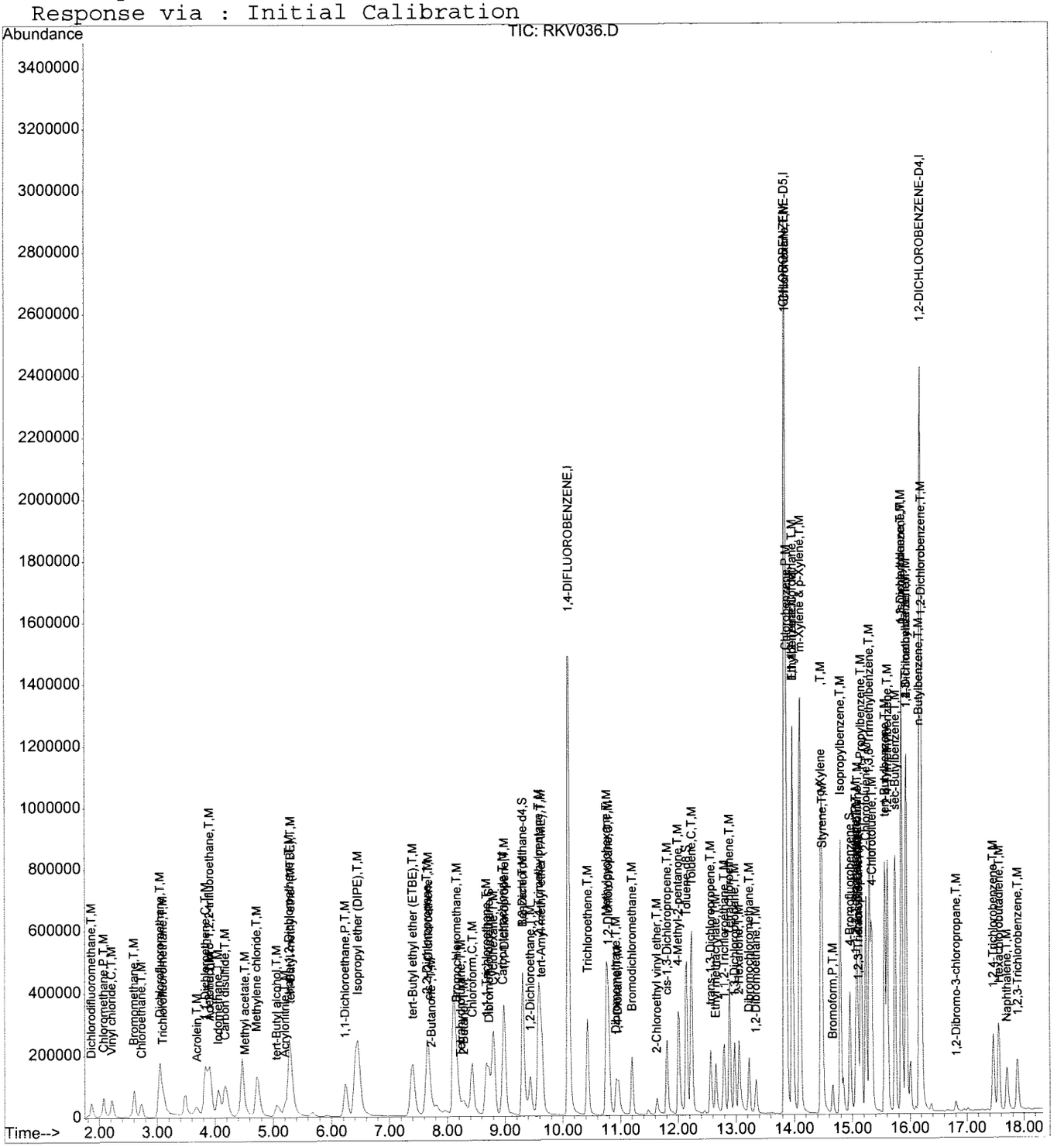
SW 11/25/19

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K05\RKV036.D Vial: 5
Acq On : 5 Nov 2019 6:20 pm Operator: JCorea
Sample : VO01K054 Inst : 01
Misc : 2.0ppb 8260/10ppb KET-AA/50ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:41 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



RKV036.D VO01K05A.M Fri Nov 22 13:04:29 2019 Page 4

SC 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV037.D
Acq On : 5 Nov 2019 6:47 pm
Sample : VO01K055
Misc : 5.0ppb 8260/25ppb KET-AA/125ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019

Vial: 6
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-DIFLUOROBENZENE	10.11	114	1907421	10.00	ug/l	0.00
53) CHLOROBENZENE-D5	13.84	117	1763782	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	717665	10.00	ug/l	0.00
System Monitoring Compounds						
34) Dibromofluoromethane	8.73	111	325616	5.37	ug/l	0.00
Spiked Amount 10.000			Recovery =	53.70%		
38) 1,2-Dichloroethane-d4	9.31	65	288281	5.44	ug/l	0.02
Spiked Amount 10.000			Recovery =	54.40%		
54) Toluene-d8	12.13	98	1193220	5.30	ug/l	0.00
Spiked Amount 10.000			Recovery =	53.00%		
74) 4-Bromofluorobenzene	14.96	95	436738	4.95	ug/l	0.00
Spiked Amount 10.000			Recovery =	49.50%		
Target Compounds						Qvalue
3) Dichlorodifluoromethane	1.86	85	267591	5.07	ug/l	98
4) Chloromethane	2.07	50	376689	5.16	ug/l	98
5) Vinyl chloride	2.22	62	365949	4.88	ug/l	99
7) Bromomethane	2.60	94	287857	5.53	ug/l	100
8) Chloroethane	2.73	64	225606	5.35	ug/l	97
9) Dichlorofluoromethane	3.05	67	571194	5.40	ug/l	98
10) Trichlorofluoromethane	3.10	101	388672	5.28	ug/l	97
11) Acrolein	3.66	56	140099	26.36	ug/l	97
12) 1,1,2-Trichloro-1,2,2-trif	3.91	151	212764	5.26	ug/l	99
13) Acetone	3.91	43	281782	26.19	ug/l	100
14) 1,1-Dichloroethene	3.83	61	570258	5.44	ug/l	99
15) Iodomethane	4.05	142	573843	5.34	ug/l	100
16) Carbon disulfide	4.18	76	1095558	4.89	ug/l	100
17) Methyl acetate	4.49	43	128575	4.98	ug/l	99
18) Methylene chloride	4.71	49	508840	5.24	ug/l	99
19) tert-Butyl alcohol	5.06	59	430576	128.12	ug/l	100
20) Acrylonitrile	5.18	53	280773	25.75	ug/l	96
21) tert-Butyl methyl ether (M	5.30	73	632579	5.42	ug/l	100
22) trans-1,2-Dichloroethene	5.28	61	552840	5.37	ug/l	99
24) 1,1-Dichloroethane	6.23	63	687609	5.31	ug/l	100
25) Isopropyl ether (DIPE)	6.45	45	1242365	5.41	ug/l	99
26) 2-Butanol	8.26	45	378789	131.48	ug/l	98
27) tert-Butyl ethyl ether (ET	7.38	59	930504	4.99	ug/l	100
28) 2-Butanone	7.70	43	410774	25.25	ug/l	95
29) cis-1,2-Dichloroethene	7.65	96	370185	5.46	ug/l	96
30) 2,2-Dichloropropane	7.65	77	461684	5.49	ug/l	99
31) Tetrahydrofurane	8.21	42	51603	4.73	ug/l	93

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

sa 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV037.D Vial: 6
Acq On : 5 Nov 2019 6:47 pm Operator: JCorea
Sample : VO01K055 Inst : 01
Misc : 5.0ppb 8260/25ppb KET-AA/125ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) Bromochloromethane	8.14	49	315441	5.34 ug/l	97
33) Chloroform	8.43	83	662724	5.31 ug/l	99
35) 1,1,1-Trichloroethane	8.68	97	480487	5.40 ug/l	99
36) Cyclohexane	8.80	84	487456	5.13 ug/l	99
37) tert-Amyl methyl ether (TA	9.63	73	774382	5.34 ug/l	99
39) 1,1-Dichloropropene	9.00	110	171983	5.39 ug/l	99
40) Carbon tetrachloride	8.97	119	421150	5.42 ug/l	100
41) Benzene	9.31	78	1295119	5.36 ug/l	99
42) 1,2-Dichloroethane	9.44	62	367114	5.64 ug/l	100
43) 2,2,4-Trimethylpentane	9.59	57	1655928	5.09 ug/l	100
44) Trichloroethene	10.43	130	391218	5.16 ug/l	99
45) Methylcyclohexane	10.76	83	642806	5.24 ug/l	99
46) 1,2-Dichloropropane	10.79	63	386112	5.36 ug/l	99
47) 1,4-Dioxane	10.95	88	30938	95.68 ug/l	74
48) Dibromomethane	10.92	93	174965	5.41 ug/l	98
49) Bromodichloromethane	11.20	83	438384	5.48 ug/l	100
50) 2-Chloroethyl vinyl ether	11.63	63	106019	4.28 ug/l	98
51) cis-1,3-Dichloropropene	11.81	75	537295	5.39 ug/l	100
52) 4-Methyl-2-pentanone	12.00	43	1182791	26.13 ug/l	100
55) Toluene	12.22	91	1483169	5.20 ug/l	100
56) Ethyl methacrylate	12.65	69	349855	5.09 ug/l	100
57) trans-1,3-Dichloropropene	12.56	75	424312	5.15 ug/l	99
58) 1,1,2-Trichloroethane	12.79	97	231465	5.09 ug/l	100
59) Tetrachloroethene	12.89	164	308368	5.13 ug/l	100
60) 1,3-Dichloropropane	12.98	76	463544	5.22 ug/l	100
61) 2-Hexanone	13.05	43	809155	23.44 ug/l	99
62) Dibromochloromethane	13.23	129	309261	5.38 ug/l	100
63) 1,2-Dibromoethane	13.35	107	247615	5.12 ug/l	100
64) 1-Chlorohexane	13.85	91	621317	5.09 ug/l	100
65) Chlorobenzene	13.87	112	963480	5.23 ug/l	99
66) 1,1,1,2-Tetrachloroethane	13.97	131	334483	5.24 ug/l	99
67) Ethylbenzene	13.97	91	1826591	5.14 ug/l	99
68) m-Xylene & p-Xylene	14.09	91	2746224	10.61 ug/l	99
69) o-Xylene	14.46	91	1329159	5.29 ug/l	100
70) Styrene	14.47	104	1078783	5.24 ug/l	100
72) Bromoform	14.67	173	144022	4.95 ug/l	99
73) Isopropylbenzene	14.80	105	1805056	5.07 ug/l	100
75) 1,1,2,2-Tetrachloroethane	15.06	83	325902	5.02 ug/l	100
76) Bromobenzene	15.08	156	376022	4.99 ug/l	100
77) trans-1,4-Dichloro-2-buten	15.08	53	60964	4.96 ug/l	99
78) 1,2,3-Trichloropropane	15.11	110	81788	5.04 ug/l	98

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

11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV037.D
Acq On : 5 Nov 2019 6:47 pm
Sample : VO01K055
Misc : 5.0ppb 8260/25ppb KET-AA/125ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019

Vial: 6
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79) n-Propylbenzene	15.15	91	2207901	5.15 ug/l	100
80) 1,3,5-Trimethylbenzene	15.30	105	1405947	5.19 ug/l	100
81) 2-Chlorotoluene	15.24	91	1129742	5.11 ug/l	98
82) 4-Chlorotoluene	15.33	91	1324916	5.16 ug/l	99
83) tert-Butylbenzene	15.57	134	331559	5.07 ug/l	99
84) 1,2,4-Trimethylbenzene	15.61	105	1372699	5.23 ug/l	99
85) sec-Butylbenzene	15.75	105	1960338	5.09 ug/l	99
86) p-Isopropyltoluene	15.85	119	1564044	5.13 ug/l	99
87) 1,3-Dichlorobenzene	15.85	146	707347	5.08 ug/l	100
88) 1,4-Dichlorobenzene	15.94	146	692964	5.00 ug/l	99
89) 1,2,3-Trimethylbenzene	15.94	105	1210106	4.99 ug/l	100
90) n-Butylbenzene	16.16	91	1564969	5.19 ug/l	99
91) 1,2-Dichlorobenzene	16.20	146	611870	5.08 ug/l	100
92) 1,2-Dibromo-3-chloropropan	16.81	157	37506	4.69 ug/l	99
93) 1,2,4-Trichlorobenzene	17.46	180	322794	4.98 ug/l	100
94) Hexachlorobutadiene	17.57	225	226760	4.93 ug/l	100
95) Naphthalene	17.70	128	475375	4.62 ug/l	99
96) 1,2,3-Trichlorobenzene	17.89	180	237666	4.97 ug/l	99

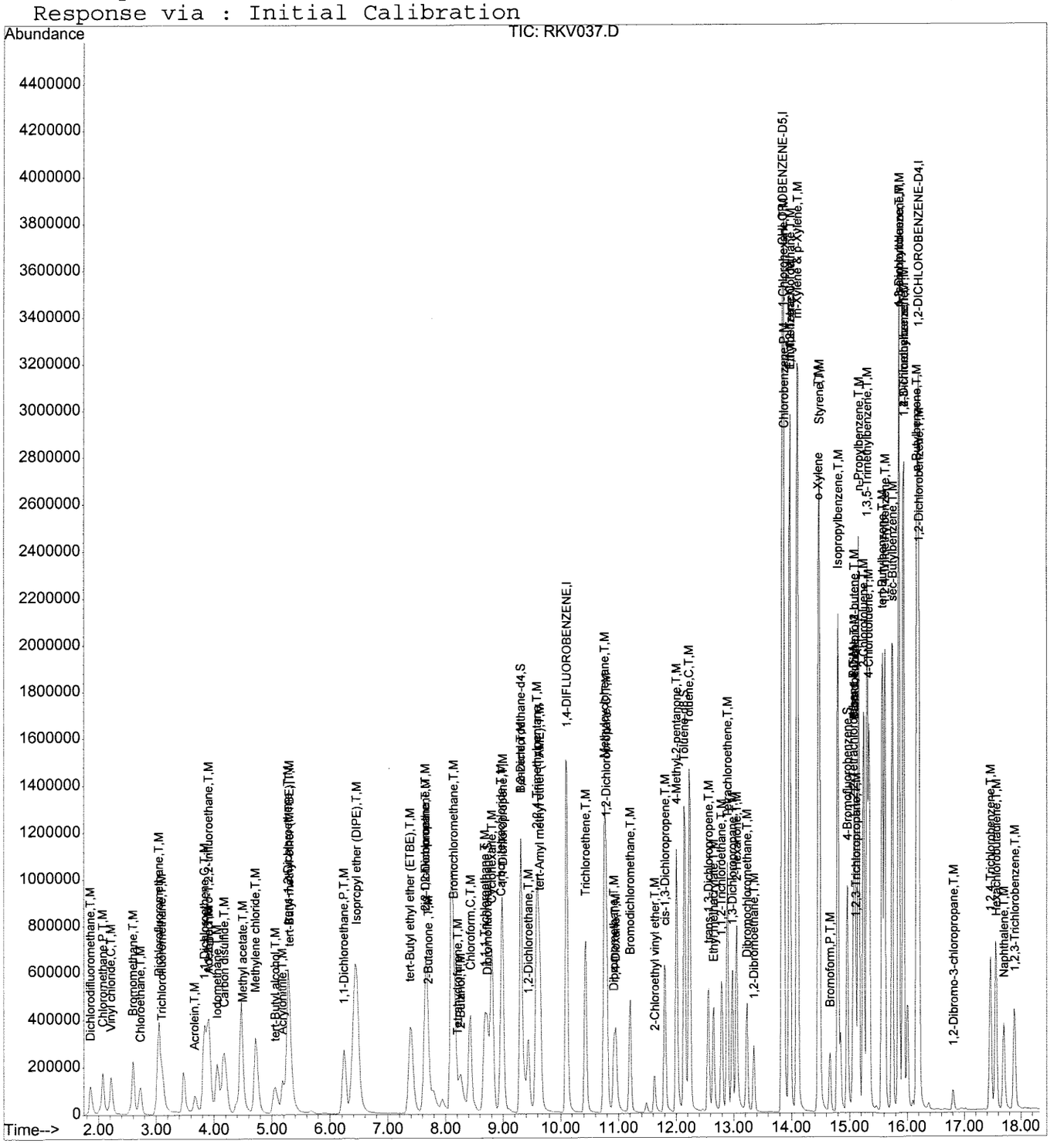
SM 11/25/19

(#) = qualifier out of range (m) = manual integration
RKV037.D VO01K05A.M Fri Nov 22 13:04:37 2019

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K05\RKV037.D Vial: 6
Acq On : 5 Nov 2019 6:47 pm Operator: JCorea
Sample : VO01K055 Inst : 01
Misc : 5.0ppb 8260/25ppb KET-AA/125ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV038.D
Acq On : 5 Nov 2019 7:14 pm
Sample : VO01K056
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019

Vial: 7
Operator: JCorea
Inst : 01
Multiplr: 1.00
Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.11	114	2058714	10.00	ug/l	0.00
53) CHLOROBENZENE-D5	13.84	117	1882015	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	742417	10.00	ug/l	0.00
System Monitoring Compounds						
34) Dibromofluoromethane	8.73	111	678163	10.35	ug/l	0.00
Spiked Amount 10.000			Recovery =	103.50%		
38) 1,2-Dichloroethane-d4	9.29	65	615140	10.75	ug/l	0.00
Spiked Amount 10.000			Recovery =	107.50%		
54) Toluene-d8	12.13	98	2437948	10.15	ug/l	0.00
Spiked Amount 10.000			Recovery =	101.50%		
74) 4-Bromofluorobenzene	14.96	95	912123	10.00	ug/l	0.00
Spiked Amount 10.000			Recovery =	100.00%		
Target Compounds						Qvalue
3) Dichlorodifluoromethane	1.86	85	614525	10.78	ug/l	100
4) Chloromethane	2.07	50	806170	10.22	ug/l	100
5) Vinyl chloride	2.22	62	843402	10.19	ug/l	100
7) Bromomethane	2.60	94	621388	11.07	ug/l	100
8) Chloroethane	2.71	64	497365	10.92	ug/l	100
9) Dichlorofluoromethane	3.05	67	1176242	10.31	ug/l	100
10) Trichlorofluoromethane	3.10	101	916568	11.53	ug/l	100
11) Acrolein	3.66	56	310710	54.17	ug/l	100
12) 1,1,2-Trichloro-1,2,2-trif	3.91	151	442623	10.14	ug/l	100
13) Acetone	3.91	43	633398	54.54	ug/l	100
14) 1,1-Dichloroethene	3.83	61	1155569	10.21	ug/l	100
15) Iodomethane	4.05	142	1160040	10.00	ug/l	100
16) Carbon disulfide	4.18	76	2556908	10.58	ug/l	100
17) Methyl acetate	4.49	43	326015	11.70	ug/l	100
18) Methylene chloride	4.71	49	1002179	9.57	ug/l	100
19) tert-Butyl alcohol	5.06	59	1114511	307.27	ug/l	100
20) Acrylonitrile	5.18	53	637924	54.21	ug/l	100
21) tert-Butyl methyl ether (M	5.30	73	1360029	10.80	ug/l	100
22) trans-1,2-Dichloroethene	5.28	61	1122044	10.10	ug/l	100
24) 1,1-Dichloroethane	6.23	63	1409121	10.07	ug/l	100
25) Isopropyl ether (DIPE)	6.45	45	2552868	10.30	ug/l	100
26) 2-Butanol	8.26	45	1075387	315.36	ug/l	100
27) tert-Butyl ethyl ether (ET	7.41	59	1977545	9.83	ug/l	100
28) 2-Butanone	7.68	43	1025972	58.43	ug/l	100
29) cis-1,2-Dichloroethene	7.65	96	739257	10.11	ug/l	100
30) 2,2-Dichloropropane	7.65	77	944988	10.41	ug/l	100
31) Tetrahydrofurane	8.21	42	132900	11.28	ug/l	100

(#) = qualifier out of range (m) = manual integration
RKV038.D VO01K05A.M Fri Nov 22 13:04:48 2019 Page 1

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV038.D
Acq On : 5 Nov 2019 7:14 pm
Sample : VO01K056
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019

Vial: 7
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) Bromochloromethane	8.14	49	680471	10.66 ug/l	100
33) Chloroform	8.43	83	1347190	10.00 ug/l	100
35) 1,1,1-Trichloroethane	8.68	97	986560	10.27 ug/l	100
36) Cyclohexane	8.80	84	1116128	10.88 ug/l	100
37) tert-Amyl methyl ether (TA	9.63	73	1668695	10.66 ug/l	100
39) 1,1-Dichloropropene	9.00	110	346757	10.08 ug/l	100
40) Carbon tetrachloride	8.97	119	864478	10.30 ug/l	100
41) Benzene	9.31	78	2640615	10.12 ug/l	100
42) 1,2-Dichloroethane	9.44	62	750319	10.67 ug/l	100
43) 2,2,4-Trimethylpentane	9.59	57	3522226	10.04 ug/l	100
44) Trichloroethene	10.43	130	803294	9.82 ug/l	100
45) Methylcyclohexane	10.76	83	1442788	10.90 ug/l	100
46) 1,2-Dichloropropane	10.79	63	780670	10.04 ug/l	100
47) 1,4-Dioxane	10.93	88	78289	224.34 ug/l	100
48) Dibromomethane	10.92	93	381705	10.93 ug/l	100
49) Bromodichloromethane	11.20	83	905593	10.49 ug/l	100
50) 2-Chloroethyl vinyl ether	11.62	63	269934	9.41 ug/l	100
51) cis-1,3-Dichloropropene	11.79	75	1131203	10.51 ug/l	100
52) 4-Methyl-2-pentanone	12.00	43	2824847	57.81 ug/l	100
55) Toluene	12.22	91	3009648	9.88 ug/l	100
56) Ethyl methacrylate	12.64	69	790308	10.77 ug/l	100
57) trans-1,3-Dichloropropene	12.55	75	925564	10.52 ug/l	100
58) 1,1,2-Trichloroethane	12.78	97	489875	10.10 ug/l	100
59) Tetrachloroethene	12.89	164	636756	9.93 ug/l	100
60) 1,3-Dichloropropane	12.98	76	997590	10.53 ug/l	100
61) 2-Hexanone	13.04	43	2076602	53.27 ug/l	100
62) Dibromochloromethane	13.23	129	665757	10.86 ug/l	100
63) 1,2-Dibromoethane	13.35	107	545414	10.57 ug/l	100
64) 1-Chlorohexane	13.85	91	1301981	10.00 ug/l	100
65) Chlorobenzene	13.87	112	2038168	10.38 ug/l	100
66) 1,1,1,2-Tetrachloroethane	13.97	131	716196	10.52 ug/l	100
67) Ethylbenzene	13.97	91	3881384	10.23 ug/l	100
68) m-Xylene & p-Xylene	14.10	91	5804849	21.01 ug/l	100
69) o-Xylene	14.46	91	2752909	10.27 ug/l	100
70) Styrene	14.47	104	2253305	10.26 ug/l	100
72) Bromoform	14.66	173	331131	11.01 ug/l	100
73) Isopropylbenzene	14.80	105	3711725	10.08 ug/l	100
75) 1,1,2,2-Tetrachloroethane	15.05	83	722185	10.76 ug/l	100
76) Bromobenzene	15.08	156	799884	10.25 ug/l	100
77) trans-1,4-Dichloro-2-buten	15.08	53	145917	11.48 ug/l	100
78) 1,2,3-Trichloropropane	15.11	110	183275	10.91 ug/l	100

(#) = qualifier out of range (m) = manual integration
RKV038.D VO01K05A.M Fri Nov 22 13:04:49 2019 Page 2

SW 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV038.D Vial: 7
Acq On : 5 Nov 2019 7:14 pm Operator: JCorea
Sample : VO01K056 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
79)	n-Propylbenzene	15.15	91	4622536	10.42	ug/l	100
80)	1,3,5-Trimethylbenzene	15.30	105	2813138	10.03	ug/l	100
81)	2-Chlorotoluene	15.24	91	2329685	10.19	ug/l	100
82)	4-Chlorotoluene	15.33	91	2755818	10.38	ug/l	100
83)	tert-Butylbenzene	15.57	134	697352	10.31	ug/l	100
84)	1,2,4-Trimethylbenzene	15.61	105	2856565	10.52	ug/l	100
85)	sec-Butylbenzene	15.73	105	4035176	10.14	ug/l	100
86)	p-Isopropyltoluene	15.85	119	3245979	10.29	ug/l	100
87)	1,3-Dichlorobenzene	15.85	146	1480352	10.27	ug/l	100
88)	1,4-Dichlorobenzene	15.92	146	1483455	10.34	ug/l	100
89)	1,2,3-Trimethylbenzene	15.94	105	2598139	10.35	ug/l	100
90)	n-Butylbenzene	16.16	91	3175286	10.17	ug/l	100
91)	1,2-Dichlorobenzene	16.20	146	1260382	10.12	ug/l	100
92)	1,2-Dibromo-3-chloropropan	16.80	157	96882	11.71	ug/l	100
93)	1,2,4-Trichlorobenzene	17.46	180	729220	10.87	ug/l	100
94)	Hexachlorobutadiene	17.57	225	490022	10.30	ug/l	100
95)	Naphthalene	17.70	128	1197200	11.24	ug/l	100
96)	1,2,3-Trichlorobenzene	17.88	180	535620	10.82	ug/l	100

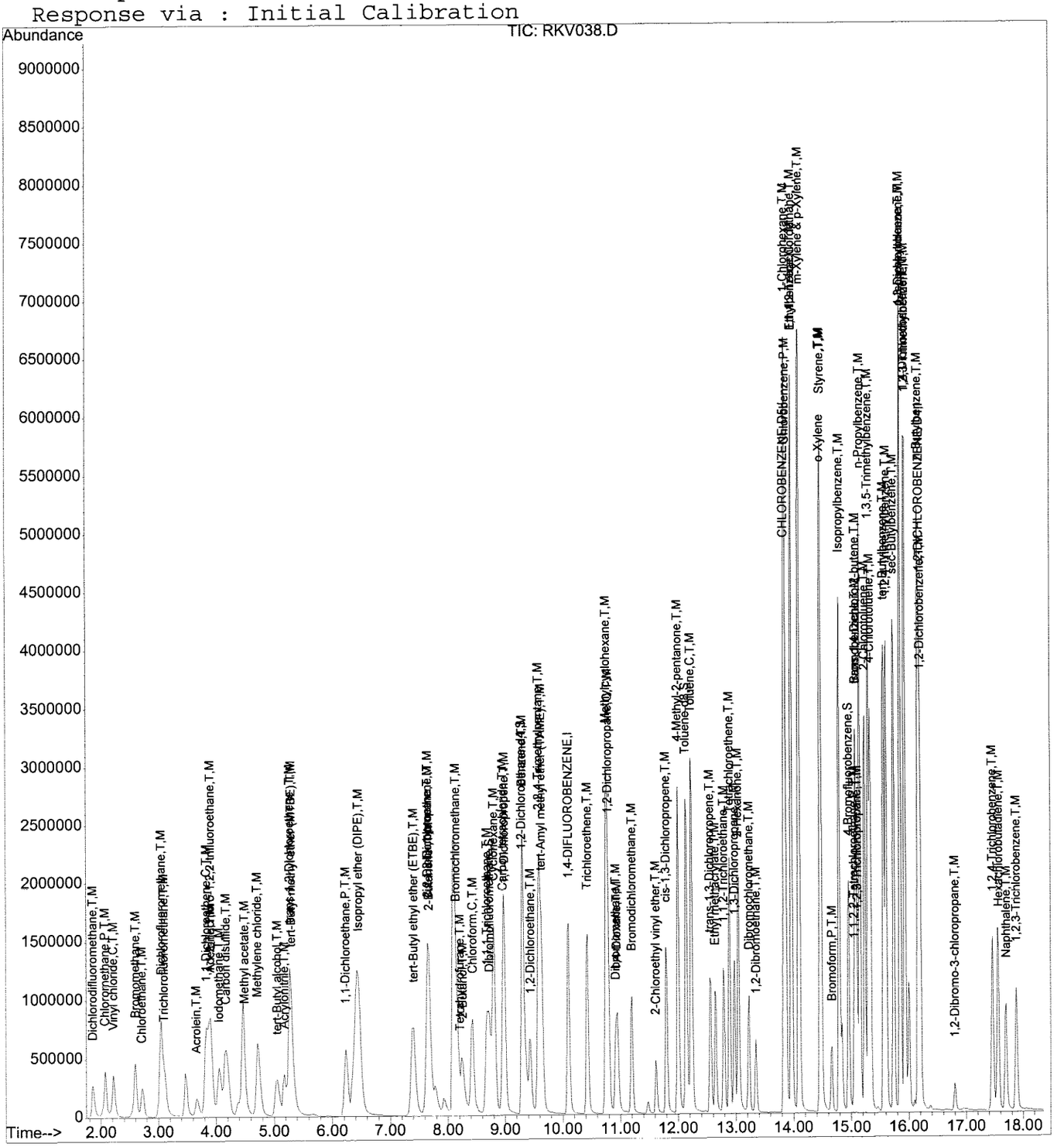
SM 11/25/19

(#) = qualifier out of range (m) = manual integration
RKV038.D VO01K05A.M Fri Nov 22 13:04:49 2019 Page 3

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K05\RKV038.D Vial: 7
Acq On : 5 Nov 2019 7:14 pm Operator: JCorea
Sample : VO01K056 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



RKV038.D VO01K05A.M Fri Nov 22 13:04:52 2019 Page 4

11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV039.D
Acq On : 5 Nov 2019 7:42 pm
Sample : VO01K057
Misc : 20ppb 8260/100ppb KET-AA/500ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019

Vial: 8
Operator: JCorea
Inst : 01
Multiplr: 1.00
Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.11	114	2055755	10.00	ug/l	0.00
53) CHLOROBENZENE-D5	13.84	117	1875878	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	733870	10.00	ug/l	0.00
System Monitoring Compounds						
34) Dibromofluoromethane	8.73	111	1394896	21.33	ug/l	0.00
Spiked Amount 10.000			Recovery =	213.30%		
38) 1,2-Dichloroethane-d4	9.29	65	1167110	20.43	ug/l	0.00
Spiked Amount 10.000			Recovery =	204.30%		
54) Toluene-d8	12.13	98	5113651	21.37	ug/l	0.00
Spiked Amount 10.000			Recovery =	213.70%		
74) 4-Bromofluorobenzene	14.95	95	1820671	20.19	ug/l	-0.01
Spiked Amount 10.000			Recovery =	201.90%		
Target Compounds						Qvalue
3) Dichlorodifluoromethane	1.86	85	1265186	22.23	ug/l	99
4) Chloromethane	2.07	50	1784566	22.66	ug/l	100
5) Vinyl chloride	2.22	62	1864291	22.30	ug/l	99
7) Bromomethane	2.60	94	1166511	20.80	ug/l	100
8) Chloroethane	2.71	64	987076	21.71	ug/l	99
9) Dichlorofluoromethane	3.05	67	2522748	22.14	ug/l	99
10) Trichlorofluoromethane	3.10	101	1810896	22.80	ug/l	97
11) Acrolein	3.66	56	557386	97.32	ug/l	100
12) 1,1,2-Trichloro-1,2,2-trif	3.91	151	935350	21.46	ug/l	100
13) Acetone	3.91	43	1092704	94.22	ug/l	99
14) 1,1-Dichloroethene	3.83	61	2364994	20.93	ug/l	99
15) Iodomethane	4.05	142	2414415	20.84	ug/l	99
16) Carbon disulfide	4.18	76	5294765	21.93	ug/l	100
17) Methyl acetate	4.49	43	538964	19.38	ug/l	98
18) Methylene chloride	4.71	49	1999782	19.12	ug/l	100
19) tert-Butyl alcohol	5.06	59	1730912	477.89	ug/l	99
20) Acrylonitrile	5.18	53	1204357	102.49	ug/l	98
21) tert-Butyl methyl ether (M	5.30	73	2483307	19.76	ug/l	99
22) trans-1,2-Dichloroethene	5.28	61	2336485	21.07	ug/l	100
24) 1,1-Dichloroethane	6.23	63	2970028	21.27	ug/l	100
25) Isopropyl ether (DIPE)	6.45	45	5047140	20.39	ug/l	100
26) 2-Butanol	8.24	45	1642688	456.99	ug/l	99
27) tert-Butyl ethyl ether (ET	7.41	59	3775434	18.80	ug/l	99
28) 2-Butanone	7.67	43	1763897	100.61	ug/l	99
29) cis-1,2-Dichloroethene	7.65	96	1510726	20.69	ug/l	98
30) 2,2-Dichloropropane	7.65	77	1934833	21.34	ug/l	100
31) Tetrahydrofurane	8.21	42	210923	17.92	ug/l	98

(#) = qualifier out of range (m) = manual integration
RKV039.D VO01K05A.M Fri Nov 22 13:05:00 2019

11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV039.D Vial: 8
Acq On : 5 Nov 2019 7:42 pm Operator: JCorea
Sample : VO01K057 Inst : 01
Misc : 20ppb 8260/100ppb KET-AA/500ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) Bromochloromethane	8.14	49	1282200	20.12 ug/l	98
33) Chloroform	8.43	83	2826117	21.01 ug/l	100
35) 1,1,1-Trichloroethane	8.68	97	2096573	21.85 ug/l	100
36) Cyclohexane	8.80	84	2258839	22.04 ug/l	99
37) tert-Amyl methyl ether (TA	9.63	73	3159984	20.22 ug/l	99
39) 1,1-Dichloropropene	9.00	110	769959	22.41 ug/l	99
40) Carbon tetrachloride	8.97	119	1856849	22.16 ug/l	99
41) Benzene	9.31	78	5665566	21.75 ug/l	99
42) 1,2-Dichloroethane	9.43	62	1468581	20.92 ug/l	98
43) 2,2,4-Trimethylpentane	9.59	57	7748657	22.12 ug/l	100
44) Trichloroethene	10.43	130	1753572	21.46 ug/l	100
45) Methylcyclohexane	10.76	83	2931116	22.18 ug/l	99
46) 1,2-Dichloropropane	10.79	63	1677527	21.61 ug/l	98
47) 1,4-Dioxane	10.93	88	129968	372.96 ug/l	87
48) Dibromomethane	10.92	93	739538	21.22 ug/l	100
49) Bromodichloromethane	11.20	83	1860938	21.59 ug/l	100
50) 2-Chloroethyl vinyl ether	11.62	63	556451	18.88 ug/l	99
51) cis-1,3-Dichloropropene	11.79	75	2382596	22.17 ug/l	98
52) 4-Methyl-2-pentanone	12.00	43	4966700	101.79 ug/l	99
55) Toluene	12.22	91	6523075	21.49 ug/l	100
56) Ethyl methacrylate	12.64	69	1470075	20.10 ug/l	99
57) trans-1,3-Dichloropropene	12.55	75	1839053	20.97 ug/l	100
58) 1,1,2-Trichloroethane	12.79	97	952957	19.71 ug/l	99
59) Tetrachloroethene	12.89	164	1342070	21.00 ug/l	100
60) 1,3-Dichloropropane	12.98	76	1974373	20.91 ug/l	99
61) 2-Hexanone	13.04	43	3698317	93.44 ug/l	100
62) Dibromochloromethane	13.23	129	1307046	21.39 ug/l	98
63) 1,2-Dibromoethane	13.35	107	1043064	20.28 ug/l	100
64) 1-Chlorohexane	13.85	91	2782886	21.45 ug/l	100
65) Chlorobenzene	13.87	112	4197493	21.44 ug/l	99
66) 1,1,1,2-Tetrachloroethane	13.97	131	1474054	21.72 ug/l	100
67) Ethylbenzene	13.97	91	8370047	22.14 ug/l	99
68) m-Xylene & p-Xylene	14.09	91	12233500	44.43 ug/l	99
69) o-Xylene	14.46	91	5811964	21.75 ug/l	100
70) Styrene	14.47	104	4703317	21.48 ug/l	100
72) Bromoform	14.67	173	629392	21.17 ug/l	99
73) Isopropylbenzene	14.80	105	7905524	21.73 ug/l	100
75) 1,1,2,2-Tetrachloroethane	15.05	83	1316860	19.85 ug/l	100
76) Bromobenzene	15.08	156	1590496	20.62 ug/l	99
77) trans-1,4-Dichloro-2-buten	15.08	53	265740	21.16 ug/l	97
78) 1,2,3-Trichloropropane	15.11	110	327674	19.73 ug/l	99

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

SA 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV039.D
Acq On : 5 Nov 2019 7:42 pm
Sample : VO01K057
Misc : 20ppb 8260/100ppb KET-AA/500ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019

Vial: 8
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
79) n-Propylbenzene	15.15	91	9956808	22.71	ug/l	99
80) 1,3,5-Trimethylbenzene	15.30	105	6090896	21.97	ug/l	100
81) 2-Chlorotoluene	15.24	91	4952567	21.92	ug/l	99
82) 4-Chlorotoluene	15.33	91	5555414	21.17	ug/l	99
83) tert-Butylbenzene	15.57	134	1432130	21.42	ug/l	99
84) 1,2,4-Trimethylbenzene	15.61	105	5998943	22.34	ug/l	96
85) sec-Butylbenzene	15.73	105	8818577	22.41	ug/l	99
86) p-Isopropyltoluene	15.85	119	6970692	22.36	ug/l	99
87) 1,3-Dichlorobenzene	15.85	146	3067650	21.53	ug/l	100
88) 1,4-Dichlorobenzene	15.92	146	2991580	21.10	ug/l	99
89) 1,2,3-Trimethylbenzene	15.94	105	5384651	21.70	ug/l	99
90) n-Butylbenzene	16.16	91	7051132	22.85	ug/l	99
91) 1,2-Dichlorobenzene	16.20	146	2571965	20.89	ug/l	100
92) 1,2-Dibromo-3-chloropropan	16.80	157	161282	19.73	ug/l	99
93) 1,2,4-Trichlorobenzene	17.46	180	1370709	20.67	ug/l	100
94) Hexachlorobutadiene	17.55	225	1004593	21.37	ug/l	98
95) Naphthalene	17.70	128	2117921	20.12	ug/l	99
96) 1,2,3-Trichlorobenzene	17.88	180	976856	19.96	ug/l	99

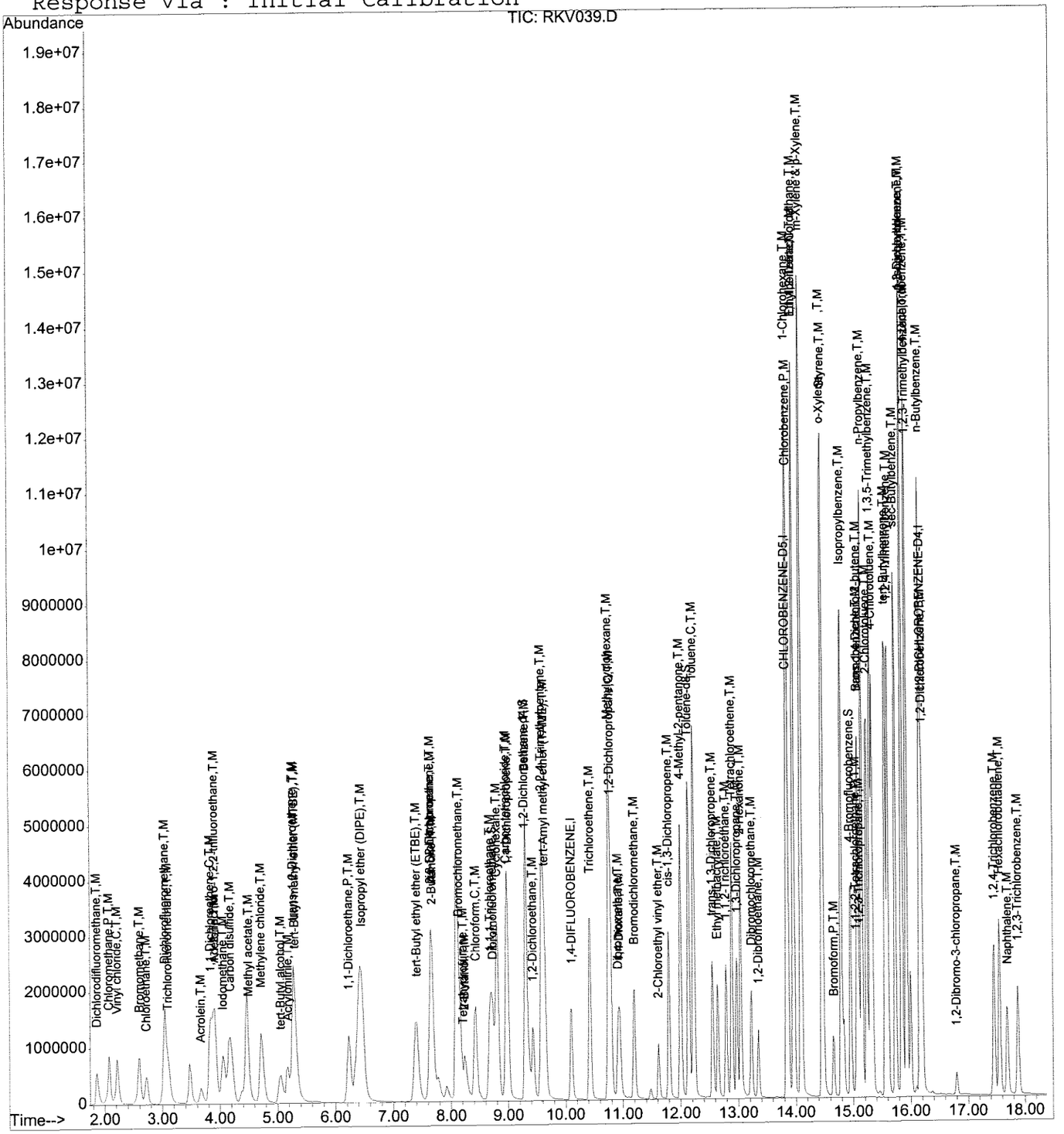
SM 11/25/19

(#) = qualifier out of range (m) = manual integration
RKV039.D VO01K05A.M Fri Nov 22 13:05:01 2019

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K05\RKV039.D Vial: 8
Acq On : 5 Nov 2019 7:42 pm Operator: JCorea
Sample : VO01K057 Inst : 01
Misc : 20ppb 8260/100ppb KET-AA/500ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Sa 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV040.D Vial: 9
Acq On : 5 Nov 2019 8:09 pm Operator: JCorea
Sample : VO01K058 Inst : 01
Misc : 30ppb 8260/150ppb KET-AA/750ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	2354278	10.00	ug/l	-0.01
53) CHLOROBENZENE-D5	13.84	117	2042911	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	812776	10.00	ug/l	0.00
System Monitoring Compounds						
34) Dibromofluoromethane	8.73	111	2301667	30.73	ug/l	0.00
Spiked Amount 10.000			Recovery =	307.30%		
38) 1,2-Dichloroethane-d4	9.29	65	1873485	28.63	ug/l	0.00
Spiked Amount 10.000			Recovery =	286.30%		
54) Toluene-d8	12.13	98	8481795	32.54	ug/l	0.00
Spiked Amount 10.000			Recovery =	325.40%		
74) 4-Bromofluorobenzene	14.95	95	3001487	30.05	ug/l	-0.01
Spiked Amount 10.000			Recovery =	300.50%		
Target Compounds						Qvalue
3) Dichlorodifluoromethane	1.86	85	1895953	29.09	ug/l	100
4) Chloromethane	2.07	50	2818932	31.26	ug/l	98
5) Vinyl chloride	2.22	62	2790077	29.09	ug/l	99
7) Bromomethane	2.59	94	1520240	23.67	ug/l	99
8) Chloroethane	2.71	64	1466318	28.17	ug/l	100
9) Dichlorofluoromethane	3.05	67	3680344	28.20	ug/l	98
10) Trichlorofluoromethane	3.10	101	2734079	30.06	ug/l	96
11) Acrolein	3.66	56	932742	142.21	ug/l	100
12) 1,1,2-Trichloro-1,2,2-trif	3.91	151	1450124	29.05	ug/l	99
13) Acetone	3.91	43	1794734	135.13	ug/l	99
14) 1,1-Dichloroethene	3.83	61	3782328	29.23	ug/l	99
15) Iodomethane	4.05	142	3872173	29.19	ug/l	97
16) Carbon disulfide	4.15	76	8693752	31.45	ug/l	99
17) Methyl acetate	4.49	43	943578	29.62	ug/l	99
18) Methylene chloride	4.71	49	3330888	27.81	ug/l	100
19) tert-Butyl alcohol	5.06	59	3014275	726.69	ug/l	99
20) Acrylonitrile	5.18	53	2101172	156.13	ug/l	98
21) tert-Butyl methyl ether (M	5.30	73	4081040	28.35	ug/l	98
22) trans-1,2-Dichloroethene	5.28	61	3767318	29.66	ug/l	99
24) 1,1-Dichloroethane	6.23	63	4746945	29.68	ug/l	99
25) Isopropyl ether (DIPE)	6.45	45	8321428	29.36	ug/l	100
26) 2-Butanol	8.24	45	3173067	707.99	ug/l	100
27) tert-Butyl ethyl ether (ET	7.41	59	6195701	26.94	ug/l	99
28) 2-Butanone	7.67	43	3026639	150.74	ug/l	99
29) cis-1,2-Dichloroethene	7.65	96	2500070	29.90	ug/l	95
30) 2,2-Dichloropropane	7.65	77	3017539	29.07	ug/l	99
31) Tetrahydrofuran	8.21	42	408183	30.29	ug/l	97

(#) = qualifier out of range (m) = manual integration
RKV040.D VO01K05A.M Fri Nov 22 13:05:12 2019 Page 1

Sa 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV040.D
Acq On : 5 Nov 2019 8:09 pm
Sample : VO01K058
Misc : 30ppb 8260/150ppb KET-AA/750ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019

Vial: 9
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) Bromochloromethane	8.14	49	2128183	29.16 ug/l	98
33) Chloroform	8.43	83	4462836	28.97 ug/l	99
35) 1,1,1-Trichloroethane	8.68	97	3202188	29.14 ug/l	100
36) Cyclohexane	8.80	84	3740521	31.88 ug/l	100
37) tert-Amyl methyl ether (TA	9.63	73	5172602	28.90 ug/l	100
39) 1,1-Dichloropropene	8.98	110	1216554	30.92 ug/l	98
40) Carbon tetrachloride	8.97	119	2838124	29.57 ug/l	99
41) Benzene	9.31	78	9033219	30.28 ug/l	99
42) 1,2-Dichloroethane	9.42	62	2274266	28.29 ug/l	98
43) 2,2,4-Trimethylpentane	9.59	57	11814263	29.45 ug/l	100
44) Trichloroethene	10.42	130	2824073	30.18 ug/l	99
45) Methylcyclohexane	10.76	83	4813858	31.81 ug/l	98
46) 1,2-Dichloropropane	10.79	63	2620063	29.47 ug/l	97
47) 1,4-Dioxane	10.93	88	217728	545.57 ug/l	92
48) Dibromomethane	10.92	93	1168141	29.26 ug/l	99
49) Bromodichloromethane	11.19	83	2924096	29.62 ug/l	100
50) 2-Chloroethyl vinyl ether	11.62	63	908585	26.71 ug/l	100
51) cis-1,3-Dichloropropene	11.79	75	3726541	30.28 ug/l	99
52) 4-Methyl-2-pentanone	12.00	43	8291352	148.38 ug/l	100
55) Toluene	12.22	91	10446248	31.60 ug/l	99
56) Ethyl methacrylate	12.64	69	2482119	31.17 ug/l	100
57) trans-1,3-Dichloropropene	12.55	75	2933060	30.71 ug/l	99
58) 1,1,2-Trichloroethane	12.78	97	1546796	29.38 ug/l	99
59) Tetrachloroethene	12.89	164	2166645	31.13 ug/l	98
60) 1,3-Dichloropropane	12.98	76	3083415	29.98 ug/l	99
61) 2-Hexanone	13.04	43	6121525	140.87 ug/l	100
62) Dibromochloromethane	13.23	129	2066030	31.04 ug/l	98
63) 1,2-Dibromoethane	13.35	107	1661312	29.66 ug/l	100
64) 1-Chlorohexane	13.85	91	4333699	30.67 ug/l	99
65) Chlorobenzene	13.87	112	6497277	30.48 ug/l	99
66) 1,1,1,2-Tetrachloroethane	13.97	131	2281219	30.87 ug/l	100
67) Ethylbenzene	13.97	91	12165638	29.54 ug/l	98
68) m-Xylene & p-Xylene	14.09	91	16095095	53.68 ug/l	89
69) o-Xylene	14.46	91	8988998	30.88 ug/l	100
70) Styrene	14.47	104	7333215	30.75 ug/l	99
72) Bromoform	14.66	173	1008675	30.64 ug/l	99
73) Isopropylbenzene	14.80	105	12227499	30.34 ug/l	99
75) 1,1,2,2-Tetrachloroethane	15.05	83	2057669	28.01 ug/l	100
76) Bromobenzene	15.08	156	2497182	29.23 ug/l	100
77) trans-1,4-Dichloro-2-buten	15.08	53	409764	29.46 ug/l	98
78) 1,2,3-Trichloropropane	15.11	110	507704	27.61 ug/l	99

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

SM 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV040.D Vial: 9
Acq On : 5 Nov 2019 8:09 pm Operator: JCorea
Sample : VO01K058 Inst : 01
Misc : 30ppb 8260/150ppb KET-AA/750ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
79)	n-Propylbenzene	15.15	91	13072343	26.92	ug/l	95
80)	1,3,5-Trimethylbenzene	15.30	105	9276004	30.22	ug/l	99
81)	2-Chlorotoluene	15.24	91	7842596	31.34	ug/l	98
82)	4-Chlorotoluene	15.33	91	8511659	29.28	ug/l	99
83)	tert-Butylbenzene	15.57	134	2185928	29.52	ug/l	100
84)	1,2,4-Trimethylbenzene	15.61	105	9094043	30.58	ug/l	96
85)	sec-Butylbenzene	15.73	105	12773612	29.31	ug/l	99
86)	p-Isopropyltoluene	15.85	119	10614155	30.74	ug/l	100
87)	1,3-Dichlorobenzene	15.85	146	4877769	30.92	ug/l	99
88)	1,4-Dichlorobenzene	15.92	146	4467594	28.46	ug/l	99
89)	1,2,3-Trimethylbenzene	15.94	105	8043925	29.27	ug/l	100
90)	n-Butylbenzene	16.16	91	10748369	31.44	ug/l	99
91)	1,2-Dichlorobenzene	16.20	146	4046885	29.69	ug/l	99
92)	1,2-Dibromo-3-chloropropan	16.80	157	266827	29.47	ug/l	98
93)	1,2,4-Trichlorobenzene	17.46	180	2181358	29.70	ug/l	100
94)	Hexachlorobutadiene	17.55	225	1548153	29.73	ug/l	99
95)	Naphthalene	17.68	128	3410135	29.25	ug/l	99
96)	1,2,3-Trichlorobenzene	17.88	180	1574306	29.05	ug/l	99

SC 11/25/19

(#) = qualifier out of range (m) = manual integration
RKV040.D VO01K05A.M Fri Nov 22 13:05:13 2019 Page 3

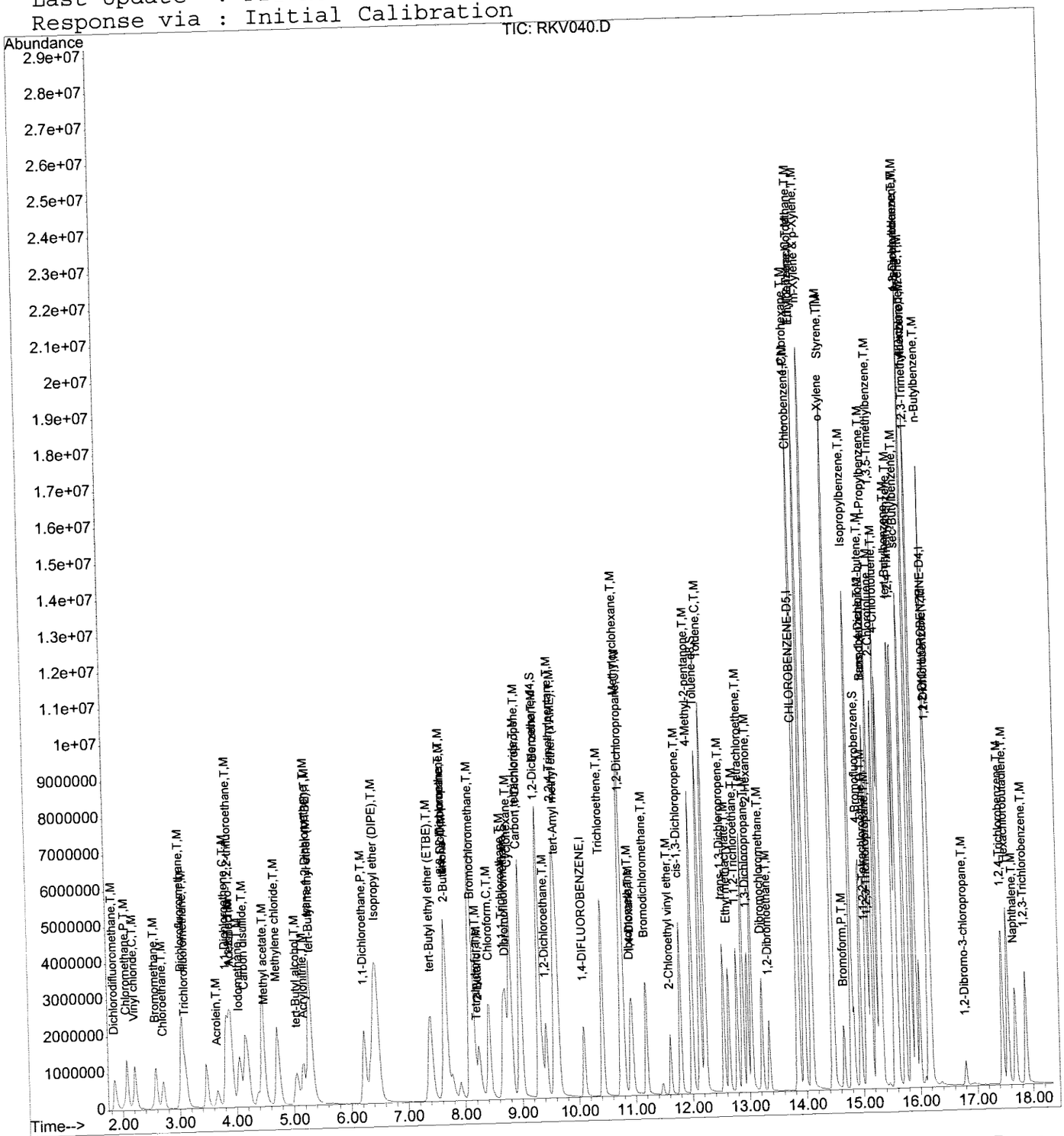
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K05\RKV040.D
Acq On : 5 Nov 2019 8:09 pm
Sample : VO01K058
Misc : 30ppb 8260/150ppb KET-AA/750ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019

Vial: 9
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



SA 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV041.D Vial: 10
Acq On : 5 Nov 2019 8:36 pm Operator: JCorea
Sample : VO01K059 Inst : 01
Misc : 50ppb 8260/250ppb KET-AA/1250ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	2421908	10.00	ug/l	-0.01
53) CHLOROBENZENE-D5	13.84	117	2157020	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	815967	10.00	ug/l	0.00
System Monitoring Compounds						
34) Dibromofluoromethane	8.71	111	3997708	51.88	ug/l	-0.01
Spiked Amount 10.000			Recovery =	518.80%		
38) 1,2-Dichloroethane-d4	9.29	65	3416589	50.76	ug/l	0.00
Spiked Amount 10.000			Recovery =	507.60%		
54) Toluene-d8	12.13	98	14485247	52.63	ug/l	0.00
Spiked Amount 10.000			Recovery =	526.30%		
74) 4-Bromofluorobenzene	14.95	95	5067502	50.54	ug/l	-0.01
Spiked Amount 10.000			Recovery =	505.40%		
Target Compounds						Qvalue
3) Dichlorodifluoromethane	1.86	85	3286740	49.03	ug/l	99
4) Chloromethane	2.07	50	4987958	53.77	ug/l	97
5) Vinyl chloride	2.22	62	4830870	48.82	ug/l	99
7) Bromomethane	2.56	94	1960369	29.68	ug/l	97
8) Chloroethane	2.69	64	1944511	36.31	ug/l	98
9) Dichlorofluoromethane	3.03	67	5702577	42.48	ug/l	97
10) Trichlorofluoromethane	3.08	101	4554582	48.68	ug/l	97
11) Acrolein	3.66	56	1681563	249.22	ug/l	99
12) 1,1,2-Trichloro-1,2,2-trif	3.88	151	2505065	48.78	ug/l	99
13) Acetone	3.91	43	3380626	247.43	ug/l	99
14) 1,1-Dichloroethene	3.81	61	6194213	46.53	ug/l	98
15) Iodomethane	4.06	142	6845472	50.16	ug/l	96
16) Carbon disulfide	4.15	76	15039991	52.88	ug/l	99
17) Methyl acetate	4.47	43	1876379	57.26	ug/l	98
18) Methylene chloride	4.72	49	5759456	46.75	ug/l	100
19) tert-Butyl alcohol	5.06	59	6643237	1556.85	ug/l	97
20) Acrylonitrile	5.16	53	4020326	290.40	ug/l	98
21) tert-Butyl methyl ether (M	5.30	73	7603002	51.34	ug/l	97
22) trans-1,2-Dichloroethene	5.25	61	6364416	48.70	ug/l	98
24) 1,1-Dichloroethane	6.23	63	8163845	49.62	ug/l	100
25) Isopropyl ether (DIPE)	6.45	45	15008669	51.48	ug/l	100
26) 2-Butanol	8.24	45	6921029	1273.55	ug/l	100
27) tert-Butyl ethyl ether (ET	7.38	59	11188077	47.28	ug/l	98
28) 2-Butanone	7.68	43	6133303	296.94	ug/l	99
29) cis-1,2-Dichloroethene	7.65	96	4365412	50.75	ug/l	93
30) 2,2-Dichloropropane	7.65	77	5008682	46.90	ug/l	99
31) Tetrahydrofurane	8.19	42	851082	61.39	ug/l	97

(#) = qualifier out of range (m) = manual integration
RKV041.D VO01K05A.M Fri Nov 22 13:05:24 2019 Page 1

SC 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV041.D
Acq On : 5 Nov 2019 8:36 pm
Sample : VO01K059
Misc : 50ppb 8260/250ppb KET-AA/1250ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019

Vial: 10
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) Bromochloromethane	8.14	49	3841110	51.17 ug/l	98
33) Chloroform	8.41	83	7676740	48.45 ug/l	99
35) 1,1,1-Trichloroethane	8.67	97	5543919	49.04 ug/l	98
36) Cyclohexane	8.80	84	6372219	52.79 ug/l	100
37) tert-Amyl methyl ether (TA	9.63	73	9724524	52.82 ug/l	100
39) 1,1-Dichloropropene	8.98	110	2061833	50.94 ug/l	99
40) Carbon tetrachloride	8.97	119	4855049	49.17 ug/l	100
41) Benzene	9.31	78	15947341	51.96 ug/l	98
42) 1,2-Dichloroethane	9.42	62	4088933	49.44 ug/l	98
43) 2,2,4-Trimethylpentane	9.59	57	20890383	50.62 ug/l	100
44) Trichloroethene	10.42	130	4869282	50.58 ug/l	98
45) Methylcyclohexane	10.76	83	7965639	51.17 ug/l	97
46) 1,2-Dichloropropane	10.79	63	4454270	48.71 ug/l	97
47) 1,4-Dioxane	10.93	88	438276	1067.55 ug/l	94
48) Dibromomethane	10.91	93	2243499	54.63 ug/l	98
49) Bromodichloromethane	11.19	83	5442053	53.59 ug/l	100
50) 2-Chloroethyl vinyl ether	11.62	63	1905309	53.93 ug/l	100
51) cis-1,3-Dichloropropene	11.79	75	6812945	53.81 ug/l	99
52) 4-Methyl-2-pentanone	12.00	43	15951140	277.48 ug/l	97
55) Toluene	12.22	91	16723537	47.92 ug/l	92
56) Ethyl methacrylate	12.64	69	4747529	56.46 ug/l	100
57) trans-1,3-Dichloropropene	12.55	75	5390181	53.45 ug/l	99
58) 1,1,2-Trichloroethane	12.78	97	2875718	51.73 ug/l	98
59) Tetrachloroethene	12.89	164	3758626	51.15 ug/l	98
60) 1,3-Dichloropropane	12.98	76	5700968	52.50 ug/l	100
61) 2-Hexanone	13.04	43	12200648	263.95 ug/l	100
62) Dibromochloromethane	13.23	129	3823359	54.41 ug/l	99
63) 1,2-Dibromoethane	13.35	107	3124835	52.84 ug/l	100
64) 1-Chlorohexane	13.85	91	7275502	48.76 ug/l	100
65) Chlorobenzene	13.87	112	11129338	49.44 ug/l	99
66) 1,1,1,2-Tetrachloroethane	13.97	131	3997189	51.23 ug/l	99
67) Ethylbenzene	13.97	91	15952325	36.69 ug/l	82
68) m-Xylene & p-Xylene	14.09	91	20220491	63.87 ug/l	66
69) o-Xylene	14.46	91	13296213	43.26 ug/l	90
70) Styrene	14.47	104	12355679	49.06 ug/l	99
72) Bromoform	14.65	173	1982977	60.00 ug/l	99
73) Isopropylbenzene	14.80	105	15477270	38.26 ug/l	87
75) 1,1,2,2-Tetrachloroethane	15.05	83	3930624	53.30 ug/l	100
76) Bromobenzene	15.08	156	4479132	52.23 ug/l	100
77) trans-1,4-Dichloro-2-buten	15.08	53	802143	57.44 ug/l	99
78) 1,2,3-Trichloropropane	15.11	110	994290	53.85 ug/l	96

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

11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV041.D
Acq On : 5 Nov 2019 8:36 pm
Sample : VO01K059
Misc : 50ppb 8260/250ppb KET-AA/1250ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019

Vial: 10
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
79) n-Propylbenzene	15.15	91	17500152	35.90 ug/l	84
80) 1,3,5-Trimethylbenzene	15.30	105	13525991	43.89 ug/l	90
81) 2-Chlorotoluene	15.24	91	12738806	50.70 ug/l	99
82) 4-Chlorotoluene	15.33	91	13900421	47.63 ug/l	98
83) tert-Butylbenzene	15.57	134	3608835	48.55 ug/l	99
84) 1,2,4-Trimethylbenzene	15.61	105	13551234	45.39 ug/l	86
85) sec-Butylbenzene	15.73	105	16035793	36.65 ug/l	84
86) p-Isopropyltoluene	15.85	119	14285518	41.21 ug/l	92
87) 1,3-Dichlorobenzene	15.85	146	8025714	50.67 ug/l	99
88) 1,4-Dichlorobenzene	15.92	146	7787909	49.41 ug/l	99
89) 1,2,3-Trimethylbenzene	15.94	105	12971085	47.01 ug/l	98
90) n-Butylbenzene	16.16	91	14705236	42.85 ug/l	87
91) 1,2-Dichlorobenzene	16.20	146	6904040	50.45 ug/l	99
92) 1,2-Dibromo-3-chloropropan	16.80	157	519240	57.12 ug/l	97
93) 1,2,4-Trichlorobenzene	17.46	180	3876258	52.57 ug/l	99
94) Hexachlorobutadiene	17.57	225	2529533	48.39 ug/l	99
95) Naphthalene	17.68	128	6383362	54.54 ug/l	99
96) 1,2,3-Trichlorobenzene	17.88	180	2800373	51.46 ug/l	100

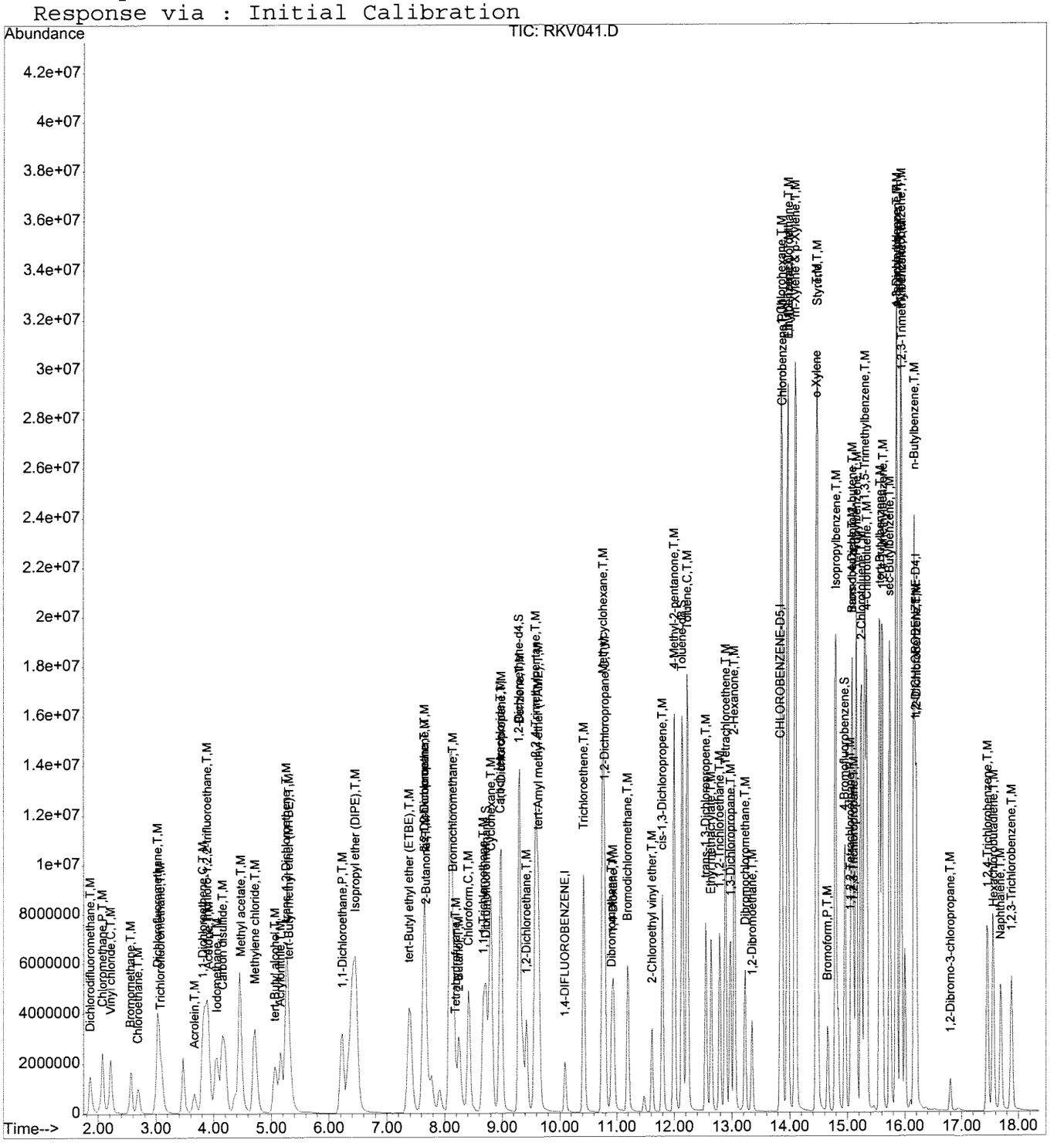
SC 11/25/19

(#) = qualifier out of range (m) = manual integration
RKV041.D VO01K05A.M Fri Nov 22 13:05:25 2019 Page 3

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K05\RKV041.D Vial: 10
Acq On : 5 Nov 2019 8:36 pm Operator: JCorea
Sample : VO01K059 Inst : 01
Misc : 50ppb 8260/250ppb KET-AA/1250ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:42 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Sa 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV042.D Vial: 11
Acq On : 5 Nov 2019 9:04 pm Operator: JCorea
Sample : VO01K0510 Inst : 01
Misc : 100ppb 8260/500ppb KET-AA/2500ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:43 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	2408168	10.00 ug/l	-0.02
53) CHLOROBENZENE-D5	13.84	117	2001219	10.00 ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	710187	10.00 ug/l	0.00
System Monitoring Compounds					
34) Dibromofluoromethane	8.71	111	7748848	101.14 ug/l	-0.02
Spiked Amount 10.000			Recovery	= 1011.40%	
38) 1,2-Dichloroethane-d4	9.29	65	6364825	95.10 ug/l	0.00
Spiked Amount 10.000			Recovery	= 951.00%	
54) Toluene-d8	12.13	98	21298877	83.42 ug/l	0.00
Spiked Amount 10.000			Recovery	= 834.20%	
74) 4-Bromofluorobenzene	14.96	95	9398080	107.69 ug/l	0.00
Spiked Amount 10.000			Recovery	= 1076.90%	
Target Compounds					Qvalue
3) Dichlorodifluoromethane	1.86	85	6440076	96.61 ug/l	100
4) Chloromethane	2.07	50	10131022	109.83 ug/l	97
5) Vinyl chloride	2.21	62	9843169	99.83 ug/l	99
7) Bromomethane	2.56	94	3782767	57.59 ug/l	97
8) Chloroethane	2.67	64	2267753	42.58 ug/l	89
9) Dichlorofluoromethane	3.03	67	10113837	75.77 ug/l	98
10) Trichlorofluoromethane	3.08	101	9307211	100.05 ug/l	99
11) Acrolein	3.66	56	2923405	435.75 ug/l	97
12) 1,1,2-Trichloro-1,2,2-trif	3.88	151	5244729	102.71 ug/l	99
13) Acetone	3.91	43	5815331	428.06 ug/l	99
14) 1,1-Dichloroethene	3.81	61	12251491	92.56 ug/l	96
15) Iodomethane	4.06	142	13933384	102.68 ug/l	96
16) Carbon disulfide	4.18	76	30260134	107.00 ug/l	99
17) Methyl acetate	4.47	43	3286274	100.86 ug/l	97
18) Methylene chloride	4.72	49	11497906	93.85 ug/l	99
19) tert-Butyl alcohol	5.08	59	11234422	2647.83 ug/l	95
20) Acrylonitrile	5.16	53	6992318	507.96 ug/l	99
21) tert-Butyl methyl ether (M	5.30	73	13919382	94.53 ug/l	97
22) trans-1,2-Dichloroethene	5.25	61	12924142	99.47 ug/l	98
24) 1,1-Dichloroethane	6.21	63	16485878	100.76 ug/l	99
25) Isopropyl ether (DIPE)	6.45	45	29572377	102.01 ug/l	100
26) 2-Butanol	8.26	45	11534535	1850.88 ug/l	99
27) tert-Butyl ethyl ether (ET	7.41	59	21334976	90.68 ug/l	99
28) 2-Butanone	7.68	43	10378632	505.34 ug/l	100
29) cis-1,2-Dichloroethene	7.65	96	8774067	102.58 ug/l	93
30) 2,2-Dichloropropane	7.65	77	10027124	94.43 ug/l	99
31) Tetrahydrofurane	8.19	42	1285785	93.28 ug/l	95

(#) = qualifier out of range (m) = manual integration
RKV042.D VO01K05A.M Fri Nov 22 13:05:41 2019 Page 1

SA 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV042.D Vial: 11
Acq On : 5 Nov 2019 9:04 pm Operator: JCorea
Sample : VO01K0510 Inst : 01
Misc : 100ppb 8260/500ppb KET-AA/2500ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:43 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) Bromochloromethane	8.14	49	7222067	96.75 ug/l	95
33) Chloroform	8.41	83	15612249	99.09 ug/l	99
35) 1,1,1-Trichloroethane	8.67	97	11188143	99.54 ug/l	98
36) Cyclohexane	8.80	84	12639872	105.30 ug/l	99
37) tert-Amyl methyl ether (TA	9.63	73	17528581	95.74 ug/l	100
39) 1,1-Dichloropropene	8.98	110	4175061	103.73 ug/l	98
40) Carbon tetrachloride	8.97	119	10003670	101.90 ug/l	99
41) Benzene	9.31	78	25831281	84.65 ug/l	92
42) 1,2-Dichloroethane	9.42	62	7869298	95.70 ug/l	99
43) 2,2,4-Trimethylpentane	9.59	57	32112322	78.25 ug/l	98
44) Trichloroethene	10.42	130	9642358	100.74 ug/l	98
45) Methylcyclohexane	10.76	83	16117599	104.12 ug/l	96
46) 1,2-Dichloropropane	10.79	63	8747451	96.20 ug/l	98
47) 1,4-Dioxane	10.93	88	749741	1836.63 ug/l	93
48) Dibromomethane	10.90	93	4074251	99.78 ug/l	98
49) Bromodichloromethane	11.19	83	10448425	103.49 ug/l	100
50) 2-Chloroethyl vinyl ether	11.61	63	3593966	101.85 ug/l	99
51) cis-1,3-Dichloropropene	11.79	75	13265341	105.36 ug/l	99
52) 4-Methyl-2-pentanone	12.00	43	20747393	362.97 ug/l	84
55) Toluene	12.22	91	22793007	70.39 ug/l	77
56) Ethyl methacrylate	12.64	69	8619666	110.49 ug/l	99
57) trans-1,3-Dichloropropene	12.55	75	10346146	110.58 ug/l	100
58) 1,1,2-Trichloroethane	12.78	97	5306902	102.90 ug/l	98
59) Tetrachloroethene	12.89	164	7410437	108.70 ug/l	98
60) 1,3-Dichloropropane	12.98	76	10407246	103.30 ug/l	99
61) 2-Hexanone	13.04	43	16108115	374.69 ug/l	84
62) Dibromochloromethane	13.23	129	7154010	109.74 ug/l	99
63) 1,2-Dibromoethane	13.35	107	5758993	104.96 ug/l	100
64) 1-Chlorohexane	13.85	91	13129465	94.85 ug/l	98
65) Chlorobenzene	13.86	112	16993668	81.37 ug/l	87
66) 1,1,1,2-Tetrachloroethane	13.97	131	7545930	104.24 ug/l	100
67) Ethylbenzene	13.97	91	19486051	48.31 ug/l	45
68) m-Xylene & p-Xylene	13.97	91	19479289	66.32 ug/l	87
69) o-Xylene	14.46	91	18389396	64.50 ug/l	68
70) Styrene	14.49	104	16407466	70.23 ug/l	70
72) Bromoform	14.66	173	3578587	124.41 ug/l	99
73) Isopropylbenzene	14.80	105	19681765	55.90 ug/l	61
75) 1,1,2,2-Tetrachloroethane	15.06	83	6432919	100.22 ug/l	100
76) Bromobenzene	15.08	156	8358903	111.99 ug/l	100
77) trans-1,4-Dichloro-2-buten	15.08	53	1294469	106.50 ug/l	96
78) 1,2,3-Trichloropropane	15.11	110	1629832	101.43 ug/l	99

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

Sa 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV042.D Vial: 11
Acq On : 5 Nov 2019 9:04 pm Operator: JCorea
Sample : VO01K0510 Inst : 01
Misc : 100ppb 8260/500ppb KET-AA/2500ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:43 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
79)	n-Propylbenzene	15.15	91	19785938	46.63	ug/l	46
80)	1,3,5-Trimethylbenzene	15.30	105	17821513	66.44	ug/l	73
81)	2-Chlorotoluene	15.24	91	15915691	72.78	ug/l	71
82)	4-Chlorotoluene	15.33	91	18882127	74.34	ug/l	77
83)	tert-Butylbenzene	15.57	134	6740643	104.19	ug/l	97
84)	1,2,4-Trimethylbenzene	15.61	105	16821285	64.74	ug/l	60
85)	sec-Butylbenzene	15.74	105	19602158	51.48	ug/l	57
86)	p-Isopropyltoluene	15.85	119	17320527	57.41	ug/l	62
87)	1,3-Dichlorobenzene	15.85	146	13560689	98.37	ug/l	94
88)	1,4-Dichlorobenzene	15.92	146	13209196	96.29	ug/l	97
89)	1,2,3-Trimethylbenzene	15.94	105	16992589	70.76	ug/l	75
90)	n-Butylbenzene	16.16	91	18730454	62.71	ug/l	70
91)	1,2-Dichlorobenzene	16.20	146	12075411	101.37	ug/l	99
92)	1,2-Dibromo-3-chloropropan	16.80	157	860239	108.74	ug/l	99
93)	1,2,4-Trichlorobenzene	17.46	180	6961071	108.46	ug/l	99
94)	Hexachlorobutadiene	17.55	225	4868905	107.00	ug/l	98
95)	Naphthalene	17.68	128	11015713	108.14	ug/l	100
96)	1,2,3-Trichlorobenzene	17.88	180	5037502	106.37	ug/l	99

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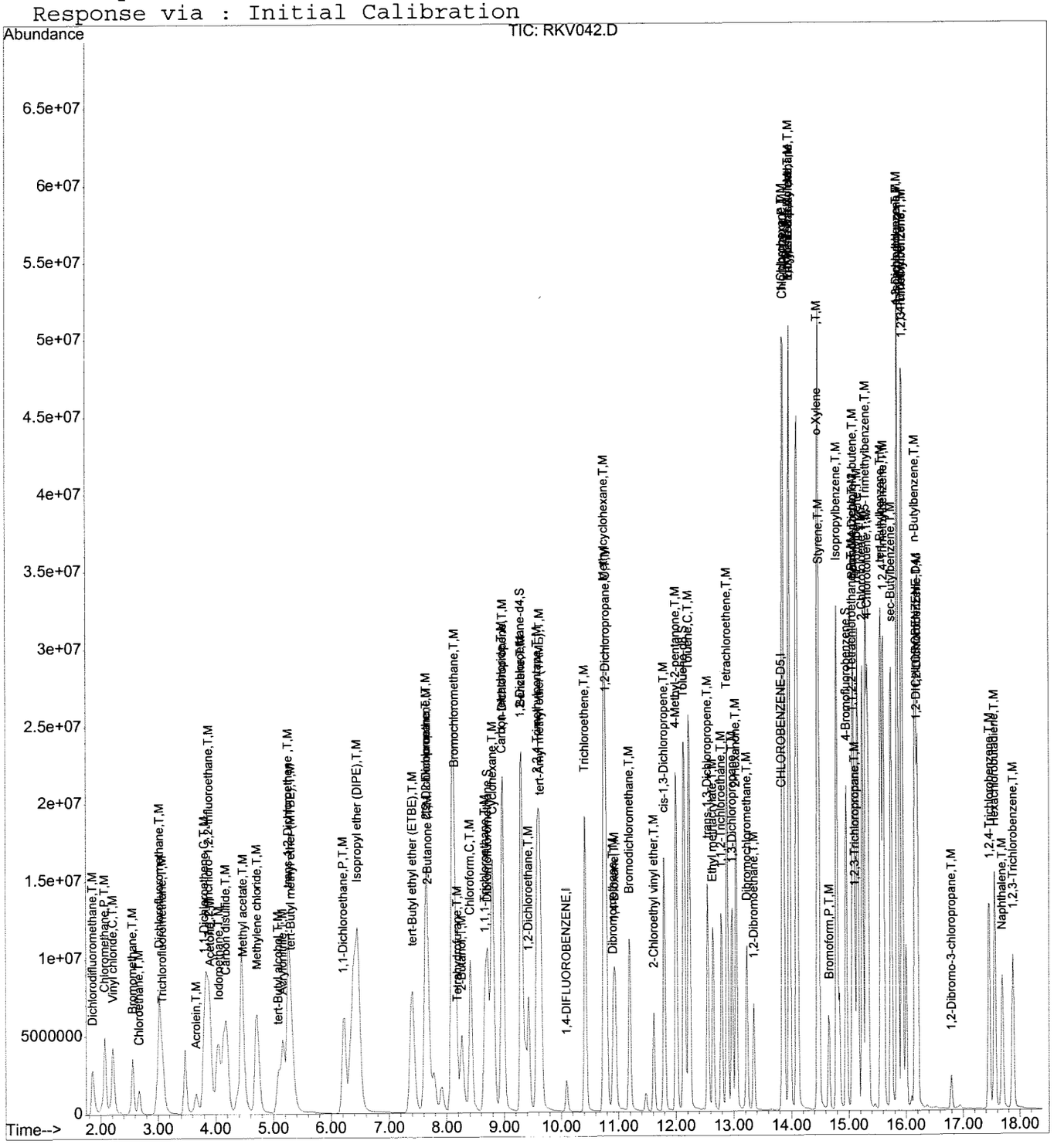
11/25/19

(#) = qualifier out of range (m) = manual integration
RKV042.D VO01K05A.M Fri Nov 22 13:05:42 2019 Page 3

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K05\RKV042.D Vial: 11
Acq On : 5 Nov 2019 9:04 pm Operator: JCorea
Sample : VO01K0510 Inst : 01
Misc : 100ppb 8260/500ppb KET-AA/2500ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:43 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Sa 11/25/19

SECOND SOURCE VERIFICATION

CONTINUE_CALIBRATION - CALIBRATION VERIFICATION

Instrument ID :01
IC Beginning DateTime :11/05/19 16:58
Spike Amount :10 PPB
CC/CV File :RKV045
IC File :RKV038

Column Spec :RXI-624SILMS ID :0.25MM
IC Ending DateTime :11/05/19 21:04
HPChem Method :V001K05A
Date_Time :11/05/19 22:26

M	IDX	Parameters	CC_Con	CC%_D	CC_Resp	CCRRF	AVRRF	CC_Rtm	AvRtm	%_RSD	Co_X0	Co_X1	Co_X2	Co_Cor
	1	1,4-DIFLUOROBENZENE	10.000	0	2320819	1	1	10.091	10.101	0				
	2	Chlorotrifluoroethylene												
	3	Dichlorodifluoromethane	9.642	-3.6	619428	0.267	0.277	1.860	1.859	7.70				
	4	Chloromethane	9.083	-9.2	807406	0.348	0.383	2.073	2.074	11.51				
	5	Vinyl chloride	8.348	-16.5	775780	0.334	0.375	2.215	2.217	16.04	-0.0082	0.4103		0.9992
	6	2-Chloro-1,1,1-trifluoroethane												
	7	Bromomethane	8.696	-13.0	550460	0.237	0.273	2.600	2.602	13.89				
	8	Chloroethane	10.634	6.3	545765	0.235	0.221	2.714	2.724	10.09				
	9	Dichlorofluoromethane	9.777	-2.2	1257656	0.542	0.554	3.051	3.049	8.87				
	10	Trichlorofluoromethane	9.861	-1.4	884049	0.381	0.386	3.100	3.095	12.10				
5	11	Acrolein	50.860	1.7	328842	0.028	0.028	3.662	3.673	6.74				
	12	1,1,2-Trichloro-1,2,2-trifluoroethane	9.672	-3.3	475933	0.205	0.212	3.907	3.903	7.49				
5	13	Acetone	49.691	-0.6	650584	0.056	0.056	3.907	3.911	10.02				
	14	1,1-Dichloroethene	9.021	-9.8	1150621	0.496	0.550	3.834	3.829	7.32				
	15	Iodomethane	10.577	5.8	1383260	0.596	0.563	4.054	4.054	7.28				
	16	Carbon disulfide	10.795	7.9	2941871	1.268	1.174	4.176	4.170	9.42				
	17	Methyl acetate	10.416	4.2	327065	0.141	0.135	4.494	4.495	11.34				
	18	Methylene chloride	8.982	-10.2	1060461	0.457	0.509	4.714	4.715	7.18				
25	19	tert-Butyl alcohol	270.099	8.0	1104431	0.019	0.018	5.057	5.067	14.26				
5	20	Acrylonitrile	52.616	5.2	698018	0.060	0.057	5.179	5.183	12.12				
	21	tert-Butyl methyl ether (MTBE)	10.276	2.8	1458267	0.628	0.611	5.302	5.302	6.95				
	22	trans-1,2-Dichloroethene	9.435	-5.7	1181419	0.509	0.540	5.277	5.273	7.15				
	23	Vinyl acetate												
	24	1,1-Dichloroethane	9.491	-5.1	1496469	0.645	0.679	6.231	6.229	7.06				
	25	Isopropyl ether (DIPE)	10.344	3.4	2889873	1.245	1.204	6.451	6.452	7.30				
25	26	2-Butanol	285.076	14.0	1082166	0.019	0.017	8.262	8.262	27.13	-0.0084	0.0150	0.0001	0.9953
	27	tert-Butyl ethyl ether (ETBE)	9.638	-3.6	2185399	0.942	0.977	7.381	7.401	8.27				
5	28	2-Butanone	53.420	6.8	1057355	0.091	0.085	7.699	7.694	14.18				
	29	cis-1,2-Dichloroethene	10.119	1.2	834129	0.359	0.355	7.650	7.661	6.46				
	30	2,2-Dichloropropane	9.286	-7.1	950289	0.409	0.441	7.650	7.651	7.24				
	31	Tetrahydrofurane	10.025	0.2	133170	0.057	0.057	8.213	8.210	13.30				
	32	Bromochloromethane	10.033	0.3	721778	0.311	0.310	8.140	8.150	6.29				
	33	Chloroform	9.812	-1.9	1489980	0.642	0.654	8.433	8.429	4.79				
	34	Dibromofluoromethane	10.197	2.0	752855	0.324	0.318	8.729	8.727	7.37				
	35	1,1,1-Trichloroethane	9.436	-5.6	1022174	0.440	0.467	8.685	8.681	7.85				
	36	Cyclohexane	11.698	17.0	1353181	0.583	0.498	8.804	8.803	11.93				
	37	tert-Amyl methyl ether (TAME)	10.738	7.4	1894617	0.816	0.760	9.632	9.636	6.81				
	38	1,2-Dichloroethane-d4	9.758	-2.4	629413	0.271	0.278	9.292	9.299	6.65				
	39	1,1-Dichloropropene	10.410	4.1	403805	0.174	0.167	8.981	8.991	10.02				
	40	Carbon tetrachloride	9.463	-5.4	895322	0.386	0.408	8.966	8.966	9.16				
	41	Benzene	10.730	7.3	3155590	1.360	1.267	9.307	9.309	8.04				
	42	1,2-Dichloroethane	9.455	-5.5	749254	0.323	0.341	9.425	9.433	9.41				
	43	2,2,4-Trimethylpentane												
	44	Trichloroethene	10.028	0.3	925007	0.399	0.397	10.432	10.427	5.31				
	45	Methylcyclohexane	10.255	2.6	1529866	0.659	0.643	10.757	10.757	11.35				
	46	1,2-Dichloropropane	9.889	-1.1	866555	0.373	0.378	10.787	10.791	6.07				
20	47	1,4-Dioxane	191.600	-4.2	75377	0.002	0.002	10.935	10.940	8.03				
	48	Dibromomethane	9.929	-0.7	390709	0.168	0.170	10.920	10.918	11.20				
	49	Bromodichloromethane	9.945	-0.6	967674	0.417	0.419	11.201	11.196	9.65				
	50	2-Chloroethyl vinyl ether	8.643	-13.6	278216	0.120	0.115	11.616	11.625	29.67	-0.0074	0.1472		0.9974
	51	cis-1,3-Dichloropropene	10.278	2.8	1247012	0.537	0.523	11.794	11.800	10.43				
5	52	4-Methyl-2-pentanone	51.196	2.4	2820208	0.243	0.237	12.001	12.004	10.22				
	53	CHLOROBENZENE-D5	10.000	0	2053385	1	1	13.836	13.836	0				
	54	Toluene-d8	10.827	8.3	2836498	1.381	1.276	12.134	12.139	7.82				
	55	Toluene	10.181	1.8	3382516	1.647	1.618	12.223	12.229	6.22				
	56	Ethyl methacrylate	10.273	2.7	822307	0.400	0.390	12.637	12.645	10.32				
	57	trans-1,3-Dichloropropene	10.277	2.8	986585	0.480	0.468	12.549	12.554	9.22				
	58	1,1,2-Trichloroethane	9.724	-2.8	514548	0.251	0.258	12.785	12.791	3.54				
	59	Tetrachloroethene	9.629	-3.7	673610	0.328	0.341	12.889	12.888	6.15				
	60	1,3-Dichloropropane	10.107	1.1	1044759	0.509	0.503	12.978	12.979	7.38				
5	61	2-Hexanone	46.786	-6.4	1978024	0.193	0.190	13.037	13.045	15.74	-0.0477	0.2161		0.9976
	62	Dibromochloromethane	10.259	2.6	686214	0.334	0.326	13.229	13.229	11.72				
	63	1,2-Dibromoethane	9.932	-0.7	559114	0.272	0.274	13.348	13.349	5.85				
	64	1-Chlorohexane	11.017	10.2	1564741	0.762	0.692	13.851	13.853	4.39				
	65	Chlorobenzene	9.996	-0.0	2142000	1.043	1.044	13.866	13.865	7.83				
	66	1,1,1,2-Tetrachloroethane	9.965	-0.3	740202	0.360	0.362	13.955	13.969	8.16				
	67	Ethylbenzene	9.630	-3.7	3985905	1.941	2.016	13.970	13.969	6.71				
2	68	m-Xylene & p-Xylene	19.772	-1.1	5959141	1.451	1.468	14.088	14.097	8.66				
	69	o-Xylene	9.966	-0.3	2915677	1.420	1.425	14.458	14.461	7.36				
	70	Styrene	10.136	1.4	2429936	1.183	1.167	14.473	14.479	5.88				
	71	1,2-DICHLOROBENZENE-D4	10.000	0	836125	1	1	16.190	16.189	0				
	72	Bromoform	10.240	2.4	346807	0.415	0.405	14.665	14.663	12.56				
	73	Isopropylbenzene	9.479	-5.2	3929311	4.699	4.958	14.799	14.798	5.62				
	74	4-Bromofluorobenzene	9.766	-2.3	1003364	1.200	1.229	14.946	14.956	4.01				
	75	1,1,2,2-Tetrachloroethane	9.348	-6.5	706401	0.845	0.904	15.050	15.058	4.68				
	76	Bromobenzene	9.655	-3.4	848486	1.015	1.051	15.080	15.083	6.16				
	77	trans-1,4-Dichloro-2-butene	11.879	18.8	169986	0.203	0.171	15.080	15.084	12.16				
	78	1,2,3-Trichloropropane	9.593	-4.1	181491	0.217	0.226	15.109	15.110	6.03				
	79	n-Propylbenzene	9.903	-1.0	4946898	5.916	5.975	15.154	15.155	8.13				
	80	1,3,5-Trimethylbenzene	9.298	-7.0	2936185	3.512	3.777	15.302	15.301	6.91				
	81	2-Chlorotoluene	9.246	-7.5	2380649	2.847	3.079	15.228	15.242	6.65				
	82	4-Chlorotoluene	9.789	-2.1	2927447	3.501	3.577	15.331	15.337	5.68				
	83	tert-Butylbenzene	9.495	-5.1	723193	0.865	0.911	15.568	15.568	5.87				
	84	1,2,4-Trimethylbenzene	9.537	-4.6	2917568	3.489	3.659	15.598	15.612	8.43				
	85	sec-Butylbenzene	9.557	-4.4	4284668	5.124	5.362	15.731	15.740	7.68				
	86	p-Isopropyltoluene	9.757	-2.4	3465601	4.145	4.248	15.849	15.852	8.72				
	87	1,3-Dichlorobenzene	9.925	-0.8	1610831	1.927	1.941	15.849	15.852	5.54				
	88	1,4-Dichlorobenzene	9.672	-3.3	1562000	1.868	1.932	15.924	15.930	4.55				
	89	1,2,3-Trimethylbenzene	9.879	-1.2	2793197	3.341	3.382	15.924	15.938	5.41				
	90	n-Butylbenzene	9.467	-5.3	3329024	3.981	4.206	16.160	16.163	8.82				
	91	1,2-Dichlorobenzene	9.660	-3.4	1354761	1.620	1.677	16.205	16.204	3.87				
	92	1,2-Dibromo-3-chloropropane	9.822	-1.8	91485	0.109	0.111	16.797	16.802	12.58				
	93	1,2,4-Trichlorobenzene	9.787	-2.1	739493	0.884	0.904	17.463	17.465	7.14				
	94	Hexachlorobutadiene	9.171	-8.3	491280	0.588	0.641	17.552	17.561	5.75				
	95	Naphthalene	9.464	-5.4	1134932	1.357	1.434	17.700	17.698	7.49				
	96	1,2,3-Trichlorobenzene	9.846	-1.5	548995	0.657	0.667	17.877	17.884	4.95				

Spike Amount = Nominal Amount * M

Sa 11/25/19

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K05\RKV045.D
Acq On : 5 Nov 2019 10:26 pm
Sample : IVO01K0501
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA-2B
MS Integration Params: 524TAIL.P

Vial: 14
Operator: JCorea
Inst : 01
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	113	-0.01
2	T,M	Chlorotrifluoroethylene	-1.000	0.000	0.0	0	-1.94#
3	T,M	Dichlorodifluoromethane	10.000	9.642	3.6	101	0.00
4	P,T,M	Chloromethane	10.000	9.083	9.2	100	0.00
5	C,T,M	Vinyl chloride	10.000	8.348	16.5	92	0.00
6	T,M	2-Chloro-1,1,1-trifluoroeth	-1.000	0.000	0.0	0	-2.43#
7	T,M	Bromomethane	10.000	8.696	13.0	89	0.00
8	T,M	Chloroethane	10.000	10.634	-6.3	110	0.00
9	T,M	Dichlorofluoromethane	10.000	9.777	2.2	107	0.00
10	T,M	Trichlorofluoromethane	10.000	9.861	1.4	96	0.00
11	T,M	Acrolein	50.000	50.860	-1.7	106	0.00
12	T,M	1,1,2-Trichloro-1,2,2-trifl	10.000	9.672	3.3	108	0.00
13	T,M	Acetone	50.000	49.691	0.6	103	0.00
14	C,T,M	1,1-Dichloroethene	10.000	9.021	9.8	100	0.00
15	T,M	Iodomethane	10.000	10.577	-5.8	119	0.00
16	T,M	Carbon disulfide	10.000	10.794	-7.9	115	0.00
17	T,M	Methyl acetate	10.000	10.416	-4.2	100	0.00
18	T,M	Methylene chloride	10.000	8.982	10.2	106	0.00
19	T,M	tert-Butyl alcohol	250.000	270.099	-8.0	99	0.00
20	T,M	Acrylonitrile	50.000	52.616	-5.2	109	0.00
21	T,M	tert-Butyl methyl ether (MT	10.000	10.276	-2.8	107	0.00
22	T,M	trans-1,2-Dichloroethene	10.000	9.435	5.6	105	0.00
23	T,M	Vinyl acetate	-1.000	0.000	0.0	0	0.00
24	P,T,M	1,1-Dichloroethane	10.000	9.491	5.1	106	0.00
25	T,M	Isopropyl ether (DIPE)	10.000	10.344	-3.4	113	0.00
26	T,M	2-Butanol	250.000	285.076	-14.0	101	0.00
27	T,M	tert-Butyl ethyl ether (ETB	10.000	9.638	3.6	111	-0.03
28	T,M	2-Butanone	50.000	53.420	-6.8	103	0.02
29	T,M	cis-1,2-Dichloroethene	10.000	10.119	-1.2	113	0.00
30	T,M	2,2-Dichloropropane	10.000	9.286	7.1	101	0.00
31	T,M	Tetrahydrofurane	10.000	10.025	-0.3	100	0.00
32	T,M	Bromochloromethane	10.000	10.033	-0.3	106	0.00
33	C,T,M	Chloroform	10.000	9.812	1.9	111	0.00
34	S	Dibromofluoromethane	10.000	10.197	-2.0	111	0.00
35	T,M	1,1,1-Trichloroethane	10.000	9.436	5.6	104	0.00
36	T,M	Cyclohexane	10.000	11.698	-17.0	121	0.00
37	T,M	tert-Amyl methyl ether (TAM	10.000	10.738	-7.4	114	0.00
38	S	1,2-Dichloroethane-d4	10.000	9.758	2.4	102	0.00
39	T,M	1,1-Dichloropropene	10.000	10.410	-4.1	116	-0.01
40	T,M	Carbon tetrachloride	10.000	9.463	5.4	104	0.00
41	T,M	Benzene	10.000	10.730	-7.3	120	0.00

(#) = Out of Range
RKV045.D VO01K05A.M Fri Nov 22 13:08:21 2019 Page 1

SA 11/25/19

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K05\RKV045.D
Acq On : 5 Nov 2019 10:26 pm
Sample : IVO01K0501
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA-2B
MS Integration Params: 524TAIL.P

Vial: 14
Operator: JCorea
Inst : 01
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
42	T,M 1,2-Dichloroethane	10.000	9.455	5.4	100	-0.01
43	T,M 2,2,4-Trimethylpentane	10.000	0.000	100.0#	0	-9.59#
44	T,M Trichloroethene	10.000	10.028	-0.3	115	0.00
45	T,M Methylcyclohexane	10.000	10.255	-2.6	106	0.00
46	C,T,M 1,2-Dichloropropane	10.000	9.889	1.1	111	0.00
47	T,M 1,4-Dioxane	200.000	191.600	4.2	96	0.00
48	T,M Dibromomethane	10.000	9.929	0.7	102	0.00
49	T,M Bromodichloromethane	10.000	9.945	0.5	107	0.00
50	T,M 2-Chloroethyl vinyl ether	10.000	8.643	13.6	103	0.00
51	T,M cis-1,3-Dichloropropene	10.000	10.278	-2.8	110	0.00
52	T,M 4-Methyl-2-pentanone	50.000	51.196	-2.4	100	0.00
53	I CHLOROBENZENE-D5	10.000	10.000	0.0	109	0.00
54	S Toluene-d8	10.000	10.827	-8.3	116	0.00
55	C,T,M Toluene	10.000	10.181	-1.8	112	0.00
56	T,M Ethyl methacrylate	10.000	10.273	-2.7	104	0.00
57	T,M trans-1,3-Dichloropropene	10.000	10.277	-2.8	107	0.00
58	T,M 1,1,2-Trichloroethane	10.000	9.724	2.8	105	0.00
59	T,M Tetrachloroethene	10.000	9.629	3.7	106	0.00
60	T,M 1,3-Dichloropropane	10.000	10.107	-1.1	105	0.00
61	T,M 2-Hexanone	50.000	46.786	6.4	95	0.00
62	T,M Dibromochloromethane	10.000	10.259	-2.6	103	0.00
63	T,M 1,2-Dibromoethane	10.000	9.931	0.7	103	0.00
64	T,M 1-Chlorohexane	10.000	11.017	-10.2	120	0.00
65	P,M Chlorobenzene	10.000	9.996	0.0	105	0.00
66	T,M 1,1,1,2-Tetrachloroethane	10.000	9.965	0.4	103	-0.01
67	C,T,M Ethylbenzene	10.000	9.630	3.7	103	0.00
68	T,M m-Xylene & p-Xylene	20.000	19.772	1.1	103	-0.01
69	T,M o-Xylene	10.000	9.966	0.3	106	0.00
70	T,M Styrene	10.000	10.136	-1.4	108	0.00
71	I 1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	113	0.00
72	P,T,M Bromoform	10.000	10.240	-2.4	105	0.00
73	T,M Isopropylbenzene	10.000	9.479	5.2	106	0.00
74	S 4-Bromofluorobenzene	10.000	9.766	2.3	110	-0.01
75	P,T,M 1,1,2,2-Tetrachloroethane	10.000	9.348	6.5	98	0.00
76	T,M Bromobenzene	10.000	9.655	3.5	106	0.00
77	T,M trans-1,4-Dichloro-2-butene	10.000	11.879	-18.8	116	0.00
78	T,M 1,2,3-Trichloropropane	10.000	9.593	4.1	99	0.00
79	T,M n-Propylbenzene	10.000	9.902	1.0	107	0.00
80	T,M 1,3,5-Trimethylbenzene	10.000	9.298	7.0	104	0.00

(#) = Out of Range
RKV045.D VO01K05A.M Fri Nov 22 13:08:21 2019 Sa 11/25/19

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K05\RKV045.D Vial: 14
Acq On : 5 Nov 2019 10:26 pm Operator: JCorea
Sample : IVO01K0501 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81	T,M	2-Chlorotoluene	10.000	9.246	7.5	102	-0.01
82	T,M	4-Chlorotoluene	10.000	9.789	2.1	106	0.00
83	T,M	tert-Butylbenzene	10.000	9.495	5.1	104	0.00
84	T,M	1,2,4-Trimethylbenzene	10.000	9.537	4.6	102	-0.01
85	T,M	sec-Butylbenzene	10.000	9.557	4.4	106	0.00
86	T,M	p-Isopropyltoluene	10.000	9.757	2.4	107	0.00
87	T,M	1,3-Dichlorobenzene	10.000	9.925	0.7	109	0.00
88	T,M	1,4-Dichlorobenzene	10.000	9.672	3.3	105	0.00
89	T,M	1,2,3-Trimethylbenzene	10.000	9.879	1.2	108	-0.01
90	T,M	n-Butylbenzene	10.000	9.467	5.3	105	0.00
91	T,M	1,2-Dichlorobenzene	10.000	9.660	3.4	107	0.00
92	T,M	1,2-Dibromo-3-chloropropane	10.000	9.822	1.8	94	0.00
93	T,M	1,2,4-Trichlorobenzene	10.000	9.787	2.1	101	0.00
94	T,M	Hexachlorobutadiene	10.000	9.171	8.3	100	-0.01
95	T,M	Naphthalene	10.000	9.463	5.4	95	0.00
96	T,M	1,2,3-Trichlorobenzene	10.000	9.846	1.5	102	0.00

5 11/25/19

(#) = Out of Range SPCC's out = 0 CCC's out = 0
RKV045.D VO01K05A.M Fri Nov 22 13:08:22 2019 Page 3

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K05\RKV045.D
Acq On : 5 Nov 2019 10:26 pm
Sample : IVO01K0501
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA-2B
MS Integration Params: 524TAIL.P

Vial: 14
Operator: JCorea
Inst : 01
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	113	-0.01
2	T,M	Chlorotrifluoroethylene	0.000	0.000	0.0	0#	-1.94#
3	T,M	Dichlorodifluoromethane	0.277	0.267	3.6	101	0.00
4	P,T,M	Chloromethane	0.383	0.348	9.1	100	0.00
5	C,T,M	Vinyl chloride	0.375	0.334	10.9	92	0.00
6	T,M	2-Chloro-1,1,1-trifluoroeth	0.000	0.000	0.0	0#	-2.43#
7	T,M	Bromomethane	0.273	0.237	13.2	89	0.00
8	T,M	Chloroethane	0.221	0.235	-6.3	110	0.00
9	T,M	Dichlorofluoromethane	0.554	0.542	2.2	107	0.00
10	T,M	Trichlorofluoromethane	0.386	0.381	1.3	96	0.00
11	T,M	Acrolein	0.028	0.028	0.0	106	0.00
12	T,M	1,1,2-Trichloro-1,2,2-trifl	0.212	0.205	3.3	108	0.00
13	T,M	Acetone	0.056	0.056	0.0	103	0.00
14	C,T,M	1,1-Dichloroethene	0.550	0.496	9.8	100	0.00
15	T,M	Iodomethane	0.563	0.596	-5.9	119	0.00
16	T,M	Carbon disulfide	1.174	1.268	-8.0	115	0.00
17	T,M	Methyl acetate	0.135	0.141	-4.4	100	0.00
18	T,M	Methylene chloride	0.509	0.457	10.2	106	0.00
19	T,M	tert-Butyl alcohol	0.018	0.019	-5.6	99	0.00
20	T,M	Acrylonitrile	0.057	0.060	-5.3	109	0.00
21	T,M	tert-Butyl methyl ether (MT	0.611	0.628	-2.8	107	0.00
22	T,M	trans-1,2-Dichloroethene	0.540	0.509	5.7	105	0.00
23	T,M	Vinyl acetate	0.000	0.000	0.0	0#	0.00
24	P,T,M	1,1-Dichloroethane	0.679	0.645	5.0	106	0.00
25	T,M	Isopropyl ether (DIPE)	1.204	1.245	-3.4	113	0.00
26	T,M	2-Butanol	0.017	0.019	-11.8	101	0.00
27	T,M	tert-Butyl ethyl ether (ETB	0.977	0.942	3.6	111	-0.03
28	T,M	2-Butanone	0.085	0.091	-7.1	103	0.02
29	T,M	cis-1,2-Dichloroethene	0.355	0.359	-1.1	113	0.00
30	T,M	2,2-Dichloropropane	0.441	0.409	7.3	101	0.00
31	T,M	Tetrahydrofurane	0.057	0.057	0.0	100	0.00
32	T,M	Bromochloromethane	0.310	0.311	-0.3	106	0.00
33	C,T,M	Chloroform	0.654	0.642	1.8	111	0.00
34	S	Dibromofluoromethane	0.318	0.324	-1.9	111	0.00
35	T,M	1,1,1-Trichloroethane	0.467	0.440	5.8	104	0.00
36	T,M	Cyclohexane	0.498	0.583	-17.1	121	0.00
37	T,M	tert-Amyl methyl ether (TAM	0.760	0.816	-7.4	114	0.00
38	S	1,2-Dichloroethane-d4	0.278	0.271	2.5	102	0.00
39	T,M	1,1-Dichloropropene	0.167	0.174	-4.2	116	-0.01
40	T,M	Carbon tetrachloride	0.408	0.386	5.4	104	0.00
41	T,M	Benzene	1.267	1.360	-7.3	120	0.00

Su

(#) = Out of Range

11/29/19

RKV045.D VO01K05A.M Fri Nov 22 13:08:26 2019 Page 1

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K05\RKV045.D Vial: 14
Acq On : 5 Nov 2019 10:26 pm Operator: JCorea
Sample : IVO01K0501 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
42	T,M	1,2-Dichloroethane	0.341	0.323	5.3	100	-0.01
43	T,M	2,2,4-Trimethylpentane	1.704	0.000	100.0#	0#	-9.59#
44	T,M	Trichloroethene	0.397	0.399	-0.5	115	0.00
45	T,M	Methylcyclohexane	0.643	0.659	-2.5	106	0.00
46	C,T,M	1,2-Dichloropropane	0.378	0.373	1.3	111	0.00
47	T,M	1,4-Dioxane	0.002	0.002	0.0	96	0.00
48	T,M	Dibromomethane	0.170	0.168	1.2	102	0.00
49	T,M	Bromodichloromethane	0.419	0.417	0.5	107	0.00
50	T,M	2-Chloroethyl vinyl ether	0.115	0.120	-4.3	103	0.00
51	T,M	cis-1,3-Dichloropropene	0.523	0.537	-2.7	110	0.00
52	T,M	4-Methyl-2-pentanone	0.237	0.243	-2.5	100	0.00
53	I	CHLOROBENZENE-D5	1.000	1.000	0.0	109	0.00
54	S	Toluene-d8	1.276	1.381	-8.2	116	0.00
55	C,T,M	Toluene	1.618	1.647	-1.8	112	0.00
56	T,M	Ethyl methacrylate	0.390	0.400	-2.6	104	0.00
57	T,M	trans-1,3-Dichloropropene	0.468	0.480	-2.6	107	0.00
58	T,M	1,1,2-Trichloroethane	0.258	0.251	2.7	105	0.00
59	T,M	Tetrachloroethene	0.341	0.328	3.8	106	0.00
60	T,M	1,3-Dichloropropane	0.503	0.509	-1.2	105	0.00
61	T,M	2-Hexanone	0.190	0.193	-1.6	95	0.00
62	T,M	Dibromochloromethane	0.326	0.334	-2.5	103	0.00
63	T,M	1,2-Dibromoethane	0.274	0.272	0.7	103	0.00
64	T,M	1-Chlorohexane	0.692	0.762	-10.1	120	0.00
65	P,M	Chlorobenzene	1.044	1.043	0.1	105	0.00
66	T,M	1,1,1,2-Tetrachloroethane	0.362	0.360	0.6	103	-0.01
67	C,T,M	Ethylbenzene	2.016	1.941	3.7	103	0.00
68	T,M	m-Xylene & p-Xylene	1.468	1.451	1.2	103	-0.01
69	T,M	o-Xylene	1.425	1.420	0.4	106	0.00
70	T,M	Styrene	1.167	1.183	-1.4	108	0.00
71	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	113	0.00
72	P,T,M	Bromoform	0.405	0.415	-2.5	105	0.00
73	T,M	Isopropylbenzene	4.958	4.699	5.2	106	0.00
74	S	4-Bromofluorobenzene	1.229	1.200	2.4	110	-0.01
75	P,T,M	1,1,2,2-Tetrachloroethane	0.904	0.845	6.5	98	0.00
76	T,M	Bromobenzene	1.051	1.015	3.4	106	0.00
77	T,M	trans-1,4-Dichloro-2-butene	0.171	0.203	-18.7	116	0.00
78	T,M	1,2,3-Trichloropropane	0.226	0.217	4.0	99	0.00
79	T,M	n-Propylbenzene	5.975	5.916	1.0	107	0.00
80	T,M	1,3,5-Trimethylbenzene	3.777	3.512	7.0	104	0.00

(#) = Out of Range

SA 11/25/19

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K05\RKV045.D
Acq On : 5 Nov 2019 10:26 pm
Sample : IVO01K0501
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA-2B
MS Integration Params: 524TAIL.P

Vial: 14
Operator: JCorea
Inst : 01
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
81	T,M	2-Chlorotoluene	3.079	2.847	7.5	102	-0.01
82	T,M	4-Chlorotoluene	3.577	3.501	2.1	106	0.00
83	T,M	tert-Butylbenzene	0.911	0.865	5.0	104	0.00
84	T,M	1,2,4-Trimethylbenzene	3.659	3.489	4.6	102	-0.01
85	T,M	sec-Butylbenzene	5.362	5.124	4.4	106	0.00
86	T,M	p-Isopropyltoluene	4.248	4.145	2.4	107	0.00
87	T,M	1,3-Dichlorobenzene	1.941	1.927	0.7	109	0.00
88	T,M	1,4-Dichlorobenzene	1.932	1.868	3.3	105	0.00
89	T,M	1,2,3-Trimethylbenzene	3.382	3.341	1.2	108	-0.01
90	T,M	n-Butylbenzene	4.206	3.981	5.3	105	0.00
91	T,M	1,2-Dichlorobenzene	1.677	1.620	3.4	107	0.00
92	T,M	1,2-Dibromo-3-chloropropane	0.111	0.109	1.8	94	0.00
93	T,M	1,2,4-Trichlorobenzene	0.904	0.884	2.2	101	0.00
94	T,M	Hexachlorobutadiene	0.641	0.588	8.3	100	-0.01
95	T,M	Naphthalene	1.434	1.357	5.4	95	0.00
96	T,M	1,2,3-Trichlorobenzene	0.667	0.657	1.5	102	0.00

SM
11/25/19

(#) = Out of Range SPCC's out = 0 CCC's out = 0
RKV045.D VO01K05A.M Fri Nov 22 13:08:29 2019 Page 3

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV045.D
Acq On : 5 Nov 2019 10:26 pm
Sample : IVO01K0501
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:59 2019

Vial: 14
Operator: JCorea
Inst : 01
Multiplr: 1.00
Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	2320819	10.00	ug/l	-0.01
53) CHLOROBENZENE-D5	13.84	117	2053385	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	836125	10.00	ug/l	0.00
System Monitoring Compounds						
34) Dibromofluoromethane	8.73	111	752855	10.20	ug/l	0.00
Spiked Amount 10.000			Recovery =	102.00%		
38) 1,2-Dichloroethane-d4	9.29	65	629413	9.76	ug/l	0.00
Spiked Amount 10.000			Recovery =	97.60%		
54) Toluene-d8	12.13	98	2836498	10.83	ug/l	0.00
Spiked Amount 10.000			Recovery =	108.30%		
74) 4-Bromofluorobenzene	14.95	95	1003364	9.77	ug/l	-0.01
Spiked Amount 10.000			Recovery =	97.70%		
Target Compounds						Qvalue
3) Dichlorodifluoromethane	1.86	85	619428	9.64	ug/l	100
4) Chloromethane	2.07	50	807406	9.08	ug/l	99
5) Vinyl chloride	2.22	62	775780	8.35	ug/l	99
7) Bromomethane	2.60	94	550460	8.70	ug/l	100
8) Chloroethane	2.71	64	545765	10.63	ug/l	99
9) Dichlorofluoromethane	3.05	67	1257656	9.78	ug/l	99
10) Trichlorofluoromethane	3.10	101	884049	9.86	ug/l	98
11) Acrolein	3.66	56	328842	50.86	ug/l	100
12) 1,1,2-Trichloro-1,2,2-trif	3.91	151	475933	9.67	ug/l	100
13) Acetone	3.91	43	650584	49.69	ug/l	99
14) 1,1-Dichloroethene	3.83	61	1150621	9.02	ug/l	96
15) Iodomethane	4.05	142	1383260	10.58	ug/l	96
16) Carbon disulfide	4.18	76	2941871	10.79	ug/l	100
17) Methyl acetate	4.49	43	327065	10.42	ug/l	99
18) Methylene chloride	4.71	49	1060461	8.98	ug/l	98
19) tert-Butyl alcohol	5.06	59	1104431	270.10	ug/l	98
20) Acrylonitrile	5.18	53	698018	52.62	ug/l	98
21) tert-Butyl methyl ether (M	5.30	73	1458267	10.28	ug/l	98
22) trans-1,2-Dichloroethene	5.28	61	1181419	9.43	ug/l	97
24) 1,1-Dichloroethane	6.23	63	1496469	9.49	ug/l	99
25) Isopropyl ether (DIPE)	6.45	45	2889873	10.34	ug/l	99
26) 2-Butanol	8.26	45	1082166	285.08	ug/l	96
27) tert-Butyl ethyl ether (ET	7.38	59	2185399	9.64	ug/l	98
28) 2-Butanone	7.70	43	1057355	53.42	ug/l	98
29) cis-1,2-Dichloroethene	7.65	96	834129	10.12	ug/l	94
30) 2,2-Dichloropropane	7.65	77	950289	9.29	ug/l	99
31) Tetrahydrofurane	8.21	42	133170	10.02	ug/l	93

(#) = qualifier out of range (m) = manual integration
RKV045.D VO01K05A.M Fri Nov 22 13:08:41 2019

SH 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV045.D
Acq On : 5 Nov 2019 10:26 pm
Sample : IVO01K0501
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA-2B
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:59 2019

Vial: 14
Operator: JCorea
Inst : 01
Multiplr: 1.00
Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) Bromochloromethane	8.14	49	721778	10.03 ug/l	97
33) Chloroform	8.43	83	1489980	9.81 ug/l	99
35) 1,1,1-Trichloroethane	8.69	97	1022174	9.44 ug/l	100
36) Cyclohexane	8.80	84	1353181	11.70 ug/l	100
37) tert-Amyl methyl ether (TA	9.63	73	1894617	10.74 ug/l	100
39) 1,1-Dichloropropene	8.98	110	403805	10.41 ug/l	99
40) Carbon tetrachloride	8.97	119	895322	9.46 ug/l	100
41) Benzene	9.31	78	3155590	10.73 ug/l	99
42) 1,2-Dichloroethane	9.43	62	749254	9.45 ug/l	98
44) Trichloroethene	10.43	130	925007	10.03 ug/l	98
45) Methylcyclohexane	10.76	83	1529866	10.26 ug/l	97
46) 1,2-Dichloropropane	10.79	63	866555	9.89 ug/l	97
47) 1,4-Dioxane	10.94	88	75377	191.60 ug/l	92
48) Dibromomethane	10.92	93	390709	9.93 ug/l	99
49) Bromodichloromethane	11.20	83	967674	9.95 ug/l	99
50) 2-Chloroethyl vinyl ether	11.62	63	278216	8.64 ug/l	99
51) cis-1,3-Dichloropropene	11.79	75	1247012	10.28 ug/l	99
52) 4-Methyl-2-pentanone	12.00	43	2820208	51.20 ug/l	99
55) Toluene	12.22	91	3382516	10.18 ug/l	100
56) Ethyl methacrylate	12.64	69	822307	10.27 ug/l	98
57) trans-1,3-Dichloropropene	12.55	75	986585	10.28 ug/l	99
58) 1,1,2-Trichloroethane	12.79	97	514548	9.72 ug/l	98
59) Tetrachloroethene	12.89	164	673610	9.63 ug/l	99
60) 1,3-Dichloropropane	12.98	76	1044759	10.11 ug/l	100
61) 2-Hexanone	13.04	43	1978024	46.79 ug/l	99
62) Dibromochloromethane	13.23	129	686214	10.26 ug/l	99
63) 1,2-Dibromoethane	13.35	107	559114	9.93 ug/l	100
64) 1-Chlorohexane	13.85	91	1564741	11.02 ug/l	99
65) Chlorobenzene	13.87	112	2142000	10.00 ug/l	99
66) 1,1,1,2-Tetrachloroethane	13.95	131	740202	9.97 ug/l	100
67) Ethylbenzene	13.97	91	3985905	9.63 ug/l	100
68) m-Xylene & p-Xylene	14.09	91	5959141	19.77 ug/l	99
69) o-Xylene	14.46	91	2915677	9.97 ug/l	99
70) Styrene	14.47	104	2429936	10.14 ug/l	99
72) Bromoform	14.67	173	346807	10.24 ug/l	99
73) Isopropylbenzene	14.80	105	3929311	9.48 ug/l	99
75) 1,1,2,2-Tetrachloroethane	15.05	83	706401	9.35 ug/l	100
76) Bromobenzene	15.08	156	848486	9.66 ug/l	99
77) trans-1,4-Dichloro-2-buten	15.08	53	169986	11.88 ug/l	98
78) 1,2,3-Trichloropropane	15.11	110	181491	9.59 ug/l	96
79) n-Propylbenzene	15.15	91	4946898	9.90 ug/l	99

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

SM 11/25/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K05\RKV045.D Vial: 14
Acq On : 5 Nov 2019 10:26 pm Operator: JCorea
Sample : IVO01K0501 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:59 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
80) 1,3,5-Trimethylbenzene	15.30	105	2936185	9.30 ug/l	100
81) 2-Chlorotoluene	15.23	91	2380649	9.25 ug/l	99
82) 4-Chlorotoluene	15.33	91	2927447	9.79 ug/l	99
83) tert-Butylbenzene	15.57	134	723193	9.49 ug/l	99
84) 1,2,4-Trimethylbenzene	15.60	105	2917568	9.54 ug/l	95
85) sec-Butylbenzene	15.73	105	4284668	9.56 ug/l	99
86) p-Isopropyltoluene	15.85	119	3465601	9.76 ug/l	100
87) 1,3-Dichlorobenzene	15.85	146	1610831	9.92 ug/l	99
88) 1,4-Dichlorobenzene	15.92	146	1562000	9.67 ug/l	99
89) 1,2,3-Trimethylbenzene	15.92	105	2793197	9.88 ug/l	100
90) n-Butylbenzene	16.16	91	3329024	9.47 ug/l	100
91) 1,2-Dichlorobenzene	16.20	146	1354761	9.66 ug/l	100
92) 1,2-Dibromo-3-chloropropan	16.80	157	91485	9.82 ug/l	99
93) 1,2,4-Trichlorobenzene	17.46	180	739493	9.79 ug/l	100
94) Hexachlorobutadiene	17.55	225	491280	9.17 ug/l	99
95) Naphthalene	17.70	128	1134932	9.46 ug/l	100
96) 1,2,3-Trichlorobenzene	17.88	180	548995	9.85 ug/l	100

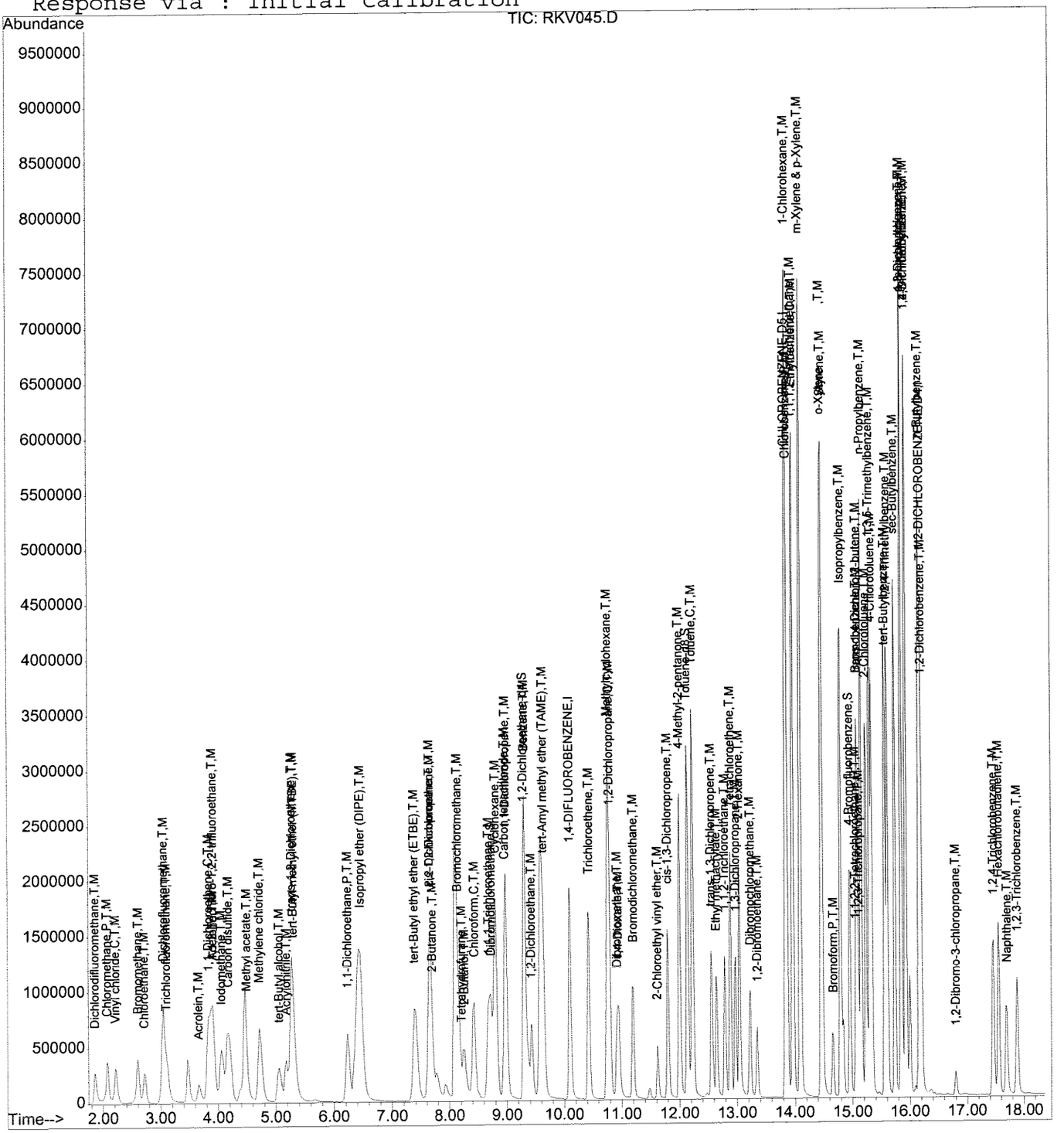
SA 11/25/19

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K05\RKV045.D Vial: 14
Acq On : 5 Nov 2019 10:26 pm Operator: JCorea
Sample : IVO01K0501 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA-2B Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 12:59 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



SM 11/25/19

CONTINUE_CALIBRATION - CALIBRATION VERIFICATION

Instrument ID :01
IC_Beginning DateTime :11/05/19 16:58
Spike Amount :10 PPB
CC/CV File :RKV118
IC File :RKV038

Column Spec :RXI-624SILMS ID :0.25MM
IC_Ending DateTime :11/05/19 21:04
HPChem Method :V001K05A
Date_Time :11/12/19 11:19

M	IDX	Parameters	CC_Con	CC%_D	CC_Resp	CCRRF	AvRRF	CC_Rtm	AvRtm	%_RSD	Co_X0	Co_X1	Co_X2	Co_Cor
	1	1,4-DIFLUOROBENZENE	10.000	0	1746979	1	1	10.091	10.101	0				
	2	Chlorotrifluoroethylene												
	3	Dichlorodifluoromethane												
	4	Chloromethane												
	5	Vinyl chloride												
	6	2-Chloro-1,1,1-trifluoroethane												
	7	Bromomethane												
	8	Chloroethane												
	9	Dichlorofluoromethane												
	10	Trichlorofluoromethane												
5	11	Acrolein												
	12	1,1,2-Trichloro-1,2,2-trifluoroethane												
5	13	Acetone												
	14	1,1-Dichloroethene												
	15	Iodomethane												
	16	Carbon disulfide												
	17	Methyl acetate												
	18	Methylene chloride												
25	19	tert-Butyl alcohol												
5	20	Acrylonitrile												
	21	tert-Butyl methyl ether (MTBE)												
	22	trans-1,2-Dichloroethene												
	23	Vinyl acetate												
	24	1,1-Dichloroethane												
	25	Isopropyl ether (DIPE)												
25	26	2-Butanol												
	27	tert-Butyl ethyl ether (ETBE)												
5	28	2-Butanone												
	29	cis-1,2-Dichloroethene												
	30	2,2-Dichloropropane												
	31	Tetrahydrofurane												
	32	Bromochloromethane												
	33	Chloroform												
	34	Dibromofluoromethane												
	35	1,1,1-Trichloroethane												
	36	Cyclohexane												
	37	tert-Amyl methyl ether (TAME)												
	38	1,2-Dichloroethane-d4												
	39	1,1-Dichloropropene												
	40	Carbon tetrachloride												
	41	Benzene												
	42	1,2-Dichloroethane												
	43	2,2,4-Trimethylpentane	11.347	13.5	3378010	1.934	1.704	9.573	9.587	7.56				
	44	Trichloroethene												
	45	Methylcyclohexane												
	46	1,2-Dichloropropane												
20	47	1,4-Dioxane												
	48	Dibromomethane												
	49	Bromodichloromethane												
	50	2-Chloroethyl vinyl ether												
	51	cis-1,3-Dichloropropene												
5	52	4-Methyl-2-pentanone												
	53	CHLOROBENZENE-D5	10.000	0	1578278	1	1	13.836	13.836	0				
	54	Toluene-d8												
	55	Toluene												
	56	Ethyl methacrylate												
	57	trans-1,3-Dichloropropene												
	58	1,1,2-Trichloroethane												
	59	Tetrachloroethene												
	60	1,3-Dichloropropane												
5	61	2-Hexanone												
	62	Dibromochloromethane												
	63	1,2-Dibromoethane												
	64	1-Chlorohexane												
	65	Chlorobenzene												
	66	1,1,1,2-Tetrachloroethane												
	67	Ethylbenzene												
2	68	m-Xylene & p-Xylene												
	69	o-Xylene												
	70	Styrene												
	71	1,2-DICHLOROBENZENE-D4	10.000	0	579845	1	1	16.190	16.189	0				
	72	Bromoform												
	73	Isopropylbenzene												
	74	4-Bromofluorobenzene												
	75	1,1,2,2-Tetrachloroethane												
	76	Bromobenzene												
	77	trans-1,4-Dichloro-2-butene												
	78	1,2,3-Trichloropropane												
	79	n-Propylbenzene												
	80	1,3,5-Trimethylbenzene												
	81	2-Chlorotoluene												
	82	4-Chlorotoluene												
	83	tert-Butylbenzene												
	84	1,2,4-Trimethylbenzene												
	85	sec-Butylbenzene												
	86	p-Isopropyltoluene												
	87	1,3-Dichlorobenzene												
	88	1,4-Dichlorobenzene												
	89	1,2,3-Trimethylbenzene												
	90	n-Butylbenzene												
	91	1,2-Dichlorobenzene												
	92	1,2-Dibromo-3-chloropropane												
	93	1,2,4-Trichlorobenzene												
	94	Hexachlorobutadiene												
	95	Naphthalene												
	96	1,2,3-Trichlorobenzene												

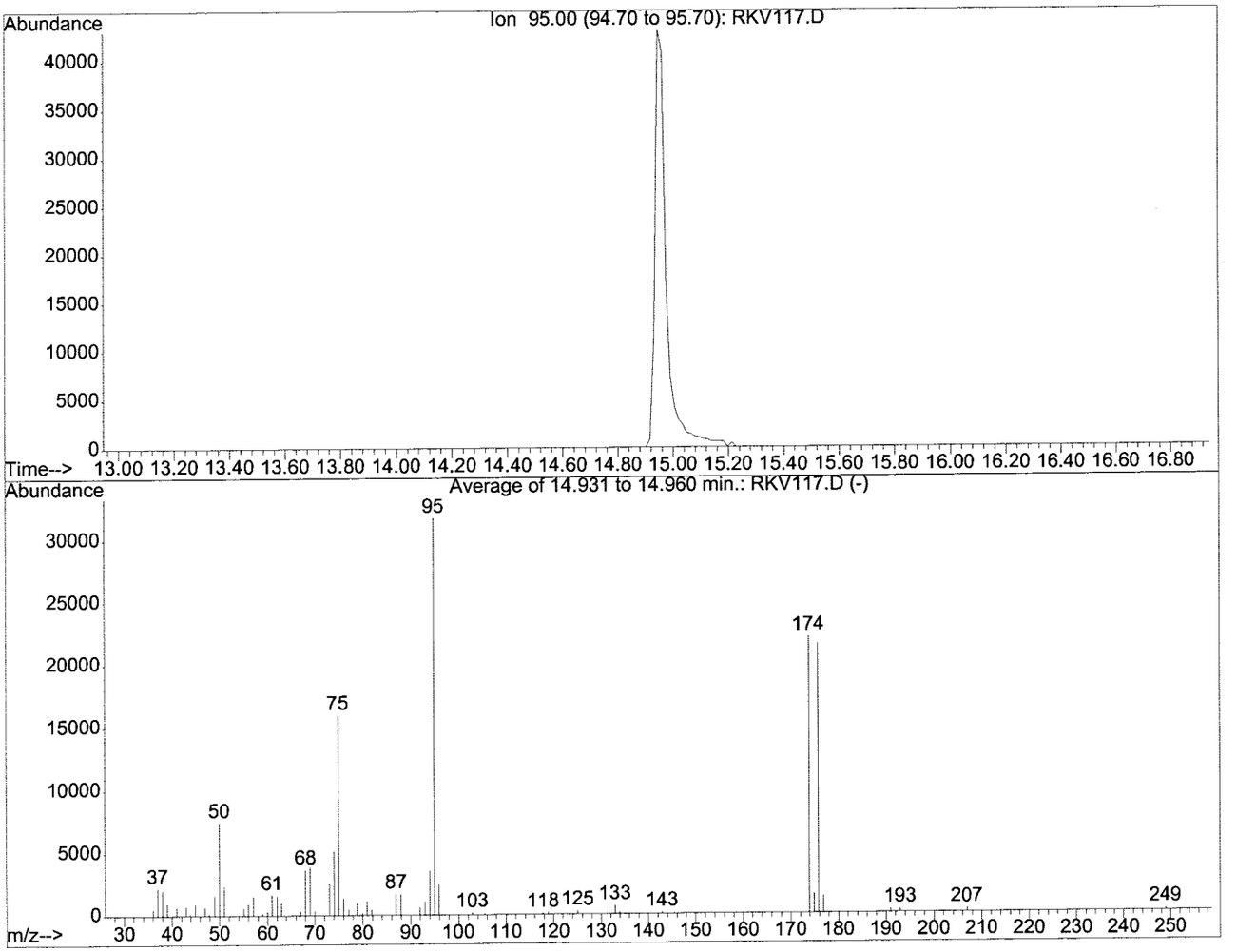
Spike Amount = Nominal Amount * M

Su 11/25/19

BFB

Data File : D:\HPCHEM\1\DATA\19K12\RKV117.D
Acq On : 12 Nov 2019 10:43 am
Sample : BFB01K06
Misc : T/CHK
MS Integration Params: 524TAIL.P
Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls

Vial: 1
Operator: JCorea
Inst : 01
Multiplr: 1.00



AutoFind: Scans 746, 747, 748; Background Corrected with Scan 743

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	23.5	7481	PASS
75	95	30	60	50.3	15995	PASS
95	95	100	100	100.0	31783	PASS
96	95	5	9	7.7	2450	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	69.5	22082	PASS
175	174	5	9	7.0	1549	PASS
176	174	95	101	97.7	21579	PASS
177	176	5	9	6.3	1359	PASS

RKV117.D VO01K05A.M Fri Nov 22 14:49:41 2019 SA 11/25/19

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K12\RKV118.D
Acq On : 12 Nov 2019 11:19 am
Sample : IVO01K0502
Misc : 10ppb 8260/50ppb KET-TBA
MS Integration Params: 524TAIL.P

Vial: 2
Operator: JCorea
Inst : 01
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	85	-0.01
2	T,M	Chlorotrifluoroethylene	-1.000	0.000	0.0	0	-1.94#
3	T,M	Dichlorodifluoromethane	10.000	0.000	100.0#	0	-1.86#
4	P,T,M	Chloromethane	10.000	0.026	99.7#	0	0.00
5	C,T,M	Vinyl chloride	10.000	0.000	100.0#	0	-2.22#
6	T,M	2-Chloro-1,1,1-trifluoroeth	-1.000	0.000	0.0	0	-2.43#
7	T,M	Bromomethane	10.000	0.024	99.8#	0	0.08
8	T,M	Chloroethane	10.000	0.000	100.0#	0	-2.71#
9	T,M	Dichlorofluoromethane	10.000	0.000	100.0#	0	-3.05#
10	T,M	Trichlorofluoromethane	10.000	0.000	100.0#	0	-3.10#
11	T,M	Acrolein	50.000	0.000	100.0#	0	-3.66#
12	T,M	1,1,2-Trichloro-1,2,2-trifl	10.000	0.000	100.0#	0	-3.91#
13	T,M	Acetone	50.000	0.000	100.0#	0	-3.91#
14	C,T,M	1,1-Dichloroethene	10.000	0.000	100.0#	0	-3.83#
15	T,M	Iodomethane	10.000	0.000	100.0#	0	-4.05#
16	T,M	Carbon disulfide	10.000	0.032	99.7#	0	-0.02
17	T,M	Methyl acetate	10.000	0.000	100.0#	0	-4.49#
18	T,M	Methylene chloride	10.000	0.000	100.0#	0	-4.71#
19	T,M	tert-Butyl alcohol	250.000	0.000	100.0#	0	-5.06#
20	T,M	Acrylonitrile	50.000	0.000	100.0#	0	-5.18#
21	T,M	tert-Butyl methyl ether (MT	10.000	0.000	100.0#	0	-5.30#
22	T,M	trans-1,2-Dichloroethene	10.000	0.000	100.0#	0	-5.28#
23	T,M	Vinyl acetate	-1.000	0.000	0.0	0	-6.35#
24	P,T,M	1,1-Dichloroethane	10.000	0.000	100.0#	0	-6.23#
25	T,M	Isopropyl ether (DIPE)	10.000	0.000	100.0#	0	-6.45#
26	T,M	2-Butanol	250.000	0.000	100.0#	0	-8.26#
27	T,M	tert-Butyl ethyl ether (ETB	10.000	0.000	100.0#	0	-7.41#
28	T,M	2-Butanone	50.000	0.000	100.0#	0	-7.68#
29	T,M	cis-1,2-Dichloroethene	10.000	0.000	100.0#	0	-7.65#
30	T,M	2,2-Dichloropropane	10.000	0.000	100.0#	0	-7.65#
31	T,M	Tetrahydrofurane	10.000	0.000	100.0#	0	-8.21#
32	T,M	Bromochloromethane	10.000	0.000	100.0#	0	-8.14#
33	C,T,M	Chloroform	10.000	0.000	100.0#	0	-8.43#
34	S	Dibromofluoromethane	10.000	0.000	100.0#	0	-8.73#
35	T,M	1,1,1-Trichloroethane	10.000	0.000	100.0#	0	-8.68#
36	T,M	Cyclohexane	10.000	0.000	100.0#	0	-8.80#
37	T,M	tert-Amyl methyl ether (TAM	10.000	0.000	100.0#	0	-9.63#
38	S	1,2-Dichloroethane-d4	10.000	0.000	100.0#	0	-9.29#
39	T,M	1,1-Dichloropropene	10.000	0.000	100.0#	0	-9.00#
40	T,M	Carbon tetrachloride	10.000	0.000	100.0#	0	-8.97#
41	T,M	Benzene	10.000	0.000	100.0#	0	-9.31#

(#) = Out of Range

SA 11/25/19

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K12\RKV118.D
Acq On : 12 Nov 2019 11:19 am
Sample : IVO01K0502
Misc : 10ppb 8260/50ppb KET-TBA
MS Integration Params: 524TAIL.P

Vial: 2
Operator: JCorea
Inst : 01
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
42	T,M	1,2-Dichloroethane	10.000	0.000	100.0#	0	-9.44#
43	T,M	2,2,4-Trimethylpentane	10.000	11.347	-13.5	96	-0.01
44	T,M	Trichloroethene	10.000	0.000	100.0#	0	-10.43#
45	T,M	Methylcyclohexane	10.000	0.040	99.6#	0	0.00
46	C,T,M	1,2-Dichloropropane	10.000	0.000	100.0#	0	-10.79#
47	T,M	1,4-Dioxane	200.000	0.000	100.0#	0	-10.93#
48	T,M	Dibromomethane	10.000	0.000	100.0#	0	-10.92#
49	T,M	Bromodichloromethane	10.000	0.000	100.0#	0	-11.20#
50	T,M	2-Chloroethyl vinyl ether	10.000	0.000	100.0#	0	-11.62#
51	T,M	cis-1,3-Dichloropropene	10.000	0.000	100.0#	0	-11.79#
52	T,M	4-Methyl-2-pentanone	50.000	0.000	100.0#	0	-12.00#
53	I	CHLOROBENZENE-D5	10.000	10.000	0.0	84	0.00
54	S	Toluene-d8	10.000	0.005	99.9#	0	0.02
55	C,T,M	Toluene	10.000	0.000	100.0#	0	-12.22#
56	T,M	Ethyl methacrylate	10.000	0.000	100.0#	0	-12.64#
57	T,M	trans-1,3-Dichloropropene	10.000	0.022	99.8#	0	0.21#
58	T,M	1,1,2-Trichloroethane	10.000	0.000	100.0#	0	-12.78#
59	T,M	Tetrachloroethene	10.000	0.000	100.0#	0	-12.89#
60	T,M	1,3-Dichloropropane	10.000	0.000	100.0#	0	-12.98#
61	T,M	2-Hexanone	50.000	2.209	95.6#	0	-13.04#
62	T,M	Dibromochloromethane	10.000	0.000	100.0#	0	-13.23#
63	T,M	1,2-Dibromoethane	10.000	0.000	100.0#	0	-13.35#
64	T,M	1-Chlorohexane	10.000	0.036	99.6#	0	-0.01
65	P,M	Chlorobenzene	10.000	0.000	100.0#	0	-13.87#
66	T,M	1,1,1,2-Tetrachloroethane	10.000	0.000	100.0#	0	-13.97#
67	C,T,M	Ethylbenzene	10.000	0.008	99.9#	0	0.00
68	T,M	m-Xylene & p-Xylene	20.000	0.009	100.0#	0	0.02
69	T,M	o-Xylene	10.000	0.000	100.0#	0	-14.46#
70	T,M	Styrene	10.000	0.025	99.8#	0	0.03
71	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	78	0.00
72	P,T,M	Bromoform	10.000	0.000	100.0#	0	-14.66#
73	T,M	Isopropylbenzene	10.000	0.000	100.0#	0	-14.80#
74	S	4-Bromofluorobenzene	10.000	0.030	99.7#	0	0.02
75	P,T,M	1,1,2,2-Tetrachloroethane	10.000	0.000	100.0#	0	-15.05#
76	T,M	Bromobenzene	10.000	0.000	100.0#	0	-15.08#
77	T,M	trans-1,4-Dichloro-2-butene	10.000	0.000	100.0#	0	-15.08#
78	T,M	1,2,3-Trichloropropane	10.000	0.000	100.0#	0	-15.11#
79	T,M	n-Propylbenzene	10.000	0.005	99.9#	0	0.02
80	T,M	1,3,5-Trimethylbenzene	10.000	0.000	100.0#	0	-15.30#

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K12\RKV118.D Vial: 2
Acq On : 12 Nov 2019 11:19 am Operator: JCorea
Sample : IVO01K0502 Inst : 01
Misc : 10ppb 8260/50ppb KET-TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81	T,M	2-Chlorotoluene	10.000	0.010	99.9#	0	-0.07
82	T,M	4-Chlorotoluene	10.000	0.000	100.0#	0	-15.33#
83	T,M	tert-Butylbenzene	10.000	0.000	100.0#	0	-15.57#
84	T,M	1,2,4-Trimethylbenzene	10.000	0.010	99.9#	0	0.13
85	T,M	sec-Butylbenzene	10.000	0.007	99.9#	0	0.02
86	T,M	p-Isopropyltoluene	10.000	0.008	99.9#	0	0.00
87	T,M	1,3-Dichlorobenzene	10.000	0.000	100.0#	0	-15.85#
88	T,M	1,4-Dichlorobenzene	10.000	0.000	100.0#	0	-15.92#
89	T,M	1,2,3-Trimethylbenzene	10.000	0.011	99.9#	0	-0.19#
90	T,M	n-Butylbenzene	10.000	0.023	99.8#	0	0.02
91	T,M	1,2-Dichlorobenzene	10.000	0.000	100.0#	0	-16.20#
92	T,M	1,2-Dibromo-3-chloropropane	10.000	0.000	100.0#	0	-16.80#
93	T,M	1,2,4-Trichlorobenzene	10.000	0.000	100.0#	0	-17.46#
94	T,M	Hexachlorobutadiene	10.000	0.000	100.0#	0	-17.57#
95	T,M	Naphthalene	10.000	0.048	99.5#	0	0.03
96	T,M	1,2,3-Trichlorobenzene	10.000	0.000	100.0#	0	-17.88#

SM 11/25/19

(#) = Out of Range SPCC's out = 0 CCC's out = 6
RKV118.D VO01K05A.M Fri Nov 22 13:39:27 2019 Page 3

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K12\RKV118.D
Acq On : 12 Nov 2019 11:19 am
Sample : IVO01K0502
Misc : 10ppb 8260/50ppb KET-TBA
MS Integration Params: 524TAIL.P

Vial: 2
Operator: JCorea
Inst : 01
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	85	-0.01
2	T,M	Chlorotrifluoroethylene	0.000	0.000	0.0	0#	-1.94#
3	T,M	Dichlorodifluoromethane	0.277	0.000	100.0#	0#	-1.86#
4	P,T,M	Chloromethane	0.383	0.001#	99.7#	0#	0.00
5	C,T,M	Vinyl chloride	0.375	0.000	100.0#	0#	-2.22#
6	T,M	2-Chloro-1,1,1-trifluoroeth	0.000	0.000	0.0	0#	-2.43#
7	T,M	Bromomethane	0.273	0.001	99.6#	0#	0.08
8	T,M	Chloroethane	0.221	0.000	100.0#	0#	-2.71#
9	T,M	Dichlorofluoromethane	0.554	0.000	100.0#	0#	-3.05#
10	T,M	Trichlorofluoromethane	0.386	0.000	100.0#	0#	-3.10#
11	T,M	Acrolein	0.028	0.000	100.0#	0#	-3.66#
12	T,M	1,1,2-Trichloro-1,2,2-trifl	0.212	0.000	100.0#	0#	-3.91#
13	T,M	Acetone	0.056	0.000	100.0#	0#	-3.91#
14	C,T,M	1,1-Dichloroethene	0.550	0.000	100.0#	0#	-3.83#
15	T,M	Iodomethane	0.563	0.000	100.0#	0#	-4.05#
16	T,M	Carbon disulfide	1.174	0.004	99.7#	0#	-0.02
17	T,M	Methyl acetate	0.135	0.000	100.0#	0#	-4.49#
18	T,M	Methylene chloride	0.509	0.000	100.0#	0#	-4.71#
19	T,M	tert-Butyl alcohol	0.018	0.000	100.0#	0#	-5.06#
20	T,M	Acrylonitrile	0.057	0.000	100.0#	0#	-5.18#
21	T,M	tert-Butyl methyl ether (MT	0.611	0.000	100.0#	0#	-5.30#
22	T,M	trans-1,2-Dichloroethene	0.540	0.000	100.0#	0#	-5.28#
23	T,M	Vinyl acetate	0.000	0.000	0.0	0#	-6.35#
24	P,T,M	1,1-Dichloroethane	0.679	0.000#	100.0#	0#	-6.23#
25	T,M	Isopropyl ether (DIPE)	1.204	0.000	100.0#	0#	-6.45#
26	T,M	2-Butanol	0.017	0.000	100.0#	0#	-8.26#
27	T,M	tert-Butyl ethyl ether (ETB	0.977	0.000	100.0#	0#	-7.41#
28	T,M	2-Butanone	0.085	0.000	100.0#	0#	-7.68#
29	T,M	cis-1,2-Dichloroethene	0.355	0.000	100.0#	0#	-7.65#
30	T,M	2,2-Dichloropropane	0.441	0.000	100.0#	0#	-7.65#
31	T,M	Tetrahydrofurane	0.057	0.000	100.0#	0#	-8.21#
32	T,M	Bromochloromethane	0.310	0.000	100.0#	0#	-8.14#
33	C,T,M	Chloroform	0.654	0.000	100.0#	0#	-8.43#
34	S	Dibromofluoromethane	0.318	0.000	100.0#	0#	-8.73#
35	T,M	1,1,1-Trichloroethane	0.467	0.000	100.0#	0#	-8.68#
36	T,M	Cyclohexane	0.498	0.000	100.0#	0#	-8.80#
37	T,M	tert-Amyl methyl ether (TAM	0.760	0.000	100.0#	0#	-9.63#
38	S	1,2-Dichloroethane-d4	0.278	0.000	100.0#	0#	-9.29#
39	T,M	1,1-Dichloropropene	0.167	0.000	100.0#	0#	-9.00#
40	T,M	Carbon tetrachloride	0.408	0.000	100.0#	0#	-8.97#
41	T,M	Benzene	1.267	0.000	100.0#	0#	-9.31#

(#) = Out of Range

S a 11/25/19

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K12\RKV118.D
Acq On : 12 Nov 2019 11:19 am
Sample : IVO01K0502
Misc : 10ppb 8260/50ppb KET-TBA
MS Integration Params: 524TAIL.P

Vial: 2
Operator: JCorea
Inst : 01
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
42	T,M	1,2-Dichloroethane	0.341	0.000	100.0#	0#	-9.44#
43	T,M	2,2,4-Trimethylpentane	1.704	1.934	-13.5	96	-0.01
44	T,M	Trichloroethene	0.397	0.000	100.0#	0#	-10.43#
45	T,M	Methylcyclohexane	0.643	0.003	99.5#	0#	0.00
46	C,T,M	1,2-Dichloropropane	0.378	0.000	100.0#	0#	-10.79#
47	T,M	1,4-Dioxane	0.002	0.000	100.0#	0#	-10.93#
48	T,M	Dibromomethane	0.170	0.000	100.0#	0#	-10.92#
49	T,M	Bromodichloromethane	0.419	0.000	100.0#	0#	-11.20#
50	T,M	2-Chloroethyl vinyl ether	0.115	0.000	100.0#	0#	-11.62#
51	T,M	cis-1,3-Dichloropropene	0.523	0.000	100.0#	0#	-11.79#
52	T,M	4-Methyl-2-pentanone	0.237	0.000	100.0#	0#	-12.00#
53	I	CHLOROBENZENE-D5	1.000	1.000	0.0	84	0.00
54	S	Toluene-d8	1.276	0.001	99.9#	0#	0.02
55	C,T,M	Toluene	1.618	0.000	100.0#	0#	-12.22#
56	T,M	Ethyl methacrylate	0.390	0.000	100.0#	0#	-12.64#
57	T,M	trans-1,3-Dichloropropene	0.468	0.001	99.8#	0#	0.21#
58	T,M	1,1,2-Trichloroethane	0.258	0.000	100.0#	0#	-12.78#
59	T,M	Tetrachloroethene	0.341	0.000	100.0#	0#	-12.89#
60	T,M	1,3-Dichloropropane	0.503	0.000	100.0#	0#	-12.98#
61	T,M	2-Hexanone	0.190	0.000	100.0#	0#	-13.04#
62	T,M	Dibromochloromethane	0.326	0.000	100.0#	0#	-13.23#
63	T,M	1,2-Dibromoethane	0.274	0.000	100.0#	0#	-13.35#
64	T,M	1-Chlorohexane	0.692	0.002	99.7#	0#	-0.01
65	P,M	Chlorobenzene	1.044	0.000#	100.0#	0#	-13.87#
66	T,M	1,1,1,2-Tetrachloroethane	0.362	0.000	100.0#	0#	-13.97#
67	C,T,M	Ethylbenzene	2.016	0.002	99.9#	0#	0.00
68	T,M	m-Xylene & p-Xylene	1.468	0.001	99.9#	0#	0.02
69	T,M	o-Xylene	1.425	0.000	100.0#	0#	-14.46#
70	T,M	Styrene	1.167	0.003	99.7#	0#	0.03
71	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	78	0.00
72	P,T,M	Bromoform	0.405	0.000#	100.0#	0#	-14.66#
73	T,M	Isopropylbenzene	4.958	0.000	100.0#	0#	-14.80#
74	S	4-Bromofluorobenzene	1.229	0.004	99.7#	0#	0.02
75	P,T,M	1,1,2,2-Tetrachloroethane	0.904	0.000#	100.0#	0#	-15.05#
76	T,M	Bromobenzene	1.051	0.000	100.0#	0#	-15.08#
77	T,M	trans-1,4-Dichloro-2-butene	0.171	0.000	100.0#	0#	-15.08#
78	T,M	1,2,3-Trichloropropane	0.226	0.000	100.0#	0#	-15.11#
79	T,M	n-Propylbenzene	5.975	0.003	99.9#	0#	0.02
80	T,M	1,3,5-Trimethylbenzene	3.777	0.000	100.0#	0#	-15.30#

(#) = Out of Range

RKV118.D VO01K05A.M Fri Nov 22 13:39:34 2019 Page 2

SU 11/25/19

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K12\RKV118.D
Acq On : 12 Nov 2019 11:19 am
Sample : IVO01K0502
Misc : 10ppb 8260/50ppb KET-TBA
MS Integration Params: 524TAIL.P

Vial: 2
Operator: JCorea
Inst : 01
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
81	T,M	2-Chlorotoluene	3.079	0.003	99.9#	0#	-0.07
82	T,M	4-Chlorotoluene	3.577	0.000	100.0#	0#	-15.33#
83	T,M	tert-Butylbenzene	0.911	0.000	100.0#	0#	-15.57#
84	T,M	1,2,4-Trimethylbenzene	3.659	0.004	99.9#	0#	0.13
85	T,M	sec-Butylbenzene	5.362	0.004	99.9#	0#	0.02
86	T,M	p-Isopropyltoluene	4.248	0.003	99.9#	0#	0.00
87	T,M	1,3-Dichlorobenzene	1.941	0.000	100.0#	0#	-15.85#
88	T,M	1,4-Dichlorobenzene	1.932	0.000	100.0#	0#	-15.92#
89	T,M	1,2,3-Trimethylbenzene	3.382	0.004	99.9#	0#	-0.19#
90	T,M	n-Butylbenzene	4.206	0.010	99.8#	0#	0.02
91	T,M	1,2-Dichlorobenzene	1.677	0.000	100.0#	0#	-16.20#
92	T,M	1,2-Dibromo-3-chloropropane	0.111	0.000	100.0#	0#	-16.80#
93	T,M	1,2,4-Trichlorobenzene	0.904	0.000	100.0#	0#	-17.46#
94	T,M	Hexachlorobutadiene	0.641	0.000	100.0#	0#	-17.57#
95	T,M	Naphthalene	1.434	0.007	99.5#	0#	0.03
96	T,M	1,2,3-Trichlorobenzene	0.667	0.000	100.0#	0#	-17.88#

SM 11/25/19

(#) = Out of Range SPCC's out = 5 CCC's out = 6
RKV118.D VO01K05A.M Fri Nov 22 13:39:36 2019 Page 3

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K12\RKV118.D
Acq On : 12 Nov 2019 11:19 am
Sample : IVO01K0502
Misc : 10ppb 8260/50ppb KET-TBA
MS Integration Params: 524TAIL.P
Quant Time: Nov 22 13:01 2019

Vial: 2
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1746979	10.00	ug/l	-0.01
53) CHLOROBENZENE-D5	13.84	117	1578278	10.00	ug/l	0.00
71) 1,2-DICHLOROBENZENE-D4	16.19	152	579845	10.00	ug/l	0.00
System Monitoring Compounds						
34) Dibromofluoromethane	0.00	111	0	0.00	ug/l	
Spiked Amount 10.000			Recovery =	0.00%		
38) 1,2-Dichloroethane-d4	0.00	65	0	0.00	ug/l	
Spiked Amount 10.000			Recovery =	0.00%		
54) Toluene-d8	12.15	98	912	0.00	ug/l	0.02
Spiked Amount 10.000			Recovery =	0.00%		
74) 4-Bromofluorobenzene	14.98	95	2123	0.03	ug/l	0.02
Spiked Amount 10.000			Recovery =	0.30%		
Target Compounds						Qvalue
43) 2,2,4-Trimethylpentane	9.57	57	3378010	11.35	ug/l	100

SA 11/25/19

(#) = qualifier out of range (m) = manual integration
RKV118.D VO01K05A.M Fri Nov 22 13:39:47 2019 Page 1

INITIAL CALIBRATIONS

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc Contract: VA SALT LAKE CITY
Lab Code: EMXT Case No.: SAS No.: SDG No.: 19L064
Lab File ID: RKV049 BFB Injection Date : 11/06/19
Instrument ID: 01 BFB Injection Time : 09:39
GC Column:RXI-624SILMSID:0.25mm (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.95
75	30.0 - 60.0% of mass 95	47.77
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.16
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	76.74
175	5.0 - 9.0% of mass 174	5.36(7.0)1
176	95.0 - 101.0% of mass 174	74.43(97.0)1
177	5.0 - 9.0% of mass 176	5.16(6.9)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
1	VSTD01	V001K061	RKV050	11/06/19	10:20
2	VSTD02	V001K062	RKV051	11/06/19	10:48
3	VSTD05	V001K063	RKV052	11/06/19	11:14
4	VSTD010	V001K064	RKV053	11/06/19	11:41
5	VSTD020	V001K065	RKV054	11/06/19	12:08
6	VSTD030	V001K066	RKV055	11/06/19	12:44
7	VSTD010	IV001K0601	RKV056	11/06/19	13:35

INITIAL_CALIBRATION - RELATIVE_RESPONSE_FACTOR

Instrument ID :01
Beginning DateTime :11/06/19 10:20
Spike Units :PPB
IC File :RKV053

Column Spec :RXI-624SILMS ID :0.25MM
Ending DateTime :11/06/19 12:44
HPChem Method :V001K06

M IDX	Parameters	1 10:20 RKV050	2 10:48 RKV051	5 11:14 RKV052	10 11:41 RKV053	20 12:08 RKV054	30 12:44 RKV055	Av_RRF	%_RSD	Av_Rt_M
1	1,4-DIFLUOROBENZENE	1	1	1	1	1	1	1	0	10.0961
2	Vinyl acetate	0.398	0.452	0.475	0.502	0.498	0.470	0.466	8.12	6.3617
3	CHLOROBENZENE-D5	1	1	1	1	1	1	1	0	13.8362
4	1,2-DICHLOROBENZENE-D4	1	1	1	1	1	1	1	0	16.1898

Ave_%RSD : 8.1 Max_%RSD : 8.1

Su 11/18/19

INITIAL_CALIBRATION - RELATIVE_RESPONSE_FACTOR(%REC)

Instrument ID :01
Beginning DateTime :11/06/19 10:20
Spike Units :PPB
IC File :RKV053

Column Spec :RXI-624SILMS ID :0.25MM
Ending DateTime :11/06/19 12:44
HPChem Method :V001K06

M IDX	Parameters	1 10:20 RKV050	2 10:48 RKV051	5 11:14 RKV052	10 11:41 RKV053	20 12:08 RKV054	30 12:44 RKV055	AvDRec	%_RSD	Av_Rt_M
1	1,4-DIFLUOROBENZENE	1	1	1	1	1	1	1	0	10.0961
2	Vinyl acetate	85	97	102	108	107	101	5.8	8.12	6.3617
3	CHLOROBENZENE-D5	1	1	1	1	1	1	1	0	13.8362
4	1,2-DICHLOROBENZENE-D4	1	1	1	1	1	1	1	0	16.1898

For 8260C

SC

11/18/19

Compound List Report 01

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
Total Cpnds : 4

PK#		Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I	1,4-DIFLUOROBENZENE	114	10.11	1.000	A	1	A	B
2	T	Vinyl acetate	43	6.35	0.629	A	1	A	B
3	I	CHLOROBENZENE-D5	117	13.84	1.000	A	2	A	B
4	I	1,2-DICHLOROBENZENE-D4	152	16.19	1.000	A	1	A	B

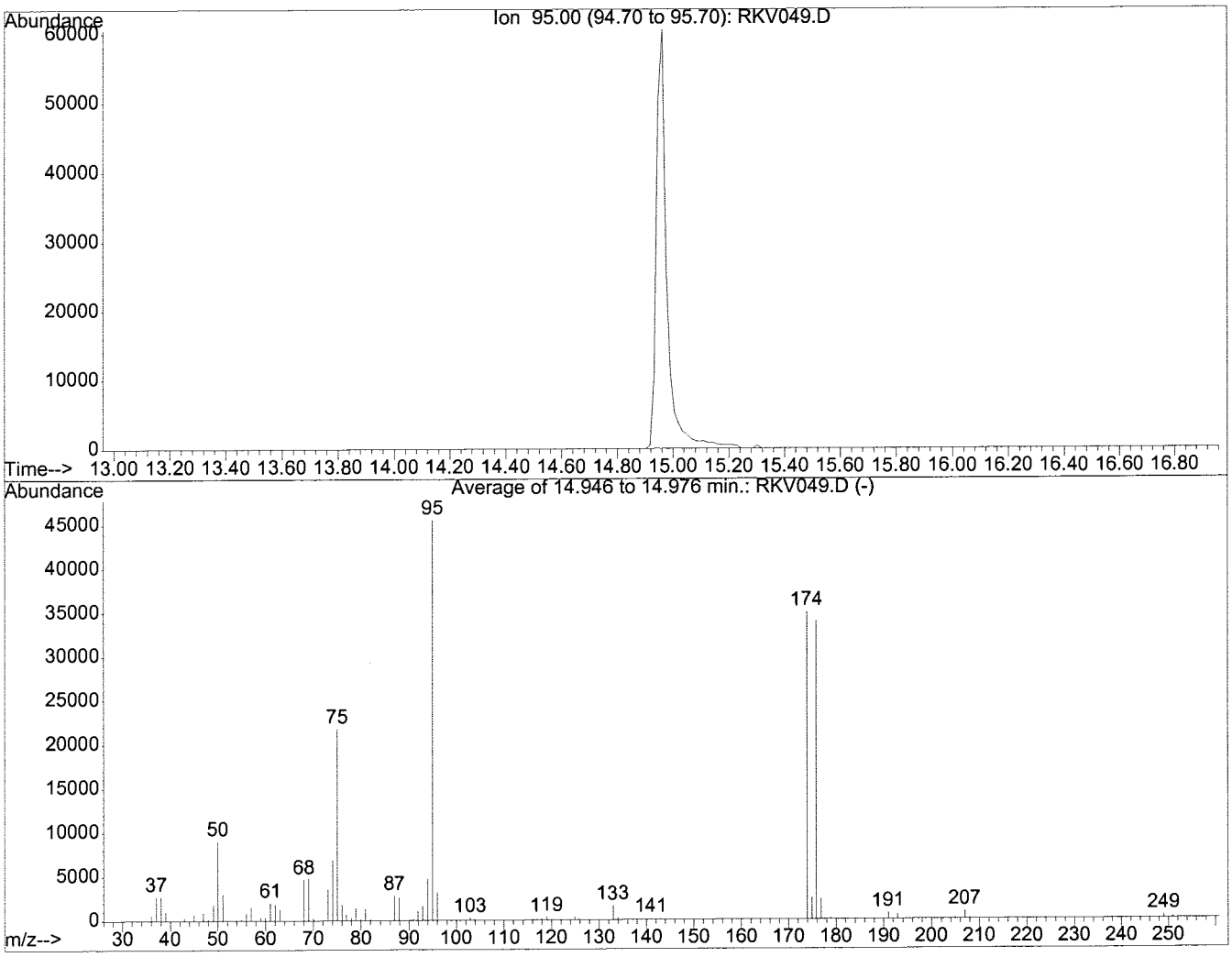
Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

VO01K06.M Mon Nov 18 10:54:02 2019

SM 11/18/19

Data File : D:\HPCHEM\1\DATA\19K06\RKV049.D
Acq On : 6 Nov 2019 9:39 am
Sample : BFB01K03
Misc : T/CHK
MS Integration Params: 524TAIL.P
Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls

Vial: 1
Operator: JCorea
Inst : 01
Multiplr: 1.00



AutoFind: Scans 747, 748, 749; Background Corrected with Scan 743

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	19.9	9096	PASS
75	95	30	60	47.8	21782	PASS
95	95	100	100	100.0	45600	PASS
96	95	5	9	7.2	3266	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	76.7	34992	PASS
175	174	5	9	7.0	2445	PASS
176	174	95	101	97.0	33939	PASS
177	176	5	9	6.9	2351	PASS

RKV049.D VO01K06.M Mon Nov 18 11:02:36 2019

Scn 11/18/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K06\RKV050.D Vial: 2
Acq On : 6 Nov 2019 10:20 am Operator: JCorea
Sample : VO01K061 Inst : 01
Misc : 1ppb Vinyl Acetate Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 18 10:54 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	2042027	10.00	ug/l	-0.01
3) CHLOROBENZENE-D5	13.84	117	1867721	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.19	152	706349	10.00	ug/l	0.00
Target Compounds						Qvalue
2) Vinyl acetate	6.40	43	81374	0.86	ug/l	93

SU 11/18/19

(#) = qualifier out of range (m) = manual integration
RKV050.D VO01K06.M Mon Nov 18 11:02:54 2019 Page 1

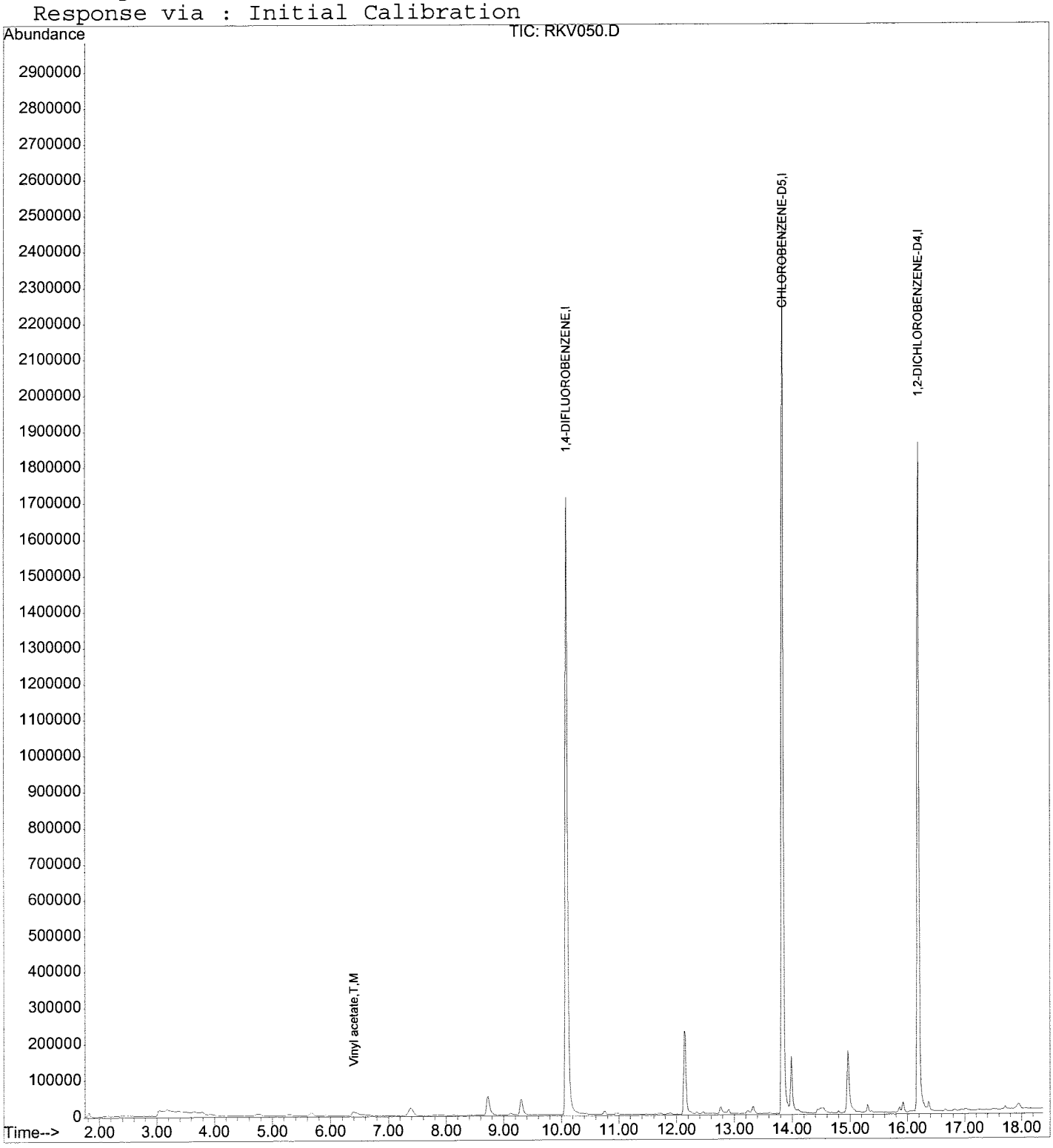
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K06\RKV050.D
Acq On : 6 Nov 2019 10:20 am
Sample : VO01K061
Misc : 1ppb Vinyl Acetate
MS Integration Params: 524TAIL.P
Quant Time: Nov 18 10:54 2019

Vial: 2
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K06\RKV051.D Vial: 3
Acq On : 6 Nov 2019 10:48 am Operator: JCorea
Sample : VO01K062 Inst : 01
Misc : 2ppb Vinyl Acetate Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 18 10:54 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1966778	10.00	ug/l	-0.01
3) CHLOROBENZENE-D5	13.84	117	1812396	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.19	152	707947	10.00	ug/l	0.00
Target Compounds						Qvalue
2) Vinyl acetate	6.38	43	177982	1.94	ug/l	94

SA 11/18/19

(#) = qualifier out of range (m) = manual integration
RKV051.D VO01K06.M Mon Nov 18 11:08:43 2019 Page 1

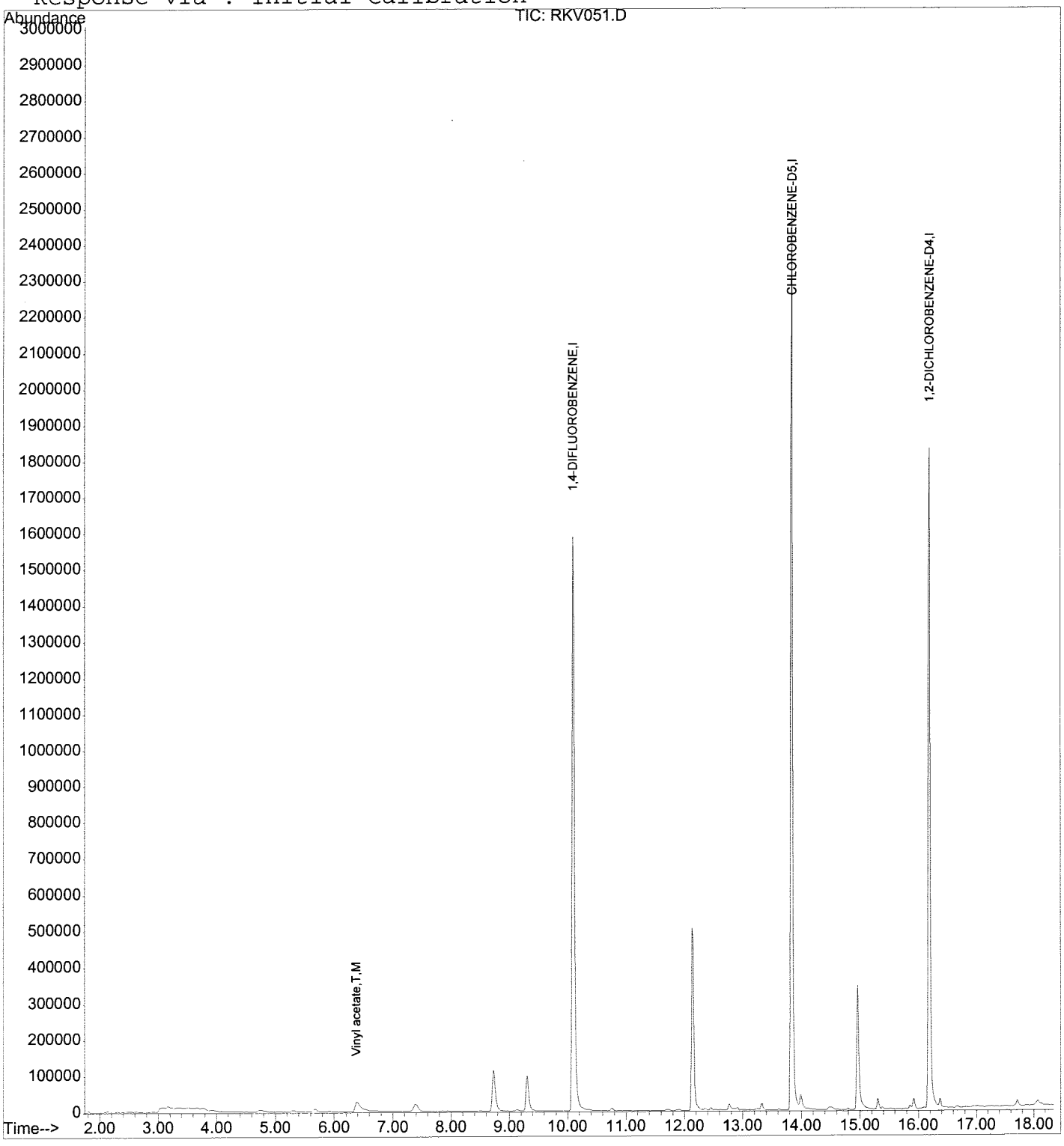
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K06\RKV051.D
Acq On : 6 Nov 2019 10:48 am
Sample : VO01K062
Misc : 2ppb Vinyl Acetate
MS Integration Params: 524TAIL.P
Quant Time: Nov 18 10:54 2019

Vial: 3
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



SA 11/18/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K06\RKV052.D Vial: 4
Acq On : 6 Nov 2019 11:14 am Operator: JCorea
Sample : VO01K063 Inst : 01
Misc : 5ppb Vinyl Acetate Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 18 10:54 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1993778	10.00	ug/l	-0.02
3) CHLOROBENZENE-D5	13.84	117	1816919	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.19	152	725693	10.00	ug/l	0.00
Target Compounds						Qvalue
2) Vinyl acetate	6.35	43	473230	5.09	ug/l	99

SM 11/18/19

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

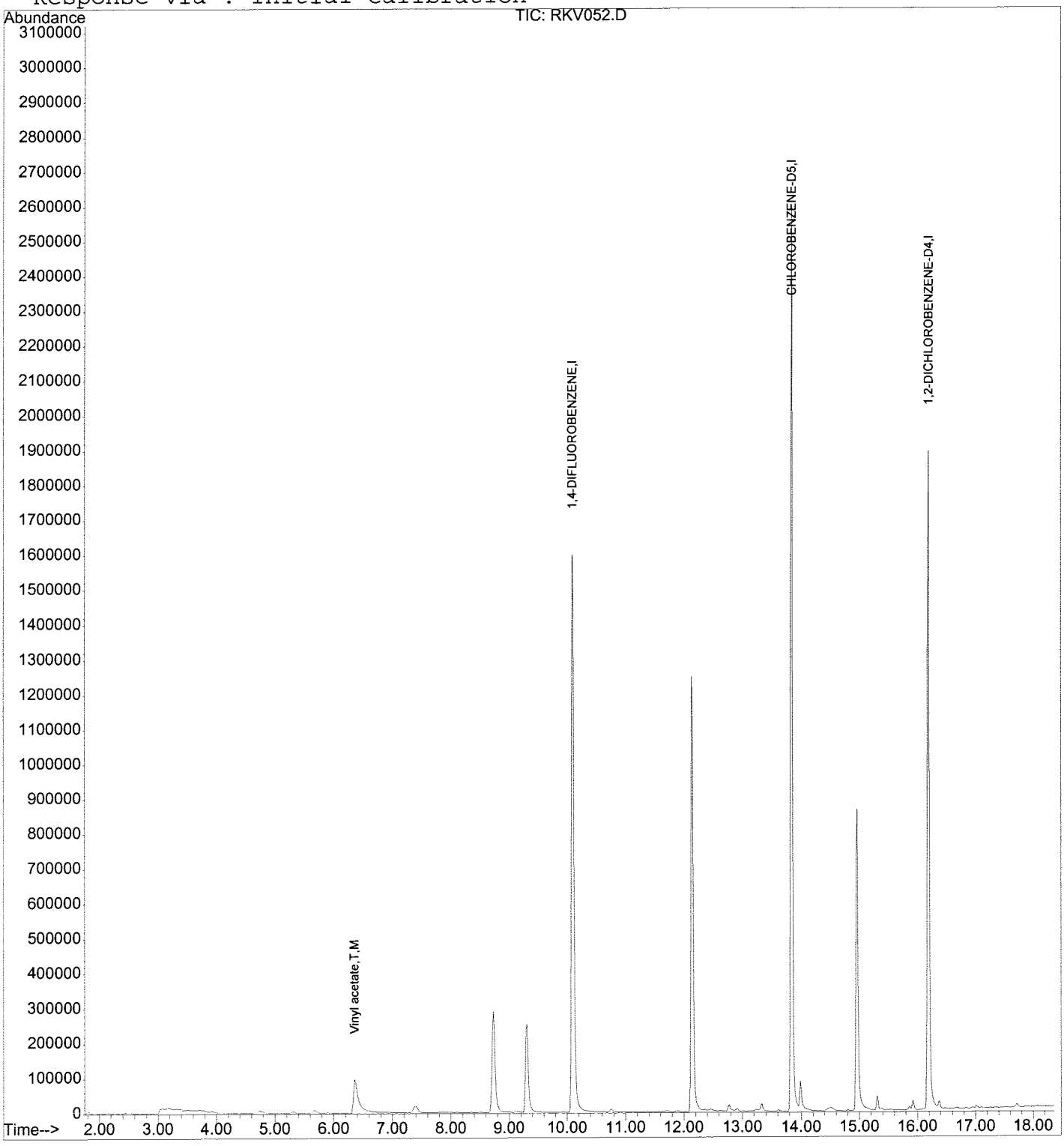
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K06\RKV052.D
Acq On : 6 Nov 2019 11:14 am
Sample : VO01K063
Misc : 5ppb Vinyl Acetate
MS Integration Params: 524TAIL.P
Quant Time: Nov 18 10:54 2019

Vial: 4
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



11/18/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K06\RKV053.D Vial: 5
Acq On : 6 Nov 2019 11:41 am Operator: JCorea
Sample : VO01K064 Inst : 01
Misc : 10ppb Vinyl Acetate Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 18 10:54 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.11	114	1975136	10.00	ug/l	0.00
3) CHLOROBENZENE-D5	13.84	117	1803738	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.19	152	706724	10.00	ug/l	0.00
Target Compounds						Qvalue
2) Vinyl acetate	6.35	43	991481	10.77	ug/l	100

SM 11/8/19

(#) = qualifier out of range (m) = manual integration
RKV053.D VO01K06.M Mon Nov 18 11:08:51 2019 Page 1

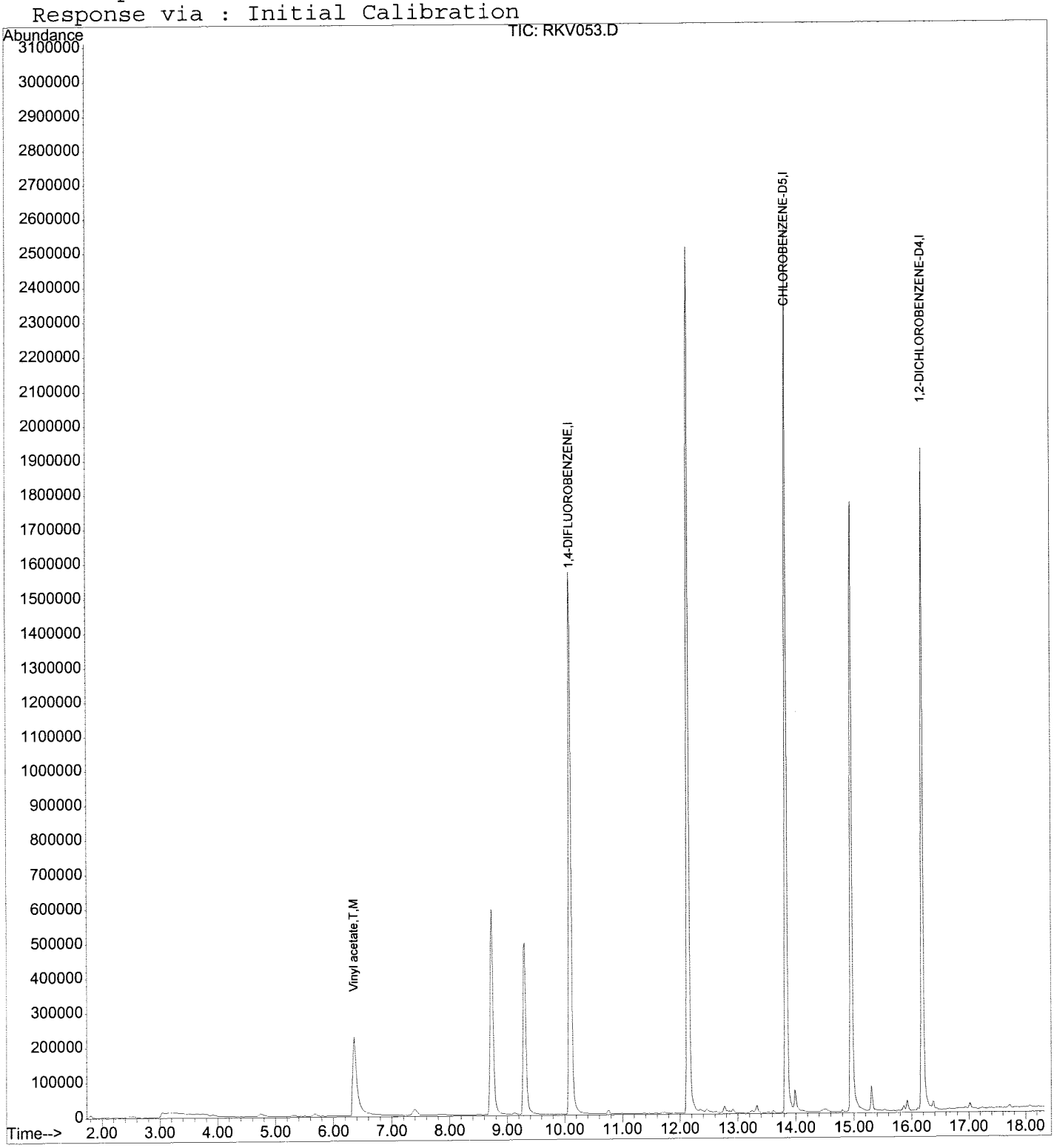
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K06\RKV053.D
Acq On : 6 Nov 2019 11:41 am
Sample : VO01K064
Misc : 10ppb Vinyl Acetate
MS Integration Params: 524TAIL.P
Quant Time: Nov 18 10:54 2019

Vial: 5
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



SA 11/18/19

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K06\RKV054.D Vial: 6
Acq On : 6 Nov 2019 12:08 pm Operator: JCorea
Sample : VO01K065 Inst : 01
Misc : 20ppb Vinyl Acetate Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 18 10:54 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.11	114	1846936	10.00	ug/l	0.00
3) CHLOROBENZENE-D5	13.84	117	1696875	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.19	152	668223	10.00	ug/l	0.00
Target Compounds						Qvalue
2) Vinyl acetate	6.35	43	1840000	21.38	ug/l	100

SM 11/18/19

(#) = qualifier out of range (m) = manual integration
RKV054.D VO01K06.M Mon Nov 18 11:08:54 2019 Page 1

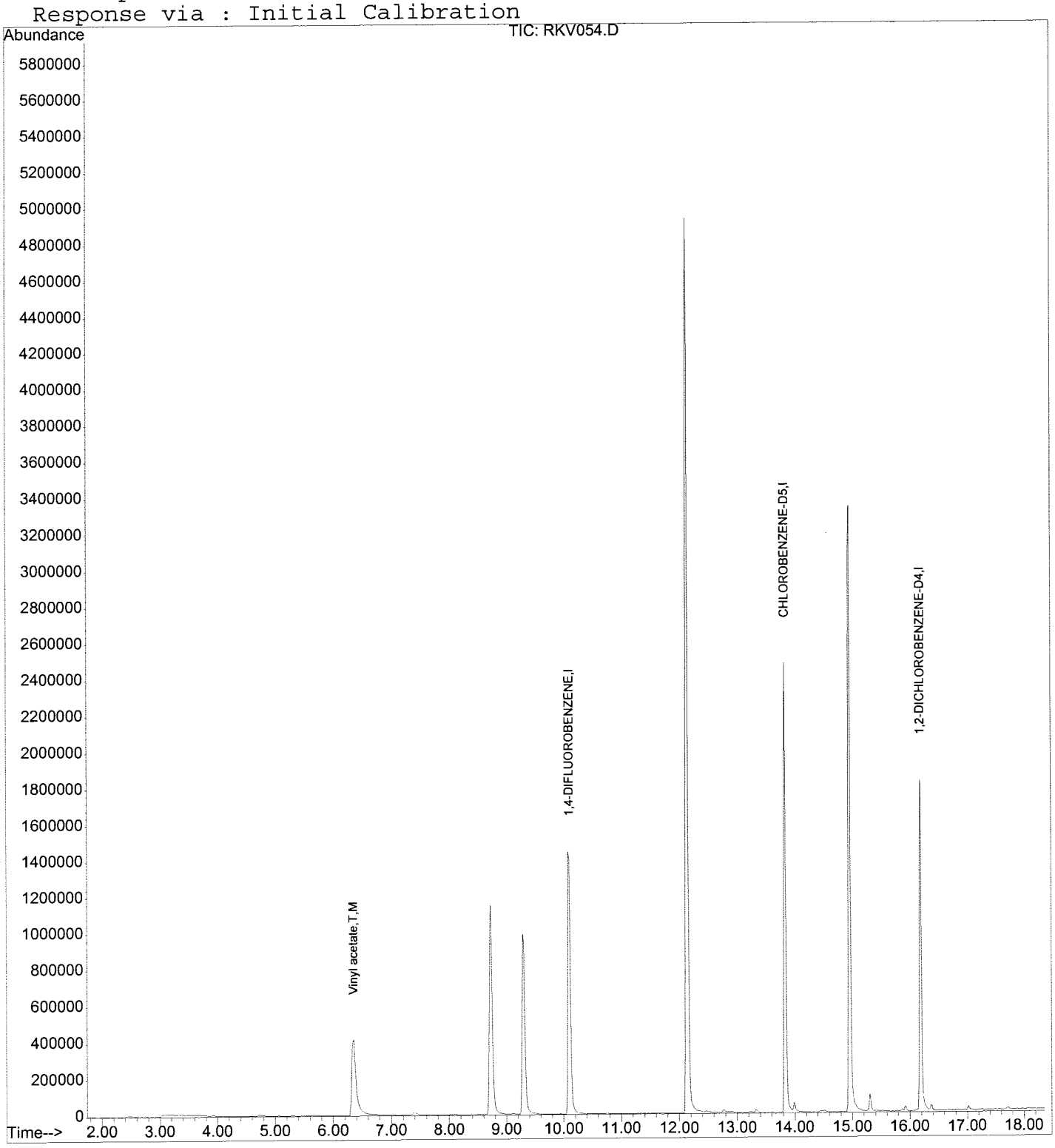
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K06\RKV054.D
Acq On : 6 Nov 2019 12:08 pm
Sample : VO01K065
Misc : 20ppb Vinyl Acetate
MS Integration Params: 524TAIL.P
Quant Time: Nov 18 10:54 2019

Vial: 6
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K06\RKV055.D Vial: 7
Acq On : 6 Nov 2019 12:44 pm Operator: JCorea
Sample : VO01K066 Inst : 01
Misc : 30ppb Vinyl Acetate Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 18 10:55 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1820398	10.00	ug/l	-0.01
3) CHLOROBENZENE-D5	13.84	117	1634585	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.19	152	599252	10.00	ug/l	0.00
Target Compounds						Qvalue
2) Vinyl acetate	6.33	43	2569146	30.28	ug/l	100

SM 11/18/19

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

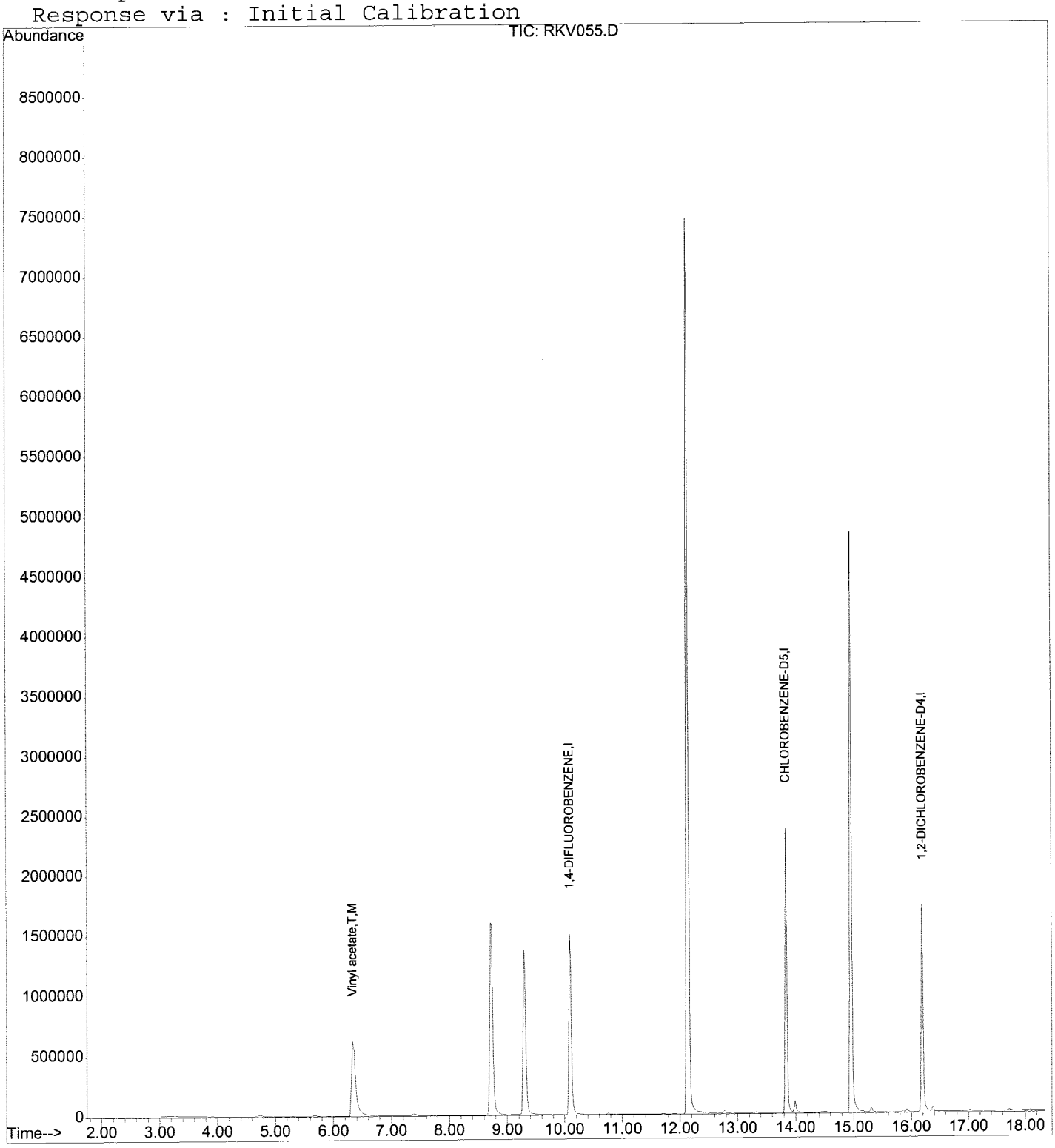
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K06\RKV055.D
Acq On : 6 Nov 2019 12:44 pm
Sample : VO01K066
Misc : 30ppb Vinyl Acetate
MS Integration Params: 524TAIL.P
Quant Time: Nov 18 10:55 2019

Vial: 7
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



SECOND SOURCE VERIFICATION

CONTINUE_CALIBRATION - CALIBRATION VERIFICATION

Instrument ID :01
IC_Beginning DateTime :11/06/19 10:20
Spike Amount :10 PPB
CC/CV File :RKV056
IC File :RKV053

Column Spec :RXI-624SILMS ID :0.25MM
IC_Ending DateTime :11/06/19 12:44
HPChem Method :VO01K06
Date_Time :11/06/19 13:35

M IDX	Parameters	CC_Con	CC%_D	CC_Resp	CCRRF	AvRRF	CC_Rtm	AvRtm	%_RSD	Co_X0	Co_X1	Co_X2	Co_Cor
1	1,4-DIFLUOROBENZENE	10.000	0	1916361	1	1	10.090	10.096	0				
2	Vinyl acetate	10.845	8.4	968554	0.505	0.466	6.354	6.362	8.12				
3	CHLOROBENZENE-D5	10.000	0	1765115	1	1	13.835	13.836	0				
4	1,2-DICHLOROBENZENE-D4	10.000	0	658870	1	1	16.189	16.190	0				

5 a 11/18/19

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K06\RKV056.D
Acq On : 6 Nov 2019 1:35 pm
Sample : IVO01K0601
Misc : 10ppb Vinyl Acetate
MS Integration Params: 524TAIL.P

Vial: 8
Operator: JCorea
Inst : 01
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	97	-0.02
2	T,M	Vinyl acetate	10.000	10.845	-8.5	98	0.00
3	I	CHLOROBENZENE-D5	10.000	10.000	0.0	98	0.00
4	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	93	0.00

SS 11/18/19

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

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19K06\RKV056.D
Acq On : 6 Nov 2019 1:35 pm
Sample : IVO01K0601
Misc : 10ppb Vinyl Acetate
MS Integration Params: 524TAIL.P

Vial: 8
Operator: JCorea
Inst : 01
Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	97	-0.02
2	T,M	Vinyl acetate	0.466	0.505	-8.4	98	0.00
3	I	CHLOROBENZENE-D5	1.000	1.000	0.0	98	0.00
4	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	93	0.00

SC 11/18/19

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19K06\RKV056.D Vial: 8
Acq On : 6 Nov 2019 1:35 pm Operator: JCorea
Sample : IVO01K0601 Inst : 01
Misc : 10ppb Vinyl Acetate Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Nov 18 10:55 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.09	114	1916361	10.00	ug/l	-0.02
3) CHLOROBENZENE-D5	13.84	117	1765115	10.00	ug/l	0.00
4) 1,2-DICHLOROBENZENE-D4	16.19	152	658870	10.00	ug/l	0.00
Target Compounds						**Qvalue**
2) Vinyl acetate	6.35	43	968554	10.84	ug/l	99

SC
11/18/19

(#) = qualifier out of range (m) = manual integration
RKV056.D VO01K06.M Mon Nov 18 11:06:32 2019 Page 1

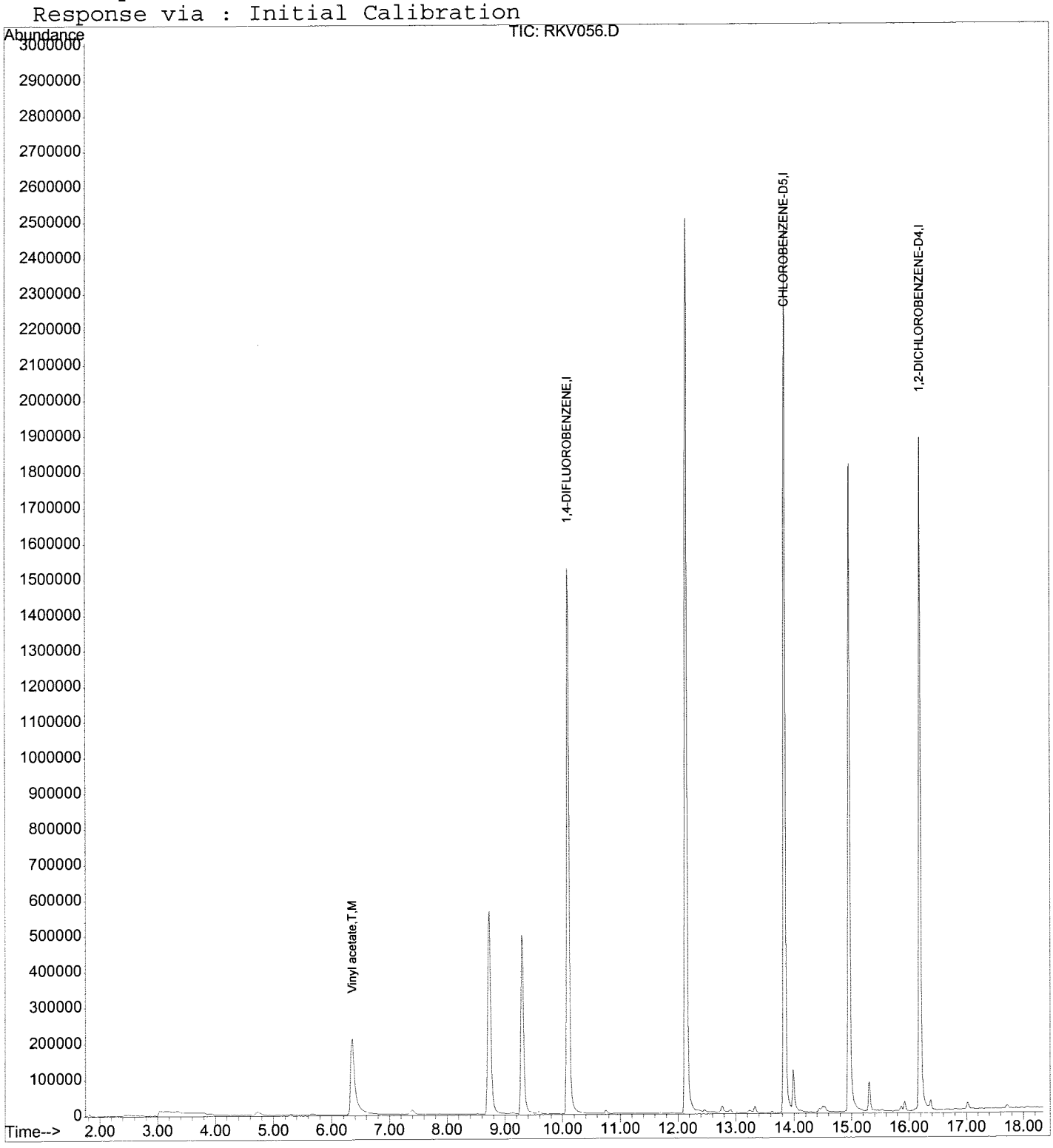
Quantitation Report

Data File : D:\HPCHEM\1\DATA\19K06\RKV056.D
Acq On : 6 Nov 2019 1:35 pm
Sample : IVO01K0601
Misc : 10ppb Vinyl Acetate
MS Integration Params: 524TAIL.P
Quant Time: Nov 18 10:55 2019

Vial: 8
Operator: JCorea
Inst : 01
Multiplr: 1.00

Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



SM 11/18/19

DAILY CALIBRATIONS

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc
Lab Code: EMXT Case No.:
Lab File ID: RLV073
Instrument ID: 01
GC Column:RXI-624SILMSID:0.25mm (mm)

Contract: VA SALT LAKE CITY
SAS No.: SDG No.: 19L064
BFB Injection Date : 12/12/19
BFB Injection Time : 09:28
Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.06
75	30.0 - 60.0% of mass 95	43.65
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.73
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	88.17
175	5.0 - 9.0% of mass 174	5.76(6.5)1
176	95.0 - 101.0% of mass 174	85.65(97.1)1
177	5.0 - 9.0% of mass 176	6.01(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
1	VSTD010	CV001K0515	RLV074	12/12/19	09:58
2	MBLK1W	V001L04B	RLV078	12/12/19	11:53
3	LCS1W	V001L04L	RLV075	12/12/19	10:26
4	LCD1W	V001L04C	RLV076	12/12/19	10:54
5	OU2-TB06-GW120918	L064-05	RLV079	12/12/19	12:22
6	OU2-TB09-GW120919	L064-16	RLV080	12/12/19	14:09
7	OU2-TB07-GW120919	L064-19	RLV081	12/12/19	14:36
8	OU2-TB08-GW120919	L064-22	RLV082	12/12/19	15:05
9	OU2-FB01-GW120819	L064-13	RLV083	12/12/19	15:33
10	OU2-MW01D-GW120619	L064-01	RLV084	12/12/19	16:00
11	OU2-MW03RC-GW120719	L064-03	RLV086	12/12/19	16:57
12	OU2-FD03-GW120719	L064-04	RLV088	12/12/19	17:56
13	OU2-MW15S-GW120719	L064-06	RLV089	12/12/19	18:24

FORM 8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : EMAX Inc
Lab Code : EMXT
Lab File ID : RKV038
Instrument ID: 01
GC Column : RXI-624SILMSID:0.25mm (mm)

Project: VA SALT LAKE CITY
SDG No: 19L064
Date Analyzed: 11/05/2019
Time Analyzed: 19:14
Heated Purge (Y/N): N

		1,4-DIFLUOROBENZENE		CHLOROBENZENE-D5		1,2-DICHLOROBENZENE-D4	
		AREA #	RT(min)	AREA #	RT(min)	AREA #	RT(min)
	12 HOUR STD	2058714	10.11	1882015	13.84	742417	16.19
	UPPER LIMIT	4117428	10.28	3764030	14.01	1484834	16.36
	LOWER LIMIT	1029357	9.94	941008	13.67	371209	16.02
	SAMPLE ID						
1	VSTD010	2527701	10.08	2290899	13.82	986143	16.17
2	MBLK1W	2568637	10.08	2301928	13.82	953532	16.17
3	LCS1W	2511001	10.08	2338849	13.82	1005679	16.16
4	LCD1W	2467836	10.08	2210549	13.82	984695	16.16
5	OU2-TB06-GW120918	2462311	10.08	2165943	13.82	884118	16.18
6	OU2-TB09-GW120919	2548762	10.08	2323868	13.82	973772	16.17
7	OU2-TB07-GW120919	2408090	10.08	2130669	13.82	857676	16.18
8	OU2-TB08-GW120919	2445589	10.08	2178812	13.82	917946	16.17
9	OU2-FB01-GW120819	2461279	10.08	2169829	13.82	829674	16.17
10	OU2-MW01D-GW120619	2140474	10.08	1913701	13.82	761289	16.18
11	OU2-MW03RC-GW120719	2030324	10.09	1815163	13.82	730239	16.17
12	OU2-FD03-GW120719	1905679	10.08	1727986	13.82	671685	16.18
13	OU2-MW15S-GW120719	1821539	10.08	1651192	13.82	667818	16.17

Area Upper Limit = + 100% of internal standard area
Area Lower Limit = - 50% of internal standard area
RT Upper Limit = + 0.167 min. (10 sec.) of internal standard RT
RT Lower Limit = - 0.167 min. (10 sec.) of internal standard RT

FORM 8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : EMAX Inc
Lab Code : EMXT
Lab File ID : RKV053
Instrument ID: 01
GC Column : RXI-624SILMSID:0.25mm (mm)

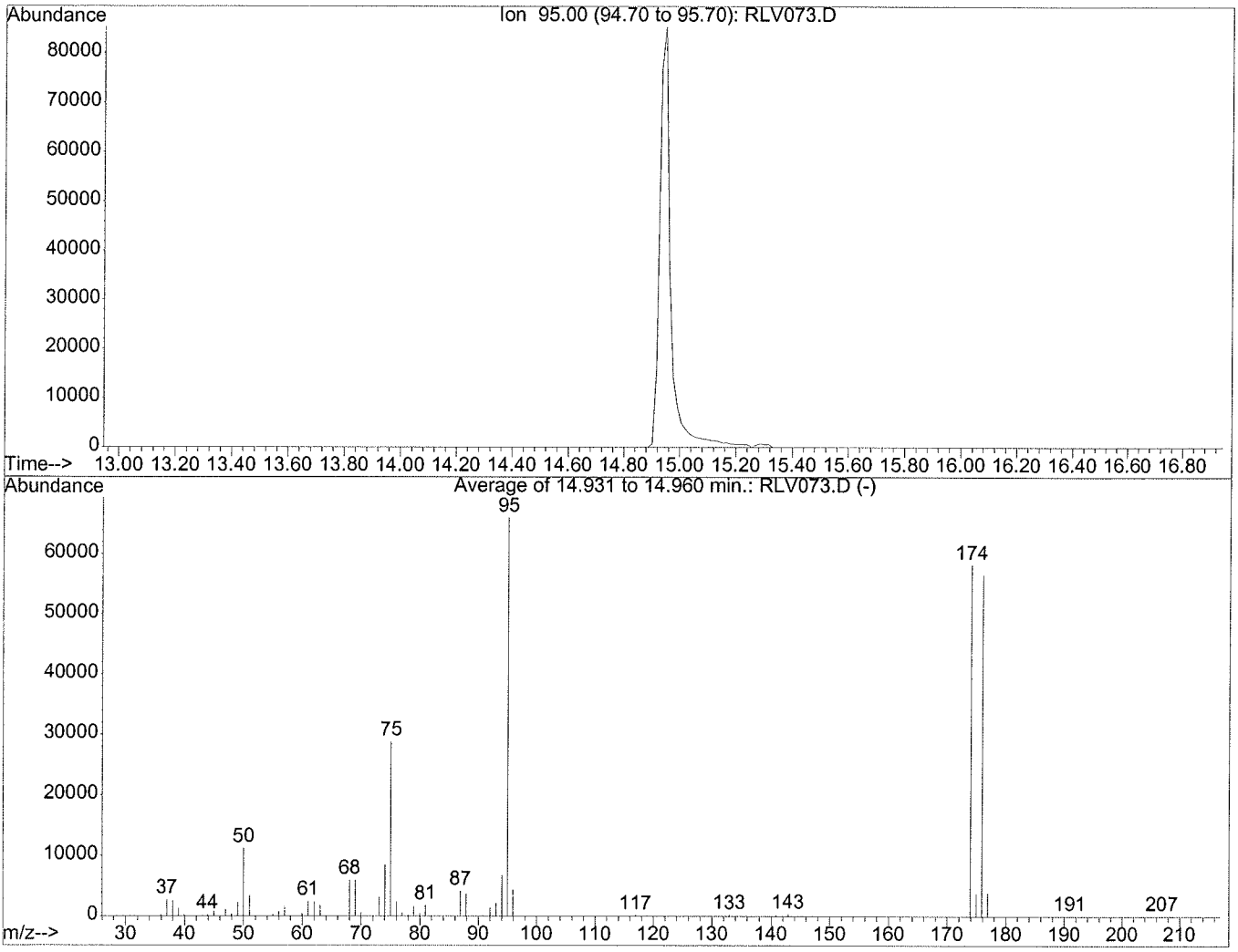
Project: VA SALT LAKE CITY
SDG No: 19L064
Date Analyzed: 11/06/2019
Time Analyzed: 11:41
Heated Purge (Y/N): N

		1,4-DIFLUOROBENZENE		CHLOROBENZENE-D5		1,2-DICHLOROBENZENE-D4	
		AREA #	RT(min)	AREA #	RT(min)	AREA #	RT(min)
	12 HOUR STD	1975136	10.11	1803738	13.84	706724	16.19
	UPPER LIMIT	3950272	10.28	3607476	14.01	1413448	16.36
	LOWER LIMIT	987568	9.94	901869	13.67	353362	16.02
	SAMPLE ID						
1	VSTD010	2527701	10.08	2290899	13.82	986143	16.17
2	MBLK1W	2568637	10.08	2301928	13.82	953532	16.17
3	LCS1W	2511001	10.08	2338849	13.82	1005679	16.16
4	LCD1W	2467836	10.08	2210549	13.82	984695	16.16
5	OU2-TB06-GW120918	2462311	10.08	2165943	13.82	884118	16.18
6	OU2-TB09-GW120919	2548762	10.08	2323868	13.82	973772	16.17
7	OU2-TB07-GW120919	2408090	10.08	2130669	13.82	857676	16.18
8	OU2-TB08-GW120919	2445589	10.08	2178812	13.82	917946	16.17
9	OU2-FB01-GW120819	2461279	10.08	2169829	13.82	829674	16.17
10	OU2-MW01D-GW120619	2140474	10.08	1913701	13.82	761289	16.18
11	OU2-MW03RC-GW120719	2030324	10.09	1815163	13.82	730239	16.17
12	OU2-FD03-GW120719	1905679	10.08	1727986	13.82	671685	16.18
13	OU2-MW15S-GW120719	1821539	10.08	1651192	13.82	667818	16.17

Area Upper Limit = + 100% of internal standard area
Area Lower Limit = - 50% of internal standard area
RT Upper Limit = + 0.167 min. (10 sec.) of internal standard RT
RT Lower Limit = - 0.167 min. (10 sec.) of internal standard RT

Data File : D:\HPCHEM\1\DATA\19L12\RLV073.D
Acq On : 12 Dec 2019 9:28 am
Sample : BFB01L04
Misc : T/CHK
MS Integration Params: 524TAIL.P
Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls

Vial: 1
Operator: JCorea
Inst : 01
Multiplr: 1.00



AutoFind: Scans 746, 747, 748; Background Corrected with Scan 742

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	17.1	11285	PASS
75	95	30	60	43.7	28870	PASS
95	95	100	100	100.0	66133	PASS
96	95	5	9	6.7	4449	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	88.2	58309	PASS
175	174	5	9	6.5	3810	PASS
176	174	95	101	97.1	56645	PASS
177	176	5	9	7.0	3972	PASS

RLV073.D VO01K05A.M Fri Dec 13 12:47:06 2019

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV074.D Vial: 2
Acq On : 12 Dec 2019 9:58 am Operator: JCorea
Sample : CVO01K0515 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	123	-0.03
2	T,M	Chlorotrifluoroethylene	-1.000	0.000	0.0	0	-1.94#
3	T,M	Dichlorodifluoromethane	10.000	8.683	13.2	99	0.00
4	P,T,M	Chloromethane	10.000	8.545	14.6	103	0.00
5	C,T,M	Vinyl chloride	10.000	8.498	15.0	102	0.00
6	T,M	2-Chloro-1,1,1-trifluoroeth	-1.000	0.000	0.0	0	-2.43#
7	T,M	Bromomethane	10.000	10.084	-0.8	112	0.00
8	T,M	Chloroethane	10.000	9.618	3.8	108	0.00
9	T,M	Dichlorofluoromethane	10.000	8.215	17.9	98	-0.03
10	T,M	Trichlorofluoromethane	10.000	9.756	2.4	104	0.00
11	T,M	Acrolein	50.000	46.334	7.3	105	-0.03
12	T,M	1,1,2-Trichloro-1,2,2-trifl	10.000	10.969	-9.7	133	-0.03
13	T,M	Acetone	50.000	41.221	17.6	93	-0.02
14	C,T,M	1,1-Dichloroethene	10.000	9.069	9.3	109	-0.03
15	T,M	Iodomethane	10.000	11.355	-13.6	139	-0.03
16	T,M	Carbon disulfide	10.000	9.387	6.1	109	-0.02
17	T,M	Methyl acetate	10.000	11.102	-11.0	116	-0.02
18	T,M	Methylene chloride	10.000	8.455	15.4	108	-0.03
19	T,M	tert-Butyl alcohol	250.000	230.940	7.6	92	-0.05
20	T,M	Acrylonitrile	50.000	46.540	6.9	105	-0.02
21	T,M	tert-Butyl methyl ether (MT	10.000	9.787	2.1	111	-0.03
22	T,M	trans-1,2-Dichloroethene	10.000	9.012	9.9	110	-0.05
23	T,M	Vinyl acetate	-1.000	0.000	0.0	0	-0.05
24	P,T,M	1,1-Dichloroethane	10.000	8.695	13.0	106	-0.05
25	T,M	Isopropyl ether (DIPE)	10.000	8.957	10.4	107	-0.05
26	T,M	2-Butanol	250.000	247.821	0.9	94	-0.05
27	T,M	tert-Butyl ethyl ether (ETB	10.000	8.298	17.0	104	-0.05
28	T,M	2-Butanone	50.000	46.122	7.8	97	-0.03
29	T,M	cis-1,2-Dichloroethene	10.000	10.367	-3.7	126	-0.03
30	T,M	2,2-Dichloropropane	10.000	8.987	10.1	106	-0.05
31	T,M	Tetrahydrofurane	10.000	9.223	7.8	100	-0.02
32	T,M	Bromochloromethane	10.000	8.785	12.1	101	-0.03
33	C,T,M	Chloroform	10.000	8.270	17.3	102	-0.05
34	S	Dibromofluoromethane	10.000	10.109	-1.1	120	-0.03
35	T,M	1,1,1-Trichloroethane	10.000	9.009	9.9	108	-0.04
36	T,M	Cyclohexane	10.000	10.402	-4.0	117	-0.03
37	T,M	tert-Amyl methyl ether (TAM	10.000	9.895	1.1	114	-0.03
38	S	1,2-Dichloroethane-d4	10.000	8.874	11.3	101	-0.03
39	T,M	1,1-Dichloropropene	10.000	10.464	-4.6	127	-0.04
40	T,M	Carbon tetrachloride	10.000	9.258	7.4	110	-0.03
41	T,M	Benzene	10.000	9.798	2.0	119	-0.03

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV074.D Vial: 2
Acq On : 12 Dec 2019 9:58 am Operator: JCorea
Sample : CVO01K0515 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
42	T,M	1,2-Dichloroethane	10.000	8.668	13.3	100	-0.04
43	T,M	2,2,4-Trimethylpentane	10.000	0.000	100.0#	0	-9.59#
44	T,M	Trichloroethene	10.000	9.681	3.2	121	-0.03
45	T,M	Methylcyclohexane	10.000	10.316	-3.2	116	-0.03
46	C,T,M	1,2-Dichloropropane	10.000	9.192	8.1	112	-0.03
47	T,M	1,4-Dioxane	200.000	178.320	10.8	98	-0.01
48	T,M	Dibromomethane	10.000	10.375	-3.8	116	-0.03
49	T,M	Bromodichloromethane	10.000	9.449	5.5	111	-0.03
50	T,M	2-Chloroethyl vinyl ether	10.000	6.769	32.3#	86	-0.01
51	T,M	cis-1,3-Dichloropropene	10.000	9.702	3.0	113	-0.01
52	T,M	4-Methyl-2-pentanone	50.000	44.309	11.4	94	-0.03
53	I	CHLOROBENZENE-D5	10.000	10.000	0.0	122	-0.01
54	S	Toluene-d8	10.000	9.925	0.7	119	-0.01
55	C,T,M	Toluene	10.000	10.027	-0.3	123	-0.01
56	T,M	Ethyl methacrylate	10.000	9.924	0.8	112	-0.01
57	T,M	trans-1,3-Dichloropropene	10.000	9.794	2.1	113	-0.01
58	T,M	1,1,2-Trichloroethane	10.000	10.159	-1.6	122	-0.01
59	T,M	Tetrachloroethene	10.000	10.338	-3.4	127	-0.03
60	T,M	1,3-Dichloropropane	10.000	9.602	4.0	111	-0.03
61	T,M	2-Hexanone	50.000	40.186	19.6	91	-0.01
62	T,M	Dibromochloromethane	10.000	10.255	-2.6	115	-0.03
63	T,M	1,2-Dibromoethane	10.000	10.228	-2.3	118	-0.03
64	T,M	1-Chlorohexane	10.000	9.637	3.6	117	-0.01
65	P,M	Chlorobenzene	10.000	9.863	1.4	116	-0.01
66	T,M	1,1,1,2-Tetrachloroethane	10.000	10.266	-2.7	119	-0.03
67	C,T,M	Ethylbenzene	10.000	9.709	2.9	116	-0.03
68	T,M	m-Xylene & p-Xylene	20.000	19.493	2.5	113	-0.03
69	T,M	o-Xylene	10.000	9.483	5.2	112	-0.01
70	T,M	Styrene	10.000	9.801	2.0	116	-0.01
71	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	133	-0.01
72	P,T,M	Bromoform	10.000	10.601	-6.0	128	-0.03
73	T,M	Isopropylbenzene	10.000	8.894	11.1	117	-0.03
74	S	4-Bromofluorobenzene	10.000	8.682	13.2	115	-0.03
75	P,T,M	1,1,2,2-Tetrachloroethane	10.000	9.147	8.5	113	-0.01
76	T,M	Bromobenzene	10.000	9.764	2.4	127	-0.01
77	T,M	trans-1,4-Dichloro-2-butene	10.000	9.754	2.5	113	-0.01
78	T,M	1,2,3-Trichloropropane	10.000	9.114	8.9	111	-0.01
79	T,M	n-Propylbenzene	10.000	8.977	10.2	114	-0.01
80	T,M	1,3,5-Trimethylbenzene	10.000	8.453	15.5	112	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV074.D Vial: 2
Acq On : 12 Dec 2019 9:58 am Operator: JCorea
Sample : CVO01K0515 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81	T,M	2-Chlorotoluene	10.000	8.433	15.7	110	-0.03
82	T,M	4-Chlorotoluene	10.000	8.738	12.6	112	-0.01
83	T,M	tert-Butylbenzene	10.000	8.968	10.3	116	-0.03
84	T,M	1,2,4-Trimethylbenzene	10.000	8.382	16.2	106	-0.03
85	T,M	sec-Butylbenzene	10.000	8.680	13.2	114	-0.01
86	T,M	p-Isopropyltoluene	10.000	8.285	17.1	107	-0.01
87	T,M	1,3-Dichlorobenzene	10.000	9.652	3.5	125	-0.01
88	T,M	1,4-Dichlorobenzene	10.000	9.505	4.9	122	-0.01
89	T,M	1,2,3-Trimethylbenzene	10.000	9.238	7.6	119	-0.03
90	T,M	n-Butylbenzene	10.000	8.364	16.4	109	-0.01
91	T,M	1,2-Dichlorobenzene	10.000	9.426	5.7	124	-0.01
92	T,M	1,2-Dibromo-3-chloropropane	10.000	9.935	0.6	113	-0.01
93	T,M	1,2,4-Trichlorobenzene	10.000	9.481	5.2	116	-0.03
94	T,M	Hexachlorobutadiene	10.000	9.184	8.2	118	-0.03
95	T,M	Naphthalene	10.000	8.396	16.0	99	-0.03
96	T,M	1,2,3-Trichlorobenzene	10.000	9.257	7.4	114	-0.01

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

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV074.D Vial: 2
Acq On : 12 Dec 2019 9:58 am Operator: JCorea
Sample : CVO01K0515 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	123	-0.03
2	T,M	Chlorotrifluoroethylene	0.000	0.000	0.0	0#	-1.94#
3	T,M	Dichlorodifluoromethane	0.277	0.240	13.4	99	0.00
4	P,T,M	Chloromethane	0.383	0.327	14.6	103	0.00
5	C,T,M	Vinyl chloride	0.375	0.340	9.3	102	0.00
6	T,M	2-Chloro-1,1,1-trifluoroeth	0.000	0.000	0.0	0#	-2.43#
7	T,M	Bromomethane	0.273	0.275	-0.7	112	0.00
8	T,M	Chloroethane	0.221	0.213	3.6	108	0.00
9	T,M	Dichlorofluoromethane	0.554	0.455	17.9	98	-0.03
10	T,M	Trichlorofluoromethane	0.386	0.377	2.3	104	0.00
11	T,M	Acrolein	0.028	0.026	7.1	105	-0.03
12	T,M	1,1,2-Trichloro-1,2,2-trifl	0.212	0.233	-9.9	133	-0.03
13	T,M	Acetone	0.056	0.047	16.1	93	-0.02
14	C,T,M	1,1-Dichloroethene	0.550	0.498	9.5	109	-0.03
15	T,M	Iodomethane	0.563	0.640	-13.7	139	-0.03
16	T,M	Carbon disulfide	1.174	1.102	6.1	109	-0.02
17	T,M	Methyl acetate	0.135	0.150	-11.1	116	-0.02
18	T,M	Methylene chloride	0.509	0.430	15.5	108	-0.03
19	T,M	tert-Butyl alcohol	0.018	0.016	11.1	92	-0.05
20	T,M	Acrylonitrile	0.057	0.053	7.0	105	-0.02
21	T,M	tert-Butyl methyl ether (MT	0.611	0.598	2.1	111	-0.03
22	T,M	trans-1,2-Dichloroethene	0.540	0.486	10.0	110	-0.05
23	T,M	Vinyl acetate	0.000	0.000	0.0	0#	-0.05
24	P,T,M	1,1-Dichloroethane	0.679	0.591	13.0	106	-0.05
25	T,M	Isopropyl ether (DIPE)	1.204	1.078	10.5	107	-0.05
26	T,M	2-Butanol	0.017	0.016	5.9	94	-0.05
27	T,M	tert-Butyl ethyl ether (ETB	0.977	0.811	17.0	104	-0.05
28	T,M	2-Butanone	0.085	0.079	7.1	97	-0.03
29	T,M	cis-1,2-Dichloroethene	0.355	0.368	-3.7	126	-0.03
30	T,M	2,2-Dichloropropane	0.441	0.396	10.2	106	-0.05
31	T,M	Tetrahydrofurane	0.057	0.053	7.0	100	-0.02
32	T,M	Bromochloromethane	0.310	0.272	12.3	101	-0.03
33	C,T,M	Chloroform	0.654	0.541	17.3	102	-0.05
34	S	Dibromofluoromethane	0.318	0.322	-1.3	120	-0.03
35	T,M	1,1,1-Trichloroethane	0.467	0.421	9.9	108	-0.04
36	T,M	Cyclohexane	0.498	0.518	-4.0	117	-0.03
37	T,M	tert-Amyl methyl ether (TAM	0.760	0.752	1.1	114	-0.03
38	S	1,2-Dichloroethane-d4	0.278	0.247	11.2	101	-0.03
39	T,M	1,1-Dichloropropene	0.167	0.175	-4.8	127	-0.04
40	T,M	Carbon tetrachloride	0.408	0.377	7.6	110	-0.03
41	T,M	Benzene	1.267	1.242	2.0	119	-0.03

(#) = Out of Range

Data File : D:\HPCHEM\1\DATA\19L12\RLV074.D Vial: 2
Acq On : 12 Dec 2019 9:58 am Operator: JCorea
Sample : CVO01K0515 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
42	T,M	1,2-Dichloroethane	0.341	0.296	13.2	100	-0.04
43	T,M	2,2,4-Trimethylpentane	1.704	0.000	100.0#	0#	-9.59#
44	T,M	Trichloroethene	0.397	0.385	3.0	121	-0.03
45	T,M	Methylcyclohexane	0.643	0.663	-3.1	116	-0.03
46	C,T,M	1,2-Dichloropropane	0.378	0.347	8.2	112	-0.03
47	T,M	1,4-Dioxane	0.002	0.002	0.0	98	-0.01
48	T,M	Dibromomethane	0.170	0.176	-3.5	116	-0.03
49	T,M	Bromodichloromethane	0.419	0.396	5.5	111	-0.03
50	T,M	2-Chloroethyl vinyl ether	0.115	0.092	20.0#	86	-0.01
51	T,M	cis-1,3-Dichloropropene	0.523	0.507	3.1	113	-0.01
52	T,M	4-Methyl-2-pentanone	0.237	0.210	11.4	94	-0.03
53	I	CHLOROBENZENE-D5	1.000	1.000	0.0	122	-0.01
54	S	Toluene-d8	1.276	1.266	0.8	119	-0.01
55	C,T,M	Toluene	1.618	1.622	-0.2	123	-0.01
56	T,M	Ethyl methacrylate	0.390	0.387	0.8	112	-0.01
57	T,M	trans-1,3-Dichloropropene	0.468	0.458	2.1	113	-0.01
58	T,M	1,1,2-Trichloroethane	0.258	0.262	-1.6	122	-0.01
59	T,M	Tetrachloroethene	0.341	0.352	-3.2	127	-0.03
60	T,M	1,3-Dichloropropane	0.503	0.483	4.0	111	-0.03
61	T,M	2-Hexanone	0.190	0.164	13.7	91	-0.01
62	T,M	Dibromochloromethane	0.326	0.334	-2.5	115	-0.03
63	T,M	1,2-Dibromoethane	0.274	0.280	-2.2	118	-0.03
64	T,M	1-Chlorohexane	0.692	0.667	3.6	117	-0.01
65	P,M	Chlorobenzene	1.044	1.029	1.4	116	-0.01
66	T,M	1,1,1,2-Tetrachloroethane	0.362	0.371	-2.5	119	-0.03
67	C,T,M	Ethylbenzene	2.016	1.957	2.9	116	-0.03
68	T,M	m-Xylene & p-Xylene	1.468	1.431	2.5	113	-0.03
69	T,M	o-Xylene	1.425	1.351	5.2	112	-0.01
70	T,M	Styrene	1.167	1.144	2.0	116	-0.01
71	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	133	-0.01
72	P,T,M	Bromoform	0.405	0.429	-5.9	128	-0.03
73	T,M	Isopropylbenzene	4.958	4.410	11.1	117	-0.03
74	S	4-Bromofluorobenzene	1.229	1.067	13.2	115	-0.03
75	P,T,M	1,1,2,2-Tetrachloroethane	0.904	0.827	8.5	113	-0.01
76	T,M	Bromobenzene	1.051	1.026	2.4	127	-0.01
77	T,M	trans-1,4-Dichloro-2-butene	0.171	0.167	2.3	113	-0.01
78	T,M	1,2,3-Trichloropropane	0.226	0.206	8.8	111	-0.01
79	T,M	n-Propylbenzene	5.975	5.364	10.2	114	-0.01
80	T,M	1,3,5-Trimethylbenzene	3.777	3.193	15.5	112	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV074.D Vial: 2
Acq On : 12 Dec 2019 9:58 am Operator: JCorea
Sample : CVO01K0515 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
81	T,M	2-Chlorotoluene	3.079	2.597	15.7	110	-0.03
82	T,M	4-Chlorotoluene	3.577	3.125	12.6	112	-0.01
83	T,M	tert-Butylbenzene	0.911	0.817	10.3	116	-0.03
84	T,M	1,2,4-Trimethylbenzene	3.659	3.067	16.2	106	-0.03
85	T,M	sec-Butylbenzene	5.362	4.654	13.2	114	-0.01
86	T,M	p-Isopropyltoluene	4.248	3.519	17.2	107	-0.01
87	T,M	1,3-Dichlorobenzene	1.941	1.874	3.5	125	-0.01
88	T,M	1,4-Dichlorobenzene	1.932	1.836	5.0	122	-0.01
89	T,M	1,2,3-Trimethylbenzene	3.382	3.124	7.6	119	-0.03
90	T,M	n-Butylbenzene	4.206	3.517	16.4	109	-0.01
91	T,M	1,2-Dichlorobenzene	1.677	1.581	5.7	124	-0.01
92	T,M	1,2-Dibromo-3-chloropropane	0.111	0.111	0.0	113	-0.01
93	T,M	1,2,4-Trichlorobenzene	0.904	0.857	5.2	116	-0.03
94	T,M	Hexachlorobutadiene	0.641	0.588	8.3	118	-0.03
95	T,M	Naphthalene	1.434	1.204	16.0	99	-0.03
96	T,M	1,2,3-Trichlorobenzene	0.667	0.617	7.5	114	-0.01

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV074.D Vial: 2
Acq On : 12 Dec 2019 9:58 am Operator: JCorea
Sample : CVO01K0515 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:32 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2527701	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	2290899	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.17	152	986143	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.70	111	812894	10.11	ug/l	-0.03
Spiked Amount 10.000			Recovery = 101.10%			
38) 1,2-Dichloroethane-d4	9.26	65	623401	8.87	ug/l	-0.03
Spiked Amount 10.000			Recovery = 88.70%			
54) Toluene-d8	12.12	98	2900878	9.92	ug/l	-0.01
Spiked Amount 10.000			Recovery = 99.20%			
74) 4-Bromofluorobenzene	14.93	95	1052019	8.68	ug/l	-0.03
Spiked Amount 10.000			Recovery = 86.80%			
Target Compounds						Qvalue
3) Dichlorodifluoromethane	1.85	85	607522	8.68	ug/l	97
4) Chloromethane	2.07	50	827304	8.54	ug/l	99
5) Vinyl chloride	2.21	62	860475	8.50	ug/l	100
7) Bromomethane	2.59	94	695261	10.08	ug/l	99
8) Chloroethane	2.72	64	537622	9.62	ug/l	98
9) Dichlorofluoromethane	3.03	67	1150987	8.22	ug/l	98
10) Trichlorofluoromethane	3.10	101	952615	9.76	ug/l	99
11) Acrolein	3.64	56	326284	46.33	ug/l	100
12) 1,1,2-Trichloro-1,2,2-trif	3.88	151	587892	10.97	ug/l	97
13) Acetone	3.88	43	587797	41.22	ug/l	93
14) 1,1-Dichloroethene	3.81	61	1259878	9.07	ug/l	91
15) Iodomethane	4.03	142	1617301	11.35	ug/l	91
16) Carbon disulfide	4.15	76	2786356	9.39	ug/l	100
17) Methyl acetate	4.47	43	379685	11.10	ug/l	93
18) Methylene chloride	4.69	49	1087204	8.45	ug/l	88
19) tert-Butyl alcohol	5.01	59	1028487	230.94	ug/l	97
20) Acrylonitrile	5.15	53	672451	46.54	ug/l	96
21) tert-Butyl methyl ether (M	5.28	73	1512690	9.79	ug/l	94
22) trans-1,2-Dichloroethene	5.23	61	1229073	9.01	ug/l	89
24) 1,1-Dichloroethane	6.18	63	1493246	8.70	ug/l	98
25) Isopropyl ether (DIPE)	6.40	45	2725525	8.96	ug/l	94
26) 2-Butanol	8.21	45	1008014	247.82	ug/l	99
27) tert-Butyl ethyl ether (ET	7.36	59	2049244	8.30	ug/l	93
28) 2-Butanone	7.65	43	994272	46.12	ug/l	96
29) cis-1,2-Dichloroethene	7.63	96	930772	10.37	ug/l	84
30) 2,2-Dichloropropane	7.60	77	1001640	8.99	ug/l	98
31) Tetrahydrofurane	8.19	42	133440	9.22	ug/l	96

(#) = qualifier out of range (m) = manual integration
RLV074.D VO01K05A.M Fri Dec 13 12:47:39 2019 Page 1

Data File : D:\HPCHEM\1\DATA\19L12\RLV074.D Vial: 2
Acq On : 12 Dec 2019 9:58 am Operator: JCorea
Sample : CVO01K0515 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:32 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
32)	Bromochloromethane	8.11	49	688284	8.78	ug/l	83
33)	Chloroform	8.38	83	1367758	8.27	ug/l	92
35)	1,1,1-Trichloroethane	8.64	97	1062905	9.01	ug/l	97
36)	Cyclohexane	8.77	84	1310576	10.40	ug/l	97
37)	tert-Amyl methyl ether (TA	9.60	73	1901388	9.89	ug/l	99
39)	1,1-Dichloropropene	8.95	110	442085	10.46	ug/l	99
40)	Carbon tetrachloride	8.94	119	954031	9.26	ug/l	98
41)	Benzene	9.28	78	3138435	9.80	ug/l	97
42)	1,2-Dichloroethane	9.40	62	748130	8.67	ug/l	99
44)	Trichloroethene	10.40	130	972660	9.68	ug/l	97
45)	Methylcyclohexane	10.73	83	1676094	10.32	ug/l	91
46)	1,2-Dichloropropane	10.76	63	877293	9.19	ug/l	99
47)	1,4-Dioxane	10.92	88	76406	178.32	ug/l	100
48)	Dibromomethane	10.89	93	444654	10.37	ug/l	92
49)	Bromodichloromethane	11.17	83	1001330	9.45	ug/l	99
50)	2-Chloroethyl vinyl ether	11.60	63	233259	6.77	ug/l	97
51)	cis-1,3-Dichloropropene	11.78	75	1282131	9.70	ug/l	98
52)	4-Methyl-2-pentanone	11.97	43	2658365	44.31	ug/l	95
55)	Toluene	12.21	91	3716684	10.03	ug/l	100
56)	Ethyl methacrylate	12.62	69	886304	9.92	ug/l	92
57)	trans-1,3-Dichloropropene	12.53	75	1049002	9.79	ug/l	94
58)	1,1,2-Trichloroethane	12.77	97	599744	10.16	ug/l	98
59)	Tetrachloroethene	12.86	164	806813	10.34	ug/l	94
60)	1,3-Dichloropropane	12.95	76	1107328	9.60	ug/l	99
61)	2-Hexanone	13.02	43	1880121	40.19	ug/l	95
62)	Dibromochloromethane	13.20	129	765329	10.26	ug/l	98
63)	1,2-Dibromoethane	13.32	107	642405	10.23	ug/l	99
64)	1-Chlorohexane	13.84	91	1527008	9.64	ug/l	100
65)	Chlorobenzene	13.85	112	2358078	9.86	ug/l	99
66)	1,1,1,2-Tetrachloroethane	13.94	131	850768	10.27	ug/l	100
67)	Ethylbenzene	13.94	91	4483533	9.71	ug/l	99
68)	m-Xylene & p-Xylene	14.07	91	6554546	19.49	ug/l	98
69)	o-Xylene	14.44	91	3095199	9.48	ug/l	98
70)	Styrene	14.46	104	2621449	9.80	ug/l	98
72)	Bromoform	14.64	173	423440	10.60	ug/l	99
73)	Isopropylbenzene	14.77	105	4348646	8.89	ug/l	98
75)	1,1,2,2-Tetrachloroethane	15.03	83	815210	9.15	ug/l	99
76)	Bromobenzene	15.06	156	1011949	9.76	ug/l	99
77)	trans-1,4-Dichloro-2-buten	15.06	53	164623	9.75	ug/l	99
78)	1,2,3-Trichloropropane	15.09	110	203364	9.11	ug/l	85
79)	n-Propylbenzene	15.14	91	5289340	8.98	ug/l	99

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

Data File : D:\HPCHEM\1\DATA\19L12\RLV074.D Vial: 2
Acq On : 12 Dec 2019 9:58 am Operator: JCorea
Sample : CVO01K0515 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:32 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

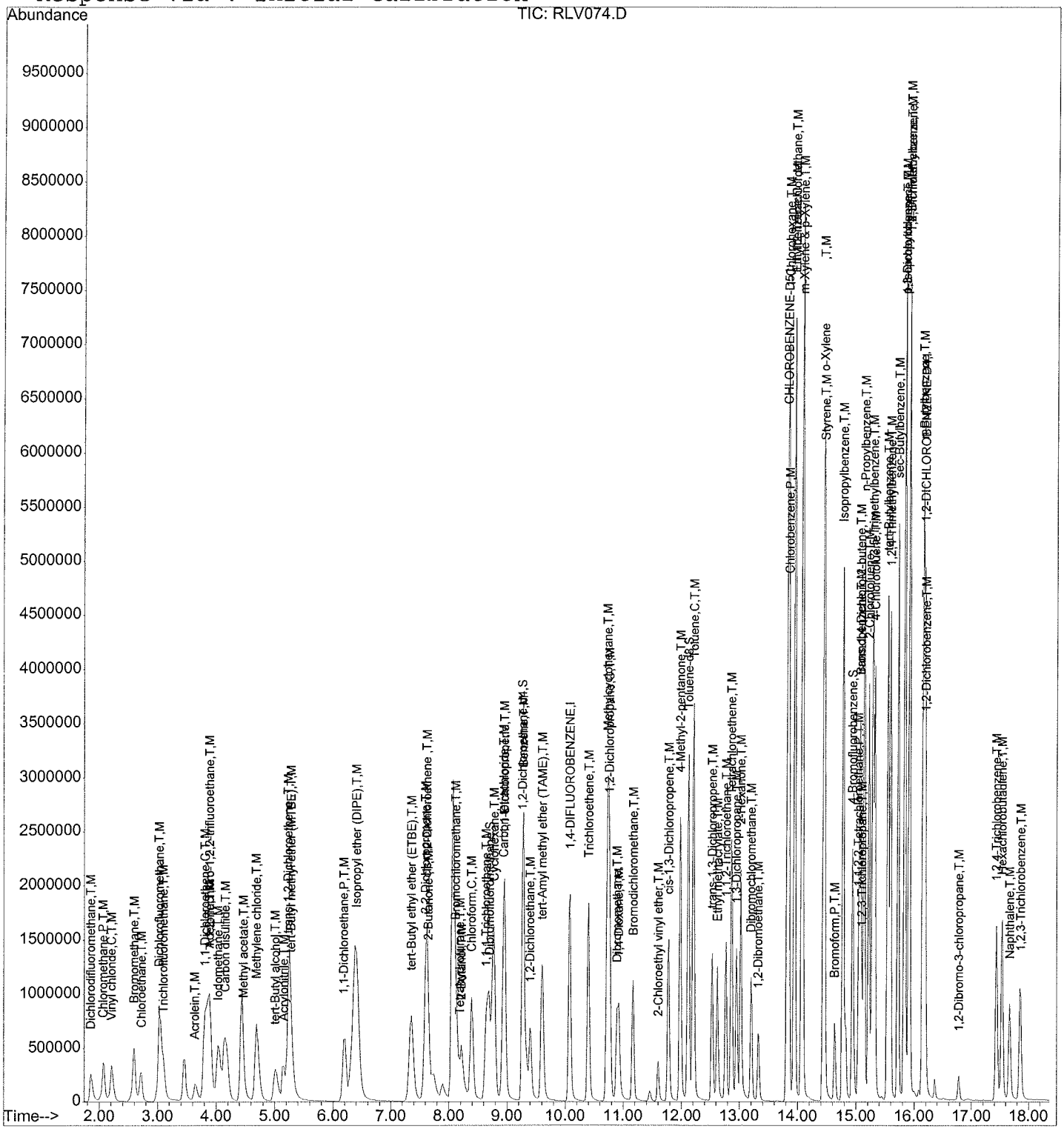
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
80)	1,3,5-Trimethylbenzene	15.29	105	3148293	8.45	ug/l	99
81)	2-Chlorotoluene	15.21	91	2560824	8.43	ug/l	97
82)	4-Chlorotoluene	15.32	91	3081774	8.74	ug/l	98
83)	tert-Butylbenzene	15.54	134	805640	8.97	ug/l	98
84)	1,2,4-Trimethylbenzene	15.58	105	3024240	8.38	ug/l	94
85)	sec-Butylbenzene	15.72	105	4589829	8.68	ug/l	98
86)	p-Isopropyltoluene	15.83	119	3470449	8.28	ug/l	98
87)	1,3-Dichlorobenzene	15.83	146	1847711	9.65	ug/l	97
88)	1,4-Dichlorobenzene	15.91	146	1810463	9.50	ug/l	97
89)	1,2,3-Trimethylbenzene	15.91	105	3080467	9.24	ug/l	98
90)	n-Butylbenzene	16.15	91	3468632	8.36	ug/l	99
91)	1,2-Dichlorobenzene	16.19	146	1559097	9.43	ug/l	100
92)	1,2-Dibromo-3-chloropropan	16.78	157	109136	9.93	ug/l	99
93)	1,2,4-Trichlorobenzene	17.43	180	844883	9.48	ug/l	98
94)	Hexachlorobutadiene	17.54	225	580243	9.18	ug/l	99
95)	Naphthalene	17.67	128	1187635	8.40	ug/l	99
96)	1,2,3-Trichlorobenzene	17.86	180	608785	9.26	ug/l	100

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV074.D Vial: 2
Acq On : 12 Dec 2019 9:58 am Operator: JCorea
Sample : CVO01K0515 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 11:32 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV074.D Vial: 2
Acq On : 12 Dec 2019 9:58 am Operator: JCorea
Sample : CVO01K0515 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	128	-0.03
2	T,M	Vinyl acetate	10.000	8.646	13.5	103	-0.05
3	I	CHLOROBENZENE-D5	10.000	10.000	0.0	127	-0.01
4	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	140	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0
RLV074.D VO01K06.M Fri Dec 13 10:22:09 2019 Page 1

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV074.D Vial: 2
Acq On : 12 Dec 2019 9:58 am Operator: JCorea
Sample : CVO01K0515 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	128	-0.03
2	T,M	Vinyl acetate	0.466	0.403	13.5	103	-0.05
3	I	CHLOROBENZENE-D5	1.000	1.000	0.0	127	-0.01
4	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	140	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0
RLV074.D VO01K06.M Fri Dec 13 10:22:11 2019 Page 1

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L12\RLV074.D Vial: 2
Acq On : 12 Dec 2019 9:58 am Operator: JCorea
Sample : CVO01K0515 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:50 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

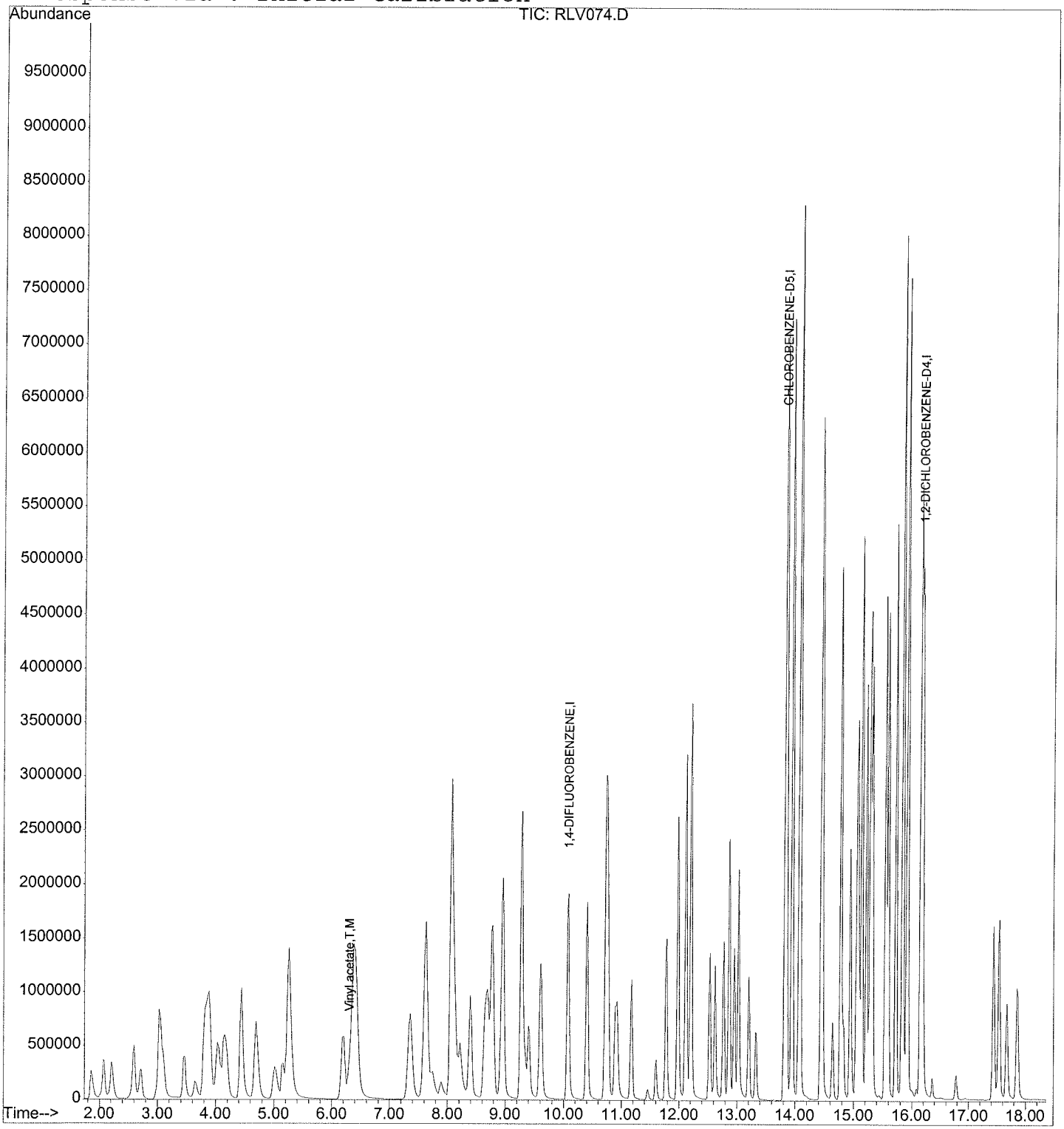
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	2527701	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	2290899	10.00	ug/l	-0.01
4) 1,2-DICHLOROBENZENE-D4	16.17	152	986143	10.00	ug/l	-0.01
Target Compounds						Qvalue
2) Vinyl acetate	6.30	43	1018546	8.65	ug/l	91

(#) = qualifier out of range (m) = manual integration
RLV074.D VO01K06.M Fri Dec 13 10:22:15 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L12\RLV074.D Vial: 2
Acq On : 12 Dec 2019 9:58 am Operator: JCorea
Sample : CVO01K0515 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 13 9:50 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc Contract: VA SALT LAKE CITY
Lab Code: EMXT Case No.: SAS No.: SDG No.: 19L064
Lab File ID: RLV091 BFB Injection Date : 12/13/19
Instrument ID: 01 BFB Injection Time : 11:23
GC Column:RXI-624SILMSID:0.25mm (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.42
75	30.0 - 60.0% of mass 95	45.72
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.35
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	79.07
175	5.0 - 9.0% of mass 174	5.81(7.3)1
176	95.0 - 101.0% of mass 174	76.16(96.3)1
177	5.0 - 9.0% of mass 176	4.76(6.3)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
1	VSTD010	CV001K0516	RLV092	12/13/19	11:53
2	MBLK2W	V001L05B	RLV096	12/13/19	14:21
3	LCS2W	V001L05L	RLV093	12/13/19	12:25
4	LCD2W	V001L05C	RLV094	12/13/19	13:22
5	OU2-MW14D-GW120719	L064-02N	RLV105	12/13/19	18:36
6	OU2-MW15D-GW120719	L064-07N	RLV106	12/13/19	19:04
7	OU2-MW15D-GW120719MS	L064-07M	RLV107	12/13/19	19:31
8	OU2-MW15D-GW120719MSD	L064-07S	RLV108	12/13/19	19:59
9	OU2-MW03RB-GW120819	L064-09	RLV110	12/13/19	20:55
10	OU2-MW03RD-GW120719	L064-10	RLV111	12/13/19	21:23
11	OU2-MW17D-GW120819	L064-11	RLV112	12/13/19	21:51
12	OU2-MW17S-GW120819	L064-12	RLV113	12/13/19	22:19
13	OU2-FD02-GW120819	L064-14	RLV114	12/13/19	22:47
14	OU2-MW08C-GW120819	L064-15	RLV115	12/13/19	23:15

FORM 8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : EMAX Inc
Lab Code : EMXT
Lab File ID : RKV038
Instrument ID: 01
GC Column : RXI-624SILMSID:0.25mm (mm)

Project: VA SALT LAKE CITY
SDG No: 19L064
Date Analyzed: 11/05/2019
Time Analyzed: 19:14
Heated Purge (Y/N): N

		1,4-DIFLUOROBENZENE		CHLOROBENZENE-D5		1,2-DICHLOROBENZENE-D4	
		AREA #	RT(min)	AREA #	RT(min)	AREA #	RT(min)
	12 HOUR STD	2058714	10.11	1882015	13.84	742417	16.19
	UPPER LIMIT	4117428	10.28	3764030	14.01	1484834	16.36
	LOWER LIMIT	1029357	9.94	941008	13.67	371209	16.02
	SAMPLE ID						
1	VSTD010	1827455	10.08	1691502	13.82	729191	16.17
2	MBLK2W	1939867	10.09	1749836	13.84	702372	16.17
3	LCS2W	1826268	10.08	1720882	13.82	727965	16.18
4	LCD2W	1865986	10.09	1743460	13.82	745583	16.18
5	OU2-MW14D-GW120719	2354965	10.09	2140178	13.84	849967	16.19
6	OU2-MW15D-GW120719	2096424	10.11	1951873	13.85	801029	16.20
7	OU2-MW15D-GW120719MS	2002248	10.09	1837219	13.84	788927	16.18
8	OU2-MW15D-GW120719MSD	1992801	10.09	1792717	13.84	744256	16.18
9	OU2-MW03RB-GW120819	1842485	10.09	1767757	13.84	711854	16.19
10	OU2-MW03RD-GW120719	1994114	10.09	1796873	13.84	739084	16.19
11	OU2-MW17D-GW120819	1954029	10.09	1733149	13.84	687739	16.19
12	OU2-MW17S-GW120819	1846297	10.09	1663033	13.84	662343	16.19
13	OU2-FD02-GW120819	1814935	10.09	1651448	13.84	676326	16.19
14	OU2-MW08C-GW120819	1746198	10.09	1728006	13.84	696327	16.19

Area Upper Limit = + 100% of internal standard area
Area Lower Limit = - 50% of internal standard area
RT Upper Limit = + 0.167 min. (10 sec.) of internal standard RT
RT Lower Limit = - 0.167 min. (10 sec.) of internal standard RT

FORM 8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : EMAX Inc
Lab Code : EMXT
Lab File ID : RKV053
Instrument ID: 01
GC Column : RXI-624SILMSID:0.25mm (mm)

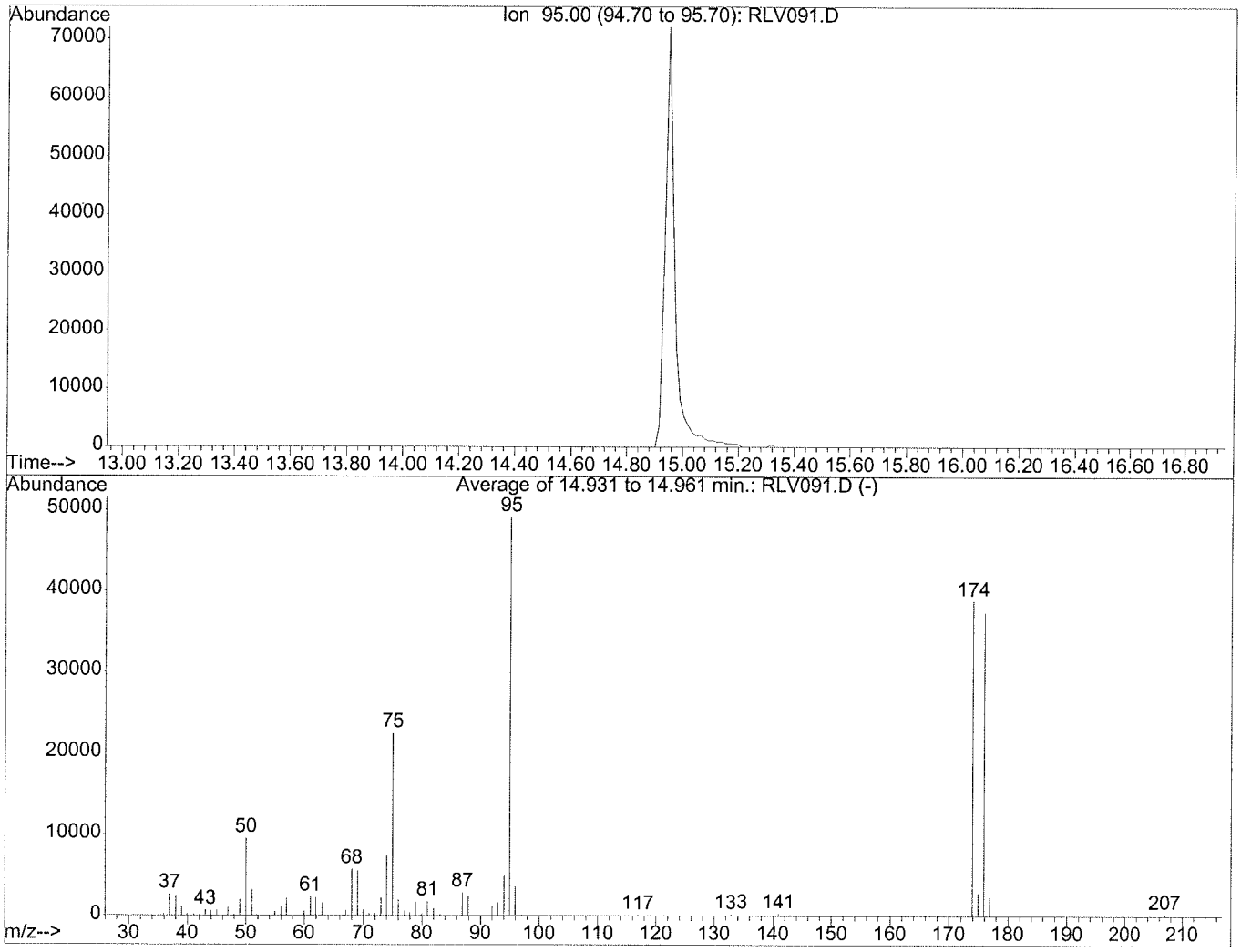
Project: VA SALT LAKE CITY
SDG No: 19L064
Date Analyzed: 11/06/2019
Time Analyzed: 11:41
Heated Purge (Y/N): N

		1,4-DIFLUOROBENZENE		CHLOROBENZENE-D5		1,2-DICHLOROBENZENE-D4	
		AREA #	RT(min)	AREA #	RT(min)	AREA #	RT(min)
	12 HOUR STD	1975136	10.11	1803738	13.84	706724	16.19
	UPPER LIMIT	3950272	10.28	3607476	14.01	1413448	16.36
	LOWER LIMIT	987568	9.94	901869	13.67	353362	16.02
	SAMPLE ID						
1	VSTD010	1827455	10.08	1691502	13.82	729191	16.17
2	MBLK2W	1939867	10.09	1747520	13.84	702372	16.17
3	LCS2W	1826268	10.08	1720882	13.82	727965	16.18
4	LCD2W	1865986	10.09	1743460	13.82	745583	16.18
5	OU2-MW14D-GW120719	2354965	10.09	2140178	13.84	849967	16.19
6	OU2-MW15D-GW120719	2096424	10.11	1951873	13.85	801029	16.20
7	OU2-MW15D-GW120719MS	2002248	10.09	1837219	13.84	788927	16.18
8	OU2-MW15D-GW120719MSD	1992801	10.09	1792717	13.84	744256	16.18
9	OU2-MW03RB-GW120819	1842485	10.09	1767757	13.84	711854	16.19
10	OU2-MW03RD-GW120719	1994114	10.09	1796873	13.84	739084	16.19
11	OU2-MW17D-GW120819	1954029	10.09	1733149	13.84	687739	16.19
12	OU2-MW17S-GW120819	1846297	10.09	1663033	13.84	662343	16.19
13	OU2-FD02-GW120819	1814935	10.09	1651448	13.84	676326	16.19
14	OU2-MW08C-GW120819	1746198	10.09	1728006	13.84	696327	16.19

Area Upper Limit = + 100% of internal standard area
Area Lower Limit = - 50% of internal standard area
RT Upper Limit = + 0.167 min. (10 sec.) of internal standard RT
RT Lower Limit = - 0.167 min. (10 sec.) of internal standard RT

Data File : D:\HPCHEM\1\DATA\19L13\RLV091.D
Acq On : 13 Dec 2019 11:23 am
Sample : BFB01L05
Misc : T/CHK
MS Integration Params: 524TAIL.P
Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls

Vial: 1
Operator: JCorea
Inst : 01
Multiplr: 1.00



AutoFind: Scans 746, 747, 748; Background Corrected with Scan 743

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	19.4	9548	PASS
75	95	30	60	45.7	22472	PASS
95	95	100	100	100.0	49157	PASS
96	95	5	9	7.4	3615	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	79.1	38871	PASS
175	174	5	9	7.3	2855	PASS
176	174	95	101	96.3	37438	PASS
177	176	5	9	6.3	2342	PASS

RLV091.D VO01K05A.M Mon Dec 16 11:56:06 2019

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV092.D Vial: 2
Acq On : 13 Dec 2019 11:53 am Operator: JCorea
Sample : CVO01K0516 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	89	-0.03
2	T,M	Chlorotrifluoroethylene	-1.000	0.000	0.0	0	-1.94#
3	T,M	Dichlorodifluoromethane	10.000	9.445	5.5	78	0.00
4	P,T,M	Chloromethane	10.000	8.692	13.1	75	0.00
5	C,T,M	Vinyl chloride	10.000	8.314	16.9	72	0.00
6	T,M	2-Chloro-1,1,1-trifluoroeth	-1.000	0.000	0.0	0	-2.43#
7	T,M	Bromomethane	10.000	10.606	-6.1	85	-0.01
8	T,M	Chloroethane	10.000	9.951	0.5	81	0.00
9	T,M	Dichlorofluoromethane	10.000	8.714	12.9	75	-0.02
10	T,M	Trichlorofluoromethane	10.000	10.961	-9.6	84	-0.02
11	T,M	Acrolein	50.000	45.117	9.8	74	0.00
12	T,M	1,1,2-Trichloro-1,2,2-trifl	10.000	10.479	-4.8	92	-0.02
13	T,M	Acetone	50.000	52.476	-5.0	85	-0.02
14	C,T,M	1,1-Dichloroethene	10.000	9.432	5.7	82	-0.02
15	T,M	Iodomethane	10.000	10.636	-6.4	94	-0.02
16	T,M	Carbon disulfide	10.000	8.646	13.5	73	-0.02
17	T,M	Methyl acetate	10.000	12.855	-28.6#	97	-0.02
18	T,M	Methylene chloride	10.000	8.488	15.1	79	-0.02
19	T,M	tert-Butyl alcohol	250.000	285.443	-14.2	82	-0.02
20	T,M	Acrylonitrile	50.000	53.516	-7.0	88	-0.02
21	T,M	tert-Butyl methyl ether (MT	10.000	10.040	-0.4	82	-0.02
22	T,M	trans-1,2-Dichloroethene	10.000	9.545	4.6	84	-0.02
23	T,M	Vinyl acetate	-1.000	0.000	0.0	0	-0.02
24	P,T,M	1,1-Dichloroethane	10.000	9.080	9.2	80	-0.02
25	T,M	Isopropyl ether (DIPE)	10.000	9.276	7.2	80	-0.02
26	T,M	2-Butanol	250.000	307.515	-23.0#	86	-0.02
27	T,M	tert-Butyl ethyl ether (ETB	10.000	8.882	11.2	80	-0.05
28	T,M	2-Butanone	50.000	55.923	-11.8	85	-0.02
29	T,M	cis-1,2-Dichloroethene	10.000	10.125	-1.3	89	-0.02
30	T,M	2,2-Dichloropropane	10.000	9.793	2.1	84	-0.02
31	T,M	Tetrahydrofurane	10.000	10.513	-5.1	83	-0.02
32	T,M	Bromochloromethane	10.000	9.420	5.8	78	-0.02
33	C,T,M	Chloroform	10.000	9.714	2.9	86	-0.02
34	S	Dibromofluoromethane	10.000	10.322	-3.2	88	-0.03
35	T,M	1,1,1-Trichloroethane	10.000	9.757	2.4	84	-0.03
36	T,M	Cyclohexane	10.000	10.712	-7.1	87	-0.01
37	T,M	tert-Amyl methyl ether (TAM	10.000	10.356	-3.6	86	-0.01
38	S	1,2-Dichloroethane-d4	10.000	10.402	-4.0	86	-0.01
39	T,M	1,1-Dichloropropene	10.000	10.103	-1.0	89	-0.03
40	T,M	Carbon tetrachloride	10.000	10.111	-1.1	87	-0.01
41	T,M	Benzene	10.000	9.416	5.8	83	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV092.D Vial: 2
Acq On : 13 Dec 2019 11:53 am Operator: JCorea
Sample : CVO01K0516 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
42	T,M	1,2-Dichloroethane	10.000	10.073	-0.7	84	-0.03
43	T,M	2,2,4-Trimethylpentane	10.000	0.000	100.0#	0	-9.59#
44	T,M	Trichloroethene	10.000	9.546	4.5	86	-0.01
45	T,M	Methylcyclohexane	10.000	10.858	-8.6	88	-0.01
46	C,T,M	1,2-Dichloropropane	10.000	9.243	7.6	82	-0.01
47	T,M	1,4-Dioxane	200.000	213.721	-6.9	85	-0.01
48	T,M	Dibromomethane	10.000	10.799	-8.0	88	-0.01
49	T,M	Bromodichloromethane	10.000	10.035	-0.4	85	-0.01
50	T,M	2-Chloroethyl vinyl ether	10.000	6.953	30.5#	64	-0.01
51	T,M	cis-1,3-Dichloropropene	10.000	9.714	2.9	82	-0.01
52	T,M	4-Methyl-2-pentanone	50.000	54.439	-8.9	84	-0.01
53	I	CHLOROBENZENE-D5	10.000	10.000	0.0	90	-0.01
54	S	Toluene-d8	10.000	9.897	1.0	88	-0.01
55	C,T,M	Toluene	10.000	9.580	4.2	87	-0.01
56	T,M	Ethyl methacrylate	10.000	10.062	-0.6	84	0.00
57	T,M	trans-1,3-Dichloropropene	10.000	10.184	-1.8	87	0.00
58	T,M	1,1,2-Trichloroethane	10.000	9.976	0.2	89	-0.01
59	T,M	Tetrachloroethene	10.000	10.086	-0.9	91	-0.01
60	T,M	1,3-Dichloropropane	10.000	10.050	-0.5	86	-0.01
61	T,M	2-Hexanone	50.000	48.416	3.2	81	0.00
62	T,M	Dibromochloromethane	10.000	10.907	-9.1	90	-0.01
63	T,M	1,2-Dibromoethane	10.000	10.327	-3.3	88	-0.01
64	T,M	1-Chlorohexane	10.000	9.858	1.4	89	-0.01
65	P,M	Chlorobenzene	10.000	9.929	0.7	86	-0.01
66	T,M	1,1,1,2-Tetrachloroethane	10.000	10.338	-3.4	88	-0.01
67	C,T,M	Ethylbenzene	10.000	9.847	1.5	87	-0.01
68	T,M	m-Xylene & p-Xylene	20.000	20.129	-0.6	86	-0.01
69	T,M	o-Xylene	10.000	9.789	2.1	86	-0.01
70	T,M	Styrene	10.000	10.050	-0.5	88	0.00
71	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	98	-0.01
72	P,T,M	Bromoform	10.000	11.117	-11.2	99	-0.01
73	T,M	Isopropylbenzene	10.000	8.955	10.4	87	-0.01
74	S	4-Bromofluorobenzene	10.000	8.901	11.0	87	-0.01
75	P,T,M	1,1,2,2-Tetrachloroethane	10.000	9.582	4.2	87	0.00
76	T,M	Bromobenzene	10.000	9.768	2.3	94	-0.01
77	T,M	trans-1,4-Dichloro-2-butene	10.000	11.125	-11.3	95	0.00
78	T,M	1,2,3-Trichloropropane	10.000	10.149	-1.5	91	-0.01
79	T,M	n-Propylbenzene	10.000	9.030	9.7	85	-0.01
80	T,M	1,3,5-Trimethylbenzene	10.000	8.872	11.3	87	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV092.D Vial: 2
Acq On : 13 Dec 2019 11:53 am Operator: JCorea
Sample : CVO01K0516 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81	T,M	2-Chlorotoluene	10.000	8.926	10.7	86	-0.01
82	T,M	4-Chlorotoluene	10.000	9.643	3.6	91	0.00
83	T,M	tert-Butylbenzene	10.000	8.958	10.4	85	-0.01
84	T,M	1,2,4-Trimethylbenzene	10.000	8.761	12.4	82	-0.01
85	T,M	sec-Butylbenzene	10.000	8.810	11.9	85	0.00
86	T,M	p-Isopropyltoluene	10.000	8.815	11.9	84	-0.01
87	T,M	1,3-Dichlorobenzene	10.000	9.481	5.2	91	-0.01
88	T,M	1,4-Dichlorobenzene	10.000	9.588	4.1	91	0.00
89	T,M	1,2,3-Trimethylbenzene	10.000	9.833	1.7	93	-0.01
90	T,M	n-Butylbenzene	10.000	8.804	12.0	85	-0.01
91	T,M	1,2-Dichlorobenzene	10.000	9.462	5.4	92	-0.01
92	T,M	1,2-Dibromo-3-chloropropane	10.000	11.693	-16.9	98	0.00
93	T,M	1,2,4-Trichlorobenzene	10.000	10.612	-6.1	96	-0.01
94	T,M	Hexachlorobutadiene	10.000	10.264	-2.6	98	-0.01
95	T,M	Naphthalene	10.000	10.065	-0.6	88	-0.01
96	T,M	1,2,3-Trichlorobenzene	10.000	10.598	-6.0	96	-0.01

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV092.D Vial: 2
Acq On : 13 Dec 2019 11:53 am Operator: JCorea
Sample : CVO01K0516 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	89	-0.03
2	T,M	Chlorotrifluoroethylene	0.000	0.000	0.0	0#	-1.94#
3	T,M	Dichlorodifluoromethane	0.277	0.261	5.8	78	0.00
4	P,T,M	Chloromethane	0.383	0.333	13.1	75	0.00
5	C,T,M	Vinyl chloride	0.375	0.333	11.2	72	0.00
6	T,M	2-Chloro-1,1,1-trifluoroeth	0.000	0.000	0.0	0#	-2.43#
7	T,M	Bromomethane	0.273	0.289	-5.9	85	-0.01
8	T,M	Chloroethane	0.221	0.220	0.5	81	0.00
9	T,M	Dichlorofluoromethane	0.554	0.483	12.8	75	-0.02
10	T,M	Trichlorofluoromethane	0.386	0.423	-9.6	84	-0.02
11	T,M	Acrolein	0.028	0.025	10.7	74	0.00
12	T,M	1,1,2-Trichloro-1,2,2-trifl	0.212	0.222	-4.7	92	-0.02
13	T,M	Acetone	0.056	0.059	-5.4	85	-0.02
14	C,T,M	1,1-Dichloroethene	0.550	0.518	5.8	82	-0.02
15	T,M	Iodomethane	0.563	0.599	-6.4	94	-0.02
16	T,M	Carbon disulfide	1.174	1.015	13.5	73	-0.02
17	T,M	Methyl acetate	0.135	0.174	-28.9#	97	-0.02
18	T,M	Methylene chloride	0.509	0.432	15.1	79	-0.02
19	T,M	tert-Butyl alcohol	0.018	0.020	-11.1	82	-0.02
20	T,M	Acrylonitrile	0.057	0.061	-7.0	88	-0.02
21	T,M	tert-Butyl methyl ether (MT	0.611	0.614	-0.5	82	-0.02
22	T,M	trans-1,2-Dichloroethene	0.540	0.515	4.6	84	-0.02
23	T,M	Vinyl acetate	0.000	0.000	0.0	0#	-0.02
24	P,T,M	1,1-Dichloroethane	0.679	0.617	9.1	80	-0.02
25	T,M	Isopropyl ether (DIPE)	1.204	1.117	7.2	80	-0.02
26	T,M	2-Butanol	0.017	0.020	-17.6	86	-0.02
27	T,M	tert-Butyl ethyl ether (ETB	0.977	0.868	11.2	80	-0.05
28	T,M	2-Butanone	0.085	0.095	-11.8	85	-0.02
29	T,M	cis-1,2-Dichloroethene	0.355	0.360	-1.4	89	-0.02
30	T,M	2,2-Dichloropropane	0.441	0.432	2.0	84	-0.02
31	T,M	Tetrahydrofurane	0.057	0.060	-5.3	83	-0.02
32	T,M	Bromochloromethane	0.310	0.292	5.8	78	-0.02
33	C,T,M	Chloroform	0.654	0.636	2.8	86	-0.02
34	S	Dibromofluoromethane	0.318	0.328	-3.1	88	-0.03
35	T,M	1,1,1-Trichloroethane	0.467	0.455	2.6	84	-0.03
36	T,M	Cyclohexane	0.498	0.534	-7.2	87	-0.01
37	T,M	tert-Amyl methyl ether (TAM	0.760	0.787	-3.6	86	-0.01
38	S	1,2-Dichloroethane-d4	0.278	0.289	-4.0	86	-0.01
39	T,M	1,1-Dichloropropene	0.167	0.169	-1.2	89	-0.03
40	T,M	Carbon tetrachloride	0.408	0.412	-1.0	87	-0.01
41	T,M	Benzene	1.267	1.193	5.8	83	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV092.D Vial: 2
Acq On : 13 Dec 2019 11:53 am Operator: JCorea
Sample : CVO01K0516 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
42	T,M	1,2-Dichloroethane	0.341	0.344	-0.9	84	-0.03
43	T,M	2,2,4-Trimethylpentane	1.704	0.000	100.0#	0#	-9.59#
44	T,M	Trichloroethene	0.397	0.379	4.5	86	-0.01
45	T,M	Methylcyclohexane	0.643	0.698	-8.6	88	-0.01
46	C,T,M	1,2-Dichloropropane	0.378	0.349	7.7	82	-0.01
47	T,M	1,4-Dioxane	0.002	0.002	0.0	85	-0.01
48	T,M	Dibromomethane	0.170	0.183	-7.6	88	-0.01
49	T,M	Bromodichloromethane	0.419	0.421	-0.5	85	-0.01
50	T,M	2-Chloroethyl vinyl ether	0.115	0.095	17.4	64	-0.01
51	T,M	cis-1,3-Dichloropropene	0.523	0.508	2.9	82	-0.01
52	T,M	4-Methyl-2-pentanone	0.237	0.258	-8.9	84	-0.01
53	I	CHLOROBENZENE-D5	1.000	1.000	0.0	90	-0.01
54	S	Toluene-d8	1.276	1.263	1.0	88	-0.01
55	C,T,M	Toluene	1.618	1.550	4.2	87	-0.01
56	T,M	Ethyl methacrylate	0.390	0.392	-0.5	84	0.00
57	T,M	trans-1,3-Dichloropropene	0.468	0.476	-1.7	87	0.00
58	T,M	1,1,2-Trichloroethane	0.258	0.257	0.4	89	-0.01
59	T,M	Tetrachloroethene	0.341	0.344	-0.9	91	-0.01
60	T,M	1,3-Dichloropropane	0.503	0.506	-0.6	86	-0.01
61	T,M	2-Hexanone	0.190	0.200	-5.3	81	0.00
62	T,M	Dibromochloromethane	0.326	0.355	-8.9	90	-0.01
63	T,M	1,2-Dibromoethane	0.274	0.283	-3.3	88	-0.01
64	T,M	1-Chlorohexane	0.692	0.682	1.4	89	-0.01
65	P,M	Chlorobenzene	1.044	1.036	0.8	86	-0.01
66	T,M	1,1,1,2-Tetrachloroethane	0.362	0.374	-3.3	88	-0.01
67	C,T,M	Ethylbenzene	2.016	1.985	1.5	87	-0.01
68	T,M	m-Xylene & p-Xylene	1.468	1.477	-0.6	86	-0.01
69	T,M	o-Xylene	1.425	1.395	2.1	86	-0.01
70	T,M	Styrene	1.167	1.173	-0.5	88	0.00
71	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	98	-0.01
72	P,T,M	Bromoform	0.405	0.450	-11.1	99	-0.01
73	T,M	Isopropylbenzene	4.958	4.440	10.4	87	-0.01
74	S	4-Bromofluorobenzene	1.229	1.094	11.0	87	-0.01
75	P,T,M	1,1,2,2-Tetrachloroethane	0.904	0.866	4.2	87	0.00
76	T,M	Bromobenzene	1.051	1.027	2.3	94	-0.01
77	T,M	trans-1,4-Dichloro-2-butene	0.171	0.190	-11.1	95	0.00
78	T,M	1,2,3-Trichloropropane	0.226	0.230	-1.8	91	-0.01
79	T,M	n-Propylbenzene	5.975	5.395	9.7	85	-0.01
80	T,M	1,3,5-Trimethylbenzene	3.777	3.351	11.3	87	-0.01

(#) = Out of Range

Data File : D:\HPCHEM\1\DATA\19L13\RLV092.D Vial: 2
Acq On : 13 Dec 2019 11:53 am Operator: JCorea
Sample : CVO01K0516 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
81	T,M	2-Chlorotoluene	3.079	2.748	10.8	86	-0.01
82	T,M	4-Chlorotoluene	3.577	3.449	3.6	91	0.00
83	T,M	tert-Butylbenzene	0.911	0.816	10.4	85	-0.01
84	T,M	1,2,4-Trimethylbenzene	3.659	3.205	12.4	82	-0.01
85	T,M	sec-Butylbenzene	5.362	4.724	11.9	85	0.00
86	T,M	p-Isopropyltoluene	4.248	3.744	11.9	84	-0.01
87	T,M	1,3-Dichlorobenzene	1.941	1.840	5.2	91	-0.01
88	T,M	1,4-Dichlorobenzene	1.932	1.852	4.1	91	0.00
89	T,M	1,2,3-Trimethylbenzene	3.382	3.325	1.7	93	-0.01
90	T,M	n-Butylbenzene	4.206	3.702	12.0	85	-0.01
91	T,M	1,2-Dichlorobenzene	1.677	1.587	5.4	92	-0.01
92	T,M	1,2-Dibromo-3-chloropropane	0.111	0.130	-17.1	98	0.00
93	T,M	1,2,4-Trichlorobenzene	0.904	0.959	-6.1	96	-0.01
94	T,M	Hexachlorobutadiene	0.641	0.658	-2.7	98	-0.01
95	T,M	Naphthalene	1.434	1.444	-0.7	88	-0.01
96	T,M	1,2,3-Trichlorobenzene	0.667	0.707	-6.0	96	-0.01

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV092.D Vial: 2
Acq On : 13 Dec 2019 11:53 am Operator: JCorea
Sample : CVO01K0516 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 11:52 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1827455	10.00	ug/l	-0.03
53) CHLOROBENZENE-D5	13.82	117	1691502	10.00	ug/l	-0.01
71) 1,2-DICHLOROBENZENE-D4	16.17	152	729191	10.00	ug/l	-0.01
System Monitoring Compounds						
34) Dibromofluoromethane	8.70	111	600111	10.32	ug/l	-0.03
Spiked Amount 10.000			Recovery =	103.20%		
38) 1,2-Dichloroethane-d4	9.28	65	528292	10.40	ug/l	-0.01
Spiked Amount 10.000			Recovery =	104.00%		
54) Toluene-d8	12.12	98	2135803	9.90	ug/l	-0.01
Spiked Amount 10.000			Recovery =	99.00%		
74) 4-Bromofluorobenzene	14.95	95	797593	8.90	ug/l	-0.01
Spiked Amount 10.000			Recovery =	89.00%		
Target Compounds						Qvalue
3) Dichlorodifluoromethane	1.86	85	477789	9.45	ug/l	97
4) Chloromethane	2.07	50	608435	8.69	ug/l	99
5) Vinyl chloride	2.22	62	608335	8.31	ug/l	100
7) Bromomethane	2.59	94	528669	10.61	ug/l	100
8) Chloroethane	2.71	64	402121	9.95	ug/l	99
9) Dichlorofluoromethane	3.03	67	882675	8.71	ug/l	98
10) Trichlorofluoromethane	3.08	101	773771	10.96	ug/l	100
11) Acrolein	3.66	56	229698	45.12	ug/l	95
12) 1,1,2-Trichloro-1,2,2-trif	3.88	151	406033	10.48	ug/l	100
13) Acetone	3.88	43	540993	52.48	ug/l	99
14) 1,1-Dichloroethene	3.81	61	947319	9.43	ug/l	97
15) Iodomethane	4.03	142	1095289	10.64	ug/l	99
16) Carbon disulfide	4.15	76	1855490	8.65	ug/l	100
17) Methyl acetate	4.47	43	317836	12.85	ug/l	100
18) Methylene chloride	4.69	49	789069	8.49	ug/l	95
19) tert-Butyl alcohol	5.03	59	919052	285.44	ug/l	100
20) Acrylonitrile	5.16	53	559033	53.52	ug/l	98
21) tert-Butyl methyl ether (M	5.28	73	1121898	10.04	ug/l	99
22) trans-1,2-Dichloroethene	5.25	61	941105	9.54	ug/l	95
24) 1,1-Dichloroethane	6.21	63	1127349	9.08	ug/l	99
25) Isopropyl ether (DIPE)	6.43	45	2040677	9.28	ug/l	97
26) 2-Butanol	8.24	45	927864	307.52	ug/l	99
27) tert-Butyl ethyl ether (ET	7.36	59	1585853	8.88	ug/l	97
28) 2-Butanone	7.65	43	871579	55.92	ug/l	99
29) cis-1,2-Dichloroethene	7.63	96	657229	10.13	ug/l	93
30) 2,2-Dichloropropane	7.63	77	789150	9.79	ug/l	99
31) Tetrahydrofurane	8.19	42	109965	10.51	ug/l	98

(#) = qualifier out of range (m) = manual integration
RLV092.D VO01K05A.M Mon Dec 16 11:56:28 2019 Page 1

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV092.D Vial: 2
Acq On : 13 Dec 2019 11:53 am Operator: JCorea
Sample : CVO01K0516 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 11:52 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
32)	Bromochloromethane	8.12	49	533594	9.42	ug/l	92
33)	Chloroform	8.41	83	1161416	9.71	ug/l	98
35)	1,1,1-Trichloroethane	8.65	97	832241	9.76	ug/l	98
36)	Cyclohexane	8.79	84	975752	10.71	ug/l	98
37)	tert-Amyl methyl ether (TA	9.62	73	1438797	10.36	ug/l	98
39)	1,1-Dichloropropene	8.97	110	308576	10.10	ug/l	99
40)	Carbon tetrachloride	8.95	119	753313	10.11	ug/l	99
41)	Benzene	9.29	78	2180511	9.42	ug/l	99
42)	1,2-Dichloroethane	9.41	62	628527	10.07	ug/l	100
44)	Trichloroethene	10.42	130	693372	9.55	ug/l	99
45)	Methylcyclohexane	10.74	83	1275442	10.86	ug/l	96
46)	1,2-Dichloropropane	10.77	63	637749	9.24	ug/l	95
47)	1,4-Dioxane	10.92	88	66206	213.72	ug/l	96
48)	Dibromomethane	10.90	93	334614	10.80	ug/l	93
49)	Bromodichloromethane	11.19	83	768840	10.03	ug/l	100
50)	2-Chloroethyl vinyl ether	11.60	63	173583	6.95	ug/l	98
51)	cis-1,3-Dichloropropene	11.78	75	928046	9.71	ug/l	98
52)	4-Methyl-2-pentanone	11.99	43	2361315	54.44	ug/l	98
55)	Toluene	12.21	91	2622019	9.58	ug/l	100
56)	Ethyl methacrylate	12.64	69	663501	10.06	ug/l	99
57)	trans-1,3-Dichloropropene	12.55	75	805331	10.18	ug/l	97
58)	1,1,2-Trichloroethane	12.77	97	434866	9.98	ug/l	99
59)	Tetrachloroethene	12.87	164	581204	10.09	ug/l	96
60)	1,3-Dichloropropane	12.96	76	855776	10.05	ug/l	99
61)	2-Hexanone	13.04	43	1689000	48.42	ug/l	100
62)	Dibromochloromethane	13.21	129	600987	10.91	ug/l	98
63)	1,2-Dibromoethane	13.33	107	478938	10.33	ug/l	99
64)	1-Chlorohexane	13.84	91	1153318	9.86	ug/l	100
65)	Chlorobenzene	13.85	112	1752742	9.93	ug/l	99
66)	1,1,1,2-Tetrachloroethane	13.95	131	632584	10.34	ug/l	99
67)	Ethylbenzene	13.95	91	3357468	9.85	ug/l	99
68)	m-Xylene & p-Xylene	14.09	91	4997587	20.13	ug/l	99
69)	o-Xylene	14.44	91	2359025	9.79	ug/l	99
70)	Styrene	14.47	104	1984560	10.05	ug/l	99
72)	Bromoform	14.65	173	328358	11.12	ug/l	100
73)	Isopropylbenzene	14.78	105	3237272	8.95	ug/l	99
75)	1,1,2,2-Tetrachloroethane	15.05	83	631521	9.58	ug/l	100
76)	Bromobenzene	15.06	156	748621	9.77	ug/l	99
77)	trans-1,4-Dichloro-2-buten	15.08	53	138844	11.13	ug/l	97
78)	1,2,3-Trichloropropane	15.09	110	167444	10.15	ug/l	93
79)	n-Propylbenzene	15.14	91	3934143	9.03	ug/l	99

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV092.D Vial: 2
Acq On : 13 Dec 2019 11:53 am Operator: JCorea
Sample : CVO01K0516 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 11:52 2019 Quant Results File: VO01K05A.RES

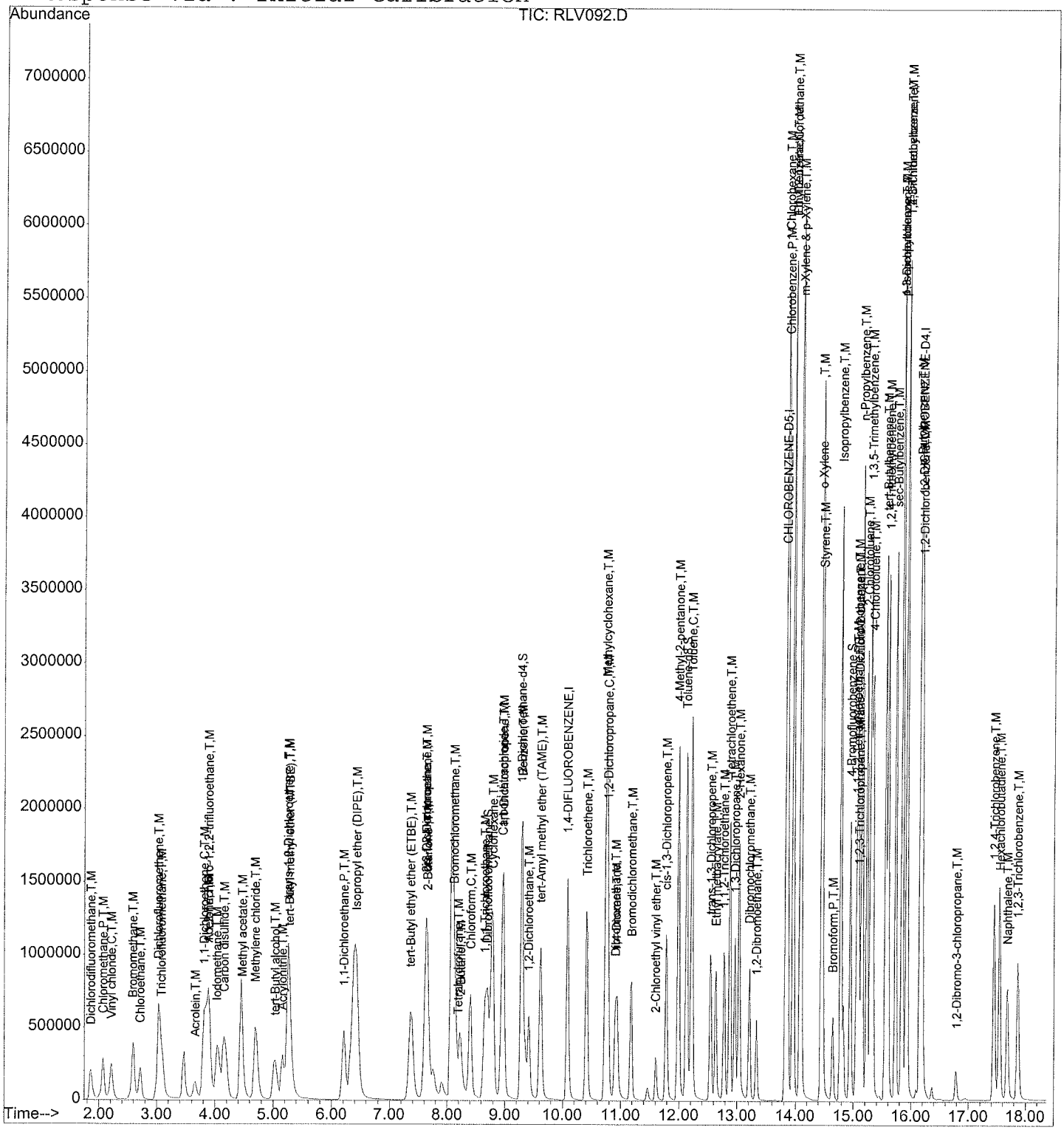
Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
80)	1,3,5-Trimethylbenzene	15.29	105	2443298	8.87	ug/l	100
81)	2-Chlorotoluene	15.23	91	2004173	8.93	ug/l	100
82)	4-Chlorotoluene	15.33	91	2514979	9.64	ug/l	99
83)	tert-Butylbenzene	15.55	134	595038	8.96	ug/l	96
84)	1,2,4-Trimethylbenzene	15.60	105	2337354	8.76	ug/l	99
85)	sec-Butylbenzene	15.73	105	3444374	8.81	ug/l	100
86)	p-Isopropyltoluene	15.83	119	2730306	8.81	ug/l	99
87)	1,3-Dichlorobenzene	15.83	146	1342012	9.48	ug/l	98
88)	1,4-Dichlorobenzene	15.92	146	1350434	9.59	ug/l	97
89)	1,2,3-Trimethylbenzene	15.92	105	2424558	9.83	ug/l	99
90)	n-Butylbenzene	16.14	91	2699828	8.80	ug/l	99
91)	1,2-Dichlorobenzene	16.19	146	1157256	9.46	ug/l	99
92)	1,2-Dibromo-3-chloropropan	16.80	157	94985	11.69	ug/l	98
93)	1,2,4-Trichlorobenzene	17.45	180	699321	10.61	ug/l	99
94)	Hexachlorobutadiene	17.55	225	479543	10.26	ug/l	99
95)	Naphthalene	17.68	128	1052730	10.07	ug/l	100
96)	1,2,3-Trichlorobenzene	17.86	180	515359	10.60	ug/l	99

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

Data File : D:\HPCHEM\1\DATA\19L13\RLV092.D Vial: 2
Acq On : 13 Dec 2019 11:53 am Operator: JCorea
Sample : CVO01K0516 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 11:52 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV092.D Vial: 2
Acq On : 13 Dec 2019 11:53 am Operator: JCorea
Sample : CVO01K0516 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	93	-0.03
2	T,M	Vinyl acetate	10.000	10.738	-7.4	92	-0.05
3	I	CHLOROBENZENE-D5	10.000	10.000	0.0	94	-0.02
4	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	103	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0
RLV092.D VO01K06.M Mon Dec 16 09:42:34 2019 Page 1

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV092.D Vial: 2
Acq On : 13 Dec 2019 11:53 am Operator: JCorea
Sample : CVO01K0516 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	93	-0.03
2	T,M	Vinyl acetate	0.466	0.500	-7.3	92	-0.05
3	I	CHLOROBENZENE-D5	1.000	1.000	0.0	94	-0.02
4	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	103	-0.01

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

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L13\RLV092.D Vial: 2
Acq On : 13 Dec 2019 11:53 am Operator: JCorea
Sample : CVO01K0516 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

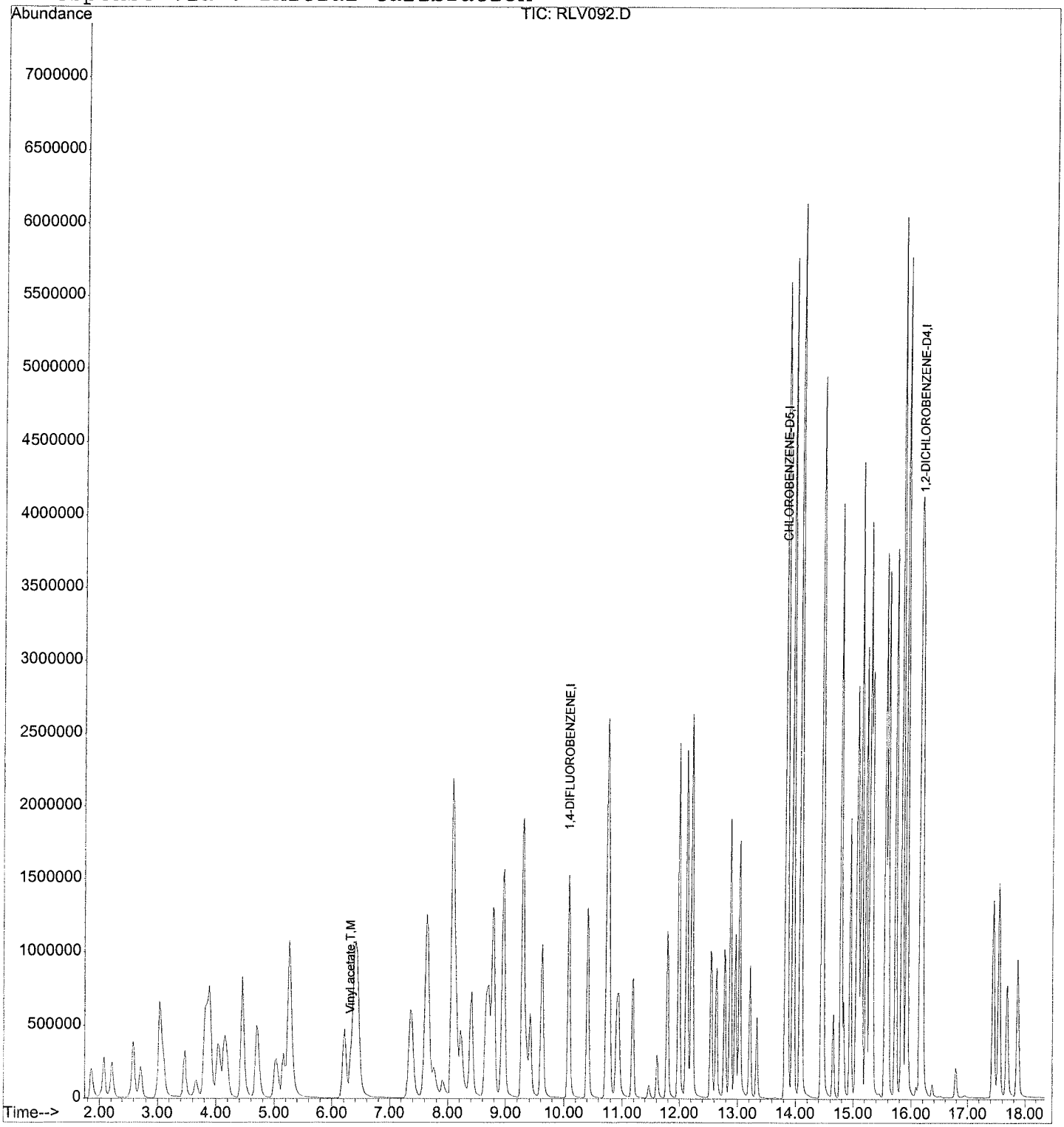
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.08	114	1827455	10.00	ug/l	-0.03
3) CHLOROBENZENE-D5	13.82	117	1691502	10.00	ug/l	-0.02
4) 1,2-DICHLOROBENZENE-D4	16.17	152	729191	10.00	ug/l	-0.01
Target Compounds						Qvalue
2) Vinyl acetate	6.30	43	914488	10.74	ug/l	96

(#) = qualifier out of range (m) = manual integration
RLV092.D VO01K06.M Mon Dec 16 09:42:42 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L13\RLV092.D Vial: 2
Acq On : 13 Dec 2019 11:53 am Operator: JCorea
Sample : CVO01K0516 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 16 9:34 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: EMAX Inc
Lab Code: EMXT Case No.:
Lab File ID: RLV119
Instrument ID: 01
GC Column:RXI-624SILMSID:0.25mm (mm)

Contract: VA SALT LAKE CITY
SAS No.: SDG No.: 19L064
BFB Injection Date : 12/16/19
BFB Injection Time : 09:24
Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.57
75	30.0 - 60.0% of mass 95	46.06
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.52
173	Less than 2.0% of mass 174	0.00(0.0)1
174	Greater than 50% of mass 95	69.26
175	5.0 - 9.0% of mass 174	5.16(7.4)1
176	95.0 - 101.0% of mass 174	66.17(95.5)1
177	5.0 - 9.0% of mass 176	4.83(7.3)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
1	VSTD010	CV001K0517	RLV120	12/16/19	09:56
2	MBLK3W	V001L06B	RLV124	12/16/19	11:47
3	LCS3W	V001L06L	RLV121	12/16/19	10:24
4	LCD3W	V001L06C	RLV122	12/16/19	10:52
5	OU2-MW03RB-GW120819DL	L064-09I	RLV125	12/16/19	12:16
6	OU2-MW08A-GW120819	L064-17	RLV126	12/16/19	12:43
7	OU2-MW14S-GW120719	L064-18	RLV127	12/16/19	13:11
8	OU2-MW05R-GW120819	L064-20	RLV128	12/16/19	13:40
9	OU2-MW08B-GW120819	L064-21	RLV133	12/16/19	16:01
10	OU2-MW03RA-GW120719	L064-08N	RLV134	12/16/19	17:21

FORM 8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : EMAX Inc
Lab Code : EMXT
Lab File ID : RKV038
Instrument ID: 01
GC Column : RXI-624SILMSID:0.25mm (mm)

Project: VA SALT LAKE CITY
SDG No: 19L064
Date Analyzed: 11/05/2019
Time Analyzed: 19:14
Heated Purge (Y/N): N

		1,4-DIFLUOROBENZENE		CHLOROBENZENE-D5		1,2-DICHLOROBENZENE-D4	
		AREA #	RT(min)	AREA #	RT(min)	AREA #	RT(min)
	12 HOUR STD	2058714	10.11	1882015	13.84	742417	16.19
	UPPER LIMIT	4117428	10.28	3764030	14.01	1484834	16.36
	LOWER LIMIT	1029357	9.94	941008	13.67	371209	16.02
	SAMPLE ID						
1	VSTD010	1689467	10.06	1618803	13.81	693660	16.16
2	MBLK3W	1856141	10.08	1692599	13.82	687218	16.17
3	LCS3W	1708694	10.06	1604085	13.81	690350	16.16
4	LCD3W	1791061	10.06	1740914	13.81	753611	16.16
5	OU2-MW03RB-GW120819DL	1787786	10.09	1645919	13.84	652629	16.19
6	OU2-MW08A-GW120819	1759810	10.08	1683391	13.82	712176	16.17
7	OU2-MW14S-GW120719	1773234	10.08	1629103	13.82	675457	16.17
8	OU2-MW05R-GW120819	1683865	10.08	1521676	13.82	592622	16.17
9	OU2-MW08B-GW120819	1618489	10.08	1505655	13.82	599881	16.18
10	OU2-MW03RA-GW120719	1650558	10.08	1497673	13.82	595687	16.17

Area Upper Limit = + 100% of internal standard area
Area Lower Limit = - 50% of internal standard area
RT Upper Limit = + 0.167 min. (10 sec.) of internal standard RT
RT Lower Limit = - 0.167 min. (10 sec.) of internal standard RT

FORM 8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : EMAX Inc
Lab Code : EMXT
Lab File ID : RKV053
Instrument ID: 01
GC Column : RXI-624SILMSID:0.25mm (mm)

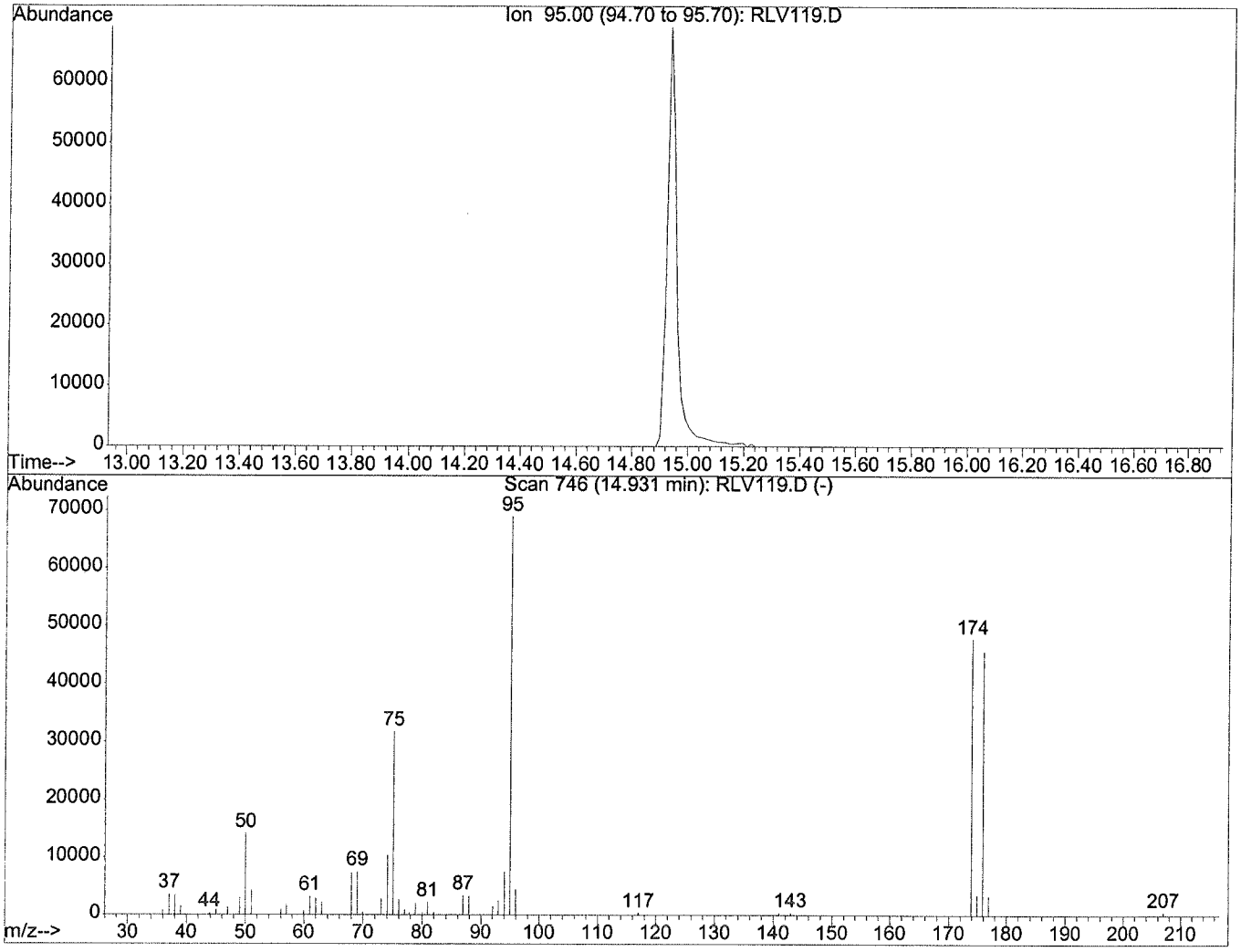
Project: VA SALT LAKE CITY
SDG No: 19L064
Date Analyzed: 11/06/2019
Time Analyzed: 11:41
Heated Purge (Y/N): N

		1,4-DIFLUOROBENZENE		CHLOROBENZENE-D5		1,2-DICHLOROBENZENE-D4	
		AREA #	RT(min)	AREA #	RT(min)	AREA #	RT(min)
	12 HOUR STD	1975136	10.11	1803738	13.84	706724	16.19
	UPPER LIMIT	3950272	10.28	3607476	14.01	1413448	16.36
	LOWER LIMIT	987568	9.94	901869	13.67	353362	16.02
	SAMPLE ID						
1	VSTD010	1689467	10.06	1618803	13.81	693225	16.16
2	MBLK3W	1856141	10.08	1692599	13.82	687218	16.17
3	LCS3W	1708694	10.06	1604085	13.81	690350	16.16
4	LCD3W	1791061	10.06	1740914	13.81	753611	16.16
5	OU2-MW03RB-GW120819DL	1787786	10.09	1645919	13.84	652629	16.19
6	OU2-MW08A-GW120819	1759810	10.08	1683391	13.82	712176	16.17
7	OU2-MW14S-GW120719	1773234	10.08	1629103	13.82	675457	16.17
8	OU2-MW05R-GW120819	1683865	10.08	1521676	13.82	592622	16.17
9	OU2-MW08B-GW120819	1618489	10.08	1505655	13.82	599881	16.18
10	OU2-MW03RA-GW120719	1650558	10.08	1497673	13.82	595687	16.17

Area Upper Limit = + 100% of internal standard area
Area Lower Limit = - 50% of internal standard area
RT Upper Limit = + 0.167 min. (10 sec.) of internal standard RT
RT Lower Limit = - 0.167 min. (10 sec.) of internal standard RT

Data File : D:\HPCHEM\1\DATA\19L16\RLV119.D
Acq On : 16 Dec 2019 9:24 am
Sample : BFB01L06
Misc : T/CHK
MS Integration Params: 524TAIL.P
Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls

Vial: 1
Operator: JCorea
Inst : 01
Multiplr: 1.00



Spectrum Information: Scan 746 - 742

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.6	14203	PASS
75	95	30	60	46.1	31800	PASS
95	95	100	100	100.0	69048	PASS
96	95	5	9	6.5	4502	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	69.3	47824	PASS
175	174	5	9	7.5	3563	PASS
176	174	95	101	95.5	45688	PASS
177	176	5	9	7.3	3332	PASS

RLV119.D VO01K05A.M Tue Dec 17 10:02:54 2019

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV120.D Vial: 2
Acq On : 16 Dec 2019 9:56 am Operator: JCorea
Sample : CVO01K0517 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	82	-0.04
2	T,M	Chlorotrifluoroethylene	-1.000	0.000	0.0	0	-1.94#
3	T,M	Dichlorodifluoromethane	10.000	9.932	0.7	76	0.00
4	P,T,M	Chloromethane	10.000	8.452	15.5	68	0.00
5	C,T,M	Vinyl chloride	10.000	8.383	16.2	67	0.00
6	T,M	2-Chloro-1,1,1-trifluoroeth	-1.000	0.000	0.0	0	-2.43#
7	T,M	Bromomethane	10.000	10.610	-6.1	79	0.00
8	T,M	Chloroethane	10.000	9.821	1.8	74	0.00
9	T,M	Dichlorofluoromethane	10.000	8.752	12.5	70	-0.02
10	T,M	Trichlorofluoromethane	10.000	11.164	-11.6	79	-0.02
11	T,M	Acrolein	50.000	46.363	7.3	70	-0.02
12	T,M	1,1,2-Trichloro-1,2,2-trifl	10.000	10.958	-9.6	89	-0.02
13	T,M	Acetone	50.000	50.730	-1.5	76	-0.02
14	C,T,M	1,1-Dichloroethene	10.000	9.995	0.1	80	-0.02
15	T,M	Iodomethane	10.000	11.087	-10.9	91	-0.02
16	T,M	Carbon disulfide	10.000	9.074	9.3	70	-0.02
17	T,M	Methyl acetate	10.000	10.988	-9.9	77	-0.02
18	T,M	Methylene chloride	10.000	8.876	11.2	76	-0.02
19	T,M	tert-Butyl alcohol	250.000	260.041	-4.0	69	-0.05
20	T,M	Acrylonitrile	50.000	49.503	1.0	75	-0.05
21	T,M	tert-Butyl methyl ether (MT	10.000	10.394	-3.9	79	-0.02
22	T,M	trans-1,2-Dichloroethene	10.000	9.896	1.0	80	-0.05
23	T,M	Vinyl acetate	-1.000	0.000	0.0	0	-0.05
24	P,T,M	1,1-Dichloroethane	10.000	9.220	7.8	75	-0.05
25	T,M	Isopropyl ether (DIPE)	10.000	9.437	5.6	75	-0.05
26	T,M	2-Butanol	250.000	264.704	-5.9	67	-0.05
27	T,M	tert-Butyl ethyl ether (ETB	10.000	9.247	7.5	77	-0.05
28	T,M	2-Butanone	50.000	53.539	-7.1	75	-0.02
29	T,M	cis-1,2-Dichloroethene	10.000	10.467	-4.7	85	-0.05
30	T,M	2,2-Dichloropropane	10.000	10.366	-3.7	82	-0.05
31	T,M	Tetrahydrofurane	10.000	10.577	-5.8	77	-0.05
32	T,M	Bromochloromethane	10.000	9.561	4.4	74	-0.02
33	C,T,M	Chloroform	10.000	9.949	0.5	82	-0.05
34	S	Dibromofluoromethane	10.000	10.609	-6.1	84	-0.04
35	T,M	1,1,1-Trichloroethane	10.000	10.557	-5.6	84	-0.04
36	T,M	Cyclohexane	10.000	10.261	-2.6	77	-0.04
37	T,M	tert-Amyl methyl ether (TAM	10.000	10.571	-5.7	81	-0.03
38	S	1,2-Dichloroethane-d4	10.000	10.074	-0.7	77	-0.03
39	T,M	1,1-Dichloropropene	10.000	10.856	-8.6	88	-0.04
40	T,M	Carbon tetrachloride	10.000	11.036	-10.4	88	-0.03
41	T,M	Benzene	10.000	9.482	5.2	77	-0.03

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV120.D Vial: 2
Acq On : 16 Dec 2019 9:56 am Operator: JCorea
Sample : CVO01K0517 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
42	T,M	1,2-Dichloroethane	10.000	10.364	-3.6	80	-0.04
43	T,M	2,2,4-Trimethylpentane	10.000	0.000	100.0#	0	-9.59#
44	T,M	Trichloroethene	10.000	9.967	0.3	83	-0.04
45	T,M	Methylcyclohexane	10.000	10.402	-4.0	78	-0.03
46	C,T,M	1,2-Dichloropropane	10.000	9.478	5.2	77	-0.03
47	T,M	1,4-Dioxane	200.000	187.868	6.1	69	-0.03
48	T,M	Dibromomethane	10.000	10.960	-9.6	82	-0.03
49	T,M	Bromodichloromethane	10.000	10.339	-3.4	81	-0.04
50	T,M	2-Chloroethyl vinyl ether	10.000	6.645	33.6#	57	-0.03
51	T,M	cis-1,3-Dichloropropene	10.000	10.241	-2.4	80	-0.03
52	T,M	4-Methyl-2-pentanone	50.000	52.933	-5.9	75	-0.03
53	I	CHLOROBENZENE-D5	10.000	10.000	0.0	86	-0.03
54	S	Toluene-d8	10.000	9.300	7.0	79	-0.03
55	C,T,M	Toluene	10.000	9.893	1.1	86	-0.03
56	T,M	Ethyl methacrylate	10.000	9.582	4.2	77	-0.02
57	T,M	trans-1,3-Dichloropropene	10.000	10.290	-2.9	84	-0.02
58	T,M	1,1,2-Trichloroethane	10.000	10.022	-0.2	85	-0.02
59	T,M	Tetrachloroethene	10.000	10.677	-6.8	92	-0.03
60	T,M	1,3-Dichloropropane	10.000	9.839	1.6	80	-0.03
61	T,M	2-Hexanone	50.000	46.215	7.6	74	-0.01
62	T,M	Dibromochloromethane	10.000	10.894	-8.9	86	-0.03
63	T,M	1,2-Dibromoethane	10.000	10.115	-1.2	82	-0.03
64	T,M	1-Chlorohexane	10.000	9.800	2.0	84	-0.02
65	P,M	Chlorobenzene	10.000	10.208	-2.1	85	-0.03
66	T,M	1,1,1,2-Tetrachloroethane	10.000	10.775	-7.8	88	-0.03
67	C,T,M	Ethylbenzene	10.000	9.972	0.3	84	-0.03
68	T,M	m-Xylene & p-Xylene	20.000	20.330	-1.6	83	-0.03
69	T,M	o-Xylene	10.000	9.971	0.3	84	-0.01
70	T,M	Styrene	10.000	10.068	-0.7	84	-0.02
71	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	93	-0.03
72	P,T,M	Bromoform	10.000	11.238	-12.4	95	-0.03
73	T,M	Isopropylbenzene	10.000	8.892	11.1	82	-0.03
74	S	4-Bromofluorobenzene	10.000	8.618	13.8	81	-0.03
75	P,T,M	1,1,2,2-Tetrachloroethane	10.000	9.104	9.0	79	-0.02
76	T,M	Bromobenzene	10.000	9.904	1.0	90	-0.02
77	T,M	trans-1,4-Dichloro-2-butene	10.000	11.121	-11.2	90	-0.02
78	T,M	1,2,3-Trichloropropane	10.000	9.915	0.9	85	-0.03
79	T,M	n-Propylbenzene	10.000	9.342	6.6	84	-0.03
80	T,M	1,3,5-Trimethylbenzene	10.000	8.853	11.5	82	-0.03

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV120.D Vial: 2
Acq On : 16 Dec 2019 9:56 am Operator: JCorea
Sample : CVO01K0517 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
81	T,M	2-Chlorotoluene	10.000	9.196	8.0	84	-0.03
82	T,M	4-Chlorotoluene	10.000	9.427	5.7	85	-0.02
83	T,M	tert-Butylbenzene	10.000	9.009	9.9	82	-0.03
84	T,M	1,2,4-Trimethylbenzene	10.000	8.920	10.8	79	-0.03
85	T,M	sec-Butylbenzene	10.000	9.011	9.9	83	-0.01
86	T,M	p-Isopropyltoluene	10.000	8.849	11.5	80	-0.02
87	T,M	1,3-Dichlorobenzene	10.000	9.721	2.8	88	-0.03
88	T,M	1,4-Dichlorobenzene	10.000	9.599	4.0	87	-0.02
89	T,M	1,2,3-Trimethylbenzene	10.000	9.800	2.0	88	-0.03
90	T,M	n-Butylbenzene	10.000	8.854	11.5	81	-0.02
91	T,M	1,2-Dichlorobenzene	10.000	9.493	5.1	88	-0.03
92	T,M	1,2-Dibromo-3-chloropropane	10.000	11.243	-12.4	90	-0.02
93	T,M	1,2,4-Trichlorobenzene	10.000	11.012	-10.1	95	-0.03
94	T,M	Hexachlorobutadiene	10.000	10.617	-6.2	96	-0.03
95	T,M	Naphthalene	10.000	9.557	4.4	79	-0.03
96	T,M	1,2,3-Trichlorobenzene	10.000	11.001	-10.0	95	-0.03

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV120.D Vial: 2
Acq On : 16 Dec 2019 9:56 am Operator: JCorea
Sample : CVO01K0517 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	82	-0.04
2	T,M	Chlorotrifluoroethylene	0.000	0.000	0.0	0#	-1.94#
3	T,M	Dichlorodifluoromethane	0.277	0.275	0.7	76	0.00
4	P,T,M	Chloromethane	0.383	0.324	15.4	68	0.00
5	C,T,M	Vinyl chloride	0.375	0.336	10.4	67	0.00
6	T,M	2-Chloro-1,1,1-trifluoroeth	0.000	0.000	0.0	0#	-2.43#
7	T,M	Bromomethane	0.273	0.289	-5.9	79	0.00
8	T,M	Chloroethane	0.221	0.217	1.8	74	0.00
9	T,M	Dichlorofluoromethane	0.554	0.485	12.5	70	-0.02
10	T,M	Trichlorofluoromethane	0.386	0.431	-11.7	79	-0.02
11	T,M	Acrolein	0.028	0.026	7.1	70	-0.02
12	T,M	1,1,2-Trichloro-1,2,2-trifl	0.212	0.232	-9.4	89	-0.02
13	T,M	Acetone	0.056	0.057	-1.8	76	-0.02
14	C,T,M	1,1-Dichloroethene	0.550	0.549	0.2	80	-0.02
15	T,M	Iodomethane	0.563	0.625	-11.0	91	-0.02
16	T,M	Carbon disulfide	1.174	1.066	9.2	70	-0.02
17	T,M	Methyl acetate	0.135	0.149	-10.4	77	-0.02
18	T,M	Methylene chloride	0.509	0.452	11.2	76	-0.02
19	T,M	tert-Butyl alcohol	0.018	0.018	0.0	69	-0.05
20	T,M	Acrylonitrile	0.057	0.057	0.0	75	-0.05
21	T,M	tert-Butyl methyl ether (MT	0.611	0.636	-4.1	79	-0.02
22	T,M	trans-1,2-Dichloroethene	0.540	0.534	1.1	80	-0.05
23	T,M	Vinyl acetate	0.000	0.000	0.0	0#	-0.05
24	P,T,M	1,1-Dichloroethane	0.679	0.626	7.8	75	-0.05
25	T,M	Isopropyl ether (DIPE)	1.204	1.136	5.6	75	-0.05
26	T,M	2-Butanol	0.017	0.017	0.0	67	-0.05
27	T,M	tert-Butyl ethyl ether (ETB	0.977	0.903	7.6	77	-0.05
28	T,M	2-Butanone	0.085	0.091	-7.1	75	-0.02
29	T,M	cis-1,2-Dichloroethene	0.355	0.372	-4.8	85	-0.05
30	T,M	2,2-Dichloropropane	0.441	0.457	-3.6	82	-0.05
31	T,M	Tetrahydrofurane	0.057	0.061	-7.0	77	-0.05
32	T,M	Bromochloromethane	0.310	0.296	4.5	74	-0.02
33	C,T,M	Chloroform	0.654	0.651	0.5	82	-0.05
34	S	Dibromofluoromethane	0.318	0.338	-6.3	84	-0.04
35	T,M	1,1,1-Trichloroethane	0.467	0.493	-5.6	84	-0.04
36	T,M	Cyclohexane	0.498	0.511	-2.6	77	-0.04
37	T,M	tert-Amyl methyl ether (TAM	0.760	0.804	-5.8	81	-0.03
38	S	1,2-Dichloroethane-d4	0.278	0.280	-0.7	77	-0.03
39	T,M	1,1-Dichloropropene	0.167	0.181	-8.4	88	-0.04
40	T,M	Carbon tetrachloride	0.408	0.450	-10.3	88	-0.03
41	T,M	Benzene	1.267	1.202	5.1	77	-0.03

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV120.D Vial: 2
Acq On : 16 Dec 2019 9:56 am Operator: JCorea
Sample : CVO01K0517 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
42	T,M	1,2-Dichloroethane	0.341	0.354	-3.8	80	-0.04
43	T,M	2,2,4-Trimethylpentane	1.704	0.000	100.0#	0#	-9.59#
44	T,M	Trichloroethene	0.397	0.396	0.3	83	-0.04
45	T,M	Methylcyclohexane	0.643	0.669	-4.0	78	-0.03
46	C,T,M	1,2-Dichloropropane	0.378	0.358	5.3	77	-0.03
47	T,M	1,4-Dioxane	0.002	0.002	0.0	69	-0.03
48	T,M	Dibromomethane	0.170	0.186	-9.4	82	-0.03
49	T,M	Bromodichloromethane	0.419	0.433	-3.3	81	-0.04
50	T,M	2-Chloroethyl vinyl ether	0.115	0.090	21.7#	57	-0.03
51	T,M	cis-1,3-Dichloropropene	0.523	0.535	-2.3	80	-0.03
52	T,M	4-Methyl-2-pentanone	0.237	0.251	-5.9	75	-0.03
53	I	CHLOROBENZENE-D5	1.000	1.000	0.0	86	-0.03
54	S	Toluene-d8	1.276	1.187	7.0	79	-0.03
55	C,T,M	Toluene	1.618	1.601	1.1	86	-0.03
56	T,M	Ethyl methacrylate	0.390	0.374	4.1	77	-0.02
57	T,M	trans-1,3-Dichloropropene	0.468	0.481	-2.8	84	-0.02
58	T,M	1,1,2-Trichloroethane	0.258	0.258	0.0	85	-0.02
59	T,M	Tetrachloroethene	0.341	0.364	-6.7	92	-0.03
60	T,M	1,3-Dichloropropane	0.503	0.495	1.6	80	-0.03
61	T,M	2-Hexanone	0.190	0.190	0.0	74	-0.01
62	T,M	Dibromochloromethane	0.326	0.355	-8.9	86	-0.03
63	T,M	1,2-Dibromoethane	0.274	0.277	-1.1	82	-0.03
64	T,M	1-Chlorohexane	0.692	0.678	2.0	84	-0.02
65	P,M	Chlorobenzene	1.044	1.065	-2.0	85	-0.03
66	T,M	1,1,1,2-Tetrachloroethane	0.362	0.390	-7.7	88	-0.03
67	C,T,M	Ethylbenzene	2.016	2.010	0.3	84	-0.03
68	T,M	m-Xylene & p-Xylene	1.468	1.492	-1.6	83	-0.03
69	T,M	o-Xylene	1.425	1.421	0.3	84	-0.01
70	T,M	Styrene	1.167	1.175	-0.7	84	-0.02
71	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	93	-0.03
72	P,T,M	Bromoform	0.405	0.455	-12.3	95	-0.03
73	T,M	Isopropylbenzene	4.958	4.408	11.1	82	-0.03
74	S	4-Bromofluorobenzene	1.229	1.059	13.8	81	-0.03
75	P,T,M	1,1,2,2-Tetrachloroethane	0.904	0.823	9.0	79	-0.02
76	T,M	Bromobenzene	1.051	1.041	1.0	90	-0.02
77	T,M	trans-1,4-Dichloro-2-butene	0.171	0.190	-11.1	90	-0.02
78	T,M	1,2,3-Trichloropropane	0.226	0.224	0.9	85	-0.03
79	T,M	n-Propylbenzene	5.975	5.582	6.6	84	-0.03
80	T,M	1,3,5-Trimethylbenzene	3.777	3.344	11.5	82	-0.03

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV120.D Vial: 2
Acq On : 16 Dec 2019 9:56 am Operator: JCorea
Sample : CVO01K0517 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
81	T,M	2-Chlorotoluene	3.079	2.832	8.0	84	-0.03
82	T,M	4-Chlorotoluene	3.577	3.372	5.7	85	-0.02
83	T,M	tert-Butylbenzene	0.911	0.821	9.9	82	-0.03
84	T,M	1,2,4-Trimethylbenzene	3.659	3.263	10.8	79	-0.03
85	T,M	sec-Butylbenzene	5.362	4.831	9.9	83	-0.01
86	T,M	p-Isopropyltoluene	4.248	3.759	11.5	80	-0.02
87	T,M	1,3-Dichlorobenzene	1.941	1.887	2.8	88	-0.03
88	T,M	1,4-Dichlorobenzene	1.932	1.854	4.0	87	-0.02
89	T,M	1,2,3-Trimethylbenzene	3.382	3.314	2.0	88	-0.03
90	T,M	n-Butylbenzene	4.206	3.724	11.5	81	-0.02
91	T,M	1,2-Dichlorobenzene	1.677	1.592	5.1	88	-0.03
92	T,M	1,2-Dibromo-3-chloropropane	0.111	0.125	-12.6	90	-0.02
93	T,M	1,2,4-Trichlorobenzene	0.904	0.995	-10.1	95	-0.03
94	T,M	Hexachlorobutadiene	0.641	0.680	-6.1	96	-0.03
95	T,M	Naphthalene	1.434	1.371	4.4	79	-0.03
96	T,M	1,2,3-Trichlorobenzene	0.667	0.734	-10.0	95	-0.03

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV120.D Vial: 2
Acq On : 16 Dec 2019 9:56 am Operator: JCorea
Sample : CVO01K0517 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 10:04 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.06	114	1689467	10.00	ug/l	-0.04
53) CHLOROBENZENE-D5	13.81	117	1618803	10.00	ug/l	-0.03
71) 1,2-DICHLOROBENZENE-D4	16.16	152	693660	10.00	ug/l	-0.03
System Monitoring Compounds						
34) Dibromofluoromethane	8.68	111	570204	10.61	ug/l	-0.04
Spiked Amount 10.000			Recovery = 106.10%			
38) 1,2-Dichloroethane-d4	9.26	65	473024	10.07	ug/l	-0.03
Spiked Amount 10.000			Recovery = 100.70%			
54) Toluene-d8	12.10	98	1920809	9.30	ug/l	-0.03
Spiked Amount 10.000			Recovery = 93.00%			
74) 4-Bromofluorobenzene	14.93	95	734609	8.62	ug/l	-0.03
Spiked Amount 10.000			Recovery = 86.20%			
Target Compounds						Qvalue
3) Dichlorodifluoromethane	1.85	85	464475	9.93	ug/l	97
4) Chloromethane	2.07	50	546955	8.45	ug/l	100
5) Vinyl chloride	2.21	62	567158	8.38	ug/l	99
7) Bromomethane	2.59	94	488930	10.61	ug/l	100
8) Chloroethane	2.71	64	366928	9.82	ug/l	96
9) Dichlorofluoromethane	3.03	67	819576	8.75	ug/l	96
10) Trichlorofluoromethane	3.08	101	728580	11.16	ug/l	97
11) Acrolein	3.64	56	218219	46.36	ug/l	98
12) 1,1,2-Trichloro-1,2,2-trif	3.88	151	392530	10.96	ug/l	99
13) Acetone	3.88	43	483503	50.73	ug/l	99
14) 1,1-Dichloroethene	3.81	61	928070	9.99	ug/l	97
15) Iodomethane	4.03	142	1055542	11.09	ug/l	100
16) Carbon disulfide	4.15	76	1800223	9.07	ug/l	99
17) Methyl acetate	4.47	43	251154	10.99	ug/l	96
18) Methylene chloride	4.69	49	762889	8.88	ug/l	95
19) tert-Butyl alcohol	5.01	59	774043	260.04	ug/l	98
20) Acrylonitrile	5.13	53	478069	49.50	ug/l	99
21) tert-Butyl methyl ether (M	5.28	73	1073739	10.39	ug/l	100
22) trans-1,2-Dichloroethene	5.23	61	902087	9.90	ug/l	95
24) 1,1-Dichloroethane	6.18	63	1058324	9.22	ug/l	98
25) Isopropyl ether (DIPE)	6.40	45	1919199	9.44	ug/l	97
26) 2-Butanol	8.21	45	725072	264.70	ug/l	97
27) tert-Butyl ethyl ether (ET	7.36	59	1526363	9.25	ug/l	96
28) 2-Butanone	7.65	43	771430	53.54	ug/l	97
29) cis-1,2-Dichloroethene	7.60	96	628127	10.47	ug/l	92
30) 2,2-Dichloropropane	7.60	77	772215	10.37	ug/l	99
31) Tetrahydrofurane	8.16	42	102287	10.58	ug/l	98

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

Data File : D:\HPCHEM\1\DATA\19L16\RLV120.D Vial: 2
Acq On : 16 Dec 2019 9:56 am Operator: JCorea
Sample : CVO01K0517 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 10:04 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32)	Bromochloromethane	8.12	49	500683	9.56 ug/l	90
33)	Chloroform	8.38	83	1099790	9.95 ug/l	98
35)	1,1,1-Trichloroethane	8.64	97	832455	10.56 ug/l	98
36)	Cyclohexane	8.76	84	864049	10.26 ug/l	98
37)	tert-Amyl methyl ether (TA	9.60	73	1357672	10.57 ug/l	98
39)	1,1-Dichloropropene	8.95	110	306545	10.86 ug/l	98
40)	Carbon tetrachloride	8.94	119	760106	11.04 ug/l	98
41)	Benzene	9.28	78	2029916	9.48 ug/l	99
42)	1,2-Dichloroethane	9.39	62	597876	10.36 ug/l	99
44)	Trichloroethene	10.39	130	669310	9.97 ug/l	99
45)	Methylcyclohexane	10.73	83	1129580	10.40 ug/l	96
46)	1,2-Dichloropropane	10.76	63	604640	9.48 ug/l	93
47)	1,4-Dioxane	10.90	88	53803	187.87 ug/l	95
48)	Dibromomethane	10.89	93	313964	10.96 ug/l	93
49)	Bromodichloromethane	11.16	83	732346	10.34 ug/l	98
50)	2-Chloroethyl vinyl ether	11.59	63	152833	6.65 ug/l	98
51)	cis-1,3-Dichloropropene	11.76	75	904562	10.24 ug/l	98
52)	4-Methyl-2-pentanone	11.97	43	2122640	52.93 ug/l	98
55)	Toluene	12.19	91	2591275	9.89 ug/l	100
56)	Ethyl methacrylate	12.62	69	604664	9.58 ug/l	98
57)	trans-1,3-Dichloropropene	12.53	75	778780	10.29 ug/l	97
58)	1,1,2-Trichloroethane	12.77	97	418075	10.02 ug/l	97
59)	Tetrachloroethene	12.86	164	588805	10.68 ug/l	94
60)	1,3-Dichloropropane	12.95	76	801773	9.84 ug/l	98
61)	2-Hexanone	13.02	43	1539434	46.22 ug/l	100
62)	Dibromochloromethane	13.20	129	574462	10.89 ug/l	97
63)	1,2-Dibromoethane	13.32	107	448927	10.11 ug/l	100
64)	1-Chlorohexane	13.84	91	1097288	9.80 ug/l	99
65)	Chlorobenzene	13.84	112	1724480	10.21 ug/l	99
66)	1,1,1,2-Tetrachloroethane	13.94	131	630959	10.77 ug/l	100
67)	Ethylbenzene	13.94	91	3253787	9.97 ug/l	100
68)	m-Xylene & p-Xylene	14.07	91	4830427	20.33 ug/l	99
69)	o-Xylene	14.44	91	2299666	9.97 ug/l	99
70)	Styrene	14.46	104	1902664	10.07 ug/l	100
72)	Bromoform	14.63	173	315731	11.24 ug/l	99
73)	Isopropylbenzene	14.77	105	3057889	8.89 ug/l	99
75)	1,1,2,2-Tetrachloroethane	15.03	83	570729	9.10 ug/l	98
76)	Bromobenzene	15.06	156	722077	9.90 ug/l	99
77)	trans-1,4-Dichloro-2-buten	15.06	53	132022	11.12 ug/l	95
78)	1,2,3-Trichloropropane	15.08	110	155610	9.91 ug/l	97
79)	n-Propylbenzene	15.12	91	3871762	9.34 ug/l	99

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

Data File : D:\HPCHEM\1\DATA\19L16\RLV120.D Vial: 2
Acq On : 16 Dec 2019 9:56 am Operator: JCorea
Sample : CVO01K0517 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 10:04 2019 Quant Results File: VO01K05A.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

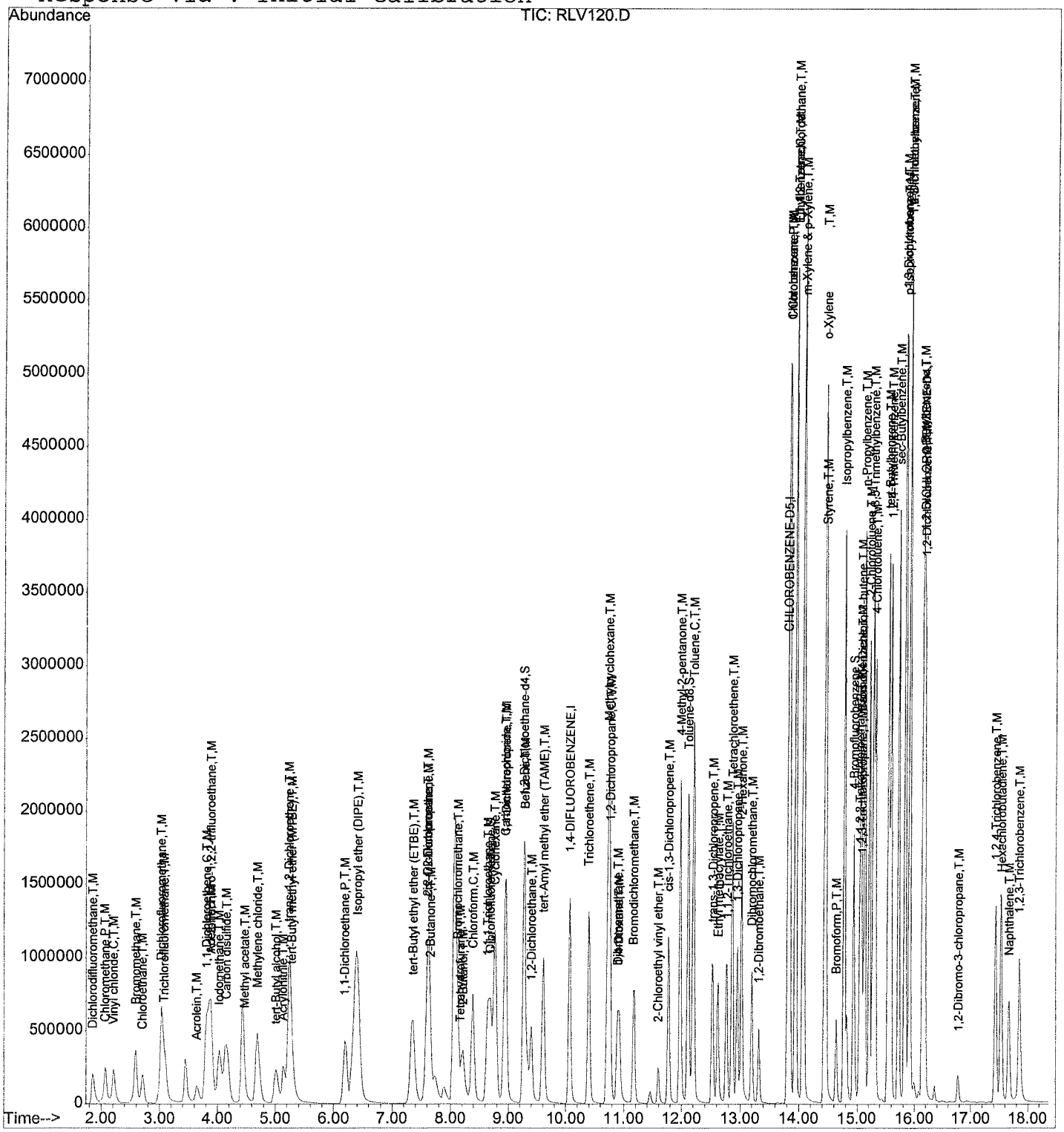
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
80)	1,3,5-Trimethylbenzene	15.27	105	2319378	8.85	ug/l	100
81)	2-Chlorotoluene	15.21	91	1964279	9.20	ug/l	100
82)	4-Chlorotoluene	15.32	91	2338730	9.43	ug/l	99
83)	tert-Butylbenzene	15.54	134	569283	9.01	ug/l	92
84)	1,2,4-Trimethylbenzene	15.58	105	2263700	8.92	ug/l	96
85)	sec-Butylbenzene	15.72	105	3351318	9.01	ug/l	100
86)	p-Isopropyltoluene	15.83	119	2607515	8.85	ug/l	98
87)	1,3-Dichlorobenzene	15.82	146	1308972	9.72	ug/l	98
88)	1,4-Dichlorobenzene	15.91	146	1286064	9.60	ug/l	98
89)	1,2,3-Trimethylbenzene	15.91	105	2298757	9.80	ug/l	99
90)	n-Butylbenzene	16.14	91	2582911	8.85	ug/l	100
91)	1,2-Dichlorobenzene	16.17	146	1104481	9.49	ug/l	99
92)	1,2-Dibromo-3-chloropropan	16.78	157	86878	11.24	ug/l	99
93)	1,2,4-Trichlorobenzene	17.43	180	690315	11.01	ug/l	98
94)	Hexachlorobutadiene	17.54	225	471858	10.62	ug/l	97
95)	Naphthalene	17.67	128	950880	9.56	ug/l	99
96)	1,2,3-Trichlorobenzene	17.85	180	508887	11.00	ug/l	99

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

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV120.D Vial: 2
Acq On : 16 Dec 2019 9:56 am Operator: JCorea
Sample : CVO01K0517 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 10:04 2019 Quant Results File: VO01K05A.RES

Method : D:\HPCHEM\1\METHODS\VO01K05A.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Fri Nov 22 12:38:01 2019
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV120.D Vial: 2
Acq On : 16 Dec 2019 9:56 am Operator: JCorea
Sample : CVO01K0517 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	10.000	10.000	0.0	86	-0.04
2	T,M	Vinyl acetate	10.000	9.543	4.6	76	-0.05
3	I	CHLOROBENZENE-D5	10.000	10.000	0.0	90	-0.03
4	I	1,2-DICHLOROBENZENE-D4	10.000	10.000	0.0	98	-0.03

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

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV120.D Vial: 2
Acq On : 16 Dec 2019 9:56 am Operator: JCorea
Sample : CVO01K0517 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.16min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-DIFLUOROBENZENE	1.000	1.000	0.0	86	-0.04
2	T,M	Vinyl acetate	0.466	0.445	4.5	76	-0.05
3	I	CHLOROBENZENE-D5	1.000	1.000	0.0	90	-0.03
4	I	1,2-DICHLOROBENZENE-D4	1.000	1.000	0.0	98	-0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0
RLV120.D VO01K06.M Tue Dec 17 09:49:15 2019 Page 1

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\19L16\RLV120.D Vial: 2
Acq On : 16 Dec 2019 9:56 am Operator: JCorea
Sample : CVO01K0517 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Quant Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration
DataAcq Meth : VO01K05

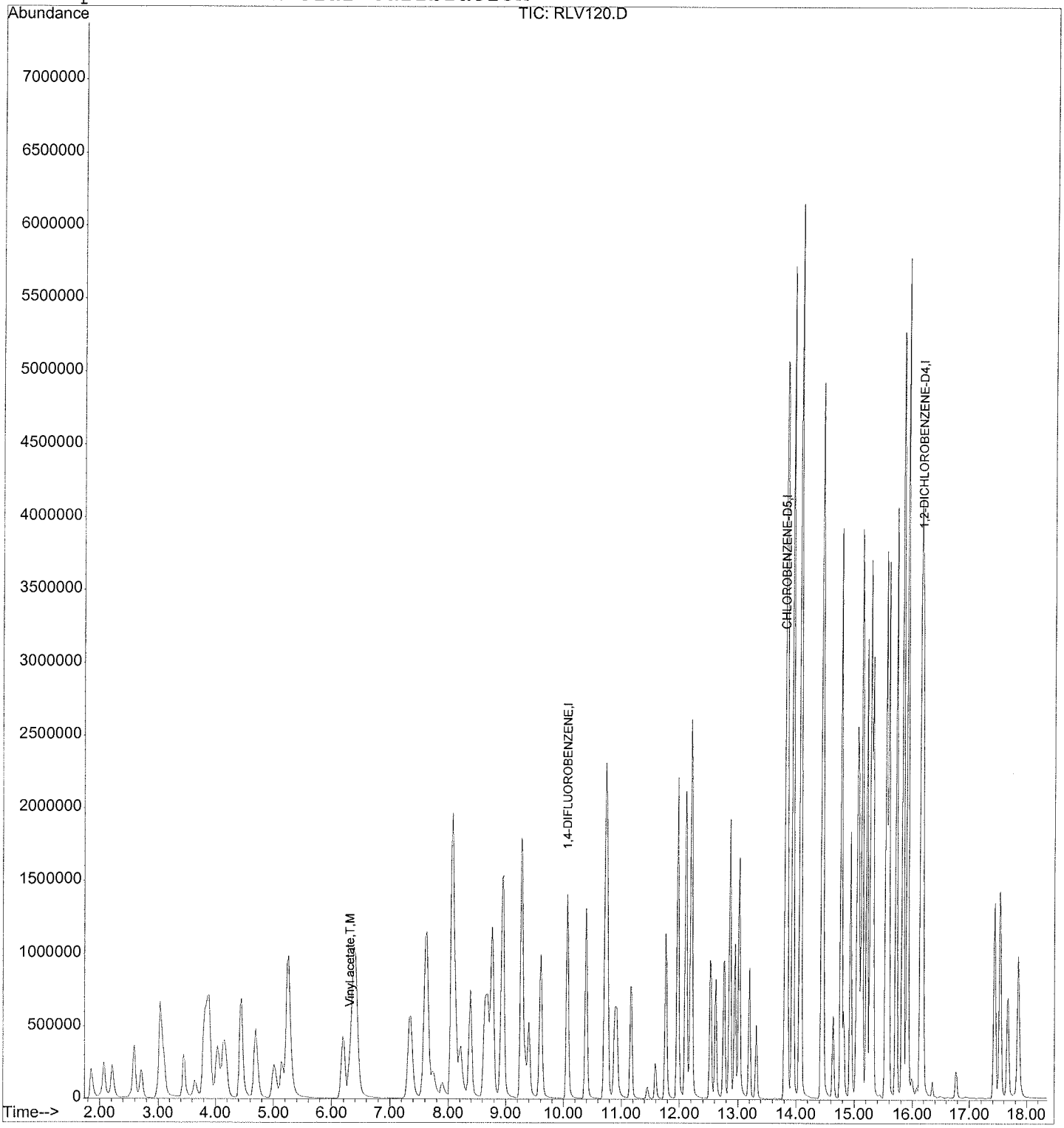
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-DIFLUOROBENZENE	10.06	114	1689467	10.00	ug/l	-0.04
3) CHLOROBENZENE-D5	13.81	117	1618803	10.00	ug/l	-0.03
4) 1,2-DICHLOROBENZENE-D4	16.16	152	693225	10.00	ug/l	-0.03
Target Compounds						Qvalue
2) Vinyl acetate	6.31	43	751334	9.54	ug/l	94

(#) = qualifier out of range (m) = manual integration
RLV120.D VO01K06.M Tue Dec 17 09:49:22 2019 Page 1

Quantitation Report

Data File : D:\HPCHEM\1\DATA\19L16\RLV120.D Vial: 2
Acq On : 16 Dec 2019 9:56 am Operator: JCorea
Sample : CVO01K0517 Inst : 01
Misc : 10ppb 8260/50ppb KET-AA/250ppb TBA Multiplr: 1.00
MS Integration Params: 524TAIL.P
Quant Time: Dec 17 9:47 2019 Quant Results File: VO01K06.RES

Method : D:\HPCHEM\1\METHODS\VO01K06.M (RTE Integrator)
Title : METHOD 8260 25mls
Last Update : Mon Nov 18 10:53:29 2019
Response via : Initial Calibration



ANALYTICAL LOG(S)

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR VOLATILES

SOP ☑ EMAX-8260 Rev.No. 10 ☐ EMAX-8260C Rev. No. 1 ☐ EMAX-8260SIM Rev.No. 1 ☐ EMAX-M8260SIM Rev.No. 0 ☐ EMAX-TCPSIM Rev.No. 2 ☐ EMAX-624 Rev.No. 5 ☐ EMAX-624.1 Rev.No. 0

Start Date: 12/12/19 ☐ 5-mL Purge ☐ 10-mL Purge ☑ 25-mL Purge

Book #: A01-062

BATCH CV001K015

	Sample Prep ID	Data File Name	Lab Sample ID	Sample Amount	DF	Matrix W pH <2	Matrix W Cl_2 <5ppm	Matrix S	Notes
01	RLV073		BFB01L04						9:28
02	074		CV001K015						
03	075		V001L04L						
04	076		↓ C						
05	077		Rinse						
06	078		V001L04R	25mL	1.0				
07	079		19L064-05	↓	↓	✓	✓		
08	080		-16			✓	✓		
09	081		-19			✓	✓		
10	082		-22			✓	✓		
11	083		-13			✓	✓		
12	084		-01			✓	✓		
13	085		-02			✓	✓		NO ISISS Spike
14	086		-03			✓	✓		
15	087		19L068-01 IV			✓	✓		Conformation Only
16	088		19L064-04			✓	✓		
17	089		19L064-06			✓	✓		
18	090		19L064-07	↓	↓	✓	✓		1st Injection Machine Stopped NOT Using 18:51
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

Instrument No.	01
INITIAL CALIBRATION REFERENCE	
DATE	11/05/19
ICAL ID	V001K05M V001K06

STANDARDS

NAME	ID	Amount (µl)	Conc. (mg/L)
DCC	SVI-33-33-02	1	
DCC	-33-28-01	1	
DCC	-33-32-01	5	
DCC	-33-36-01 -33-43-01	5	
BFB	-33-34-01	1	
IS/SURR.	-33-41-02	5	Fd/25U/1250
ICV/LCS	-33-26-01	1	
ICV/LCS	-32-82-03	1	
ICV/LCS	-33-42-03 -33-29-03	5	
ICV/LCS	↓ -33-12-02 02 DC	5	
Data File Folder	19L12		

	LOT #	Syringe Lot #
pH strip	HC863463	MSV-01-01-02
Chlorine strip	913013	MSV-02-01-06-01
Methanol		
$NaHSO_4$		
Reagent Water	RW3-19-001	
Sand		

Electronic Data Archival Location	Date
HPCHEM_VOA/TO01	

Comments:

Analyzed By: JJC

Date Disposed: 12/13/19 Disposed By: JJC

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR VOLATILES

SOP ☑ EMAX-8260 Rev.No. 10 ☑ EMAX-8260C Rev. No. 1 ☐ EMAX-8260SIM Rev.No. 1 ☐ EMAX-M8260SIM Rev.No. 0 ☐ EMAX-TCPSIM Rev.No. 2 ☐ EMAX-624 Rev.No. 5 ☐ EMAX-624.1 Rev.No. 0

Start Date: 12/13/19 ☐ 5-mL Purge ☐ 10-mL Purge ☑ 25-mL Purge **Book #:** A01-062

BATCH CV001K0516

	Sample Prep ID	Data File Name	Lab Sample ID	Sample Amount	DF	Matrix W pH <2	Matrix W Cl_2 <5ppm	Matrix S	Notes
01		R2V091	BFB01L05						11:23
02		092	CV001K0516						
03		093	V001L05L						
04		094	↓ C						
05		095	Rinse						
06		096	V001L05B						
07		097	19L083-06I	1mL	25	✓	✓		
08		098	-01I			✓	✓		
09		099	-02I			✓	✓		
10		100	-05I			✓	✓		Not Using
11		101	Rinse						
12		102	19L083-05J	0.5mL	50	✓	✓		
13		103	↓ -06N	25mL	1.0	✓	✓		
14		104	Rinse						
15		105	19L064-02N	25mL	1.0	✓	✓		
16		106	-07N			✓	✓		
17		107	-07M			✓	✓		
18		108	-07S			✓	✓		
19		109	-08 X			✓	✓		
20		110	-09			✓	✓		Need Dilution 10X
21		111	-10			✓	✓		
22		112	-11			✓	✓		
23		113	-12			✓	✓		
24		114	-14			✓	✓		
25		115	-15			✓	✓		23:15
26		116	Rinse						
27		117							
28									
29									
30									JJC 12/16/19

	Instrument No.	01
	INITIAL CALIBRATION REFERENCE	
DATE	11/05/19	
ICAL ID	V001K05A/V001K0C	
	STANDARDS	

NAME	ID	Amount (µl)	Conc. (mg/L)
DCC	SV1-33-33-02	1	
DCC	-33-28-01	1	
DCC	-33-48-01	5	
DCC	-33-36-01 -33-43-01	5 1	
BFB	-33-34-01	1	
IS/SURR.	-33-41-02	5	50/250/1250
ICV/LCS	-33-26-01	1	
ICV/LCS	-33-82-03	1	
ICV/LCS	-33-42-01	5	
ICV/LCS	-33-29-03 33-13-02	5 5	
Data File Folder	19L13		

	LOT #	Syringe Lot #
pH strip	HC863463	MSV-01-01-02
Chlorine strip	9/30 13	MSV-02-01-06-01
Methanol		MSV-01-01-07-01
$NaHSO_4$		
Reagent Water	RW3-19-001	
Sand		

Electronic Data Archival Location	Date
HPCHEM_VOA/T001	

Comments:

Analyzed By: JJC

Date Disposed: 12/16/19 Disposed By: JJC

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR VOLATILES

SOP ☑ EMAX-8260 Rev.No. 10 ☐ EMAX-8260C Rev. No. 1 ☐ EMAX-8260SIM Rev.No. 1 ☐ EMAX-M8260SIM Rev.No. 0 ☐ EMAX-TCPSIM Rev.No. 2 ☐ EMAX-624 Rev.No. 5 ☐ EMAX-624.1 Rev.No. 0

Start Date: 12/16/19 ☐ 5-mL Purge ☐ 10-mL Purge ☑ 25-mL Purge

Book #: A01-062

BATCH CV001K0517

	Sample Prep ID	Data File Name	Lab Sample ID	Sample Amount	DF	Matrix W pH <2	Matrix W Cl_2 <5ppm	Matrix S	Notes
01		RLV119	BFB01L06						9:24
02		120	CV001K0517						
03		121	V001L06L						
04		122	↓ C						
05		123	Rinse JJC 12/17/19						
06		124	V001K L06B	25mL	1.0				
07		125	19L064-09I	2.5mL	10	✓	✓		
08		126	-17	25mL	1.0	✓	✓		
09		127	-18			✓	✓		
10		128	↓ JJC 12/17/19 -20			✓	✓		
11		129	19L ~~104~~ 106-04			✓	✓		
12		130	19L106-03			✓	✓		
13		131	-01			✓	✓		
14		132	↓ -02			✓	✓		
15		133	19L064-21			✓	✓		
16		134	↓ -08IV	↓	↓	✓	✓		
17		135	EV001K0517						17:53
18		136	EV001K0517A						
19		137	EV001K0517B						
20		138	Rinse						
21		↓ 140	↓						
22									
23									
24									
25									
26									
27									
28									
29									
30									JJC 12/17/19

Instrument No.	01
INITIAL CALIBRATION REFERENCE	
DATE	11/05/19
ICAL ID	V001K05A / V001K06

STANDARDS

NAME	ID	Amount (µl)	Conc. (mg/L)
DCC	SV1-33-33-02	1	
DCC	-33-28-01	1	
DCC	-33-48-01	5	
DCC	-33-35-01 / -33-43-01	5 / 1	
BFB	-33-34-01	1	
IS/SURR.	-33-41-02	5	5 µg/mL
ICV/LCS	-33-26-01	1	
ICV/LCS	-32-82-03	1	
ICV/LCS	-33-42-01	5	
ICV/LCS	-33-29-03 / -33-13-02	5 / 5	
Data File Folder	19L16		

	LOT #	Syringe Lot #
pH strip	HC863463	MSV-01-01-02
Chlorine strip	91308	MSV-02-01-06-01
Methanol		MSV-01-01-07-01
$NaHSO_4$		
Reagent Water	RW3-19-001	
Sand		

Electronic Data Archival Location	Date
HPCHEM_VOA/TO01	

Comments:

Analyzed By: JJC

Date Disposed: 12/17/19 Disposed By: JJC

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR VOLATILES

SOP ☑ EMAX-8260 Rev.No. 10 ☐ EMAX-8260C Rev. No. 1 ☐ EMAX-8260SIM Rev.No. 1 ☐ EMAX-M8260SIM Rev.No. 0 ☐ EMAX-TCPSIM Rev.No. 2 ☐ EMAX-624 Rev.No. 4

Start Date: 11/05/19 ☐ 5-mL Purge ☐ 10-mL Purge ☑ 25-mL Purge

Book #: A01-061

BATCH V001K056

	Sample Prep ID	Data File Name	Lab Sample ID	Sample Amount	DF	Matrix W pH <2	Matrix W Cl_2 <5ppm	Matrix S	Notes
01		RKV032	BFB01K02	1 µL	N/A	N/A	N/A		16:13
02		033	V001K051	A 0.3µL B 0.15µL					0.3/1.5/7.5 ppb
03		034	2	0.05µL 0.25µL					0.5/2.5/12.5
04		035	3	0.1µL 0.5µL					1/5/25
05		036	4	0.2µL 1µL					2/10/50
06		037	5	0.5µL 2.5µL					5/25/125
07		038	6	1µL 5µL					10/50/250
08		039	7	2µL 10µL					20/100/500
09		040	8	3µL 15µL					30/150/750
10		041	9	5µL 25µL					50/250/1250
11		042	10	10µL 50µL					100/500/2500
12		043	Rinse						
13		044							
14		045	IV001K0501						10/50/250 224TMP not verified.
15		046	Rinse						
16		047	LOD VERT						
17		048	LOQ VERT						23:50
18									
19									
20									
21									
22									
23									
24									A:
25									B:
26									
27									
28									
29									
30									JJC 11/04/19

Instrument No.	01
INITIAL CALIBRATION REFERENCE	
DATE	11/05/19
ICAL ID	V001K05 / V001K05A

STANDARDS

NAME	ID	Amount (µl)	Conc. (mg/L)
DCC CS_2	SV1-33-28-01	1	250
DCC 8260+TBA (Kit-AA)	SV1-33-32-01 / SV1-33-25-03	5 / 5	250 / 50/1250
DCC Gas	SV1-33-06-02	1	250
DCC 224 / 4ADD	SV1-32-88-02 / SV1-33-25-02	5 / 1	50 / 250/1250
BFB	SV1-32-75-01	1	50
IS/SURR. IS / SS	SV1-33-24-01 / SV1-33-05-01	5 / 5	50 / 50
ICV/LCS CS_2 Kit-AA	32-88 JJC/MM SV1-32-82-03 / SV1-33-31-03	1 / 5	250 / 250
ICV/LCS 8260 Gas	SV1-33-29-03 / SV1-33-26-01	5 / 1	50 / 250
ICV/LCS 3ADD 2-Butanol	SV1-33-13-02 / SV1-25-19-05	5 / 6.25	50 / 1000
ICV/LCS 224	SV1-33-16-02	5	50
Data File Folder	19K05		

	LOT #	Syringe Lot #
pH strip		MSV-01-01-02
Chlorine strip		MSV-01-05-04-04
Methanol		MSV-01-03-03-02
$NaHSO_4$		MSV-02-01-02
Reagent Water	RW3-19-001	
Sand		

Electronic Data Archival Location	Date
HPCHEM_VOA/TO01	11/14/19

Comments:

Analyzed By: JJC

Date Disposed: 11/06/19 Disposed By: JJC

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR VOLATILES

SOP ☑ EMAX-8260 Rev.No. 10 ☐ EMAX-8260C Rev. No. 1 ☐ EMAX-8260SIM Rev.No. 1 ☐ EMAX-M8260SIM Rev.No. 0 ☐ EMAX-TCPSIM Rev.No. 2 ☐ EMAX-624 Rev.No. 4

Start Date: 11/06/19 ☐ 5-mL Purge ☐ 10-mL Purge ☑ 25-mL Purge

Book #: A01-061

BATCH V001K064

	Sample Prep ID	Data File Name	Lab Sample ID	Sample Amount	DF	Matrix W pH <2	Matrix W Cl_2 <5ppm	Matrix S	Notes
01		RKV049	BFB01K03		N/A	N/A	N/A		9:39
02		050	V001K061	0.5mL					1 ppb
03		051	2	1mL					2 ppb
04		052	3	2.5mL					5 ppb
05		053	4	5mL					10 ppb
06		054	5	10mL					20 ppb
07		055	6	15mL					30 ppb
08		056	IV001K0601						10 ppb
09		057	~~LOD VERF~~ Rinse JJC 11/07/19						14:43
10	JJC 11/07/19	~~058~~							
11	JJC 11/07/19	~~059~~							
12									
13									
14									
15									
16									
17									
18									
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25									
26									
27									
28									
29									
30									JJC 11/07/19

Instrument No.	01
INITIAL CALIBRATION REFERENCE	
DATE	11/06/19
ICAL ID	V001K06

STANDARDS

NAME	ID	Amount (µl)	Conc. (mg/L)
DCC			
DCC			
DCC			
DCC	SVI-33-35-01	5	50
BFB	SVI-32-75-01	1	50
IS/SURR. IS / SS	SVI-33-24-01 / SVI-33-05-01	5 / 5	50 / 50
ICV/LCS	SVI-33-35-02	5	90
ICV/LCS			
ICV/LCS			
ICV/LCS			
Data File Folder	19K06		

	LOT #	Syringe Lot #
pH strip		MSV-01-01-02
Chlorine strip		MSV-01-05-04-04
Methanol		MSV-01-03-03-02
$NaHSO_4$		MSV-02-01-02
Reagent Water	RW3-19-001	
Sand		

Electronic Data Archival Location	Date
HPCHEM_VOA/TO01	11/14/19

Comments:

Analyzed By: JJC

Date Disposed: 11/07/19 Disposed By: JJC

LABORATORY REPORT FOR

CDM SMITH

VA SALT LAKE CITY

METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

SDG#: 19L064

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L064

METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

A total of eighteen(18) water samples were received on 12/10/19 to be analyzed for 1,4-Dioxane by GC/MS SIM in accordance with Method SW3520C/SW8270D SIM and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Instrument Performance and Calibration
Instrument tune check was performed prior to calibration. Result was within acceptance criteria. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried out at a frequency required by the project. There was one(1)CCV associated with this SDG. CCV(Data file ID:RLF037) was within calibration acceptance criteria. All calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. SVL004WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. SVL004WL/SVL004WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. 1,4-Dioxane (P-DIOXANE) was within MS QC limits in 19L064-07M/19L064-07S. Refer to Matrix QC summary form for details.

Surrogate
Surrogate was added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
1,4-DIOXANE BY GC/MS SIM

Client : CDM SMITH
Project : VA SALT LAKE CITY

SDG NO. : 19L064
Instrument ID : FO

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	SVL004WB	1	NA	12/11/1915:23	12/10/1916:00	RLF057	RKF014	19SVL004W	Method Blank
LCS1W	SVL004WL	1	NA	12/11/1915:39	12/10/1916:00	RLF058	RKF014	19SVL004W	Lab Control Sample (LCS)
LCD1W	SVL004WC	1	NA	12/11/1915:54	12/10/1916:00	RLF059	RKF014	19SVL004W	LCS Duplicate
OU2-MW15D-GW120719MS	19L064-07M	1	NA	12/11/1916:10	12/10/1916:00	RLF060	RKF014	19SVL004W	Matrix Spike Sample (MS)
OU2-MW15D-GW120719MSD	19L064-07S	1	NA	12/11/1916:26	12/10/1916:00	RLF061	RKF014	19SVL004W	MS Duplicate (MSD)
OU2-MW01D-GW120619	19L064-01	1	NA	12/11/1916:41	12/10/1916:00	RLF062	RKF014	19SVL004W	Field Sample
OU2-MW14D-GW120719	19L064-02	1	NA	12/11/1916:57	12/10/1916:00	RLF063	RKF014	19SVL004W	Field Sample
OU2-MW03RC-GW120719	19L064-03	1	NA	12/11/1917:12	12/10/1916:00	RLF064	RKF014	19SVL004W	Field Sample
OU2-FD03-GW120719	19L064-04	1	NA	12/11/1917:28	12/10/1916:00	RLF065	RKF014	19SVL004W	Field Sample
OU2-MW15S-GW120719	19L064-06	1	NA	12/11/1917:44	12/10/1916:00	RLF066	RKF014	19SVL004W	Field Sample
OU2-MW15D-GW120719	19L064-07	1	NA	12/11/1918:00	12/10/1916:00	RLF067	RKF014	19SVL004W	Field Sample
OU2-MW03RA-GW120719	19L064-08	1	NA	12/11/1918:15	12/10/1916:00	RLF068	RKF014	19SVL004W	Field Sample
OU2-MW03RB-GW120819	19L064-09	1	NA	12/11/1918:31	12/10/1916:00	RLF069	RKF014	19SVL004W	Field Sample
OU2-MW03RD-GW120719	19L064-10	1	NA	12/11/1918:47	12/10/1916:00	RLF070	RKF014	19SVL004W	Field Sample
OU2-MW17D-GW120819	19L064-11	1	NA	12/11/1919:03	12/10/1916:00	RLF071	RKF014	19SVL004W	Field Sample
OU2-MW17S-GW120819	19L064-12	1	NA	12/11/1919:18	12/10/1916:00	RLF072	RKF014	19SVL004W	Field Sample
OU2-FB01-GW120819	19L064-13	1	NA	12/11/1919:34	12/10/1916:00	RLF073	RKF014	19SVL004W	Field Sample
OU2-FD02-GW120819	19L064-14	1	NA	12/11/1919:50	12/10/1916:00	RLF074	RKF014	19SVL004W	Field Sample
OU2-MW08C-GW120819	19L064-15	1	NA	12/11/1920:05	12/10/1916:00	RLF075	RKF014	19SVL004W	Field Sample
OU2-MW08A-GW120819	19L064-17	1	NA	12/11/1920:21	12/10/1916:00	RLF076	RKF014	19SVL004W	Field Sample
OU2-MW14S-GW120719	19L064-18	1	NA	12/11/1920:36	12/10/1916:00	RLF077	RKF014	19SVL004W	Field Sample
OU2-MW05R-GW120819	19L064-20	1	NA	12/11/1920:52	12/10/1916:00	RLF078	RKF014	19SVL004W	Field Sample
OU2-MW08B-GW120819	19L064-21	1	NA	12/11/1921:08	12/10/1916:00	RLF079	RKF014	19SVL004W	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/06/19 16:05
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-MW01D-GW120619	Date Analyzed:	12/11/19 16:41
Lab Samp ID:	19L064-01	Dilution Factor:	1
Lab File ID:	RLF062	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	FO

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.42	0.21

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	21.1	41.6	51	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 960ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

Quantitation Report (QT Reviewed)

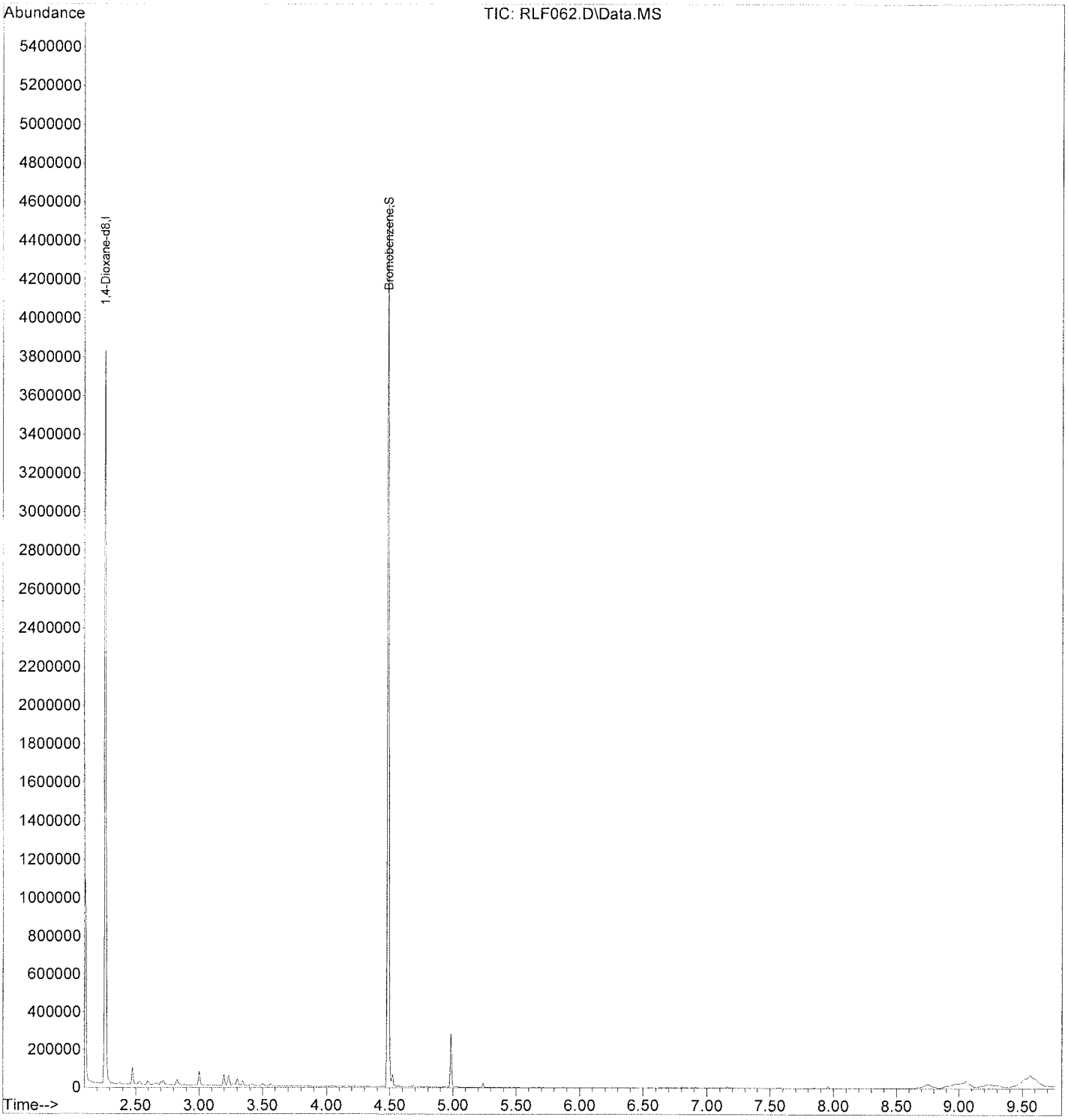
Data File : C:\msdchem\1\DATA\19L11\RLF062.D Vial: 28
Acq On : 11 Dec 2019 16:41 Operator: KVu
Sample : 19L064-01 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:56:10 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	318503	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	515042	10.14	ppm	0.00
Spiked Amount 20.000			Recovery =	50.70%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF062.D Vial: 28
Acq On : 11 Dec 2019 16:41 Operator: KVu
Sample : 19L064-01 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:56:10 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/07/19 13:05
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-MW14D-GW120719	Date Analyzed:	12/11/19 16:57
Lab Samp ID:	19L064-02	Dilution Factor:	1
Lab File ID:	RLF063	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.47	0.24

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	31.3	47.2	66	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 850ml	Final Volume :	2ml
Prepared by	: HWang	Analyzed by :	KVu

Quantitation Report (QT Reviewed)

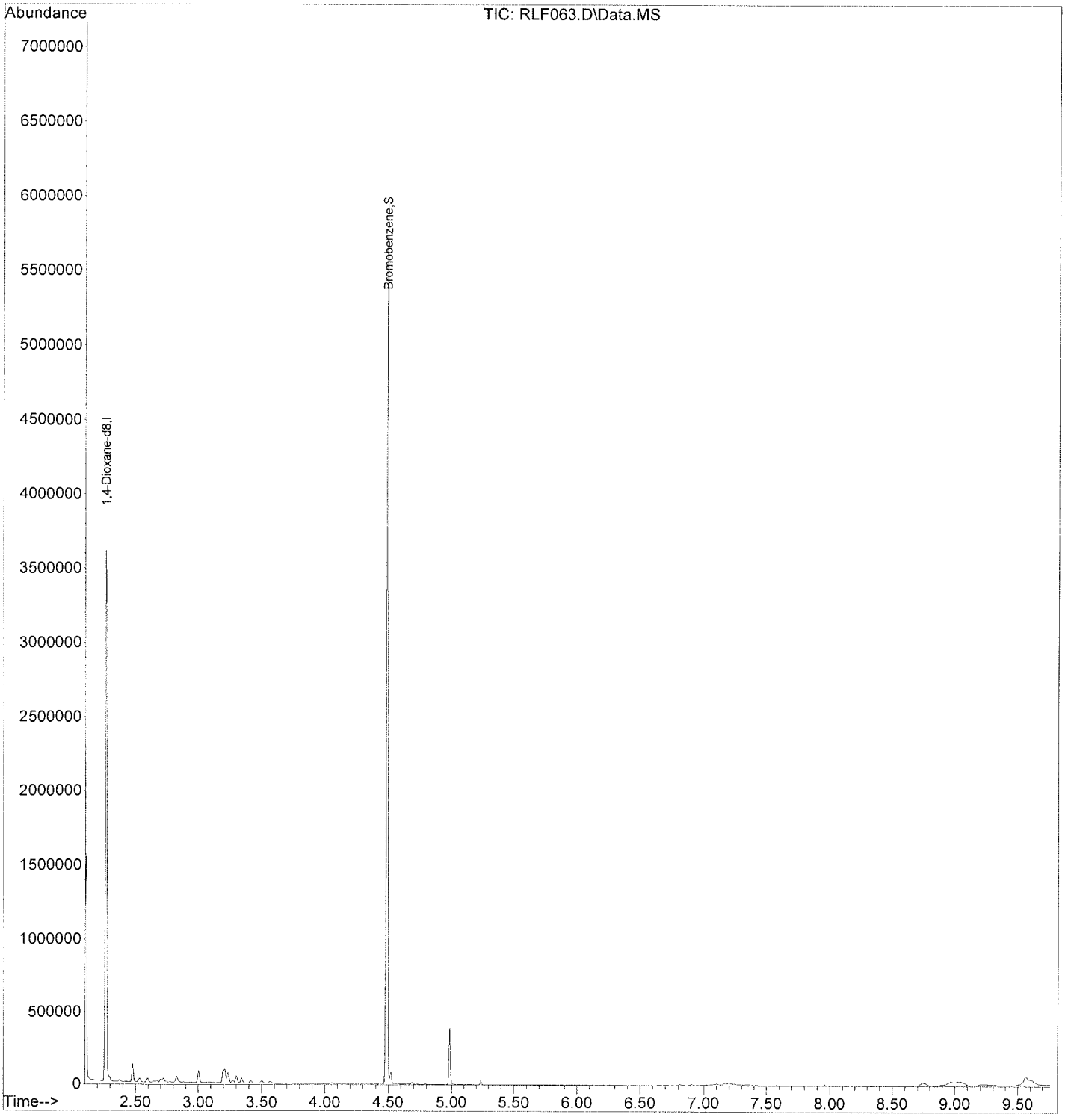
Data File : C:\msdchem\1\DATA\19L11\RLF063.D Vial: 29
Acq On : 11 Dec 2019 16:57 Operator: KVu
Sample : 19L064-02 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:56:36 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	311581	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	659981	13.28	ppm	0.00
Spiked Amount 20.000			Recovery =	66.40%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF063.D Vial: 29
Acq On : 11 Dec 2019 16:57 Operator: KVu
Sample : 19L064-02 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:56:36 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/07/19 11:40
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-MW03RC-GW120719	Date Analyzed:	12/11/19 17:12
Lab Samp ID:	19L064-03	Dilution Factor:	1
Lab File ID:	RLF064	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	FO

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.46	0.23

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	28.9	46.4	62	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 860ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

Quantitation Report (QT Reviewed)

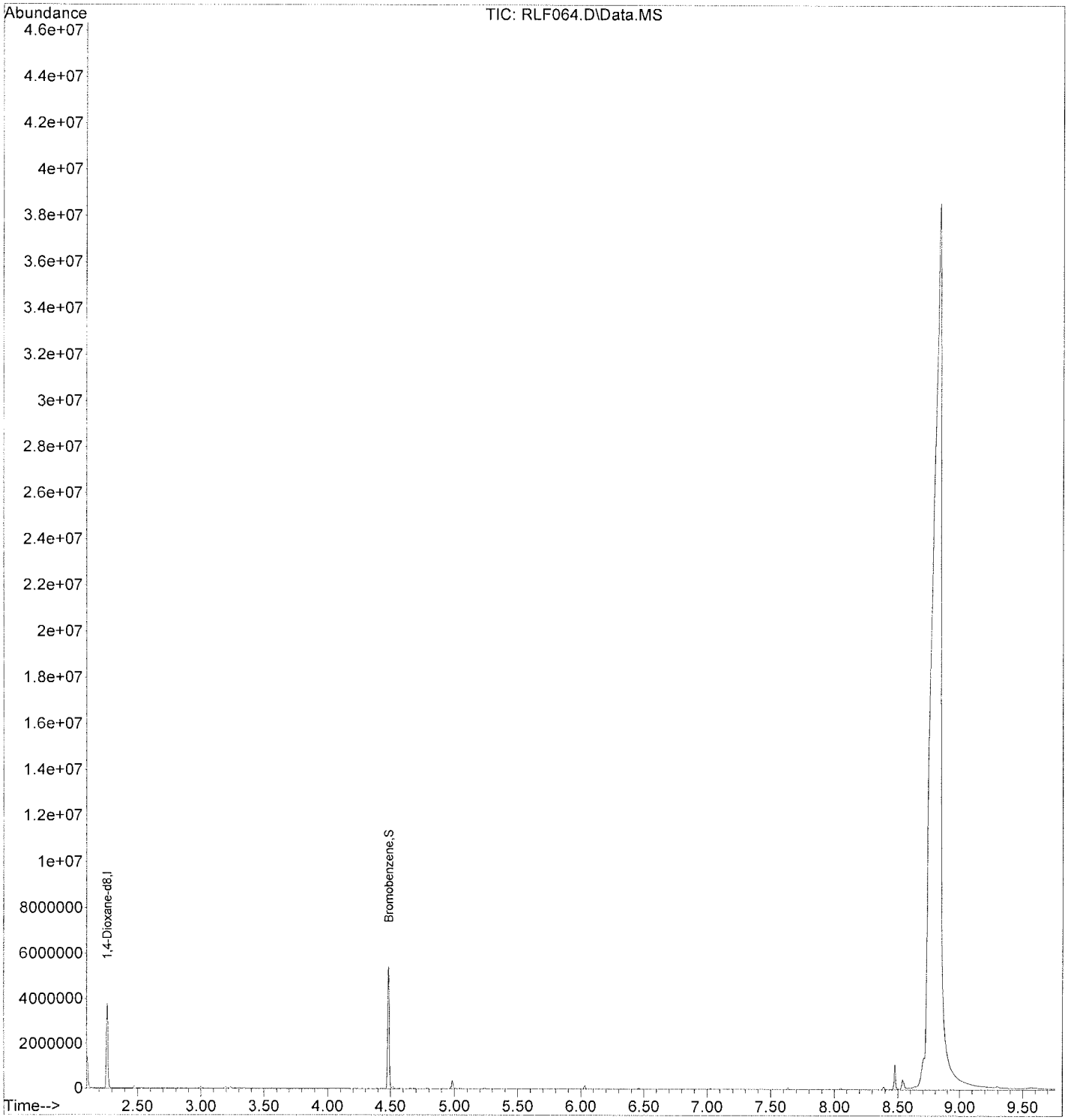
Data File : C:\msdchem\1\DATA\19L11\RLF064.D Vial: 30
Acq On : 11 Dec 2019 17:12 Operator: KVu
Sample : 19L064-03 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:56:48 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	312970	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	620094	12.42	ppm	0.00
Spiked Amount 20.000			Recovery =	62.10%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF064.D Vial: 30
Acq On : 11 Dec 2019 17:12 Operator: KVu
Sample : 19L064-03 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:56:48 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/07/19 11:00
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-FD03-GW120719	Date Analyzed:	12/11/19 17:28
Lab Samp ID:	19L064-04	Dilution Factor:	1
Lab File ID:	RLF065	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	FO

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.42	0.21

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	28.0	42.4	66	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 940ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

Quantitation Report (QT Reviewed)

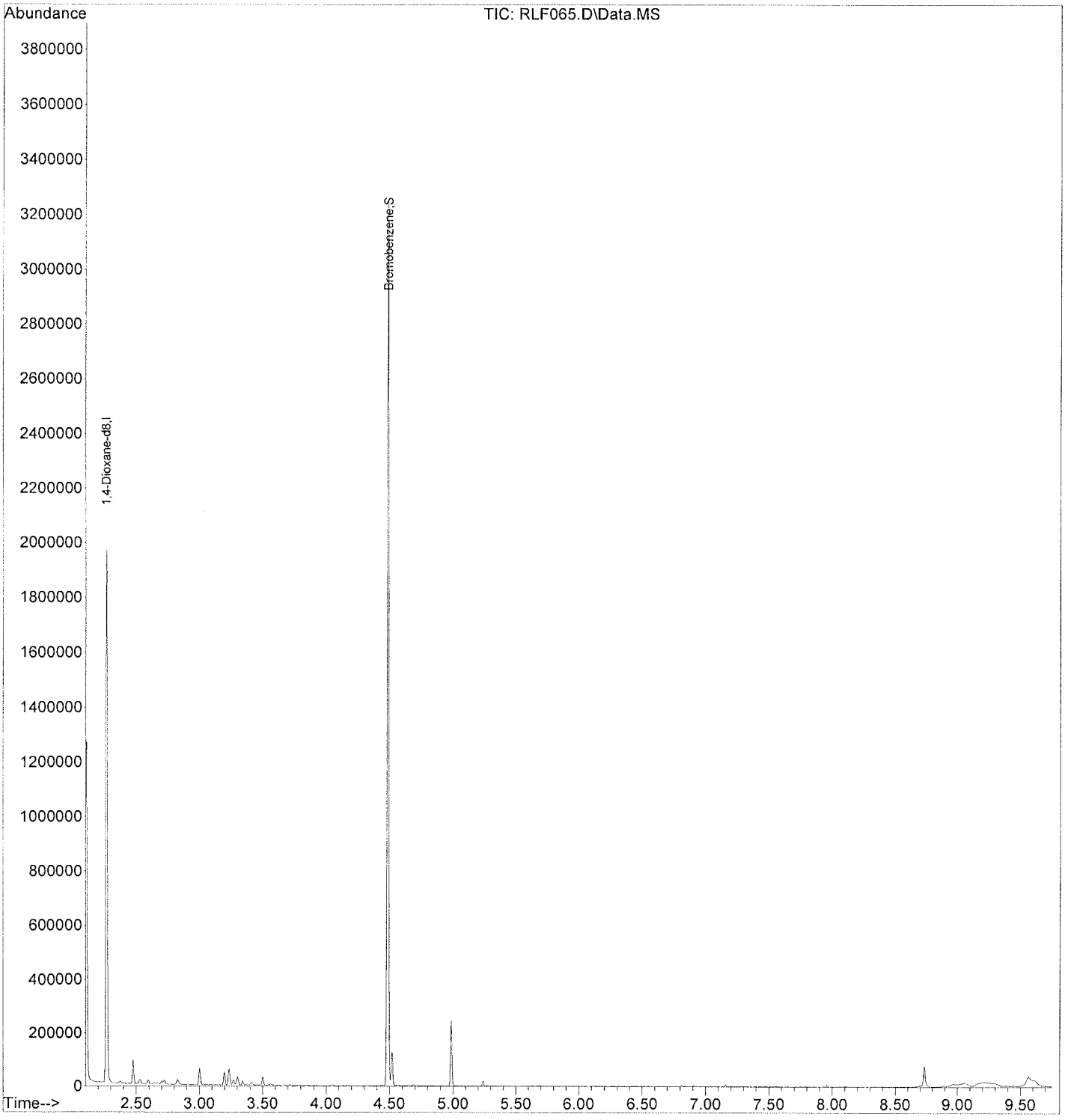
Data File : C:\msdchem\1\DATA\19L11\RLF065.D Vial: 31
Acq On : 11 Dec 2019 17:28 Operator: KVu
Sample : 19L064-04 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:57:06 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	174869	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	366870	13.16	ppm	0.00
Spiked Amount 20.000			Recovery =	65.80%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF065.D Vial: 31
Acq On : 11 Dec 2019 17:28 Operator: KVu
Sample : 19L064-04 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:57:06 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/07/19 11:45
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-MW15S-GW120719	Date Analyzed:	12/11/19 17:44
Lab Samp ID:	19L064-06	Dilution Factor:	1
Lab File ID:	RLF066	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.44	0.22

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	27.9	43.6	64	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 920ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

Quantitation Report (QT Reviewed)

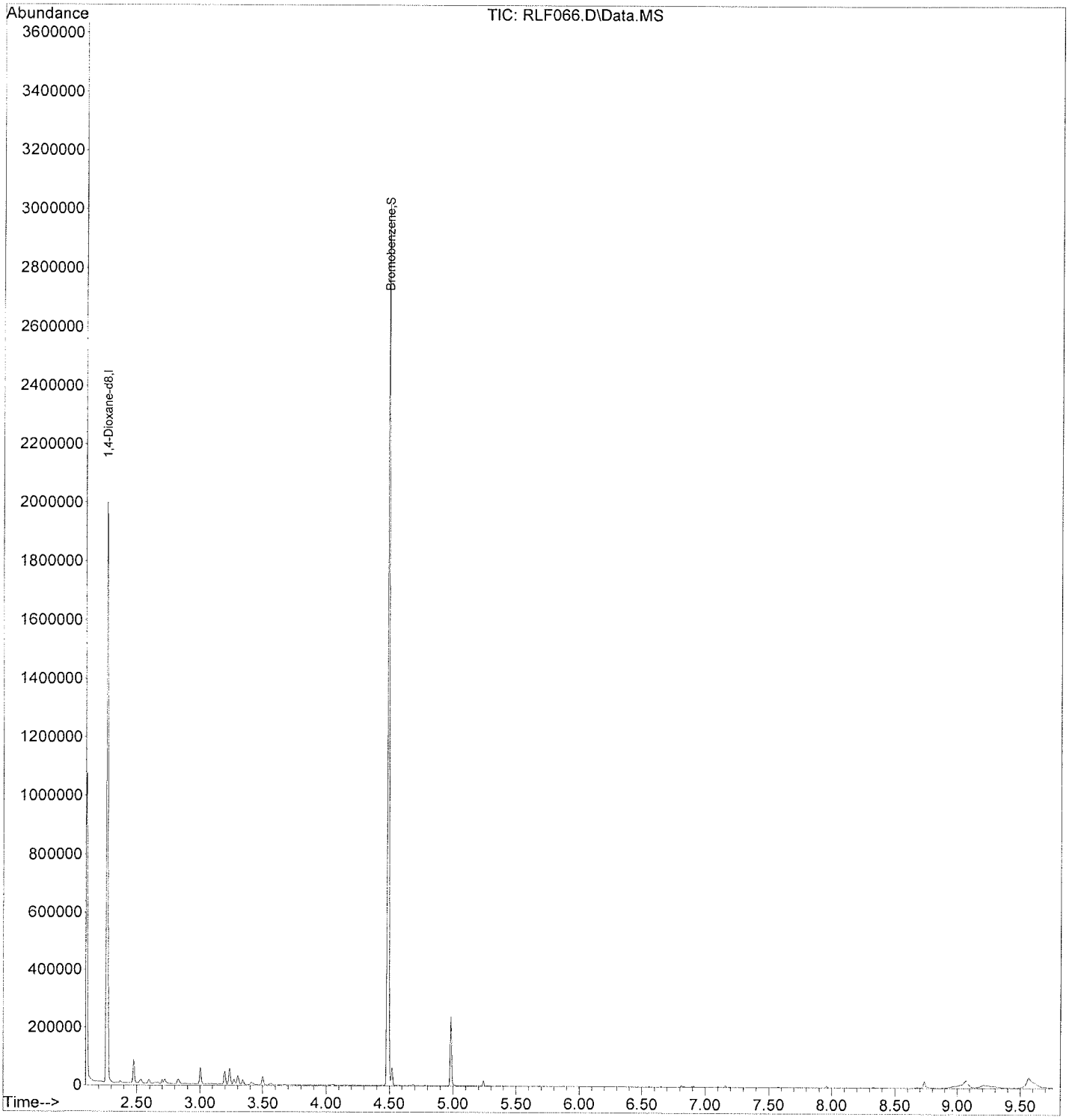
Data File : C:\msdchem\1\DATA\19L11\RLF066.D Vial: 32
Acq On : 11 Dec 2019 17:44 Operator: KVu
Sample : 19L064-06 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:47:13 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	165160	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	337556	12.82	ppm	0.00
Spiked Amount 20.000			Recovery =	64.10%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF066.D Vial: 32
Acq On : 11 Dec 2019 17:44 Operator: KVu
Sample : 19L064-06 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:47:13 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/07/19 10:00
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-MW15D-GW120719	Date Analyzed:	12/11/19 18:00
Lab Samp ID:	19L064-07	Dilution Factor:	1
Lab File ID:	RLF067	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.46	0.23

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	31.9	46.4	69	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 860ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

Quantitation Report (QT Reviewed)

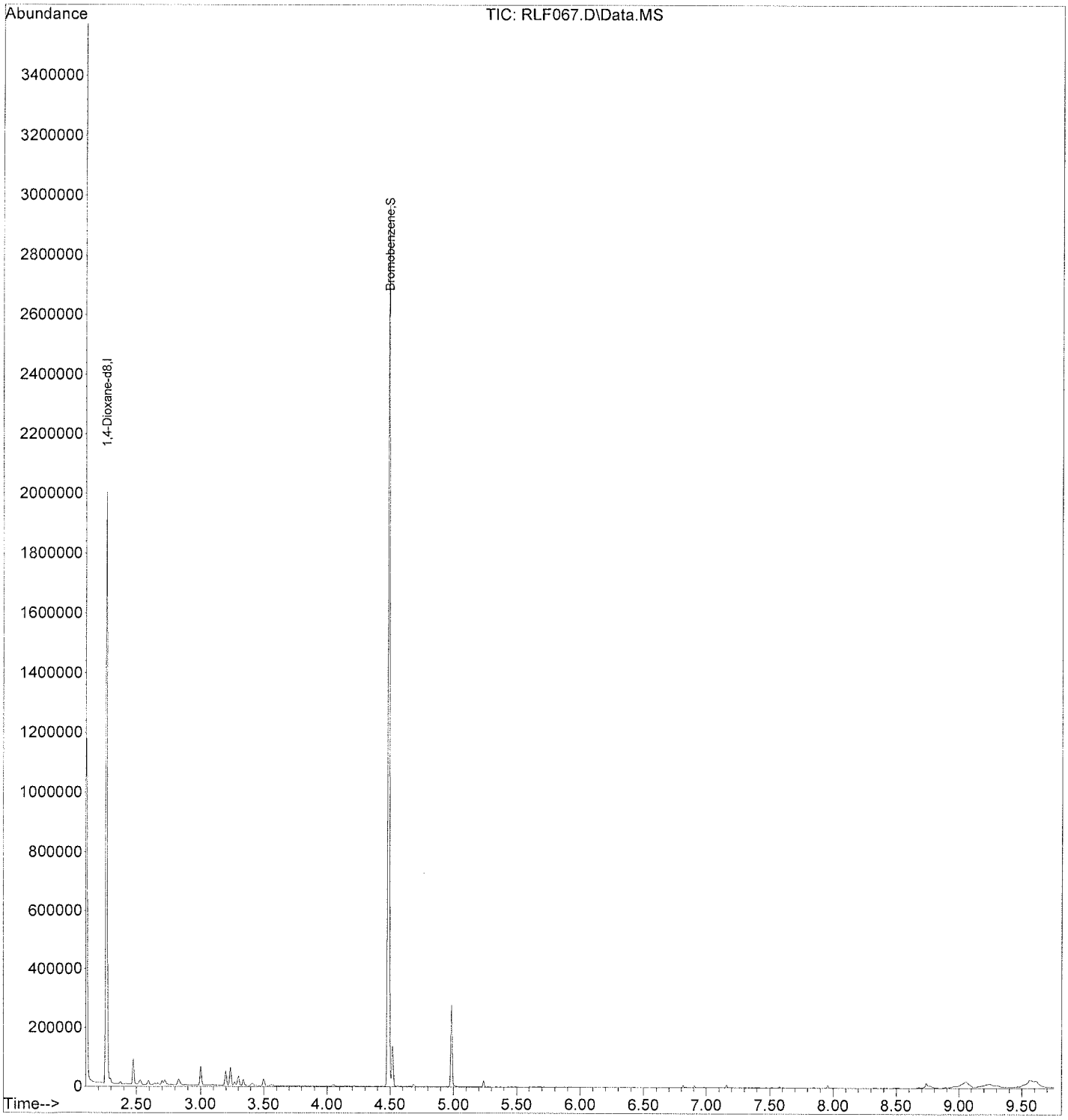
Data File : C:\msdchem\1\DATA\19L11\RLF067.D Vial: 33
Acq On : 11 Dec 2019 18:00 Operator: KVu
Sample : 19L064-07 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:57:30 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	161778	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	353382	13.70	ppm	0.00
Spiked Amount 20.000			Recovery =	68.50%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF067.D Vial: 33
Acq On : 11 Dec 2019 18:00 Operator: KVu
Sample : 19L064-07 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:57:30 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/07/19 10:00
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-MW03RA-GW120719	Date Analyzed:	12/11/19 18:15
Lab Samp ID:	19L064-08	Dilution Factor:	1
Lab File ID:	RLF068	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.43	0.22

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	27.8	43.2	64	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 930ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

Quantitation Report (QT Reviewed)

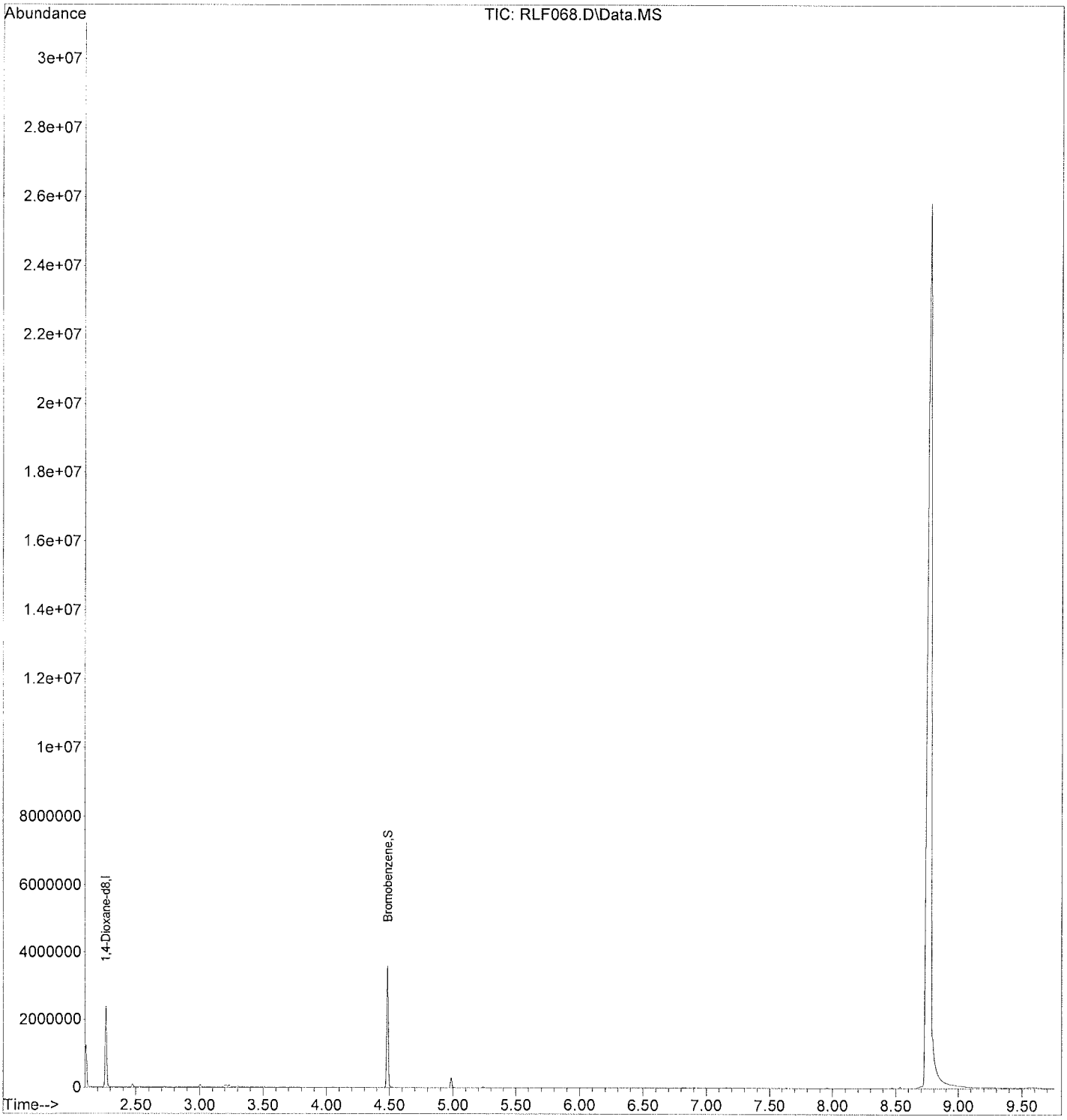
Data File : C:\msdchem\1\DATA\19L11\RLF068.D Vial: 34
Acq On : 11 Dec 2019 18:15 Operator: KVu
Sample : 19L064-08 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:57:39 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	196086	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	403732	12.91	ppm	0.00
Spiked Amount 20.000			Recovery =	64.55%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF068.D Vial: 34
Acq On : 11 Dec 2019 18:15 Operator: KVu
Sample : 19L064-08 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:57:39 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/08/19 14:50
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-MW03RB-GW120819	Date Analyzed:	12/11/19 18:31
Lab Samp ID:	19L064-09	Dilution Factor:	1
Lab File ID:	RLF069	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	FO

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.44	0.22

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	28.0	43.6	64	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 920ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

Quantitation Report (QT Reviewed)

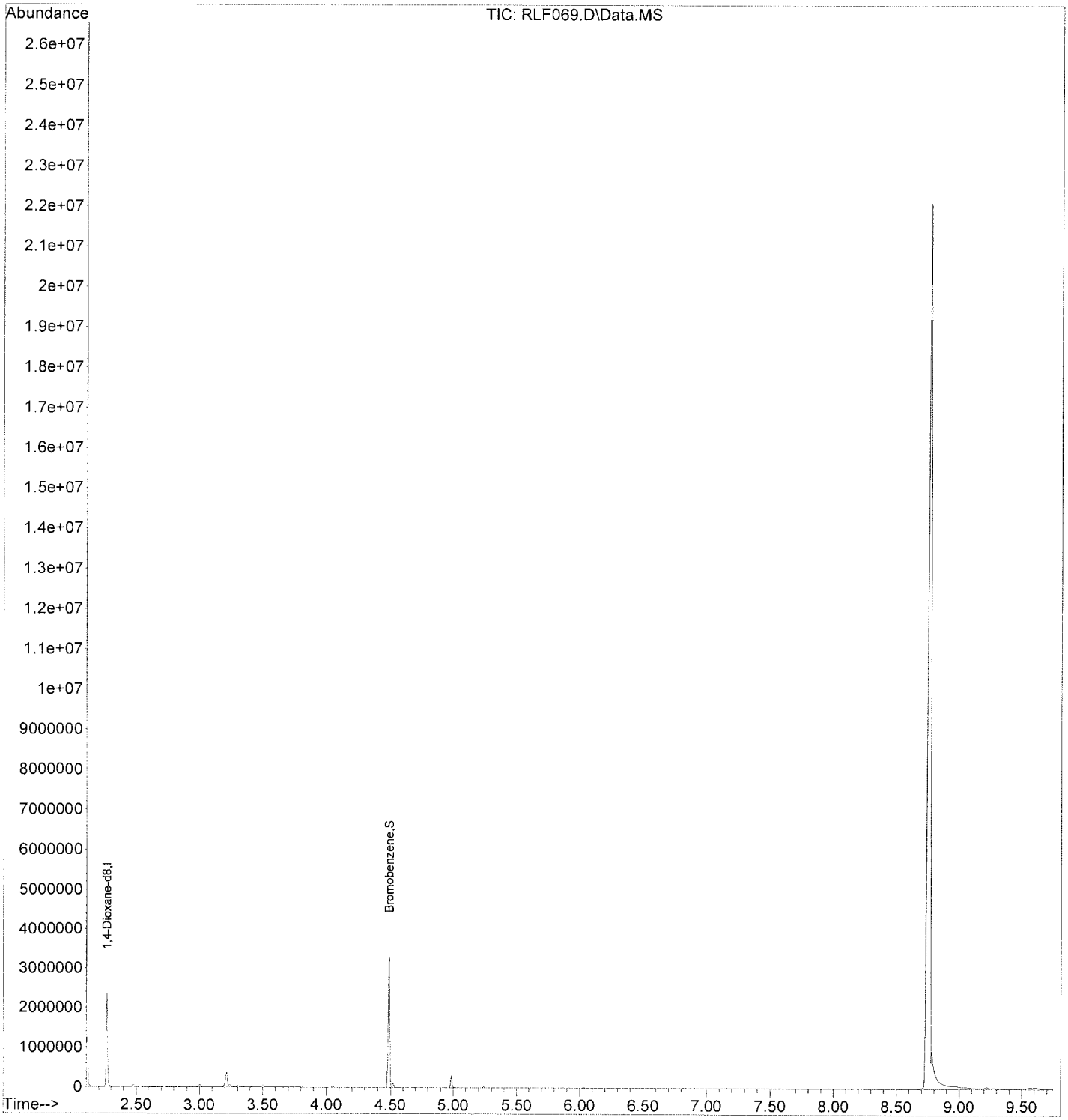
Data File : C:\msdchem\1\DATA\19L11\RLF069.D Vial: 35
Acq On : 11 Dec 2019 18:31 Operator: KVu
Sample : 19L064-09 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:47:22 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	189879	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	389490	12.86	ppm	0.00
Spiked Amount 20.000			Recovery =	64.30%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF069.D Vial: 35
Acq On : 11 Dec 2019 18:31 Operator: KVu
Sample : 19L064-09 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:47:22 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/07/19 14:50
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-MW03RD-GW120719	Date Analyzed:	12/11/19 18:47
Lab Samp ID:	19L064-10	Dilution Factor:	1
Lab File ID:	RLF070	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.48	0.24

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	31.4	48.0	65	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 830ml	Final Volume :	2ml
Prepared by	: HWang	Analyzed by :	KVu

Quantitation Report (QT Reviewed)

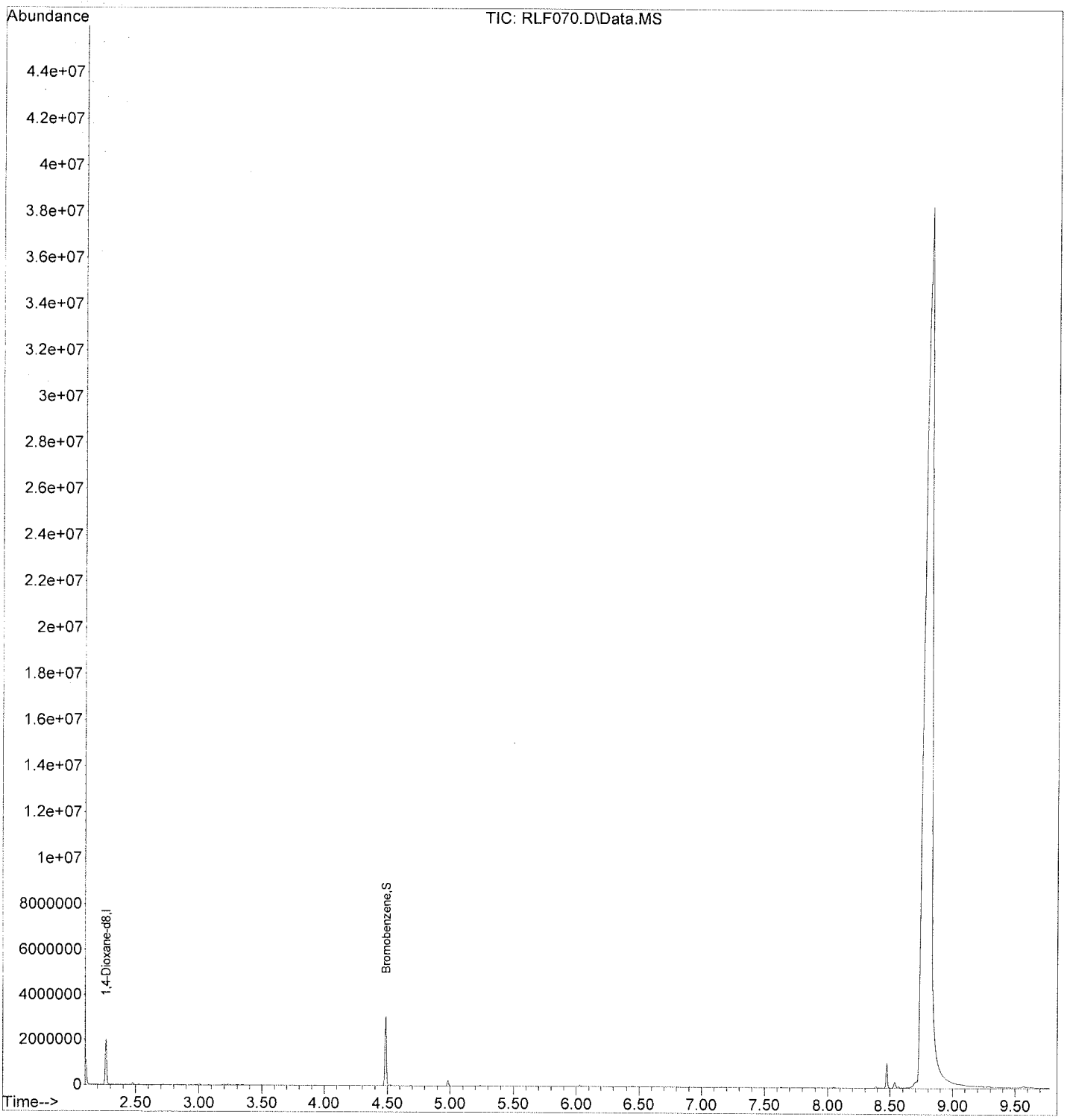
Data File : C:\msdchem\1\DATA\19L11\RLF070.D Vial: 36
Acq On : 11 Dec 2019 18:47 Operator: KVu
Sample : 19L064-10 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:57:59 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	167202	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	347878	13.05	ppm	0.00
Spiked Amount 20.000			Recovery =	65.25%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF070.D Vial: 36
Acq On : 11 Dec 2019 18:47 Operator: KVu
Sample : 19L064-10 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:57:59 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/08/19 11:05
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-MW17D-GW120819	Date Analyzed:	12/11/19 19:03
Lab Samp ID:	19L064-11	Dilution Factor:	1
Lab File ID:	RLF071	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.42	0.21

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	27.5	42.4	65	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 940ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

Quantitation Report (QT Reviewed)

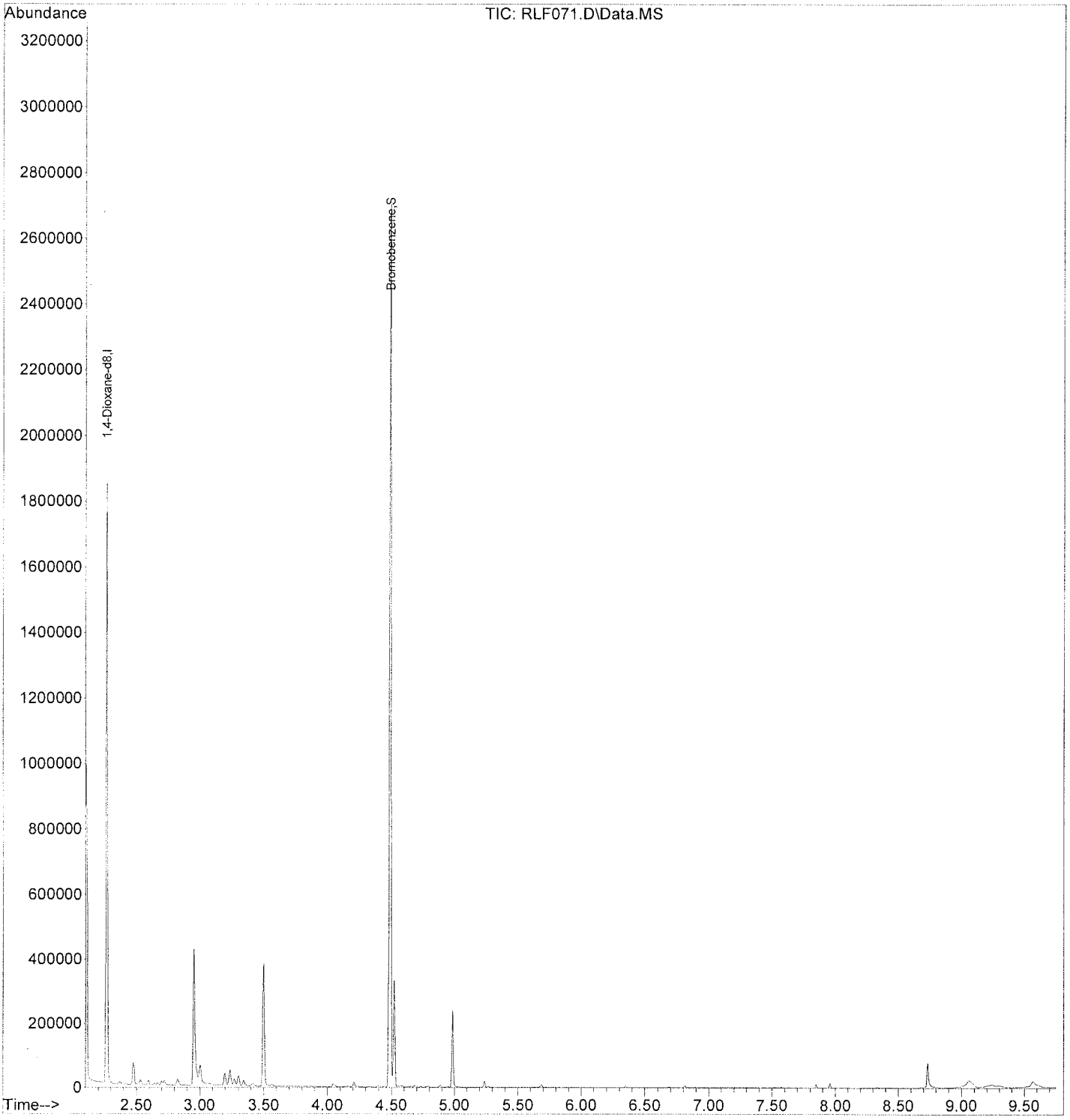
Data File : C:\msdchem\1\DATA\19L11\RLF071.D Vial: 37
Acq On : 11 Dec 2019 19:03 Operator: KVu
Sample : 19L064-11 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:58:10 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	149083	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	307710	12.94	ppm	0.00
Spiked Amount 20.000			Recovery =	64.70%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF071.D Vial: 37
Acq On : 11 Dec 2019 19:03 Operator: KVu
Sample : 19L064-11 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:58:10 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/08/19 10:00
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-MW17S-GW120819	Date Analyzed:	12/11/19 19:18
Lab Samp ID:	19L064-12	Dilution Factor:	1
Lab File ID:	RLF072	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	FO

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.46	0.23

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	31.3	46.4	67	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 860ml	Final Volume :	2ml
Prepared by	: HWang	Analyzed by :	KVu

Quantitation Report (QT Reviewed)

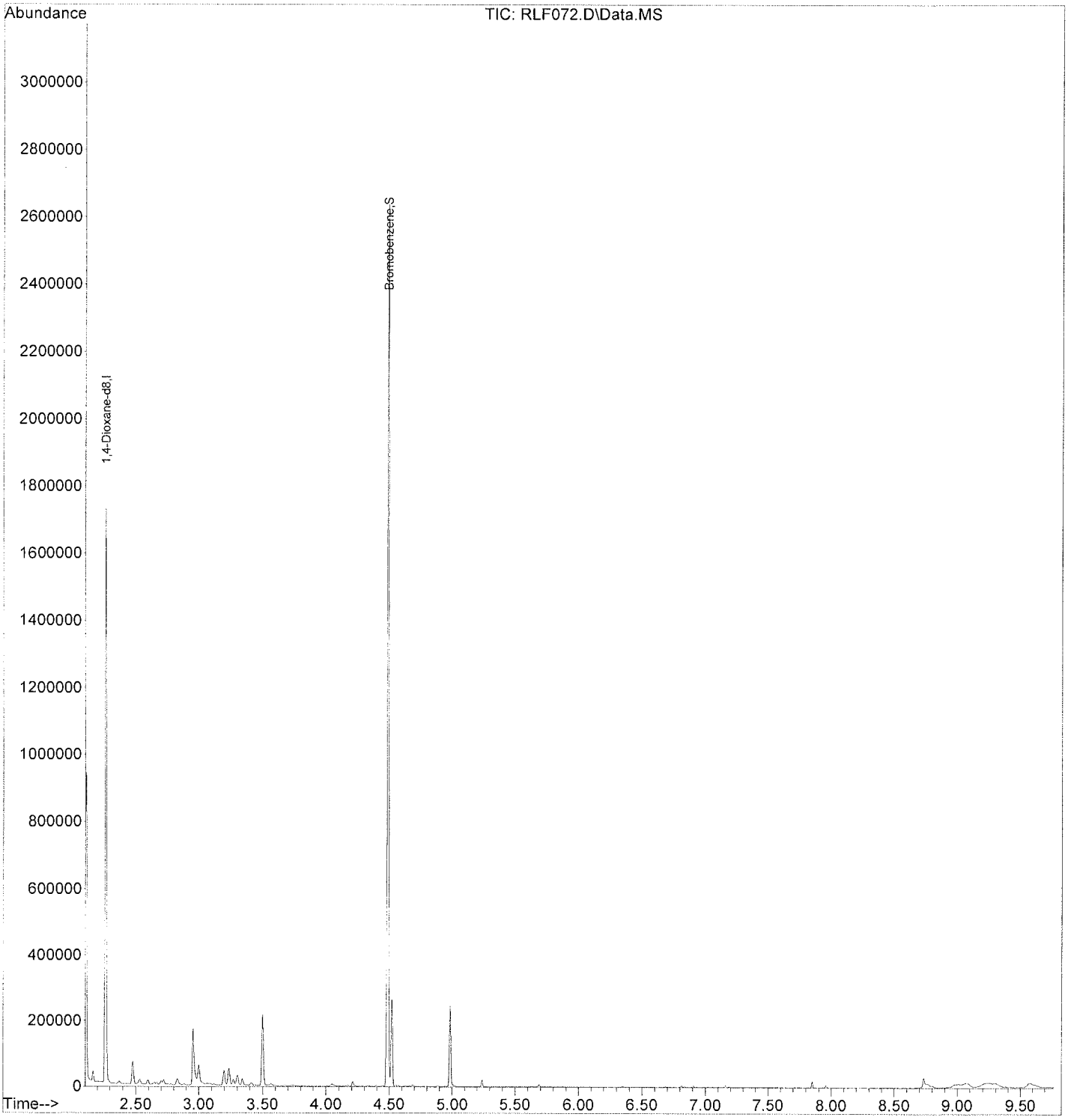
Data File : C:\msdchem\1\DATA\19L11\RLF072.D Vial: 38
Acq On : 11 Dec 2019 19:18 Operator: KVu
Sample : 19L064-12 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:47:31 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	139479	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	299463	13.46	ppm	0.00
Spiked Amount 20.000			Recovery =	67.30%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF072.D Vial: 38
Acq On : 11 Dec 2019 19:18 Operator: KVu
Sample : 19L064-12 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:47:31 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/08/19 15:05
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-FB01-GW120819	Date Analyzed:	12/11/19 19:34
Lab Samp ID:	19L064-13	Dilution Factor:	1
Lab File ID:	RLF073	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.40	0.20

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	28.0	39.6	71	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 1010ml	Final Volume :	2ml
Prepared by	: HWang	Analyzed by :	KVu

Quantitation Report (QT Reviewed)

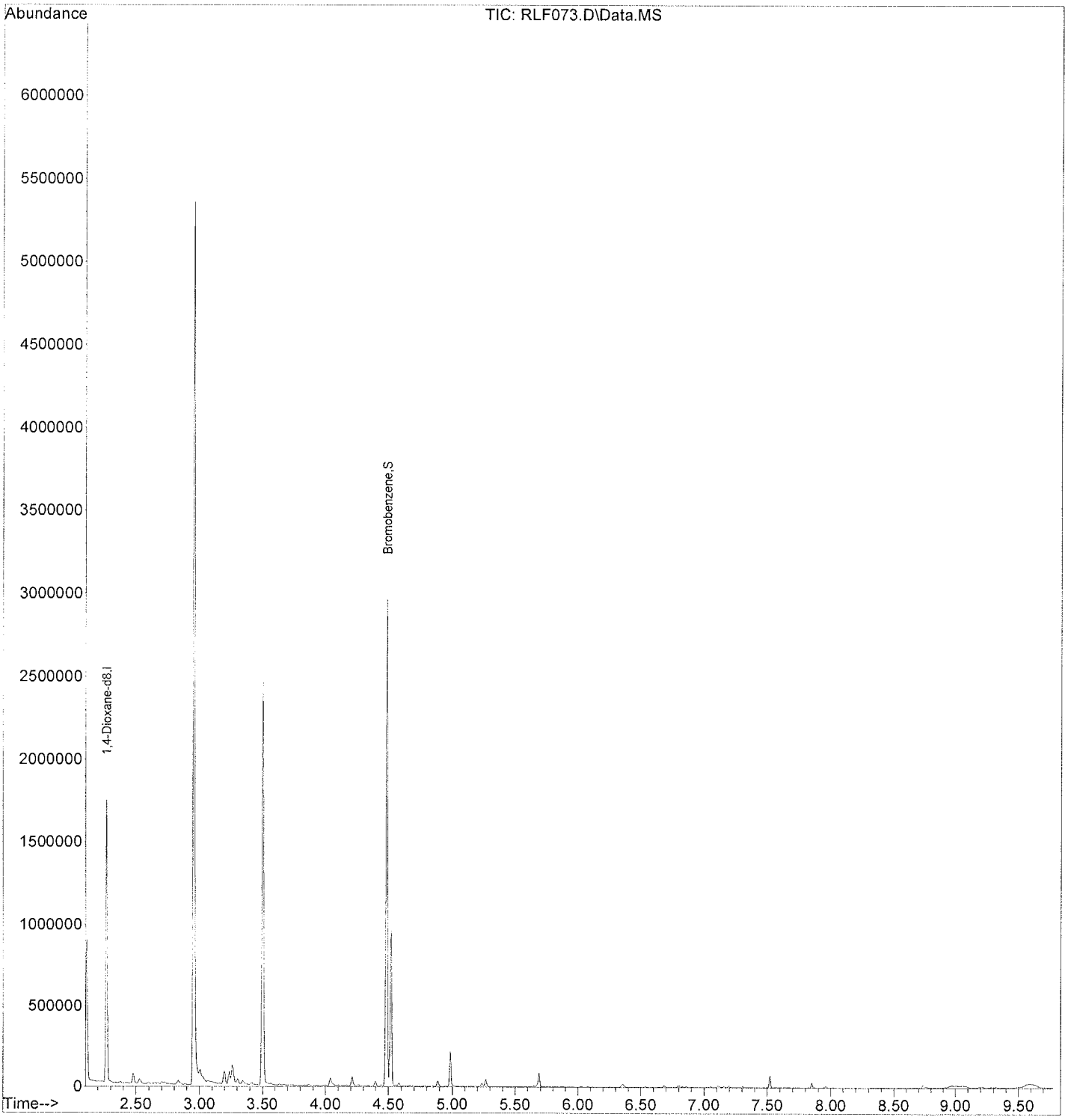
Data File : C:\msdchem\1\DATA\19L11\RLF073.D Vial: 39
Acq On : 11 Dec 2019 19:34 Operator: KVu
Sample : 19L064-13 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:58:28 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.268	96	142900	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	322440	14.15	ppm	0.00
Spiked Amount 20.000			Recovery =	70.75%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF073.D Vial: 39
Acq On : 11 Dec 2019 19:34 Operator: KVu
Sample : 19L064-13 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:58:28 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/08/19 12:20
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-FD02-GW120819	Date Analyzed:	12/11/19 19:50
Lab Samp ID:	19L064-14	Dilution Factor:	1
Lab File ID:	RLF074	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.44	0.22

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	29.4	44.4	66	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 900ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

Quantitation Report (QT Reviewed)

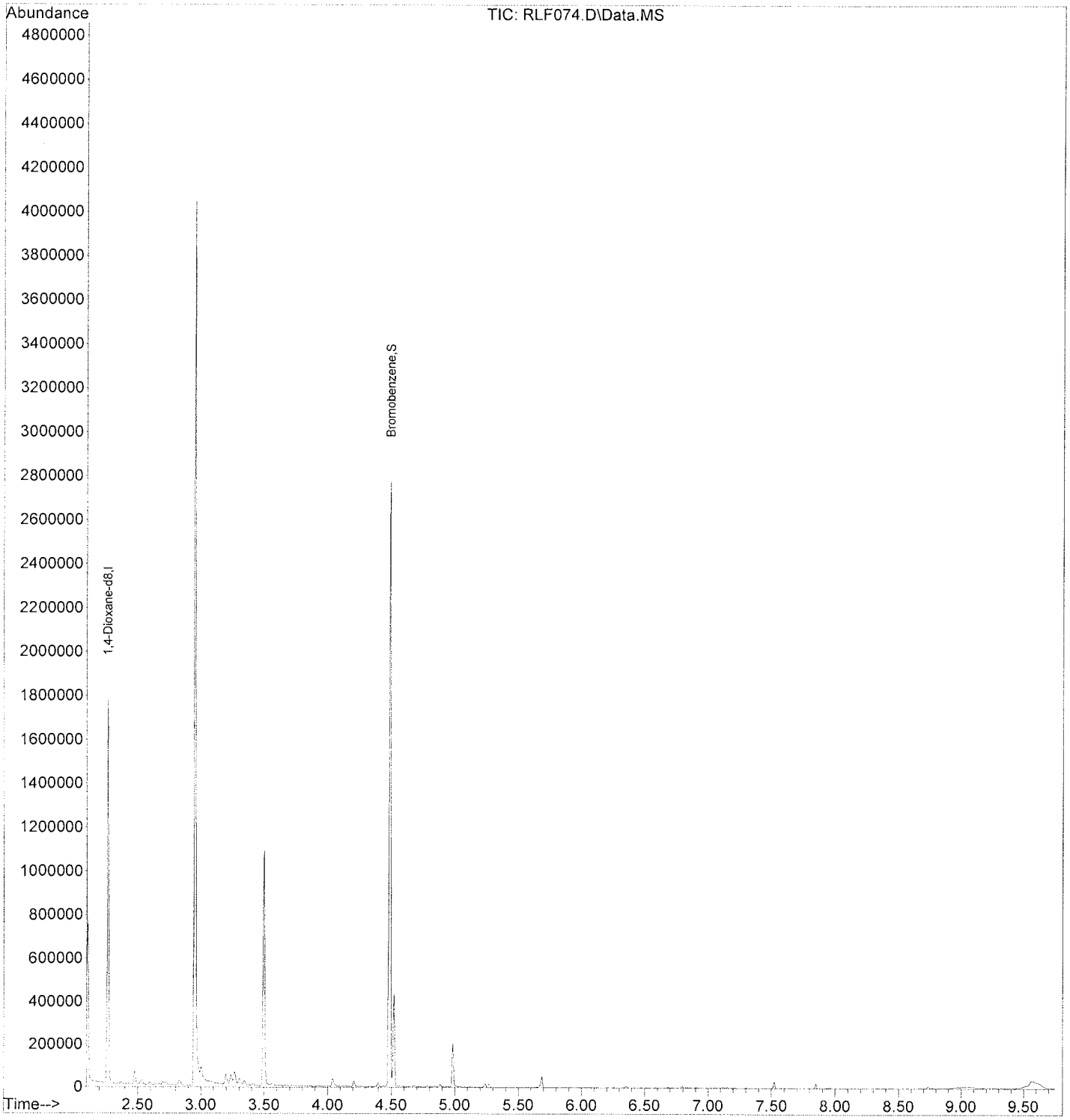
Data File : C:\msdchem\1\DATA\19L11\RLF074.D Vial: 40
Acq On : 11 Dec 2019 19:50 Operator: KVu
Sample : 19L064-14 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:58:36 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	146669	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	309314	13.22	ppm	0.00
Spiked Amount 20.000			Recovery =	66.10%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF074.D Vial: 40
Acq On : 11 Dec 2019 19:50 Operator: KVu
Sample : 19L064-14 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:58:36 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/08/19 09:55
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-MW08C-GW120819	Date Analyzed:	12/11/19 20:05
Lab Samp ID:	19L064-15	Dilution Factor:	1
Lab File ID:	RLF075	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.44	0.22

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	29.9	44.4	67	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 900ml	Final Volume :	2ml
Prepared by	: HWang	Analyzed by :	KVu

Quantitation Report (QT Reviewed)

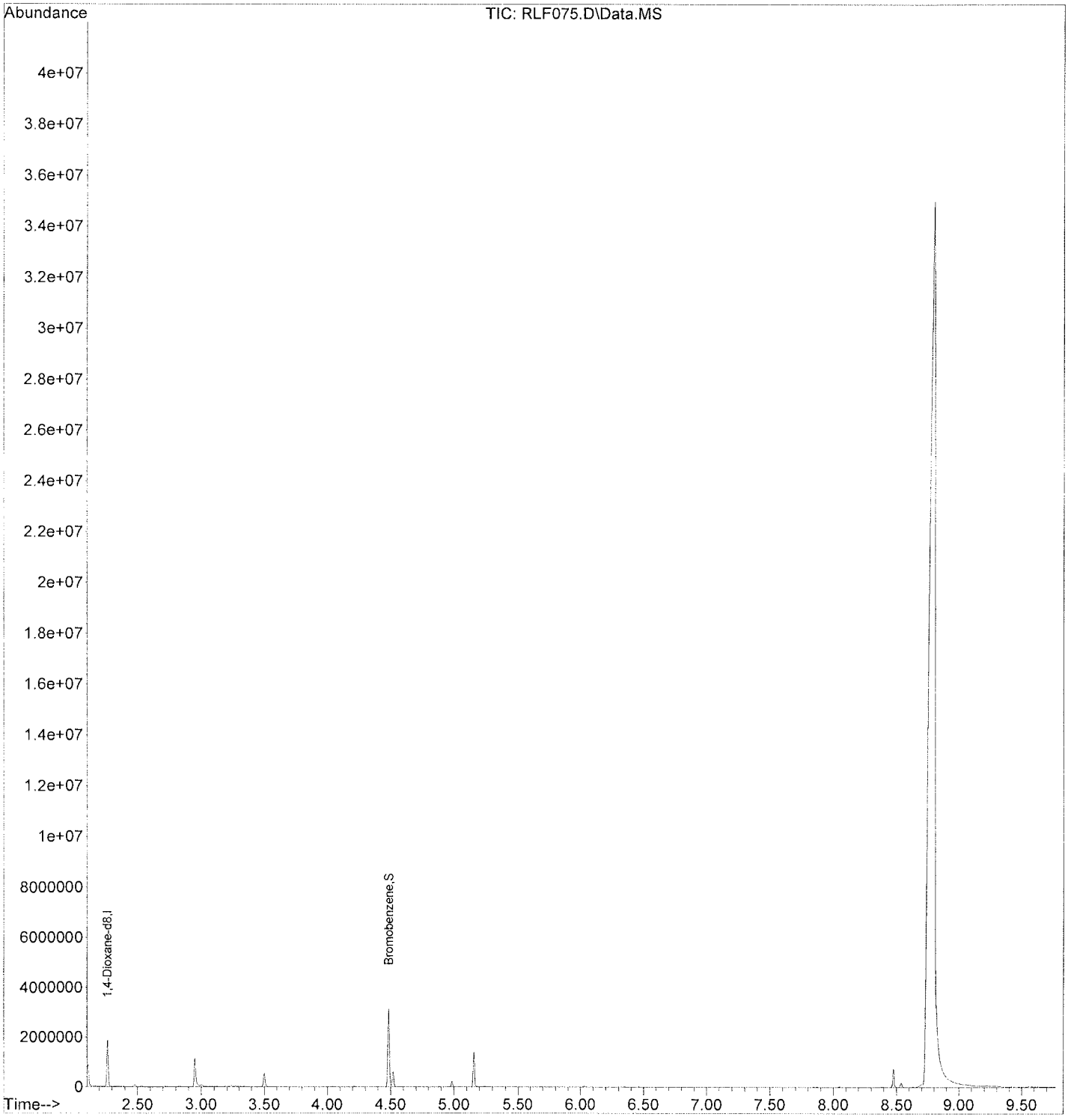
Data File : C:\msdchem\1\DATA\19L11\RLF075.D Vial: 41
Acq On : 11 Dec 2019 20:05 Operator: KVu
Sample : 19L064-15 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:58:46 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	160718	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	345359	13.48	ppm	0.00
Spiked Amount 20.000			Recovery =	67.40%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF075.D Vial: 41
Acq On : 11 Dec 2019 20:05 Operator: KVu
Sample : 19L064-15 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:58:46 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/08/19 12:15
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-MW08A-GW120819	Date Analyzed:	12/11/19 20:21
Lab Samp ID:	19L064-17	Dilution Factor:	1
Lab File ID:	RLF076	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.40	0.20

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	23.3	39.6	59	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 1010ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

Quantitation Report (QT Reviewed)

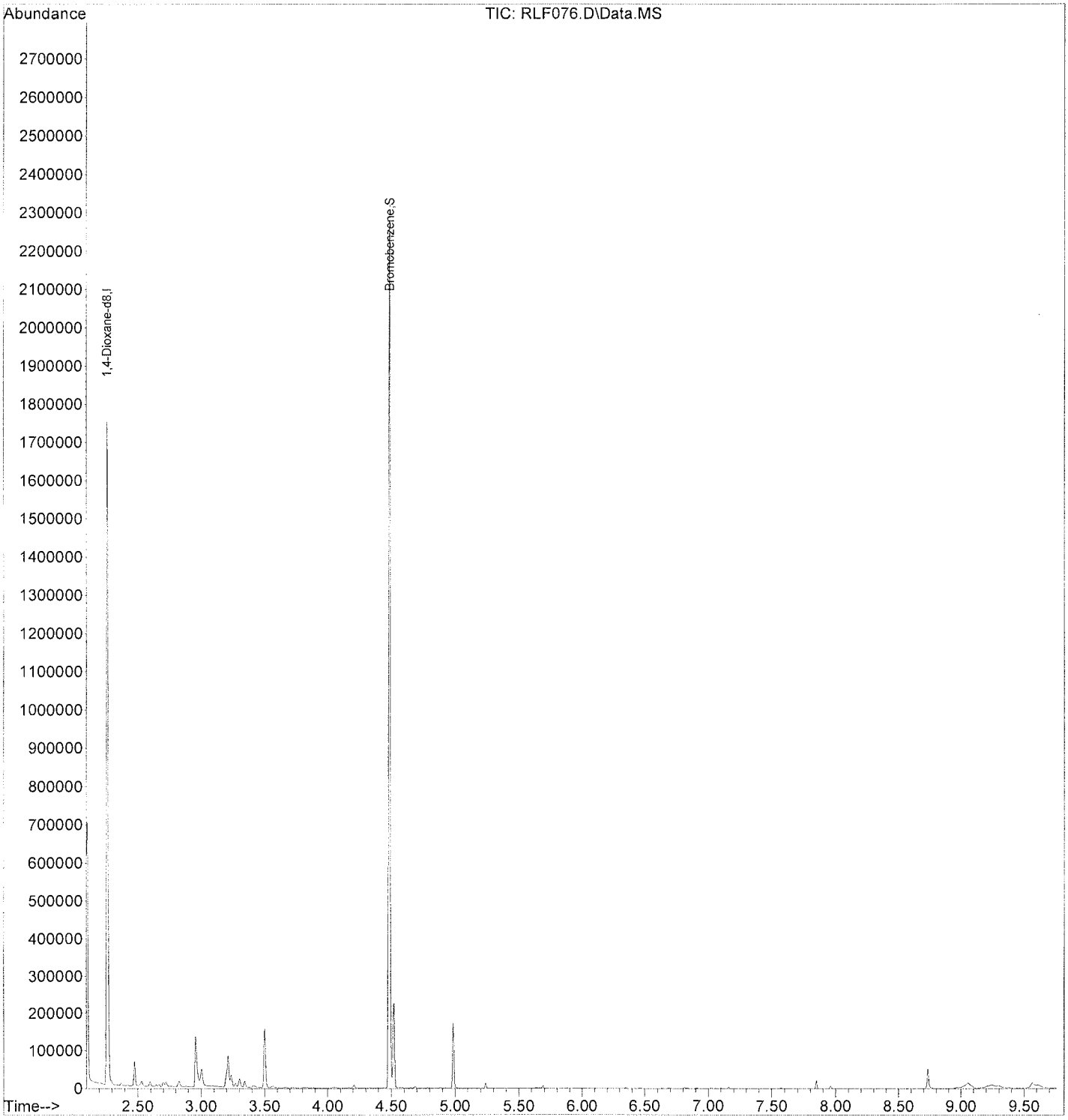
Data File : C:\msdchem\1\DATA\19L11\RLF076.D Vial: 42
Acq On : 11 Dec 2019 20:21 Operator: KVu
Sample : 19L064-17 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:47:43 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	142560	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	267290	11.76	ppm	0.00
Spiked Amount 20.000			Recovery =	58.80%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF076.D Vial: 42
Acq On : 11 Dec 2019 20:21 Operator: KVu
Sample : 19L064-17 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:47:43 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/07/19 14:10
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-MW14S-GW120719	Date Analyzed:	12/11/19 20:36
Lab Samp ID:	19L064-18	Dilution Factor:	1
Lab File ID:	RLF077	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.39	0.19

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	26.0	38.8	67	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 1030ml	Final Volume :	2ml
Prepared by	: HWang	Analyzed by :	KVu

Quantitation Report (QT Reviewed)

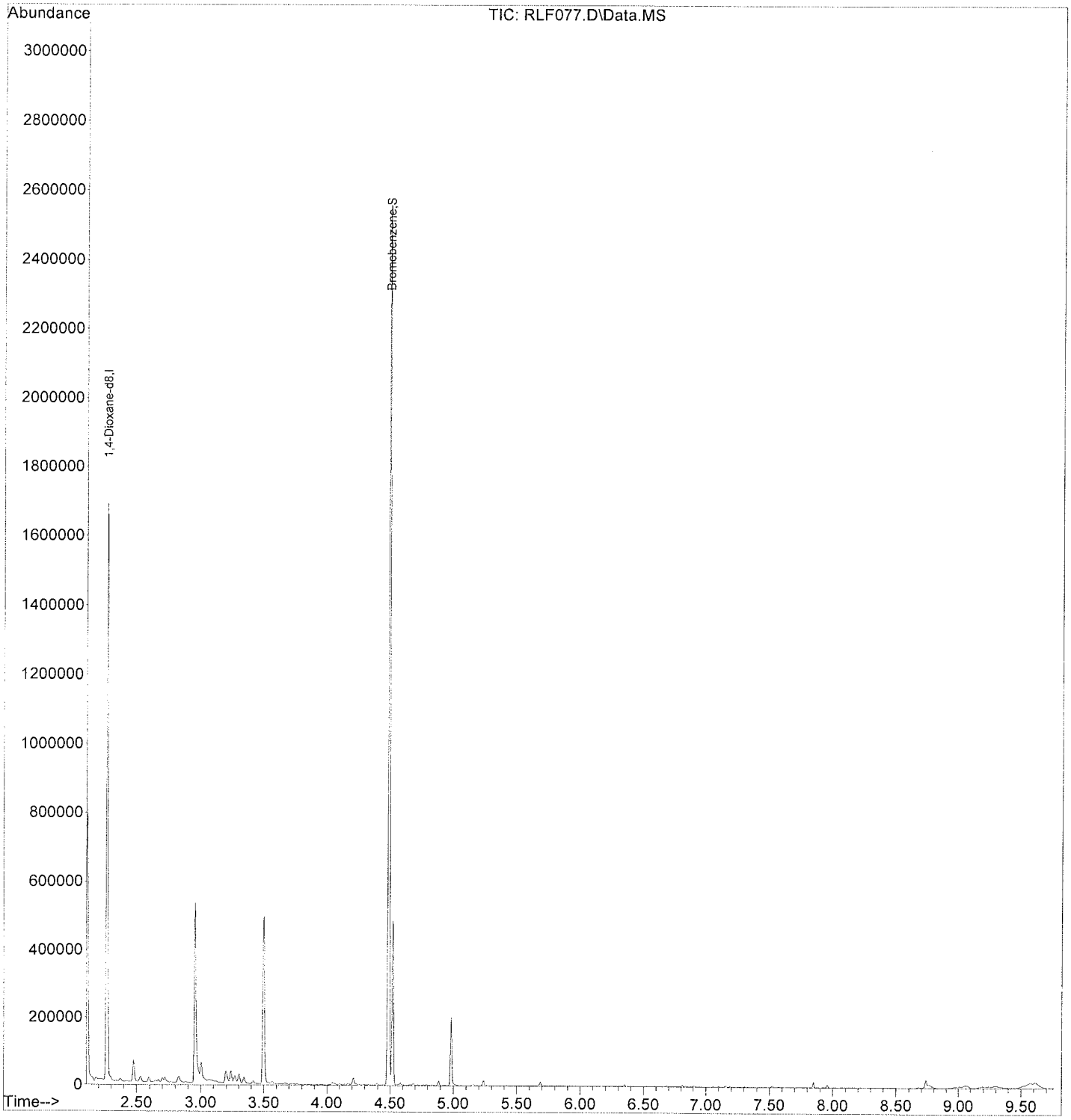
Data File : C:\msdchem\1\DATA\19L11\RLF077.D Vial: 43
Acq On : 11 Dec 2019 20:36 Operator: KVu
Sample : 19L064-18 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:59:04 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	138872	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	296354	13.38	ppm	0.00
Spiked Amount 20.000			Recovery =	66.90%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF077.D Vial: 43
Acq On : 11 Dec 2019 20:36 Operator: KVu
Sample : 19L064-18 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:59:04 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/08/19 10:15
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-MW05R-GW120819	Date Analyzed:	12/11/19 20:52
Lab Samp ID:	19L064-20	Dilution Factor:	1
Lab File ID:	RLF078	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.42	0.21

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	29.3	42.0	70	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 950ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

Quantitation Report (QT Reviewed)

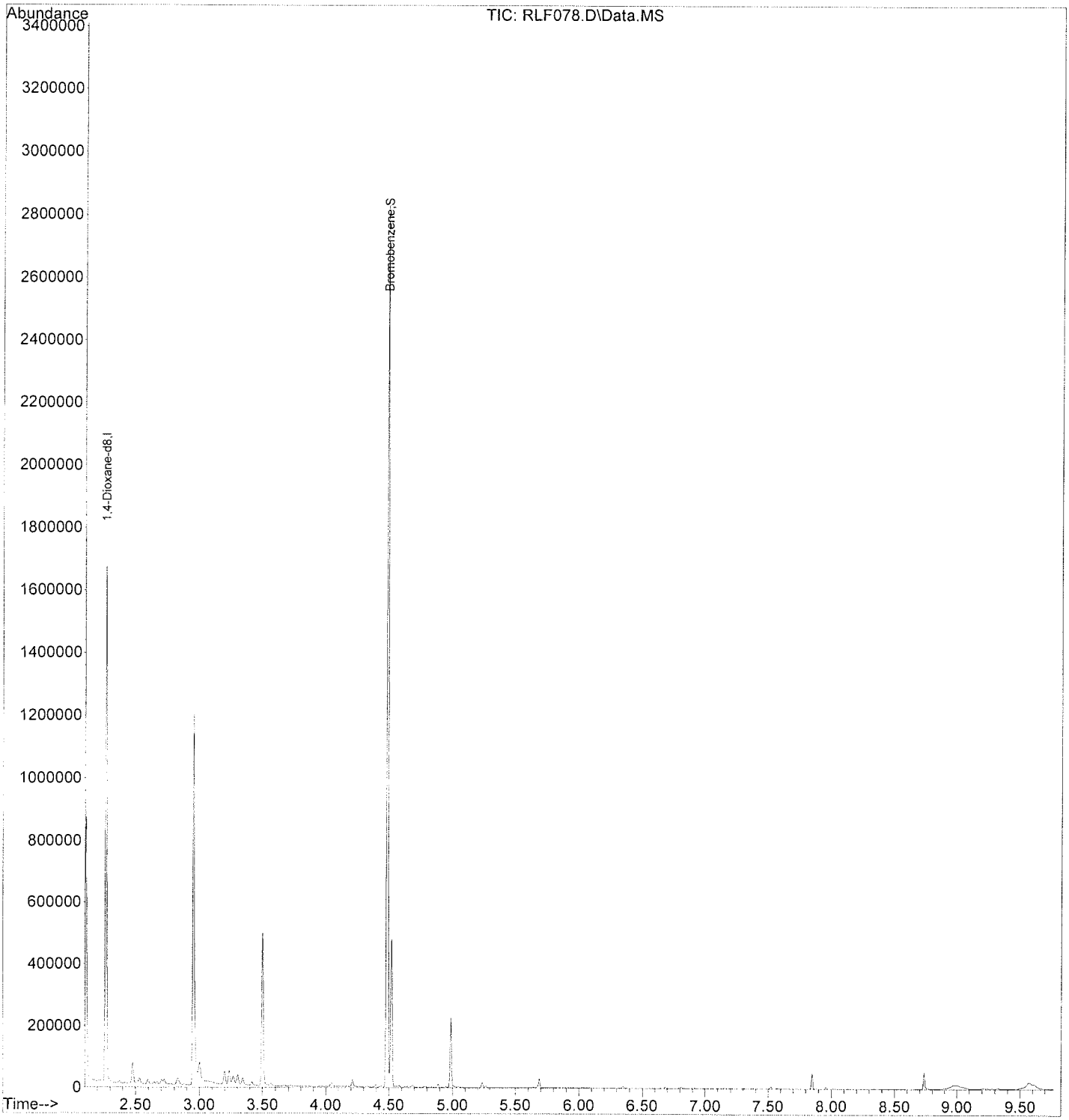
Data File : C:\msdchem\1\DATA\19L11\RLF078.D Vial: 44
Acq On : 11 Dec 2019 20:52 Operator: KVu
Sample : 19L064-20 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:47:49 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	140081	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	311174	13.93	ppm	0.00
Spiked Amount 20.000			Recovery =	69.65%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF078.D Vial: 44
Acq On : 11 Dec 2019 20:52 Operator: KVu
Sample : 19L064-20 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:47:49 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/08/19 11:05
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: OU2-MW08B-GW120819	Date Analyzed:	12/11/19 21:08
Lab Samp ID:	19L064-21	Dilution Factor:	1
Lab File ID:	RLF079	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	FO

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.42	0.21

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	30.5	42.0	73	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 950ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

Quantitation Report (QT Reviewed)

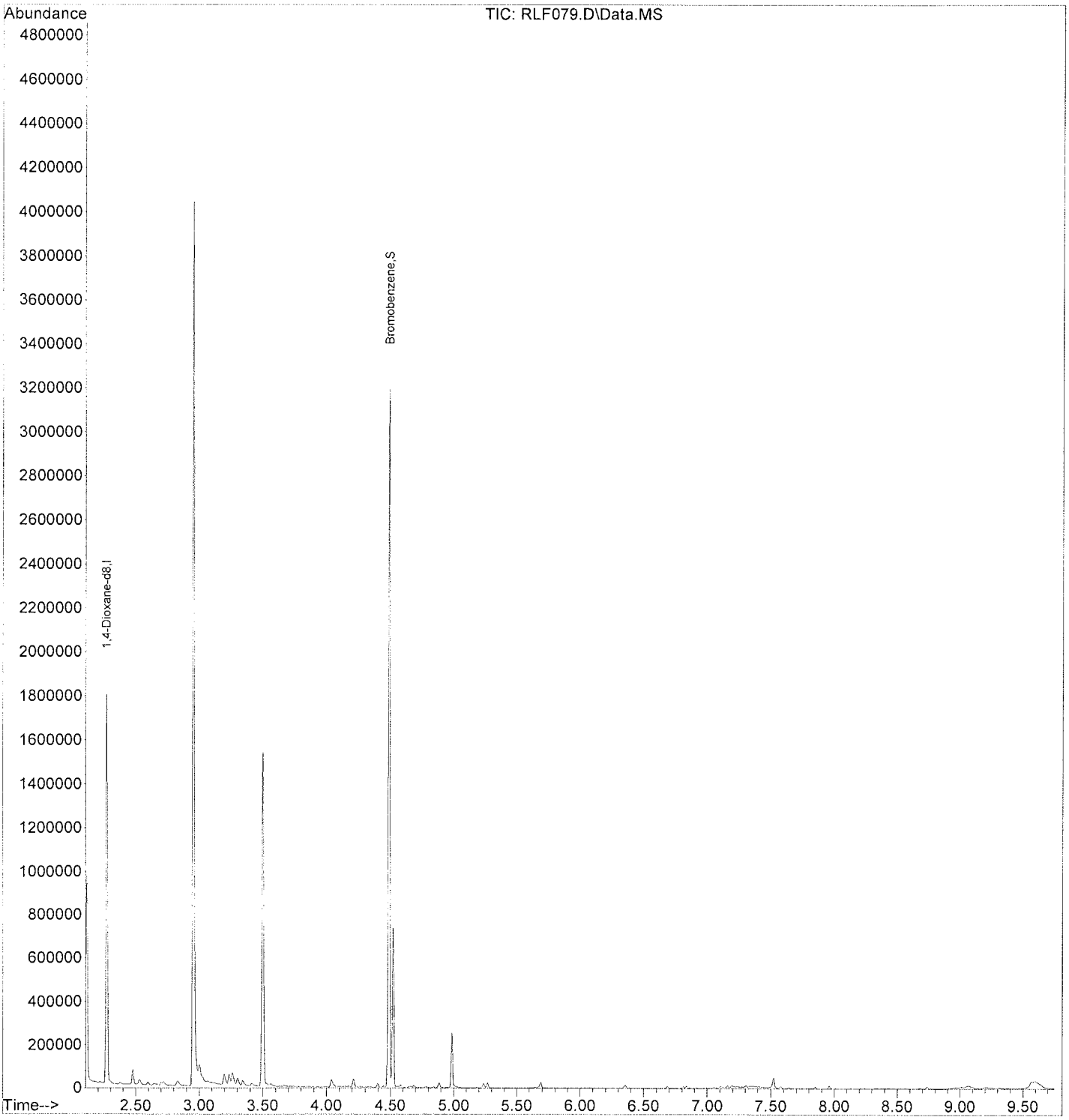
Data File : C:\msdchem\1\DATA\19L11\RLF079.D Vial: 45
Acq On : 11 Dec 2019 21:08 Operator: KVu
Sample : 19L064-21 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:47:52 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	156126	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	360197	14.47	ppm	0.00
Spiked Amount 20.000			Recovery =	72.35%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF079.D Vial: 45
Acq On : 11 Dec 2019 21:08 Operator: KVu
Sample : 19L064-21 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:47:52 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



QC SUMMARIES

METHOD SW3520C/SW8270D SIM
1,4-DIOXANE BY GC/MS SIM

Client	: CDM SMITH	Date Collected:	12/10/19 16:00
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/10/19 16:00
Sample ID	: MBLK1W	Date Analyzed:	12/11/19 15:23
Lab Samp ID:	SVL004WB	Dilution Factor:	1
Lab File ID:	RLF057	Matrix:	WATER
Ext Btch ID:	19SVL004W	% Moisture:	NA
Calib. Ref.:	RKF014	Instrument ID:	F0

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,4-Dioxane (P-Dioxane)	ND	0.40	0.20

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	30.0	40.0	75	30-160

Notes:

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 1000ml	Final Volume	: 2ml
Prepared by	: HWang	Analyzed by	: KVu

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : SW3520C/SW8270D SIM

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: SVL004WB	SVL004WL	SVL004WC
LAB FILE ID	: RLF057	RLF058	RLF059
DATE PREPARED	: 12/10/19 16:00	12/10/19 16:00	12/10/19 16:00
DATE ANALYZED	: 12/11/19 15:23	12/11/19 15:39	12/11/19 15:54
PREP BATCH	: 19SVL004W	19SVL004W	19SVL004W
CALIBRATION REF	: RKF014	RKF014	RKF014

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRP (%)
1,4-Dioxane (P-Dioxane)	ND	40.0	35.3	88	40.0	33.1	83	6	50-130	20

SURROGATE PARAMETER	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	QCLimit (%)
Bromobenzene	40.0	30.5	76	40.0	28.8	72	30-160

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : SW3520C/SW8270D SIM

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: OU2-MW15D-GW120719	OU2-MW15D-GW120719MS	OU2-MW15D-GW120719MSD
LAB SAMPLE ID	: 19L064-07	19L064-07M	19L064-07S
LAB FILE ID	: RLF067	RLF060	RLF061
DATE PREPARED	: 12/10/19 16:00	12/10/19 16:00	12/10/19 16:00
DATE ANALYZED	: 12/11/19 18:00	12/11/19 16:10	12/11/19 16:26
PREP BATCH	: 19SVL004W	19SVL004W	19SVL004W
CALIBRATION REF	: RKF014	RKF014	RKF014

ACCESSION:

PARAMETERS	PSResult (ug/L)	SpikeAmt (ug/L)	MSResult (ug/L)	MSRec (%)	SpikeAmt (ug/L)	MSDResult (ug/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRP (%)
1,4-Dioxane (P-Dioxane)	ND	45.6	38.6	85	45.6	36.4	80	6	50-130	20

SURROGATE PARAMETER	SpikeAmt (ug/L)	MSResult (ug/L)	MSRec (%)	SpikeAmt (ug/L)	MSDResult (ug/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	45.6	33.1	73	45.6	30.2	66	30-160

PS: Parent Sample MS: Matrix Spike MSD: Matrix Spike Duplicate

QC DATA

Quantitation Report (QT Reviewed)

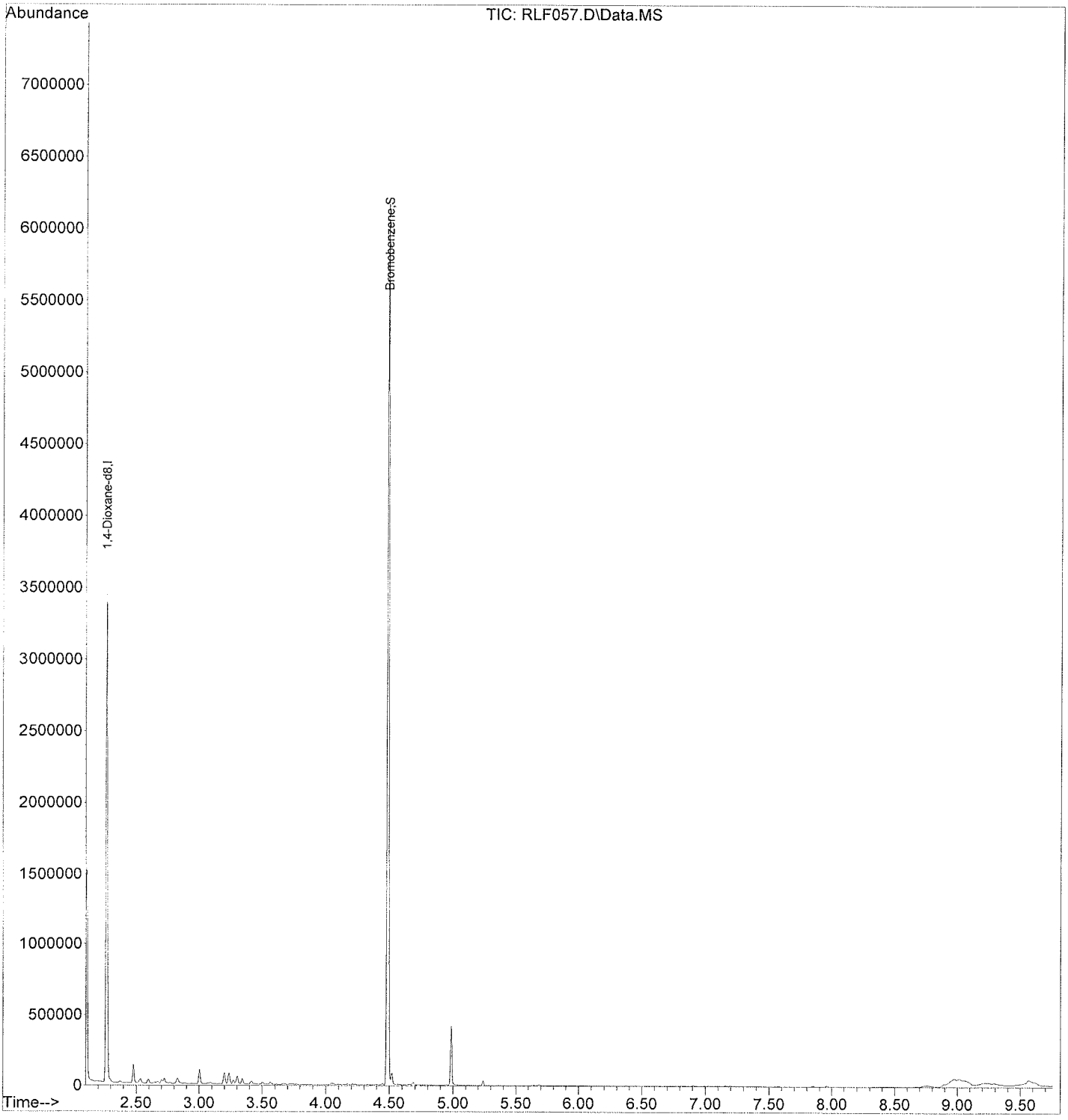
Data File : C:\msdchem\1\DATA\19L11\RLF057.D Vial: 23
Acq On : 11 Dec 2019 15:23 Operator: KVu
Sample : SVL004WB Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 15:39:34 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	296522	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	709486	15.00	ppm	0.00
Spiked Amount 20.000			Recovery =	75.00%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF057.D Vial: 23
Acq On : 11 Dec 2019 15:23 Operator: KVu
Sample : SVL004WB Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 15:39:34 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



Quantitation Report (QT Reviewed)

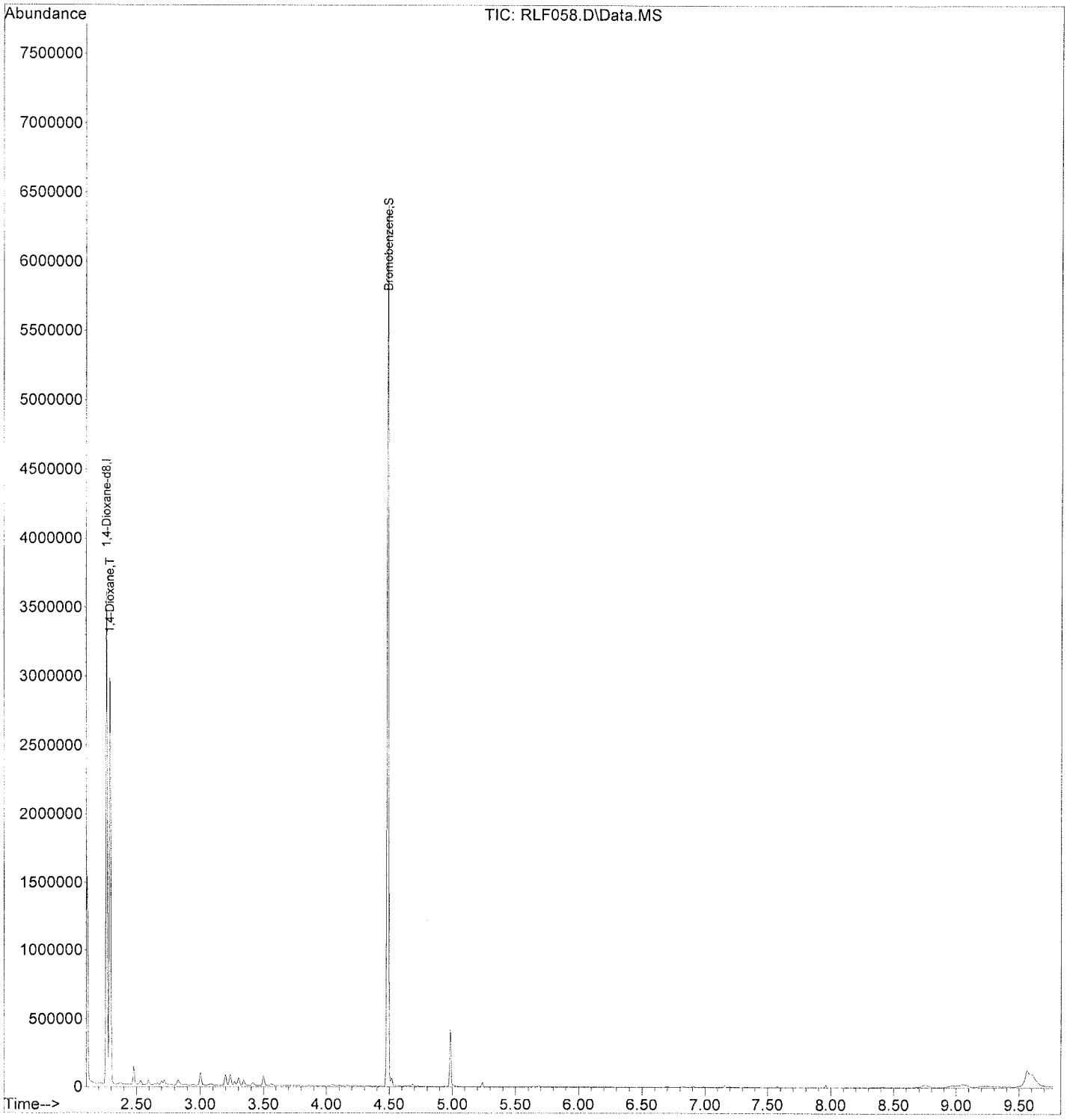
Data File : C:\msdchem\1\DATA\19L11\RLF058.D Vial: 24
Acq On : 11 Dec 2019 15:39 Operator: KVu
Sample : SVL004WL Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:55:05 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	301496	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	733794	15.26	ppm	0.00
Spiked Amount 20.000			Recovery =	76.30%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	236019	17.64	ppm	# 73

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF058.D Vial: 24
Acq On : 11 Dec 2019 15:39 Operator: KVu
Sample : SVL004WL Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:55:05 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



Quantitation Report (QT Reviewed)

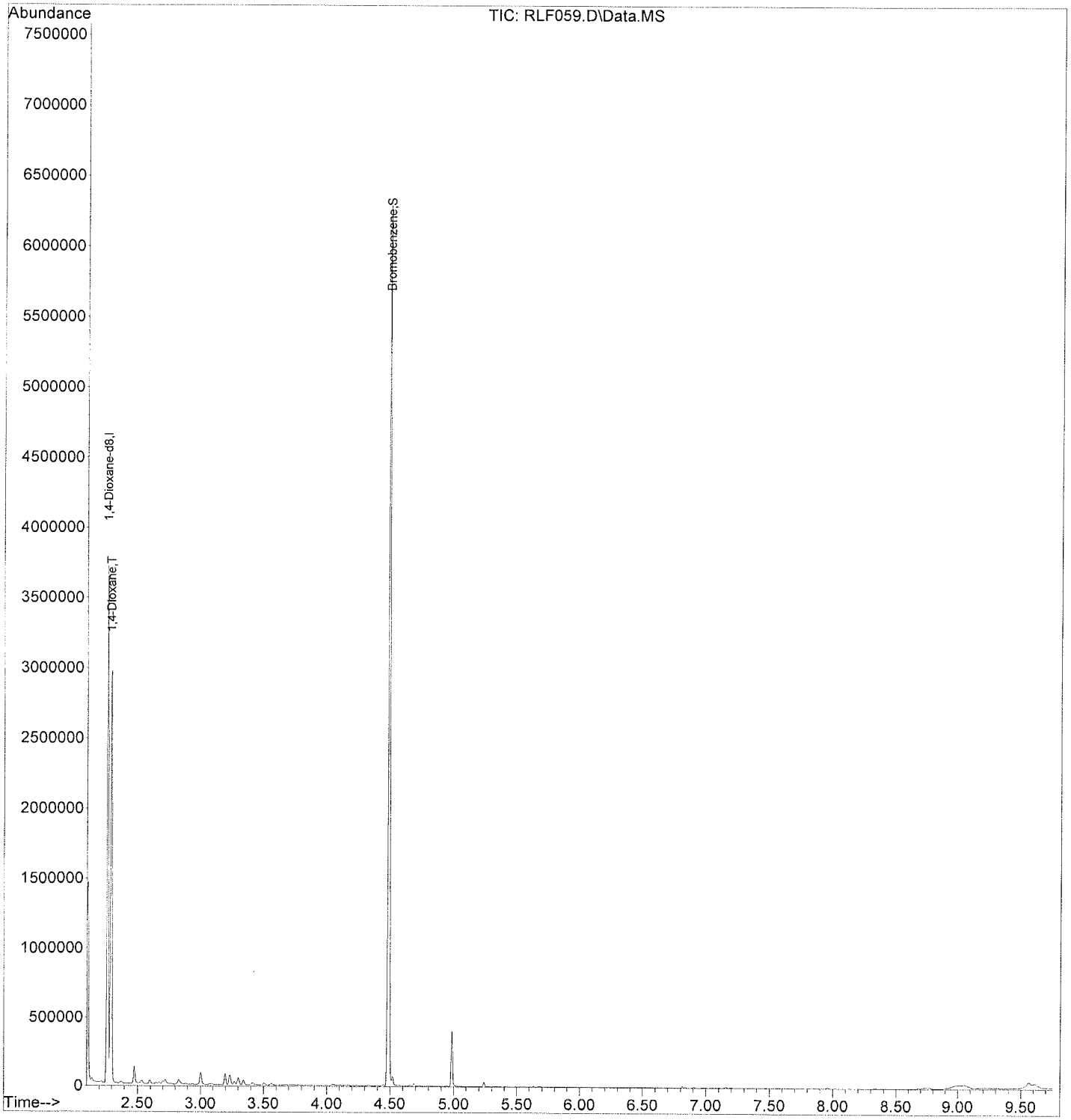
Data File : C:\msdchem\1\DATA\19L11\RLF059.D Vial: 25
Acq On : 11 Dec 2019 15:54 Operator: KVu
Sample : SVL004WC Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:55:16 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	316103	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	726781	14.42	ppm	0.00
Spiked Amount 20.000			Recovery =	72.10%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	232056	16.54	ppm	# 74

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF059.D Vial: 25
Acq On : 11 Dec 2019 15:54 Operator: KVu
Sample : SVL004WC Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:55:16 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



Quantitation Report (QT Reviewed)

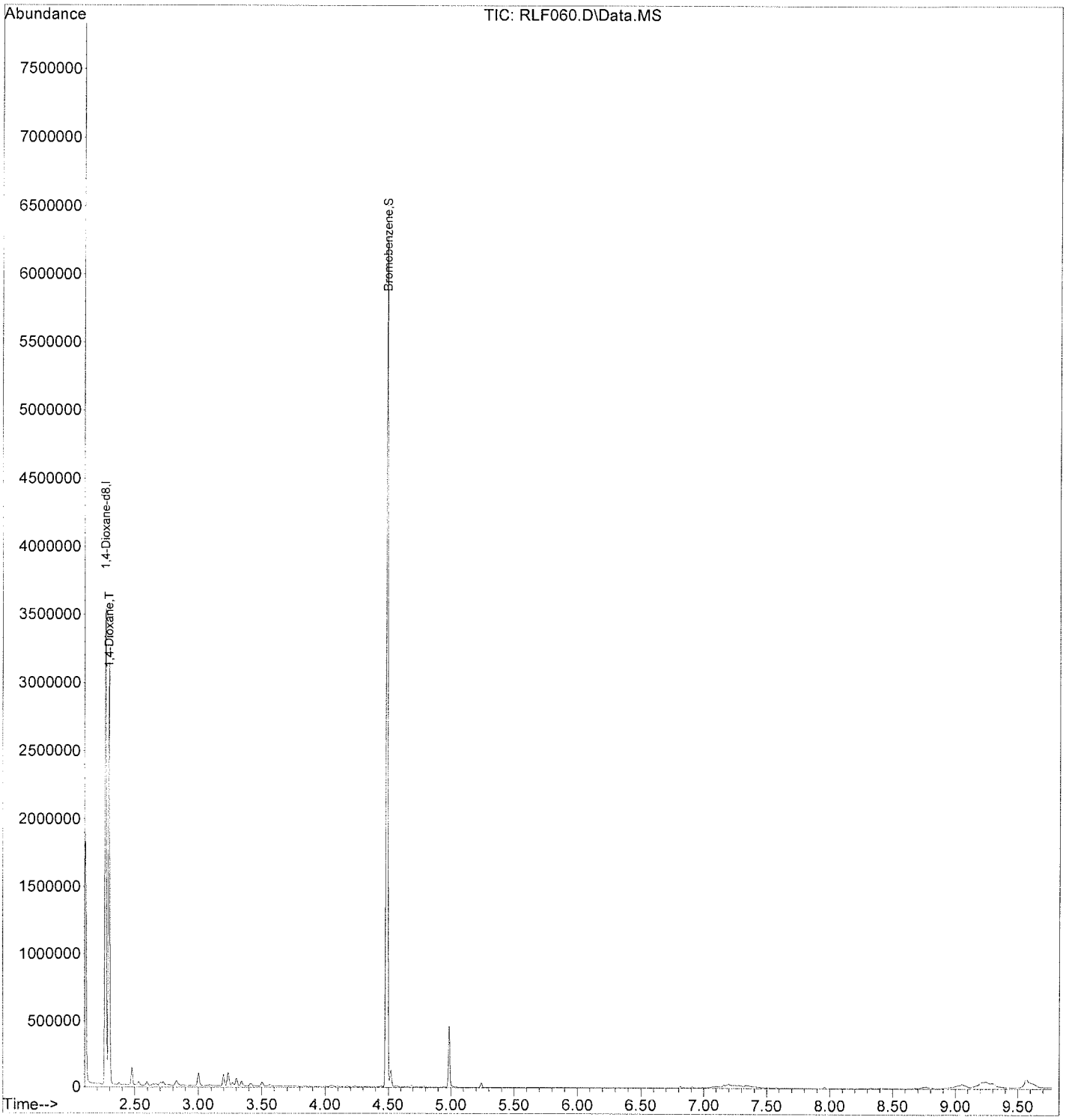
Data File : C:\msdchem\1\DATA\19L11\RLF060.D Vial: 26
Acq On : 11 Dec 2019 16:10 Operator: KVu
Sample : 19L064-07M Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:55:26 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	311018	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	721619	14.55	ppm	0.00
Spiked Amount 20.000			Recovery =	72.75%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	234306	16.97	ppm	# 74

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF060.D Vial: 26
Acq On : 11 Dec 2019 16:10 Operator: KVu
Sample : 19L064-07M Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:55:26 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



Quantitation Report (QT Reviewed)

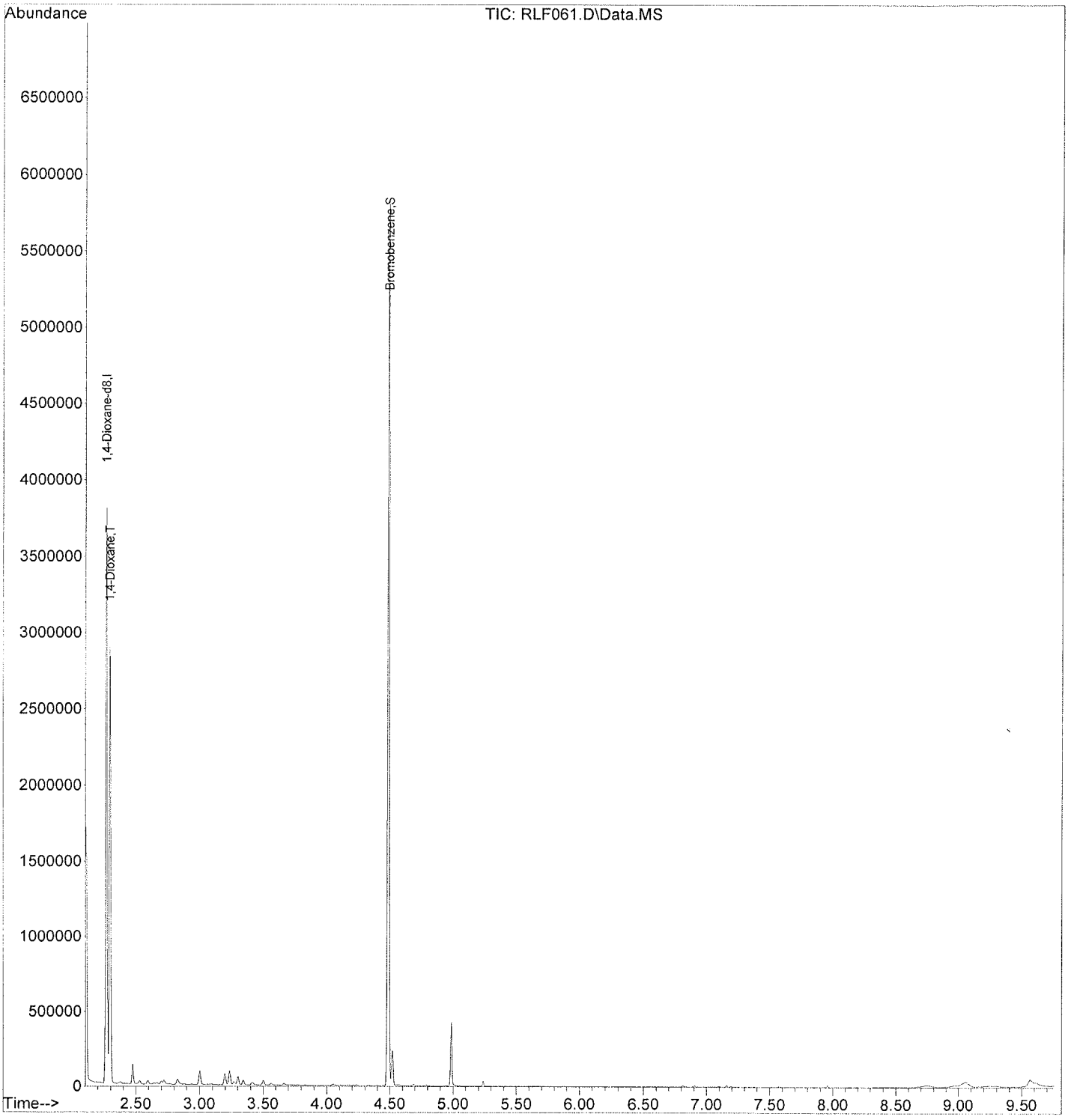
Data File : C:\msdchem\1\DATA\19L11\RLF061.D Vial: 27
Acq On : 11 Dec 2019 16:26 Operator: KVu
Sample : 19L064-07S Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:55:40 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	315370	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	667934	13.28	ppm	0.00
Spiked Amount 20.000			Recovery =	66.40%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	224087	16.00	ppm	# 72

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF061.D Vial: 27
Acq On : 11 Dec 2019 16:26 Operator: KVu
Sample : 19L064-07S Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 12 07:55:40 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



INITIAL CALIBRATIONS

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : EMAX Laboratories, Inc. Project :VA SALT LAKE CITY
Lab Code : EMAX SDG No :19L064
Lab File ID: RKF011 DFTPP Injection Date:11/15/19
Instrument ID: F0 DFTPP Injection Time:10:37

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15 - 40% of mass 95	36.470
75	30 - 60% of mass 95	55.773
95	Base Peak, 100% relative abundance	100.000
96	5 - 9% of mass 95	6.772
173	Less than 2% of mass 174	0.000(0)1
174	50 - 100% of mass 95	61.677
175	5 - 9% of mass 174	4.861(7.88)1
176	95 - 101% % of mass 174	58.982(95.63)1
177	5 - 9% % of mass 176	3.759(6.37)2

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

This check applies to the following samples, Lab QCs and Standards:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	SSTD100	SVF0K1541	RKF012	11/15/19	10:50
2	SSTD60	SVF0K152	RKF013	11/15/19	11:03
3	SSTD20	SVF0K153	RKF014	11/15/19	11:19
4	SSTD5	SVF0K154	RKF015	11/15/19	11:37
5	SSTD1	SVF0K155	RKF016	11/15/19	11:51
6	SSTD0.5	SVF0K156	RKF017	11/15/19	12:07
7	SSTD0.2	SVF0K157	RKF018	11/15/19	12:23
8	SSTD0.15	SVF0K158	RKF019	11/15/19	12:39
9	SSTD0.075	SVF0K159	RKF020	11/15/19	12:55
10	SSTD0.05	SVF0K1510	RKF021	11/15/19	13:11
11	ISSTD20	ISVF0K151	RKF022	11/15/19	13:27

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: EMAX Laboratories, Inc.

Project: ICAL

Lab Code: EMAX SDG No: ICAL

Lab File ID: RKF014 Date Analyzed: 11/15/19

Instrument ID: F0 Time Analyzed: 11:19

	INTERNAL STANDARD (IS)	1,4-Dioxane-d8 Area #	RT #
	12 HOUR STD	213044	2.26
	UPPER LIMIT	426088	2.76
	LOWER LIMIT	106522	1.76
		Area #	RT #
1	SSTD100	203218	2.27
2	SSTD60	206910	2.26
3	SSTD20	213044	2.26
4	SSTD5	224906	2.26
5	SSTD1	220732	2.26
6	SSTD0.5	219847	2.26
7	SSTD0.2	228530	2.26
8	SSTD0.15	238530	2.26
9	SSTD0.075	240731	2.26
10	SSTD0.05	249906	2.26
11	ISSTD20	263400	2.28

Area Upper Limit = +100% of ICAL Midpoint IS Area

Area Lower Limit = -50% of ICAL Midpoint IS Area

Retention Time(RT) Upper Limit = +30 seconds of ICAL Midpoint IS RT

Retention Time(RT) Lower Limit = -30 seconds of ICAL Midpoint IS RT

YM 12/22/19

INITIAL_CALIBRATION - RELATIVE_RESPONSE_FACTOR

Instrument ID :DSQ
Beginning DateTime :11/15/19 10:50
Spike Units :PPM
IC File :RKF014

Column Spec :ZB-SemiVoa ID :0.25MM
Ending DateTime :11/15/19 13:11
HPChem Method :SVFOK15

IDX	Parameters	.05 13:11 RKF021	.075 12:55 RKF020	.15 12:39 RKF019	.2 12:23 RKF018	.5 12:07 RKF017	1 11:51 RKF016	5 11:37 RKF015	20 11:19 RKF014	60 11:03 RKF013	100 10:50 RKF012	Av_RRF	%_RSD	Av_Rt_M
1	1,4-Dioxane-d8	1	1	1	1	1	1	1	1	1	1	1	0	2.2651
2	1,4-Dioxane	1.676	1.446	1.493	1.293	1.283	1.109	1.119	0.995	0.883	0.850	1.215	22.39	2.2937
3	Bromobenzene	------	------	3.651	3.361	3.244	3.268	3.266	2.983	2.553	------	3.189	10.74	4.4866

Ave_%RSD : 16.6 Max_%RSD : 22.4

Use Least Square Linear Regression with weighting factor of inverse concentration
Resp_Ratio = xo + x1 * Amt_Ratio

IDX	Parameter	x0	x1	CCF
2	1,4-Dioxane	0.00343	0.88374	0.9976

YM 12/22/19

INITIAL_CALIBRATION - RELATIVE_RESPONSE_FACTOR(%REC)

Instrument ID :DSQ
Beginning DateTime :11/15/19 10:50
Spike Units :PPM
IC File :RKF014

Column Spec :ZB-SemiVoa ID :0.25MM
Ending DateTime :11/15/19 13:11
HPChem Method :SVF0K15

IDX	Parameters	.05 13:11 RKF021	.075 12:55 RKF020	.15 12:39 RKF019	.2 12:23 RKF018	.5 12:07 RKF017	1 11:51 RKF016	5 11:37 RKF015	20 11:19 RKF014	60 11:03 RKF013	100 10:50 RKF012	AvDRec	%_RSD	Av_Rt_M
1	1,4-Dioxane-d8	1	1	1	1	1	1	1	1	1	1	1	0	2.2651
2	1,4-Dioxane	138	119	123	106	106	91	92	82	73	70	18.4	22.39	2.2937
3	Bromobenzene	------	------	114	105	102	102	102	94	80	------	7.6	10.74	4.4866

YM 12/22/19

Quantitation Limit from Lowest Initial Calibration Concentration

Instrument ID :DSQ
Beginning DateTime :11/15/19 10:50
IC File :RKF014

Column Spec :ZB-SemiVoa ID :0.25MM
Ending DateTime :11/15/19 13:11
HPChem Method :SVF0K15

WATER Init. Vol. (ml) : 1000 Final Vol. (ml) : 2
SOIL Init. Weight (gm) : 30 Final Vol. (ml) : 2

IDX	Parameters	ON_COL MG/L	WATER UG/L	SOIL MG/KG	R_FILE
1	1,4-Dioxane-d8	IntSTD	IntSTD	IntSTD	IntSTD
2	1,4-Dioxane	.05	.1	.003333	RKF021
3	Bromobenzene	.15	.3	.01	RKF019

YM 12/22/19

Quantitation Limit from Lowest Initial Calibration Concentration

Instrument ID :DSQ
Beginning DateTime :11/15/19 10:50
IC File :RKF014

Column Spec :ZB-SemiVoa ID :0.25MM
Ending DateTime :11/15/19 13:11
HPChem Method :SVF0K15

WATER Init. Vol. (ml) : 1000 Final Vol. (ml) : 1
SOIL Init. Weight (gm) : 30 Final Vol. (ml) : 1

IDX	Parameters	ON_COL MG/L	WATER UG/L	SOIL MG/KG	R_FILE
1	1,4-Dioxane-d8	IntSTD	IntSTD	IntSTD	IntSTD
2	1,4-Dioxane	.05	.05	.001667	RKF021
3	Bromobenzene	.15	.15	.005	RKF019

YM 12/22/19

Compound List Report DSQ

Method Path : C:\msdchem\1\METHODS\
Method File : SVF0K15.M
Title : SEMIVOLATILES - SIM
Last Update : Fri Nov 15 15:37:37 2019
Response Via : Initial Calibration

Total Cpnds : 3

PK#		Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I	1,4-Dioxane-d8	96	2.264	1.000	A	1	A	B
2	T	1,4-Dioxane	88	2.291	1.012	L	2	A	B
3	S	Bromobenzene	77	4.486	1.981	A	1	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
#Qual = number of qualifiers
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

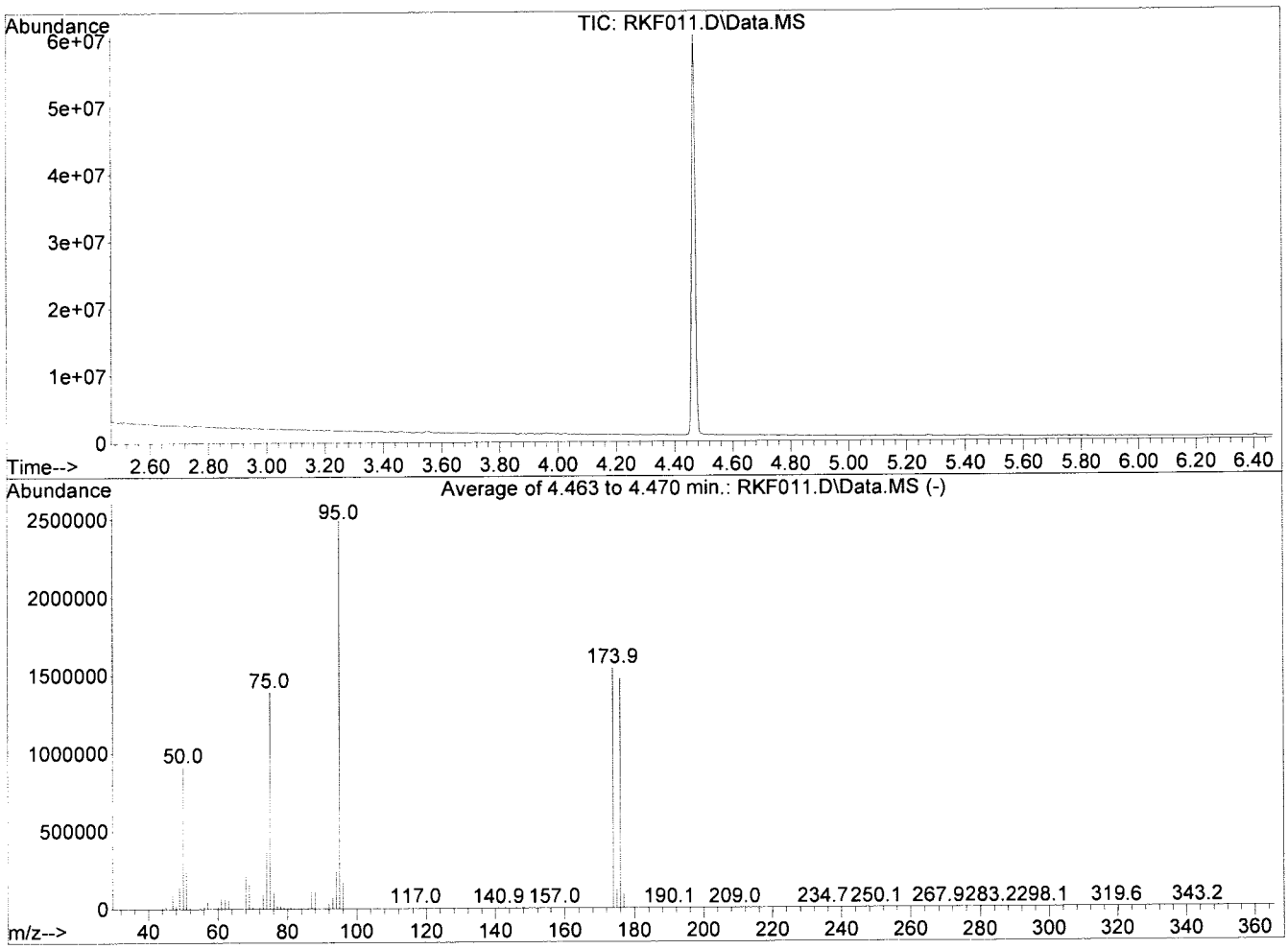
SVF0K15.M Fri Nov 15 15:38:01 2019 F0

YM
12/22/19

Data Path : C:\msdchem\1\DATA\19K15\
Data File : RKF011.D
Acq On : 15 Nov 2019 10:37
Operator : KVu
Sample : BFBF0K1501
Misc : F0
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\BFB.M
Title : BFB
Last Update : Fri Nov 15 14:33:51 2019



AutoFind: Scans 684, 685, 686; Background Corrected with Scan 671

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	36.5	910057	PASS
75	95	30	60	55.8	1391765	PASS
95	95	100	100	100.0	2495388	PASS
96	95	5	9	6.8	168981	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	61.7	1539072	PASS
175	174	5	9	7.9	121293	PASS
176	174	95	101	95.6	1471829	PASS
177	176	5	9	6.4	93795	PASS

YM 11/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF021.D Vial: 12
Acq On : 15 Nov 2019 13:11 Operator: KVu
Sample : SVF0K1510 0.05PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 21 11:02:40 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	249906	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	0.000	77	0d	0.00	ppm	
Spiked Amount 20.000			Recovery =	0.00%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.295	88	1047	0.02	ppm	# 37

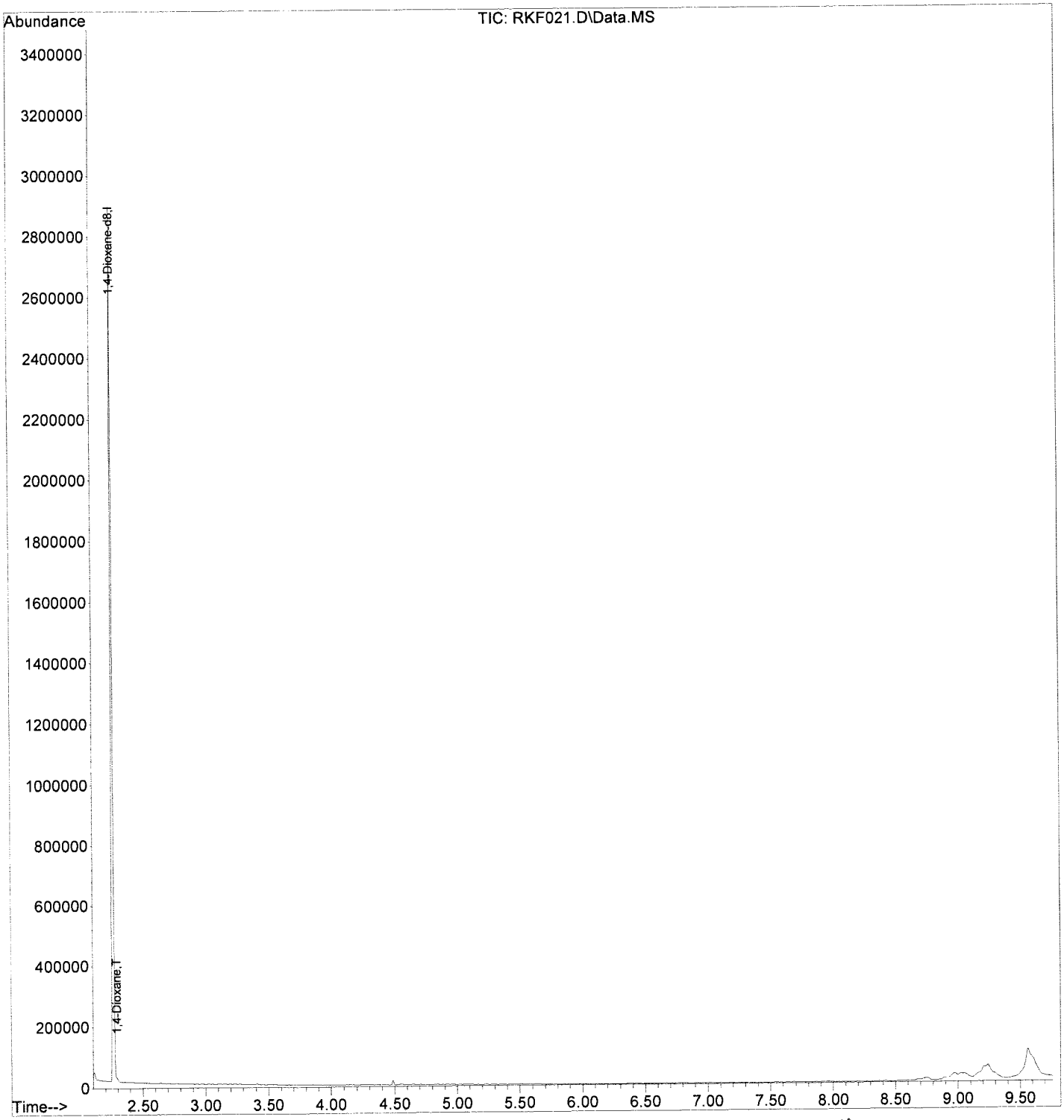
(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF021.D
Acq On : 15 Nov 2019 13:11
Sample : SVF0K1510 0.05PPM
Misc : F0
Integrator: RTE
Quant Time: Nov 21 11:02:40 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Vial: 12
Operator: KVu
Inst : DSQ
Multiplr: 1.00



Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF020.D Vial: 11
Acq On : 15 Nov 2019 12:55 Operator: KVu
Sample : SVF0K159 0.075PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 21 11:02:31 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

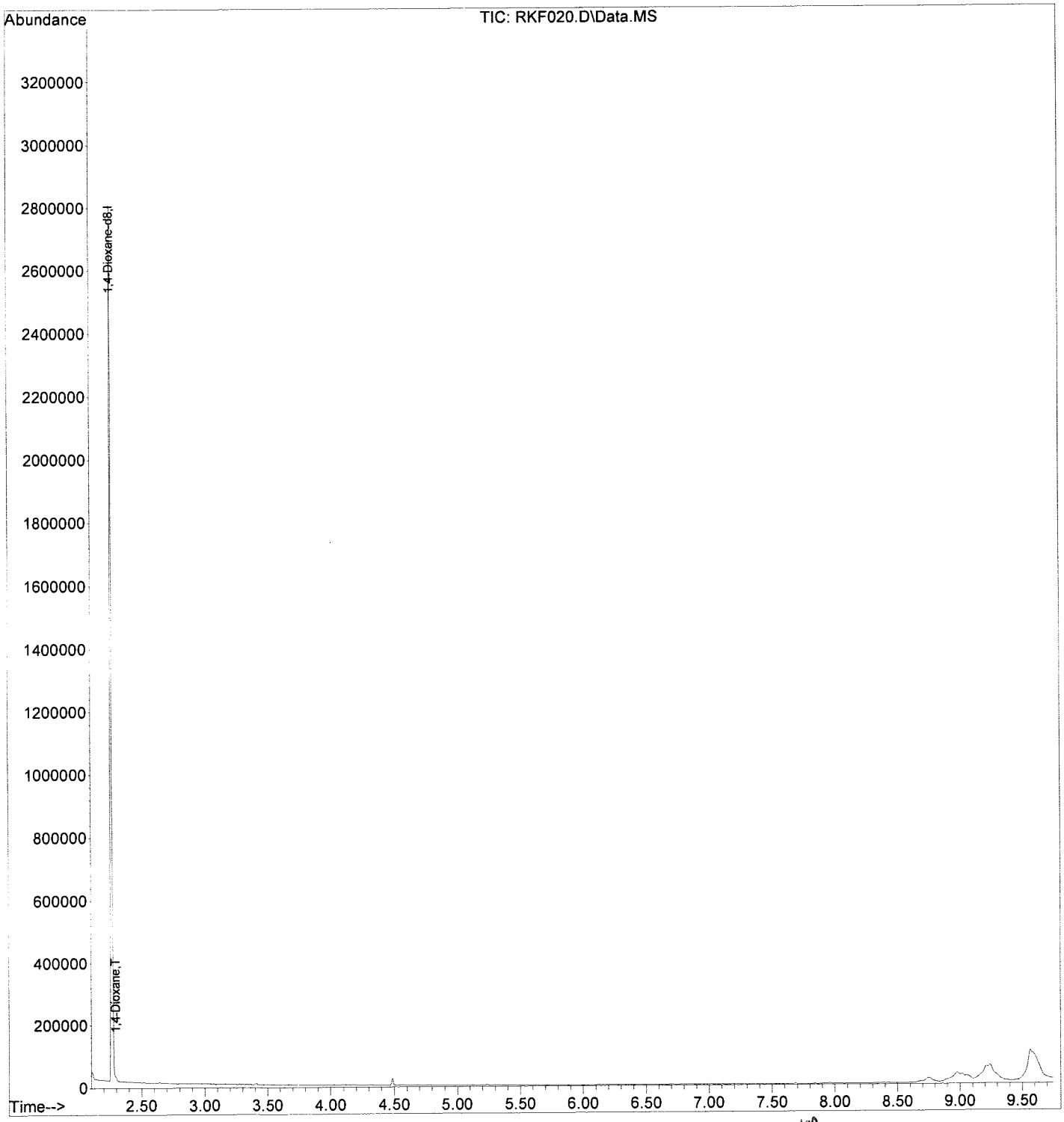
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	240731	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	0.000	77	0d	0.00	ppm	
Spiked Amount 20.000			Recovery =	0.00%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.295	88	1305	0.05	ppm	# 55

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF020.D Vial: 11
Acq On : 15 Nov 2019 12:55 Operator: KVu
Sample : SVF0K159 0.075PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 21 11:02:31 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF019.D Vial: 10
Acq On : 15 Nov 2019 12:39 Operator: KVu
Sample : SVF0K158 0.15PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:55:55 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	238530	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	6531	0.17	ppm	0.00
Spiked Amount 20.000			Recovery =	0.85%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.295	88	2671	0.18	ppm	# 71

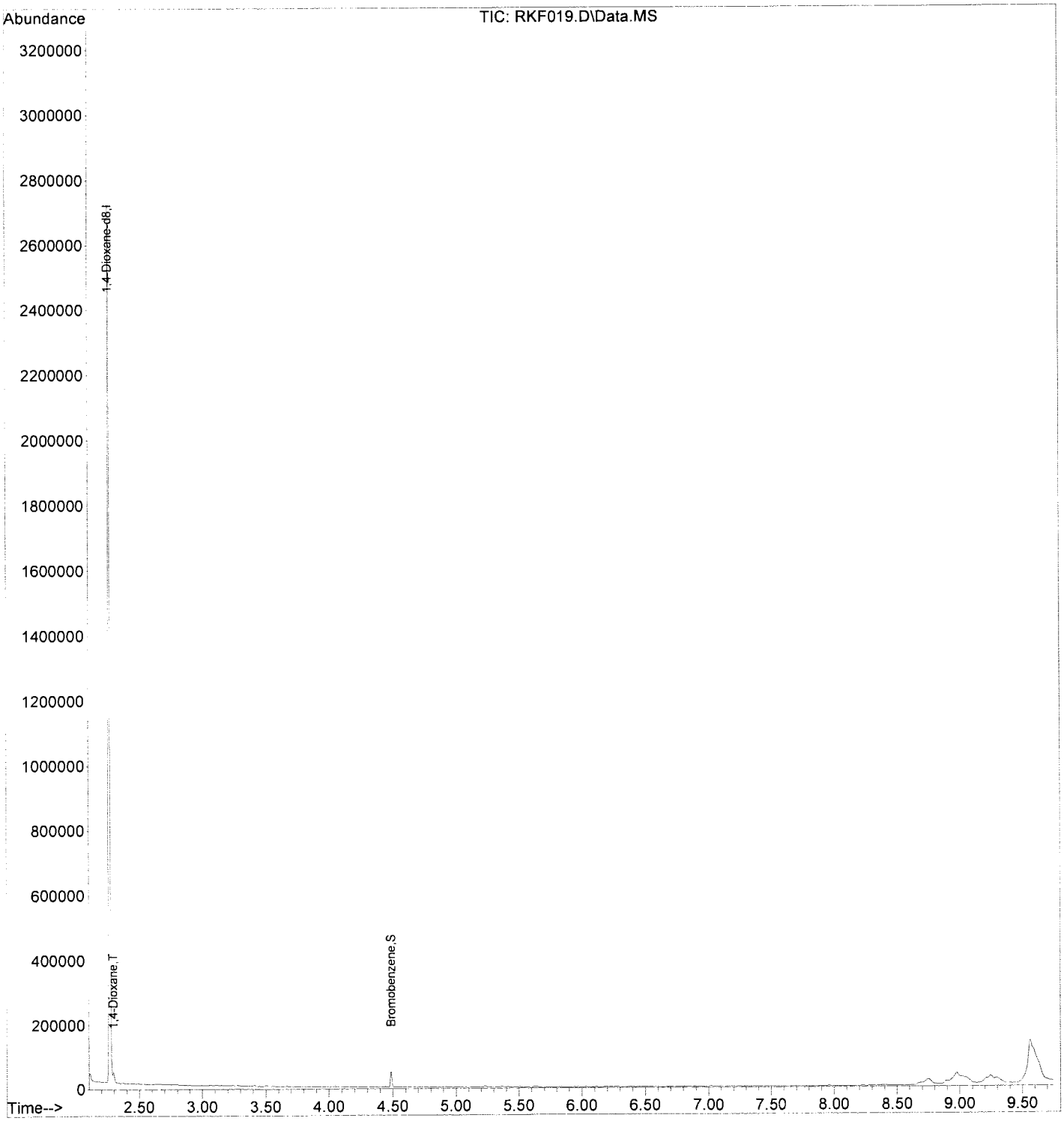
(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF019.D
Acq On : 15 Nov 2019 12:39
Sample : SVF0K158 0.15PPM
Misc : F0
Integrator: RTE
Quant Time: Nov 18 08:55:55 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Vial: 10
Operator: KVu
Inst : DSQ
Multiplr: 1.00



Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF018.D Vial: 9
Acq On : 15 Nov 2019 12:23 Operator: KVu
Sample : SVF0K157 0.2PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:55:36 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	228530	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	7680	0.21	ppm	0.00
Spiked Amount 20.000			Recovery =	1.05%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.295	88	2954	0.21	ppm	78

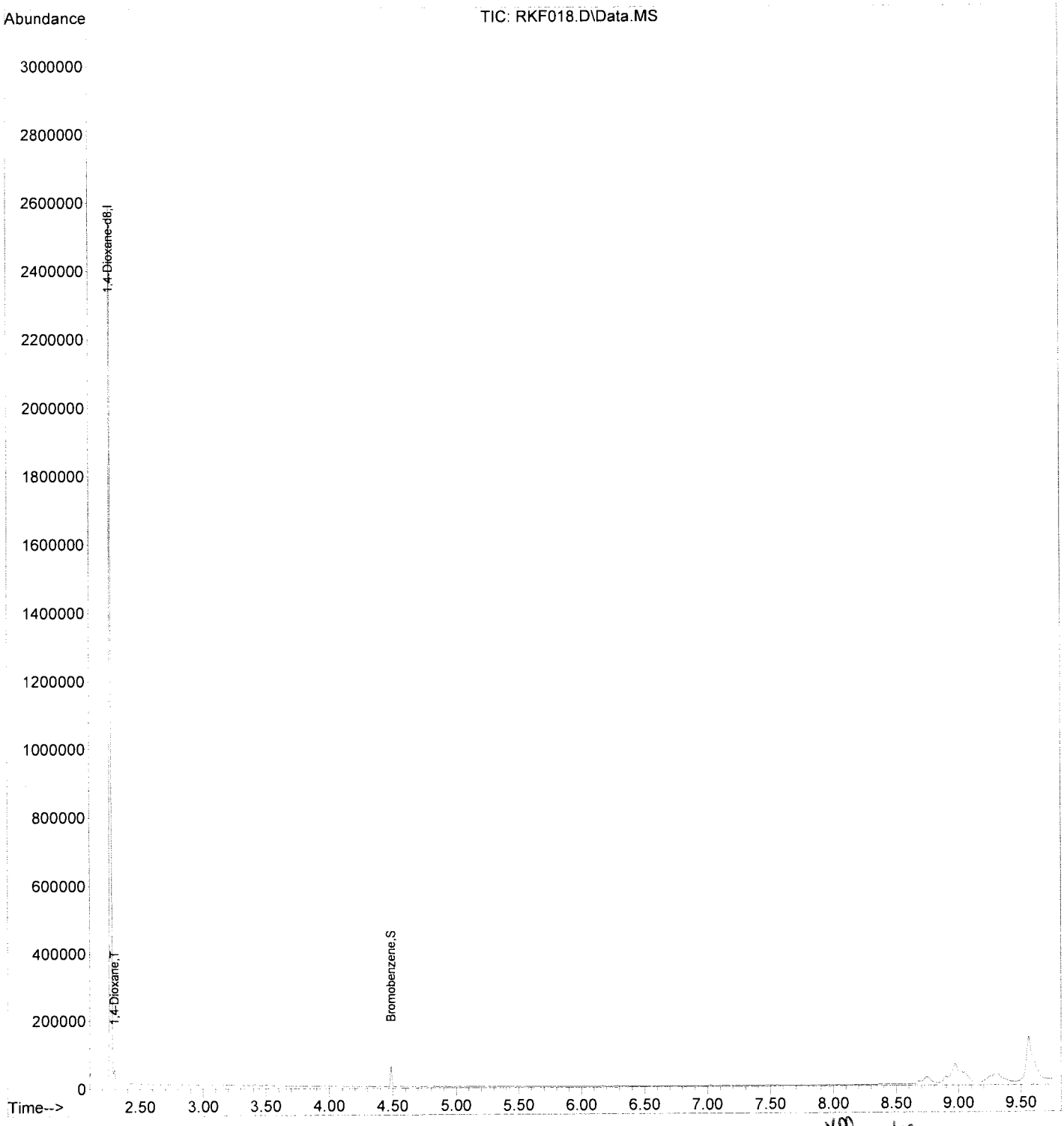
(#) = qualifier out of range (m) = manual integration (+) = signals summed

ym 12/2/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF018.D
Acq On : 15 Nov 2019 12:23
Sample : SVF0K157 0.2PPM
Misc : F0
Integrator: RTE
Quant Time: Nov 18 08:55:36 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Vial: 9
Operator: KVu
Inst : DSQ
Multip1r: 1.00



Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF017.D Vial: 8
Acq On : 15 Nov 2019 12:07 Operator: KVu
Sample : SVF0K156 0.5PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:54:25 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

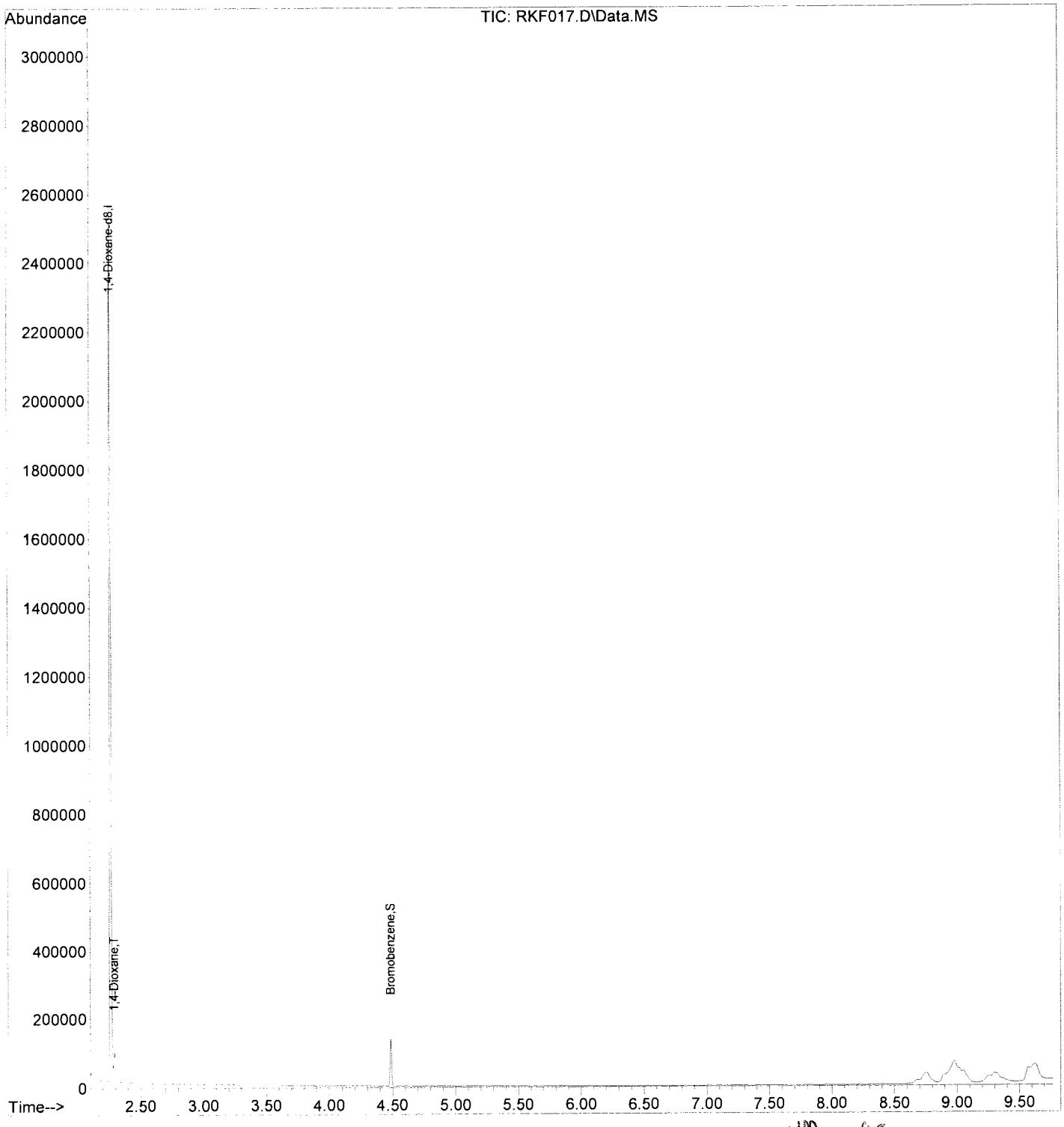
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	219847	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	17830	0.51	ppm	0.00
Spiked Amount 20.000			Recovery =	2.55%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	7051	0.65	ppm	80

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/24/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF017.D Vial: 8
Acq On : 15 Nov 2019 12:07 Operator: KVu
Sample : SVF0K156 0.5PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:54:25 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



YM 12/20/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF016.D Vial: 7
Acq On : 15 Nov 2019 11:51 Operator: KVu
Sample : SVF0K155 1PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:53:53 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

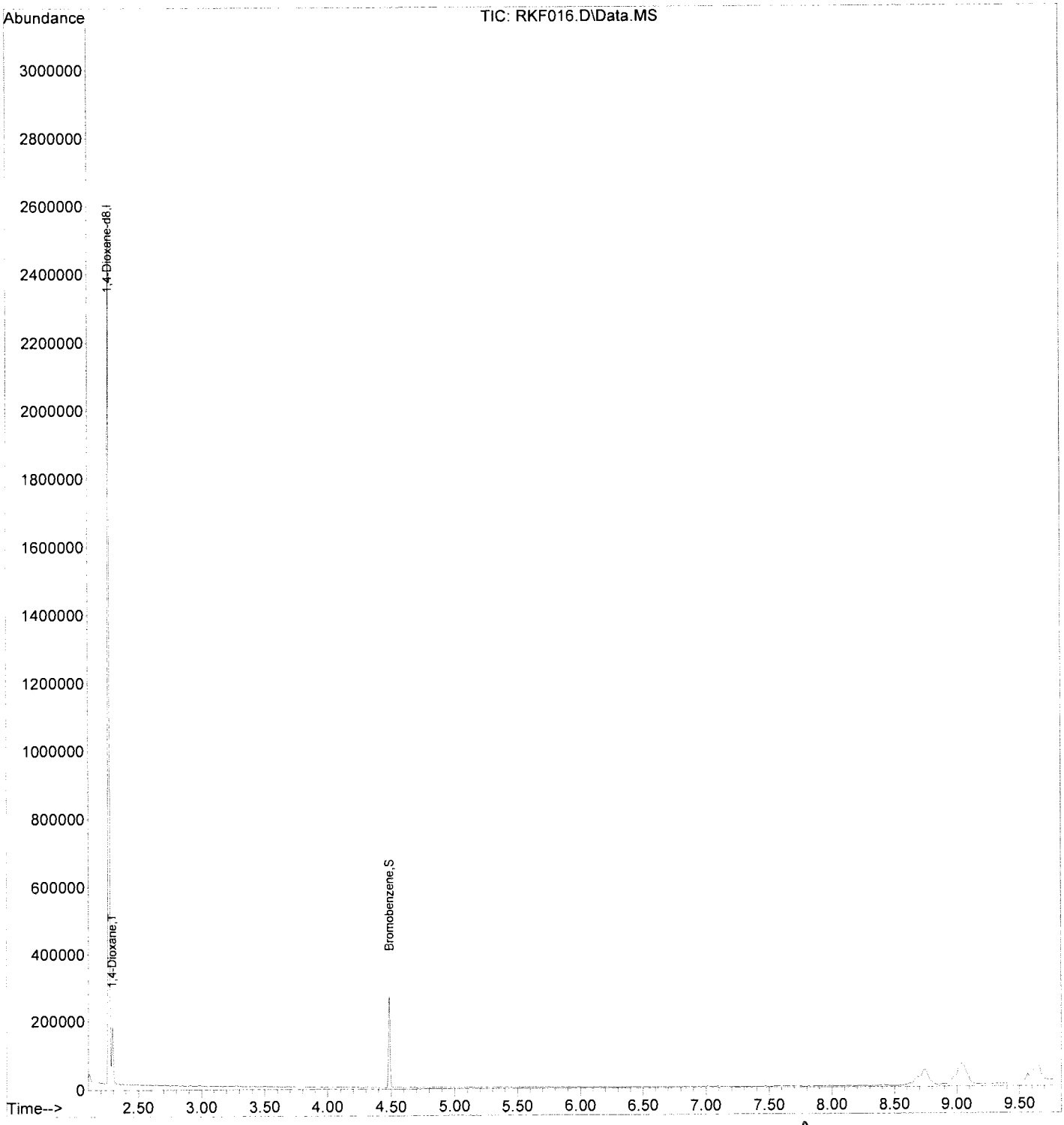
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	220732	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	36063	1.02	ppm	0.00
Spiked Amount 20.000			Recovery =	5.10%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	12235	1.18	ppm	92

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF016.D Vial: 7
Acq On : 15 Nov 2019 11:51 Operator: KVu
Sample : SVF0K155 1PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:53:53 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



SVF0K15.M Mon Nov 18 08:54:02 2019 F0 Page: 2

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF015.D Vial: 6
Acq On : 15 Nov 2019 11:37 Operator: KVu
Sample : SVF0K154 5PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:52:42 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

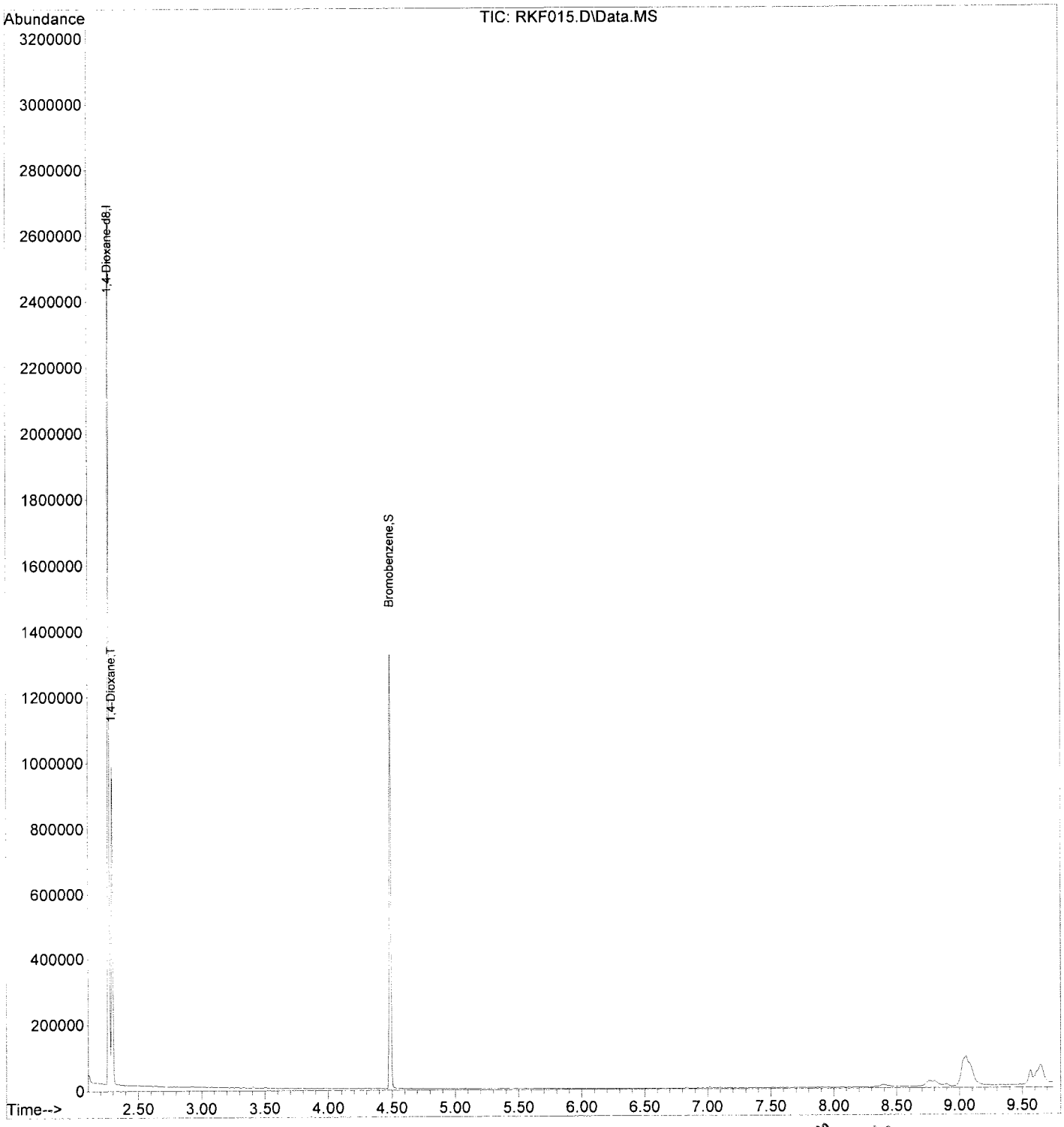
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	224906	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	183639	5.12	ppm	0.00
Spiked Amount 20.000			Recovery =	25.60%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	62943	6.26	ppm	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF015.D Vial: 6
Acq On : 15 Nov 2019 11:37 Operator: KVu
Sample : SVF0K154 5PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:52:42 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF014.D
Acq On : 15 Nov 2019 11:19
Sample : SVF0K153 20PPM
Misc : F0
Integrator: RTE
Quant Time: Nov 18 08:52:22 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Vial: 5
Operator: KVu
Inst : DSQ
Multiplr: 1.00

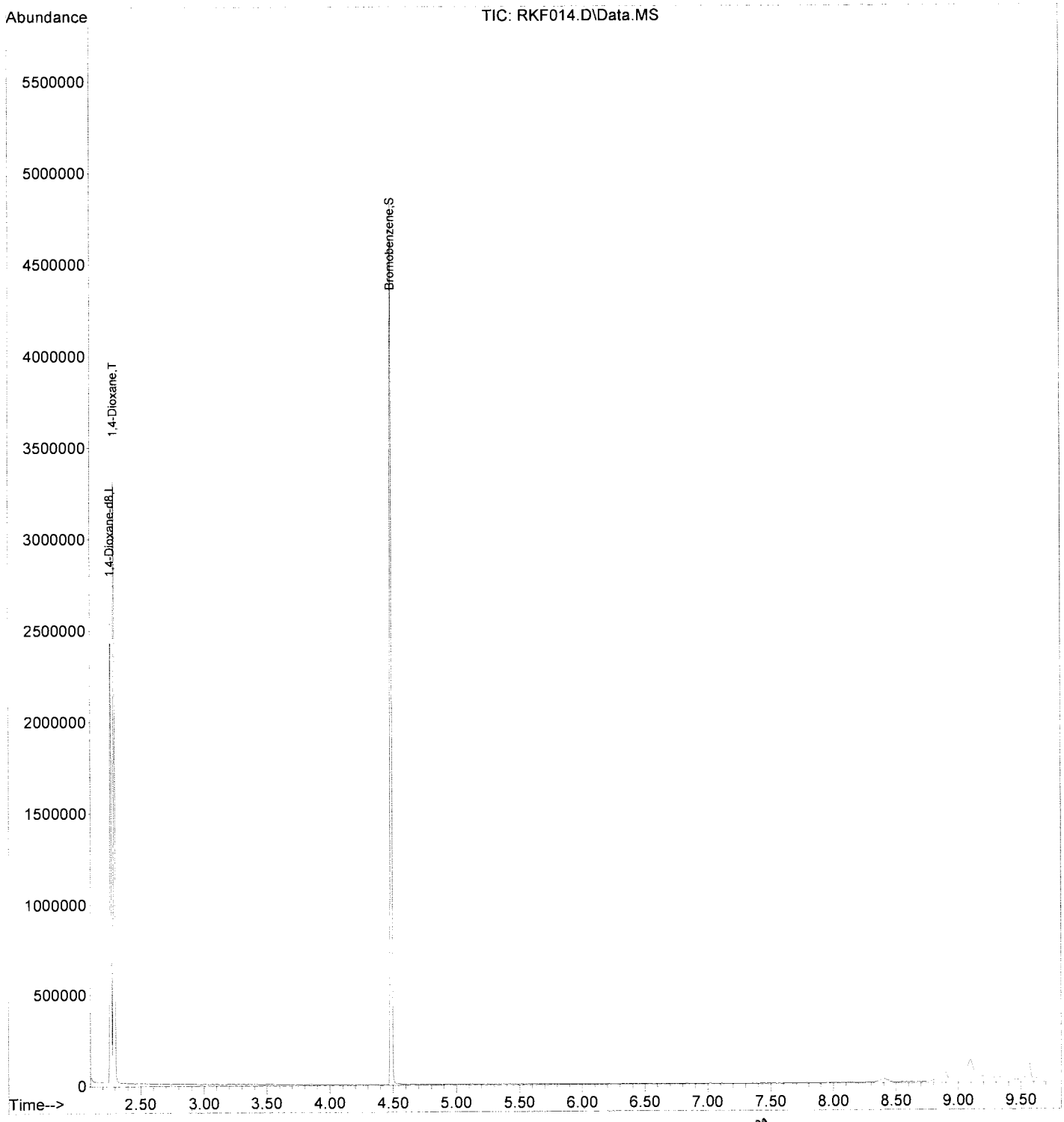
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	213044	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.486	77	635497	18.71	ppm	0.00
Spiked Amount 20.000			Recovery =	93.55%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	212034	22.45	ppm	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/23/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF014.D Vial: 5
Acq On : 15 Nov 2019 11:19 Operator: KVu
Sample : SVF0K153 20PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:52:22 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF013.D Vial: 4
Acq On : 15 Nov 2019 11:03 Operator: KVu
Sample : SVF0K152 60PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:51:30 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

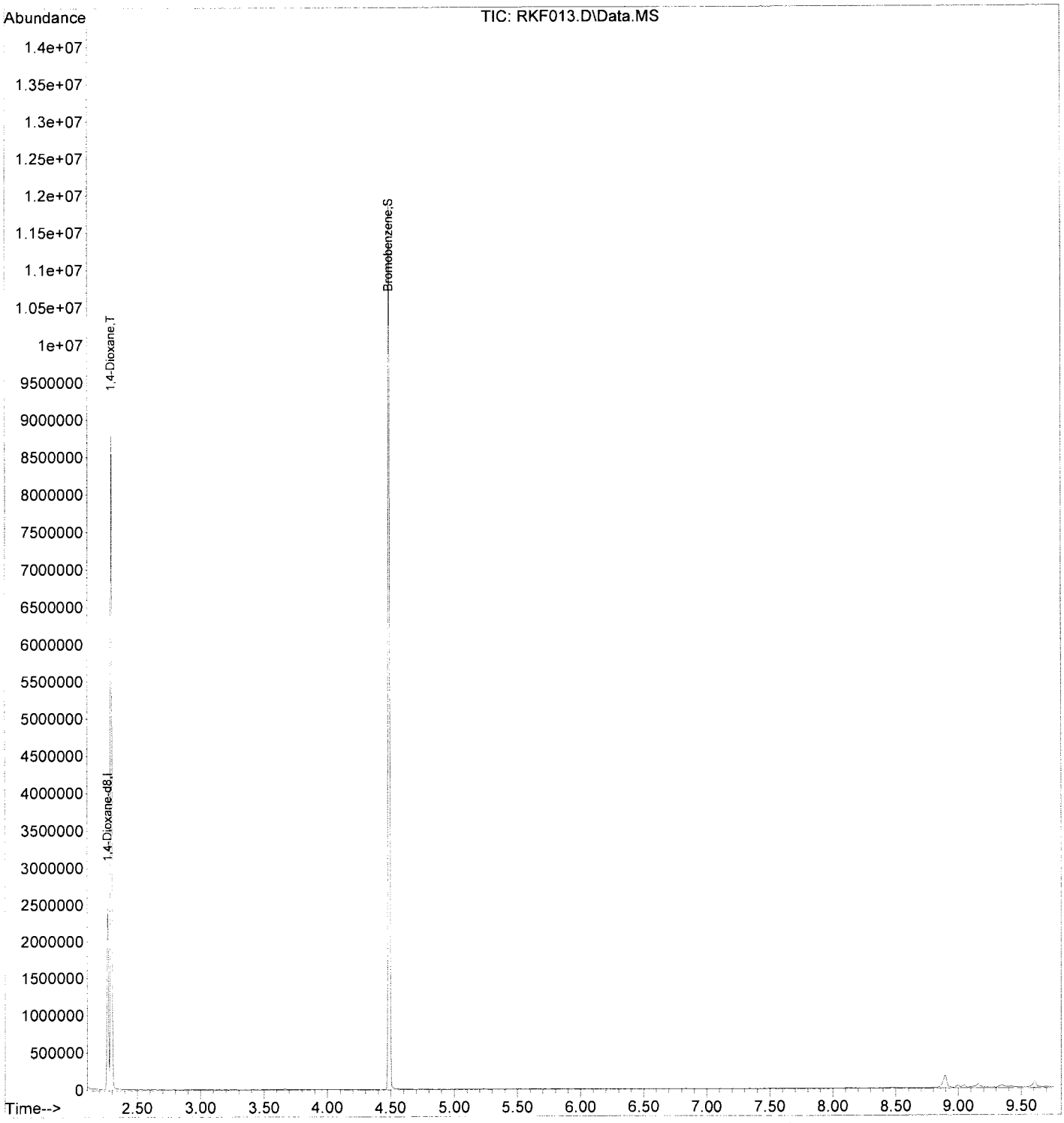
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.264	96	206910	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.487	77	1584987	48.04	ppm	0.00
Spiked Amount 20.000			Recovery =	240.20%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.291	88	547884	59.85	ppm	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF013.D Vial: 4
Acq On : 15 Nov 2019 11:03 Operator: KVu
Sample : SVF0K152 60PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:51:30 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



SVF0K15.M Mon Nov 18 08:51:44 2019 F0 YM 12/22/19 Page: 2

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF012.D Vial: 3
Acq On : 15 Nov 2019 10:50 Operator: KVu
Sample : SVF0K1541 100PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 21 10:58:40 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

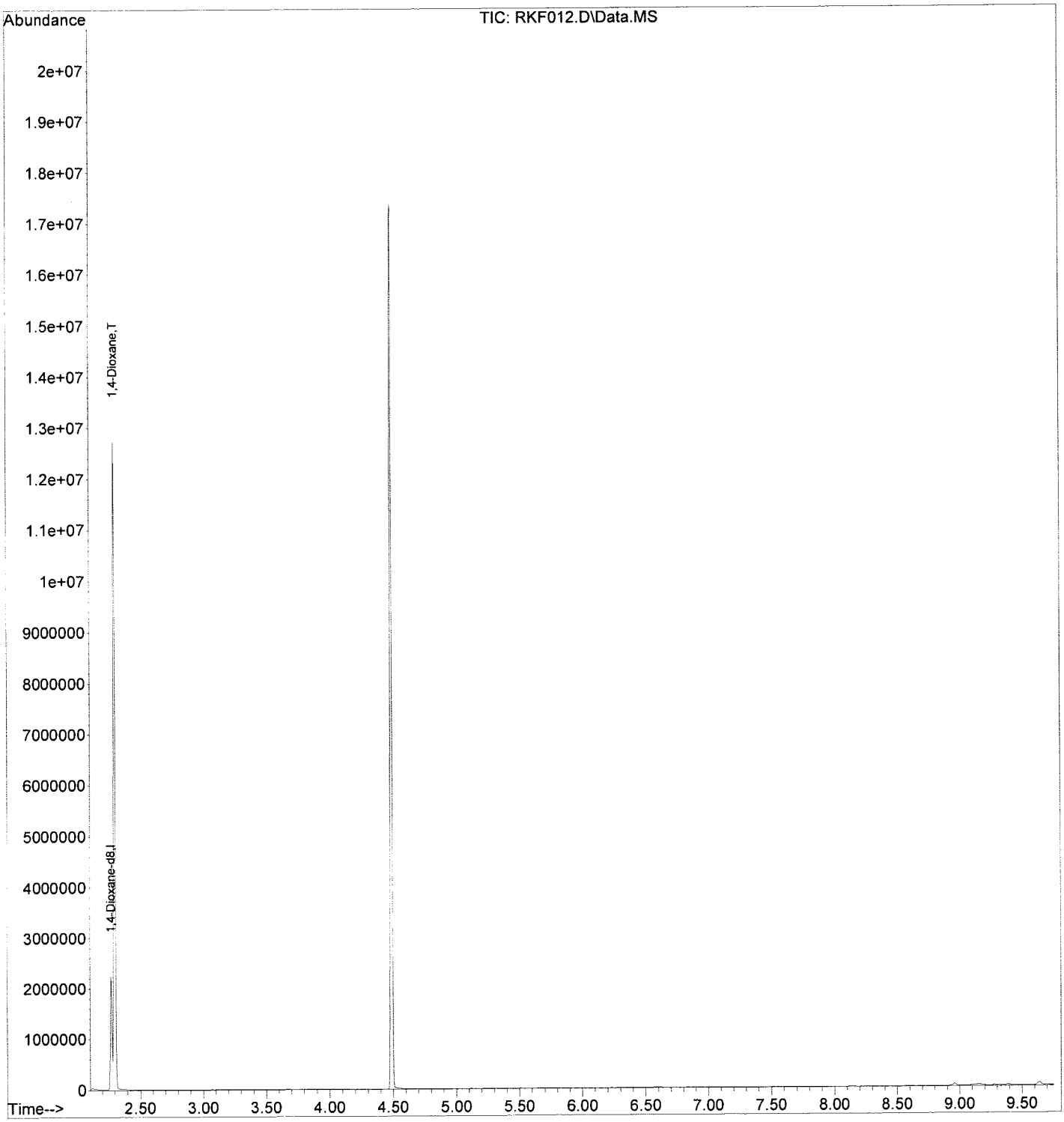
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.272	96	203218	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	0.000	77	0d	0.00	ppm	
Spiked Amount 20.000			Recovery =	0.00%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.299	88	864050	96.15	ppm	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF012.D Vial: 3
Acq On : 15 Nov 2019 10:50 Operator: KVu
Sample : SVF0K1541 100PPM Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 21 10:58:40 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



SVF0K15.M Thu Nov 21 10:58:46 2019 F0 YM 12/22/19 Page: 2

SECOND SOURCE VERIFICATION

CONTINUE_CALIBRATION - CALIBRATION VERIFICATION

Instrument ID :DSQ
IC_Beginning DateTime :11/15/19 10:50
Spike Amount :20 PPM
CC/CV File :RKF022
IC File :RKF014

Column Spec :ZB-SemiVoa ID :0.25MM
IC_Ending DateTime :11/15/19 13:11
HPChem Method :SVF0K15
Date_Time :11/15/19 13:27

M IDX	Parameters	CC_Con	CC%_D	CC_Resp	CCRRF	AvRRF	CC_Rtm	AvRtm	%_RSD	Co_X0	Co_X1	Co_X2	Co_Cor
1	1,4-Dioxane-d8	20.000	0	263400	1	1	2.276	2.265	0				
2	1,4-Dioxane	21.369	6.8	249613	0.948	1.215	2.303	2.294	22.39	0.0034	0.8837		0.9976
3	Bromobenzene	18.159	-9.2	762761	2.896	3.189	4.486	4.487	10.74				

YM 12/22/19

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\19K15\RKF022.D
Acq On : 15 Nov 2019 13:27
Sample : ISVF0K151 ICV
Misc : F0
Integrator: RTE
Quant Time: Nov 18 08:57:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Vial: 13
Operator: KVu
Inst : DSQ
Multiplr: 1.00

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dioxane-d8	20.000	20.000	0.0	124	0.01
2	T	1,4-Dioxane	20.000	21.369	-6.8	118	0.01
3	S	Bromobenzene	20.000	18.159	9.2	120	0.00

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

YM 12/22/19

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\19K15\RKF022.D Vial: 13
Acq On : 15 Nov 2019 13:27 Operator: KVu
Sample : ISVF0K151 ICV Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:57:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dioxane-d8	1.000	1.000	0.0	124	0.01
2	T	1,4-Dioxane	1.215	0.948	22.0#	118	0.01
3	S	Bromobenzene	3.189	2.896	9.2	120	0.00

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

YM 12/22/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF022.D Vial: 13
Acq On : 15 Nov 2019 13:27 Operator: KVu
Sample : ISVF0K151 ICV Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:57:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

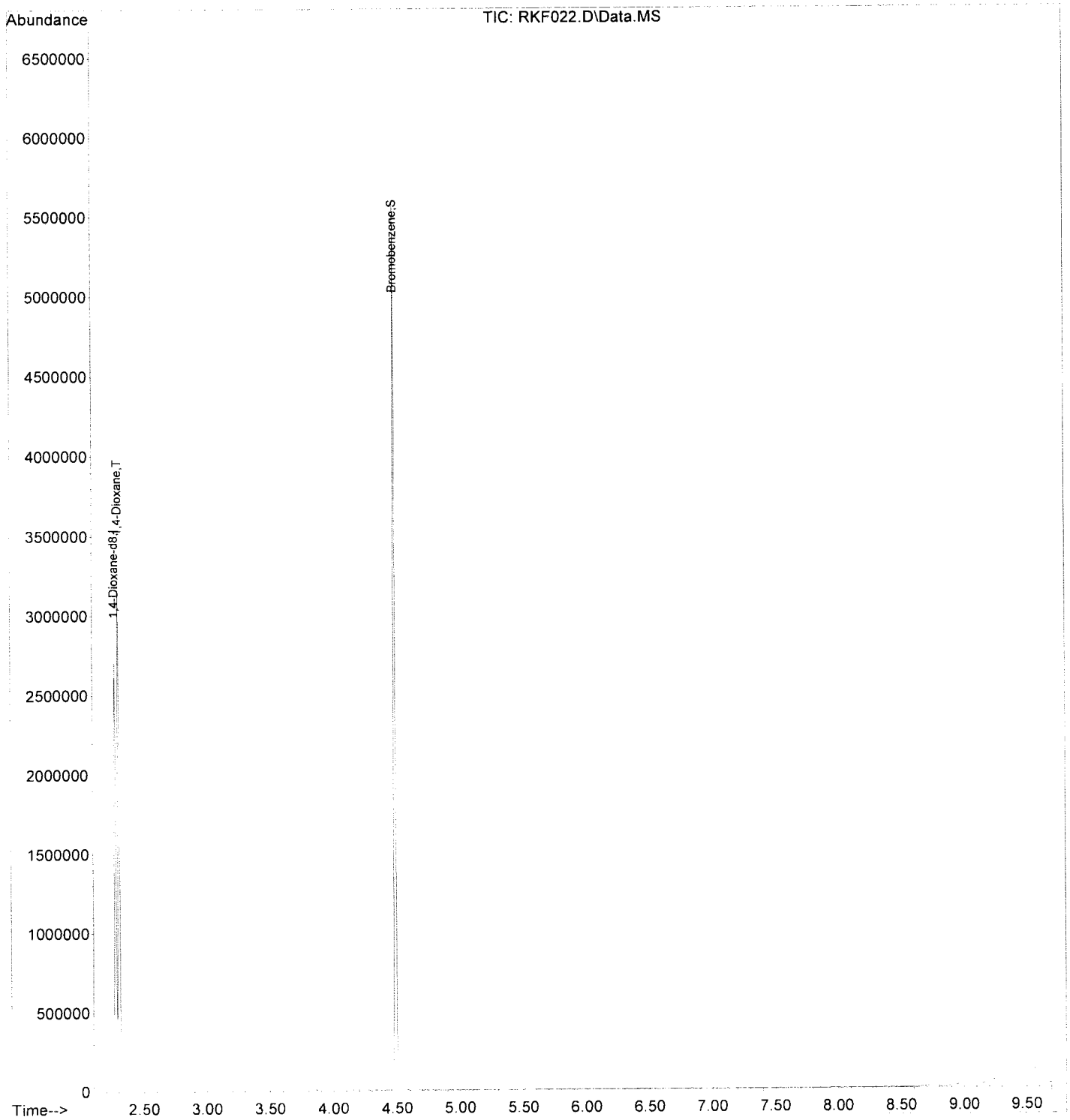
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.276	96	263400	20.00	ppm	0.01
System Monitoring Compounds						
3) Bromobenzene	4.486	77	762761	18.16	ppm	0.00
Spiked Amount 20.000			Recovery =	90.80%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.303	88	249613	21.37	ppm	88

(#) = qualifier out of range (m) = manual integration (+) = signals summed

YM 12/24/19

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19K15\RKF022.D Vial: 13
Acq On : 15 Nov 2019 13:27 Operator: KVu
Sample : ISVF0K151 ICV Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Nov 18 08:57:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



DAILY CALIBRATIONS

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: EMAX Laboratories, Inc. Project: VA SALT LAKE CITY

Lab Code: EMAX SDG No: 19L064

Lab File ID: RLF036 DFTPP Injection Date: 12/11/19

Instrument ID: F0 DFTPP Injection Time: 09:37

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15 - 40% of mass 95	26.722
75	30 - 60% of mass 95	44.185
95	Base Peak, 100% relative abundance	100.000
96	5 - 9% of mass 95	6.504
173	Less than 2% of mass 174	0.299(.37)1
174	50 - 100% of mass 95	81.457
175	5 - 9% of mass 174	6.231(7.65)1
176	95 - 101% % of mass 174	77.790(95.5)1
177	5 - 9% % of mass 176	4.799(6.17)2

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

This check applies to the following samples, Lab QCs and Standards:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	SSTD020	CSVF0K1506	RLF037	12/11/19	10:19
2	MBLK1W	SVL004WB	RLF057	12/11/19	15:23
3	LCS1W	SVL004WL	RLF058	12/11/19	15:39
4	LCD1W	SVL004WC	RLF059	12/11/19	15:54
5	OU2-MW15D-GW120719MS	19L064-07M	RLF060	12/11/19	16:10
6	OU2-MW15D-GW120719MSD	19L064-07S	RLF061	12/11/19	16:26
7	OU2-MW01D-GW120619	19L064-01	RLF062	12/11/19	16:41
8	OU2-MW14D-GW120719	19L064-02	RLF063	12/11/19	16:57
9	OU2-MW03RC-GW120719	19L064-03	RLF064	12/11/19	17:12
10	OU2-FD03-GW120719	19L064-04	RLF065	12/11/19	17:28
11	OU2-MW15S-GW120719	19L064-06	RLF066	12/11/19	17:44
12	OU2-MW15D-GW120719	19L064-07	RLF067	12/11/19	18:00
13	OU2-MW03RA-GW120719	19L064-08	RLF068	12/11/19	18:15
14	OU2-MW03RB-GW120819	19L064-09	RLF069	12/11/19	18:31
15	OU2-MW03RD-GW120719	19L064-10	RLF070	12/11/19	18:47
16	OU2-MW17D-GW120819	19L064-11	RLF071	12/11/19	19:03
17	OU2-MW17S-GW120819	19L064-12	RLF072	12/11/19	19:18
18	OU2-FB01-GW120819	19L064-13	RLF073	12/11/19	19:34
19	OU2-FD02-GW120819	19L064-14	RLF074	12/11/19	19:50
20	OU2-MW08C-GW120819	19L064-15	RLF075	12/11/19	20:05
21	OU2-MW08A-GW120819	19L064-17	RLF076	12/11/19	20:21
22	OU2-MW14S-GW120719	19L064-18	RLF077	12/11/19	20:36
23	OU2-MW05R-GW120819	19L064-20	RLF078	12/11/19	20:52
24	OU2-MW08B-GW120819	19L064-21	RLF079	12/11/19	21:08

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: EMAX Laboratories, Inc. Project: VA SALT LAKE CITY

Lab Code: EMAX SDG No: 19L064

Lab File ID: RKF014 Date Analyzed: 11/15/19

Instrument ID: F0 Time Analyzed: 11:19

	INTERNAL STANDARD (IS)	1,4-Dioxane-d8 Area #	1,4-Dioxane-d8 RT #
	12 HOUR STD	213044	2.26
	UPPER LIMIT	426088	2.76
	LOWER LIMIT	106522	1.76
		Area #	RT #
1	SSTD020	256989	2.26
2	MBLK1W	296522	2.26
3	LCS1W	301496	2.26
4	LCD1W	316103	2.26
5	OU2-MW15D-GW120719MS	311018	2.26
6	OU2-MW15D-GW120719MSD	315370	2.26
7	OU2-MW01D-GW120619	318503	2.26
8	OU2-MW14D-GW120719	311581	2.26
9	OU2-MW03RC-GW120719	312970	2.26
10	OU2-FD03-GW120719	174869	2.26
11	OU2-MW15S-GW120719	165160	2.26
12	OU2-MW15D-GW120719	161778	2.26
13	OU2-MW03RA-GW120719	196086	2.26
14	OU2-MW03RB-GW120819	189879	2.26
15	OU2-MW03RD-GW120719	167202	2.26
16	OU2-MW17D-GW120819	149083	2.26
17	OU2-MW17S-GW120819	139479	2.26
18	OU2-FB01-GW120819	142900	2.27
19	OU2-FD02-GW120819	146669	2.26
20	OU2-MW08C-GW120819	160718	2.26
21	OU2-MW08A-GW120819	142560	2.26
22	OU2-MW14S-GW120719	138872	2.26
23	OU2-MW05R-GW120819	140081	2.26
24	OU2-MW08B-GW120819	156126	2.26

Area Upper Limit = +100% of ICAL Midpoint IS Area

Area Lower Limit = -50% of ICAL Midpoint IS Area

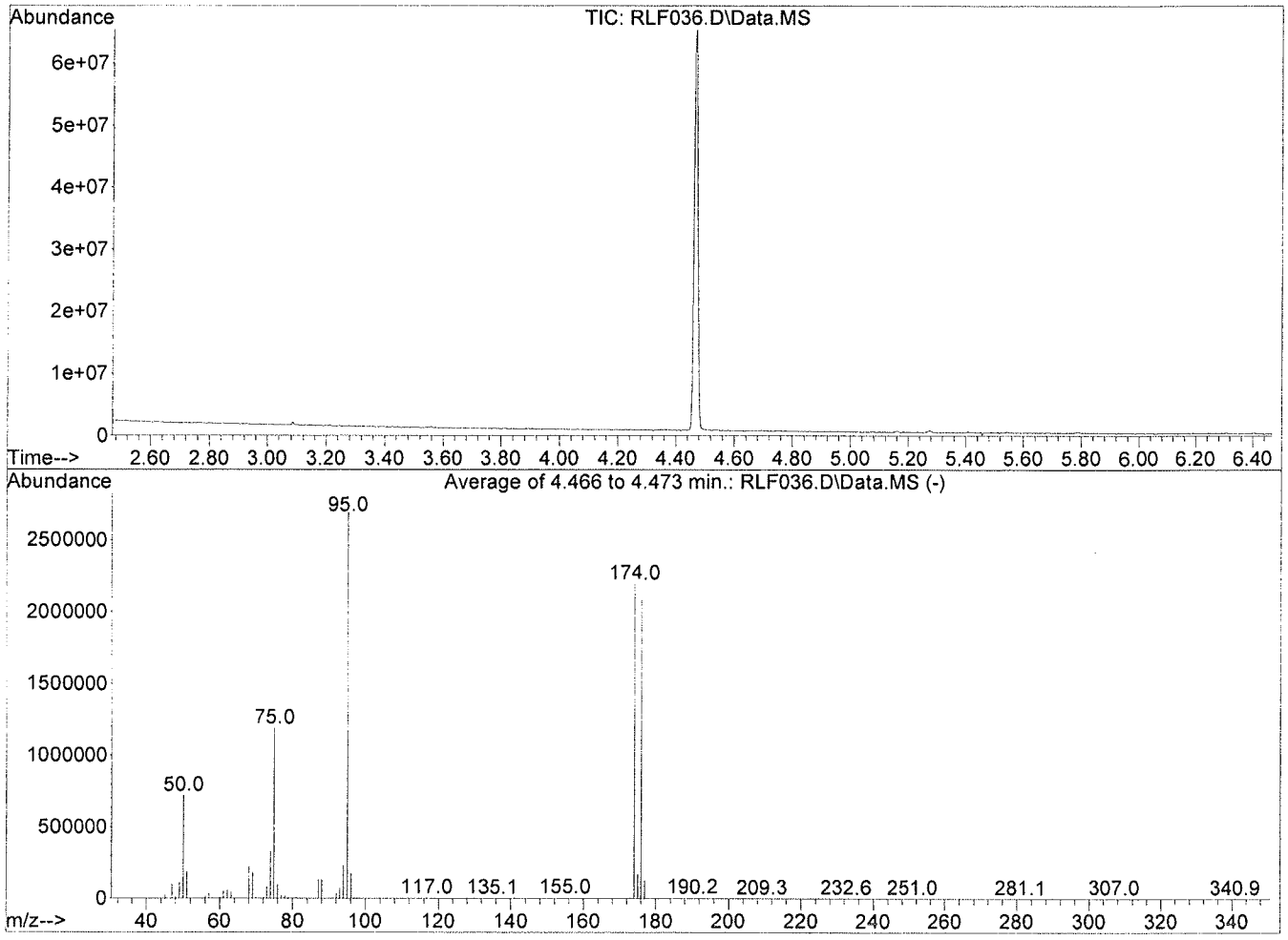
Retention Time(RT) Upper Limit = +30 seconds of ICAL Midpoint IS RT

Retention Time(RT) Lower Limit = -30 seconds of ICAL Midpoint IS RT

Data Path : C:\msdchem\1\DATA\19L11\
Data File : RLF036.D
Acq On : 11 Dec 2019 09:37
Operator : KVu
Sample : BFBF0K1506
Misc : F0
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\BFB.M
Title : BFB
Last Update : Fri Nov 15 14:33:51 2019



AutoFind: Scans 685, 686, 687; Background Corrected with Scan 674

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	26.7	719204	PASS
75	95	30	60	44.2	1189227	PASS
95	95	100	100	100.0	2691464	PASS
96	95	5	9	6.5	175041	PASS
173	174	0.00	2	0.4	8053	PASS
174	95	50	100	81.5	2192384	PASS
175	174	5	9	7.6	167704	PASS
176	174	95	101	95.5	2093677	PASS
177	176	5	9	6.2	129153	PASS

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\19L11\RLF037.D Vial: 3
Acq On : 11 Dec 2019 10:19 Operator: KVu
Sample : CSVF0K1506 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 10:32:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dioxane-d8	20.000	20.000	0.0	121	0.00
2	T	1,4-Dioxane	20.000	23.959	-19.8	129	0.00
3	S	Bromobenzene	20.000	19.189	4.1	124	0.00

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

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\19L11\RLF037.D Vial: 3
Acq On : 11 Dec 2019 10:19 Operator: KVu
Sample : CSVF0K1506 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 10:32:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dioxane-d8	1.000	1.000	0.0	121	0.00
2	T	1,4-Dioxane	1.215	1.062	12.6	129	0.00
3	S	Bromobenzene	3.189	3.060	4.0	124	0.00

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

Quantitation Report (QT Reviewed)

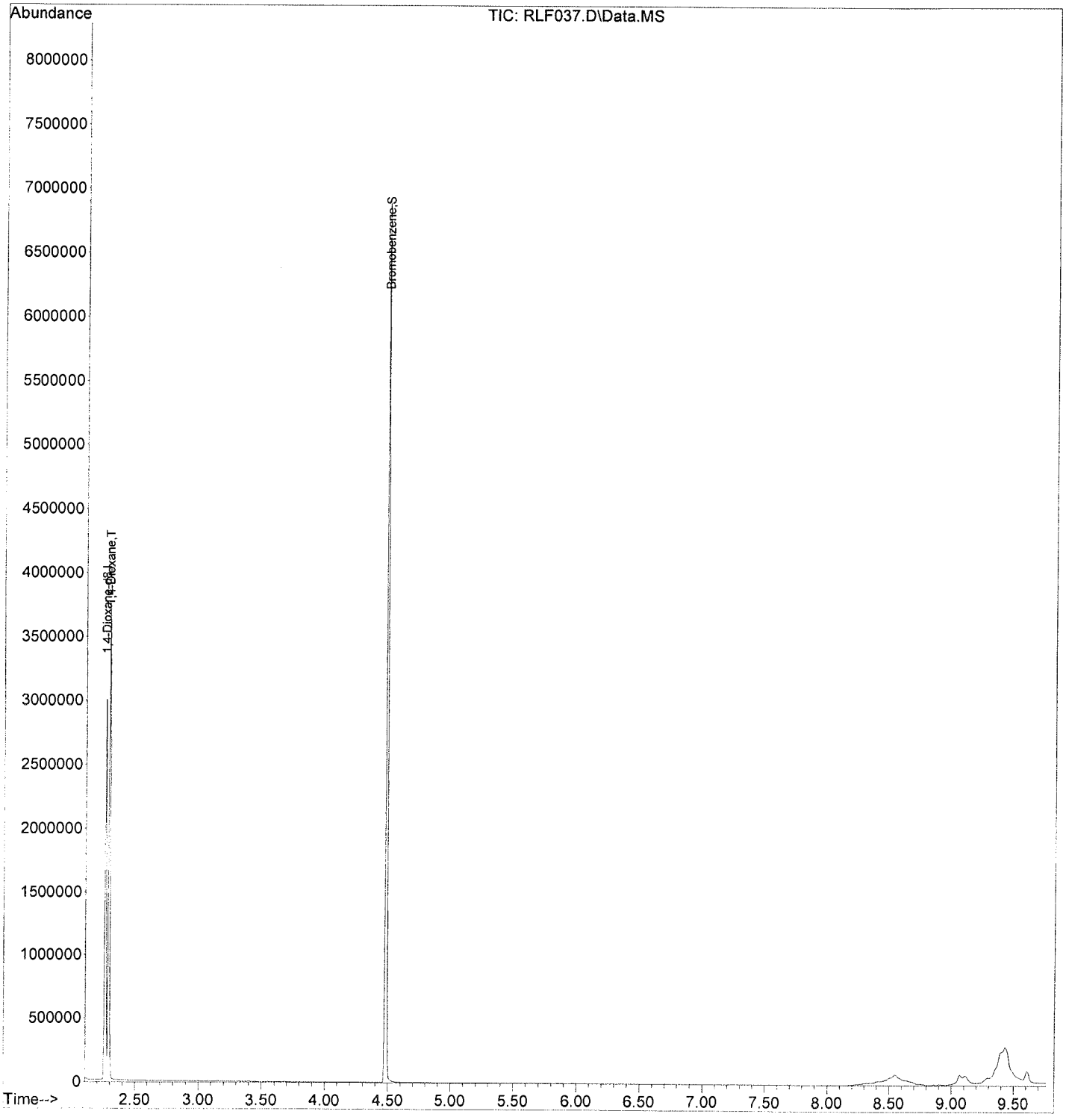
Data File : C:\msdchem\1\DATA\19L11\RLF037.D Vial: 3
Acq On : 11 Dec 2019 10:19 Operator: KVu
Sample : CSVF0K1506 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 10:32:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dioxane-d8	2.260	96	256989	20.00	ppm	0.00
System Monitoring Compounds						
3) Bromobenzene	4.483	77	786386	19.19	ppm	0.00
Spiked Amount 20.000			Recovery =	95.95%		
Target Compounds						Qvalue
2) 1,4-Dioxane	2.288	88	272951	23.96	ppm	78

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\DATA\19L11\RLF037.D Vial: 3
Acq On : 11 Dec 2019 10:19 Operator: KVu
Sample : CSVF0K1506 Inst : DSQ
Misc : F0 Multiplr: 1.00
Integrator: RTE
Quant Time: Dec 11 10:32:17 2019
Quant Results File: SVF0K15.RES
Quant Method : C:\msdchem\1\METHODS\SVF0K15.M
Quant Title : SEMIVOLATILES - SIM
QLast Update : Fri Nov 15 15:37:37 2019
Response via : Initial Calibration
DataAcq Meth:Adron.M



ANALYTICAL LOGS

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR SEMIVOLATILES

SOP ☐ EMAX-8270 Rev. No. 6 ☐ EMAX-8270D Rev. No. 1 ☐ EMAX-8270SIM Rev. No. 2 ☑ EMAX-M8270SIM Rev. No. 2 ☐ EMAX-625 Rev. No. 1 ☐

Method File: SVF0K15 Tune File: BFB Start Date/Time: 12/11/19 9:37 End Date/Time: 12/11/19 21:23 Book #: AF0-006

ANALYTICAL BATCH: CSVF0K1506

Preparative Batch	Data File Name	Run ID	DF	Matrix S	Matrix W	Notes
	RLF035	IBF0K1506				
	036	BFBF0K1506				
	037	CSVF0K1506				
SVL003W	038	SVL003WB	1		X	
↓	039	↓ WL	↓		↓	
	040	↓ WC				
	041	19L043-07M				
	042	07S				
	043	01				
	044	02				
	045	04				
	046	05				
	047	↓ 07				
	048	19L057-01				
	049	02				
	050	03				
	051	04				
	052	05				
	053	07				
	054	08				
	055	09				
↓	056	↓ 10	↓		↓	
SVL004W	057	SVL004WB	1		X	
	058	↓ WL				
	059	↓ WC				
	060	19L064-07M				
	061	07S				
	062	01				
	063	02				
	064	03				
	065	04				
↓	066	↓ 06	↓		↓	

Instrument No:	F0
INITIAL CALIBRATION REFERENCE	
Date	11/15/19
ICAL ID	SVF0K15

Standards		
Name	ID	Conc. (mg/L)
DFTPP		
INT. STD.	SS2A-13-10-05	1000
CCV - 8270		
CCV - 1,4-Dioxane	SS2C-18.17-02	20
BFB	SS2C-18-03-02	50

Solvent	ID
CH_2Cl_2	59137
DATA FILE	19L11

Electronic Data Archival	
Location	Date
HPCHEM_SVOA/TOF0	

Micropipette ID: ☑ PO97A-02 ☐ PO97A-03 ☐ PO00-01

Syringe ID: ☑ 503302- ☐

Comments:

Analyzed By: MV

Date Disposed: 12/12/19

Disposed By: MV

This page is checked during data review.

ANALYSIS LOG FOR SEMIVOLATILES

SOP ☐ EMAX-8270 Rev. No. 6 ☐ EMAX-8270D Rev. No. 1 ☐ EMAX-8270SIM Rev. No. 2 ☑ EMAX-M8270SIM Rev. No. 2 ☐ EMAX-625 Rev. No. 1 ☐

Book #: AF0-006

Method File: SVF0K15 Tune File: BFB Start Date/Time: 12/11/19 9:37 End Date/Time: 12/11/19 21:23

ANALYTICAL BATCH: CSVF0K1506

Preparative Batch	Data File Name	Run ID	DF	Matrix S	Matrix W	Notes
SVL004W	KLF067	19L064-07	1		X	
↓	068	08	↓		↓	
	069	09				
	070	10				
	071	11				
	072	12				
	073	13				
	074	14				
	075	15				
	076	17				
	077	18				
	078	20				
↓	079	21	↓		↓	
	080	ESVF0K1507				

KW 12/11/19

Instrument No:	F0

INITIAL CALIBRATION REFERENCE

Date	11/15/19
ICAL ID	SVF0K15

Standards

Name	ID	Conc. (mg/L)
DFTPP		
INT. STD.	SS2A-13-10-05	1000
CCV - 8270		
CCV - 1,4-Dioxane	SS2C-18-17-02	20
BFB		

Solvent	ID
CH_2Cl_2	59137
DATA FILE	19L11

Electronic Data Archival

Location	Date
HPCHEM_SVOA/TOF0	

Micropipette ID: ☑ PO97A-02 ☐ PO97A-03 ☐ PO00-01

Syringe ID: ☑ 503302-2 ☐

Comments:

Analyzed By: KW

Date Disposed: 12/12/19

Disposed By: KW

This page is checked during data review.

EMAX LABORATORIES, INC.

ANALYSIS LOG FOR SEMIVOLATILES

SOP ☐ EMAX-8270 Rev. No. 6 ☐ EMAX-8270D Rev. No. 1 ☐ EMAX-8270SIM Rev. No. 2 ☑ EMAX-M8270SIM Rev. No. 2 ☐ EMAX-625 Rev. No. 1 ☐ Book #: AF0-005

Method File: SVF0K15 Tune File: BFB Start Date/Time: 11/15/19 10:37 End Date/Time: 11/15/19 13:27

ANALYTICAL BATCH: SVF0K153

Preparative Batch	Data File Name	Run ID	DF	Matrix S	Matrix W	Notes
NA	RKF010	IBFFK1501	1			
	011	BFBF0K1501				
	012	SVF0K151				100 ppm
	013	2				60
	014	3				20
	015	4				5
	016	5				1
	017	6				0.5
	018	7				0.2
	019	8				0.15
	020	9				0.075
	021	10				0.05
	022	I SVF0K151				ICV
	023	SS2B-16-41-02				spike test
	024	SS2B-16-41-01				Surr

MV 11/15/19

Instrument No:	F0
INITIAL CALIBRATION REFERENCE	
Date	11/15/19
ICAL ID	SVF0K15
Standards	

Name	ID	Conc. (mg/L)
DFTPP		
INT. STD.	SS2A-13-10-05	1000
ICV	SS2C-18-17-03	20
DCC/ICAL	SS2C-18-17-02	.05-100
BENZIDINE		
APP 9		
APP 9 ADD		
BFB	SS2C-18-13-02	50

Solvent	ID
CH_2Cl_2	59137
DATA FILE	19K15

Electronic Data Archival	
Location	Date
HPCHEM_SVOA/TOF0	

Micropipette ID: ☐ PO97A-02 ☐ PO97A-03 ☐ PO00-01 Syringe ID: ☐ 503302- ☐

Comments:

Analyzed By: MV

Date Disposed: NA

Disposed By: NA

This page is checked during data review.

EXTRACTION LOGS

EXTRACTION LOG
for
SEMIVOLATILES

SOP	Rev. #
☑ EMAX-3520	5
☐ EMAX-3540	3
☐ EMAX-3546	0
☐ EMAX-3550	5
☐ EMAX-3580	3
☐ EMAX-625	1

Note: For samples and relevant QCs/Standards extracted, refer to attached extraction sequence.

☐ MS/MSD can not be extracted due to insufficient amount of samples

Comments:

Book #: ESV-109
Preparation Batch: SVL004W
Matrix: WATER
Micropipette ID: 1000 mL : PE00-02
Micropipette ID: 100 µL : PE97C-03
Micropipette ID:

Standards	ID	Amount Added (ml)
Surrogate	SS2B-16-41-01	0.1
LCS/MS/1,4-Dioxane	SS2B-16-40-03	1.0
LCS/MS		
LCS/MS		
LCS/MS		

Reagent	Lot# / ID
CH_2Cl_2	188890
Na_2SO_4	SWIB-006-15-21
H_2SO_4	
NaOH	SPIB-12-60-03
Silica Sand	
Silica Gel	
Reagent Water	SWIA-08-20-10
Residual Chlorine Strip	92218
pH Strip	HC803463
Filter Paper	16812807

Lab Sample ID	Sonicator #	Cell #	Concentrator #
SVL004-WB			6
-WL			6
-WC			6
L064-01			1
-02			1
-03			1
-04			2
-06			2
-07			1
-07M			1
-07S			1
-08			2
-09			2
-10			2
-11			2
-12			3
-13			3
-14			3
-15			3
-17			3
-18			3
-20			4
-21			4

TUNING (Note: A free flowing mixture of soil and solvent must be achieved.)

Sonicator #	Power Output Reading	Acceptance Criteria
		< 15 g sample: at least 10% power output.
		> 15 g sample: at least 20% power output.

Concentrator	Water Bath Temperature Setting (°C)	Thermometer Reading (°C)
1	35	35
2	35	35
3	35	35
4	35	35
5		
6	35	35
8		

Thermometer ID = SVOC-T1

Prepared By: HW Witnessed By: ER
Standard Added By: HW Checked By: ML
Extract Received By: YM 12/11/19 Location: SE01-2A
Disposed By: Disposed On:

EMAX LABORATORIES, INC.

EXTRACTION LOG FOR SEMIVOLATILES

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Ve(ml)	ExpAmt	ExpVe(ml)	PrepFctr	Comments
19SVL004W01	SVL004WB	1000	ml	12/10/19 16:25	2	1000	2	1	
19SVL004W02	SVL004WL	1000	ml	12/10/19 16:25	2	1000	2	1	1,4-Dioxane
19SVL004W03	SVL004WC	1000	ml	12/10/19 16:25	2	1000	2	1	1,4-Dioxane
19SVL004W04	L064-01	960	ml	12/10/19 16:25	2	1000	2	1.04	
19SVL004W05	L064-02	850	ml	12/10/19 16:25	2	1000	2	1.18	
19SVL004W06	L064-03	860	ml	12/10/19 16:25	2	1000	2	1.16	
19SVL004W07	L064-04	940	ml	12/10/19 16:25	2	1000	2	1.06	
19SVL004W08	L064-06	920	ml	12/10/19 16:26	2	1000	2	1.09	
19SVL004W09	L064-07	860	ml	12/10/19 16:26	2	1000	2	1.16	
19SVL004W10	L064-07M	880	ml	12/10/19 16:26	2	1000	2	1.14	1,4-Dioxane
19SVL004W11	L064-07S	880	ml	12/10/19 16:26	2	1000	2	1.14	1,4-Dioxane
19SVL004W12	L064-08	930	ml	12/10/19 16:26	2	1000	2	1.08	
19SVL004W13	L064-09	920	ml	12/10/19 16:26	2	1000	2	1.09	
19SVL004W14	L064-10	830	ml	12/10/19 16:26	2	1000	2	1.2	
19SVL004W15	L064-11	940	ml	12/10/19 16:26	2	1000	2	1.06	
19SVL004W16	L064-12	860	ml	12/10/19 16:26	2	1000	2	1.16	Light yellow
19SVL004W17	L064-13	1010	ml	12/10/19 16:26	2	1000	2	0.99	
19SVL004W18	L064-14	900	ml	12/10/19 16:26	2	1000	2	1.11	
19SVL004W19	L064-15	900	ml	12/10/19 16:26	2	1000	2	1.11	
19SVL004W20	L064-17	1010	ml	12/10/19 16:26	2	1000	2	0.99	
19SVL004W21	L064-18	1030	ml	12/10/19 16:26	2	1000	2	0.97	Light yellow
19SVL004W22	L064-20	950	ml	12/10/19 16:26	2	1000	2	1.05	
19SVL004W23	L064-21	950	ml	12/10/19 16:26	2	1000	2	1.05	

Ve=extract volume

PrepFctr=(ExpAmt/Aliquot)(Ve/ExpVe)

☑ Extraction Started @ 12/10/19 16:00 ☐ pHAdj(≤2) @ Vial Lot No.: 277518 Prepared By: HWang

☑ Extraction Ended @ 12/11/19 10:00 ☑ pHAdj(≥11) @ 12/10/19 16:00 Vial Cal Ref.: VC-19-020 Checked By: ML

Comments: volume entered after extraction started, pH=5-7, chlorine not detected Date 12/11/19

SOP EMAX-3520 Rev. 5

LABORATORY REPORT FOR

CDM SMITH

VA SALT LAKE CITY

METHOD RSK-175
DISSOLVED GASES

SDG#: 19L064

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L064

METHOD RSK-175
DISSOLVED GASES

A total of seventeen(17) water samples were received on 12/10/19 to be analyzed for Dissolved Gases in accordance with Method RSK-175 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DGL003WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. DGL003WL/DGL003WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. L064-07M/L064-07S - all analytes were within MS QC limits. Refer to Matrix QC summary form for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
DISSOLVED GASES

Client : CDM SMITH
Project : VA SALT LAKE CITY

SDG NO. : 19L064
Instrument ID : GCT072

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	DGL003WB	1	NA	12/12/1910:41	12/12/1909:30	BL12003A	BL12002A	DGL003W	Method Blank
LCS1W	DGL003WL	1	NA	12/12/1910:56	12/12/1909:30	BL12004A	BL12002A	DGL003W	Lab Control Sample (LCS)
LCD1W	DGL003WC	1	NA	12/12/1911:11	12/12/1909:30	BL12005A	BL12002A	DGL003W	LCS Duplicate
OU2-MW01D-GW120619	L064-01	1	NA	12/12/1911:29	12/12/1909:30	BL12006A	BL12002A	DGL003W	Field Sample
OU2-MW14D-GW120719	L064-02	1	NA	12/12/1911:42	12/12/1909:30	BL12007A	BL12002A	DGL003W	Field Sample
OU2-MW03RC-GW120719	L064-03	1	NA	12/12/1911:56	12/12/1909:30	BL12008A	BL12002A	DGL003W	Field Sample
OU2-FD03-GW120719	L064-04	1	NA	12/12/1912:09	12/12/1909:30	BL12009A	BL12002A	DGL003W	Field Sample
OU2-MW15S-GW120719	L064-06	1	NA	12/12/1912:22	12/12/1909:30	BL12010A	BL12002A	DGL003W	Field Sample
OU2-MW15D-GW120719	L064-07	1	NA	12/12/1912:34	12/12/1909:30	BL12011A	BL12002A	DGL003W	Field Sample
OU2-MW03RA-GW120719	L064-08	1	NA	12/12/1913:16	12/12/1909:30	BL12014A	BL12002A	DGL003W	Field Sample
OU2-MW03RB-GW120819	L064-09	1	NA	12/12/1913:43	12/12/1909:30	BL12016A	BL12015A	DGL003W	Field Sample
OU2-MW03RD-GW120719	L064-10	1	NA	12/12/1913:58	12/12/1909:30	BL12017A	BL12015A	DGL003W	Field Sample
OU2-MW17D-GW120819	L064-11	1	NA	12/12/1914:12	12/12/1909:30	BL12018A	BL12015A	DGL003W	Field Sample
OU2-MW17S-GW120819	L064-12	1	NA	12/12/1914:24	12/12/1909:30	BL12019A	BL12015A	DGL003W	Field Sample
OU2-FD02-GW120819	L064-14	1	NA	12/12/1914:36	12/12/1909:30	BL12020A	BL12015A	DGL003W	Field Sample
OU2-MW08C-GW120819	L064-15	1	NA	12/12/1914:51	12/12/1909:30	BL12021A	BL12015A	DGL003W	Field Sample
OU2-MW08A-GW120819	L064-17	1	NA	12/12/1915:04	12/12/1909:30	BL12022A	BL12015A	DGL003W	Field Sample
OU2-MW14S-GW120719	L064-18	1	NA	12/12/1915:16	12/12/1909:30	BL12023A	BL12015A	DGL003W	Field Sample
OU2-MW05R-GW120819	L064-20	1	NA	12/12/1915:29	12/12/1909:30	BL12024A	BL12015A	DGL003W	Field Sample
OU2-MW08B-GW120819	L064-21	1	NA	12/12/1915:46	12/12/1909:30	BL12025A	BL12015A	DGL003W	Field Sample
OU2-MW15D-GW120719MS	L064-07M	1	NA	12/12/1912:50	12/12/1909:30	BL12012A	BL12002A	DGL003W	Matrix Spike Sample (MS)
OU2-MW15D-GW120719MSD	L064-07S	1	NA	12/12/1913:03	12/12/1909:30	BL12013A	BL12002A	DGL003W	MS Duplicate (MSD)

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/06/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 09:30
Sample ID: OU2-MW01D-GW120619	Date Analyzed: 12/12/19 11:29
Lab Samp ID: L064-01	Dilution Factor: 1
Lab File ID: BL12006A	Matrix : WATER
Ext Btch ID: DGL003W	% Moisture : NA
Calib. Ref.: BL12002A	Instrument ID : GCT072

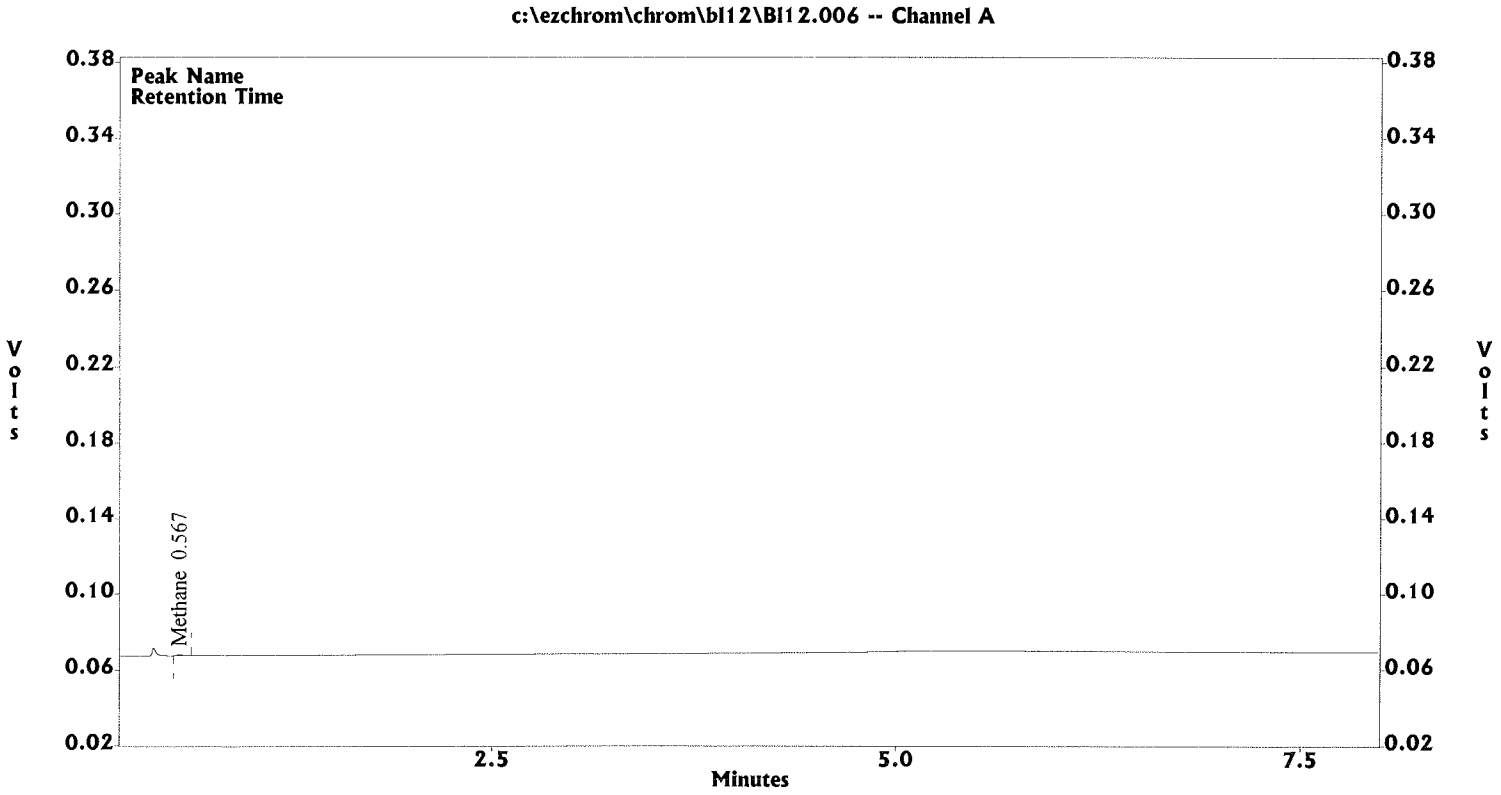
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	ND	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.006
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-01
Acquired : Dec 12, 2019 11:29:40
Printed : Dec 12, 2019 11:37:41
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	1128	13000.2	0.087
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/07/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 09:30
Sample ID: OU2-MW14D-GW120719	Date Analyzed: 12/12/19 11:42
Lab Samp ID: L064-02	Dilution Factor: 1
Lab File ID: BL12007A	Matrix : WATER
Ext Btch ID: DGL003W	% Moisture : NA
Calib. Ref.: BL12002A	Instrument ID : GCT072

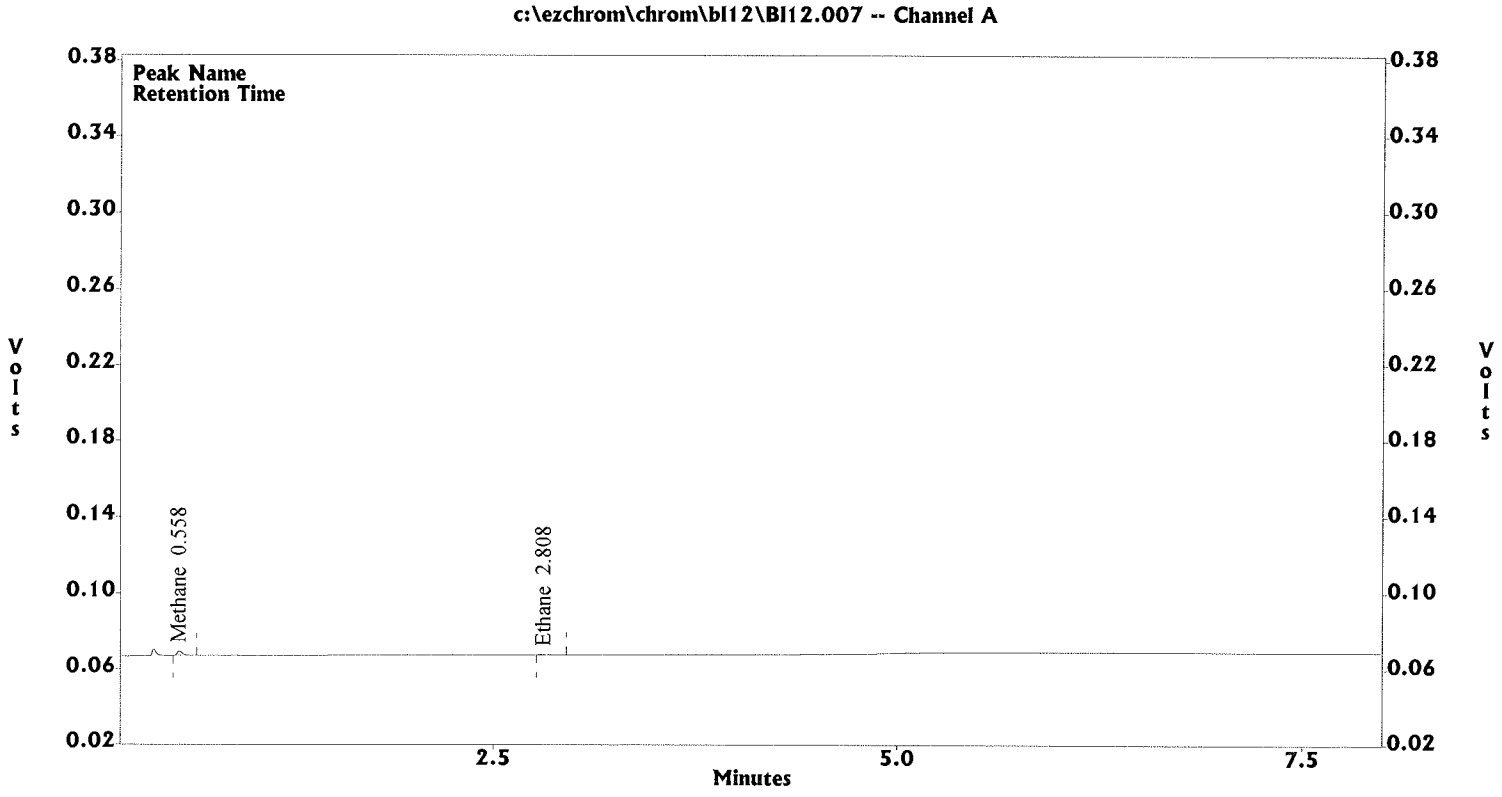
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	0.38J	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.007
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-02
Acquired : Dec 12, 2019 11:42:05
Printed : Dec 12, 2019 11:50:07
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.558	4923	13000.2	0.379
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
2	Ethane	2.808	983	11378.1	0.086
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/07/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 09:30
Sample ID: OU2-MW03Rc-GW120719	Date Analyzed: 12/12/19 11:56
Lab Samp ID: L064-03	Dilution Factor: 1
Lab File ID: BL12008A	Matrix : WATER
Ext Btch ID: DGL003W	% Moisture : NA
Calib. Ref.: BL12002A	Instrument ID : GCT072

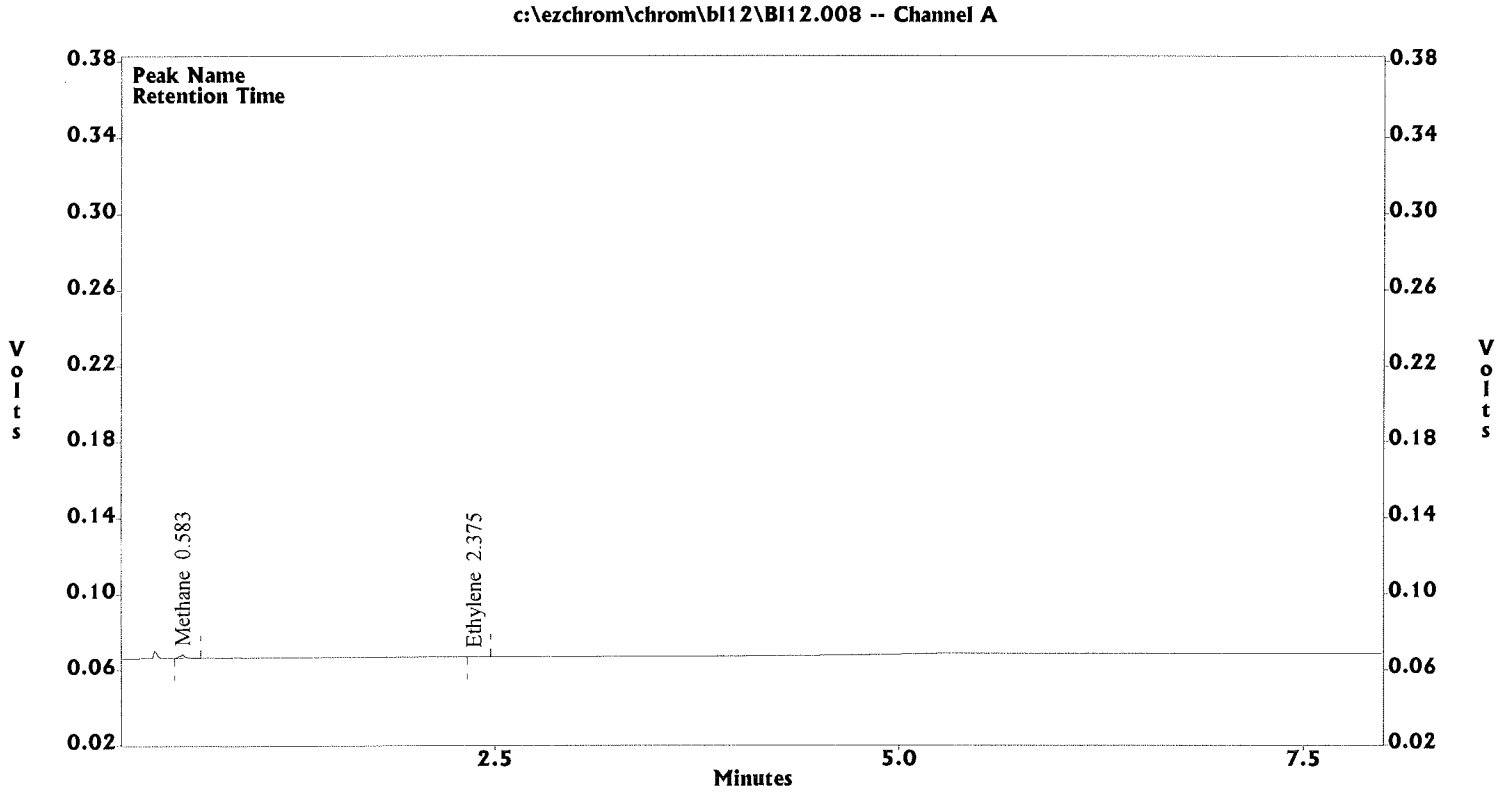
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	0.31J	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.008
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-03
Acquired : Dec 12, 2019 11:56:30
Printed : Dec 12, 2019 12:04:31
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.583	4087	13000.2	0.314
--	Acetylene	1.900	0	0.0	0.000
2	Ethylene	2.375	759	8316.3	0.091
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/07/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 09:30
Sample ID: OU2-FD03-GW120719	Date Analyzed: 12/12/19 12:09
Lab Samp ID: L064-04	Dilution Factor: 1
Lab File ID: BL12009A	Matrix : WATER
Ext Btch ID: DGL003W	% Moisture : NA
Calib. Ref.: BL12002A	Instrument ID : GCT072

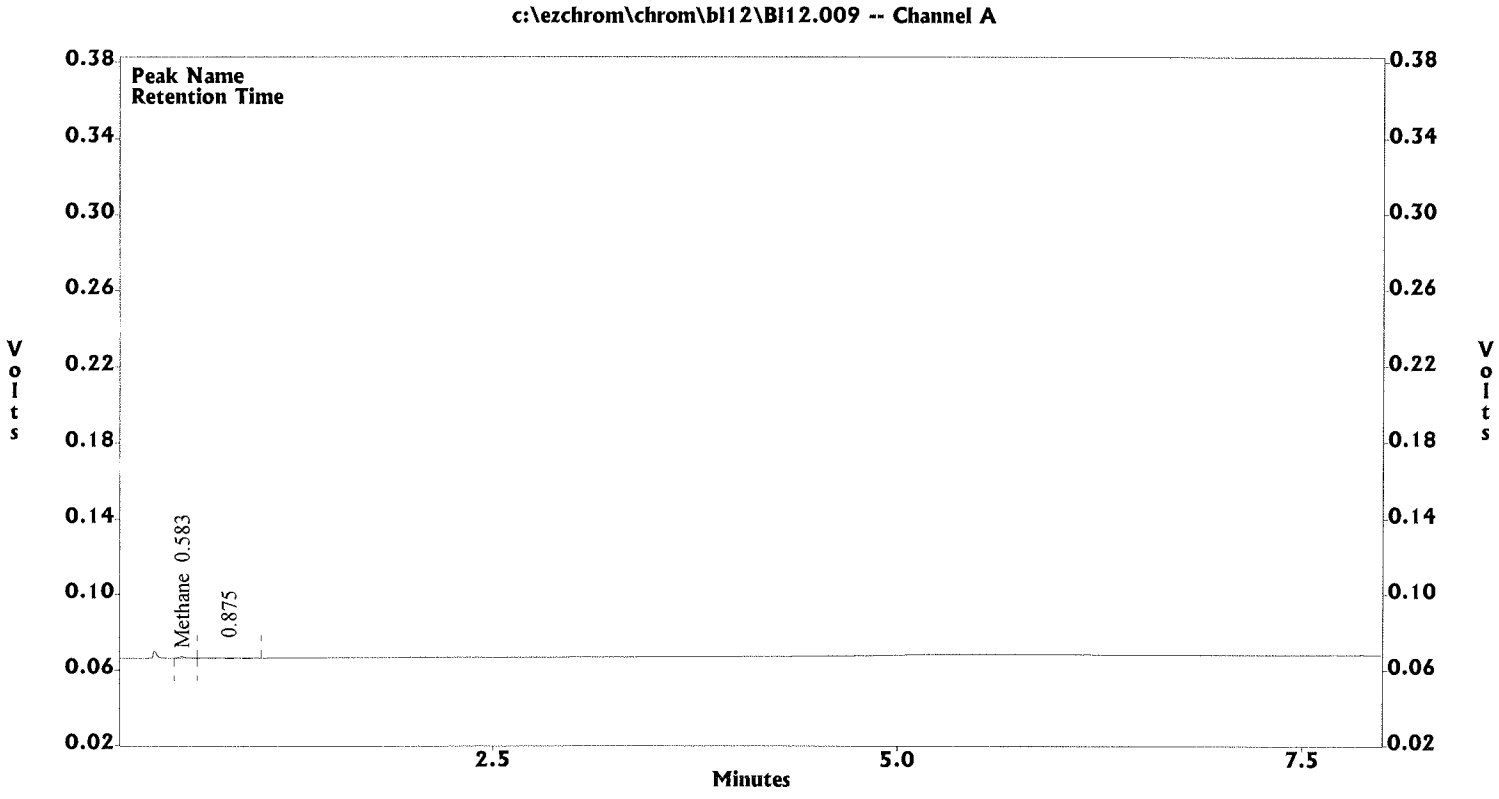
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	ND	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.009
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-04
Acquired : Dec 12, 2019 12:09:28
Printed : Dec 12, 2019 12:17:29
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.583	1768	13000.2	0.136
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/07/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 09:30
Sample ID: OU2-MW15S-GW120719	Date Analyzed: 12/12/19 12:22
Lab Samp ID: L064-06	Dilution Factor: 1
Lab File ID: BL12010A	Matrix : WATER
Ext Btch ID: DGL003W	% Moisture : NA
Calib. Ref.: BL12002A	Instrument ID : GCT072

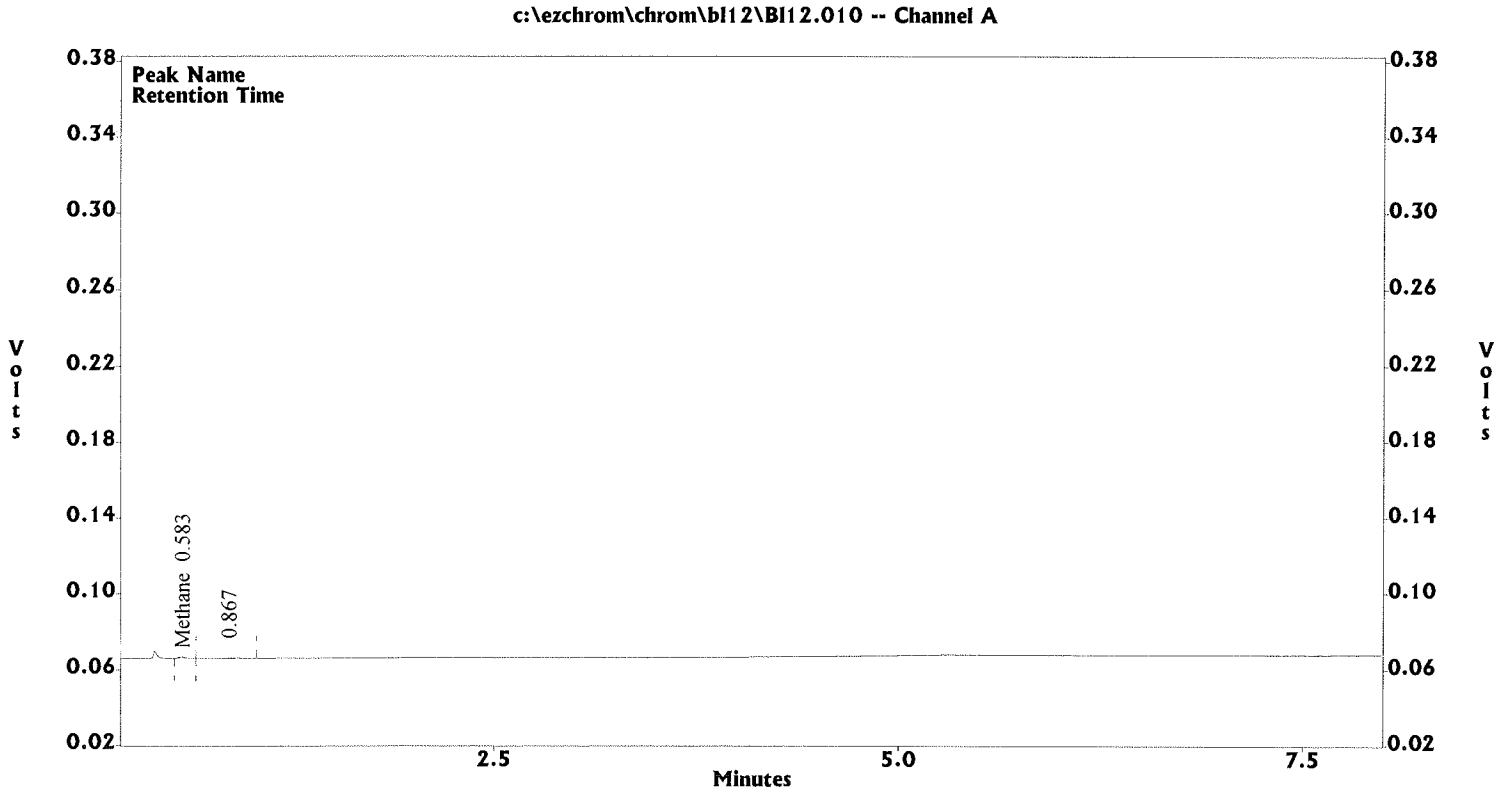
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	ND	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.010
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-06
Acquired : Dec 12, 2019 12:22:01
Printed : Dec 12, 2019 12:30:01
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.583	1832	13000.2	0.141
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/07/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 09:30
Sample ID: OU2-MW15D-GW120719	Date Analyzed: 12/12/19 12:34
Lab Samp ID: L064-07	Dilution Factor: 1
Lab File ID: BL12011A	Matrix : WATER
Ext Btch ID: DGL003W	% Moisture : NA
Calib. Ref.: BL12002A	Instrument ID : GCT072

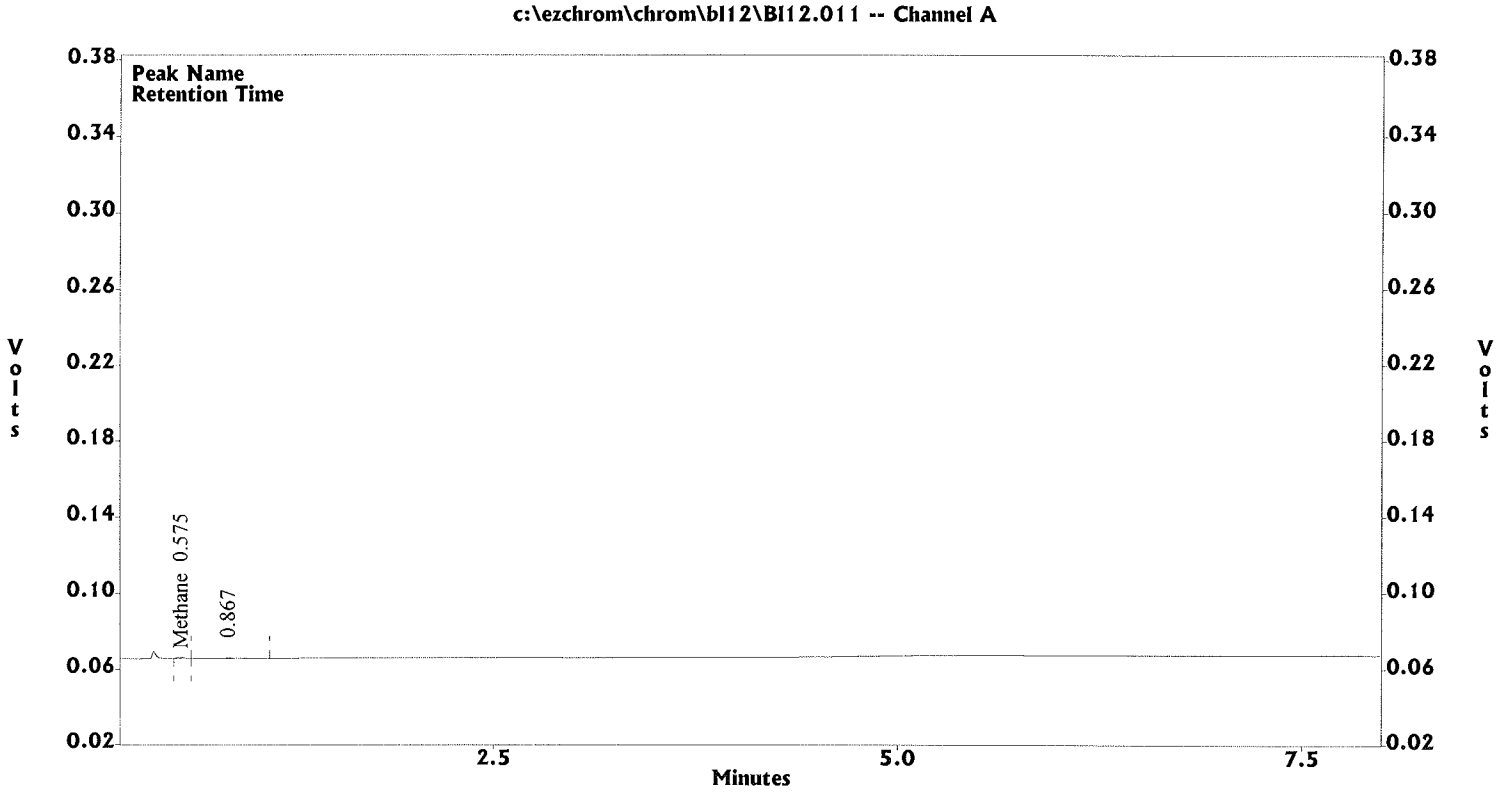
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	ND	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.011
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-07
Acquired : Dec 12, 2019 12:34:30
Printed : Dec 12, 2019 12:42:31
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.575	1793	13000.2	0.138
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/07/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 09:30
Sample ID: OU2-MW03Ra-GW120719	Date Analyzed: 12/12/19 13:16
Lab Samp ID: L064-08	Dilution Factor: 1
Lab File ID: BL12014A	Matrix : WATER
Ext Btch ID: DGL003W	% Moisture : NA
Calib. Ref.: BL12002A	Instrument ID : GCT072

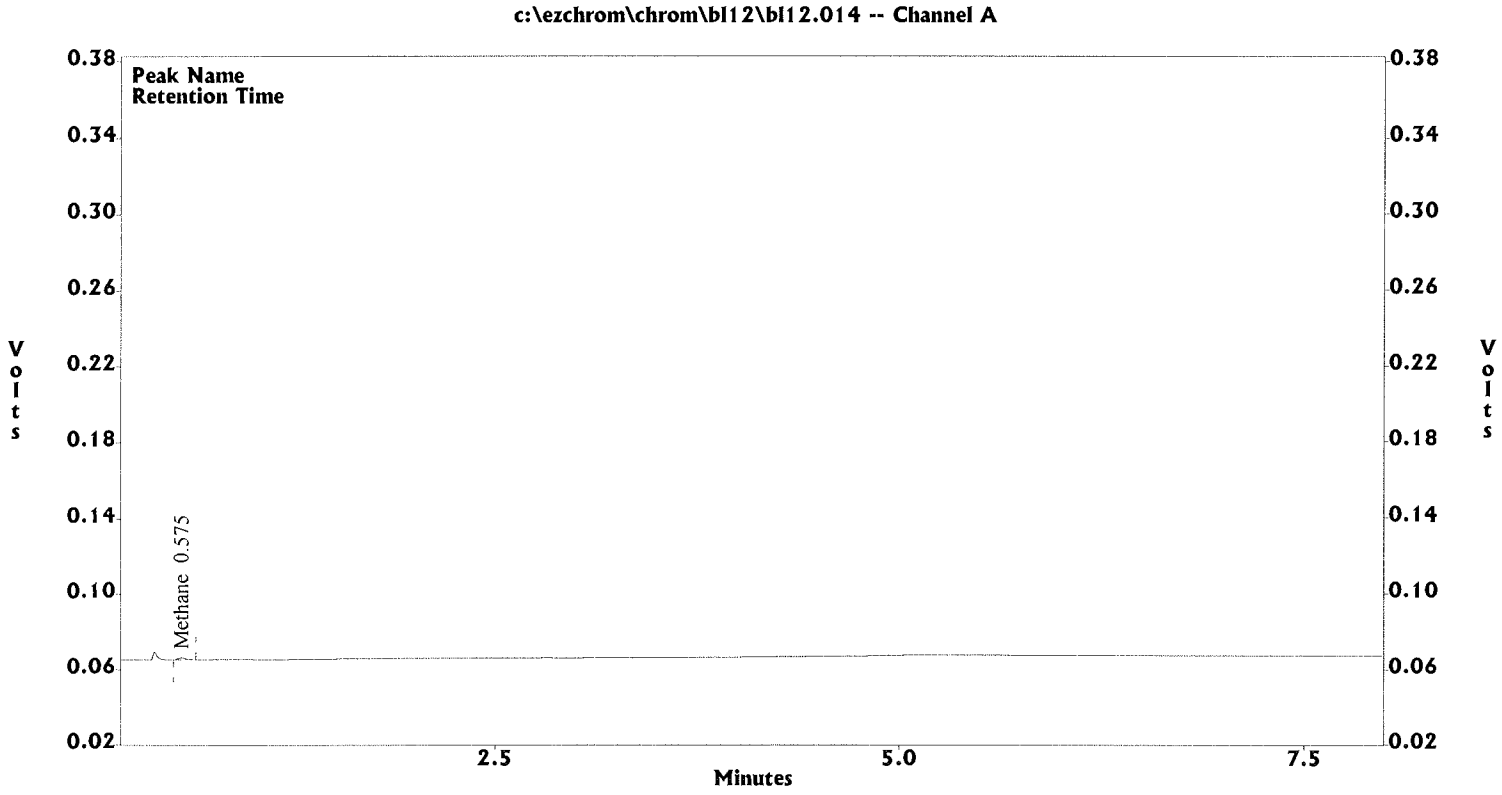
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	0.19J	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\bl12.014
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : L064-08
Acquired : Dec 12, 2019 13:16:20
Printed : Dec 18, 2019 14:57:57
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.575	2419	13000.2	0.186
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/08/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 09:30
Sample ID: OU2-MW03Rb-GW120819	Date Analyzed: 12/12/19 13:43
Lab Samp ID: L064-09	Dilution Factor: 1
Lab File ID: BL12016A	Matrix : WATER
Ext Btch ID: DGL003W	% Moisture : NA
Calib. Ref.: BL12015A	Instrument ID : GCT072

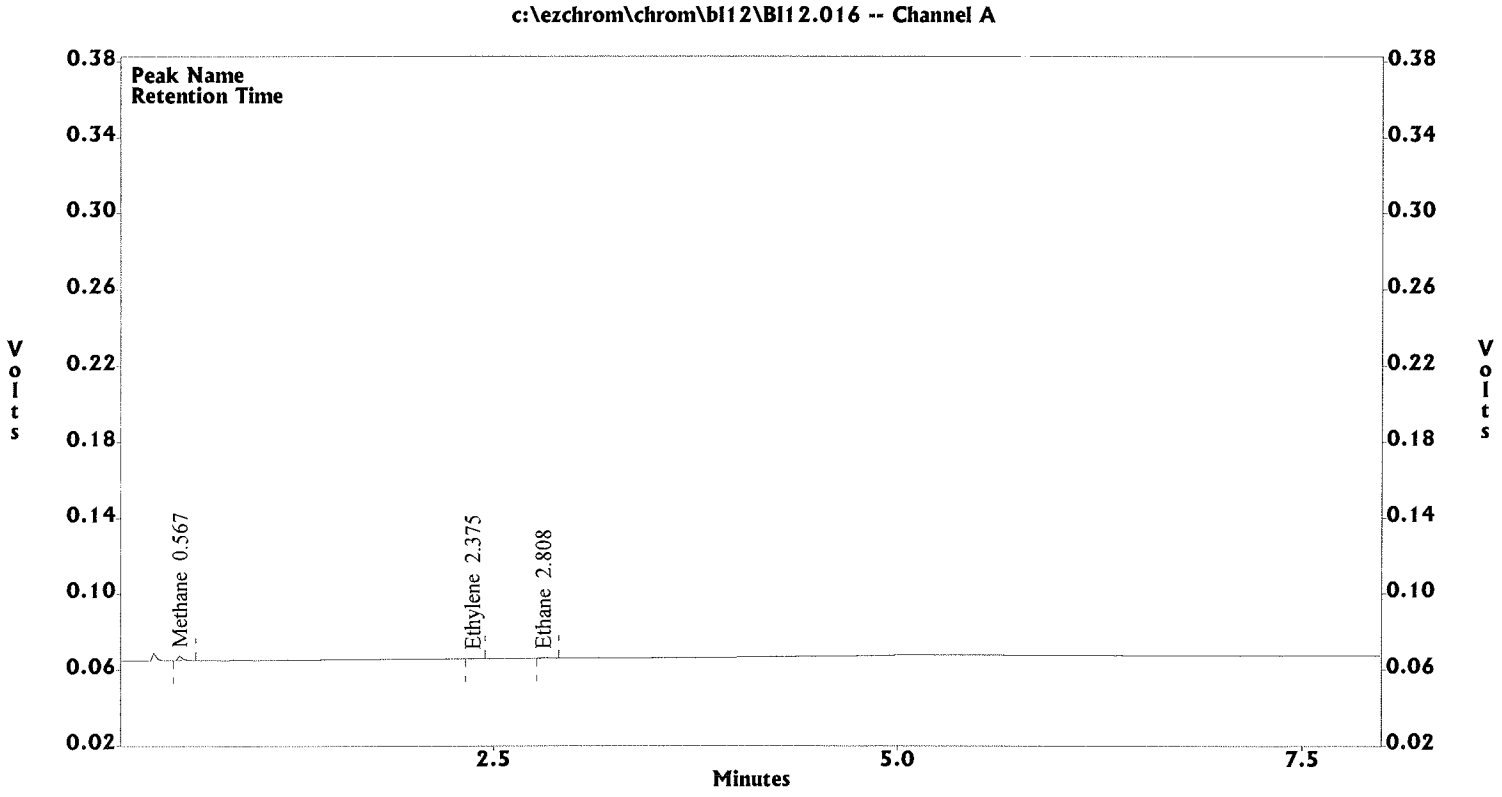
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	0.32J	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.016
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-09
Acquired : Dec 12, 2019 13:43:41
Printed : Dec 12, 2019 13:51:43
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	4126	13000.2	0.317
--	Acetylene	1.900	0	0.0	0.000
2	Ethylene	2.375	620	8316.3	0.075
3	Ethane	2.808	941	11378.1	0.083
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/07/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 09:30
Sample ID: OU2-MW03Rd-GW120719	Date Analyzed: 12/12/19 13:58
Lab Samp ID: L064-10	Dilution Factor: 1
Lab File ID: BL12017A	Matrix : WATER
Ext Btch ID: DGL003W	% Moisture : NA
Calib. Ref.: BL12015A	Instrument ID : GCT072

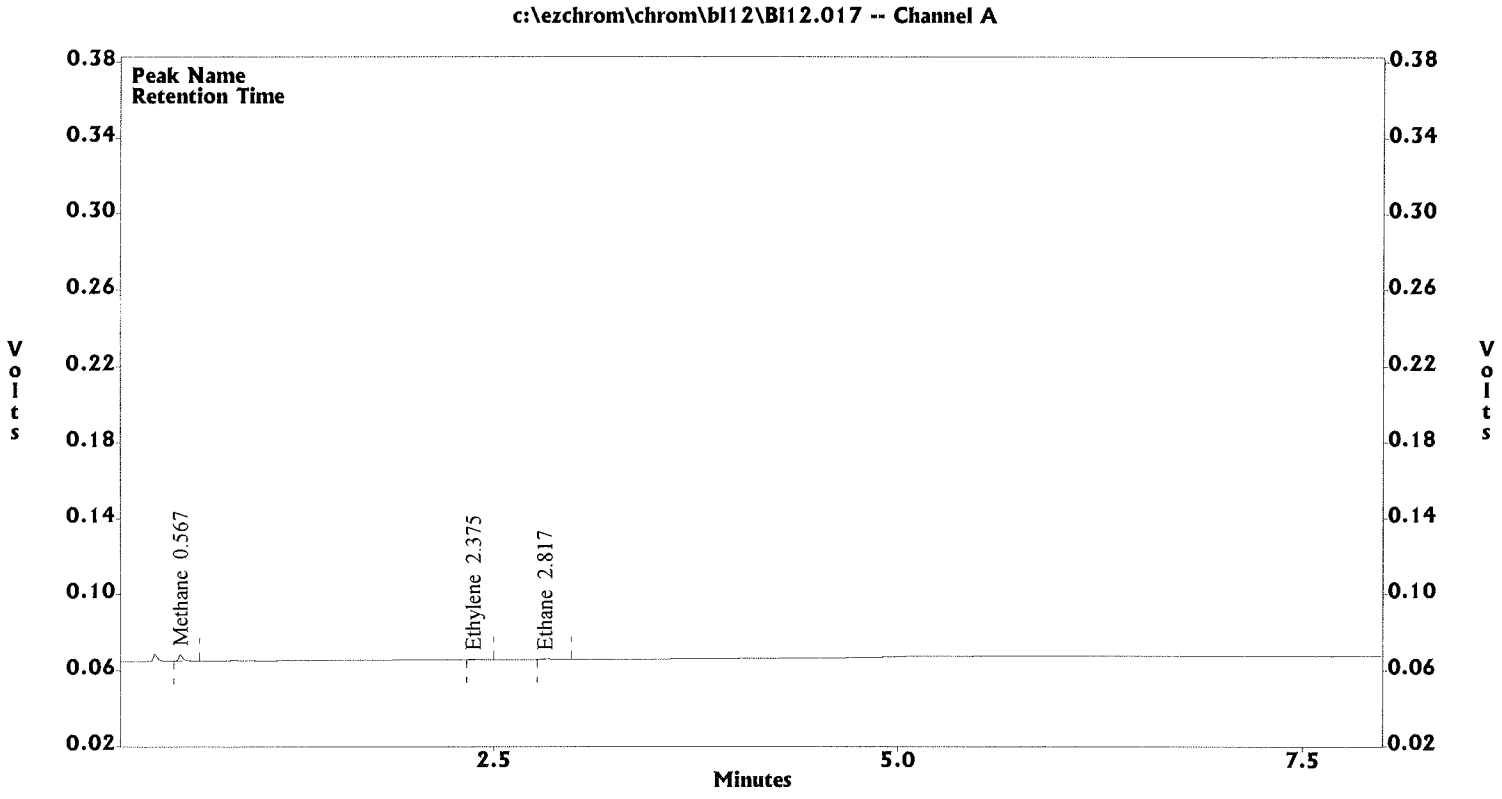
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	0.43J	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.017
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-10
Acquired : Dec 12, 2019 13:58:04
Printed : Dec 12, 2019 14:06:05
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	5587	13000.2	0.430
--	Acetylene	1.900	0	0.0	0.000
2	Ethylene	2.375	1057	8316.3	0.127
3	Ethane	2.817	1101	11378.1	0.097
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/08/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 09:30
Sample ID: OU2-MW17D-GW120819	Date Analyzed: 12/12/19 14:12
Lab Samp ID: L064-11	Dilution Factor: 1
Lab File ID: BL12018A	Matrix : WATER
Ext Btch ID: DGL003W	% Moisture : NA
Calib. Ref.: BL12015A	Instrument ID : GCT072

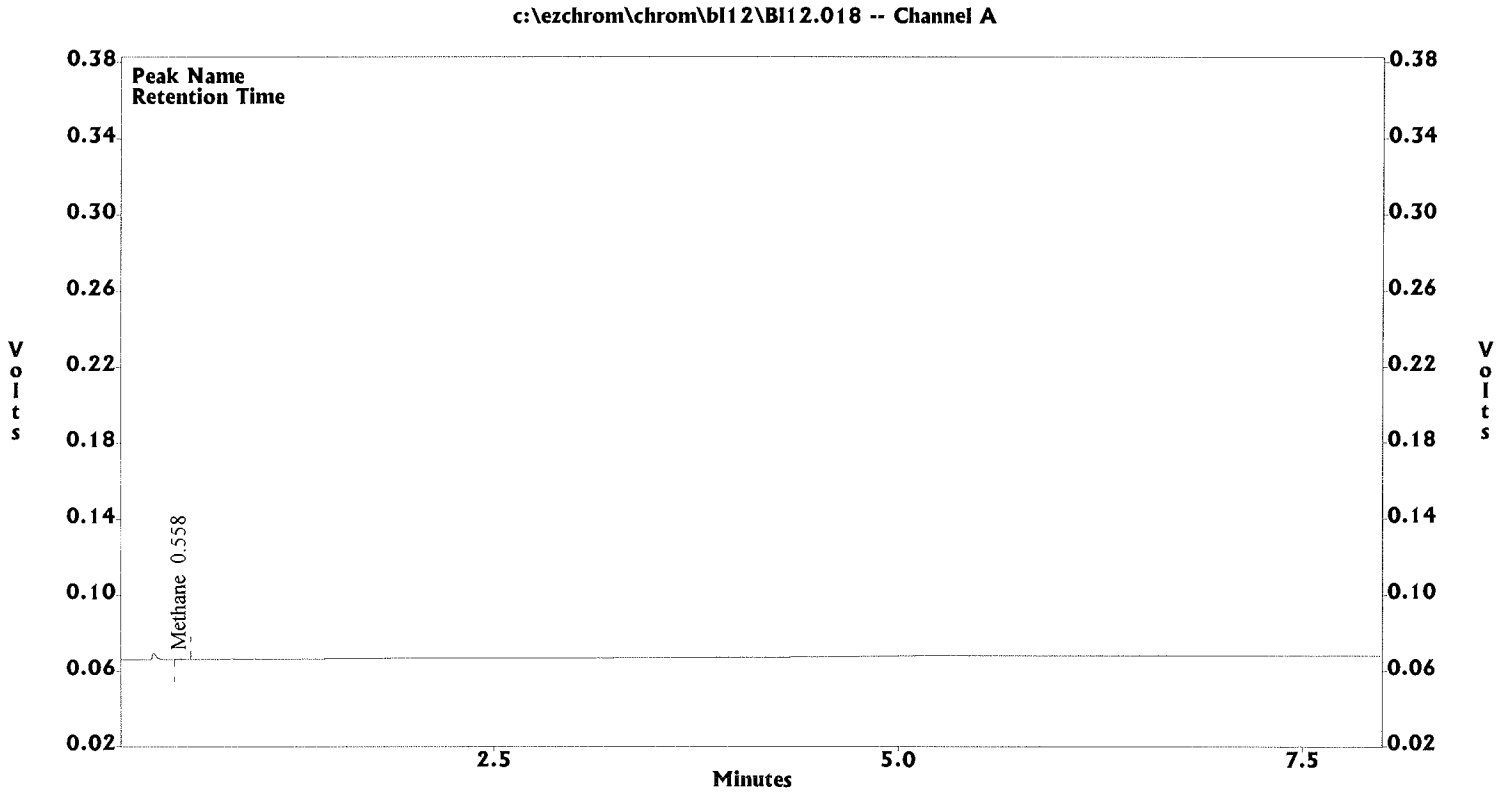
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	ND	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.018
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-11
Acquired : Dec 12, 2019 14:12:03
Printed : Dec 12, 2019 14:20:04
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.558	678	13000.2	0.052
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/08/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 09:30
Sample ID: OU2-MW17S-GW120819	Date Analyzed: 12/12/19 14:24
Lab Samp ID: L064-12	Dilution Factor: 1
Lab File ID: BL12019A	Matrix : WATER
Ext Btch ID: DGL003W	% Moisture : NA
Calib. Ref.: BL12015A	Instrument ID : GCT072

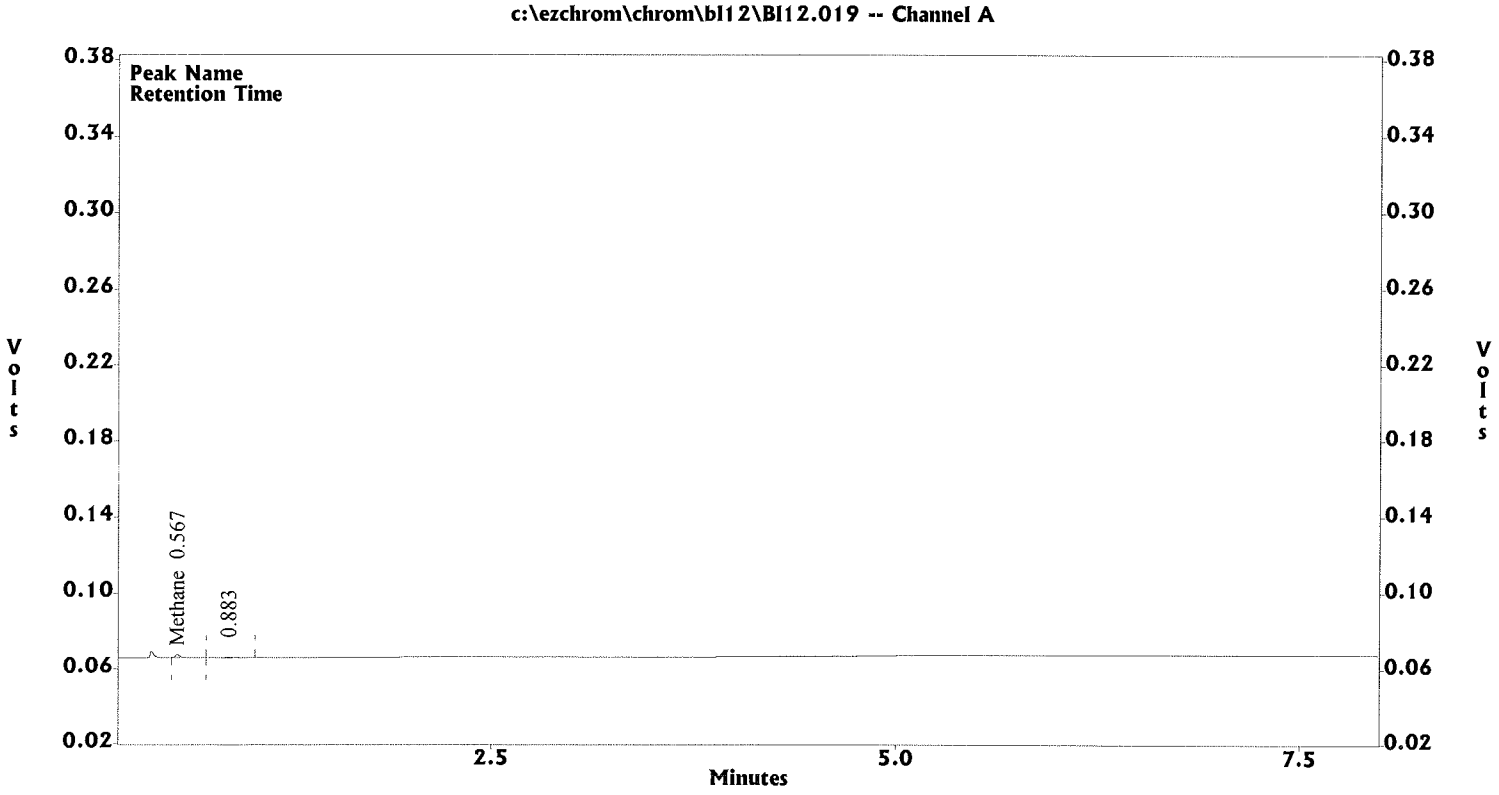
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	0.25J	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.019
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-12
Acquired : Dec 12, 2019 14:24:29
Printed : Dec 12, 2019 14:32:30
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	3303	13000.2	0.254
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client	: CDM SMITH	Date Collected:	12/08/19
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
Batch No.	: 19L064	Date Extracted:	12/12/19 09:30
Sample ID:	OU2-FD02-GW120819	Date Analyzed:	12/12/19 14:36
Lab Samp ID:	L064-14	Dilution Factor:	1
Lab File ID:	BL12020A	Matrix :	WATER
Ext Btch ID:	DGL003W	% Moisture :	NA
Calib. Ref.:	BL12015A	Instrument ID :	GCT072

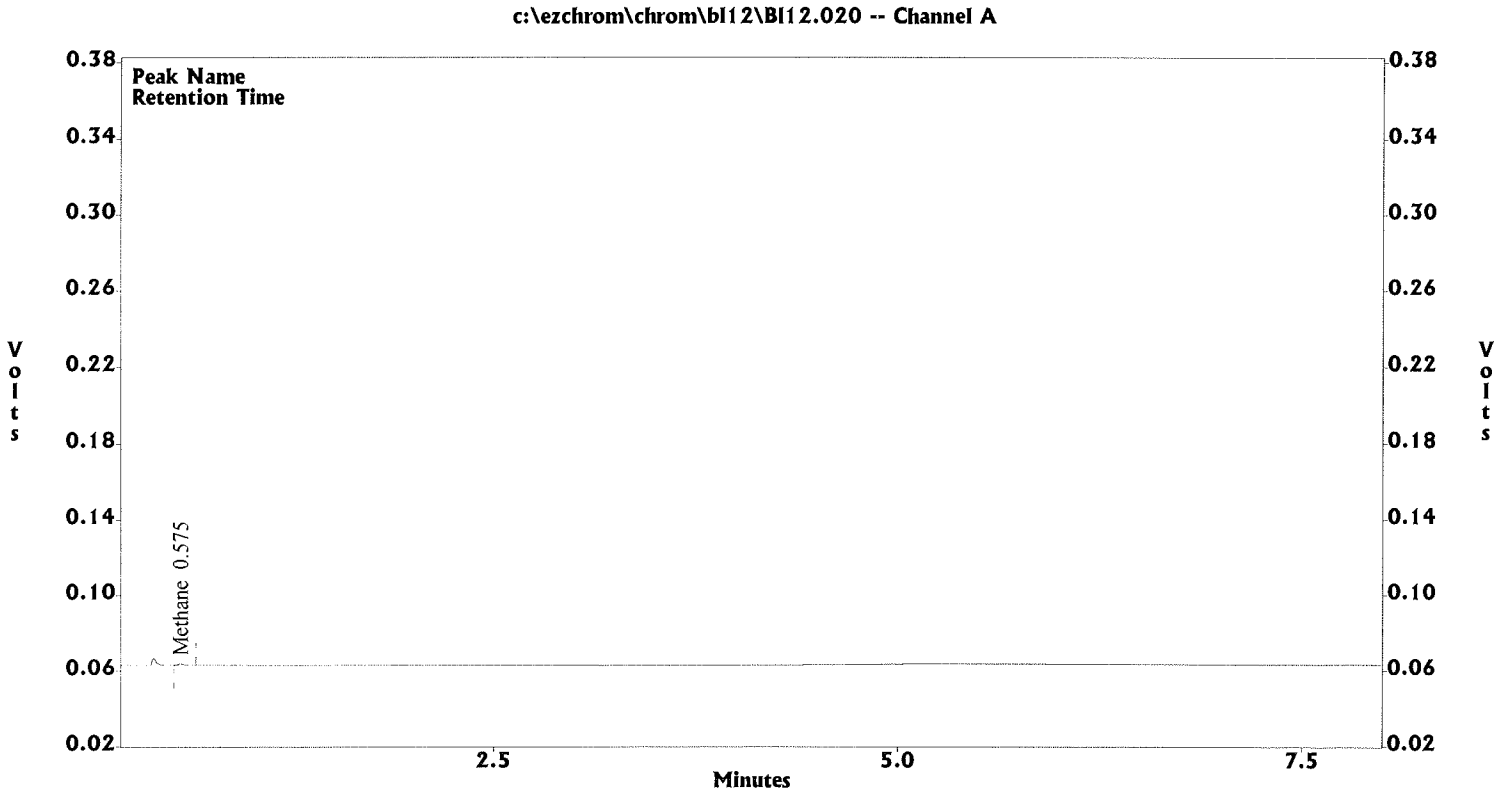
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	ND	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.020
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-14
Acquired : Dec 12, 2019 14:36:55
Printed : Dec 12, 2019 14:44:57
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.575	1705	13000.2	0.131
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/08/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 09:30
Sample ID: OU2-MW08c-GW120819	Date Analyzed: 12/12/19 14:51
Lab Samp ID: L064-15	Dilution Factor: 1
Lab File ID: BL12021A	Matrix : WATER
Ext Btch ID: DGL003W	% Moisture : NA
Calib. Ref.: BL12015A	Instrument ID : GCT072

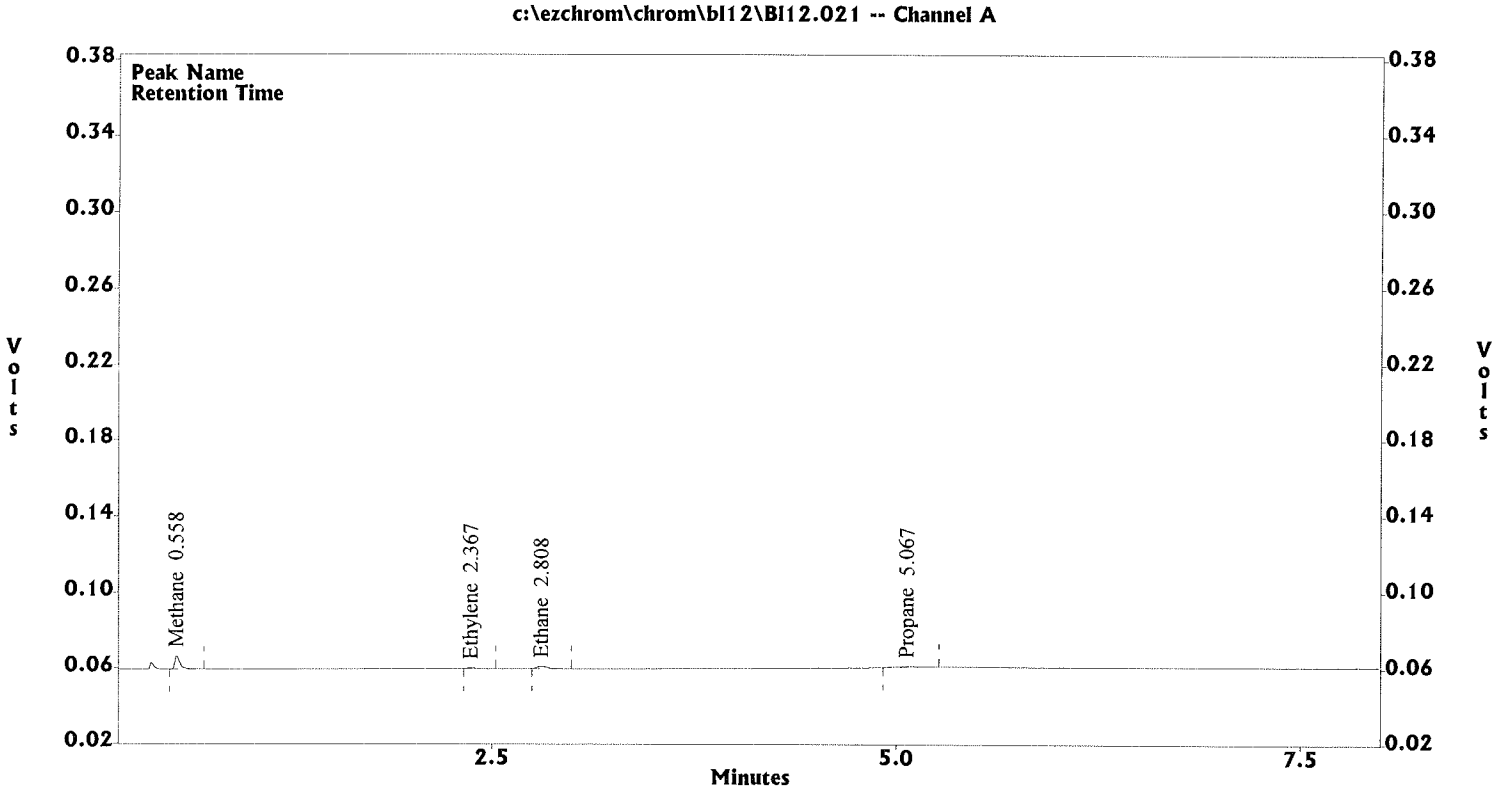
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	0.44J	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	1.0J	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.021
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-15
Acquired : Dec 12, 2019 14:51:56
Printed : Dec 12, 2019 14:59:57
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.558	13602	13000.2	1.046
--	Acetylene	1.900	0	0.0	0.000
2	Ethylene	2.367	1282	8316.3	0.154
3	Ethane	2.808	5057	11378.1	0.444
4	Propane	5.067	4800	12067.0	0.398



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/08/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 09:30
Sample ID: OU2-MW08a-GW120819	Date Analyzed: 12/12/19 15:04
Lab Samp ID: L064-17	Dilution Factor: 1
Lab File ID: BL12022A	Matrix : WATER
Ext Btch ID: DGL003W	% Moisture : NA
Calib. Ref.: BL12015A	Instrument ID : GCT072

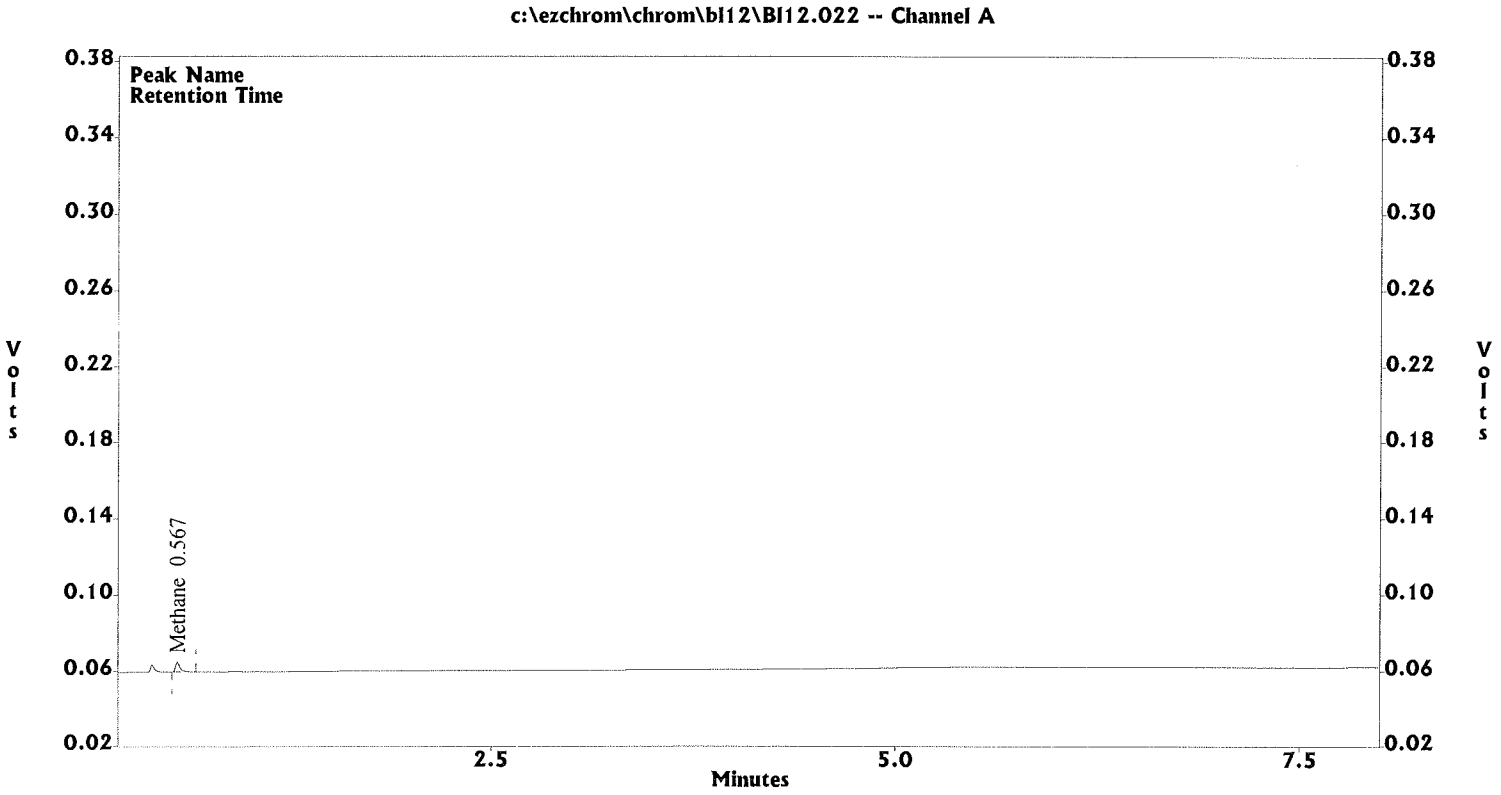
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	0.69J	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.022
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-17
Acquired : Dec 12, 2019 15:04:20
Printed : Dec 12, 2019 15:12:22
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	8901	13000.2	0.685
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/07/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 09:30
Sample ID: OU2-MW14S-GW120719	Date Analyzed: 12/12/19 15:16
Lab Samp ID: L064-18	Dilution Factor: 1
Lab File ID: BL12023A	Matrix : WATER
Ext Btch ID: DGL003W	% Moisture : NA
Calib. Ref.: BL12015A	Instrument ID : GCT072

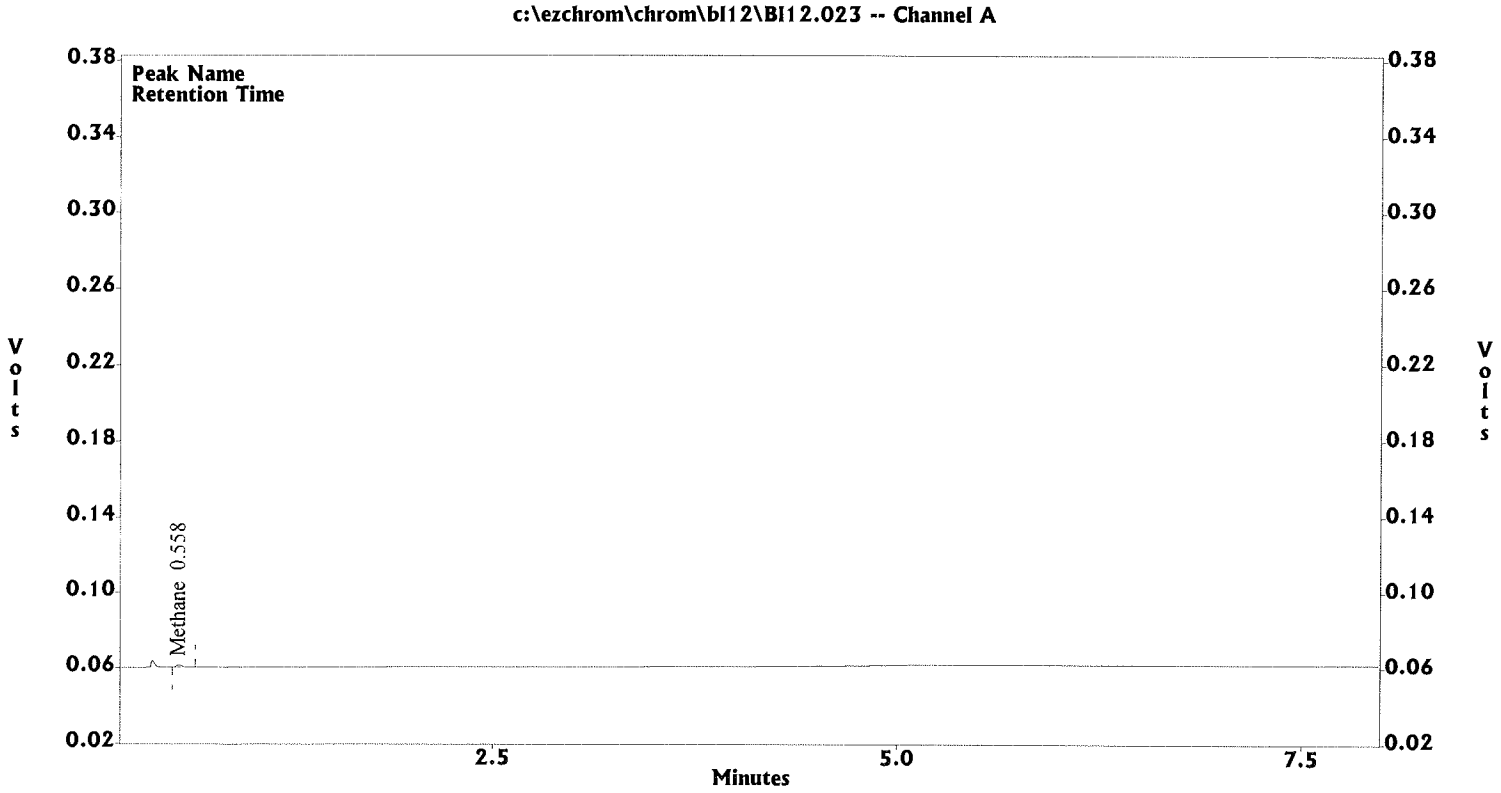
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	0.22J	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.023
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-18
Acquired : Dec 12, 2019 15:16:44
Printed : Dec 12, 2019 15:24:45
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.558	2840	13000.2	0.218
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/08/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 09:30
Sample ID: OU2-MW05R-GW120819	Date Analyzed: 12/12/19 15:29
Lab Samp ID: L064-20	Dilution Factor: 1
Lab File ID: BL12024A	Matrix : WATER
Ext Btch ID: DGL003W	% Moisture : NA
Calib. Ref.: BL12015A	Instrument ID : GCT072

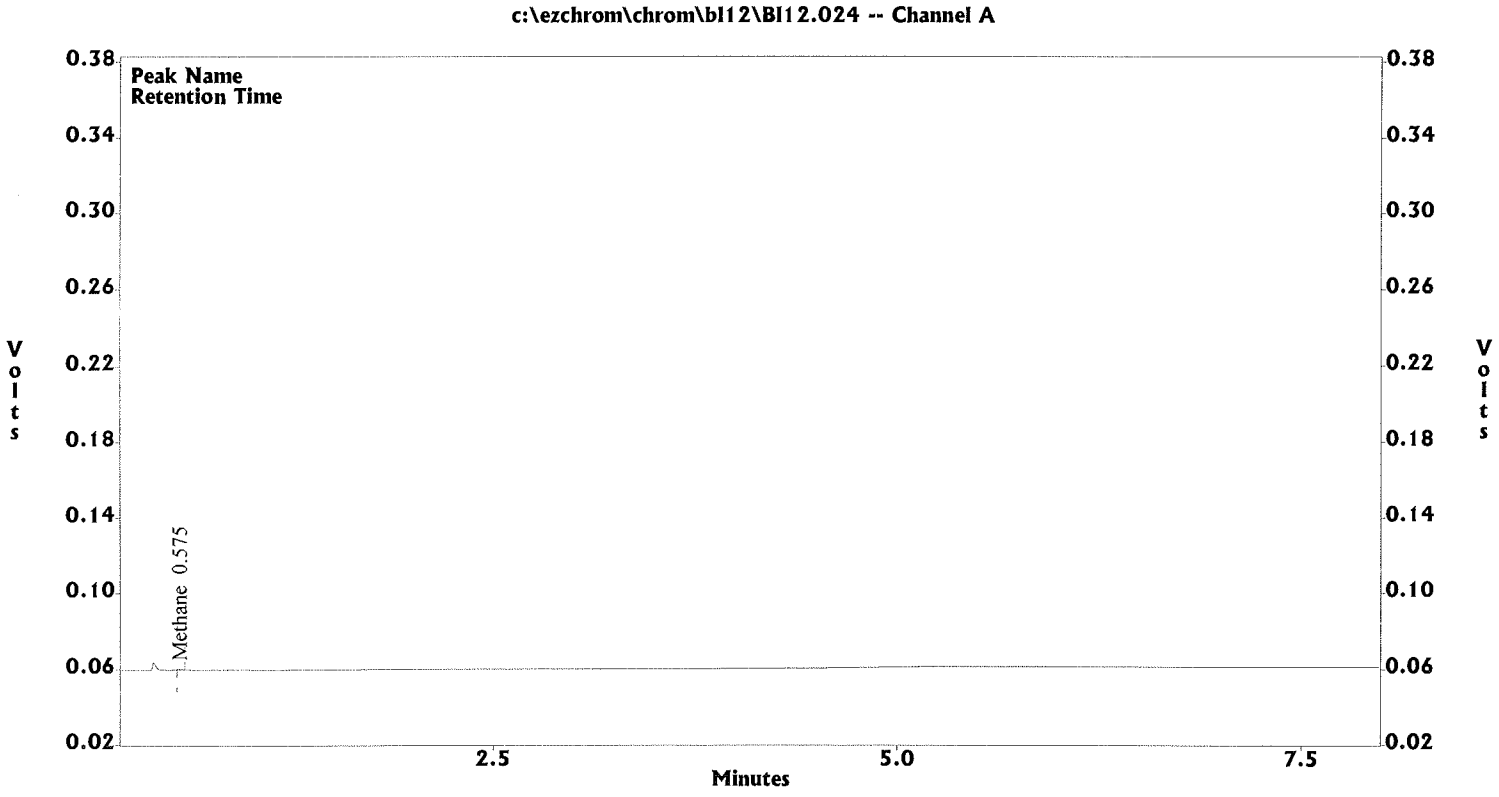
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	ND	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.024
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-20
Acquired : Dec 12, 2019 15:29:10
Printed : Dec 12, 2019 15:37:12
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.575	340	13000.2	0.026
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: 12/08/19
Project : VA SALT LAKE CITY	Date Received: 12/10/19
Batch No. : 19L064	Date Extracted: 12/12/19 09:30
Sample ID: OU2-MW08b-GW120819	Date Analyzed: 12/12/19 15:46
Lab Samp ID: L064-21	Dilution Factor: 1
Lab File ID: BL12025A	Matrix : WATER
Ext Btch ID: DGL003W	% Moisture : NA
Calib. Ref.: BL12015A	Instrument ID : GCT072

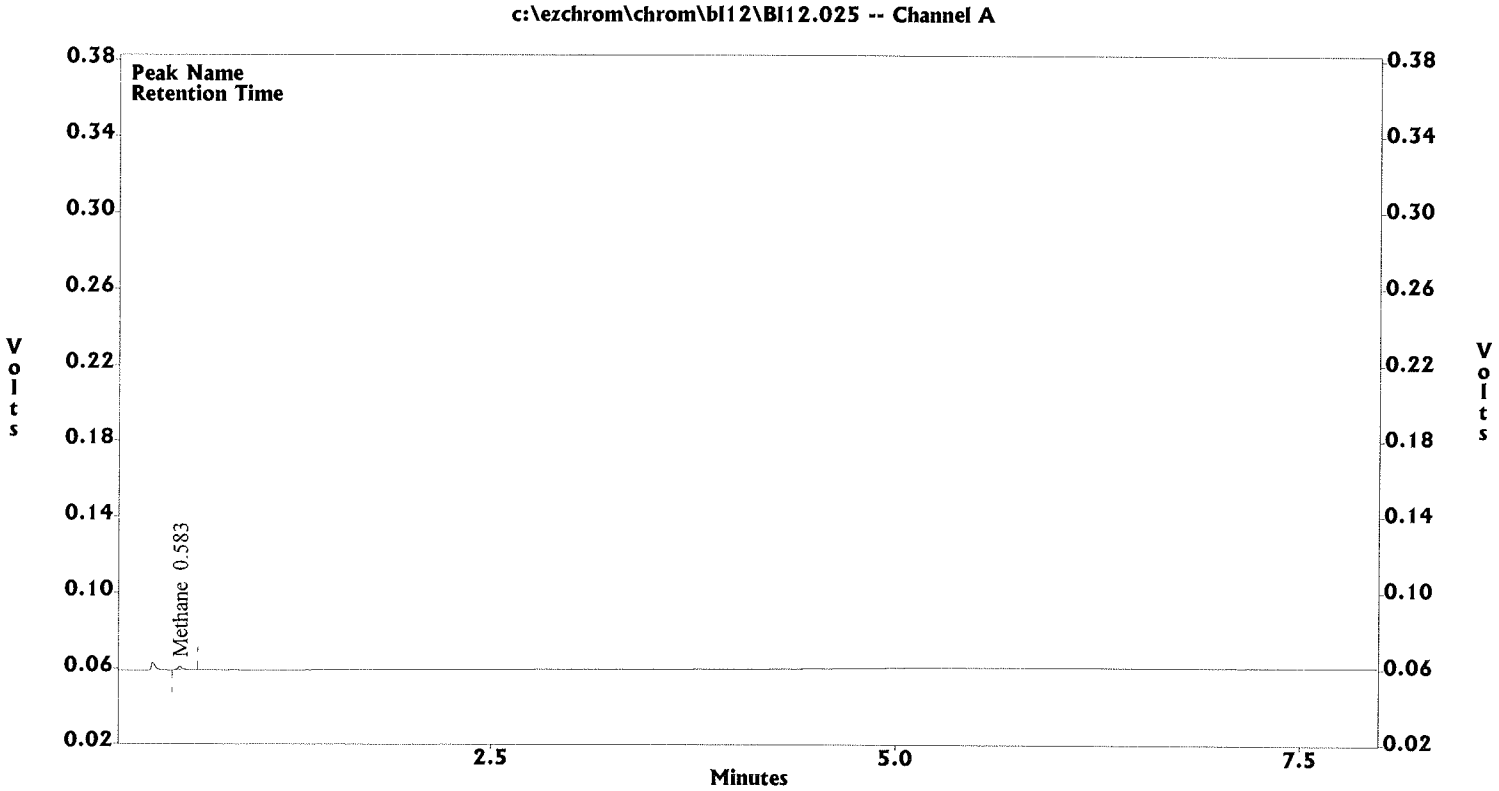
PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	0.28J	2.0	0.17

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.025
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-21
Acquired : Dec 12, 2019 15:46:38
Printed : Dec 12, 2019 15:54:39
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.583	3596	13000.2	0.277
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000



QC SUMMARIES

METHOD RSK-175
DISSOLVED GASES

Client : CDM SMITH	Date Collected: NA
Project : VA SALT LAKE CITY	Date Received: 12/12/19
Batch No. : 19L064	Date Extracted: 12/12/19 09:30
Sample ID: MBLK1W	Date Analyzed: 12/12/19 10:41
Lab Samp ID: DGL003WB	Dilution Factor: 1
Lab File ID: BL12003A	Matrix : WATER
Ext Btch ID: DGL003W	% Moisture : NA
Calib. Ref.: BL12002A	Instrument ID : GCT072

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	2.0	0.32
ETHENE	ND	2.0	0.30
METHANE	ND	2.0	0.17

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L064
METHOD: RSK-175

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1W
LAB SAMP ID: DGL003WB DGL003WL DGL003WC
LAB FILE ID: BL12003A BL12004A BL12005A
DATE EXTRACTED: 12/12/1909:30 12/12/1909:30 12/12/1909:30 DATE COLLECTED: NA
DATE ANALYZED: 12/12/1910:41 12/12/1910:56 12/12/1911:11 DATE RECEIVED: 12/12/19
PREP. BATCH: DGL003W DGL003W DGL003W
CALIB. REF: BL12002A BL12002A BL12002A

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Ethane	ND	25.5	26.8	105	25.5	25.9	101	3	70-140	30
Ethene	ND	23.8	23.6	99	23.8	22.8	96	3	70-140	30
Methane	ND	13.6	13.7	101	13.6	13.6	100	1	70-130	30

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L064
METHOD: RSK-175

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: OU2-MW15D-GW120719
LAB SAMP ID: L064-07 L064-07M L064-07S
LAB FILE ID: BL12011A BL12012A BL12013A
DATE EXTRACTED: 12/12/1909:30 12/12/1909:30 12/12/1909:30 DATE COLLECTED: 12/07/19
DATE ANALYZED: 12/12/1912:34 12/12/1912:50 12/12/1913:03 DATE RECEIVED: 12/10/19
PREP. BATCH: DGL003W DGL003W DGL003W
CALIB. REF: BL12002A BL12002A BL12002A

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	SPIKE AMT (ug/L)	MSD RSLT (ug/L)	MSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Ethane	ND	25.5	21.8	85	25.5	22.5	88	3	70-140	30
Ethene	ND	23.8	19.6	82	23.8	20.1	85	3	70-140	30
Methane	ND	13.6	11.1	82	13.6	11.6	85	4	70-130	30

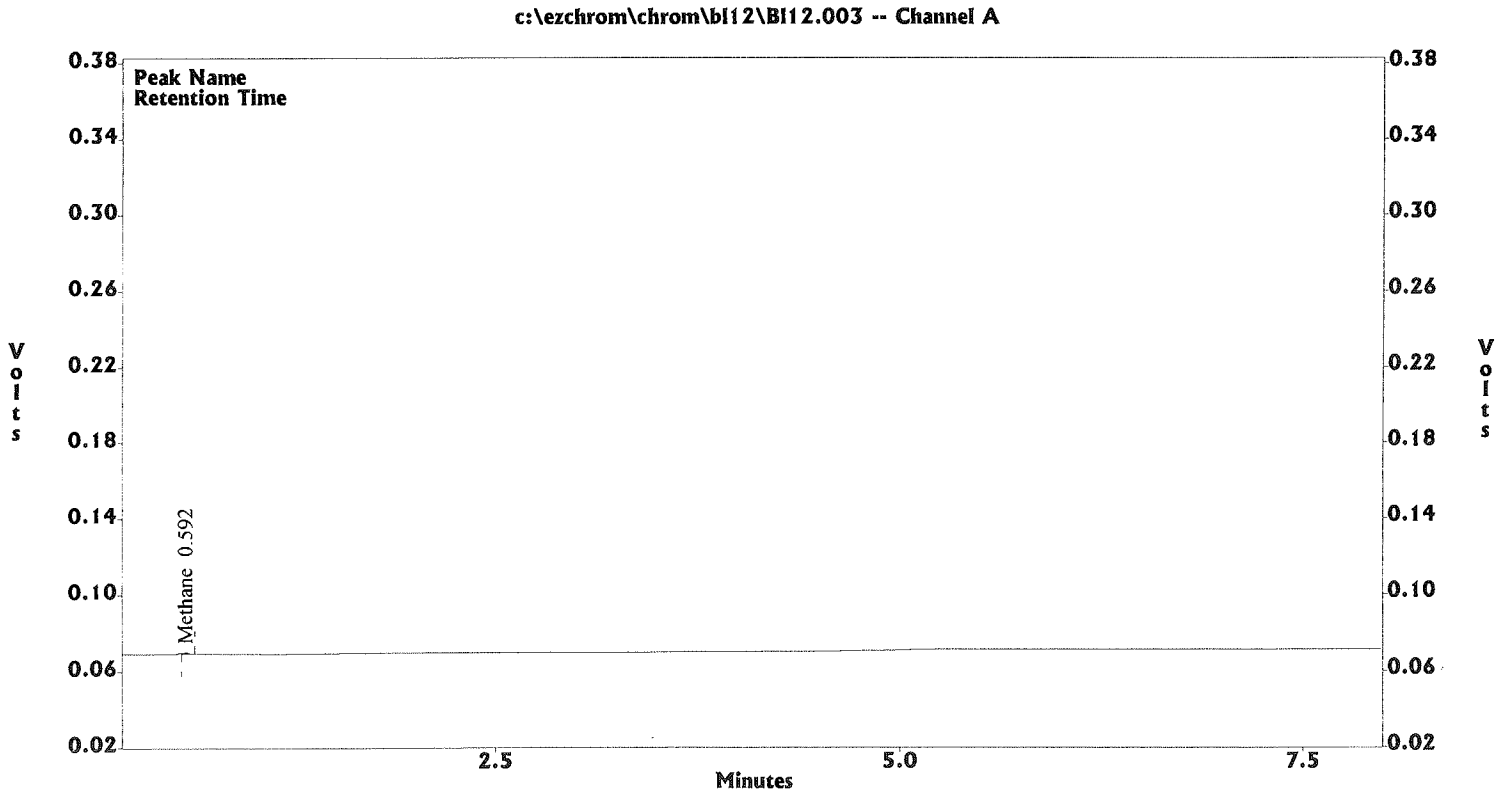
QC DATA

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.003
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : DGL003WB
Acquired : Dec 12, 2019 10:41:16
Printed : Dec 12, 2019 10:49:17
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.592	1195	13000.2	0.092
--	Acetylene	1.900	0	0.0	0.000
--	Ethylene	2.358	0	0.0	0.000
--	Ethane	2.800	0	0.0	0.000
--	Propane	5.058	0	0.0	0.000

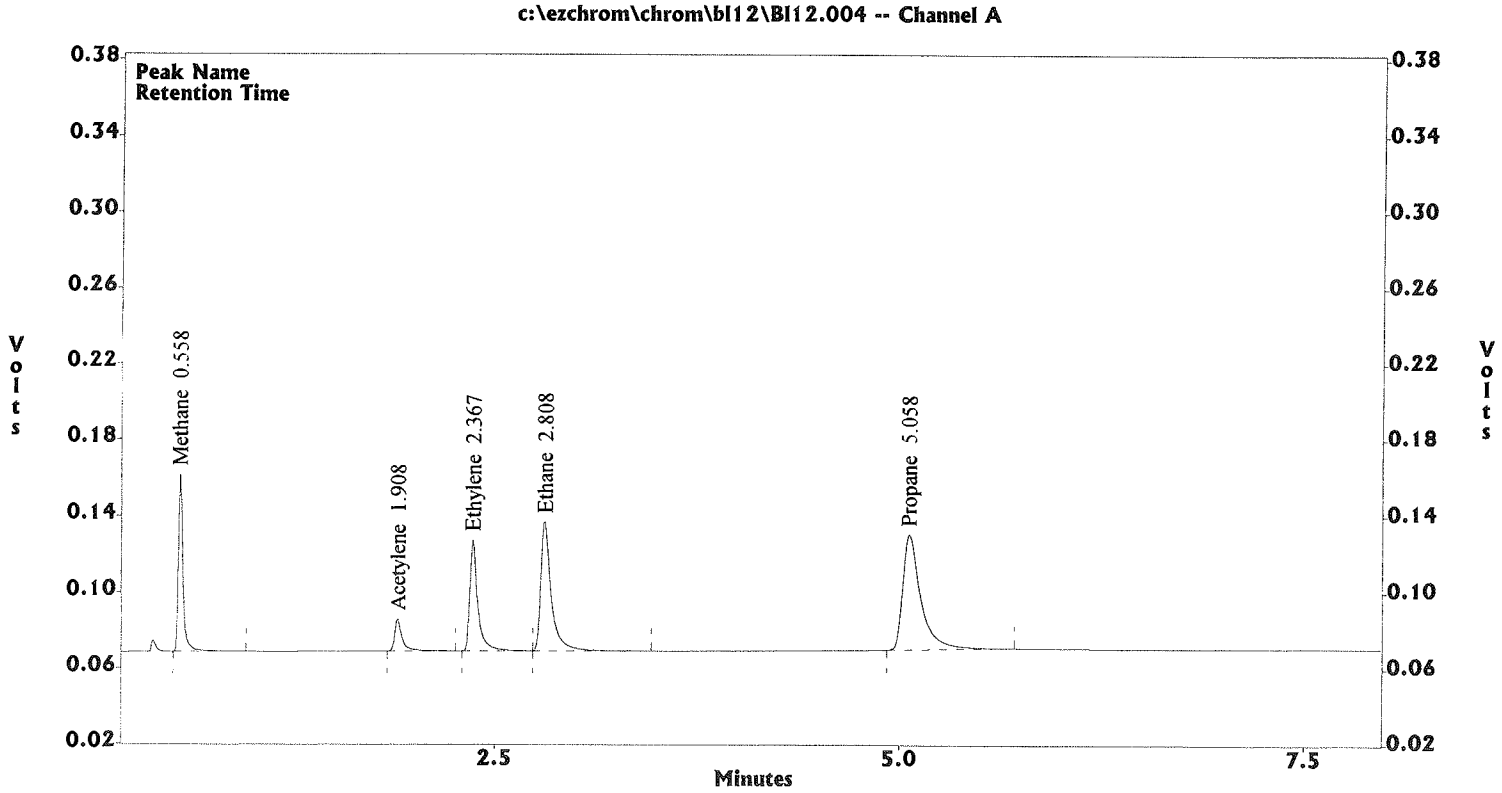


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.004
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : DGL003WL
Acquired : Dec 12, 2019 10:56:18
Printed : Dec 12, 2019 11:04:19
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.558	178368	13000.2	13.720
2	Acetylene	1.908	53138	2310.0	23.003
3	Ethylene	2.367	196041	8316.3	23.573
4	Ethane	2.808	304362	11378.1	26.750
5	Propane	5.058	470656	12067.0	39.004

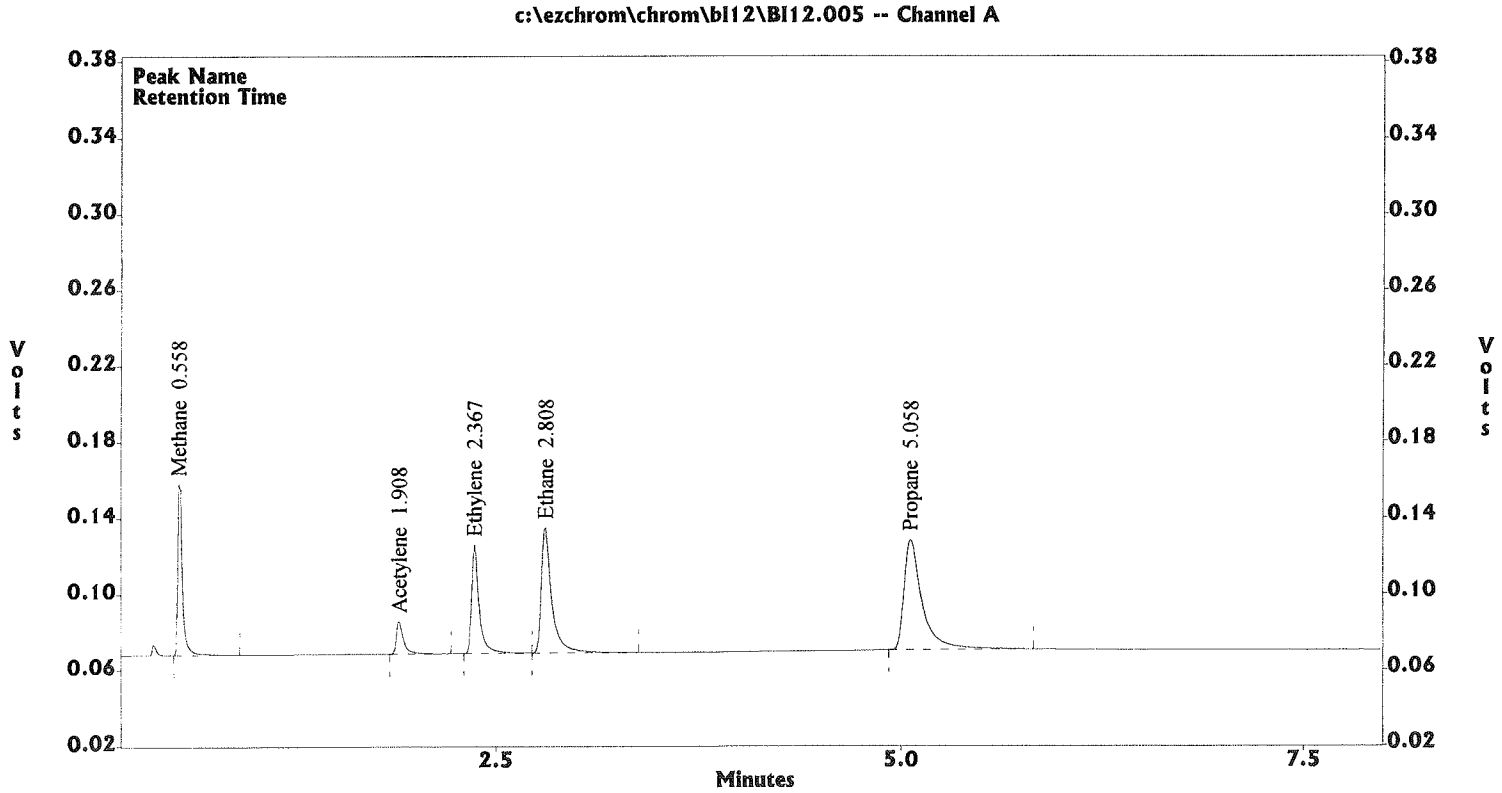


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.005
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : DGL003WC
Acquired : Dec 12, 2019 11:11:53
Printed : Dec 12, 2019 11:19:54
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.558	176364	13000.2	13.566
2	Acetylene	1.908	51913	2310.0	22.473
3	Ethylene	2.367	189749	8316.3	22.817
4	Ethane	2.808	294287	11378.1	25.864
5	Propane	5.058	457308	12067.0	37.898

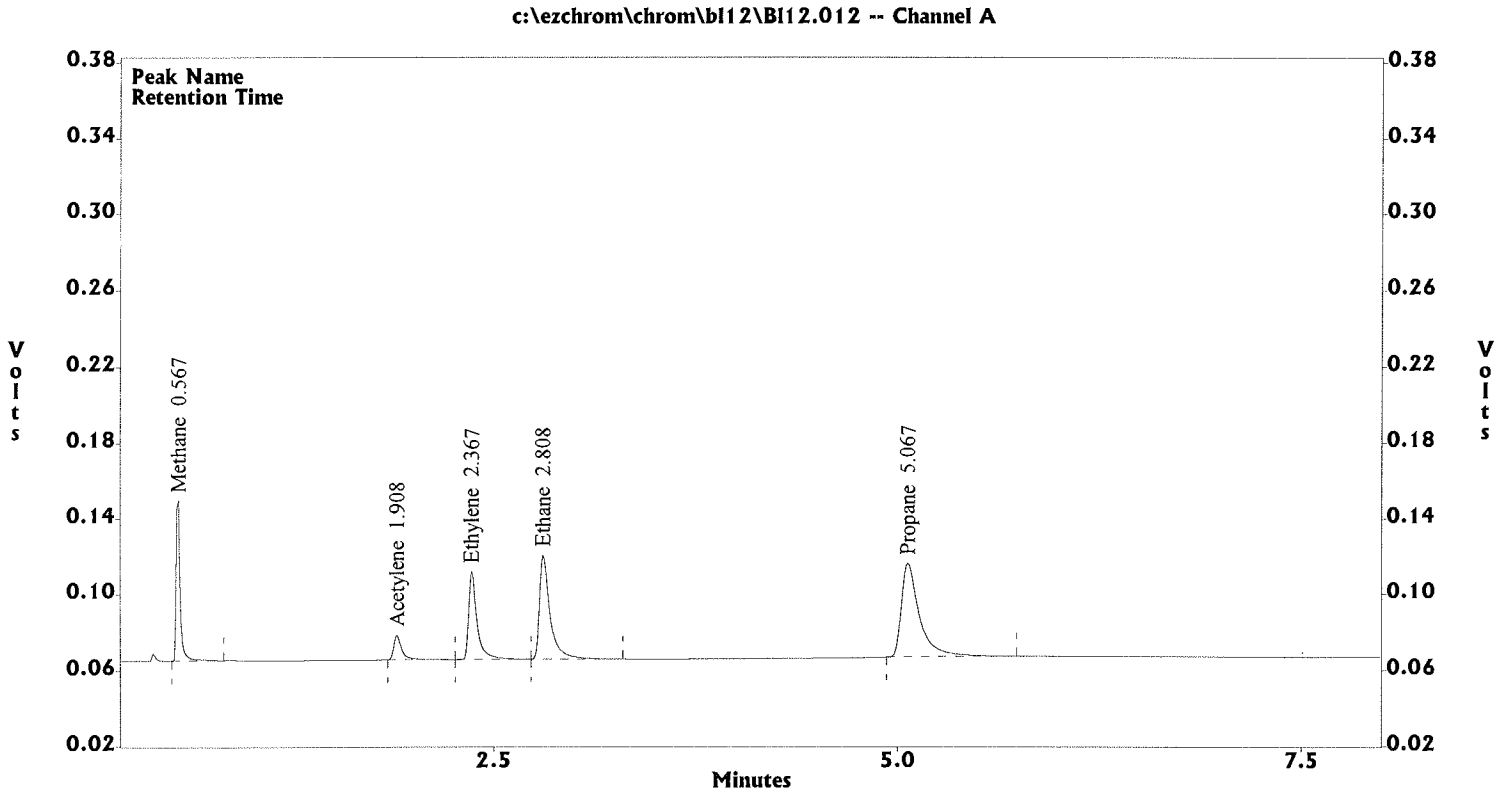


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.012
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-07M
Acquired : Dec 12, 2019 12:50:52
Printed : Dec 12, 2019 12:58:54
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	144932	13000.2	11.148
2	Acetylene	1.908	45023	2310.0	19.490
3	Ethylene	2.367	163025	8316.3	19.603
4	Ethane	2.808	248044	11378.1	21.800
5	Propane	5.067	383964	12067.0	31.819

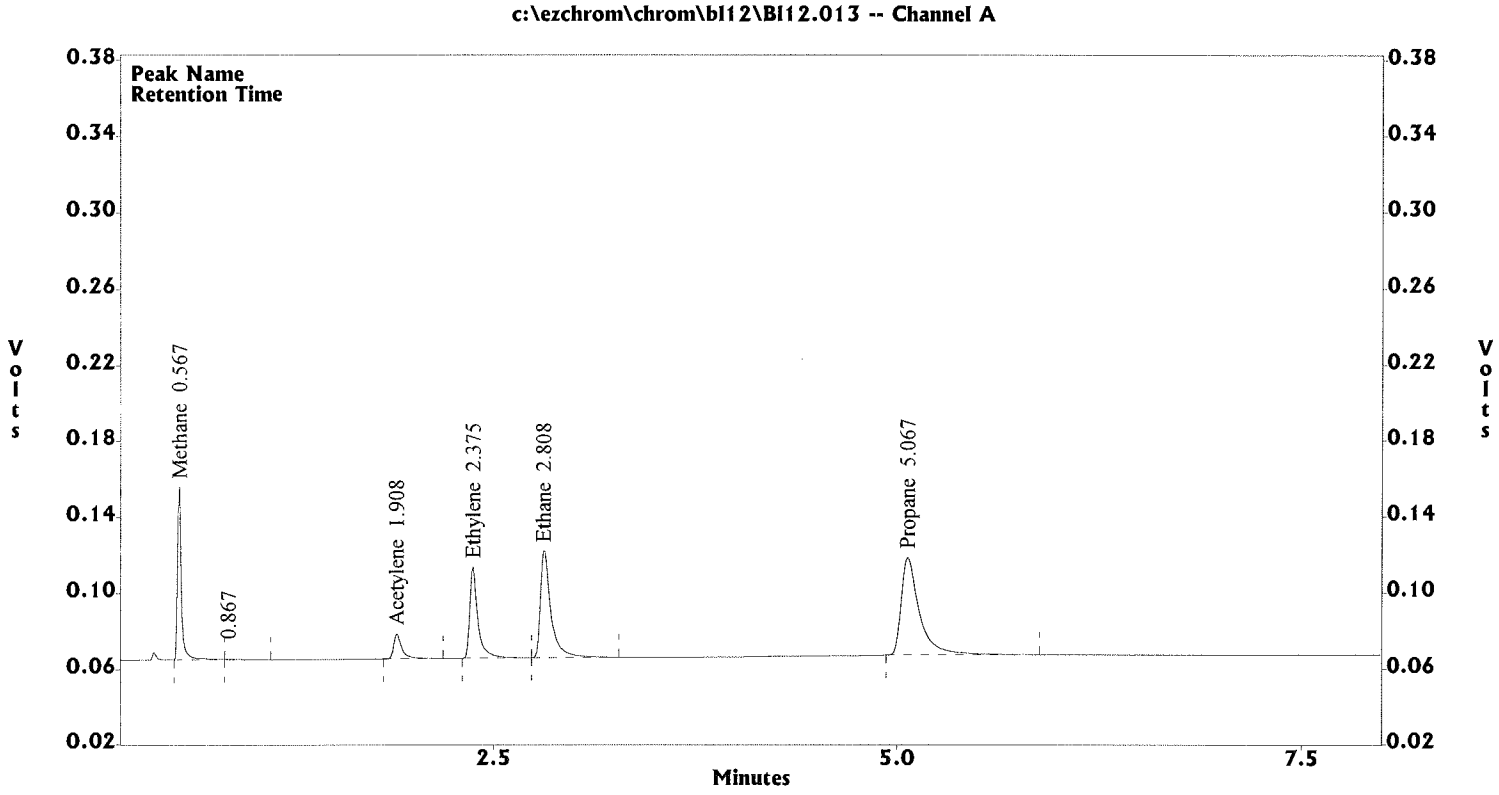


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.013
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : L064-07S
Acquired : Dec 12, 2019 13:03:20
Printed : Dec 12, 2019 13:11:21
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	151450	13000.2	11.650
3	Acetylene	1.908	45680	2310.0	19.775
4	Ethylene	2.375	167554	8316.3	20.148
5	Ethane	2.808	255765	11378.1	22.479
6	Propane	5.067	400233	12067.0	33.168



INITIAL CALIBRATIONS

INITIAL CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Column : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
LFID & Datetime: BC20002A 03/20/19 10:19
LFID & Datetime: BC20003A 03/20/19 10:31
LFID & Datetime: BC20004A 03/20/19 10:44
LFID & Datetime: BC20005A 03/20/19 10:56
LFID & Datetime: BC20006A 03/20/19 11:08
LFID & Datetime: BC20007A 03/20/19 11:21
CONC UNIT: ppb

COMPOUND	CONC X	CALIBRATION FACTORS (AREA)/UNIT 2.00X	10.00X	25.00X	40.00X	75.00X	100.00X	MEAN	%RSD
Methane	0.34	12510	15188	13549	12749	12136	11869	13000.2	9.4
Acetylene	0.55	1871	2639	2493	2383	2248	2226	2310.0	11.5
Ethylene	0.60	6392	9743	9097	8533	8116	8017	8316.3	13.7
Ethane	0.64	9016	13286	12338	11571	11068	10989	11378.1	12.7
Propane	0.94	9664	13882	13122	12439	11732	11562	12067.0	12.1

DG72C20.MET

FORM VI DGAS -2 1/96 Rev 2/2006

LE 3/20/19

INITIAL CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Columm : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
LFID & Datetime: BC20002A 03/20/19 10:19
LFID & Datetime: BC20003A 03/20/19 10:31
LFID & Datetime: BC20004A 03/20/19 10:44
LFID & Datetime: BC20005A 03/20/19 10:56
LFID & Datetime: BC20006A 03/20/19 11:08
LFID & Datetime: BC20007A 03/20/19 11:21

COMPOUND	RT OF STANDARDS (MIN) 2.0X	10.0X	25.0X	40.0X	75.0X	100.0X	MEAN RT	RT WINDOW FROM	TO	RTWINDOW WIDTH
Methane	0.567	0.567	0.550	0.550	0.550	0.550	0.556	0.530	0.582	0.026
Acetylene	1.917	1.908	1.892	1.892	1.892	1.892	1.899	1.846	1.952	0.053
Ethylene	2.358	2.358	2.350	2.350	2.350	2.350	2.353	2.315	2.391	0.038
Ethane	2.792	2.792	2.792	2.792	2.783	2.792	2.790	2.752	2.829	0.038
Propane	5.050	5.050	5.042	5.050	5.042	5.050	5.047	4.995	5.099	0.052

DG72C20.MET

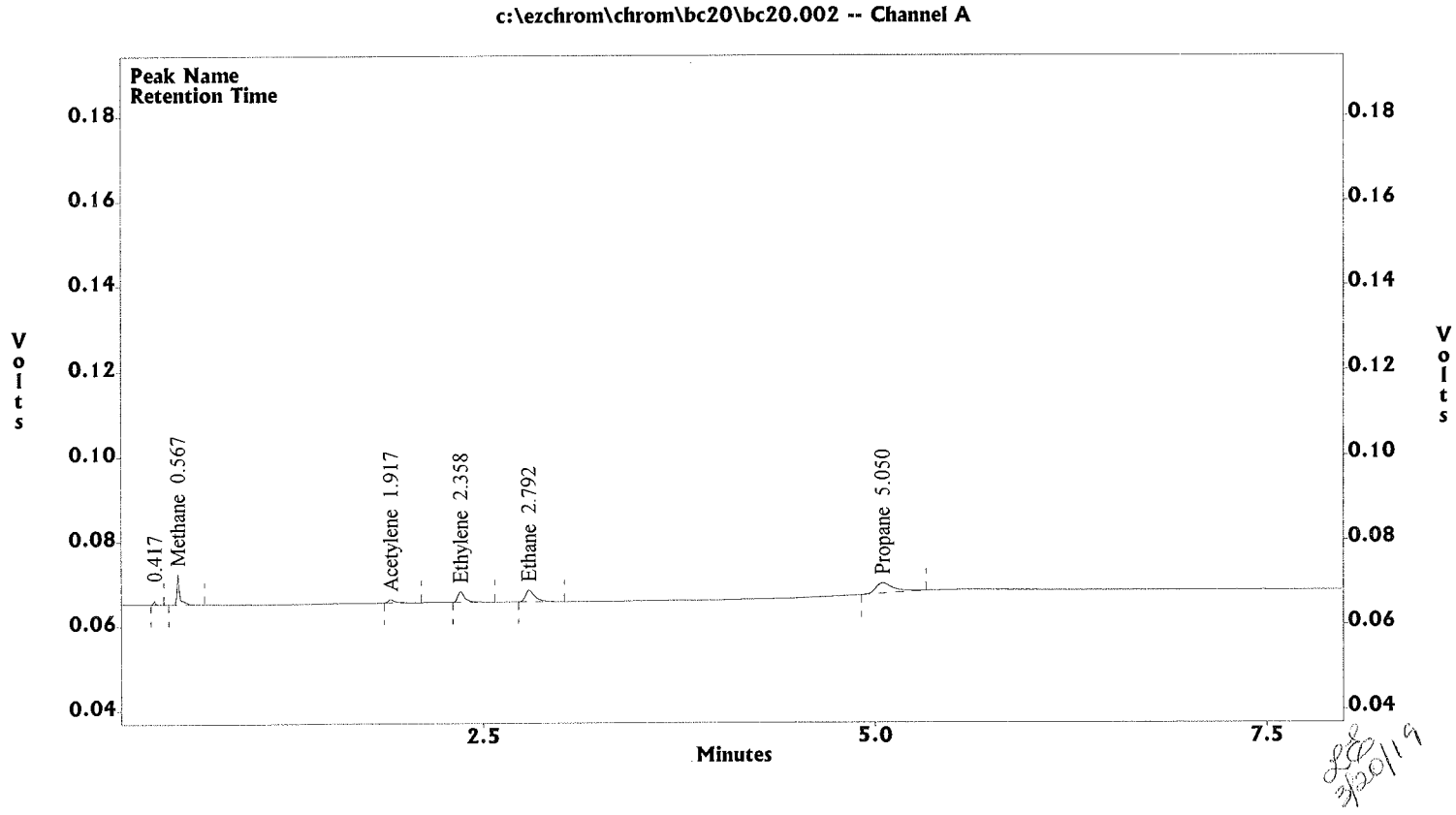
LSP 3/20/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.002
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2001
Acquired : Mar 20, 2019 10:19:11
Printed : Mar 20, 2019 12:29:31
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.567	8507	13000.2	0.680
3	Acetylene	1.917	2068	2310.0	1.105
4	Ethylene	2.358	7606	8316.3	1.190
5	Ethane	2.792	11496	11378.1	1.275
6	Propane	5.050	18071	12067.0	1.870

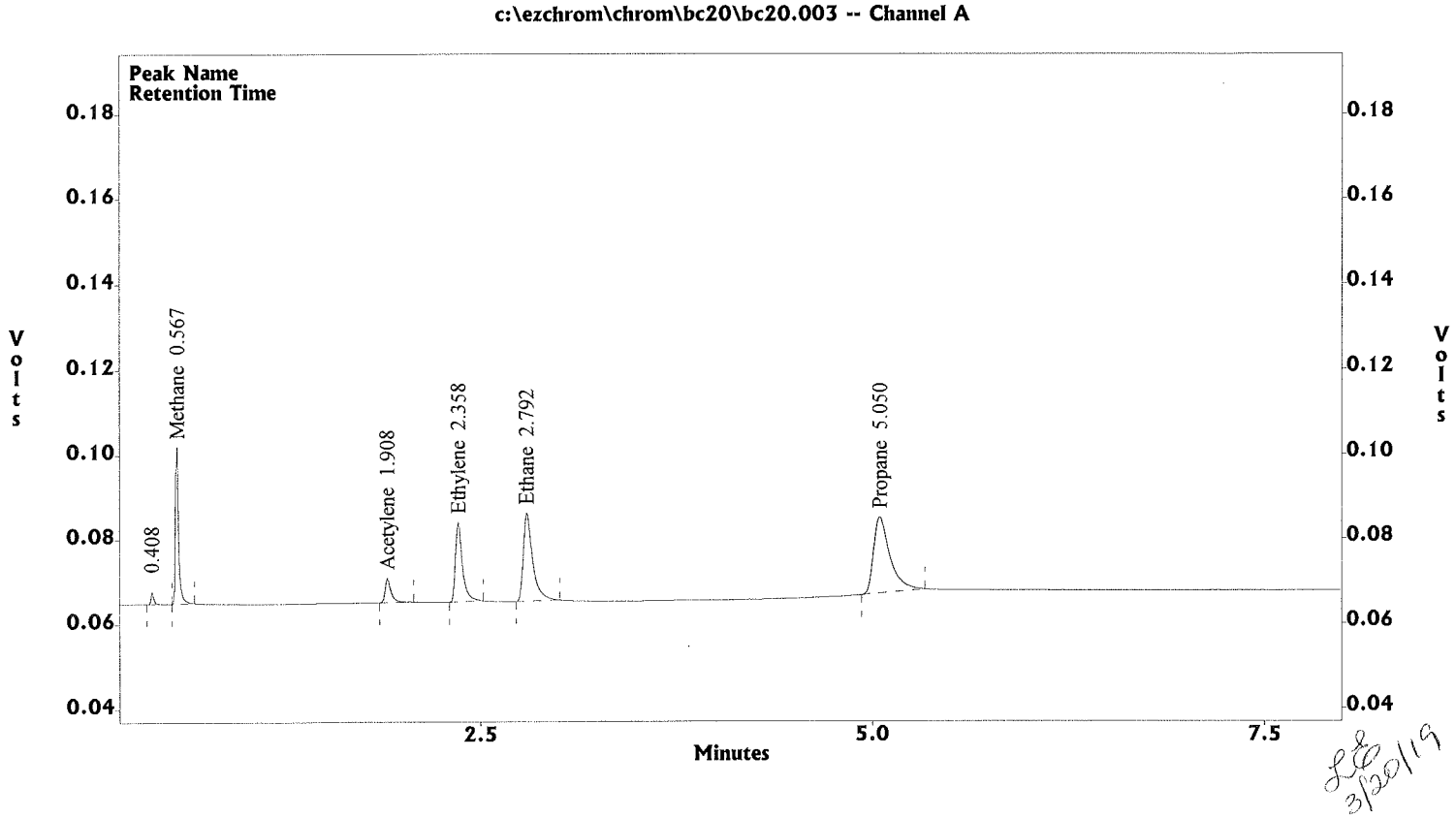


METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.003
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2002
Acquired : Mar 20, 2019 10:31:35
Printed : Mar 20, 2019 12:33:26
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.567	51668	13000.2	3.402
3	Acetylene	1.908	14589	2310.0	5.528
4	Ethylene	2.358	58000	8316.3	5.953
5	Ethane	2.792	84739	11378.1	6.378
6	Propane	5.050	129801	12067.0	9.350



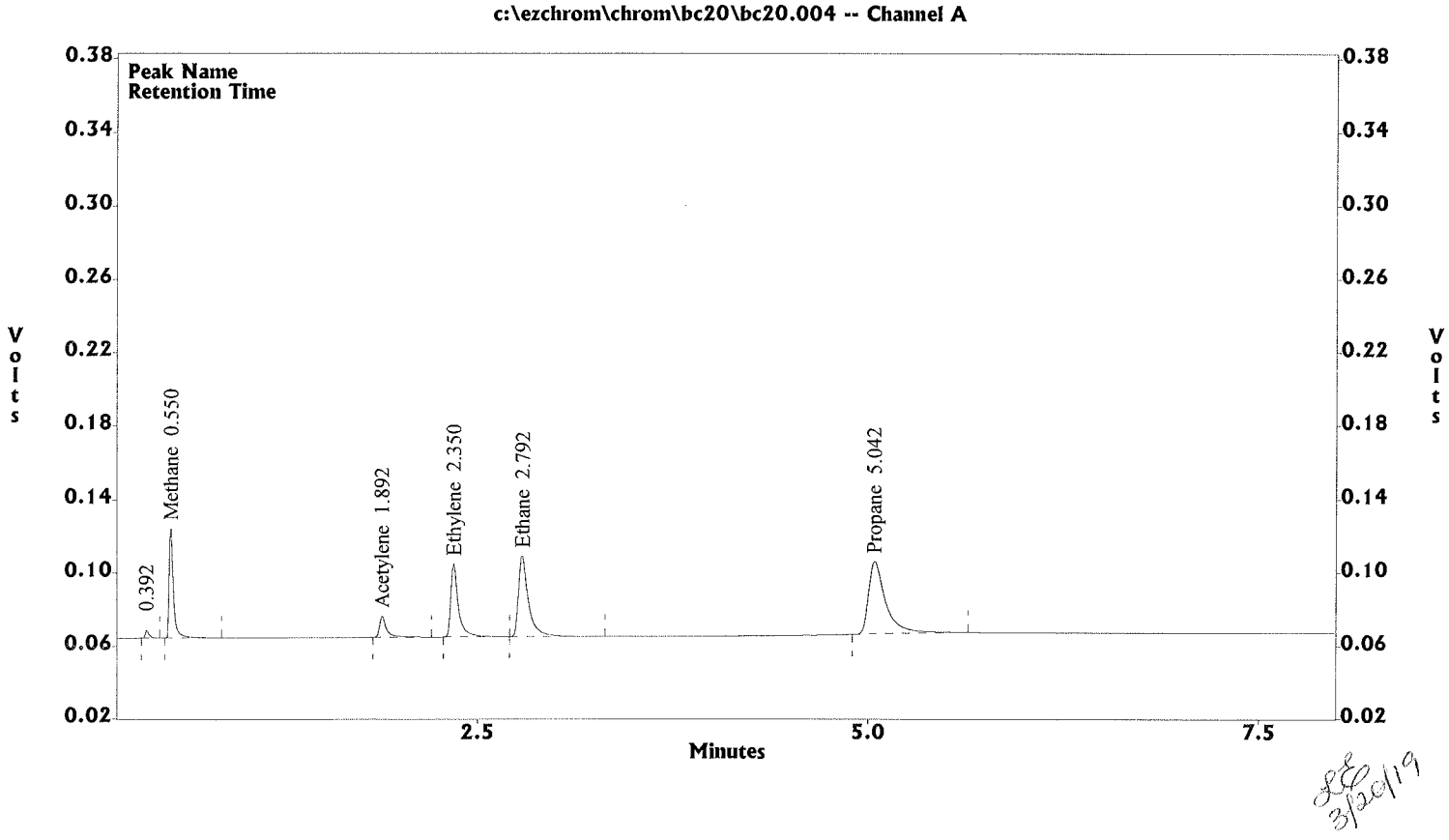
LL 3/20/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.004
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2003
Acquired : Mar 20, 2019 10:44:01
Printed : Mar 20, 2019 12:33:35
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.550	115223	13000.2	8.504
3	Acetylene	1.892	34458	2310.0	13.820
4	Ethylene	2.350	135369	8316.3	14.880
5	Ethane	2.792	196786	11378.1	15.950
6	Propane	5.042	306927	12067.0	23.390



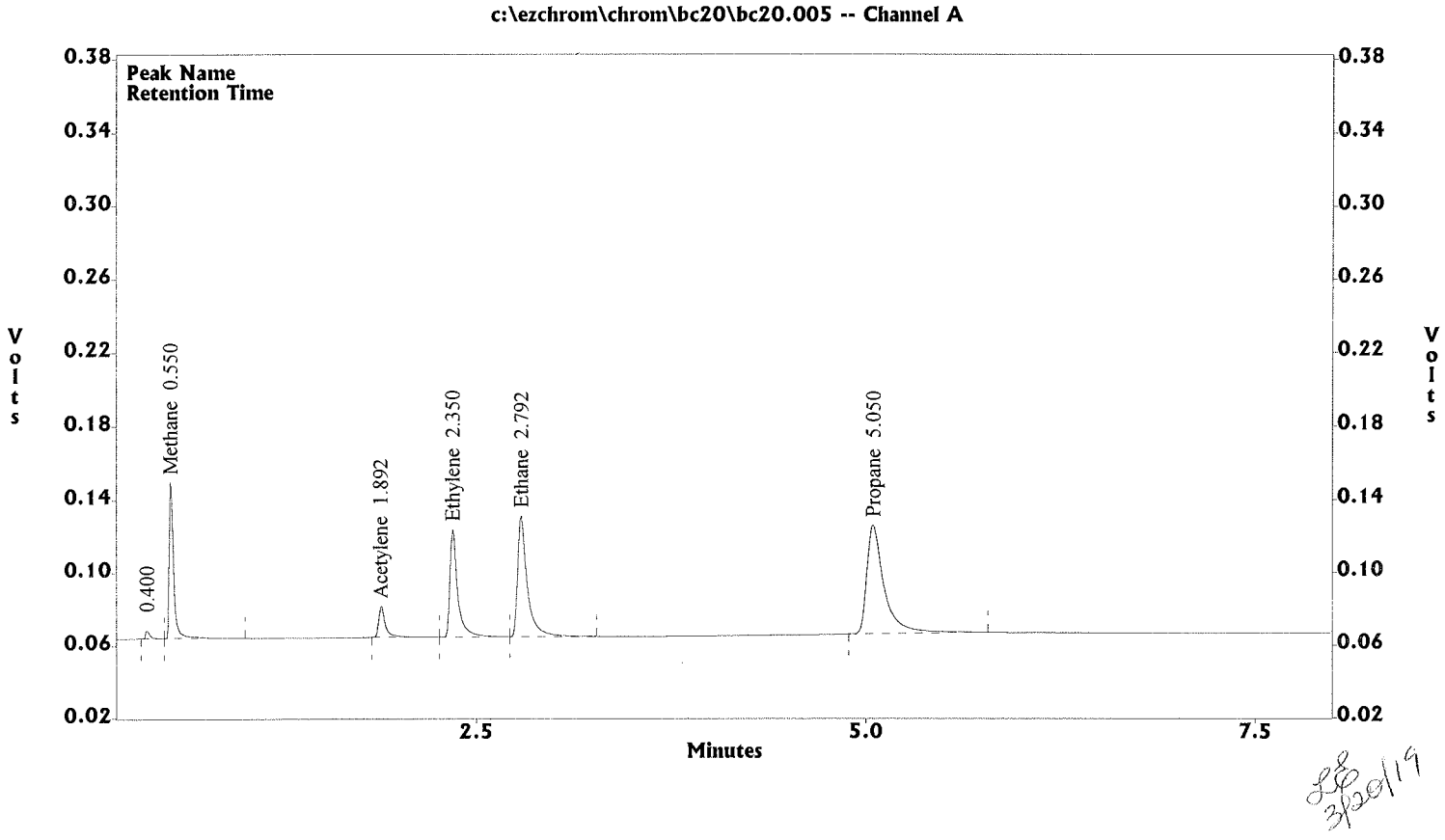
LL 3/20/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.005
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2004
Acquired : Mar 20, 2019 10:56:26
Printed : Mar 20, 2019 12:33:43
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.550	173389	13000.2	13.600
3	Acetylene	1.892	52679	2310.0	22.110
4	Ethylene	2.350	203174	8316.3	23.810
5	Ethane	2.792	295175	11378.1	25.510
6	Propane	5.050	465357	12067.0	37.410



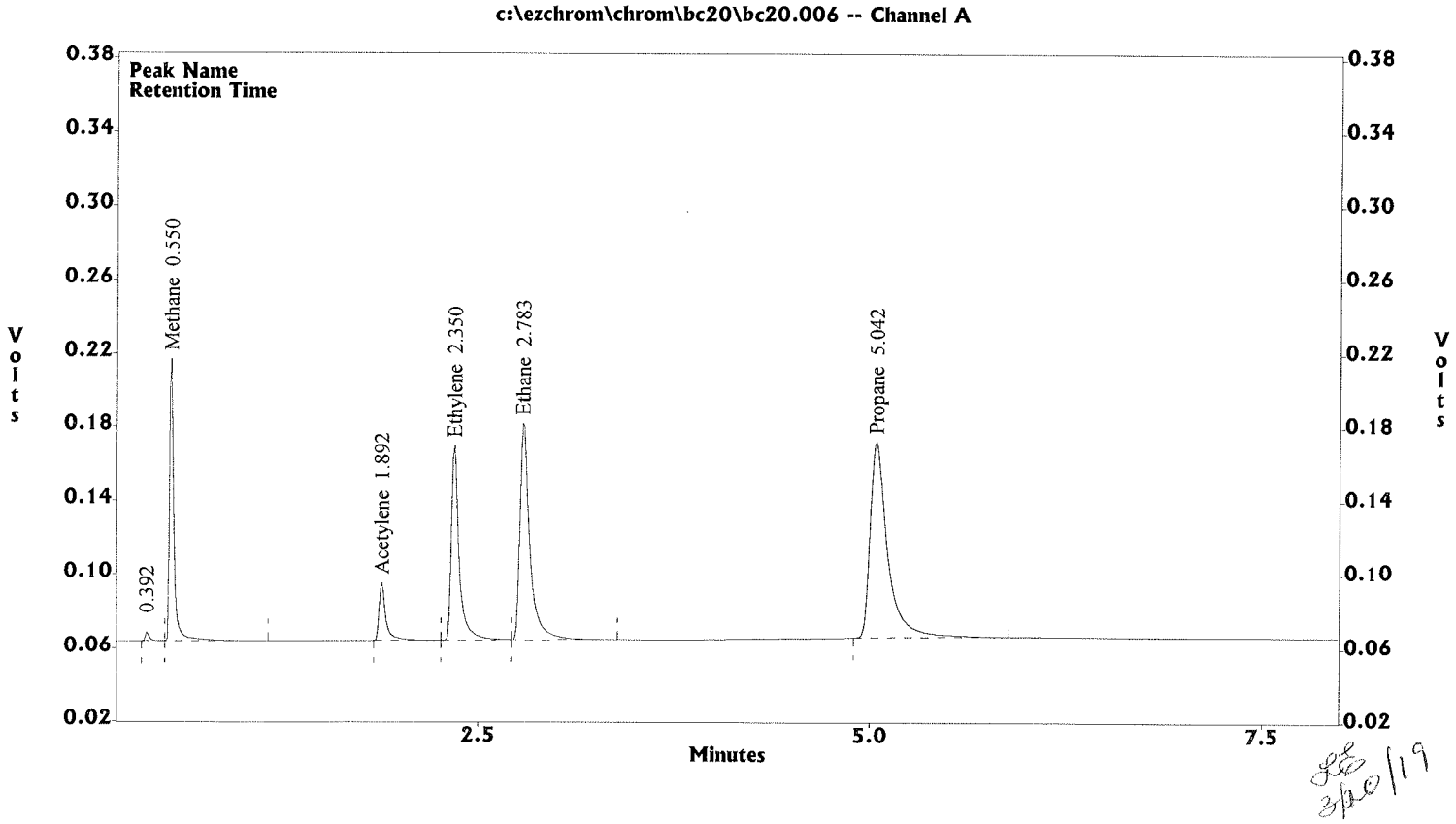
LL 3/20/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.006
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2005
Acquired : Mar 20, 2019 11:08:57
Printed : Mar 20, 2019 12:33:48
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.550	309596	13000.2	25.510
3	Acetylene	1.892	93177	2310.0	41.450
4	Ethylene	2.350	362291	8316.3	44.640
5	Ethane	2.783	529400	11378.1	47.830
6	Propane	5.042	823014	12067.0	70.150



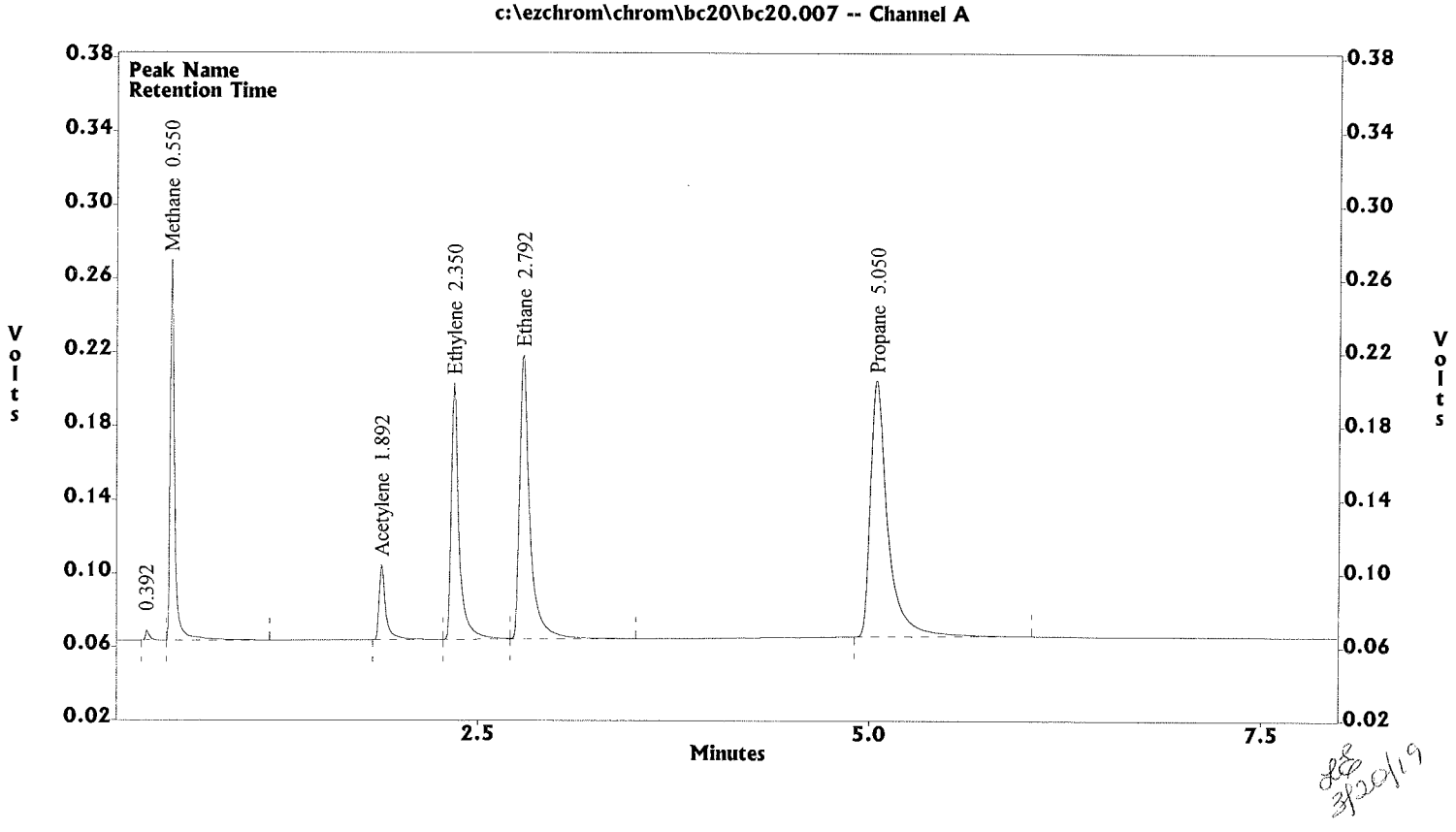
3/20/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.007
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : DG72C2006
Acquired : Mar 20, 2019 11:21:24
Printed : Mar 20, 2019 12:33:54
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.550	403662	13000.2	34.010
3	Acetylene	1.892	123007	2310.0	55.270
4	Ethylene	2.350	477149	8316.3	59.520
5	Ethane	2.792	700779	11378.1	63.770
6	Propane	5.050	1081384	12067.0	93.530



3/20/19

SECOND SOURCE VERIFICATION

INITIAL CALIBRATION VERIFICATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Columm : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BC20005A 03/20/2019 10:56
Conc Cont LFID & Datetime: BC20008A 03/20/2019 11:56
CONC UNIT : ppb

COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.550	0.524	0.576	13.6	13000.2	177629	13.66	0		15
Acetylene	1.883	1.830	1.936	22.1	2310.0	53924	23.34	6		15
Ethylene	2.350	2.312	2.388	23.8	8316.3	197232	23.72	-0		15
Ethane	2.792	2.754	2.830	25.5	11378.1	299479	26.32	3		15
Propane	5.050	4.998	5.102	37.4	12067.0	474137	39.29	5		15

DG72C20.MET

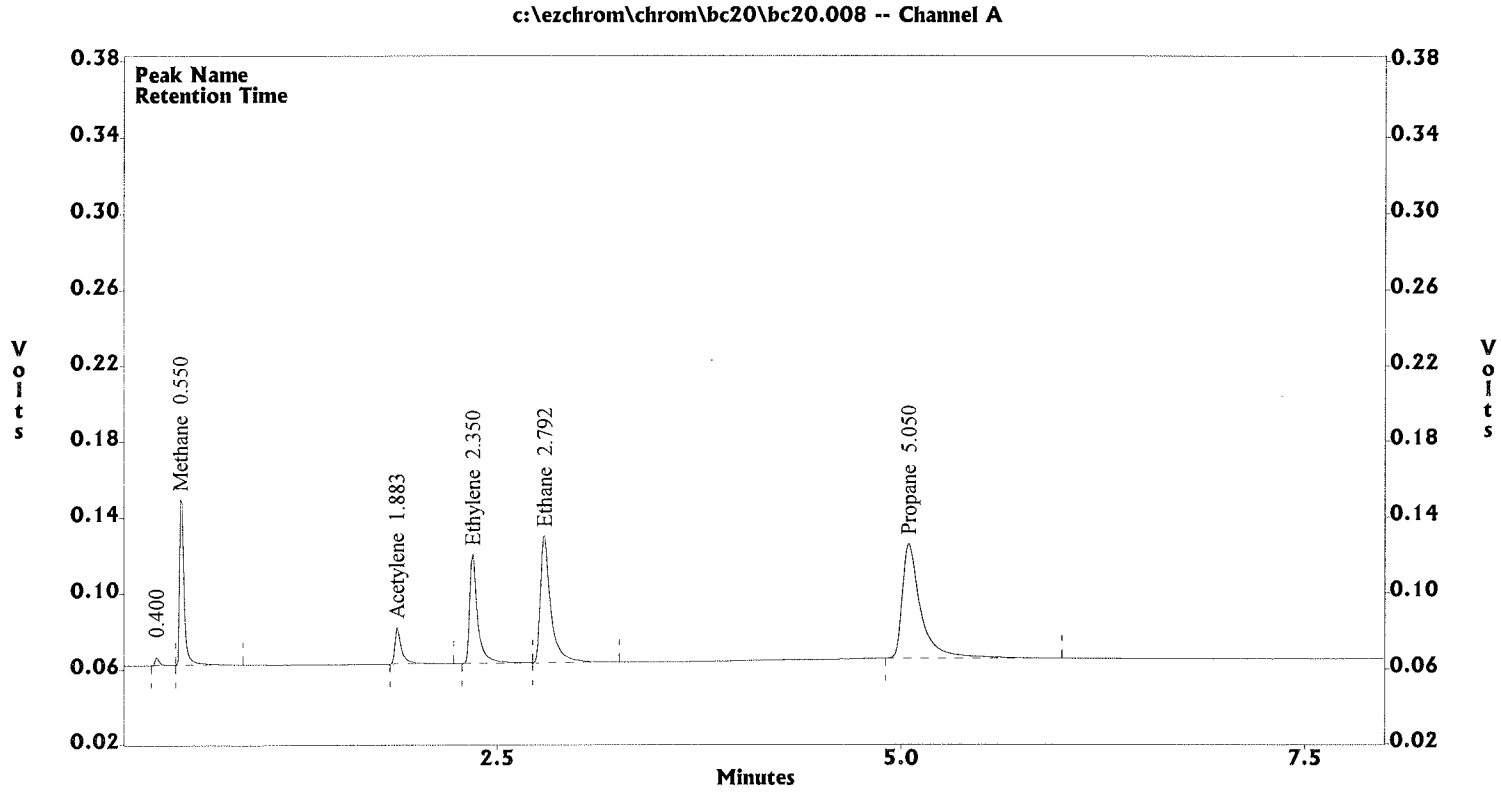
lb 3/29/19

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bc20\bc20.008
Method : c:\ezchrom\methods\dg72c20.met
Sample ID : IDG72C2001
Acquired : Mar 20, 2019 11:56:07
Printed : Mar 20, 2019 12:34:47
User : ASitu

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
2	Methane	0.550	177629	13000.2	13.664
3	Acetylene	1.883	53924	2310.0	23.344
4	Ethylene	2.350	197232	8316.3	23.716
5	Ethane	2.792	299479	11378.1	26.321
6	Propane	5.050	474137	12067.0	39.292



3/20/19

DAILY CALIBRATIONS

CONTINUE CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Columm : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BC20005A 03/20/2019 10:56
Conc Cont LFID & Datetime: BL12002A 12/12/2019 10:16
CONC UNIT : ppb

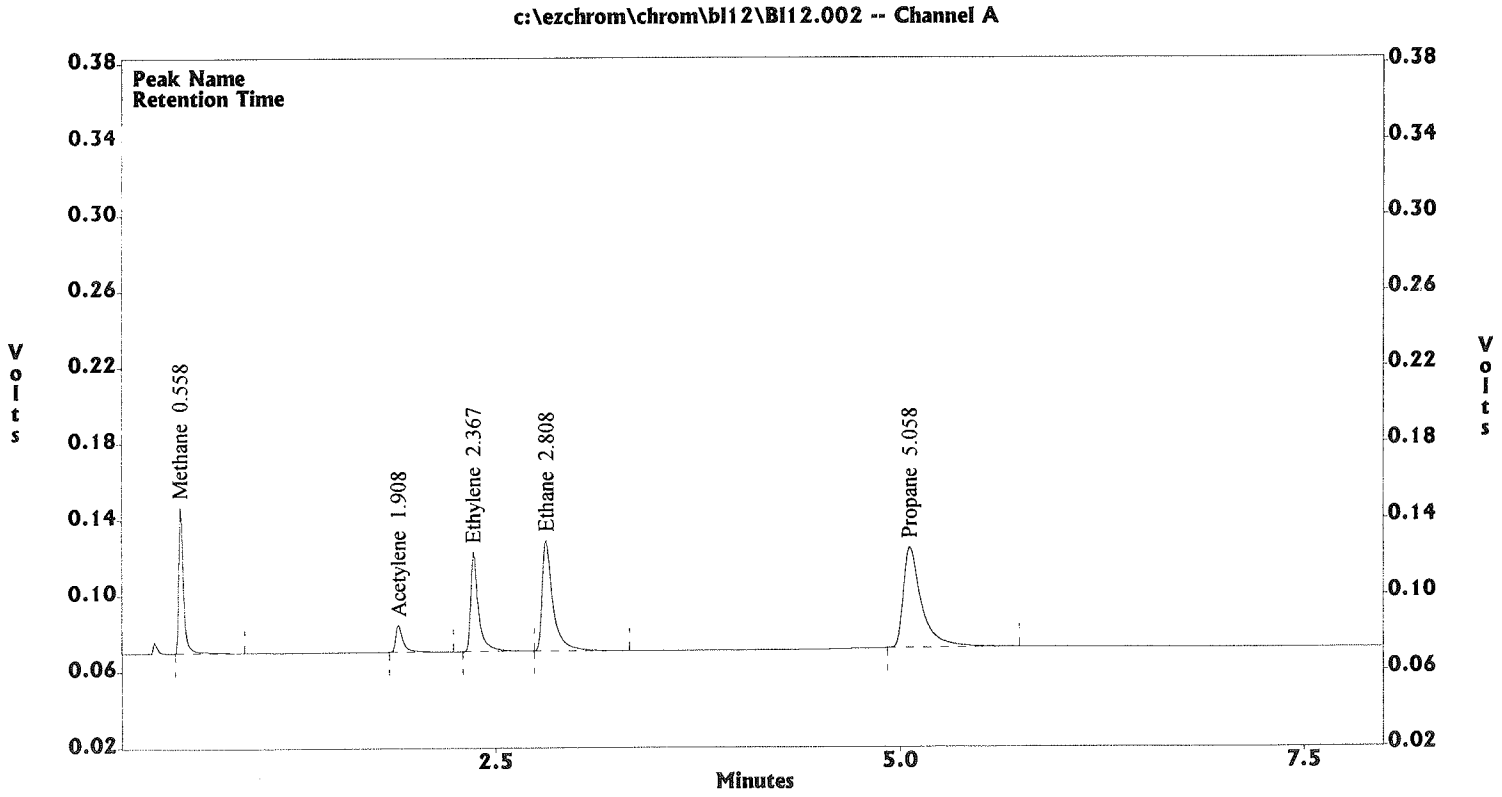
COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.558	0.532	0.584	13.6	13000.2	153179	11.78	-13		15
Acetylene	1.908	1.855	1.961	22.1	2310.0	46362	20.07	-9		15
Ethylene	2.367	2.329	2.405	23.8	8316.3	178877	21.51	-10		15
Ethane	2.808	2.770	2.846	25.5	11378.1	263433	23.15	-9		15
Propane	5.058	5.006	5.110	37.4	12067.0	414201	34.33	-8		15

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.002
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : CDG72C20417
Acquired : Dec 12, 2019 10:16:24
Printed : Dec 12, 2019 10:24:26
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.558	153179	13000.2	11.783
2	Acetylene	1.908	46362	2310.0	20.070
3	Ethylene	2.367	178877	8316.3	21.509
4	Ethane	2.808	263433	11378.1	23.153
5	Propane	5.058	414201	12067.0	34.325



CONTINUE CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Column : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BC20005A 03/20/2019 10:56
Conc Cont LFID & Datetime: BL12015A 12/12/2019 13:28
CONC UNIT : ppb

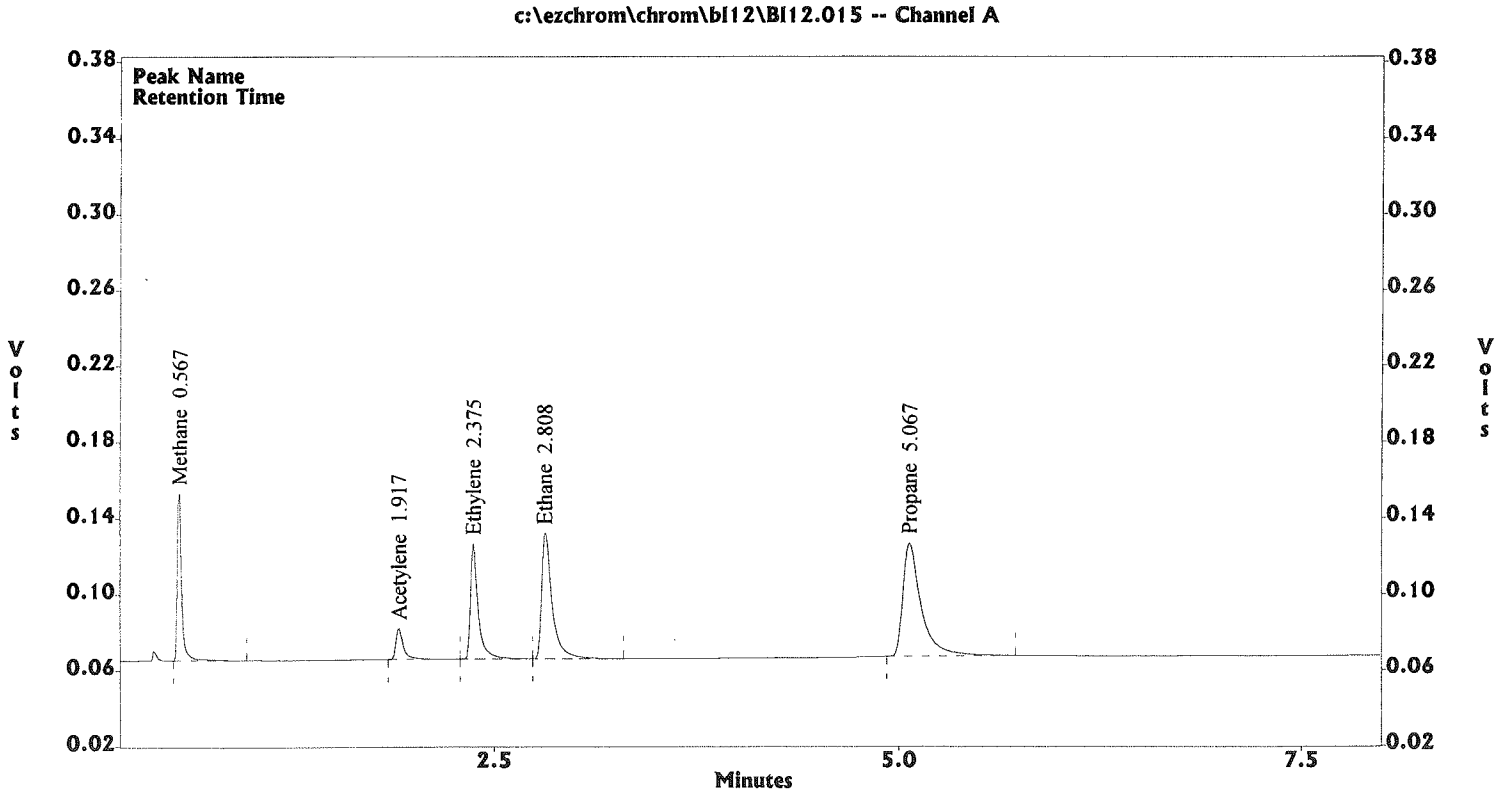
COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.567	0.541	0.593	13.6	13000.2	173482	13.35	-2		15
Acetylene	1.917	1.864	1.970	22.1	2310.0	53802	23.29	5		15
Ethylene	2.375	2.337	2.413	23.8	8316.3	204241	24.56	3		15
Ethane	2.808	2.770	2.846	25.5	11378.1	297454	26.14	3		15
Propane	5.067	5.015	5.119	37.4	12067.0	463048	38.37	3		15

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.015
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : CDG72C20418
Acquired : Dec 12, 2019 13:28:50
Printed : Dec 12, 2019 13:36:52
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.567	173482	13000.2	13.345
2	Acetylene	1.917	53802	2310.0	23.291
3	Ethylene	2.375	204241	8316.3	24.559
4	Ethane	2.808	297454	11378.1	26.143
5	Propane	5.067	463048	12067.0	38.373



CONTINUE CALIBRATION
DISSOLVED GASES

Lab Name : EMAX Inc
Instrument ID : GCT072
GC Columm : CARBOXEN 1006PLOT
Column size ID : 30MX0.53MM
Mid Conc Init LFID & Datetime: BC20005A 03/20/2019 10:56
Conc Cont LFID & Datetime: BL12026A 12/12/2019 16:17
CONC UNIT : ppb

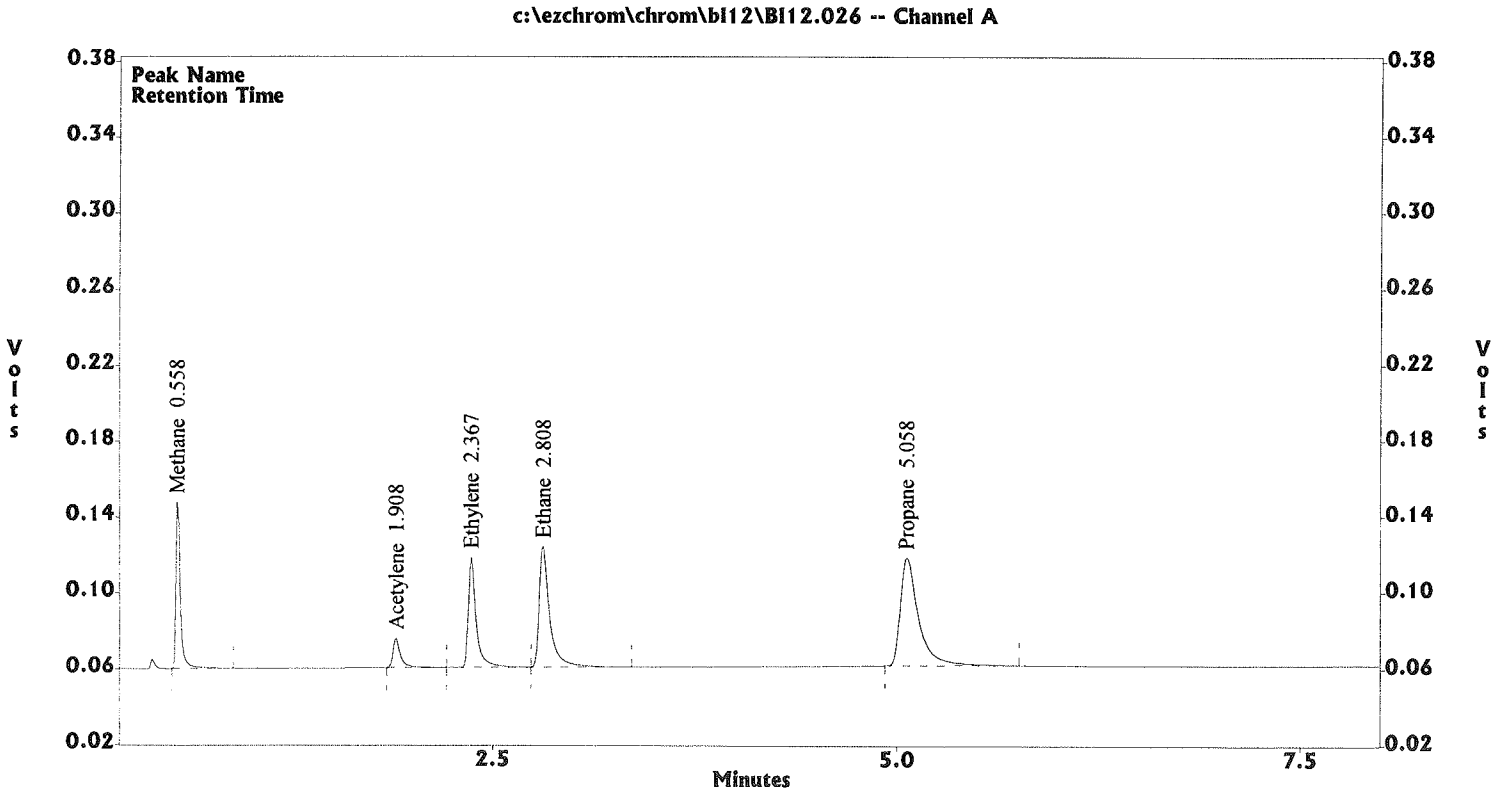
COMPOUND	RT MINUTES	RT WINDOW FROM	RT WINDOW TO	TRUE CONC	AVERAGE CF	RESULT AREA	RESULT CONC	%D	QL	%D LIMITS
Methane	0.558	0.532	0.584	13.6	13000.2	162854	12.53	-8		15
Acetylene	1.908	1.855	1.961	22.1	2310.0	49637	21.49	-3		15
Ethylene	2.367	2.329	2.405	23.8	8316.3	195660	23.53	-1		15
Ethane	2.808	2.770	2.846	25.5	11378.1	286529	25.18	-1		15
Propane	5.058	5.006	5.110	37.4	12067.0	439901	36.46	-3		15

METHOD EPA DGAS by GC/FID
EMAX Analytical Laboratories, Inc.

File : c:\ezchrom\chrom\bl12\Bl12.026
Method : c:\ezchrom\methods\Dg72c20.met
Sample ID : CDG72C20419
Acquired : Dec 12, 2019 16:17:27
Printed : Dec 12, 2019 16:25:28
User : SCerva

Channel A Results

#	Peak Name	Ret.Time(Min)	Area	Ave. CF	ESTD Conc.(ppb)
1	Methane	0.558	162854	13000.2	12.527
2	Acetylene	1.908	49637	2310.0	21.488
3	Ethylene	2.367	195660	8316.3	23.527
4	Ethane	2.808	286529	11378.1	25.182
5	Propane	5.058	439901	12067.0	36.455



ANALYTICAL LOG(S)

ANALYSIS RUN LOG
for
DISSOLVED GAS

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

DGAS ICAL

Book #: A72-015

Instrument No.: 72

Analytical Sequence: BC20

Method File: DG72C20

Analytical Batch: N/A

SOP #	Rev. #
☑ EMAX-RSK175	4
☐ EMAX-D1945	0
☐ EMAX-	
☐ EMAX-	

STANDARDS ID		Conc (~~ug/L~~) ug/L AS 3/21
ICAL	SSB-17-09-01	10 → 500
ICV	↓ -02	200
Temperature (°C) 21		
Data File		

SYRINGES
☑ 500 µL - MSF-01-02-12
☐ 100 µL - MSF-01-03-02
☐ 100 µL - MSF-01-02-01
☐ 100 µL - MSF-01-02-20
☐ 100 µL - MSF-01-03-08
☐ 10 µL - MSF-01-02-05
☐

ELECTRONIC DATA ARCHIVAL	
Location	Date
Labbkup/Ezchrom/EZC_9_DGAS	

Analyzed By: AS

Date: 3/20/19

Disposed By:

Date Disposed:

Run	Run Type	Sample ID	Method	FileName	Sample Amt.	Multi.	Description
1	Unknown	IB72C2001	dg72c20.met	BC20.001	500 uL	1	
2	Begin Calibration	DG72C2001	dg72c20.met	BC20.002	500 uL	1	
3	Calibration	DG72C2002	dg72c20.met	BC20.003	500 uL	1	
4	Calibration	DG72C2003	dg72c20.met	BC20.004	500 uL	1	DGAS
5	Calibration	DG72C2004	dg72c20.met	BC20.005	500 uL	1	ICAL
6	Calibration	DG72C2005	dg72c20.met	BC20.006	500 uL	1	
7	End Calibration	DG72C2006	dg72c20.met	BC20.007	500 uL	1	
8	Unknown	IDG72C2001	dg72c20.met	BC20.008	500 uL	1	DGAS ICV

FINAL

As

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

DG1003W : L064

Book #: A72-018

Instrument No.: 72

Analytical Sequence: BL12

Method File: DG72C20

Analytical Batch: CDG72C20017

SOP #	Rev. #
☐ EMAX-RSK175	4
☐ EMAX-D1945	0
☐ EMAX-	
☐ EMAX-	

STANDARDS ID		Conc (µL/L)
DCC	SSSB-18-01-01	200
Temperature (°C)	21	
Data File		

SYRINGES
☐ 500 µL - MSF-01-03-21
☑ 500 µL - MSF-01-02-12
☐ 100 µL - MSF-01-03-05
☐ 100 µL - MSF-01-02-01
☐ 100 µL - MSF-01-02-20
☐ 100 µL - MSF-01-03-08
☐ 10 µL - MSF-01-02-05
☐

ELECTRONIC DATA ARCHIVAL	
Location	Date
Labbkup/Ezchrom/EZC_9_DGAS	

Analyzed By: SC

Date: 12/12/19

Disposed By: SC

Date Disposed: 12/13/19

Batch: bl12.seq

Run	Sample ID	Method	Filename	Sample Amt.	Mult.	Descri
1	IB72L1201	dg72c20.met	BL12.001	500uL	1	
2	CDG72C20417	dg72c20.met	BL12.002	500uL	1	
3	DGL003WB	dg72c20.met	BL12.003	500uL	1	
4	DGL003WL	dg72c20.met	BL12.004	500uL	1	
5	DGL003WC	dg72c20.met	BL12.005	500uL	1	
6	L064-01	dg72c20.met	BL12.006	500uL	1	
7	L064-02	dg72c20.met	BL12.007	500uL	1	
8	L064-03	dg72c20.met	BL12.008	500uL	1	
9	L064-04	dg72c20.met	BL12.009	500uL	1	
10	L064-06	dg72c20.met	BL12.010	500uL	1	
11	L064-07	dg72c20.met	BL12.011	500uL	1	
12	L064-07M	dg72c20.met	BL12.012	500uL	1	
13	L064-07S	dg72c20.met	BL12.013	500uL	1	
14	L064-08	dg72c20.met	BL12.014	500uL	1	
15	CDG72C20418	dg72c20.met	BL12.015	500uL	1	
16	L064-09	dg72c20.met	BL12.016	500uL	1	
17	L064-10	dg72c20.met	BL12.017	500uL	1	
18	L064-11	dg72c20.met	BL12.018	500uL	1	
19	L064-12	dg72c20.met	BL12.019	500uL	1	
20	L064-14	dg72c20.met	BL12.020	500uL	1	
21	L064-15	dg72c20.met	BL12.021	500uL	1	
22	L064-17	dg72c20.met	BL12.022	500uL	1	

FINAL

sc 12/12/19

Batch: bl12.seq

Run	Sample ID	Method	Filename	Sample Amt.	Mult.	Descri
23	L064-18	dg72c20.met	BL12.023	500uL	1	
24	L064-20	dg72c20.met	BL12.024	500uL	1	
25	L064-21	dg72c20.met	BL12.025	500uL	1	
26	CDG72C20419	dg72c20.met	BL12.026	500uL	1	

FINAL
sc 12/12/19

EXTRACTION LOG(S)

EMAX LABORATORIES, INC.

EXTRACTION LOG FOR DISSOLVED GAS

SOP ☑ EMAX-RSK175 Rev. 4 ☐ CO2 ☐ Room Temp. (°C): 21 Book #: EDG-043

Start Date: 3/20/19 Time: 9:15 End Date: 3/20/19 Time: 9:30

PREPARATION BATCH* N/A

Sample Prep ID	Lab Sample ID	Sample Amount (ml)	Extract Volume (ml)	pH (< 2)	Notes
01	DG72C20-01	39	4	N/A	
02	-02			N/A	
03	-03			N/A	
04	-04			N/A	
05	-05			N/A	
06	-06			N/A	
07	IDG72C20-01			N/A	
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18			AS 3/20/19		
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Standards	ID	Amount Added (ul)
LCS/MS ICV	555A-10-01-07	1600
ICAL	↓ -02	*

Reagent	Source
H_2O	RW2-18-001
He	555A-10-02-02
Thermometer ID #:	RSK175-01
Tedlar Bag Lot#:	28180128
pH Strips:	HC857466
Vial Manufacturer:	VWR 090318-3

Syringes

- ☐ 10 mL - MSF-01-01-24
- ☑ 5 mL - MSF-01-01-25
- ☑ 5 mL - MSF-01-01-13
- ☐ 5 mL - MSF-01-03-06
- ☑ 1 mL - MSF-01-02-24

Comments: *

DGAS std (mL)		Helium (mL)
1) 0.08 mL	+	3.92 mL
2) 0.40	+	3.60
3) 1.00	+	3.00
4) 1.60	+	2.40
5) 3.00	+	1.00
6) 4.00	+	—

Prepared By: AS

Standard Added By: AS

EMAX LABORATORIES, INC.

EXTRACTION LOG FOR DISSOLVED GAS

SOP ☑ EMAX-RSK175 Rev. 4 ☐ CO2 ☐ Room Temp. (°C): 21

Start Date: 12/12/19 Time: 9:30 End Date: 12/12/19 Time: 10:30 Book #: EDG-044

PREPARATION BATCH* DGL003W

Sample Prep ID	Lab Sample ID	Sample Amount (ml)	Extract Volume (ml)	pH (< 2)	Notes
01	DGL003WB	39	4	N/A	
02	L			N/A	
03	C			N/A	
04	L064-01			✓	
05	-02			✓	
06	-03			✓	
07	-04			✓	
08	-06			✓	
09	-07			✓	
10	-07M			✓	
11	-07S			✓	
12	-08			✓	
13	-09			✓	
14	-10			✓	
15	-11			✓	
16	-12			✓	
17	-14			✓	
18	-15			✓	
19	-17			✓	
20	-18			✓	
21	-20			✓	
22	-21			✓	
23					
24					
25					
26					SC 12/12/19
27					
28					
29					
30					

Standards	ID	Amount Added (ul)
LCS/MS	SSSA-10-01-07	1600

Reagent	Source
H_2O	RW2-18-001
He	SSSA-10-02-02
Thermometer ID #:	RSK175-01
Tedlar Bag Lot#:	28180128
pH Strips:	HC863463
Vial Manufacturer:	ESS # FR2385962 19221

Syringes

- ☐ 10 mL - MSF-01-01-24
- ☐ ~~5~~ mL - MSF-01-01-25
- ☑ 5 mL - MSF-01-01-13
- ☐ 5 mL - MSF-01-03-06
- ☐ 1 mL - MSF-01-02-24
- ☐

Comments:

Prepared By: SC

Standard Added By: SC

LABORATORY REPORT FOR

CDM SMITH

VA SALT LAKE CITY

METALS / MERCURY

SDG#: 19L064

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L064

METHOD SW6020A
METALS BY ICP-MS

A total of seventeen(17) water samples were received on 12/10/19 to be analyzed for Metals by ICP-MS in accordance with Method SW6020A and project specific requirements.

Holding Time
Samples were digested and analyzed within the prescribed holding time.

Calibration
Initial Calibration was established as prescribed by the method and was verified using a secondary source(ICV). Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were satisfied. MRL was analyzed as required by the project.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Barium(0.362J <1/2 LOQ), Calcium(68.3J >1/2 LOQ), Nickel(0.440J <1/2 LOQ) and Sodium(98.6J >1/2 LOQ) were detected at trace level in IML010WB. All samples detected Calcium and Sodium > 10X method blank concentration level. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. IML010WL/IML010WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed and the following were noted: L064-07M/L064-07S - Percent recoveries for Calcium(56X) and Sodium(45X) were not within MS/MSD QC limits. Percent recovery for Magnesium(22X) was not within MS QC limit. The enclosed value(#X) is the ratio of parent sample result and spike amount. Presence of matrix interference was suspected. The rest of the analytes were in control. Analytical spike and serial dilution were analyzed and evaluated as appropriate. Results were within expected values. Refer to Matrix QC summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met with the exception of those that were discussed within the associated QC parameter.

Sample L064-04: Selenium was reported from re-run to due internal-standard deficiency. All other analytes were reported at dilution due to over-calibration range results.

LAB CHRONICLE
METALS BY ICP-MS

Client : CDM SMITH
Project : VA SALT LAKE CITY

SDG NO. : 19L064
Instrument ID : F6

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IML010WB	1.00	NA	12/19/1911:21	12/12/1910:43	F6L04018	F6L04016	IML010W	Method Blank
LCS1W	IML010WL	1.00	NA	12/19/1911:26	12/12/1910:43	F6L04019	F6L04016	IML010W	Lab Control Sample (LCS)
OU2-MW01D-GW120619	L064-01N	1.00	NA	12/19/1911:35	12/12/1910:43	F6L04021	F6L04016	IML010W	Field Sample
OU2-MW14D-GW120719	L064-02N	1.00	NA	12/19/1911:40	12/12/1910:43	F6L04022	F6L04016	IML010W	Field Sample
OU2-MW03RC-GW120719	L064-03N	1.00	NA	12/19/1911:44	12/12/1910:43	F6L04023	F6L04016	IML010W	Field Sample
OU2-FD03-GW120719	L064-04N	1.00	NA	12/19/1911:49	12/12/1910:43	F6L04024	F6L04016	IML010W	Field Sample
OU2-MW15S-GW120719	L064-06N	1.00	NA	12/19/1911:54	12/12/1910:43	F6L04025	F6L04016	IML010W	Field Sample
LCD1W	IML010WC	1.00	NA	12/19/1912:07	12/12/1910:43	F6L04028	F6L04026	IML010W	LCS Duplicate
OU2-MW15D-GW120719MS	L064-07M	1.00	NA	12/19/1912:12	12/12/1910:43	F6L04029	F6L04026	IML010W	Matrix Spike Sample (MS)
OU2-MW15D-GW120719MSD	L064-07S	1.00	NA	12/19/1912:17	12/12/1910:43	F6L04030	F6L04026	IML010W	MS Duplicate (MSD)
OU2-MW15D-GW120719	L064-07A	1.00	NA	12/19/1912:21	12/12/1910:43	F6L04031	F6L04026	IML010W	Analytical Spike Sample
OU2-MW15D-GW120719	L064-07N	1.00	NA	12/19/1912:26	12/12/1910:43	F6L04032	F6L04026	IML010W	Field Sample
OU2-MW15D-GW120719	L064-07J	5.00	NA	12/19/1912:31	12/12/1910:43	F6L04033	F6L04026	IML010W	Diluted Sample
OU2-MW03RA-GW120719	L064-08N	1.00	NA	12/19/1912:35	12/12/1910:43	F6L04034	F6L04026	IML010W	Field Sample
OU2-MW03RB-GW120819	L064-09N	1.00	NA	12/19/1912:40	12/12/1910:43	F6L04035	F6L04026	IML010W	Field Sample
OU2-MW03RD-GW120719	L064-10N	1.00	NA	12/19/1912:45	12/12/1910:43	F6L04036	F6L04026	IML010W	Field Sample
OU2-MW17D-GW120819	L064-11N	1.00	NA	12/19/1912:49	12/12/1910:43	F6L04037	F6L04026	IML010W	Field Sample
OU2-MW17S-GW120819	L064-12N	1.00	NA	12/19/1913:03	12/12/1910:43	F6L04040	F6L04038	IML010W	Field Sample
OU2-FD02-GW120819	L064-14N	1.00	NA	12/19/1913:08	12/12/1910:43	F6L04041	F6L04038	IML010W	Field Sample
OU2-MW08C-GW120819	L064-15N	1.00	NA	12/19/1913:12	12/12/1910:43	F6L04042	F6L04038	IML010W	Field Sample
OU2-MW08A-GW120819	L064-17N	1.00	NA	12/19/1913:17	12/12/1910:43	F6L04043	F6L04038	IML010W	Field Sample
OU2-MW14S-GW120719	L064-18N	1.00	NA	12/19/1913:22	12/12/1910:43	F6L04044	F6L04038	IML010W	Field Sample
OU2-MW05R-GW120819	L064-20N	1.00	NA	12/19/1913:26	12/12/1910:43	F6L04045	F6L04038	IML010W	Field Sample
OU2-MW08B-GW120819	L064-21N	1.00	NA	12/19/1913:31	12/12/1910:43	F6L04046	F6L04038	IML010W	Field Sample
OU2-FD03-GW120719!	L064-04	1	NA	12/18/1911:02	12/12/1910:43	H6L06025	H6L06015	IML010W	Field Sample
OU2-MW01D-GW120619!	L064-01I	10	NA	12/18/1911:57	12/12/1910:43	H6L06049	H6L06047	IML010W	Diluted Sample
OU2-MW14D-GW120719!	L064-02I	10	NA	12/18/1911:59	12/12/1910:43	H6L06050	H6L06047	IML010W	Diluted Sample
OU2-MW03RC-GW120719!	L064-03I	10	NA	12/18/1912:01	12/12/1910:43	H6L06051	H6L06047	IML010W	Diluted Sample
OU2-FD03-GW120719!	L064-04I	10	NA	12/18/1912:03	12/12/1910:43	H6L06052	H6L06047	IML010W	Diluted Sample
OU2-MW15S-GW120719!	L064-06I	10	NA	12/18/1912:06	12/12/1910:43	H6L06053	H6L06047	IML010W	Diluted Sample
OU2-MW15D-GW120719MS!	L064-07M	10	NA	12/18/1912:08	12/12/1910:43	H6L06054	H6L06047	IML010W	Matrix Spike Sample (MS)
OU2-MW15D-GW120719MSD!	L064-07S	10	NA	12/18/1912:10	12/12/1910:43	H6L06055	H6L06047	IML010W	MS Duplicate (MSD)
OU2-MW15D-GW120719!	L064-07A	10	NA	12/18/1912:12	12/12/1910:43	H6L06056	H6L06047	IML010W	Analytical Spike Sample
OU2-MW15D-GW120719!	L064-07I	10	NA	12/18/1912:15	12/12/1910:43	H6L06057	H6L06047	IML010W	Diluted Sample
OU2-MW15D-GW120719!	L064-07J	50	NA	12/18/1912:17	12/12/1910:43	H6L06058	H6L06047	IML010W	Diluted Sample
OU2-MW03RA-GW120719!	L064-08I	10	NA	12/18/1912:24	12/12/1910:43	H6L06061	H6L06059	IML010W	Diluted Sample
OU2-MW03RB-GW120819!	L064-09I	10	NA	12/18/1912:26	12/12/1910:43	H6L06062	H6L06059	IML010W	Diluted Sample
OU2-MW03RD-GW120719!	L064-10I	10	NA	12/18/1912:29	12/12/1910:43	H6L06063	H6L06059	IML010W	Diluted Sample
OU2-MW17D-GW120819!	L064-11I	10	NA	12/18/1912:31	12/12/1910:43	H6L06064	H6L06059	IML010W	Diluted Sample
OU2-MW17S-GW120819!	L064-12I	10	NA	12/18/1912:33	12/12/1910:43	H6L06065	H6L06059	IML010W	Diluted Sample
OU2-FD02-GW120819!	L064-14I	10	NA	12/18/1912:35	12/12/1910:43	H6L06066	H6L06059	IML010W	Diluted Sample
OU2-MW08C-GW120819!	L064-15I	10	NA	12/18/1912:38	12/12/1910:43	H6L06067	H6L06059	IML010W	Diluted Sample
OU2-MW08A-GW120819!	L064-17I	10	NA	12/18/1912:40	12/12/1910:43	H6L06068	H6L06059	IML010W	Diluted Sample
OU2-MW14S-GW120719!	L064-18I	10	NA	12/18/1912:42	12/12/1910:43	H6L06069	H6L06059	IML010W	Diluted Sample
OU2-MW05R-GW120819!	L064-20I	10	NA	12/18/1912:45	12/12/1910:43	H6L06070	H6L06059	IML010W	Diluted Sample
OU2-MW08B-GW120819!	L064-21I	10	NA	12/18/1912:51	12/12/1910:43	H6L06073	H6L06071	IML010W	Diluted Sample

! Instrument ID : H6
FN - Filename
% Moist - Percent Moisture

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L064
Sample ID: OU2-MW01D-GW120619
Lab Samp ID: L064-01N
Lab File ID: F6L04021
Ext Btch ID: IML010W
Calib. Ref.: F6L04016

Date Collected: 12/06/19 16:05
Date Received: 12/10/19
Date Extracted: 12/12/19 10:43
Date Analyzed: 12/19/19 11:35
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.560J	1.00	0.125
Barium	23.1	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	3.99	1.00	0.100
Cobalt	0.381J	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	ND	1.00	0.0500
Magnesium	34600	100	25.0
Manganese	0.895J	1.00	0.250
Nickel	3.96	1.00	0.250
Potassium	2110	100	25.0
Selenium	1.18	1.00	0.150
Silver	ND	1.00	0.100
Sodium	37500	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.16	1.00	0.250
Zinc	ND	20.0	5.00

Sample ID: OU2-MW01D-GW120619
Lab Samp ID: L064-01I
Lab File ID: H6L06049
Ext Btch ID: IML010W
Calib. Ref.: H6L06047

Date Analyzed: 12/18/19 11:57
Dilution Factor: 10
Matrix: WATER
% Moisture: NA
Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	124000	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml
Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/06/19 16:05
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW01D-GW120619	Date Analyzed:	12/19/19 11:35
Lab Samp ID:	L064-01N	Dilution Factor:	1
Lab File ID:	F6L04021	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04016	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.560J	1.00	0.125
Barium	23.1	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	129000E	100	25.0
Chromium	3.99	1.00	0.100
Cobalt	0.381J	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	ND	1.00	0.0500
Magnesium	34600	100	25.0
Manganese	0.895J	1.00	0.250
Nickel	3.96	1.00	0.250
Potassium	2110	100	25.0
Selenium	1.18	1.00	0.150
Silver	ND	1.00	0.100
Sodium	37500	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.16	1.00	0.250
Zinc	ND	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/06/19 16:05
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW01D-GW120619	Date Analyzed:	12/18/19 11:57
Lab Samp ID:	L064-01I	Dilution Factor:	10
Lab File ID:	H6L06049	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	H6L06047	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	21.0	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	124000	1000	250
Chromium	3.44J	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	36900	1000	250
Manganese	ND	10.0	2.50
Nickel	4.19J	10.0	2.50
Potassium	1940	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	36900	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH — Date Collected: 12/07/19 13:05
Project : VA SALT LAKE CITY — Date Received: 12/10/19
SDG NO. : 19L064 — Date Extracted: 12/12/19 10:43
Sample ID: OU2-MW14D-GW120719 — Date Analyzed: 12/19/19 11:40
Lab Samp ID: L064-02N — Dilution Factor: 1
Lab File ID: F6L04022 — Matrix: WATER
Ext Btch ID: IML010W — % Moisture: NA
Calib. Ref.: F6L04016 — Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	25.9J	100	25.0
Antimony	0.296J	1.00	0.250
Arsenic	0.872J	1.00	0.125
Barium	47.2	1.00	0.250
Beryllium	0.222J	1.00	0.100
Cadmium	0.139J	1.00	0.100
Chromium	1.05	1.00	0.100
Cobalt	0.543J	1.00	0.100
Copper	1.61J	2.00	0.500
Iron	51.3J	100	25.0
Lead	1.13	1.00	0.0500
Magnesium	43600	100	25.0
Manganese	3.49	1.00	0.250
Nickel	1.42	1.00	0.250
Potassium	2380	100	25.0
Selenium	1.07	1.00	0.150
Silver	0.211J	1.00	0.100
Thallium	0.249J	1.00	0.100
Vanadium	1.43	1.00	0.250
Zinc	133	20.0	5.00

Sample ID: OU2-MW14D-GW120719 — Date Analyzed: 12/18/19 11:59
Lab Samp ID: L064-02I — Dilution Factor: 10
Lab File ID: H6L06050 — Matrix: WATER
Ext Btch ID: IML010W — % Moisture: NA
Calib. Ref.: H6L06047 — Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	114000	1000	250
Sodium	48800	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml — Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH	Date Collected: 12/07/19 13:05
Project : VA SALT LAKE CITY	Date Received: 12/10/19
SDG NO. : 19L064	Date Extracted: 12/12/19 10:43
Sample ID: OU2-MW14D-GW120719	Date Analyzed: 12/19/19 11:40
Lab Samp ID: L064-02N	Dilution Factor: 1
Lab File ID: F6L04022	Matrix: WATER
Ext Btch ID: IML010W	% Moisture: NA
Calib. Ref.: F6L04016	Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	25.9J	100	25.0
Antimony	0.296J	1.00	0.250
Arsenic	0.872J	1.00	0.125
Barium	47.2	1.00	0.250
Beryllium	0.222J	1.00	0.100
Cadmium	0.139J	1.00	0.100
Calcium	130000E	100	25.0
Chromium	1.05	1.00	0.100
Cobalt	0.543J	1.00	0.100
Copper	1.61J	2.00	0.500
Iron	51.3J	100	25.0
Lead	1.13	1.00	0.0500
Magnesium	43600	100	25.0
Manganese	3.49	1.00	0.250
Nickel	1.42	1.00	0.250
Potassium	2380	100	25.0
Selenium	1.07	1.00	0.150
Silver	0.211J	1.00	0.100
Sodium	54200E	100	25.0
Thallium	0.249J	1.00	0.100
Vanadium	1.43	1.00	0.250
Zinc	133	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount : 50ml	Final Volume:50ml
Prepared by : MCande	Analyzed by:LYaman

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/07/19 13:05
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW14D-GW120719	Date Analyzed:	12/18/19 11:59
Lab Samp ID:	L064-02I	Dilution Factor:	10
Lab File ID:	H6L06050	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	H6L06047	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	40.5	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	114000	1000	250
Chromium	ND	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	1.12J	10.0	0.500
Magnesium	46700	1000	250
Manganese	4.09J	10.0	2.50
Nickel	ND	10.0	2.50
Potassium	2090	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	48800	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	117J	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L064
Sample ID: OU2-MW03RC-GW120719
Lab Samp ID: L064-03N
Lab File ID: F6L04023
Ext Btch ID: IML010W
Calib. Ref.: F6L04016

Date Collected: 12/07/19 11:40
Date Received: 12/10/19
Date Extracted: 12/12/19 10:43
Date Analyzed: 12/19/19 11:44
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.675J	1.00	0.125
Barium	25.2	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	0.758J	1.00	0.100
Cobalt	0.265J	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	0.0517J	1.00	0.0500
Magnesium	34900	100	25.0
Manganese	4.51	1.00	0.250
Nickel	1.41	1.00	0.250
Potassium	1800	100	25.0
Selenium	1.10	1.00	0.150
Silver	ND	1.00	0.100
Sodium	24600	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.57	1.00	0.250
Zinc	5.40J	20.0	5.00

Sample ID: OU2-MW03RC-GW120719
Lab Samp ID: L064-03I
Lab File ID: H6L06051
Ext Btch ID: IML010W
Calib. Ref.: H6L06047

Date Analyzed: 12/18/19 12:01
Dilution Factor: 10
Matrix: WATER
% Moisture: NA
Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	104000	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml
Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/07/19 11:40
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW03RC-GW120719	Date Analyzed:	12/19/19 11:44
Lab Samp ID:	L064-03N	Dilution Factor:	1
Lab File ID:	F6L04023	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04016	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.675J	1.00	0.125
Barium	25.2	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	114000E	100	25.0
Chromium	0.758J	1.00	0.100
Cobalt	0.265J	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	0.0517J	1.00	0.0500
Magnesium	34900	100	25.0
Manganese	4.51	1.00	0.250
Nickel	1.41	1.00	0.250
Potassium	1800	100	25.0
Selenium	1.10	1.00	0.150
Silver	ND	1.00	0.100
Sodium	24600	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.57	1.00	0.250
Zinc	5.40J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/07/19 11:40
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW03RC-GW120719	Date Analyzed:	12/18/19 12:01
Lab Samp ID:	L064-03I	Dilution Factor:	10
Lab File ID:	H6L06051	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	H6L06047	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	21.6	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	104000	1000	250
Chromium	ND	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	36700	1000	250
Manganese	4.85J	10.0	2.50
Nickel	ND	10.0	2.50
Potassium	1640	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	24100	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L064
Sample ID: OU2-FD03-GW120719
Lab Samp ID: L064-04N
Lab File ID: F6L04024
Ext Btch ID: IML010W
Calib. Ref.: F6L04016

Date Collected: 12/07/19 11:00
Date Received: 12/10/19
Date Extracted: 12/12/19 10:43
Date Analyzed: 12/19/19 11:49
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	74.9J	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.740J	1.00	0.125
Barium	49.1	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	1.71	1.00	0.100
Cobalt	0.534J	1.00	0.100
Copper	0.681J	2.00	0.500
Iron	112	100	25.0
Lead	0.120J	1.00	0.0500
Manganese	6.87	1.00	0.250
Nickel	4.91	1.00	0.250
Potassium	4070	100	25.0
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	1.16	1.00	0.250
Zinc	ND	20.0	5.00

Sample ID: OU2-FD03-GW120719
Lab Samp ID: L064-04I
Lab File ID: H6L06052
Ext Btch ID: IML010W
Calib. Ref.: H6L06047

Date Analyzed: 12/18/19 12:03
Dilution Factor: 10
Matrix: WATER
% Moisture: NA
Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	163000	1000	250
Magnesium	71100	1000	250
Sodium	135000	1000	250

Sample ID: OU2-FD03-GW120719
Lab Samp ID: L064-04
Lab File ID: H6L06025
Ext Btch ID: IML010W
Calib. Ref.: H6L06015

Date Analyzed: 12/18/19 11:02
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Selenium	2.69	1.00	0.150

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml
Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/07/19 11:00
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-FD03-GW120719	Date Analyzed:	12/19/19 11:49
Lab Samp ID:	L064-04N	Dilution Factor:	1
Lab File ID:	F6L04024	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04016	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	74.9J	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.740J	1.00	0.125
Barium	49.1	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	165000E	100	25.0
Chromium	1.71	1.00	0.100
Cobalt	0.534J	1.00	0.100
Copper	0.681J	2.00	0.500
Iron	112	100	25.0
Lead	0.120J	1.00	0.0500
Magnesium	62200E	100	25.0
Manganese	6.87	1.00	0.250
Nickel	4.91	1.00	0.250
Potassium	4070	100	25.0
Selenium	2.77E	1.00	0.150
Silver	ND	1.00	0.100
Sodium	132000E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.16	1.00	0.250
Zinc	ND	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/07/19 11:00
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-FD03-GW120719	Date Analyzed:	12/18/19 12:03
Lab Samp ID:	L064-04I	Dilution Factor:	10
Lab File ID:	H6L06052	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	H6L06047	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	42.2	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	163000	1000	250
Chromium	1.36J	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	71100	1000	250
Manganese	7.59J	10.0	2.50
Nickel	5.43J	10.0	2.50
Potassium	3740	1000	250
Selenium	2.86JE	10.0	1.50
Silver	ND	10.0	1.00
Sodium	135000	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/07/19 11:00
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-FD03-GW120719	Date Analyzed:	12/18/19 11:02
Lab Samp ID:	L064-04	Dilution Factor:	1
Lab File ID:	H6L06025	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	H6L06015	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	75.6J	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.487J	1.00	0.125
Barium	48.5	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	172000E	100	25.0
Chromium	1.63	1.00	0.100
Cobalt	0.267J	1.00	0.100
Copper	ND	2.00	0.500
Iron	123	100	25.0
Lead	0.162J	1.00	0.0500
Magnesium	65400E	100	25.0
Manganese	7.00	1.00	0.250
Nickel	5.29	1.00	0.250
Potassium	4270	100	25.0
Selenium	2.69	1.00	0.150
Silver	ND	1.00	0.100
Sodium	138000E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.06	1.00	0.250
Zinc	5.13J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L064
Sample ID: OU2-MW15S-GW120719
Lab Samp ID: L064-06N
Lab File ID: F6L04025
Ext Btch ID: IML010W
Calib. Ref.: F6L04016

Date Collected: 12/07/19 11:45
Date Received: 12/10/19
Date Extracted: 12/12/19 10:43
Date Analyzed: 12/19/19 11:54
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.701J	1.00	0.125
Barium	69.1	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	11.4	1.00	0.100
Cobalt	0.769J	1.00	0.100
Copper	1.20J	2.00	0.500
Iron	127	100	25.0
Lead	0.0542J	1.00	0.0500
Manganese	2.94	1.00	0.250
Nickel	14.7	1.00	0.250
Potassium	4870	100	25.0
Selenium	2.37	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	1.31	1.00	0.250
Zinc	ND	20.0	5.00

Sample ID: OU2-MW15S-GW120719
Lab Samp ID: L064-06I
Lab File ID: H6L06053
Ext Btch ID: IML010W
Calib. Ref.: H6L06047

Date Analyzed: 12/18/19 12:06
Dilution Factor: 10
Matrix: WATER
% Moisture: NA
Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	153000	1000	250
Magnesium	76100	1000	250
Sodium	194000	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml
Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/07/19 11:45
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW15S-GW120719	Date Analyzed:	12/19/19 11:54
Lab Samp ID:	L064-06N	Dilution Factor:	1
Lab File ID:	F6L04025	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04016	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.701J	1.00	0.125
Barium	69.1	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	160000E	100	25.0
Chromium	11.4	1.00	0.100
Cobalt	0.769J	1.00	0.100
Copper	1.20J	2.00	0.500
Iron	127	100	25.0
Lead	0.0542J	1.00	0.0500
Magnesium	69600E	100	25.0
Manganese	2.94	1.00	0.250
Nickel	14.7	1.00	0.250
Potassium	4870	100	25.0
Selenium	2.37	1.00	0.150
Silver	ND	1.00	0.100
Sodium	201000E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.31	1.00	0.250
Zinc	ND	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH	Date Collected: 12/07/19 11:45
Project : VA SALT LAKE CITY	Date Received: 12/10/19
SDG NO. : 19L064	Date Extracted: 12/12/19 10:43
Sample ID: OU2-MW15S-GW120719	Date Analyzed: 12/18/19 12:06
Lab Samp ID: L064-06I	Dilution Factor: 10
Lab File ID: H6L06053	Matrix: WATER
Ext Btch ID: IML010W	% Moisture: NA
Calib. Ref.: H6L06047	Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	61.0	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	153000	1000	250
Chromium	11.1	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	76100	1000	250
Manganese	3.79J	10.0	2.50
Nickel	17.4	10.0	2.50
Potassium	4430	1000	250
Selenium	2.28J	10.0	1.50
Silver	ND	10.0	1.00
Sodium	194000	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount : 50ml	Final Volume:50ml
Prepared by : MCande	Analyzed by:LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L064
Sample ID: OU2-MW15D-GW120719
Lab Samp ID: L064-07N
Lab File ID: F6L04032
Ext Btch ID: IML010W
Calib. Ref.: F6L04026

Date Collected: 12/07/19 10:00
Date Received: 12/10/19
Date Extracted: 12/12/19 10:43
Date Analyzed: 12/19/19 12:26
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	87.6J	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.748J	1.00	0.125
Barium	48.8	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	2.82	1.00	0.100
Cobalt	0.618J	1.00	0.100
Copper	0.702J	2.00	0.500
Iron	164	100	25.0
Lead	0.169J	1.00	0.0500
Manganese	7.96	1.00	0.250
Nickel	6.12	1.00	0.250
Potassium	3980	100	25.0
Selenium	2.73	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	1.18	1.00	0.250
Zinc	ND	20.0	5.00

Sample ID: OU2-MW15D-GW120719
Lab Samp ID: L064-07I
Lab File ID: H6L06057
Ext Btch ID: IML010W
Calib. Ref.: H6L06047

Date Analyzed: 12/18/19 12:15
Dilution Factor: 10
Matrix: WATER
% Moisture: NA
Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	168000	1000	250
Magnesium	65600	1000	250
Sodium	136000	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml
Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/07/19 10:00
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW15D-GW120719	Date Analyzed:	12/19/19 12:26
Lab Samp ID:	L064-07N	Dilution Factor:	1
Lab File ID:	F6L04032	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04026	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	87.6J	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.748J	1.00	0.125
Barium	48.8	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	165000E	100	25.0
Chromium	2.82	1.00	0.100
Cobalt	0.618J	1.00	0.100
Copper	0.702J	2.00	0.500
Iron	164	100	25.0
Lead	0.169J	1.00	0.0500
Magnesium	61200E	100	25.0
Manganese	7.96	1.00	0.250
Nickel	6.12	1.00	0.250
Potassium	3980	100	25.0
Selenium	2.73	1.00	0.150
Silver	ND	1.00	0.100
Sodium	132000E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.18	1.00	0.250
Zinc	ND	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/07/19 10:00
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW15D-GW120719	Date Analyzed:	12/18/19 12:15
Lab Samp ID:	L064-07I	Dilution Factor:	10
Lab File ID:	H6L06057	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	H6L06047	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	43.6	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	168000	1000	250
Chromium	2.52J	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	65600	1000	250
Manganese	8.76J	10.0	2.50
Nickel	7.12J	10.0	2.50
Potassium	3680	1000	250
Selenium	2.51J	10.0	1.50
Silver	ND	10.0	1.00
Sodium	136000	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L064
Sample ID: OU2-MW03RA-GW120719
Lab Samp ID: L064-08N
Lab File ID: F6L04034
Ext Btch ID: IML010W
Calib. Ref.: F6L04026

Date Collected: 12/07/19 10:00
Date Received: 12/10/19
Date Extracted: 12/12/19 10:43
Date Analyzed: 12/19/19 12:35
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.955J	1.00	0.125
Barium	75.8	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	0.638J	1.00	0.100
Cobalt	0.684J	1.00	0.100
Copper	ND	2.00	0.500
Iron	42.0J	100	25.0
Lead	0.0621J	1.00	0.0500
Manganese	77.3	1.00	0.250
Nickel	1.14	1.00	0.250
Potassium	2560	100	25.0
Selenium	0.769J	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	1.40	1.00	0.250
Zinc	ND	20.0	5.00

Sample ID: OU2-MW03RA-GW120719
Lab Samp ID: L064-08I
Lab File ID: H6L06061
Ext Btch ID: IML010W
Calib. Ref.: H6L06059

Date Analyzed: 12/18/19 12:24
Dilution Factor: 10
Matrix: WATER
% Moisture: NA
Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	176000	1000	250
Magnesium	64500	1000	250
Sodium	89400	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml
Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/07/19 10:00
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW03RA-GW120719	Date Analyzed:	12/19/19 12:35
Lab Samp ID:	L064-08N	Dilution Factor:	1
Lab File ID:	F6L04034	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04026	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.955J	1.00	0.125
Barium	75.8	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	177000E	100	25.0
Chromium	0.638J	1.00	0.100
Cobalt	0.684J	1.00	0.100
Copper	ND	2.00	0.500
Iron	42.0J	100	25.0
Lead	0.0621J	1.00	0.0500
Magnesium	59300E	100	25.0
Manganese	77.3	1.00	0.250
Nickel	1.14	1.00	0.250
Potassium	2560	100	25.0
Selenium	0.769J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	87700E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.40	1.00	0.250
Zinc	ND	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH	Date Collected: 12/07/19 10:00
Project : VA SALT LAKE CITY	Date Received: 12/10/19
SDG NO. : 19L064	Date Extracted: 12/12/19 10:43
Sample ID: OU2-MW03RA-GW120719	Date Analyzed: 12/18/19 12:24
Lab Samp ID: L064-08I	Dilution Factor: 10
Lab File ID: H6L06061	Matrix: WATER
Ext Btch ID: IML010W	% Moisture: NA
Calib. Ref.: H6L06059	Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	66.3	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	176000	1000	250
Chromium	ND	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	64500	1000	250
Manganese	81.9	10.0	2.50
Nickel	ND	10.0	2.50
Potassium	2280	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	89400	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount : 50ml	Final Volume:50ml
Prepared by : MCande	Analyzed by:LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L064
Sample ID: OU2-MW03RB-GW120819
Lab Samp ID: L064-09N
Lab File ID: F6L04035
Ext Btch ID: IML010W
Calib. Ref.: F6L04026

Date Collected: 12/08/19 14:50
Date Received: 12/10/19
Date Extracted: 12/12/19 10:43
Date Analyzed: 12/19/19 12:40
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	39.6J	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.641J	1.00	0.125
Barium	40.1	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	0.513J	1.00	0.100
Cobalt	0.567J	1.00	0.100
Copper	ND	2.00	0.500
Iron	46.8J	100	25.0
Lead	0.0835J	1.00	0.0500
Magnesium	43100	100	25.0
Manganese	115	1.00	0.250
Nickel	1.10	1.00	0.250
Potassium	1950	100	25.0
Selenium	0.942J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	33100	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.13	1.00	0.250
Zinc	5.80J	20.0	5.00

Sample ID: OU2-MW03RB-GW120819
Lab Samp ID: L064-09I
Lab File ID: H6L06062
Ext Btch ID: IML010W
Calib. Ref.: H6L06059

Date Analyzed: 12/18/19 12:26
Dilution Factor: 10
Matrix: WATER
% Moisture: NA
Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	122000	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml
Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/08/19 14:50
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW03RB-GW120819	Date Analyzed:	12/19/19 12:40
Lab Samp ID:	L064-09N	Dilution Factor:	1
Lab File ID:	F6L04035	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04026	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	39.6J	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.641J	1.00	0.125
Barium	40.1	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	129000E	100	25.0
Chromium	0.513J	1.00	0.100
Cobalt	0.567J	1.00	0.100
Copper	ND	2.00	0.500
Iron	46.8J	100	25.0
Lead	0.0835J	1.00	0.0500
Magnesium	43100	100	25.0
Manganese	115	1.00	0.250
Nickel	1.10	1.00	0.250
Potassium	1950	100	25.0
Selenium	0.942J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	33100	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.13	1.00	0.250
Zinc	5.80J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/08/19 14:50
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW03RB-GW120819	Date Analyzed:	12/18/19 12:26
Lab Samp ID:	L064-09I	Dilution Factor:	10
Lab File ID:	H6L06062	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	H6L06059	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	35.0	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	122000	1000	250
Chromium	ND	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	45700	1000	250
Manganese	120	10.0	2.50
Nickel	ND	10.0	2.50
Potassium	1810	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	31400	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L064
Sample ID: OU2-MW03RD-GW120719
Lab Samp ID: L064-10N
Lab File ID: F6L04036
Ext Btch ID: IML010W
Calib. Ref.: F6L04026

Date Collected: 12/07/19 14:50
Date Received: 12/10/19
Date Extracted: 12/12/19 10:43
Date Analyzed: 12/19/19 12:45
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.603J	1.00	0.125
Barium	29.9	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	0.373J	1.00	0.100
Cobalt	1.10	1.00	0.100
Copper	4.24	2.00	0.500
Iron	134	100	25.0
Lead	0.0706J	1.00	0.0500
Magnesium	34900	100	25.0
Manganese	418	1.00	0.250
Nickel	3.72	1.00	0.250
Potassium	2150	100	25.0
Selenium	0.891J	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	0.353J	1.00	0.250
Zinc	7.74J	20.0	5.00

Sample ID: OU2-MW03RD-GW120719
Lab Samp ID: L064-10I
Lab File ID: H6L06063
Ext Btch ID: IML010W
Calib. Ref.: H6L06059

Date Analyzed: 12/18/19 12:29
Dilution Factor: 10
Matrix: WATER
% Moisture: NA
Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	114000	1000	250
Sodium	50000	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml
Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/07/19 14:50
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW03RD-GW120719	Date Analyzed:	12/19/19 12:45
Lab Samp ID:	L064-10N	Dilution Factor:	1
Lab File ID:	F6L04036	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04026	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.603J	1.00	0.125
Barium	29.9	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	120000E	100	25.0
Chromium	0.373J	1.00	0.100
Cobalt	1.10	1.00	0.100
Copper	4.24	2.00	0.500
Iron	134	100	25.0
Lead	0.0706J	1.00	0.0500
Magnesium	34900	100	25.0
Manganese	418	1.00	0.250
Nickel	3.72	1.00	0.250
Potassium	2150	100	25.0
Selenium	0.891J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	52500E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	0.353J	1.00	0.250
Zinc	7.74J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/07/19 14:50
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW03RD-GW120719	Date Analyzed:	12/18/19 12:29
Lab Samp ID:	L064-10I	Dilution Factor:	10
Lab File ID:	H6L06063	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	H6L06059	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	26.4	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	114000	1000	250
Chromium	ND	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	39300	1000	250
Manganese	482	10.0	2.50
Nickel	3.78J	10.0	2.50
Potassium	1970	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	50000	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L064
Sample ID: OU2-MW17D-GW120819
Lab Samp ID: L064-11N
Lab File ID: F6L04037
Ext Btch ID: IML010W
Calib. Ref.: F6L04026

Date Collected: 12/08/19 11:05
Date Received: 12/10/19
Date Extracted: 12/12/19 10:43
Date Analyzed: 12/19/19 12:49
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.835J	1.00	0.125
Barium	62.9	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	0.893J	1.00	0.100
Cobalt	0.386J	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	ND	1.00	0.0500
Magnesium	46100	100	25.0
Manganese	5.60	1.00	0.250
Nickel	0.280J	1.00	0.250
Potassium	2440	100	25.0
Selenium	0.797J	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	1.50	1.00	0.250
Zinc	ND	20.0	5.00

Sample ID: OU2-MW17D-GW120819
Lab Samp ID: L064-11I
Lab File ID: H6L06064
Ext Btch ID: IML010W
Calib. Ref.: H6L06059

Date Analyzed: 12/18/19 12:31
Dilution Factor: 10
Matrix: WATER
% Moisture: NA
Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	132000	1000	250
Sodium	89900	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml
Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/08/19 11:05
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW17D-GW120819	Date Analyzed:	12/19/19 12:49
Lab Samp ID:	L064-11N	Dilution Factor:	1
Lab File ID:	F6L04037	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04026	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.835J	1.00	0.125
Barium	62.9	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	138000E	100	25.0
Chromium	0.893J	1.00	0.100
Cobalt	0.386J	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	ND	1.00	0.0500
Magnesium	46100	100	25.0
Manganese	5.60	1.00	0.250
Nickel	0.280J	1.00	0.250
Potassium	2440	100	25.0
Selenium	0.797J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	92500E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.50	1.00	0.250
Zinc	ND	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/08/19 11:05
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW17D-GW120819	Date Analyzed:	12/18/19 12:31
Lab Samp ID:	L064-11I	Dilution Factor:	10
Lab File ID:	H6L06064	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	H6L06059	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	55.3	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	132000	1000	250
Chromium	ND	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	49000	1000	250
Manganese	5.72J	10.0	2.50
Nickel	ND	10.0	2.50
Potassium	2250	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	89900	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L064
Sample ID: OU2-MW17S-GW120819
Lab Samp ID: L064-12N
Lab File ID: F6L04040
Ext Btch ID: IML010W
Calib. Ref.: F6L04038

Date Collected: 12/08/19 10:00
Date Received: 12/10/19
Date Extracted: 12/12/19 10:43
Date Analyzed: 12/19/19 13:03
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	159	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.482J	1.00	0.125
Barium	130	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	3.28	1.00	0.100
Cobalt	1.51	1.00	0.100
Copper	0.900J	2.00	0.500
Iron	312	100	25.0
Lead	0.272J	1.00	0.0500
Magnesium	49800	100	25.0
Manganese	62.3	1.00	0.250
Nickel	84.4	1.00	0.250
Potassium	3830	100	25.0
Selenium	0.391J	1.00	0.150
Silver	0.169J	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	0.479J	1.00	0.250
Zinc	11.2J	20.0	5.00

Sample ID: OU2-MW17S-GW120819
Lab Samp ID: L064-12I
Lab File ID: H6L06065
Ext Btch ID: IML010W
Calib. Ref.: H6L06059

Date Analyzed: 12/18/19 12:33
Dilution Factor: 10
Matrix: WATER
% Moisture: NA
Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	129000	1000	250
Sodium	138000	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml
Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/08/19 10:00
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW17S-GW120819	Date Analyzed:	12/19/19 13:03
Lab Samp ID:	L064-12N	Dilution Factor:	1
Lab File ID:	F6L04040	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04038	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	159	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.482J	1.00	0.125
Barium	130	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	141000E	100	25.0
Chromium	3.28	1.00	0.100
Cobalt	1.51	1.00	0.100
Copper	0.900J	2.00	0.500
Iron	312	100	25.0
Lead	0.272J	1.00	0.0500
Magnesium	49800	100	25.0
Manganese	62.3	1.00	0.250
Nickel	84.4	1.00	0.250
Potassium	3830	100	25.0
Selenium	0.391J	1.00	0.150
Silver	0.169J	1.00	0.100
Sodium	154000E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	0.479J	1.00	0.250
Zinc	11.2J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/08/19 10:00
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW17S-GW120819	Date Analyzed:	12/18/19 12:33
Lab Samp ID:	L064-12I	Dilution Factor:	10
Lab File ID:	H6L06065	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	H6L06059	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	115	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	129000	1000	250
Chromium	3.14J	10.0	1.00
Cobalt	1.23J	10.0	1.00
Copper	ND	20.0	5.00
Iron	290J	1000	250
Lead	ND	10.0	0.500
Magnesium	54700	1000	250
Manganese	67.2	10.0	2.50
Nickel	97.1	10.0	2.50
Potassium	3510	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	138000	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L064
Sample ID: OU2-FD02-GW120819
Lab Samp ID: L064-14N
Lab File ID: F6L04041
Ext Btch ID: IML010W
Calib. Ref.: F6L04038

Date Collected: 12/08/19 12:20
Date Received: 12/10/19
Date Extracted: 12/12/19 10:43
Date Analyzed: 12/19/19 13:08
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.728J	1.00	0.125
Barium	31.9	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	1.12	1.00	0.100
Cobalt	0.348J	1.00	0.100
Copper	2.90	2.00	0.500
Iron	ND	100	25.0
Lead	ND	1.00	0.0500
Magnesium	40400	100	25.0
Manganese	7.29	1.00	0.250
Nickel	0.263J	1.00	0.250
Potassium	2010	100	25.0
Selenium	0.969J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	32700	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.54	1.00	0.250
Zinc	ND	20.0	5.00

Sample ID: OU2-FD02-GW120819
Lab Samp ID: L064-14I
Lab File ID: H6L06066
Ext Btch ID: IML010W
Calib. Ref.: H6L06059

Date Analyzed: 12/18/19 12:35
Dilution Factor: 10
Matrix: WATER
% Moisture: NA
Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	114000	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml
Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH	Date Collected: 12/08/19 12:20
Project : VA SALT LAKE CITY	Date Received: 12/10/19
SDG NO. : 19L064	Date Extracted: 12/12/19 10:43
Sample ID: OU2-FD02-GW120819	Date Analyzed: 12/19/19 13:08
Lab Samp ID: L064-14N	Dilution Factor: 1
Lab File ID: F6L04041	Matrix: WATER
Ext Btch ID: IML010W	% Moisture: NA
Calib. Ref.: F6L04038	Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.728J	1.00	0.125
Barium	31.9	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	121000E	100	25.0
Chromium	1.12	1.00	0.100
Cobalt	0.348J	1.00	0.100
Copper	2.90	2.00	0.500
Iron	ND	100	25.0
Lead	ND	1.00	0.0500
Magnesium	40400	100	25.0
Manganese	7.29	1.00	0.250
Nickel	0.263J	1.00	0.250
Potassium	2010	100	25.0
Selenium	0.969J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	32700	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.54	1.00	0.250
Zinc	ND	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount : 50ml	Final Volume:50ml
Prepared by : MCande	Analyzed by:LYaman

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/08/19 12:20
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-FD02-GW120819	Date Analyzed:	12/18/19 12:35
Lab Samp ID:	L064-14I	Dilution Factor:	10
Lab File ID:	H6L06066	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	H6L06059	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	28.5	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	114000	1000	250
Chromium	ND	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	42900	1000	250
Manganese	7.79J	10.0	2.50
Nickel	ND	10.0	2.50
Potassium	1790	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	31100	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH — Date Collected: 12/08/19 09:55
Project : VA SALT LAKE CITY — Date Received: 12/10/19
SDG NO. : 19L064 — Date Extracted: 12/12/19 10:43
Sample ID: OU2-MW08C-GW120819 — Date Analyzed: 12/19/19 13:12
Lab Samp ID: L064-15N — Dilution Factor: 1
Lab File ID: F6L04042 — Matrix: WATER
Ext Btch ID: IML010W — % Moisture: NA
Calib. Ref.: F6L04038 — Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.645J	1.00	0.125
Barium	49.9	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	0.314J	1.00	0.100
Cobalt	1.04	1.00	0.100
Copper	ND	2.00	0.500
Iron	173	100	25.0
Lead	ND	1.00	0.0500
Magnesium	35000	100	25.0
Manganese	465	1.00	0.250
Nickel	2.55	1.00	0.250
Potassium	2310	100	25.0
Selenium	0.930J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	31200	100	25.0
Thallium	ND	1.00	0.100
Vanadium	0.323J	1.00	0.250
Zinc	7.31J	20.0	5.00

Sample ID: OU2-MW08C-GW120819 — Date Analyzed: 12/18/19 12:38
Lab Samp ID: L064-15I — Dilution Factor: 10
Lab File ID: H6L06067 — Matrix: WATER
Ext Btch ID: IML010W — % Moisture: NA
Calib. Ref.: H6L06059 — Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	95200	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml — Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/08/19 09:55
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW08C-GW120819	Date Analyzed:	12/19/19 13:12
Lab Samp ID:	L064-15N	Dilution Factor:	1
Lab File ID:	F6L04042	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04038	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.645J	1.00	0.125
Barium	49.9	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	100000E	100	25.0
Chromium	0.314J	1.00	0.100
Cobalt	1.04	1.00	0.100
Copper	ND	2.00	0.500
Iron	173	100	25.0
Lead	ND	1.00	0.0500
Magnesium	35000	100	25.0
Manganese	465	1.00	0.250
Nickel	2.55	1.00	0.250
Potassium	2310	100	25.0
Selenium	0.930J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	31200	100	25.0
Thallium	ND	1.00	0.100
Vanadium	0.323J	1.00	0.250
Zinc	7.31J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/08/19 09:55
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW08C-GW120819	Date Analyzed:	12/18/19 12:38
Lab Samp ID:	L064-15I	Dilution Factor:	10
Lab File ID:	H6L06067	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	H6L06059	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	44.4	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	95200	1000	250
Chromium	ND	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	37400	1000	250
Manganese	537	10.0	2.50
Nickel	2.93J	10.0	2.50
Potassium	2120	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	30300	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/08/19 12:15
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW08A-GW120819	Date Analyzed:	12/19/19 13:17
Lab Samp ID:	L064-17N	Dilution Factor:	1
Lab File ID:	F6L04043	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04038	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	61.4J	100	25.0
Antimony	ND	1.00	0.250
Arsenic	1.05	1.00	0.125
Barium	77.0	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	1.10	1.00	0.100
Cobalt	0.552J	1.00	0.100
Copper	ND	2.00	0.500
Iron	119	100	25.0
Lead	0.0900J	1.00	0.0500
Manganese	24.7	1.00	0.250
Nickel	0.642J	1.00	0.250
Potassium	2740	100	25.0
Selenium	0.920J	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	1.66	1.00	0.250
Zinc	8.81J	20.0	5.00

Sample ID:	OU2-MW08A-GW120819	Date Analyzed:	12/18/19 12:40
Lab Samp ID:	L064-17I	Dilution Factor:	10
Lab File ID:	H6L06068	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	H6L06059	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	170000	1000	250
Magnesium	62400	1000	250
Sodium	79500	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/08/19 12:15
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW08A-GW120819	Date Analyzed:	12/19/19 13:17
Lab Samp ID:	L064-17N	Dilution Factor:	1
Lab File ID:	F6L04043	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04038	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	61.4J	100	25.0
Antimony	ND	1.00	0.250
Arsenic	1.05	1.00	0.125
Barium	77.0	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	173000E	100	25.0
Chromium	1.10	1.00	0.100
Cobalt	0.552J	1.00	0.100
Copper	ND	2.00	0.500
Iron	119	100	25.0
Lead	0.0900J	1.00	0.0500
Magnesium	59000E	100	25.0
Manganese	24.7	1.00	0.250
Nickel	0.642J	1.00	0.250
Potassium	2740	100	25.0
Selenium	0.920J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	81700E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.66	1.00	0.250
Zinc	8.81J	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/08/19 12:15
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW08A-GW120819	Date Analyzed:	12/18/19 12:40
Lab Samp ID:	L064-17I	Dilution Factor:	10
Lab File ID:	H6L06068	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	H6L06059	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	64.9	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	170000	1000	250
Chromium	ND	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	62400	1000	250
Manganese	25.3	10.0	2.50
Nickel	ND	10.0	2.50
Potassium	2430	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	79500	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH	Date Collected: 12/07/19 14:10
Project : VA SALT LAKE CITY	Date Received: 12/10/19
SDG NO. : 19L064	Date Extracted: 12/12/19 10:43
Sample ID: OU2-MW14S-GW120719	Date Analyzed: 12/19/19 13:22
Lab Samp ID: L064-18N	Dilution Factor: 1
Lab File ID: F6L04044	Matrix: WATER
Ext Btch ID: IML010W	% Moisture: NA
Calib. Ref.: F6L04038	Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	147	100	25.0
Antimony	ND	1.00	0.250
Arsenic	2.70	1.00	0.125
Barium	86.1	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	3.82	1.00	0.100
Cobalt	5.00	1.00	0.100
Copper	ND	2.00	0.500
Iron	876	100	25.0
Lead	0.201J	1.00	0.0500
Magnesium	48600	100	25.0
Manganese	383	1.00	0.250
Nickel	6.48	1.00	0.250
Potassium	2990	100	25.0
Selenium	0.923J	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	0.428J	1.00	0.250
Zinc	ND	20.0	5.00

Sample ID: OU2-MW14S-GW120719	Date Analyzed: 12/18/19 12:42
Lab Samp ID: L064-18I	Dilution Factor: 10
Lab File ID: H6L06069	Matrix: WATER
Ext Btch ID: IML010W	% Moisture: NA
Calib. Ref.: H6L06059	Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	139000	1000	250
Sodium	74300	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/07/19 14:10
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW14S-GW120719	Date Analyzed:	12/19/19 13:22
Lab Samp ID:	L064-18N	Dilution Factor:	1
Lab File ID:	F6L04044	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04038	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	147	100	25.0
Antimony	ND	1.00	0.250
Arsenic	2.70	1.00	0.125
Barium	86.1	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	145000E	100	25.0
Chromium	3.82	1.00	0.100
Cobalt	5.00	1.00	0.100
Copper	ND	2.00	0.500
Iron	876	100	25.0
Lead	0.201J	1.00	0.0500
Magnesium	48600	100	25.0
Manganese	383	1.00	0.250
Nickel	6.48	1.00	0.250
Potassium	2990	100	25.0
Selenium	0.923J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	76200E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	0.428J	1.00	0.250
Zinc	ND	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH	Date Collected: 12/07/19 14:10
Project : VA SALT LAKE CITY	Date Received: 12/10/19
SDG NO. : 19L064	Date Extracted: 12/12/19 10:43
Sample ID: OU2-MW14S-GW120719	Date Analyzed: 12/18/19 12:42
Lab Samp ID: L064-18I	Dilution Factor: 10
Lab File ID: H6L06069	Matrix: WATER
Ext Btch ID: IML010W	% Moisture: NA
Calib. Ref.: H6L06059	Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	2.42J	10.0	1.25
Barium	75.8	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	139000	1000	250
Chromium	3.61J	10.0	1.00
Cobalt	4.64J	10.0	1.00
Copper	ND	20.0	5.00
Iron	958J	1000	250
Lead	ND	10.0	0.500
Magnesium	52300	1000	250
Manganese	438	10.0	2.50
Nickel	7.17J	10.0	2.50
Potassium	2740	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	74300	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount : 50ml	Final Volume:50ml
Prepared by : MCande	Analyzed by:LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/08/19 10:15
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW05R-GW120819	Date Analyzed:	12/19/19 13:26
Lab Samp ID:	L064-20N	Dilution Factor:	1
Lab File ID:	F6L04045	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04038	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	1.12	1.00	0.125
Barium	75.6	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	5.63	1.00	0.100
Cobalt	0.561J	1.00	0.100
Copper	0.575J	2.00	0.500
Iron	28.8J	100	25.0
Lead	ND	1.00	0.0500
Manganese	1.10	1.00	0.250
Nickel	3.75	1.00	0.250
Potassium	2810	100	25.0
Selenium	0.816J	1.00	0.150
Silver	ND	1.00	0.100
Thallium	ND	1.00	0.100
Vanadium	1.90	1.00	0.250
Zinc	ND	20.0	5.00

Sample ID:	OU2-MW05R-GW120819	Date Analyzed:	12/18/19 12:45
Lab Samp ID:	L064-20I	Dilution Factor:	10
Lab File ID:	H6L06070	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	H6L06059	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	172000	1000	250
Magnesium	65100	1000	250
Sodium	64700	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/08/19 10:15
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW05R-GW120819	Date Analyzed:	12/19/19 13:26
Lab Samp ID:	L064-20N	Dilution Factor:	1
Lab File ID:	F6L04045	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04038	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	1.12	1.00	0.125
Barium	75.6	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	170000E	100	25.0
Chromium	5.63	1.00	0.100
Cobalt	0.561J	1.00	0.100
Copper	0.575J	2.00	0.500
Iron	28.8J	100	25.0
Lead	ND	1.00	0.0500
Magnesium	59200E	100	25.0
Manganese	1.10	1.00	0.250
Nickel	3.75	1.00	0.250
Potassium	2810	100	25.0
Selenium	0.816J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	62600E	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.90	1.00	0.250
Zinc	ND	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/08/19 10:15
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW05R-GW120819	Date Analyzed:	12/18/19 12:45
Lab Samp ID:	L064-20I	Dilution Factor:	10
Lab File ID:	H6L06070	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	H6L06059	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	66.4	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	172000	1000	250
Chromium	5.49J	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	65100	1000	250
Manganese	ND	10.0	2.50
Nickel	4.22J	10.0	2.50
Potassium	2550	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	64700	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client : CDM SMITH	Date Collected: 12/08/19 11:05
Project : VA SALT LAKE CITY	Date Received: 12/10/19
SDG NO. : 19L064	Date Extracted: 12/12/19 10:43
Sample ID: OU2-MW08B-GW120819	Date Analyzed: 12/19/19 13:31
Lab Samp ID: L064-21N	Dilution Factor: 1
Lab File ID: F6L04046	Matrix: WATER
Ext Btch ID: IML010W	% Moisture: NA
Calib. Ref.: F6L04038	Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.720J	1.00	0.125
Barium	31.5	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Chromium	1.19	1.00	0.100
Cobalt	0.351J	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	ND	1.00	0.0500
Magnesium	39900	100	25.0
Manganese	7.15	1.00	0.250
Nickel	0.258J	1.00	0.250
Potassium	1990	100	25.0
Selenium	0.921J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	32300	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.53	1.00	0.250
Zinc	33.1	20.0	5.00

Sample ID: OU2-MW08B-GW120819	Date Analyzed: 12/18/19 12:51
Lab Samp ID: L064-21I	Dilution Factor: 10
Lab File ID: H6L06073	Matrix: WATER
Ext Btch ID: IML010W	% Moisture: NA
Calib. Ref.: H6L06071	Instrument ID: H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	112000	1000	250

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/08/19 11:05
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW08B-GW120819	Date Analyzed:	12/19/19 13:31
Lab Samp ID:	L064-21N	Dilution Factor:	1
Lab File ID:	F6L04046	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04038	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	0.720J	1.00	0.125
Barium	31.5	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	120000E	100	25.0
Chromium	1.19	1.00	0.100
Cobalt	0.351J	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	ND	1.00	0.0500
Magnesium	39900	100	25.0
Manganese	7.15	1.00	0.250
Nickel	0.258J	1.00	0.250
Potassium	1990	100	25.0
Selenium	0.921J	1.00	0.150
Silver	ND	1.00	0.100
Sodium	32300	100	25.0
Thallium	ND	1.00	0.100
Vanadium	1.53	1.00	0.250
Zinc	33.1	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	12/08/19 11:05
Project	: VA SALT LAKE CITY	Date Received:	12/10/19
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	OU2-MW08B-GW120819	Date Analyzed:	12/18/19 12:51
Lab Samp ID:	L064-21I	Dilution Factor:	10
Lab File ID:	H6L06073	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	H6L06071	Instrument ID:	H6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	1000	250
Antimony	ND	10.0	2.50
Arsenic	ND	10.0	1.25
Barium	26.7	10.0	2.50
Beryllium	ND	10.0	1.00
Cadmium	ND	10.0	1.00
Calcium	112000	1000	250
Chromium	1.05J	10.0	1.00
Cobalt	ND	10.0	1.00
Copper	ND	20.0	5.00
Iron	ND	1000	250
Lead	ND	10.0	0.500
Magnesium	42900	1000	250
Manganese	7.53J	10.0	2.50
Nickel	ND	10.0	2.50
Potassium	1770	1000	250
Selenium	ND	10.0	1.50
Silver	ND	10.0	1.00
Sodium	30700	1000	250
Thallium	ND	10.0	1.00
Vanadium	ND	10.0	2.50
Zinc	ND	200	50.0

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LVicto

METHOD SW6020A
METALS BY ICP-MS

Client	: CDM SMITH	Date Collected:	NA
Project	: VA SALT LAKE CITY	Date Received:	NA
SDG NO.	: 19L064	Date Extracted:	12/12/19 10:43
Sample ID:	MBLK1W	Date Analyzed:	12/19/19 11:21
Lab Samp ID:	IML010WB	Dilution Factor:	1
Lab File ID:	F6L04018	Matrix:	WATER
Ext Btch ID:	IML010W	% Moisture:	NA
Calib. Ref.:	F6L04016	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	25.0
Antimony	ND	1.00	0.250
Arsenic	ND	1.00	0.125
Barium	0.362J	1.00	0.250
Beryllium	ND	1.00	0.100
Cadmium	ND	1.00	0.100
Calcium	68.3J	100	25.0
Chromium	ND	1.00	0.100
Cobalt	ND	1.00	0.100
Copper	ND	2.00	0.500
Iron	ND	100	25.0
Lead	ND	1.00	0.0500
Magnesium	ND	100	25.0
Manganese	ND	1.00	0.250
Nickel	0.440J	1.00	0.250
Potassium	ND	100	25.0
Selenium	ND	1.00	0.150
Silver	ND	1.00	0.100
Sodium	98.6J	100	25.0
Thallium	ND	1.00	0.100
Vanadium	ND	1.00	0.250
Zinc	ND	20.0	5.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : SW6020A

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1.00	1.00	1.00
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: IML010WB	IML010WL	IML010WC
LAB FILE ID	: F6L04018	F6L04019	F6L04028
DATE PREPARED	: 12/12/19 10:43	12/12/19 10:43	12/12/19 10:43
DATE ANALYZED	: 12/19/19 11:21	12/19/19 11:26	12/19/19 12:07
PREP BATCH	: IML010W	IML010W	IML010W
CALIBRATION REF	: F6L04016	F6L04016	F6L04026

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Aluminum	ND	3000	2910	97	3000	2930	98	1	80-120	20
Antimony	ND	30	28.9	96	30	28.7	96	1	80-120	20
Arsenic	ND	30	28.9	96	30	28.9	96	0	80-120	20
Barium	0.362J	30	28.7	96	30	29.0	97	1	80-120	20
Beryllium	ND	30	28.2	94	30	27.7	92	2	80-120	20
Cadmium	ND	30	29.0	97	30	28.4	95	2	80-120	20
Calcium	68.3J	3000	2980	99	3000	2970	99	0	80-120	20
Chromium	ND	30	30.5	102	30	30.2	101	1	80-120	20
Cobalt	ND	30	32.0	107	30	31.8	106	1	80-120	20
Copper	ND	30	29.9	100	30	29.5	98	1	80-120	20
Iron	ND	3000	2990	100	3000	2940	98	2	80-120	20
Lead	ND	30	30.3	101	30	29.8	99	2	80-120	20
Magnesium	ND	3000	3050	102	3000	3060	102	0	80-120	20
Manganese	ND	30	30.8	103	30	30.3	101	2	80-120	20
Nickel	0.440J	30	29.4	98	30	29.1	97	1	80-120	20
Potassium	ND	3000	2960	99	3000	3040	101	3	80-120	20
Selenium	ND	30	30.5	102	30	30.0	100	2	80-120	20
Silver	ND	30	29.5	98	30	29.6	99	0	80-120	20
Sodium	98.6J	3000	2990	100	3000	2970	99	1	80-120	20
Thallium	ND	30	31.5	105	30	31.0	103	2	80-120	20
Vanadium	ND	30	28.6	95	30	28.7	96	0	80-120	20
Zinc	ND	60	68.1	114	60	68.1	114	0	80-120	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : SW6020A

MATRIX : WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID : OU2-MW15D-GW120719 OU2-MW15D-GW120719MS OU2-MW15D-GW120719MSD
LAB SAMPLE ID : L064-07N L064-07M L064-07S
LAB FILE ID : F6L04032 F6L04029 F6L04030
DATE PREPARED : 12/12/19 10:43 12/12/19 10:43 12/12/19 10:43
DATE ANALYZED : 12/19/19 12:26 12/19/19 12:12 12/19/19 12:17
PREP BATCH : IML010W IML010W IML010W
CALIBRATION REF: F6L04026 F6L04026 F6L04026

ACCESSION:

PARAMETERS	PSResult (ug/L)	SpikeAmt (ug/L)	MSResult (ug/L)	MSRec (%)	SpikeAmt (ug/L)	MSDResult (ug/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Aluminum	87.6J	3000	2960	96	3000	2780	90	6	75-125	20
Antimony	ND	30	29.4	98	30	27.8	93	6	75-125	20
Arsenic	0.748J	30	31.0	101	30	29.5	96	5	75-125	20
Barium	48.8	30	80.4	105	30	75.7	90	6	75-125	20
Beryllium	ND	30	29.0	97	30	27.5	92	5	75-125	20
Cadmium	ND	30	27.7	92	30	26.1	87	6	75-125	20
Chromium	2.82	30	32.1	98	30	31.1	94	3	75-125	20
Cobalt	0.618J	30	28.9	94	30	27.6	90	5	75-125	20
Copper	0.702J	30	25.5	83	30	24.2	78	5	75-125	20
Iron	164	3000	3000	95	3000	2810	88	7	75-125	20
Lead	0.169J	30	28.3	94	30	26.7	88	6	75-125	20
Manganese	7.96	30	36.3	94	30	34.6	89	5	75-125	20
Nickel	6.12	30	31.7	85	30	29.9	79	6	75-125	20
Potassium	3980	3000	7140	105	3000	6720	91	6	75-125	20
Selenium	2.73	30	32.3	99	30	31.2	95	3	75-125	20
Silver	ND	30	27.1	90	30	25.6	85	6	75-125	20
Thallium	ND	30	29.3	98	30	28.1	94	4	75-125	20
Vanadium	1.18	30	30.1	96	30	28.5	91	5	75-125	20
Zinc	ND	60	62.4	104	60	60.2	100	4	75-125	20

PSResult - Parent Sample Result

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : SW6020A

MATRIX : WATER % MOISTURE: NA
DILUTION FACTOR: 10 10 10
SAMPLE ID : OU2-MW15D-GW120719 OU2-MW15D-GW120719MS OU2-MW15D-GW120719MSD
LAB SAMPLE ID : L064-07I L064-07M L064-07S
LAB FILE ID : H6L06057 H6L06054 H6L06055
DATE PREPARED : 12/12/19 10:43 12/12/19 10:43 12/12/19 10:43
DATE ANALYZED : 12/18/19 12:15 12/18/19 12:08 12/18/19 12:10
PREP BATCH : IML010W IML010W IML010W
CALIBRATION REF: H6L06047 H6L06047 H6L06047

ACCESSION:

PARAMETERS	PSResult (ug/L)	SpikeAmt (ug/L)	MSResult (ug/L)	MSRec (%)	SpikeAmt (ug/L)	MSDResult (ug/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Calcium	168000	3000	159000	-300*	3000	158000	-333*	1	75-125	20
Magnesium	65600	3000	70200	153*	3000	67100	50	5	75-125	20
Sodium	136000	3000	137000	33*	3000	133000	-100*	3	75-125	20

PSResult - Parent Sample Result
* Out of QC limit

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : SW6020A

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR	: 1	5
SAMPLE ID	: OU2-MW15D-GW120719	OU2-MW15D-GW120719
LAB SAMPLE ID	: L064-07N	L064-07J
LAB FILE ID	: F6L04032	F6L04033
DATE PREPARED	: 12/12/19 10:43	12/12/19 10:43
DATE ANALYZED	: 12/19/19 12:26	12/19/19 12:31
PREP BATCH	: IML010W	IML010W
CALIBRATION REF	: F6L04026	F6L04026

ACCESSION:

PARAMETERS	Sample Result (ug/L)	SD Result (ug/L)	%Difference (%)	Max %D (%)
Aluminum	87.6J	ND	NA	10
Antimony	ND	ND	0	10
Arsenic	0.748J	1.06J	NA	10
Barium	48.8	48.0	2	10
Beryllium	ND	ND	0	10
Cadmium	ND	ND	0	10
Chromium	2.82	3.01J	NA	10
Cobalt	0.618J	0.603J	NA	10
Copper	0.702J	ND	NA	10
Iron	164	184J	NA	10
Lead	0.169J	ND	NA	10
Manganese	7.96	8.62	8	10
Nickel	6.12	6.57	7	10
Potassium	3980	4130	4	10
Selenium	2.73	2.68J	NA	10
Silver	ND	ND	0	10
Thallium	ND	ND	0	10
Vanadium	1.18	2.33J	NA	10
Zinc	ND	ND	0	10

SD - Serial Dilution

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : SW6020A

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR	: 10	50
SAMPLE ID	: OU2-MW15D-GW120719	OU2-MW15D-GW120719
LAB SAMPLE ID	: L064-07I	L064-07J
LAB FILE ID	: H6L06057	H6L06058
DATE PREPARED	: 12/12/19 10:43	12/12/19 10:43
DATE ANALYZED	: 12/18/19 12:15	12/18/19 12:17
PREP BATCH	: IML010W	IML010W
CALIBRATION REF	: H6L06047	H6L06047

ACCESSION:

PARAMETERS	Sample Result (ug/L)	SD Result (ug/L)	%Difference (%)	Max %D (%)
Calcium	168000	150000	11*	10
Magnesium	65600	66400	1	10
Sodium	136000	125000	8	10

SD - Serial Dilution
* Out of QC limit

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : SW6020A

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR	: 1	1
SAMPLE ID	: OU2-MW15D-GW120719	OU2-MW15D-GW120719
LAB SAMPLE ID	: L064-07N	L064-07A
LAB FILE ID	: F6L04032	F6L04031
DATE PREPARED	: 12/12/19 10:43	12/12/19 10:43
DATE ANALYZED	: 12/19/19 12:26	12/19/19 12:21
PREP BATCH	: IML010W	IML010W
CALIBRATION REF	: F6L04026	F6L04026

ACCESSION:

PARAMETERS	Sample Result (ug/L)	Spike Amt (ug/L)	AS Result (ug/L)	AS Rec (%)	QC Limit (%)
Aluminum	87.6J	3000	3070	99	80-120
Antimony	ND	30	30.8	103	80-120
Arsenic	0.748J	30	32.6	106	80-120
Barium	48.8	30	80.3	105	80-120
Beryllium	ND	30	30.9	103	80-120
Cadmium	ND	30	29.6	99	80-120
Chromium	2.82	30	33.5	102	80-120
Cobalt	0.618J	30	31.1	102	80-120
Copper	0.702J	30	27.0	88	80-120
Iron	164	3000	3060	97	80-120
Lead	0.169J	30	29.9	99	80-120
Manganese	7.96	30	37.8	99	80-120
Nickel	6.12	30	33.0	90	80-120
Potassium	3980	3000	7120	105	80-120
Selenium	2.73	30	34.6	106	80-120
Silver	ND	30	27.9	93	80-120
Thallium	ND	30	31.8	106	80-120
Vanadium	1.18	30	31.7	102	80-120
Zinc	ND	60	68.1	114	80-120

AS - Analytical Spike

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : SW6020A

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR	: 10	10
SAMPLE ID	: OU2-MW15D-GW120719	OU2-MW15D-GW120719
LAB SAMPLE ID	: L064-07I	L064-07A
LAB FILE ID	: H6L06057	H6L06056
DATE PREPARED	: 12/12/19 10:43	12/12/19 10:43
DATE ANALYZED	: 12/18/19 12:15	12/18/19 12:12
PREP BATCH	: IML010W	IML010W
CALIBRATION REF	: H6L06047	H6L06047

ACCESSION:

PARAMETERS	Sample Result (ug/L)	Spike Amt (ug/L)	AS Result (ug/L)	AS Rec (%)	QC Limit (%)
Calcium	168000	30000	204000	120	80-120
Magnesium	65600	30000	102000	121*	80-120
Sodium	136000	30000	170000	113	80-120

AS - Analytical Spike
* Out of QC limit

ICP-MS QC CHECK TABLE

QC	HIGH STD	ICV	CCV	ICSAB	ICSA
Limit%		90-110	90-110	80-120	80-120
Comp	ug/L	ug/L	ug/L	ug/L	ug/L
Al	50000	30000	25000	100000	100000
Sb	100	60	50	20	0
As	500	300	250	20	0
Ba	1000	300	500	20	0
Be	50	30	25	20	0
B	100	30	50	20	0
Cd	500	300	250	20	0
Ca	50000	30000	25000	100000	100000
Cr	500	300	250	20	0
Co	500	300	250	20	0
Cu	500	300	250	20	0
Fe	50000	30000	25000	100000	100000
Li	50	30	25	20	0
Pb	500	300	250	20	0
Mg	50000	30000	25000	100000	100000
Mn	3000	2000	1500	20	0
Mo	500	300	250	2000	2000
Ni	500	300	250	20	0
P	500	300	250	100000	100000
K	50000	30000	25000	100000	100000
Se	500	300	250	20	0
Si	5000	3000	2500	200	0
Ag	50	30	25	20	0
Na	50000	30000	25000	100000	100000
Sr	500	300	250	20	0
Tl	500	300	250	20	0
Sn	500	300	250	20	0
Ti	500	300	250	2000	2000
W	50	30	25	20	0
V	500	300	250	20	0
U	500	300	250	20	0
Zn	500	300	250	20	0
Zr	50	30	25	20	0

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ICP-MS

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 12/18/19 10:04
End Date: 12/18/19 13:03

Comments:

All soil/solid samples are diluted at 10x dilution prior to analysis.

Filter Lot #: NA

See analytical sequence

Book #:	AH6-002
Instrument No.:	H6
Analytical Batch:	1H6L06
Analytical Sequence:	H6L06
Method File:	E6020HG
Micropipette ID:	☐ 142781004
Micropipette ID:	☒ ICP-06
Micropipette ID:	☒ 339362028
Micropipette ID:	☒ GFAA-07
Micropipette ID:	☐ 339342032
Micropipette ID:	☒ 542780515
Micropipette ID:	☐ 542761827
Micropipette ID:	☐

SOP #	Rev. #
☐ EMAX-200.8	6
☒ EMAX-6020	11
☐ EMAX-6020CA	1
☐ EMAX-	
☐ EMAX-	

STANDARDS ID		STANDARDS ID	
S0	SM6B-18-26-01	MRL1 (1)	SM6B-18-38-01
S1	50-01	MRL2 (0.4)	48-02
S2	50-02	MRL3 (0.1)	46-02
S3	51-01	MRL4	NA
S4	51-02	MRL5	↓
S5	NA	MRL6	↓
S6	↓	Internal Standard	SM6B-17-90-02
S7	↓	Post-Spike 1	SM6A-007-06-09
ICV	SM6B-18-47-01	Post-Spike 2	↓ 06-10
CCV	52-01	Post-Spike 3	NA
ICSA	66-02	Post-Spike 4	↓
ICSAB	67-01		
6020 TUNE SOLN.	NA		
200.8 TUNE SOLN.	SM6B-17-91-01		

Analyzed By: LV
Date: 12/18/19

INITIAL CALIBRATION VERIFICATION SUMMARY FORM

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L064
Method : METHOD SW6020A
Sequence : IH6L06
InstrumentID: H6

Lab Samp ID :		ICV				ICSA			ICSAB		
QC Limit :		%R:90-110/RSD:<5				%R:80-120/<LOD			%R:80-120		
Lab File ID :		H6L06008				H6L06012			H6L06013		
DateAnalyed :		12/18/1910:23				12/18/1910:32			12/18/1910:35		
Parameter		Result	ICV EV	RSD	%Recovery	Result	ICSA EV	%Rec/LOD	Result	ICSAB EV	%Recovery
Lithium		27.91	30	7.5	93	1.0350	0	>0	18.744	20	94
Beryllium	T	28.51	30	5.6	95	0.0046044	0	<0.10	18.495	20	92
Boron		28.27	30	7.7	94	0.95697	0	<5.0	19.173	20	96
Sodium	T	29750	30000	4.2	99	101060	100000	101	102240	100000	102
Magnesium	T	30710	30000	2.1	102	100540	100000	101	105430	100000	105
Aluminum	T	30930	30000	3.8	103	100780	100000	101	107830	100000	108
Silicon		3380	3000	2.6	113*	5.0035	0	<20	170.17	200	85
Phosphorus		306.2	300	3.0	102	96434	100000	96	99621	100000	100
Potassium	T	29980	30000	2.4	100	100980	100000	101	108640	100000	109
Calcium	T	30280	30000	2.8	101	104530	100000	105	105290	100000	105
Titanium		311.2	300	2.4	104	2057.5	2000	103	2222.2	2000	111
Vanadium	T	317.8	300	6.7	106	0.12013	0	<0.25	17.377	20	87
Chromium	T	328.5	300	5.3	109	0.28679	0	>0.1	18.149	20	91
Manganese	T	2031	2000	2.2	102	0.33365	0	>0.25	18.559	20	93
Iron	T	30050	30000	0.8	100	100590	100000	101	102430	100000	102
Cobalt	T	312.4	300	6.4	104	0.38209	0	>0.1	18.675	20	93
Nickel	T	296.2	300	1.4	99	0.33414	0	>0.25	18.117	20	91
Copper	T	315.9	300	2.1	105	0.12028	0	<0.50	17.693	20	88
Zinc	T	314.7	300	5.7	105	1.3040	0	<5	18.135	20	91
Arsenic	T	311.3	300	0.5	104	0.049404	0	<0.125	18.560	20	93
Selenium	T	307.9	300	0.9	103	0.11003	0	<0.15	19.150	20	96
Strontium		311.0	300	2.0	104	0.81828	0	<1.0	18.986	20	95
Zirconium		30.82	30	4.1	103	0.054791	0	<2.0	17.258	20	86
Molybdenum		322.4	300	7.6	107	2074.7	2000	104	2078.6	2000	104
Silver	T	29.99	30	2.1	100	0.010240	0	<0.1	18.300	20	91
Cadmium	T	296.0	300	3.0	99	0.087965	0	<0.1	17.055	20	85
Tin		319.4	300	5.9	106	0.44633	0	>0.2	18.287	20	91
Antimony	T	59.61	60	2.3	99	0.18288	0	<0.25	18.481	20	92
Barium	T	298.3	300	3.2	99	0.23925	0	<0.25	17.502	20	88
Tungsten		28.29	30	4.5	94	0.19667	0	<1.0	15.854	20	79*
Mercury		2.945	3	2.7	98	0.0079504	0	<0.1	1.9129	2	96
Thallium	T	325.3	300	10.2	108	0.038291	0	<0.1	18.086	20	90
Lead	T	308.2	300	6.3	103	0.10968	0	>0.05	17.297	20	86
Uranium		317.3	300	5.8	106	0.011458	0	<0.1	18.146	20	91

Unit: ug/L
T: Target analyte
EV: Expected Value
Comment: * Out of QC limit

CONTINUING CALIBRATION VERIFICATION SUMMARY FORM

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L064
Method : METHOD SW6020A
Sequence : IH6L06
Instrument ID: H6

CCV SampleID			CCV1			CCV2			CCV4			CCV5			CCV6		
CCV DataFileID			H6L06015			H6L06027			H6L06047			H6L06059			H6L06071		
CCV DateTime			12/18/19 10:39			12/18/19 11:07			12/18/19 11:52			12/18/19 12:19			12/18/19 12:47		
PARAMETER		CCV EV	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD
Lithium		25	22.0	88*	6.4	22.4	90	3.4	23.3	93	3.2	23.4	93	8.5	22.6	90	1.7
Beryllium	T	25	22.7	91	3.6	22.5	90	1.8	23.1	93	3.2	23.6	95	4.3	22.8	91	0.4
Boron		50	44.5	89*	1.1	47.2	94	3.1	47.6	95	2.0	46.7	93	2.6	45.0	90	1.7
Sodium	T	25000	24500	98	4.6	24200	97	4.2	27200	109	7.4	25000	100	5.6	25200	101	6.5
Magnesium	T	25000	24700	99	4.0	25200	101	6.6	25600	102	8.3	25100	100	8.1	25400	102	4.4
Aluminum	T	25000	24500	98	4.0	25700	103	3.6	25200	101	6.1	24300	97	5.8	25300	101	0.3
Silicon		2500	2650	106	6.4	2720	109	4.4	2740	110	2.2	2700	108	5.8	2760	110	7.3
Phosphorus		250	237	95	1.8	250	100	2.0	243	97	4.4	240	96	4.4	250	100	2.5
Potassium	T	25000	26000	104	2.5	26100	104	1.6	25600	103	3.0	26300	105	4.8	26400	106	0.9
Calcium	T	25000	24200	97	2.7	24700	99	4.0	25200	101	1.9	24900	100	5.7	25400	102	4.8
Titanium		250	241	96	1.9	247	99	0.5	242	97	3.7	236	94	4.4	243	97	1.9
Vanadium	T	250	261	104	3.2	261	105	4.0	269	107	3.9	270	108	2.6	268	107	2.1
Chromium	T	250	267	107	4.1	275	110	5.5	267	107	1.2	267	107	1.6	270	108	4.3
Manganese	T	1500	1540	102	5.0	1490	100	0.4	1490	99	4.9	1470	98	5.2	1530	102	2.7
Iron	T	25000	24700	99	1.6	24900	99	5.6	25300	101	2.0	25500	102	1.9	24600	98	3.1
Cobalt	T	250	251	101	1.8	256	102	2.2	252	101	4.7	248	99	5.8	256	102	3.3
Nickel	T	250	242	97	0.7	250	100	1.6	249	100	1.5	246	99	2.7	244	98	1.5
Copper	T	250	261	104	5.4	270	108	5.6	272	109	3.2	272	109	3.8	267	107	1.6
Zinc	T	250	232	93	3.0	230	92	1.0	237	95	4.2	232	93	1.6	234	94	0.7
Arsenic	T	250	249	99	1.0	251	101	0.9	250	100	0.2	252	101	1.3	249	99	0.2
Selenium	T	250	250	100	1.2	251	101	0.4	250	100	1.9	256	102	1.1	256	103	0.4
Strontium		250	253	101	4.2	247	99	4.6	257	103	4.8	260	104	4.4	262	105	1.6
Zirconium		25	23.9	96	2.4	24.3	97	1.3	25.0	100	3.9	24.1	96	1.6	24.4	98	2.0
Molybdenum		250	245	98	5.1	252	101	4.0	249	99	3.3	253	101	2.0	249	100	1.6
Silver	T	25	24.5	98	3.9	25.1	100	3.0	25.5	102	1.5	25.4	102	2.9	24.8	99	1.6
Cadmium	T	250	227	91	3.4	235	94	4.1	239	96	1.7	240	96	3.0	236	94	0.7
Tin		250	255	102	2.3	255	102	4.9	261	104	3.4	265	106	4.1	260	104	3.0
Antimony	T	50	48.4	97	3.2	50.5	101	4.1	51.3	103	1.9	50.9	102	3.8	50.7	101	1.8
Barium	T	500	490	98	7.6	501	100	7.3	518	104	5.1	519	104	1.5	520	104	2.9
Tungsten		25	24.2	97	4.3	25.4	102	6.1	25.2	101	9.0	25.0	100	0.1	25.5	102	1.2
Mercury		2.5	2.52	101	1.9	2.65	106	5.5	2.62	105	9.4	2.58	103	0.9	2.69	108	1.8
Thallium	T	250	252	101	3.5	270	108	3.1	260	104	8.7	259	104	4.6	269	107	1.8
Lead	T	250	245	98	3.4	252	101	3.4	257	103	11.4	254	102	3.8	262	105	2.3
Uranium		250	257	103	3.0	262	105	5.8	258	103	5.9	249	100	3.4	264	106	5.3

CCV SampleID			CCV7		
CCV DataFileID			H6L06077		
CCV DateTime			12/18/19 13:01		
PARAMETER		CCV EV	RESULT	%REC	RSD
Lithium		25	23.0	92	5.0
Beryllium	T	25	23.4	94	2.8
Boron		50	45.9	92	5.2
Sodium	T	25000	26900	108	9.5
Magnesium	T	25000	25700	103	9.9
Aluminum	T	25000	26200	105	8.8
Silicon		2500	3030	121*	9.8
Phosphorus		250	248	99	7.0
Potassium	T	25000	26400	106	1.1

Calcium	T	25000	26900	107	9.3
Titanium		250	240	96	5.1
Vanadium	T	250	269	107	2.3
Chromium	T	250	269	107	3.8
Manganese	T	1500	1530	102	6.5
Iron	T	25000	26400	106	9.6
Cobalt	T	250	248	99	7.8
Nickel	T	250	241	97	0.6
Copper	T	250	267	107	2.6
Zinc	T	250	227	91	1.4
Arsenic	T	250	251	100	0.5
Selenium	T	250	272	109	5.7
Strontium		250	264	105	2.5
Zirconium		25	23.6	94	2.0
Molybdenum		250	251	100	3.3
Silver	T	25	23.9	96	3.6
Cadmium	T	250	227	91	3.5
Tin		250	258	103	1.6
Antimony	T	50	48.9	98	2.7
Barium	T	500	516	103	5.2
Tungsten		25	24.5	98	1.9
Mercury		2.5	2.53	101	3.8
Thallium	T	250	264	106	5.5
Lead	T	250	252	101	3.7
Uranium		250	262	105	5.7

Unit: ug/L
T: Target analyte
%Rec QC Limit: 90-110
RSD QC Limit: <5
CCV EV: CCV Expected Value ug/L
Comment: * Out of QC limit

CONTINUING CALIBRATION BLANK SUMMARY FORM

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L064
Method : SW6020A
Sequence : IH6L06
Instrument ID: H6

CB SampleID	: ICB	CCB1	CCB2	CCB4	CCB5
CB DataFileID	: H6L06009	H6L06016	H6L06028	H6L06048	H6L06060
CB DateTime	: 12/18/1910:25	12/18/1910:41	12/18/1911:09	12/18/1911:54	12/18/1912:22

PARAMETER		LOD	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >
Lithium		0	0.5	>0	0.4	>0	0.3	>0	0.2	>0	0.3	>0
Beryllium	T	0.10	0.007	<0.10	0.006	<0.10	0.007	<0.10	0.009	<0.10	0.008	<0.10
Boron		5.0	0.7	<5.0	0.5	<5.0	2	<5.0	2	<5.0	1	<5.0
Sodium	T	25	0.07	<25	0.7	<25	20	<25	30	>25	10	<25
Magnesium	T	25	3	<25	4	<25	3	<25	8	<25	8	<25
Aluminum	T	25	3	<25	4	<25	3	<25	6	<25	7	<25
Silicon		20	2	<20	0.1	<20	0.3	<20	0.4	<20	0.8	<20
Phosphorus		25	0.8	<25	4	<25	0.3	<25	0.7	<25	3	<25
Potassium	T	25	2	<25	0.5	<25	7	<25	8	<25	10	<25
Calcium	T	25	1.0	<25	1	<25	1	<25	6	<25	6	<25
Titanium		0.5	0.03	<0.5	0.02	<0.5	0.03	<0.5	0.04	<0.5	0.07	<0.5
Vanadium	T	0.25	0.1	<0.25	0.1	<0.25	0.06	<0.25	0.009	<0.25	0.02	<0.25
Chromium	T	0.1	0.02	<0.1	0.007	<0.1	0.01	<0.1	0.01	<0.1	0.03	<0.1
Manganese	T	0.25	0.3	>0.25	0.3	>0.25	0.2	<0.25	0.4	>0.25	0.5	>0.25
Iron	T	25	1	<25	2	<25	1.0	<25	5	<25	5	<25
Cobalt	T	0.1	0.03	<0.1	0.03	<0.1	0.03	<0.1	0.06	<0.1	0.07	<0.1
Nickel	T	0.25	0.005	<0.25	0.006	<0.25	0.003	<0.25	0.05	<0.25	0.05	<0.25
Copper	T	0.50	0.06	<0.50	0.3	<0.50	0.4	<0.50	0.5	>0.50	0.6	>0.50
Zinc	T	5	0.2	<5	0.1	<5	0.1	<5	0.1	<5	0.1	<5
Arsenic	T	0.125	0.009	<0.125	0.01	<0.125	0.001	<0.125	0.03	<0.125	0.07	<0.125
Selenium	T	0.15	0.04	<0.15	0.03	<0.15	0.02	<0.15	0.09	<0.15	0.07	<0.15
Strontium		1.0	0.03	<1.0	0.03	<1.0	0.03	<1.0	0.09	<1.0	0.08	<1.0
Zirconium		2.0	0.005	<2.0	0.003	<2.0	0.004	<2.0	0.003	<2.0	0.007	<2.0
Molybdenum		0.5	0.05	<0.5	0.06	<0.5	0.03	<0.5	0.06	<0.5	0.06	<0.5
Silver	T	0.1	0.004	<0.1	0.004	<0.1	0.0009	<0.1	0.01	<0.1	0.004	<0.1
Cadmium	T	0.1	0.1	>0.1	0.07	<0.1	0.07	<0.1	0.09	<0.1	0.1	>0.1
Tin		0.2	0.2	<0.2	0.1	<0.2	0.1	<0.2	0.2	<0.2	0.2	>0.2
Antimony	T	0.25	0.01	<0.25	0.01	<0.25	0.01	<0.25	0.02	<0.25	0.02	<0.25
Barium	T	0.25	0.03	<0.25	0.06	<0.25	0.05	<0.25	0.1	<0.25	0.1	<0.25
Tungsten		1.0	0.02	<1.0	0.01	<1.0	0.005	<1.0	0.005	<1.0	0.008	<1.0
Mercury		0.1	0.01	<0.1	0.009	<0.1	0.009	<0.1	0.01	<0.1	0.02	<0.1
Thallium	T	0.1	0.2	>0.1	0.1	>0.1	0.1	>0.1	0.2	>0.1	0.2	>0.1
Lead	T	0.05	0.07	>0.05	0.07	>0.05	0.05	>0.05	0.07	>0.05	0.09	>0.05
Uranium		0.1	0.03	<0.1	0.03	<0.1	0.02	<0.1	0.06	<0.1	0.07	<0.1

CB SampleID	: CCB6	CCB7
CB DataFileID	: H6L06072	H6L06078
CB DateTime	: 12/18/1912:49	12/18/1913:03

PARAMETER		LOD	RESULT	< LOD >	RESULT	< LOD >
Lithium		0	0.8	>0	0.2	>0
Beryllium	T	0.10	0.01	<0.10	0.009	<0.10
Boron		5.0	1	<5.0	1	<5.0
Sodium	T	25	8	<25	6	<25
Magnesium	T	25	8	<25	10	<25
Aluminum	T	25	8	<25	9	<25
Silicon		20	0.7	<20	0.7	<20

Phosphorus		25	3	<25	4	<25
Potassium	T	25	10	<25	10	<25
Calcium	T	25	8	<25	10	<25
Titanium		0.5	0.06	<0.5	0.09	<0.5
Vanadium	T	0.25	0.03	<0.25	0.04	<0.25
Chromium	T	0.1	0.03	<0.1	0.03	<0.1
Manganese	T	0.25	0.5	>0.25	0.6	>0.25
Iron	T	25	6	<25	7	<25
Cobalt	T	0.1	0.08	<0.1	0.09	<0.1
Nickel	T	0.25	0.06	<0.25	0.05	<0.25
Copper	T	0.50	0.6	>0.50	0.6	>0.50
Zinc	T	5	0.1	<5	0.2	<5
Arsenic	T	0.125	0.06	<0.125	0.05	<0.125
Selenium	T	0.15	0.08	<0.15	0.1	<0.15
Strontium		1.0	0.09	<1.0	0.2	<1.0
Zirconium		2.0	0.01	<2.0	0.009	<2.0
Molybdenum		0.5	0.07	<0.5	0.09	<0.5
Silver	T	0.1	0.001	<0.1	0.01	<0.1
Cadmium	T	0.1	0.1	>0.1	0.1	>0.1
Tin		0.2	0.2	>0.2	0.2	>0.2
Antimony	T	0.25	0.02	<0.25	0.03	<0.25
Barium	T	0.25	0.1	<0.25	0.2	<0.25
Tungsten		1.0	0.01	<1.0	0.01	<1.0
Mercury		0.1	0.01	<0.1	0.01	<0.1
Thallium	T	0.1	0.2	>0.1	0.2	>0.1
Lead	T	0.05	0.10	>0.05	0.09	>0.05
Uranium		0.1	0.07	<0.1	0.08	<0.1

Unit: ug/L
CB: Calibration Blank
T: Target analyte
Acceptance Criteria: CCB Result <LOD
Comment:

Sample List

Acq/Data Batch D:\Agilent\ICPMH\1\DATA\L\IH6L06.b

Block List

Acquisition Order

Sequence Order	Block Name
1	Calibration Standards
2	Unknown Samples

Blocks

Calibration Standards

#	Skip	Sample Type	Sample Name	Comment	Vial#	File Name	Replicates	Level	Total Dil.
1		CalBlk	BLANK		1101	H6L06001.d		1	
2		CalBlk	BLANK		1101	H6L06002.d		1	
3		CalBlk	S0		1102	H6L06003.d		1	
4		CalStd	S1		1104	H6L06004.d		2	
5		CalStd	S2		1105	H6L06005.d		3	
6		CalStd	S3		1106	H6L06006.d		4	
7		CalStd	S4		1107	H6L06007.d		5	
8		ICV	ICV		1204	H6L06008.d			1
9		ICB	ICB		1102	H6L06009.d			1
10		LLCCV	MRLL1801 ✓	1/100/10 ppb	1306	H6L06010.d			1
11		LLCCV2	MRLL1802	0.4/40/4 ppb	1307	H6L06011.d			1
12		ICS-A	ICSA		1304	H6L06012.d			1
13		ICSB	ICSAB		1305	H6L06013.d			1
14		Sample	MRLL1803	500 ppb CAT	1207	H6L06014.d			1
15		CCV	CCV1		1206	H6L06015.d			1
16		CCB	CCB1		1102	H6L06016.d			1

Unknown Samples

#	Skip	Sample Type	Sample Name	Comment	Vial#	File Name	Replicates	Level	Total Dil.
1		Blank	IML010WB	Na > ½ LOQ (samples > 10X)	2101	H6L06017.d			1
2		LCSW	IML010WL		2102	H6L06018.d			1
3		LCSW	IML010WC		2103	H6L06019.d			1
4		Sample	H311-02N	MAPEP PT	2104	H6L06020.d			1
5		Sample	H311-02I	MAPEP PT	2105	H6L06021.d			10
6		Sample	L064-01 Cat		2106	H6L06022.d			1
7		Sample	L064-02 Na Cat		2107	H6L06023.d			1
8		Sample	L064-03 Cat		2108	H6L06024.d			1
9		Sample	L064-04 Na	mg cat	2109	H6L06025.d			1
10		Sample	L064-06 Na	mg Cat	2110	H6L06026.d			1
11		CCV	CCV2		1206	H6L06027.d			1
12		CCB	CCB2		1102	H6L06028.d			1
13		Sample	L064-07M Na	Ca mg↑	2111	H6L06029.d			1
14		Sample	L064-07S	↓	2112	H6L06030.d			1
15		Sample	L064-07A		2201	H6L06031.d			1
16		Sample	L064-07		2202	H6L06032.d			1
17		Sample	L064-07J		2203	H6L06033.d			5
18		Sample	L064-08 Na	mg Cat	2204	H6L06034.d			1
19		Sample	L064-09 Mg	Cat	2205	H6L06035.d			1
20		Sample	L064-10 Na	Cat	2206	H6L06036.d			1

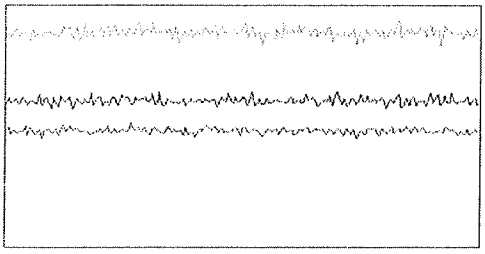
Sample List

#	Skip	Sample Type	Sample Name	Comment	Vial#	File Name	Replicates	Level	Total Dil.
21		Sample	L064-11	Na Mg Cat	2207	H6L06037.d			1
22		Sample	L064-12	Na Mg Cat	2208	H6L06038.d			1
23		CCV	CCV3		1206	H6L06039.d			1
24		CCB	CCB3		1102	H6L06040.d			1
25		Sample	L064-14	Cat	2209	H6L06041.d			1
26		Sample	L064-15	Cat	2210	H6L06042.d			1
27		Sample	L064-17	Na Mg Cat	2211	H6L06043.d			1
28		Sample	L064-18	↓	2212	H6L06044.d			1
29		Sample	L064-20		2301	H6L06045.d			1
30		Sample	L064-21	Cat	2302	H6L06046.d			1
31		CCV	CCV4		1206	H6L06047.d			1
32		CCB	CCB4		1102	H6L06048.d			1
33		Sample	L064-01I		2303	H6L06049.d			10
34		Sample	L064-02I		2304	H6L06050.d			10
35		Sample	L064-03I		2305	H6L06051.d			10
36		Sample	L064-04I		2306	H6L06052.d			10
37		Sample	L064-06I		2307	H6L06053.d			10
38		Sample	L064-07M		2308	H6L06054.d			10
39		Sample	L064-07S		2309	H6L06055.d			10
40		Sample	L064-07A		2310	H6L06056.d			10
41		Sample	L064-07I		2311	H6L06057.d			10
42		Sample	L064-07J		2312	H6L06058.d			50
43		CCV	CCV5		1206	H6L06059.d			1
44		CCB	CCB5		1102	H6L06060.d			1
45		Sample	L064-08I		2401	H6L06061.d			10
46		Sample	L064-09I		2402	H6L06062.d			10
47		Sample	L064-10I		2403	H6L06063.d			10
48		Sample	L064-11I		2404	H6L06064.d			10
49		Sample	L064-12I		2405	H6L06065.d			10
50		Sample	L064-14I		2406	H6L06066.d			10
51		Sample	L064-15I		2407	H6L06067.d			10
52		Sample	L064-17I		2408	H6L06068.d			10
53		Sample	L064-18I		2409	H6L06069.d			10
54		Sample	L064-20I		2410	H6L06070.d			10
55		CCV	CCV6		1206	H6L06071.d			1
56		CCB	CCB6		1102	H6L06072.d			1
57		Sample	L064-21I		2411	H6L06073.d			10
58		LLCCV	MRLL1804	Cat 1/100/10 ppb	1306	H6L06074.d			1
59		LLCCV2	MRLL1805	↓ 0.4/40/4 ppb	1307	H6L06075.d			1
60		Sample	MRLL1806	500 ppb CAT	1207	H6L06076.d			1
61		CCV	CCV7		1206	H6L06077.d			1
62		CCB	CCB7		1102	H6L06078.d			1

Performance Report

Operator Name	LVicto
Acq. Date-Time	2019-12-18 09:12:11
Instrument Name	G8421A SG19253823
Sample Introduction	ISIS
Nebulizer Type	MicroMist
Ion Lens Model	x-Lens
Tune Parameters	Standard Tune

Sensitivity



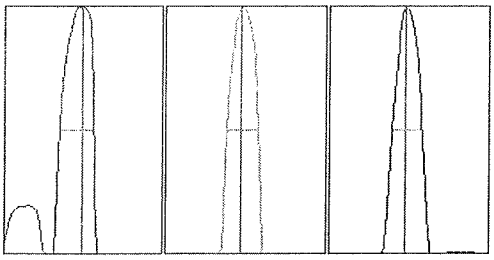
Mass	Range	Count	RSD%	Background
7	10000	4837	2.233	0.350
89	20000	17837	2.059	0.450
205	20000	12167	2.386	2.400

Sampling Period [sec]	0.311
Integration Time [sec]	0.1

Oxide/Doubly Charged Ratio

Oxide	156 / 140 0.986 %
Doubly Charged	70 / 140 1.335 %

Resolution/Axis



Mass	Peak Height	Axis	W-50%	W-10%
7	4806.11	7.00	0.65	0.79
89	17580.43	88.95	0.60	0.73
205	12152.02	204.95	0.56	0.77

Integration Time [sec]	0.1
Acquisition Time [sec]	22.74

Tune Parameters

Plasma Parameters

RF Power	1550 W	Option Gas	---	Makeup Gas	0.00 L/min
RF Matching	1.20 V	Nebulizer Pump	0.10 rps	Auxiliary Gas	0.90 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C	Plasma Gas	15.0 L/min
Nebulizer Gas	1.07 L/min				

Lens Parameters

Extract 1	0.0 V	Omega Lens	10.0 V	Deflect	13.0 V
Extract 2	-200.0 V	Cell Entrance	-30 V	Plate Bias	-35 V
Omega Bias	-90 V	Cell Exit	-50 V		

Performance Report

Cell Parameters

Use Gas	No	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	0.0 mL/min	OctP RF	200 V		

QP Parameters

QP Bias	-3.0 V

Hardware Settings

Torch

Torch H	0.5 mm	Torch H (Hot)	---	Torch H (Cool)	---
Torch V	-0.2 mm	Torch V (Hot)	---	Torch V (Cool)	---

Plasma Correction

Nebulizer Gas Offset	0.02 L/min	Makeup Gas (Hot)	---	Makeup Gas (Cool)	---
		Sample Depth (Hot)	---		

Resolution/Axis

Mass Gain	124	Axis Gain	0.9994		
Mass Offset	124	Axis Offset	-0.03		

EM

Discriminator	5.0 mV	Analog HV	2132 V	Pulse HV	1233 V

Performance Report

Meter

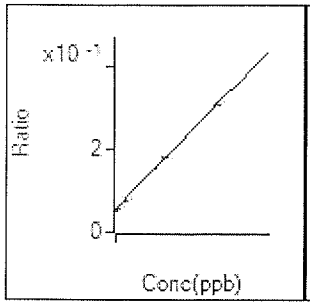
Name	Value	Unit
Nebulizer Gas	1.07	L/min
MU./Dil. Gas	0.00	L/min
Plasma Gas	15.02	L/min
Aux Gas	0.90	L/min
Ar Gas Tank Press	7.08E+2	kPa
+5V (Press Gage)	5.0	V
Ar AMFC Temp	28.8	°C
Nebulizer Gas(DP)	6.24E+0	kPa
MU./Dil. Gas(DP)	-9.26E-2	kPa
Aux Gas(DP)	1.22E+1	kPa
Plasma Gas(DP)	1.11E+1	kPa
Nebulizer Gas(BP)	3.40E+2	kPa
MU./Dil. Gas(BP)	-1.23E+0	kPa
Aux Gas(BP)	5.93E+1	kPa
Plasma Gas(BP)	3.99E+1	kPa
S/C Temp (H)	16.2	°C
S/C Temp (L)	2.0	°C
Peltier Voltage	2.0	V
IF/BK Press	2.46E+2	Pa
Analyzer Press	7.16E-5	Pa
IG HV	178	V
IG Emission	4.96	µA
TMP Revolution	100.0	%
TMP Rev (RAW)	100.1	%
TMP Current	2.59	A
PWR AMP Drain I	0.3	A
PWR AMP Bias	4.12	V
OctP RF (Avg)	205.6	V
OctP RF Set	4.0	V
OctP FET Bias Set	3.97	V
OctP RF(+)	176.5	V
OctP RF(-)	231.1	V
OctP Bias	-7.9	V
Cell Temp.	65.0	°C
Cell Heater Volt.	4.0	V
+U Voltage	5.4	V

Name	Value	Unit
-U Voltage	-11.5	V
V Voltage	28.1	V
QPRF Fader	0.0	V
Pickup Temp	55.0	°C
PWR Amp Temp	0.1	V
+600V	609.2	V
-120V	-129.8	V
-720V	-739.2	V
Prefilter Bias	-5.06	V
Pickup Heater I	0.09	A
QP PS +48V	47.6	V
QP PS +48V I	0.00	A
Analog HV	-2137	V
Pulse HV	1240	V
EM Gate	99.8	V
Pulse Gate	0.5	V
EM Entrance	0.3	V
EM HV Gain	-767.0	V
Inner Pole	-300.1	V
Outer Pole	20.0	V
Analog -5V	-5.1	V
Analog +15V	14.5	V
Analog -15V	-14.4	V
Analog +5V	5.2	V
Shunt C Pos	1.2	V
Drain Volt.(max)	62.6	V
RF PS +48V	47.6	V
Forward Power	1550	W
Reflected Power	3	W
Plasma Freq.	26.73	MHz
Drain I 1	11.31	A
Drain I 2	10.88	A
Drain I 3	10.81	A
Drain I 4	10.06	A
Temp Sensor	2.8	V
Driver I	5.36	A

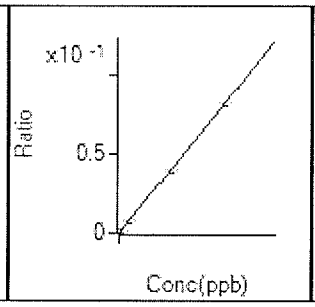
Name	Value	Unit
Igniter	0.0	V
Driver Voltage Set	6.5	V
Unbalance Current	0.45	A
PWM Threshold Set	0.2	V
Driver Voltage	5.1	V
PWM Threshold	0.2	V
Phase Detector	0.0	mV
H2 Gas	0.00	mL/min
He Gas	0.00	mL/min
H2 Gas Press	1.70E+2	kPa
He Gas Press	6.56E-1	kPa
ORS AMFC Temp	28.4	°C
Atmospheric Press	1.01E+2	kPa
Extract 1	-0.1	V
Extract 2	-200.2	V
Omega Bias	-90.1	V
Omega Lens	9.9	V
Cell Entrance	-29.9	V
Cell Exit	-50.2	V
Deflect	12.9	V
Plate Bias	-35.0	V
HV+530V	524	V
HV+240V	238	V
HV-360V	-357	V
Inlet Temp	26.8	°C
Internal Temp	32.1	°C
+24V	23.6	V
Water Temp	18.3	°C
Water RF/WC/IF	1.47	L/min
ISIS 3 Pump Speed	0.0	%
Valve Position		
Tune/ISTD Valve		

Performance Report History

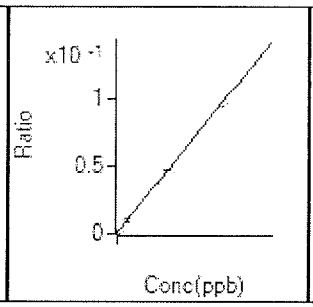
Sensitivity



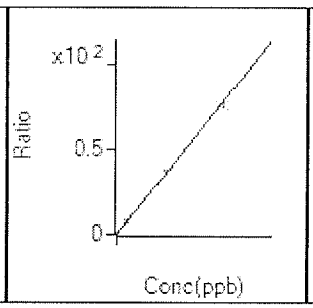
7 Li [No Gas]
ISTD: 6 Li
y = 5.084E-3 x + 5.621E-2
R 0.9997
DL 0.6104
BEC 11.06



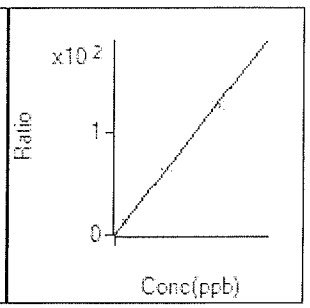
9 Be [No Gas]
ISTD: 6 Li
y = 1.627E-3 x + 5.131E-6
R 0.9998
DL 0.001574
BEC 0.003154



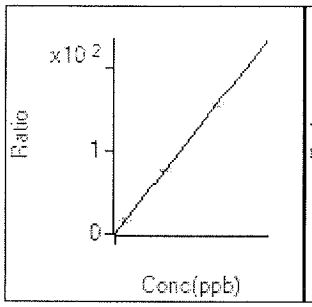
11 B [No Gas]
ISTD: 6 Li
y = 9.472E-4 x + 7.465E-4
R 0.9999
DL 0.1078
BEC 0.7882



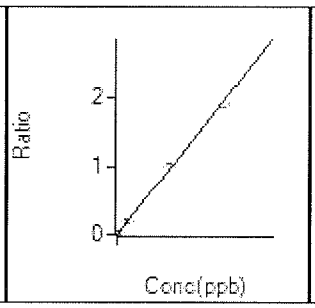
23 Na [H2]
ISTD: 45 Sc
y = 1.523E-3 x + 1.319E-1
R 1.0000
DL 6.063
BEC 86.6



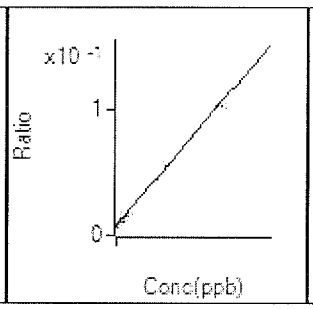
24 Mg [No Gas]
ISTD: 45 Sc
y = 2.539E-3 x + 1.069E-3
R 1.0000
DL 0.04567
BEC 0.4209



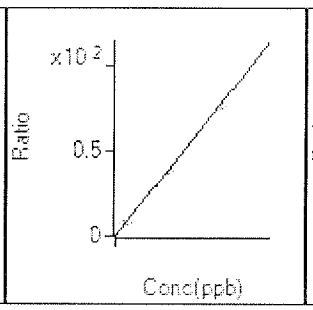
27 Al [No Gas]
ISTD: 45 Sc
y = 3.129E-3 x + 1.903E-3
R 0.9999
DL 0.06267
BEC 0.608



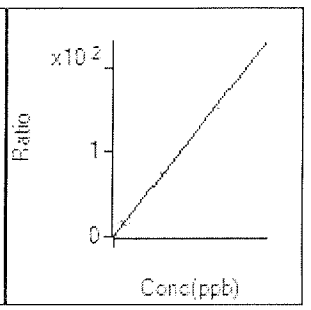
28 Si [H2]
ISTD: 45 Sc
y = 3.844E-4 x + 2.113E-3
R 0.9996
DL 0.2746
BEC 5.498



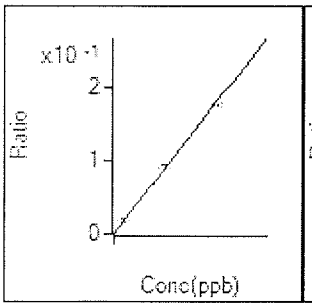
31 P [No Gas]
ISTD: 45 Sc
y = 1.933E-4 x + 7.880E-3
R 0.9998
DL 3.303
BEC 40.76



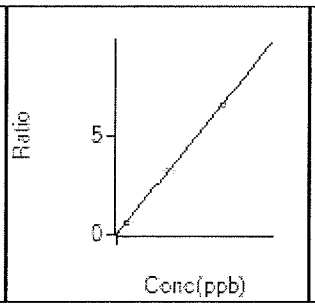
39 K [He]
ISTD: 45 Sc
y = 1.526E-3 x + 2.003E-1
R 1.0000
DL 9.874
BEC 131.2



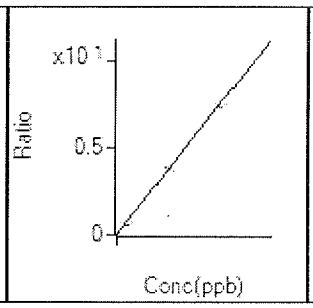
40 Ca [H2]
ISTD: 45 Sc
y = 3.081E-3 x + 1.961E-2
R 1.0000
DL 0.4244
BEC 6.364



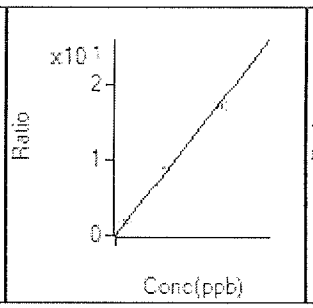
47 Ti [No Gas]
ISTD: 45 Sc
y = 3.580E-4 x + 5.283E-5
R 0.9999
DL 0.03297
BEC 0.1476



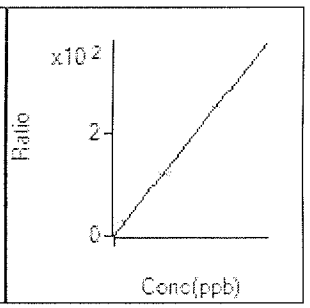
51 V [He]
ISTD: 45 Sc
y = 1.320E-2 x + 3.991E-3
R 0.9999
DL 0.03885
BEC 0.3022



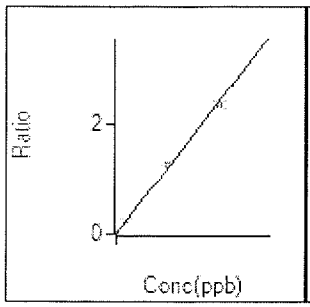
52 Cr [He]
ISTD: 45 Sc
y = 1.498E-2 x + 2.804E-3
R 1.0000
DL 0.007315
BEC 0.1871



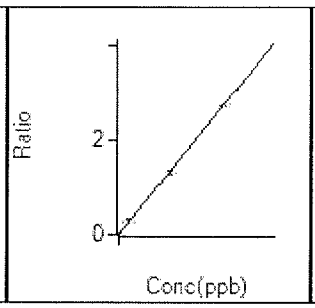
55 Mn [No Gas]
ISTD: 45 Sc
y = 5.769E-3 x + 1.859E-3
R 0.9998
DL 0.016
BEC 0.3222



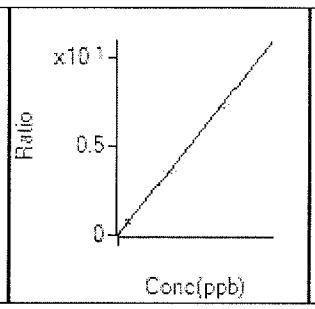
56 Fe [H2]
ISTD: 45 Sc
y = 5.011E-3 x + 4.478E-3
R 0.9996
DL 0.05066
BEC 0.8936



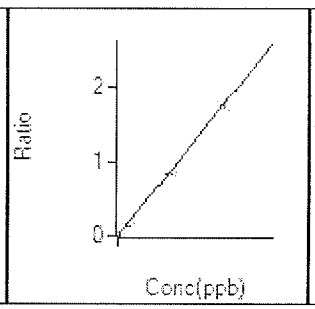
59 Co [No Gas]
ISTD: 45 Sc
y = 4.823E-3 x + 3.873E-5
R 0.9994
DL 2.064E-05
BEC 0.008031



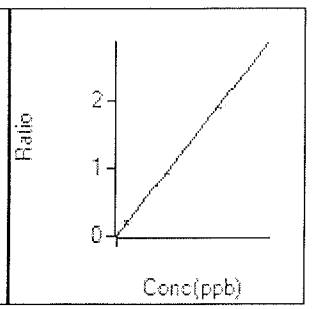
60 Ni [He]
ISTD: 45 Sc
y = 5.421E-3 x + 1.353E-4
R 0.9997
DL 0.003102
BEC 0.02495



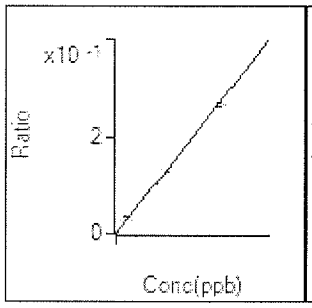
63 Cu [He]
ISTD: 45 Sc
y = 1.455E-2 x + 1.484E-2
R 1.0000
DL 0.05655
BEC 1.02



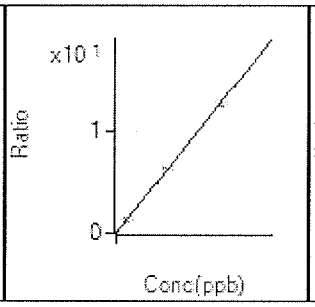
66 Zn [No Gas]
ISTD: 72 Ge
y = 3.485E-3 x + 1.322E-3
R 0.9997
DL 0.04838
BEC 0.3795



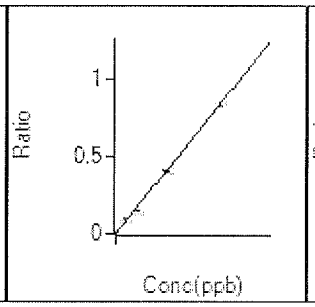
75 As [He]
ISTD: 72 Ge
y = 3.867E-3 x + 4.196E-4
R 1.0000
DL 0.04144
BEC 0.1085



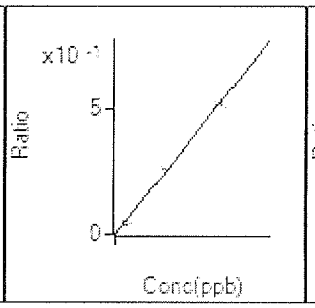
78 Se [H2]
ISTD: 72 Ge
y = 5.345E-4 x + 1.837E-5
R 0.9999
DL 0.03374
BEC 0.03437



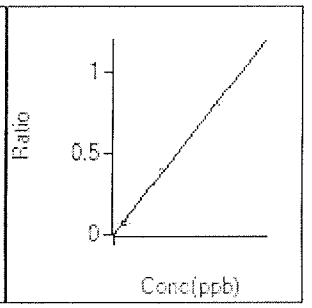
88 Sr [No Gas]
ISTD: 72 Ge
y = 2.560E-2 x + 4.554E-4
R 1.0000
DL 0.004181
BEC 0.01779



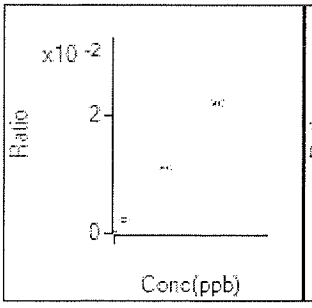
90 Zr [No Gas]
ISTD: 72 Ge
y = 1.661E-2 x + 7.939E-5
R 0.9991
DL 0.002353
BEC 0.004779



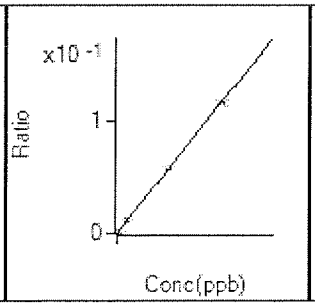
95 Mo [No Gas]
ISTD: 115 In
y = 1.032E-3 x + 3.387E-6
R 1.0000
DL 0.00226
BEC 0.003282



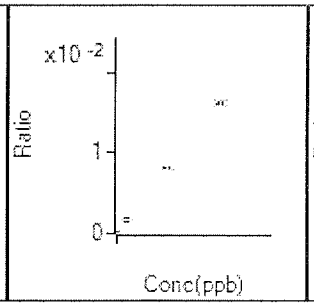
98 Mo [No Gas]
ISTD: 115 In
y = 1.611E-3 x + 3.247E-5
R 0.9999
DL 0.01417
BEC 0.02015



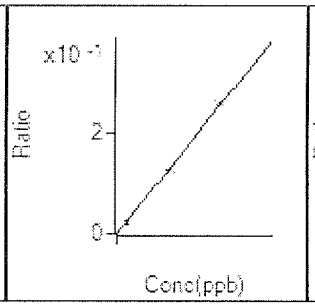
106 [Cd] [No Gas]
ISTD: 115 In
Excluded
R
DL
BEC



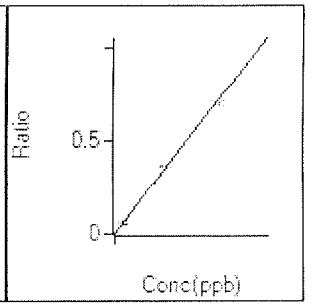
107 Ag [No Gas]
ISTD: 115 In
y = 2.342E-3 x + 1.653E-4
R 1.0000
DL 0.008865
BEC 0.07058



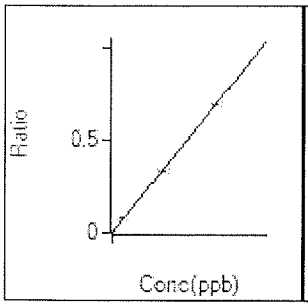
108 [Cd] [No Gas]
ISTD: 115 In
Excluded
R
DL
BEC



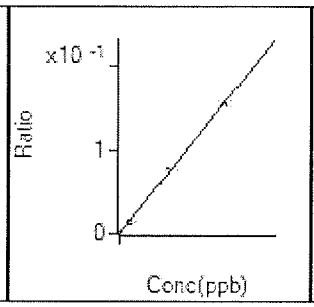
111 Cd [No Gas]
ISTD: 115 In
y = 5.115E-4 x - 6.255E-7
R 0.9995
DL 0.01985
BEC -0.001223



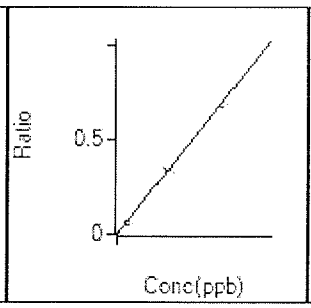
118 Sn [No Gas]
ISTD: 115 In
y = 1.416E-3 x + 2.585E-4
R 0.9996
DL 0.01479
BEC 0.1826



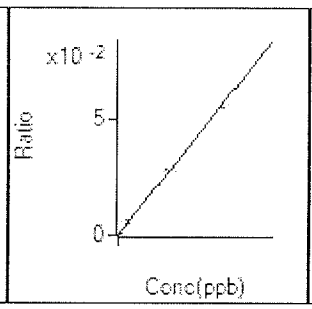
118 Sn [H2]
ISTD: 115 In
y = 1.383E-3 x + 2.643E-4
R 0.9996
DL 0.02057
BEC 0.1911



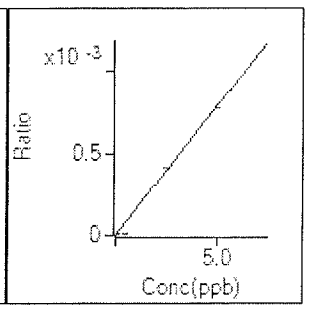
123 Sb [No Gas]
ISTD: 115 In
y = 1.557E-3 x + 1.796E-5
R 1.0000
DL 0.01203
BEC 0.01154



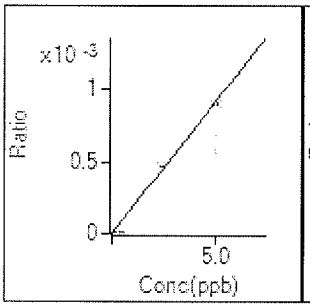
137 Ba [No Gas]
ISTD: 115 In
y = 6.844E-4 x + 1.228E-5
R 0.9999
DL 0.008066
BEC 0.01794



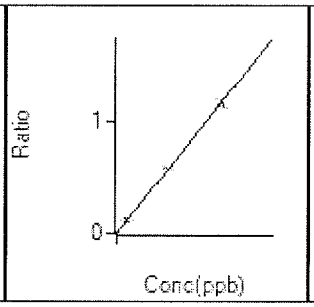
182 W [No Gas]
ISTD: 159 Tb
y = 1.121E-3 x + 1.664E-6
R 0.9999
DL 0.004446
BEC 0.001484



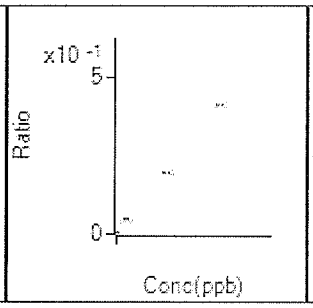
201 Hg [No Gas]
ISTD: 159 Tb
y = 1.575E-4 x + 1.359E-6
R 0.9958
DL 0.007239
BEC 0.008626



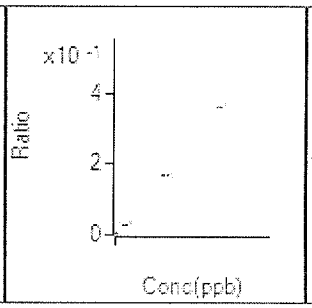
201 Hg [He]
ISTD: 159 Tb
y = 1.817E-4 x + 1.505E-6
R 0.9943
DL 0.0056
BEC 0.008285



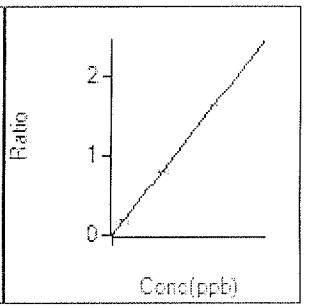
205 Tl [No Gas]
ISTD: 159 Tb
y = 2.314E-3 x + 4.245E-6
R 1.0000
DL 0.002981
BEC 0.001835



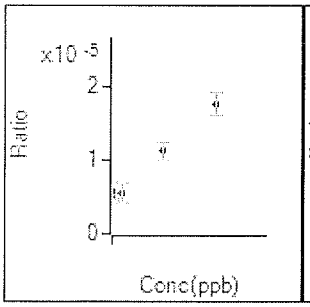
206 Pb [No Gas]
ISTD: 159 Tb
Excluded
R
DL
BEC



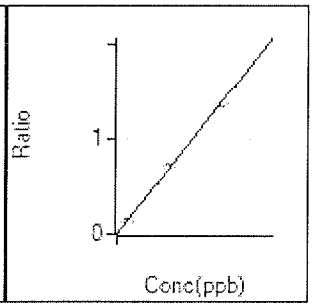
207 Pb [No Gas]
ISTD: 159 Tb
Excluded
R
DL
BEC



208 Pb [No Gas]
ISTD: 159 Tb
y = 3.277E-3 x + 7.703E-5
R 1.0000
DL 0.01254
BEC 0.02351



232 Th [No Gas]
ISTD: 159 Tb
Excluded
R
DL
BEC



238 U [No Gas]
ISTD: 159 Tb
y = 2.778E-3 x + 2.032E-6
R 0.9999
DL 0.0006845
BEC 0.0007313

US EPA Tune Check Report

Operator Name	LVicto
Acq/Data Batch	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq. Date-Time	2019-12-18 09:38:09
Report Comment	---
Instrument Name	G8421A SG19253823

[No Gas]

Sensitivity

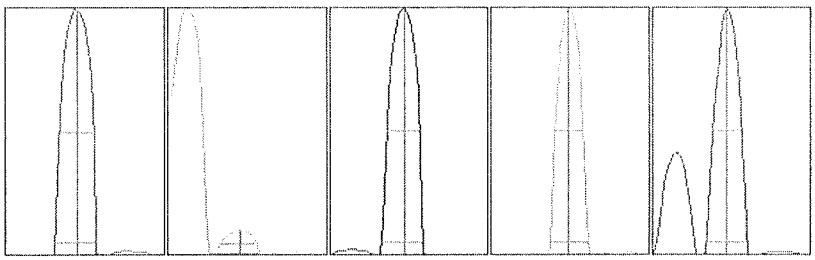
Mass	Conc. [ug/l]	Count	CPS	Resp (Required) [cps/ug/l]	Resp (Flag)	RSD%	RSD% (Required)
9	10.00	1793	17929.48			0.968	5.000
24	10.00	7328	73275.21			0.332	5.000
59	10.00	12214	122140.43			0.883	5.000
115	10.00	13721	137205.59			0.240	5.000
208	10.00	4582	45815.03			0.541	5.000

Mass	RSD% (Flag)
9	
24	
59	
115	
208	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
9	1792	1784	1815	1770	1803
24	7310	7350	7317	7357	7303
59	12161	12059	12327	12227	12297
115	13747	13726	13728	13739	13663
208	4571	4588	4550	4580	4618

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
9	2993.48	8.90	8.90 - 9.10	
24	12135.19	23.90	23.90 - 24.10	
59	21101.90	58.95	58.90 - 59.10	
115	26535.08	115.00	114.90 - 115.10	
208	8758.99	207.95	207.90 - 208.10	

US EPA Tune Check Report

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
9	0.63	0.781	0.900	
24	0.66	0.788	0.900	
59	0.61	0.775	0.900	
115	0.55	0.726	0.900	
208	0.55	0.778	0.900	

Integration Time [sec]	0.1
Acquisition Time [sec]	153.699999999999
Y Axis	Linear

Tune Parameters

Plasma Parameters

Plasma Mode	HMI	Nebulizer Gas	0.61 L/min	Dilution Gas	0.36 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.10 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	10.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	8.6 V	Deflect	11.4 V
Extract 2	-200.0 V	Cell Entrance	-30 V	Plate Bias	-35 V
Omega Bias	-90 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	No	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	0.0 mL/min	OctP RF	190 V		

QP Parameters

Mass Gain	124	Axis Gain	0.9994	QP Bias	-3.0 V
Mass Offset	124	Axis Offset	-0.03		

Hardware Settings

Torch

Torch H	0.5 mm	Torch V	-0.2 mm		

EM

Discriminator	5.0 mV	Analog HV	2132 V	Pulse HV	1233 V

Calibration Blank Report

Sample Name	BLANK
File Name	H6L06001.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 10:05:02
Sample Type	CalBlk
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06001.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	120407.03	1.2
Na	23	45	H2	368181.14	0.7

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD
Li	6	No Gas	2103112.15	3.6
Sc	45	No Gas	5010755.83	2.2
Sc	45	H2	2687704.83	4.3
Sc	45	He	441054.54	0.8
Ge	72	No Gas	1056176.56	3.4
Ge	72	H2	669934.44	1.0
Ge	72	He	259334.62	0.4
In	115	No Gas	5646780.54	0.7
Tb	159	No Gas	6300156.97	2.7
Tb	159	He	3973473.25	1.6

Calibration Blank Report

Sample Name	BLANK
File Name	H6L06002.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 10:08:00
Sample Type	CalBlk
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06002.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	119899.57	0.9
Na	23	45	H2	366474.07	0.7

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD
Li	6	No Gas	2109798.47	3.8
Sc	45	No Gas	4740655.83	2.7
Sc	45	H2	2655584.50	4.5
Sc	45	He	433921.76	1.4
Ge	72	No Gas	1065388.17	2.2
Ge	72	H2	674762.27	0.7
Ge	72	He	256547.14	1.4
In	115	No Gas	5476182.98	0.7
Tb	159	No Gas	6071167.12	2.4
Tb	159	He	3900722.42	1.1

Calibration Blank Report

Sample Name	S0
File Name	H6L06003.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 10:10:40
Sample Type	CalBlk
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	121603.02	0.4
Na	23	45	H2	362742.73	0.4

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD
Li	6	No Gas	2164035.05	2.1
Sc	45	No Gas	4836577.17	2.3
Sc	45	H2	2750634.42	2.1
Sc	45	He	443681.93	0.8
Ge	72	No Gas	1090200.04	3.5
Ge	72	H2	689401.36	1.0
Ge	72	He	260567.54	0.1
In	115	No Gas	5597424.82	2.4
Tb	159	No Gas	6013492.81	0.4
Tb	159	He	3971667.83	2.9

Calibration Standard Report

Sample Name	S1
File Name	H6L06004.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 10:13:19
Sample Type	CalStd
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	129568.76	0.4
Na	23	45	H2	557010.60	1.3
Mg	24	45	No Gas	651778.04	1.3
Al	27	45	No Gas	843198.14	1.2
Si	28	45	H2	104067.26	0.9
K	39	45	He	120558.59	2.9
Ca	40	45	H2	449932.91	0.4
Fe	56	45	H2	665451.98	0.3

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2139809.17	7.0	2164035.05	98.88	60	120	
Sc	45	No Gas	4946448.33	1.7	4836577.17	102.27	60	120	
Sc	45	H2	2720262.08	2.7	2750634.42	98.9	60	120	
Sc	45	He	452270.24	0.9	443681.93	101.94	60	120	
Ge	72	No Gas	1089186.00	2.2	1090200.04	99.91	60	120	
Ge	72	H2	722229.27	1.3	689401.36	104.76	60	120	
Ge	72	He	273065.64	1.1	260567.54	104.8	60	120	
In	115	No Gas	5737283.80	3.8	5597424.82	102.5	60	120	
Tb	159	No Gas	6007303.79	0.7	6013492.81	99.9	60	120	
Tb	159	He	4000184.08	3.2	3971667.83	100.72	60	120	

Calibration Standard Report

Sample Name	S2
File Name	H6L06005.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 10:15:58
Sample Type	CalStd
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	176298.89	0.8
Na	23	45	H2	20229764.00	1.8
Mg	24	45	No Gas	63183357.33	2.5
Al	27	45	No Gas	79334710.48	3.1
Si	28	45	H2	506539.20	0.5
K	39	45	He	3714511.50	1.5
Ca	40	45	H2	39359277.33	2.8
V	51	45	He	278762.82	1.0
Cr	52	45	He	328467.76	0.0
Mn	55	45	No Gas	8832089.00	1.5
Fe	56	45	H2	63977709.33	1.4
Co	59	45	No Gas	1284452.13	1.0
Ni	60	45	He	120488.95	1.3
Cu	63	45	He	328956.16	0.2
Zn	66	72	No Gas	188475.68	1.5
Sr	88	72	No Gas	1426592.76	1.2
Zr	90	72	No Gas	151253.18	1.3
Mo	95	115	No Gas	265283.43	0.2
Mo	98	115	No Gas	412455.59	0.5
Cd	111	115	No Gas	130976.63	0.6
Sn	118	115	No Gas	364756.18	1.0
Sn	118	115	H2	370320.79	1.4
Ba	137	115	No Gas	341923.04	0.8
Tl	205	159	No Gas	677513.50	0.7
Pb	206	159	No Gas	236478.71	2.0
Pb	207	159	No Gas	206101.85	0.5
Pb	208	159	No Gas	931791.30	0.9
U	238	159	No Gas	797506.29	1.4

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2235180.35	5.5	2164035.05	103.29	60	120	
Sc	45	No Gas	4864736.00	3.9	4836577.17	100.58	60	120	
Sc	45	H2	2519936.25	6.1	2750634.42	91.61	60	120	

Calibration Standard Report

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	He	454252.66	0.3	443681.93	102.38	60	120	
Ge	72	No Gas	1130248.08	3.6	1090200.04	103.67	60	120	
Ge	72	H2	675359.86	9.5	689401.36	97.96	60	120	
Ge	72	He	274940.47	0.5	260567.54	105.52	60	120	
In	115	No Gas	5644933.54	2.2	5597424.82	100.85	60	120	
Tb	159	No Gas	5881551.57	5.8	6013492.81	97.81	60	120	
Tb	159	He	3963012.08	1.0	3971667.83	99.78	60	120	

Calibration Standard Report

Sample Name	S3
File Name	H6L06006.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 10:18:59
Sample Type	CalStd
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	374462.39	0.9
Na	23	45	H2	98651445.33	2.7
Mg	24	45	No Gas	307928426.67	3.0
Al	27	45	No Gas	368095127.85	2.9
Si	28	45	H2	2621235.25	1.9
P	31	45	No Gas	275630.01	0.5
K	39	45	He	17057271.00	2.7
Ca	40	45	H2	199038901.33	3.3
Ti	47	45	No Gas	439922.79	1.8
V	51	45	He	1452821.54	1.9
Cr	52	45	He	1686493.62	2.6
Mn	55	45	No Gas	42872236.00	4.9
Fe	56	45	H2	311246090.67	2.0
Co	59	45	No Gas	6112555.83	1.9
Ni	60	45	He	583792.83	1.0
Cu	63	45	He	1622040.09	1.2
Zn	66	72	No Gas	920776.69	1.7
As	75	72	He	263332.67	0.4
Sr	88	72	No Gas	7036076.94	2.6
Zr	90	72	No Gas	444595.02	2.3
Mo	95	115	No Gas	1394662.55	4.2
Mo	98	115	No Gas	2200039.43	2.6
Ag	107	115	No Gas	321368.18	1.1
Cd	111	115	No Gas	655690.91	1.4
Sn	118	115	No Gas	1984527.49	1.0
Sn	118	115	H2	1898232.70	4.7
Sb	123	115	No Gas	420789.62	1.1
Ba	137	115	No Gas	1847729.61	5.0
W	182	159	No Gas	167694.03	1.3
Tl	205	159	No Gas	3475315.62	1.4
Pb	206	159	No Gas	1165873.24	1.1
Pb	207	159	No Gas	1016694.12	1.8
Pb	208	159	No Gas	4820514.06	3.6
U	238	159	No Gas	4214569.56	2.2

Calibration Standard Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2085628.21	3.4	2164035.05	96.38	60	120	
Sc	45	No Gas	4806302.17	3.2	4836577.17	99.37	60	120	
Sc	45	H2	2612276.67	3.4	2750634.42	94.97	60	120	
Sc	45	He	448306.92	1.6	443681.93	101.04	60	120	
Ge	72	No Gas	1093671.38	6.0	1090200.04	100.32	60	120	
Ge	72	H2	731456.77	0.9	689401.36	106.1	60	120	
Ge	72	He	273871.20	0.8	260567.54	105.11	60	120	
In	115	No Gas	5401578.60	3.9	5597424.82	96.5	60	120	
Tb	159	No Gas	5986069.48	5.3	6013492.81	99.54	60	120	
Tb	159	He	3793401.58	2.2	3971667.83	95.51	60	120	

Calibration Standard Report

Sample Name	S4
File Name	H6L06007.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 10:21:15
Sample Type	CalStd
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Li	7	6	No Gas	621927.77	0.8
Be	9	6	No Gas	163271.38	1.9
B	11	6	No Gas	191326.05	2.8
Na	23	45	H2	191520016.00	3.5
Mg	24	45	No Gas	617390613.33	4.5
Al	27	45	No Gas	767339215.23	3.9
Si	28	45	H2	4770395.00	1.9
P	31	45	No Gas	507238.45	1.2
K	39	45	He	34370636.00	0.9
Ca	40	45	H2	387094112.00	1.2
Ti	47	45	No Gas	868417.93	1.1
V	51	45	He	2979137.92	1.0
Cr	52	45	He	3360104.67	3.2
Mn	55	45	No Gas	83776717.33	6.3
Fe	56	45	H2	635406528.00	0.7
Co	59	45	No Gas	11589342.33	4.7
Ni	60	45	He	1227943.92	2.7
Cu	63	45	He	3278476.33	0.3
Zn	66	72	No Gas	1932908.87	5.4
As	75	72	He	520219.43	0.9
Se	78	72	H2	190766.44	1.3
Sr	88	72	No Gas	14059111.94	3.7
Zr	90	72	No Gas	925195.90	1.0
Mo	95	115	No Gas	2754302.74	2.0
Mo	98	115	No Gas	4287644.28	1.6
[Cd]	106	115	No Gas	118337.72	0.2
Ag	107	115	No Gas	623211.09	1.0
Cd	111	115	No Gas	1382057.23	0.9
Sn	118	115	No Gas	3745137.63	2.0
Sn	118	115	H2	3790785.41	2.2
Sb	123	115	No Gas	830522.31	0.5
Ba	137	115	No Gas	3656606.66	3.3
W	182	159	No Gas	331537.60	1.5
Tl	205	159	No Gas	6833403.76	4.6
Pb	206	159	No Gas	2457701.21	2.8

Calibration Standard Report

Name	Mass	ISTD	Tune	CPS	RSD
Pb	207	159	No Gas	2180578.56	1.8
Pb	208	159	No Gas	9734414.29	0.8
U	238	159	No Gas	8131628.29	3.4

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	1990659.27	1.5	2164035.05	91.99	60	120	
Sc	45	No Gas	4880931.67	3.1	4836577.17	100.92	60	120	
Sc	45	H2	2507918.58	3.2	2750634.42	91.18	60	120	
Sc	45	He	448495.88	1.3	443681.93	101.09	60	120	
Ge	72	No Gas	1100100.79	2.0	1090200.04	100.91	60	120	
Ge	72	H2	712826.62	0.9	689401.36	103.4	60	120	
Ge	72	He	268679.54	1.8	260567.54	103.11	60	120	
In	115	No Gas	5340443.69	4.1	5597424.82	95.41	60	120	
Tb	159	No Gas	5921939.49	2.6	6013492.81	98.48	60	120	
Tb	159	He	4108938.67	2.2	3971667.83	103.46	60	120	

Initial Calibration Verification (ICV) Report

Sample Name	ICV
File Name	H6L06008.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 10:23:30
Sample Type	ICV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	27.910	ppb	7.5	423920.61	30	93.03	90	110	
Be	9	6	No Gas	28.507	ppb	5.6	99242.26	30	95.02	90	110	
B	11	6	No Gas	28.270	ppb	7.7	58886.88	30	94.23	90	110	
Na	23	45	H2	29753.413	ppb	4.2	115148754.67	30000	99.18	90	110	
Mg	24	45	No Gas	30708.343	ppb	2.1	369794368.00	30000	102.36	90	110	
Al	27	45	No Gas	30929.809	ppb	3.8	458320966.50	30000	103.1	90	110	
Si	28	45	H2	3380.160	ppb	2.6	3297377.25	3000	112.67	90	110	> +/- 10%
P	31	45	No Gas	306.239	ppb	3.0	317713.57	300	102.08	90	110	
K	39	45	He	29978.004	ppb	2.4	20248403.33	30000	99.93	90	110	
Ca	40	45	H2	30278.837	ppb	2.8	236430890.67	30000	100.93	90	110	
Ti	47	45	No Gas	311.207	ppb	2.4	527959.23	300	103.74	90	110	
V	51	45	He	317.810	ppb	6.7	1849985.25	300	105.94	90	110	
Cr	52	45	He	328.473	ppb	5.3	2169145.42	300	109.49	90	110	
Mn	55	45	No Gas	2031.438	ppb	2.2	55528272.00	2000	101.57	90	110	
Fe	56	45	H2	30046.101	ppb	0.8	381656149.33	30000	100.15	90	110	
Co	59	45	No Gas	312.444	ppb	6.4	7131282.17	300	104.15	90	110	
Ni	60	45	He	296.246	ppb	1.4	707665.64	300	98.75	90	110	
Cu	63	45	He	315.893	ppb	2.1	2031967.59	300	105.3	90	110	
Zn	66	72	No Gas	314.726	ppb	5.7	1168220.17	300	104.91	90	110	
As	75	72	He	311.320	ppb	0.5	319602.56	300	103.77	90	110	
Se	78	72	H2	307.906	ppb	0.9	118404.05	300	102.64	90	110	
Sr	88	72	No Gas	311.053	ppb	2.0	8489999.11	300	103.68	90	110	
Zr	90	72	No Gas	30.820	ppb	4.1	544866.66	30	102.73	90	110	
Mo	95	115	No Gas	322.347	ppb	7.6	1716704.76	300	107.45	90	110	
Ag	107	115	No Gas	29.993	ppb	2.1	363211.70	30	99.98	90	110	
Cd	111	115	No Gas	295.988	ppb	3.0	781026.14	300	98.66	90	110	
Sn	118	115	No Gas	319.452	ppb	5.9	2333335.88	300	106.48	90	110	
Sb	123	115	No Gas	59.607	ppb	2.3	478805.41	60	99.34	90	110	
Ba	137	115	No Gas	298.290	ppb	3.2	1053358.85	300	99.43	90	110	
W	182	159	No Gas	28.290	ppb	4.5	192894.95	30	94.3	90	110	
Hg	201	159	He	3.044	ppb	1.5	2289.04	3	101.47	90	110	
Tl	205	159	No Gas	325.291	ppb	10.2	4571861.63	300	108.43	90	110	
Pb	208	159	No Gas	308.177	ppb	6.3	6134256.12	300	102.73	90	110	
U	238	159	No Gas	317.336	ppb	5.8	5355882.01	300	105.78	90	110	

Initial Calibration Verification (ICV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2141615.37	2.6	2164035.05	98.96	60	120	
Sc	45	No Gas	4740310.33	5.0	4836577.17	98.01	60	120	
Sc	45	H2	2534707.33	2.2	2750634.42	92.15	60	120	
Sc	45	He	440629.02	1.1	443681.93	99.31	60	120	
Ge	72	No Gas	1065528.19	5.9	1090200.04	97.74	60	120	
Ge	72	H2	719370.06	1.0	689401.36	104.35	60	120	
Ge	72	He	265416.63	1.1	260567.54	101.86	60	120	
In	115	No Gas	5161392.94	3.9	5597424.82	92.21	60	120	
Tb	159	No Gas	6085518.79	4.7	6013492.81	101.2	60	120	
Tb	159	He	4127524.67	2.0	3971667.83	103.92	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	ICB
File Name	H6L06009.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 10:25:44
Sample Type	ICB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	0.515	ppb	109.1	122589.54	0.8	
Be	9	6	No Gas	0.007	ppb	34.4	34.44	0.08	
B	11	6	No Gas	0.669	ppb	7.3	2880.30	4	
Na	23	45	H2	0.070	ppb	8299.4	371170.79	50	
Mg	24	45	No Gas	3.211	ppb	44.6	44061.89	20	
Al	27	45	No Gas	3.090	ppb	41.8	55295.27	15	
Si	28	45	H2	1.814	ppb	28.3	7902.24	8	
P	31	45	No Gas	<0.000	ppb	N/A	37029.27	40	
K	39	45	He	1.687	ppb	323.0	88232.87	25	
Ca	40	45	H2	0.968	ppb	41.2	63551.22	60	
Ti	47	45	No Gas	0.029	ppb	74.6	303.33	0.5	
V	51	45	He	<0.000	ppb	N/A	1045.37	0.5	
Cr	52	45	He	0.024	ppb	43.5	1377.40	0.25	
Mn	55	45	No Gas	0.259	ppb	40.7	16038.25	0.5	
Fe	56	45	H2	1.118	ppb	1.9	28406.88	25	
Co	59	45	No Gas	0.031	ppb	40.9	905.37	0.15	
Ni	60	45	He	0.005	ppb	107.1	70.00	0.5	
Cu	63	45	He	<0.000	ppb	N/A	6053.35	1	
Zn	66	72	No Gas	0.153	ppb	46.4	1968.81	10	
As	75	72	He	<0.000	ppb	N/A	101.67	0.25	
Se	78	72	H2	0.045	ppb	17.6	29.67	0.2	
Sr	88	72	No Gas	0.030	ppb	56.1	1278.96	0.3	
Zr	90	72	No Gas	0.005	ppb	44.9	180.00	5	
Mo	95	115	No Gas	0.052	ppb	30.6	311.11	0.2	
Ag	107	115	No Gas	0.004	ppb	106.9	946.70	0.08	
Cd	111	115	No Gas	0.124	ppb	19.5	343.19	0.2	
Sn	118	115	No Gas	0.161	ppb	24.1	2649.16	0.2	
Sb	123	115	No Gas	0.010	ppb	36.5	183.33	0.4	
Ba	137	115	No Gas	0.030	ppb	45.1	180.00	0.25	
W	182	159	No Gas	0.020	ppb	11.5	143.33	0.3	
Hg	201	159	He	0.010	ppb	53.6	12.83	0.1	
Tl	205	159	No Gas	0.186	ppb	26.6	2575.84	0.1	~~>LOD~~
Pb	208	159	No Gas	0.070	ppb	32.6	1817.83	0.1	
U	238	159	No Gas	0.028	ppb	41.7	478.90	0.05	

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Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2086946.02	4.3	2164035.05	96.44	60	120	
Sc	45	No Gas	4795073.33	1.5	4836577.17	99.14	60	120	
Sc	45	H2	2819682.08	6.7	2750634.42	102.51	60	120	
Sc	45	He	434978.85	0.7	443681.93	98.04	60	120	
Ge	72	No Gas	1064579.44	3.7	1090200.04	97.65	60	120	
Ge	72	H2	700451.21	0.5	689401.36	101.6	60	120	
Ge	72	He	263999.94	0.4	260567.54	101.32	60	120	
In	115	No Gas	5442707.12	3.1	5597424.82	97.24	60	120	
Tb	159	No Gas	5950749.90	4.3	6013492.81	98.96	60	120	
Tb	159	He	3971508.58	0.5	3971667.83	100	60	120	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	MRLL1801
File Name	H6L06010.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 10:28:09
Sample Type	LLCCV
Total Dilution	1.0000
Comment	1/100/10 ppb
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Li	7	6	No Gas	0.793	ppb	51.4	130436.61	1	79.3	80	120	> +/- 20%
Be	9	6	No Gas	0.941	ppb	2.6	3327.06	1	94.1	80	120	
B	11	6	No Gas	9.621	ppb	7.1	21340.66	10	96.21	80	120	
Na	23	45	H2	90.477	ppb	3.1	741484.33	100	90.48	80	120	
Mg	24	45	No Gas	104.088	ppb	6.9	1302705.54	100	104.09	80	120	
Al	27	45	No Gas	105.726	ppb	2.8	1634216.44	100	105.73	80	120	
Si	28	45	H2	96.820	ppb	1.7	108111.81	100	96.82	80	120	
P	31	45	No Gas	47.981	ppb	9.4	84205.74	50	95.96	80	120	
K	39	45	He	93.659	ppb	6.0	150795.81	100	93.66	80	120	
Ca	40	45	H2	95.682	ppb	2.7	864186.00	100	95.68	80	120	
Ti	47	45	No Gas	1.047	ppb	6.0	2099.50	1	104.7	80	120	
V	51	45	He	0.840	ppb	3.7	6625.61	1	84	80	120	
Cr	52	45	He	1.027	ppb	1.4	7990.33	1	102.7	80	120	
Mn	55	45	No Gas	1.093	ppb	6.3	40086.68	1	109.3	80	120	
Fe	56	45	H2	99.183	ppb	5.1	1378509.79	100	99.18	80	120	
Co	59	45	No Gas	1.025	ppb	5.7	24445.91	1	102.5	80	120	
Ni	60	45	He	1.036	ppb	1.4	2526.23	1	103.6	80	120	
Cu	63	45	He	1.027	ppb	2.3	13083.62	1	102.7	80	120	
Zn	66	72	No Gas	10.861	ppb	3.1	42719.79	10	108.61	80	120	
As	75	72	He	1.015	ppb	2.6	1185.05	1	101.5	80	120	
Se	78	72	H2	1.047	ppb	5.4	416.68	1	104.7	80	120	
Sr	88	72	No Gas	2.075	ppb	4.6	58419.63	2	103.75	80	120	
Zr	90	72	No Gas	4.990	ppb	4.2	90478.72	5	99.8	80	120	
Mo	95	115	No Gas	0.907	ppb	1.9	5302.17	1	90.7	80	120	
Ag	107	115	No Gas	1.010	ppb	4.2	14275.50	1	101	80	120	
Cd	111	115	No Gas	0.979	ppb	2.9	2822.26	1	97.9	80	120	
Sn	118	115	No Gas	1.085	ppb	2.3	10128.36	1	108.5	80	120	
Sb	123	115	No Gas	0.977	ppb	3.3	8679.54	1	97.7	80	120	
Ba	137	115	No Gas	0.885	ppb	4.3	3489.36	1	88.5	80	120	
W	182	159	No Gas	1.929	ppb	3.8	13270.33	2	96.45	80	120	
Hg	201	159	He	0.016	ppb	35.4	17.50	0.1	16	80	120	> +/- 20%
Tl	205	159	No Gas	1.058	ppb	3.7	15044.62	1	105.8	80	120	
Pb	208	159	No Gas	0.976	ppb	1.2	20104.18	1	97.6	80	120	
U	238	159	No Gas	0.946	ppb	3.9	16121.74	1	94.6	80	120	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2166386.46	2.2	2164035.05	100.11	60	120	
Sc	45	No Gas	4913798.00	3.5	4836577.17	101.6	60	120	
Sc	45	H2	2749367.08	1.7	2750634.42	99.95	60	120	
Sc	45	He	439278.65	0.9	443681.93	99.01	60	120	
Ge	72	No Gas	1091169.37	3.3	1090200.04	100.09	60	120	
Ge	72	H2	721165.31	0.6	689401.36	104.61	60	120	
Ge	72	He	272650.72	1.5	260567.54	104.64	60	120	
In	115	No Gas	5642859.94	0.5	5597424.82	100.81	60	120	
Tb	159	No Gas	6140685.59	5.2	6013492.81	102.12	60	120	
Tb	159	He	3949842.58	3.9	3971667.83	99.45	60	120	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	MRLL1802
File Name	H6L06011.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 10:30:30
Sample Type	LLCCV2
Total Dilution	1.0000
Comment	0.4/40/4 ppb
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Li	7	6	No Gas	0.167	ppb	499.0	122928.51	0.4	41.75	80	120	> +/- 20%
Be	9	6	No Gas	0.347	ppb	7.6	1228.94	0.4	86.75	80	120	
B	11	6	No Gas	0.770	ppb	14.9	3182.59	0.4	192.5	80	120	> +/- 20%
Na	23	45	H2	35.751	ppb	10.0	497836.03	40	89.38	80	120	
Mg	24	45	No Gas	40.999	ppb	0.8	489866.37	40	102.5	80	120	
Al	27	45	No Gas	41.376	ppb	0.9	611871.18	40	103.44	80	120	
K	39	45	He	35.316	ppb	11.5	111410.24	40	88.29	80	120	
Ca	40	45	H2	36.384	ppb	3.7	351811.28	40	90.96	80	120	
Ti	47	45	No Gas	0.422	ppb	4.7	948.70	0.4	105.5	80	120	
V	51	45	He	0.267	ppb	10.0	3296.40	0.4	66.75	80	120	> +/- 20%
Cr	52	45	He	0.392	ppb	1.9	3801.20	0.4	98	80	120	
Mn	55	45	No Gas	0.462	ppb	3.3	21056.20	0.4	115.5	80	120	
Fe	56	45	H2	37.116	ppb	3.9	508688.07	40	92.79	80	120	
Co	59	45	No Gas	0.404	ppb	0.4	9258.48	0.4	101	80	120	
Ni	60	45	He	0.378	ppb	7.0	956.70	0.4	94.5	80	120	
Cu	63	45	He	0.514	ppb	4.3	9784.18	0.4	128.5	80	120	> +/- 20%
Zn	66	72	No Gas	4.179	ppb	3.6	16614.17	4	104.48	80	120	
As	75	72	He	0.401	ppb	5.8	513.68	0.4	100.25	80	120	
Se	78	72	H2	0.370	ppb	10.0	149.33	0.4	92.5	80	120	
Sr	88	72	No Gas	0.401	ppb	6.3	11218.05	0.4	100.25	80	120	
Mo	95	115	No Gas	0.370	ppb	6.8	2151.29	0.4	92.5	80	120	
Ag	107	115	No Gas	0.393	ppb	7.1	6070.29	0.4	98.25	80	120	
Cd	111	115	No Gas	0.373	ppb	5.1	1063.30	0.4	93.25	80	120	
Sn	118	115	No Gas	0.550	ppb	2.7	5805.73	0.4	137.5	80	120	> +/- 20%
Sb	123	115	No Gas	0.371	ppb	1.8	3330.43	0.4	92.75	80	120	
Ba	137	115	No Gas	0.394	ppb	5.8	1575.65	0.4	98.5	80	120	
Tl	205	159	No Gas	0.414	ppb	3.6	5719.09	0.4	103.5	80	120	
Pb	208	159	No Gas	0.394	ppb	4.9	8129.95	0.4	98.5	80	120	
U	238	159	No Gas	0.371	ppb	3.2	6141.54	0.4	92.75	80	120	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2161869.65	6.9	2164035.05	99.9	60	120	
Sc	45	No Gas	4657863.67	3.0	4836577.17	96.3	60	120	

Low Level Continuing Calibration Verification (LLCCV) Report

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	H2	2672759.08	3.3	2750634.42	97.17	60	120	
Sc	45	He	438295.94	0.3	443681.93	98.79	60	120	
Ge	72	No Gas	1046291.48	2.4	1090200.04	95.97	60	120	
Ge	72	H2	690730.25	1.6	689401.36	100.19	60	120	
Ge	72	He	260765.83	0.7	260567.54	100.08	60	120	
In	115	No Gas	5596696.89	3.1	5597424.82	99.99	60	120	
Tb	159	No Gas	5946001.43	1.5	6013492.81	98.88	60	120	
Tb	159	He	3998856.50	2.3	3971667.83	100.68	60	120	

Interference Check Solution A (ICS-A) Report

Sample Name	ICSA
File Name	H6L06012.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 10:32:53
Sample Type	ICS-A
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Low	%High	QC Flag
Na	23	45	H2	101062.181	ppb	7.4	381641173.33	100000	80	120	
Mg	24	45	No Gas	100537.449	ppb	5.6	1220125056.00	100000	80	120	
Al	27	45	No Gas	100783.605	ppb	4.5	1507491337.54	100000	80	120	
P	31	45	No Gas	96434.299	ppb	1.5	89226088.00	100000	80	120	
K	39	45	He	100983.727	ppb	2.4	67041840.00	100000	80	120	
Ca	40	45	H2	104530.390	ppb	6.6	797961728.00	100000	80	120	
Ti	47	45	No Gas	2057.512	ppb	1.0	3523600.08	2000	80	120	
Fe	56	45	H2	100587.956	ppb	5.1	1249667584.00	100000	80	120	
Mo	95	115	No Gas	2074.654	ppb	2.6	10746991.52	2000	80	120	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	1950625.78	2.7	2164035.05	90.14	60	120	
Sc	45	No Gas	4784189.83	4.3	4836577.17	98.92	60	120	
Sc	45	H2	2483445.92	5.4	2750634.42	90.29	60	120	
Sc	45	He	434357.71	1.1	443681.93	97.9	60	120	
Ge	72	No Gas	1081537.58	4.6	1090200.04	99.21	60	120	
Ge	72	H2	699933.25	0.6	689401.36	101.53	60	120	
Ge	72	He	262721.49	1.5	260567.54	100.83	60	120	
In	115	No Gas	5021270.74	3.3	5597424.82	89.71	60	120	
Tb	159	No Gas	6099016.98	6.6	6013492.81	101.42	60	120	
Tb	159	He	4024133.42	1.2	3971667.83	101.32	60	120	

Interference Check Solution AB (ICS-AB) Report

Sample Name	ICSAB
File Name	H6L06013.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 10:35:08
Sample Type	ICSB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Low	%High	QC Flag
Li	7	6	No Gas	18.744	ppb	0.8	296794.63	20	80	120	
Be	9	6	No Gas	18.495	ppb	0.4	58941.10	20	80	120	
B	11	6	No Gas	19.173	ppb	2.4	37031.00	20	80	120	
Na	23	45	H2	102240.276	ppb	7.3	391983658.67	100000	80	120	
Mg	24	45	No Gas	105431.068	ppb	3.0	1261029589.33	100000	80	120	
Al	27	45	No Gas	107834.545	ppb	0.6	1587727976.34	100000	80	120	
Si	28	45	H2	170.167	ppb	3.9	170005.33	200	80	120	
P	31	45	No Gas	99620.627	ppb	4.8	90574581.33	100000	80	120	
K	39	45	He	108635.500	ppb	1.5	70995877.33	100000	80	120	
Ca	40	45	H2	105286.058	ppb	4.7	816492949.33	100000	80	120	
Ti	47	45	No Gas	2222.242	ppb	1.4	3742729.50	2000	80	120	
V	51	45	He	17.377	ppb	1.0	99824.99	20	80	120	
Cr	52	45	He	18.149	ppb	1.5	117493.12	20	80	120	
Mn	55	45	No Gas	18.559	ppb	2.9	512174.73	20	80	120	
Fe	56	45	H2	102428.527	ppb	5.5	1291603584.00	100000	80	120	
Co	59	45	No Gas	18.675	ppb	2.9	423636.24	20	80	120	
Ni	60	45	He	18.117	ppb	0.9	42060.06	20	80	120	
Cu	63	45	He	17.693	ppb	0.8	116466.98	20	80	120	
Zn	66	72	No Gas	18.135	ppb	1.2	69565.23	20	80	120	
As	75	72	He	18.560	ppb	1.0	18890.18	20	80	120	
Se	78	72	H2	19.150	ppb	4.2	7105.87	20	80	120	
Sr	88	72	No Gas	18.986	ppb	1.3	524449.01	20	80	120	
Zr	90	72	No Gas	17.258	ppb	2.6	309179.76	20	80	120	
Mo	95	115	No Gas	2078.577	ppb	1.5	11250037.05	2000	80	120	
Ag	107	115	No Gas	18.300	ppb	2.1	225567.52	20	80	120	
Cd	111	115	No Gas	17.055	ppb	2.5	45730.99	20	80	120	
Sn	118	115	No Gas	18.287	ppb	3.1	137067.12	20	80	120	
Sb	123	115	No Gas	18.481	ppb	2.4	150912.17	20	80	120	
Ba	137	115	No Gas	17.502	ppb	2.3	62876.13	20	80	120	
W	182	159	No Gas	15.854	ppb	4.1	104466.18	20	80	120	> +/- 20%
Hg	201	159	He	1.925	ppb	1.9	1392.08	2	80	120	
Tl	205	159	No Gas	18.086	ppb	5.8	245758.31	20	80	120	
Pb	208	159	No Gas	17.297	ppb	4.9	333366.48	20	80	120	
U	238	159	No Gas	18.146	ppb	3.7	296233.68	20	80	120	

Interference Check Solution AB (ICS-AB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	1958905.94	2.8	2164035.05	90.52	60	120	
Sc	45	No Gas	4705241.33	4.9	4836577.17	97.28	60	120	
Sc	45	H2	2521203.67	5.4	2750634.42	91.66	60	120	
Sc	45	He	427656.71	0.7	443681.93	96.39	60	120	
Ge	72	No Gas	1078209.38	2.0	1090200.04	98.9	60	120	
Ge	72	H2	693510.33	3.0	689401.36	100.6	60	120	
Ge	72	He	261707.46	0.8	260567.54	100.44	60	120	
In	115	No Gas	5246158.25	3.9	5597424.82	93.72	60	120	
Tb	159	No Gas	5885179.35	5.9	6013492.81	97.87	60	120	
Tb	159	He	3962905.83	0.4	3971667.83	99.78	60	120	

Sample Report

Sample Name	MRLL1803
File Name	H6L06014.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 10:37:23
Sample Type	Sample
Total Dilution	1.0000
Comment	500 ppb CAT
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	<0.000	<0.000	ppb	N/A	117270.48	50	
Be	9	6	No Gas	0.005	0.005	ppb	43.3	27.78	50	
B	11	6	No Gas	0.180	0.180	ppb	75.8	2003.48	100	
Na	23	45	H2	524.809	524.809	ppb	10.6	2530652.92	50000	
Mg	24	45	No Gas	534.919	534.919	ppb	8.3	6504838.00	50000	
Al	27	45	No Gas	543.903	543.903	ppb	3.7	8147631.76	50000	
Si	28	45	H2	0.400	0.400	ppb	70.6	6167.36	5000	
P	31	45	No Gas	6.919	6.919	ppb	76.7	44022.10	500	
K	39	45	He	465.370	465.370	ppb	2.4	396318.86	50000	
Ca	40	45	H2	473.832	473.832	ppb	5.6	4024051.17	50000	
Ti	47	45	No Gas	0.225	0.225	ppb	45.8	636.02	500	
V	51	45	He	<0.000	<0.000	ppb	N/A	972.70	500	
Cr	52	45	He	0.006	0.006	ppb	240.7	1256.72	500	
Mn	55	45	No Gas	0.087	0.087	ppb	18.6	11285.99	3000	
Fe	56	45	H2	491.101	491.101	ppb	7.1	6703025.00	50000	
Co	59	45	No Gas	0.006	0.006	ppb	41.7	314.67	500	
Ni	60	45	He	0.012	0.012	ppb	60.7	86.00	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	4602.11	500	
Zn	66	72	No Gas	0.964	0.964	ppb	4.0	4884.22	500	
As	75	72	He	<0.000	<0.000	ppb	N/A	81.33	500	
Se	78	72	H2	0.008	0.008	ppb	63.6	16.00	500	
Sr	88	72	No Gas	0.032	0.032	ppb	8.5	1317.84	500	
Zr	90	72	No Gas	0.012	0.012	ppb	23.2	290.00	50	
Mo	95	115	No Gas	0.255	0.255	ppb	39.0	1481.21	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	83.33	50	
Cd	111	115	No Gas	0.024	0.024	ppb	30.3	63.74	500	
Sn	118	115	No Gas	0.039	0.039	ppb	51.3	1740.12	500	
Sb	123	115	No Gas	0.017	0.017	ppb	17.4	242.23	100	
Ba	137	115	No Gas	0.060	0.060	ppb	12.1	293.34	1000	
W	182	159	No Gas	0.014	0.014	ppb	48.7	103.33	50	
Hg	201	159	He	0.006	0.006	ppb	39.7	10.67	5	
Tl	205	159	No Gas	0.030	0.030	ppb	11.7	431.12	500	
Pb	208	159	No Gas	0.041	0.041	ppb	17.8	1263.36	500	
U	238	159	No Gas	0.004	0.004	ppb	68.4	74.45	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2205876.86	10.3	2164035.05	101.93	60	120	
Sc	45	No Gas	4779223.17	2.1	4836577.17	98.81	60	120	
Sc	45	H2	2724326.33	4.5	2750634.42	99.04	60	120	
Sc	45	He	434148.72	0.8	443681.93	97.85	60	120	
Ge	72	No Gas	1043467.40	1.4	1090200.04	95.71	60	120	
Ge	72	H2	702282.00	0.2	689401.36	101.87	60	120	
Ge	72	He	266284.15	1.2	260567.54	102.19	60	120	
In	115	No Gas	5526932.35	3.0	5597424.82	98.74	60	120	
Tb	159	No Gas	5957685.88	4.1	6013492.81	99.07	60	120	
Tb	159	He	4037196.75	3.1	3971667.83	101.65	60	120	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV1
File Name	H6L06015.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 10:39:41
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	21.955	ppb	6.4	360227.42	25	87.82	90	110	> +/- 10%
Be	9	6	No Gas	22.693	ppb	3.6	79271.47	25	90.77	90	110	
B	11	6	No Gas	44.495	ppb	1.1	92205.41	50	88.99	90	110	> +/- 10%
Na	23	45	H2	24533.068	ppb	4.6	97641053.33	25000	98.13	90	110	
Mg	24	45	No Gas	24694.043	ppb	4.0	304477386.67	25000	98.78	90	110	
Al	27	45	No Gas	24516.785	ppb	4.0	372436994.45	25000	98.07	90	110	
Si	28	45	H2	2651.143	ppb	6.4	2657472.58	2500	106.05	90	110	
P	31	45	No Gas	237.088	ppb	1.8	260625.18	250	94.84	90	110	
K	39	45	He	26002.985	ppb	2.5	17469881.33	25000	104.01	90	110	
Ca	40	45	H2	24162.064	ppb	2.7	193889845.33	25000	96.65	90	110	
Ti	47	45	No Gas	240.538	ppb	1.9	418210.22	250	96.22	90	110	
V	51	45	He	260.794	ppb	3.2	1509399.16	250	104.32	90	110	
Cr	52	45	He	267.147	ppb	4.1	1753951.50	250	106.86	90	110	
Mn	55	45	No Gas	1535.825	ppb	5.0	43033600.00	1500	102.39	90	110	
Fe	56	45	H2	24727.294	ppb	1.6	322588597.33	25000	98.91	90	110	
Co	59	45	No Gas	251.396	ppb	1.8	5884841.17	250	100.56	90	110	
Ni	60	45	He	241.706	ppb	0.7	573882.14	250	96.68	90	110	
Cu	63	45	He	260.725	ppb	5.4	1668036.50	250	104.29	90	110	
Zn	66	72	No Gas	232.277	ppb	3.0	880375.48	250	92.91	90	110	
As	75	72	He	248.647	ppb	1.0	253968.30	250	99.46	90	110	
Se	78	72	H2	249.641	ppb	1.2	94480.82	250	99.86	90	110	
Sr	88	72	No Gas	253.214	ppb	4.2	7039918.61	250	101.29	90	110	
Zr	90	72	No Gas	23.924	ppb	2.4	431656.06	25	95.7	90	110	
Mo	95	115	No Gas	245.354	ppb	5.1	1363901.79	250	98.14	90	110	
Ag	107	115	No Gas	24.546	ppb	3.9	310466.45	25	98.18	90	110	
Cd	111	115	No Gas	227.104	ppb	3.4	625631.85	250	90.84	90	110	
Sn	118	115	No Gas	255.057	ppb	2.3	1946396.73	250	102.02	90	110	
Sb	123	115	No Gas	48.387	ppb	3.2	405759.71	50	96.77	90	110	
Ba	137	115	No Gas	490.491	ppb	7.6	1807981.11	500	98.1	90	110	
W	182	159	No Gas	24.173	ppb	4.3	165189.35	25	96.69	90	110	
Hg	201	159	He	2.526	ppb	5.1	1907.31	2.5	101.04	90	110	
Tl	205	159	No Gas	252.222	ppb	3.5	3557619.09	250	100.89	90	110	
Pb	208	159	No Gas	245.481	ppb	3.4	4905125.05	250	98.19	90	110	
U	238	159	No Gas	257.191	ppb	3.0	4355856.63	250	102.88	90	110	

Continuing Calibration Verification (CCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2149559.67	5.5	2164035.05	99.33	60	120	
Sc	45	No Gas	4852081.67	2.6	4836577.17	100.32	60	120	
Sc	45	H2	2603842.50	2.3	2750634.42	94.66	60	120	
Sc	45	He	437916.70	1.0	443681.93	98.7	60	120	
Ge	72	No Gas	1085585.29	2.3	1090200.04	99.58	60	120	
Ge	72	H2	708000.40	1.3	689401.36	102.7	60	120	
Ge	72	He	264055.70	1.1	260567.54	101.34	60	120	
In	115	No Gas	5387503.82	1.4	5597424.82	96.25	60	120	
Tb	159	No Gas	6103605.59	5.5	6013492.81	101.5	60	120	
Tb	159	He	4146694.83	3.4	3971667.83	104.41	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB1
File Name	H6L06016.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 10:41:56
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	<0.000	ppb	N/A	120737.97	0.8	
Be	9	6	No Gas	0.006	ppb	43.4	33.33	0.08	
B	11	6	No Gas	0.466	ppb	8.3	2671.37	4	
Na	23	45	H2	0.666	ppb	602.9	376414.98	50	
Mg	24	45	No Gas	3.924	ppb	35.2	53346.13	20	
Al	27	45	No Gas	3.880	ppb	34.4	67884.62	15	
Si	28	45	H2	<0.000	ppb	N/A	5857.24	8	
P	31	45	No Gas	<0.000	ppb	N/A	34577.63	40	
K	39	45	He	0.522	ppb	1016.9	86544.24	25	
Ca	40	45	H2	1.103	ppb	34.5	65142.48	60	
Ti	47	45	No Gas	0.020	ppb	77.1	288.67	0.5	
V	51	45	He	<0.000	ppb	N/A	990.70	0.5	
Cr	52	45	He	<0.000	ppb	N/A	1163.39	0.25	
Mn	55	45	No Gas	0.258	ppb	29.2	16143.68	0.5	
Fe	56	45	H2	1.520	ppb	12.6	34241.64	25	
Co	59	45	No Gas	0.032	ppb	35.8	930.04	0.15	
Ni	60	45	He	0.006	ppb	105.5	72.67	0.5	
Cu	63	45	He	<0.000	ppb	N/A	4296.68	1	
Zn	66	72	No Gas	0.130	ppb	38.2	1892.13	10	
As	75	72	He	<0.000	ppb	N/A	97.00	0.25	
Se	78	72	H2	0.027	ppb	33.9	23.00	0.2	
Sr	88	72	No Gas	0.033	ppb	42.8	1373.41	0.3	
Zr	90	72	No Gas	0.003	ppb	52.3	133.33	5	
Mo	95	115	No Gas	0.057	ppb	19.9	346.67	0.2	
Ag	107	115	No Gas	0.004	ppb	108.5	986.70	0.08	
Cd	111	115	No Gas	0.070	ppb	43.3	198.67	0.2	
Sn	118	115	No Gas	0.142	ppb	27.3	2579.15	0.2	
Sb	123	115	No Gas	0.014	ppb	35.5	221.11	0.4	
Ba	137	115	No Gas	0.062	ppb	47.4	306.67	0.25	
W	182	159	No Gas	0.012	ppb	29.1	93.33	0.3	
Hg	201	159	He	0.008	ppb	51.5	12.33	0.1	
Tl	205	159	No Gas	0.122	ppb	22.4	1809.03	0.1	>LOD
Pb	208	159	No Gas	0.066	ppb	18.2	1842.28	0.1	
U	238	159	No Gas	0.031	ppb	32.9	552.24	0.05	

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Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2246038.92	6.5	2164035.05	103.79	60	120	
Sc	45	No Gas	4817142.50	2.1	4836577.17	99.6	60	120	
Sc	45	H2	2835414.58	4.4	2750634.42	103.08	60	120	
Sc	45	He	430328.08	0.4	443681.93	96.99	60	120	
Ge	72	No Gas	1067117.25	1.5	1090200.04	97.88	60	120	
Ge	72	H2	696203.88	0.8	689401.36	100.99	60	120	
Ge	72	He	259837.00	0.8	260567.54	99.72	60	120	
In	115	No Gas	5618016.29	2.9	5597424.82	100.37	60	120	
Tb	159	No Gas	6292901.00	5.0	6013492.81	104.65	60	120	
Tb	159	He	4131029.42	2.1	3971667.83	104.01	60	120	

Sample Report

Sample Name	L064-04
File Name	H6L06025.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 11:02:33
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	39.565	39.565	ppb	1.4	569313.48	50	
Be	9	6	No Gas	0.010	0.010	ppb	21.3	48.89	50	
B	11	6	No Gas	221.432	221.432	ppb	2.5	465839.03	100	>LDR
Na	23	45	H2	137720.765	137720.765	ppb	3.5	515582432.00	50000	>LDR
Mg	24	45	No Gas	65416.508	65416.508	ppb	5.9	800914346.67	50000	>LDR
Al	27	45	No Gas	75.588	75.588	ppb	1.3	1151299.56	50000	
Si	28	45	H2	10049.935	10049.935	ppb	5.9	9485852.00	5000	>LDR
P	31	45	No Gas	21.468	21.468	ppb	8.8	58036.20	500	
K	39	45	He	4274.671	4274.671	ppb	0.3	2910299.58	50000	
Ca	40	45	H2	171977.013	171977.013	ppb	1.9	1302136960.00	50000	>LDR
Ti	47	45	No Gas	1.518	1.518	ppb	9.4	2873.64	500	
V	51	45	He	1.063	1.063	ppb	1.6	7803.56	500	
Cr	52	45	He	1.630	1.630	ppb	1.1	11782.40	500	
Mn	55	45	No Gas	7.004	7.004	ppb	5.4	203792.79	3000	
Fe	56	45	H2	122.991	122.991	ppb	4.9	1524125.54	50000	
Co	59	45	No Gas	0.267	0.267	ppb	4.3	6390.17	500	
Ni	60	45	He	5.290	5.290	ppb	0.5	12471.03	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	6203.41	500	
Zn	66	72	No Gas	5.129	5.129	ppb	4.6	20647.68	500	
As	75	72	He	0.487	0.487	ppb	3.9	611.01	500	
Se	78	72	H2	2.685	2.685	ppb	3.9	1042.71	500	
Sr	88	72	No Gas	1402.954	1402.954	ppb	3.7	38633138.47	500	>LDR
Zr	90	72	No Gas	0.145	0.145	ppb	1.2	2676.95	50	
Mo	95	115	No Gas	1.020	1.020	ppb	4.7	5412.21	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	232.23	50	
Cd	111	115	No Gas	0.021	0.021	ppb	4.7	51.32	500	
Sn	118	115	No Gas	0.105	0.105	ppb	19.8	2089.06	500	
Sb	123	115	No Gas	0.090	0.090	ppb	5.7	811.14	100	
Ba	137	115	No Gas	48.459	48.459	ppb	3.5	170061.32	1000	
W	182	159	No Gas	0.025	0.025	ppb	4.2	176.67	50	
Hg	201	159	He	0.007	0.007	ppb	36.7	11.17	5	
Tl	205	159	No Gas	0.024	0.024	ppb	10.4	348.89	500	
Pb	208	159	No Gas	0.162	0.162	ppb	4.8	3615.77	500	
U	238	159	No Gas	3.239	3.239	ppb	3.4	53551.11	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2212571.80	3.3	2164035.05	102.24	60	120	
Sc	45	No Gas	4827032.50	3.1	4836577.17	99.8	60	120	
Sc	45	H2	2458798.50	4.8	2750634.42	89.39	60	120	
Sc	45	He	432763.43	0.7	443681.93	97.54	60	120	
Ge	72	No Gas	1076174.21	1.9	1090200.04	98.71	60	120	
Ge	72	H2	717441.08	1.0	689401.36	104.07	60	120	
Ge	72	He	265140.94	0.6	260567.54	101.76	60	120	
In	115	No Gas	5128761.93	2.9	5597424.82	91.63	60	120	
Tb	159	No Gas	5953470.87	2.8	6013492.81	99	60	120	
Tb	159	He	4144517.58	2.4	3971667.83	104.35	60	120	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV2
File Name	H6L06027.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 11:07:03
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	22.407	ppb	3.4	399260.11	25	89.63	90	110	~~> +/- 10%~~
Be	9	6	No Gas	22.476	ppb	1.8	85820.65	25	89.9	90	110	~~> +/- 10%~~
B	11	6	No Gas	47.204	ppb	3.1	106685.69	50	94.41	90	110	
Na	23	45	H2	24185.113	ppb	4.2	94617000.00	25000	96.74	90	110	
Mg	24	45	No Gas	25151.587	ppb	6.6	308818282.67	25000	100.61	90	110	
Al	27	45	No Gas	25671.725	ppb	3.6	388589754.21	25000	102.69	90	110	
Si	28	45	H2	2715.805	ppb	4.4	2675871.25	2500	108.63	90	110	
P	31	45	No Gas	249.625	ppb	2.0	271629.71	250	99.85	90	110	
K	39	45	He	26061.191	ppb	1.6	17086362.67	25000	104.24	90	110	
Ca	40	45	H2	24680.582	ppb	4.0	194573162.67	25000	98.72	90	110	
Ti	47	45	No Gas	246.709	ppb	0.5	427659.37	250	98.68	90	110	
V	51	45	He	261.386	ppb	4.0	1476522.58	250	104.55	90	110	
Cr	52	45	He	275.001	ppb	5.5	1761962.17	250	110	90	110	~~> +/- 10%~~
Mn	55	45	No Gas	1494.531	ppb	0.4	41738696.00	1500	99.64	90	110	
Fe	56	45	H2	24869.162	ppb	5.6	318664224.00	25000	99.48	90	110	
Co	59	45	No Gas	256.241	ppb	2.2	5983055.50	250	102.5	90	110	
Ni	60	45	He	249.533	ppb	1.6	578167.67	250	99.81	90	110	
Cu	63	45	He	270.171	ppb	5.6	1686433.58	250	108.07	90	110	
Zn	66	72	No Gas	230.486	ppb	1.0	897279.65	250	92.19	90	110	
As	75	72	He	251.272	ppb	0.9	258222.57	250	100.51	90	110	
Se	78	72	H2	251.445	ppb	0.4	95729.91	250	100.58	90	110	
Sr	88	72	No Gas	246.565	ppb	4.6	7043962.64	250	98.63	90	110	
Zr	90	72	No Gas	24.300	ppb	1.3	450357.04	25	97.2	90	110	
Mo	95	115	No Gas	251.672	ppb	4.0	1422464.42	250	100.67	90	110	
Ag	107	115	No Gas	25.099	ppb	3.0	322779.06	25	100.4	90	110	
Cd	111	115	No Gas	234.732	ppb	4.1	657433.54	250	93.89	90	110	
Sn	118	115	No Gas	255.000	ppb	4.9	1978182.77	250	102	90	110	
Sb	123	115	No Gas	50.494	ppb	4.1	430477.09	50	100.99	90	110	
Ba	137	115	No Gas	500.842	ppb	7.3	1876785.10	500	100.17	90	110	
W	182	159	No Gas	25.437	ppb	6.1	180087.48	25	101.75	90	110	
Hg	201	159	He	2.726	ppb	2.1	2015.66	2.5	109.04	90	110	
Tl	205	159	No Gas	269.909	ppb	3.1	3946087.06	250	107.96	90	110	
Pb	208	159	No Gas	252.504	ppb	3.4	5227569.61	250	101	90	110	
U	238	159	No Gas	261.651	ppb	5.8	4590047.59	250	104.66	90	110	

90%. LV 12/18/19

110%. LV 12/18/19

Continuing Calibration Verification (CCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2347020.61	1.0	2164035.05	108.46	60	120	
Sc	45	No Gas	4839470.83	2.4	4836577.17	100.06	60	120	
Sc	45	H2	2560753.17	4.1	2750634.42	93.1	60	120	
Sc	45	He	427361.25	0.5	443681.93	96.32	60	120	
Ge	72	No Gas	1115479.83	2.0	1090200.04	102.32	60	120	
Ge	72	H2	712157.81	0.6	689401.36	103.3	60	120	
Ge	72	He	265666.11	0.4	260567.54	101.96	60	120	
In	115	No Gas	5477333.02	1.0	5597424.82	97.85	60	120	
Tb	159	No Gas	6321231.28	2.5	6013492.81	105.12	60	120	
Tb	159	He	4057800.67	1.3	3971667.83	102.17	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB2
File Name	H6L06028.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 11:09:18
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	0.261	ppb	134.0	126053.37	0.8	
Be	9	6	No Gas	0.007	ppb	51.0	34.45	0.08	
B	11	6	No Gas	1.910	ppb	8.9	5595.56	4	
Na	23	45	H2	23.161	ppb	20.4	462918.48	50	
Mg	24	45	No Gas	3.452	ppb	48.3	47348.20	20	
Al	27	45	No Gas	2.803	ppb	55.4	51344.45	15	
Si	28	45	H2	<0.000	ppb	N/A	5519.10	8	
P	31	45	No Gas	<0.000	ppb	N/A	38089.44	40	
K	39	45	He	7.152	ppb	122.5	89729.63	25	
Ca	40	45	H2	1.290	ppb	30.5	65277.05	60	
Ti	47	45	No Gas	0.026	ppb	53.2	302.00	0.5	
V	51	45	He	<0.000	ppb	N/A	1384.07	0.5	
Cr	52	45	He	<0.000	ppb	N/A	1116.05	0.25	
Mn	55	45	No Gas	0.218	ppb	51.2	15083.16	0.5	
Fe	56	45	H2	0.987	ppb	11.5	26085.52	25	
Co	59	45	No Gas	0.026	ppb	59.2	778.69	0.15	
Ni	60	45	He	0.003	ppb	328.8	64.00	0.5	
Cu	63	45	He	<0.000	ppb	N/A	3770.53	1	
Zn	66	72	No Gas	0.114	ppb	57.1	1855.46	10	
As	75	72	He	0.001	ppb	908.0	108.33	0.25	
Se	78	72	H2	0.021	ppb	77.2	21.00	0.2	
Sr	88	72	No Gas	0.030	ppb	55.2	1325.63	0.3	
Zr	90	72	No Gas	0.004	ppb	139.9	163.33	5	
Mo	95	115	No Gas	0.035	ppb	29.5	226.67	0.2	
Ag	107	115	No Gas	0.001	ppb	236.0	960.04	0.08	
Cd	111	115	No Gas	0.070	ppb	42.3	200.91	0.2	
Sn	118	115	No Gas	0.116	ppb	26.8	2428.01	0.2	
Sb	123	115	No Gas	0.011	ppb	38.1	202.22	0.4	
Ba	137	115	No Gas	0.051	ppb	50.6	271.12	0.25	
W	182	159	No Gas	0.005	ppb	98.9	43.33	0.3	
Hg	201	159	He	0.007	ppb	19.6	11.17	0.1	
Tl	205	159	No Gas	0.107	ppb	35.8	1621.23	0.1	~~>LOD~~ <LOQ LV 12/18/19
Pb	208	159	No Gas	0.053	ppb	30.8	1620.05	0.1	
U	238	159	No Gas	0.023	ppb	44.9	425.56	0.05	

Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2193390.59	5.3	2164035.05	101.36	60	120	
Sc	45	No Gas	4868363.83	4.2	4836577.17	100.66	60	120	
Sc	45	H2	2772834.58	5.2	2750634.42	100.81	60	120	
Sc	45	He	425346.29	2.9	443681.93	95.87	60	120	
Ge	72	No Gas	1082492.00	3.9	1090200.04	99.29	60	120	
Ge	72	H2	705858.06	0.8	689401.36	102.39	60	120	
Ge	72	He	255458.81	2.9	260567.54	98.04	60	120	
In	115	No Gas	5741372.31	4.9	5597424.82	102.57	60	120	
Tb	159	No Gas	6445276.27	2.4	6013492.81	107.18	60	120	
Tb	159	He	4112124.83	4.9	3971667.83	103.54	60	120	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV4
File Name	H6L06047.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 11:52:22
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	23.251	ppb	3.2	405454.39	25	93	90	110	
Be	9	6	No Gas	23.148	ppb	3.2	87502.50	25	92.59	90	110	
B	11	6	No Gas	47.591	ppb	2.0	106551.96	50	95.18	90	110	
Na	23	45	H2	27179.577	ppb	7.4	104629728.00	25000	108.72	90	110	
Mg	24	45	No Gas	25559.494	ppb	8.3	322000074.67	25000	102.24	90	110	
Al	27	45	No Gas	25205.394	ppb	6.1	391469127.50	25000	100.82	90	110	
Si	28	45	H2	2741.526	ppb	2.2	2661436.58	2500	109.66	90	110	
P	31	45	No Gas	242.669	ppb	4.4	272049.79	250	97.07	90	110	
K	39	45	He	25643.163	ppb	3.0	16762803.67	25000	102.57	90	110	
Ca	40	45	H2	25188.969	ppb	1.9	195658720.00	25000	100.76	90	110	
Ti	47	45	No Gas	242.036	ppb	3.7	430483.46	250	96.81	90	110	
V	51	45	He	268.529	ppb	3.9	1512091.79	250	107.41	90	110	
Cr	52	45	He	267.018	ppb	1.2	1706028.33	250	106.81	90	110	
Mn	55	45	No Gas	1489.370	ppb	4.9	42674789.33	1500	99.29	90	110	
Fe	56	45	H2	25311.419	ppb	2.0	319651701.33	25000	101.25	90	110	
Co	59	45	No Gas	251.654	ppb	4.7	6027905.50	250	100.66	90	110	
Ni	60	45	He	249.183	ppb	1.5	575686.54	250	99.67	90	110	
Cu	63	45	He	271.972	ppb	3.2	1692615.41	250	108.79	90	110	
Zn	66	72	No Gas	237.012	ppb	4.2	905046.56	250	94.8	90	110	
As	75	72	He	249.702	ppb	0.2	256029.01	250	99.88	90	110	
Se	78	72	H2	249.658	ppb	1.9	95334.44	250	99.86	90	110	
Sr	88	72	No Gas	256.820	ppb	4.8	7192220.82	250	102.73	90	110	
Zr	90	72	No Gas	24.980	ppb	3.9	454153.33	25	99.92	90	110	
Mo	95	115	No Gas	248.668	ppb	3.3	1412639.87	250	99.47	90	110	
Ag	107	115	No Gas	25.500	ppb	1.5	329570.57	25	102	90	110	
Cd	111	115	No Gas	239.005	ppb	1.7	672915.23	250	95.6	90	110	
Sn	118	115	No Gas	261.162	ppb	3.4	2036675.13	250	104.46	90	110	
Sb	123	115	No Gas	51.277	ppb	1.9	439457.71	50	102.55	90	110	
Ba	137	115	No Gas	517.615	ppb	5.1	1950648.25	500	103.52	90	110	
W	182	159	No Gas	25.208	ppb	9.0	184766.76	25	100.83	90	110	
Hg	201	159	He	2.690	ppb	2.3	2027.66	2.5	107.6	90	110	
Tl	205	159	No Gas	260.177	ppb	8.7	3938520.26	250	104.07	90	110	
Pb	208	159	No Gas	256.629	ppb	11.4	5492309.38	250	102.65	90	110	
U	238	159	No Gas	258.311	ppb	5.9	4696676.20	250	103.32	90	110	

Continuing Calibration Verification (CCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2325063.96	3.7	2164035.05	107.44	60	120	
Sc	45	No Gas	4968647.17	2.9	4836577.17	102.73	60	120	
Sc	45	H2	2520242.17	0.9	2750634.42	91.62	60	120	
Sc	45	He	426125.12	1.3	443681.93	96.04	60	120	
Ge	72	No Gas	1095602.73	5.0	1090200.04	100.5	60	120	
Ge	72	H2	714429.81	1.7	689401.36	103.63	60	120	
Ge	72	He	265058.53	0.3	260567.54	101.72	60	120	
In	115	No Gas	5504501.04	1.9	5597424.82	98.34	60	120	
Tb	159	No Gas	6560998.35	6.0	6013492.81	109.1	60	120	
Tb	159	He	4136127.42	0.6	3971667.83	104.14	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB4
File Name	H6L06048.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 11:54:37
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	<0.000	ppb	N/A	129456.14	0.8	
Be	9	6	No Gas	0.009	ppb	39.8	47.78	0.08	
B	11	6	No Gas	1.965	ppb	5.0	6099.10	4	
Na	23	45	H2	34.053	ppb	4.3	505065.10	50	
Mg	24	45	No Gas	7.582	ppb	24.9	104650.33	20	
Al	27	45	No Gas	5.890	ppb	11.5	104772.70	15	
Si	28	45	H2	<0.000	ppb	N/A	5353.70	8	
P	31	45	No Gas	<0.000	ppb	N/A	39897.19	40	
K	39	45	He	8.306	ppb	46.5	93967.77	25	
Ca	40	45	H2	5.837	ppb	0.8	103308.44	60	
Ti	47	45	No Gas	0.037	ppb	56.8	341.34	0.5	
V	51	45	He	<0.000	ppb	N/A	1705.44	0.5	
Cr	52	45	He	0.010	ppb	61.9	1306.06	0.25	
Mn	55	45	No Gas	0.397	ppb	13.3	21376.75	0.5	
Fe	56	45	H2	4.579	ppb	0.7	75360.91	25	
Co	59	45	No Gas	0.059	ppb	11.1	1657.43	0.15	
Ni	60	45	He	0.051	ppb	12.0	180.67	0.5	
Cu	63	45	He	<0.000	ppb	N/A	3071.01	1	
Zn	66	72	No Gas	0.115	ppb	47.8	1940.14	10	
As	75	72	He	0.033	ppb	23.5	144.00	0.25	
Se	78	72	H2	0.093	ppb	17.3	47.33	0.2	
Sr	88	72	No Gas	0.089	ppb	33.5	3074.85	0.3	
Zr	90	72	No Gas	0.003	ppb	64.2	153.33	5	
Mo	95	115	No Gas	0.061	ppb	14.9	378.89	0.2	
Ag	107	115	No Gas	0.011	ppb	49.5	1084.49	0.08	
Cd	111	115	No Gas	0.092	ppb	19.8	264.85	0.2	
Sn	118	115	No Gas	0.185	ppb	17.1	2958.12	0.2	
Sb	123	115	No Gas	0.019	ppb	30.3	270.00	0.4	
Ba	137	115	No Gas	0.119	ppb	20.4	534.45	0.25	
W	182	159	No Gas	0.005	ppb	69.2	50.00	0.3	
Hg	201	159	He	0.011	ppb	44.4	15.00	0.1	
Tl	205	159	No Gas	0.164	ppb	15.5	2541.38	0.1	~~>LOD~~ <LOQ LV 12/18/19
Pb	208	159	No Gas	0.072	ppb	15.6	2067.85	0.1	
U	238	159	No Gas	0.056	ppb	10.5	1035.60	0.05	>LOD

Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2339440.82	1.5	2164035.05	108.11	60	120	
Sc	45	No Gas	5153579.67	1.2	4836577.17	106.55	60	120	
Sc	45	H2	2748230.83	0.8	2750634.42	99.91	60	120	
Sc	45	He	441120.24	1.6	443681.93	99.42	60	120	
Ge	72	No Gas	1126011.66	1.1	1090200.04	103.28	60	120	
Ge	72	H2	697538.06	0.8	689401.36	101.18	60	120	
Ge	72	He	263891.80	0.1	260567.54	101.28	60	120	
In	115	No Gas	5688093.00	1.3	5597424.82	101.62	60	120	
Tb	159	No Gas	6592476.68	3.7	6013492.81	109.63	60	120	
Tb	159	He	4229535.25	1.9	3971667.83	106.49	60	120	

Sample Report

Sample Name	L064-01I
File Name	H6L06049.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 11:57:00
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	11.034	1.103	ppb	37.1	150024.78	50	
Be	9	6	No Gas	<0.000	<0.000	ppb	N/A	12.22	50	
B	11	6	No Gas	61.307	6.131	ppb	1.0	15916.81	100	
Na	23	45	H2	36879.761	3687.976	ppb	3.9	16086751.00	50000	
Mg	24	45	No Gas	36880.155	3688.016	ppb	3.2	47676657.33	50000	
Al	27	45	No Gas	12.846	1.285	ppb	7.3	30102.79	50000	
Si	28	45	H2	7692.292	769.229	ppb	2.4	833354.62	5000	
P	31	45	No Gas	14.071	1.407	ppb	160.4	41428.97	500	
K	39	45	He	1938.021	193.802	ppb	1.5	218597.18	50000	
Ca	40	45	H2	124204.194	12420.419	ppb	2.9	107179632.00	50000	
Ti	47	45	No Gas	0.365	0.037	ppb	38.9	334.67	500	
V	51	45	He	0.970	0.097	ppb	8.4	2322.20	500	
Cr	52	45	He	3.443	0.344	ppb	2.4	3507.79	500	
Mn	55	45	No Gas	1.722	0.172	ppb	17.1	14491.67	3000	
Fe	56	45	H2	26.971	2.697	ppb	6.9	50335.81	50000	
Co	59	45	No Gas	0.179	0.018	ppb	13.3	634.68	500	
Ni	60	45	He	4.186	0.419	ppb	0.3	1059.37	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	3206.38	500	
Zn	66	72	No Gas	11.548	1.155	ppb	4.9	6148.73	500	
As	75	72	He	0.306	0.031	ppb	43.4	146.00	500	
Se	78	72	H2	1.115	0.112	ppb	23.8	56.00	500	
Sr	88	72	No Gas	1463.608	146.361	ppb	2.8	4315666.22	500	
Zr	90	72	No Gas	0.019	0.002	ppb	125.6	126.67	50	
Mo	95	115	No Gas	0.708	0.071	ppb	5.9	447.79	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	65.56	50	
Cd	111	115	No Gas	0.248	0.025	ppb	16.7	70.54	500	
Sn	118	115	No Gas	1.212	0.121	ppb	27.4	2514.69	500	
Sb	123	115	No Gas	0.177	0.018	ppb	9.2	266.67	100	
Ba	137	115	No Gas	21.032	2.103	ppb	5.5	8501.68	1000	
W	182	159	No Gas	0.059	0.006	ppb	58.3	53.33	50	
Hg	201	159	He	0.086	0.009	ppb	46.8	12.83	5	
Tl	205	159	No Gas	0.448	0.045	ppb	14.1	694.47	500	
Pb	208	159	No Gas	0.239	0.024	ppb	24.2	1001.13	500	
U	238	159	No Gas	0.799	0.080	ppb	1.9	1443.42	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2429281.84	4.3	2164035.05	112.26	60	120	
Sc	45	No Gas	5091647.67	5.4	4836577.17	105.27	60	120	
Sc	45	H2	2799448.58	2.3	2750634.42	101.77	60	120	
Sc	45	He	440592.73	1.7	443681.93	99.3	60	120	
Ge	72	No Gas	1151150.33	3.9	1090200.04	105.59	60	120	
Ge	72	H2	719223.64	1.7	689401.36	104.33	60	120	
Ge	72	He	271569.16	1.4	260567.54	104.22	60	120	
In	115	No Gas	5864572.73	4.5	5597424.82	104.77	60	120	
Tb	159	No Gas	6442928.77	0.8	6013492.81	107.14	60	120	
Tb	159	He	4201125.17	3.2	3971667.83	105.78	60	120	

Sample Report

Sample Name	L064-02I
File Name	H6L06050.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 11:59:18
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	19.830	1.983	ppb	47.8	150297.54	50	
Be	9	6	No Gas	0.209	0.021	ppb	18.3	90.00	50	
B	11	6	No Gas	88.485	8.848	ppb	5.6	20725.30	100	
Na	23	45	H2	48820.031	4882.003	ppb	4.1	21496582.67	50000	
Mg	24	45	No Gas	46665.694	4666.569	ppb	3.0	57900932.00	50000	
Al	27	45	No Gas	28.317	2.832	ppb	1.6	52579.39	50000	
Si	28	45	H2	6855.345	685.534	ppb	1.4	754562.00	5000	
P	31	45	No Gas	36.750	3.675	ppb	33.5	41945.19	500	
K	39	45	He	2086.258	208.626	ppb	2.0	228858.41	50000	
Ca	40	45	H2	114044.498	11404.450	ppb	2.8	99865544.00	50000	
Ti	47	45	No Gas	0.681	0.068	ppb	23.2	377.34	500	
V	51	45	He	1.043	0.104	ppb	5.1	2368.20	500	
Cr	52	45	He	0.558	0.056	ppb	25.0	1606.09	500	
Mn	55	45	No Gas	4.093	0.409	ppb	3.5	20605.51	3000	
Fe	56	45	H2	44.185	4.418	ppb	1.8	75621.68	50000	
Co	59	45	No Gas	0.320	0.032	ppb	6.1	944.03	500	
Ni	60	45	He	1.423	0.142	ppb	5.3	400.01	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	3622.49	500	
Zn	66	72	No Gas	117.446	11.745	ppb	1.3	49346.24	500	
As	75	72	He	0.588	0.059	ppb	5.9	176.00	500	
Se	78	72	H2	0.868	0.087	ppb	16.1	46.67	500	
Sr	88	72	No Gas	955.426	95.543	ppb	3.3	2856183.71	500	
Zr	90	72	No Gas	0.011	0.001	ppb	155.8	113.33	50	
Mo	95	115	No Gas	0.436	0.044	ppb	7.7	278.89	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	367.78	50	
Cd	111	115	No Gas	0.301	0.030	ppb	26.2	85.23	500	
Sn	118	115	No Gas	2.167	0.217	ppb	7.6	3257.07	500	
Sb	123	115	No Gas	0.334	0.033	ppb	11.8	403.34	100	
Ba	137	115	No Gas	40.496	4.050	ppb	4.5	16033.25	1000	
W	182	159	No Gas	0.008	0.001	ppb	204.5	16.67	50	
Hg	201	159	He	0.025	0.003	ppb	91.9	8.33	5	
Tl	205	159	No Gas	0.349	0.035	ppb	8.9	562.24	500	
Pb	208	159	No Gas	1.124	0.112	ppb	11.4	2945.69	500	
U	238	159	No Gas	1.478	0.148	ppb	6.1	2733.64	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2277738.22	9.4	2164035.05	105.25	60	120	
Sc	45	No Gas	4883911.67	1.7	4836577.17	100.98	60	120	
Sc	45	H2	2841183.08	1.7	2750634.42	103.29	60	120	
Sc	45	He	441178.71	0.4	443681.93	99.44	60	120	
Ge	72	No Gas	1168184.62	2.2	1090200.04	107.15	60	120	
Ge	72	H2	720324.58	1.0	689401.36	104.49	60	120	
Ge	72	He	272127.80	0.7	260567.54	104.44	60	120	
In	115	No Gas	5760905.30	1.1	5597424.82	102.92	60	120	
Tb	159	No Gas	6642628.21	7.2	6013492.81	110.46	60	120	
Tb	159	He	4227304.92	2.5	3971667.83	106.44	60	120	

Sample Report

Sample Name	L064-03I
File Name	H6L06051.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 12:01:35
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	13.085	1.308	ppb	21.7	145237.62	50	
Be	9	6	No Gas	0.001	0.000	ppb	557.5	12.22	50	
B	11	6	No Gas	55.334	5.533	ppb	1.3	13840.16	100	
Na	23	45	H2	24065.879	2406.588	ppb	1.6	10866157.67	50000	
Mg	24	45	No Gas	36741.215	3674.122	ppb	3.3	46844446.67	50000	
Al	27	45	No Gas	12.839	1.284	ppb	8.0	29716.40	50000	
Si	28	45	H2	7220.213	722.021	ppb	2.5	799867.25	5000	
P	31	45	No Gas	40.731	4.073	ppb	13.0	43507.30	500	
K	39	45	He	1644.637	164.464	ppb	2.4	197749.13	50000	
Ca	40	45	H2	104347.451	10434.745	ppb	3.6	91990101.33	50000	
Ti	47	45	No Gas	0.542	0.054	ppb	40.0	362.67	500	
V	51	45	He	1.528	0.153	ppb	5.6	2632.25	500	
Cr	52	45	He	0.479	0.048	ppb	19.7	1542.76	500	
Mn	55	45	No Gas	4.854	0.485	ppb	3.3	23387.30	3000	
Fe	56	45	H2	26.898	2.690	ppb	6.6	51391.93	50000	
Co	59	45	No Gas	0.069	0.007	ppb	23.4	360.67	500	
Ni	60	45	He	1.440	0.144	ppb	3.0	401.34	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	2708.94	500	
Zn	66	72	No Gas	11.992	1.199	ppb	4.6	6342.15	500	
As	75	72	He	0.328	0.033	ppb	30.9	149.00	500	
Se	78	72	H2	1.038	0.104	ppb	21.1	53.33	500	
Sr	88	72	No Gas	1052.165	105.216	ppb	4.9	3105083.84	500	
Zr	90	72	No Gas	0.013	0.001	ppb	157.1	116.67	50	
Mo	95	115	No Gas	0.585	0.059	ppb	11.3	373.34	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	51.11	50	
Cd	111	115	No Gas	0.128	0.013	ppb	8.0	34.70	500	
Sn	118	115	No Gas	1.008	0.101	ppb	21.6	2346.88	500	
Sb	123	115	No Gas	0.151	0.015	ppb	15.6	242.23	100	
Ba	137	115	No Gas	21.579	2.158	ppb	4.4	8709.60	1000	
W	182	159	No Gas	0.022	0.002	ppb	67.2	26.67	50	
Hg	201	159	He	0.014	0.001	ppb	141.5	7.50	5	
Tl	205	159	No Gas	0.116	0.012	ppb	21.1	197.78	500	
Pb	208	159	No Gas	0.207	0.021	ppb	12.4	925.57	500	
U	238	159	No Gas	1.192	0.119	ppb	6.5	2129.08	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2311880.98	3.9	2164035.05	106.83	60	120	
Sc	45	No Gas	5019523.00	0.7	4836577.17	103.78	60	120	
Sc	45	H2	2862072.17	3.7	2750634.42	104.05	60	120	
Sc	45	He	438146.10	0.4	443681.93	98.75	60	120	
Ge	72	No Gas	1153842.33	3.8	1090200.04	105.84	60	120	
Ge	72	H2	722202.46	0.1	689401.36	104.76	60	120	
Ge	72	He	272658.73	0.5	260567.54	104.64	60	120	
In	115	No Gas	5848776.38	0.4	5597424.82	104.49	60	120	
Tb	159	No Gas	6401527.25	4.2	6013492.81	106.45	60	120	
Tb	159	He	4233836.58	3.4	3971667.83	106.6	60	120	

Sample Report

Sample Name	L064-04I
File Name	H6L06052.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 12:03:53
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	35.569	3.557	ppb	16.8	175684.97	50	
Be	9	6	No Gas	0.013	0.001	ppb	160.6	16.67	50	
B	11	6	No Gas	216.527	21.653	ppb	3.2	50312.42	100	
Na	23	45	H2	134612.897	13461.290	ppb	11.0	56708702.67	50000	
Mg	24	45	No Gas	71133.415	7113.341	ppb	4.5	89041621.33	50000	
Al	27	45	No Gas	81.063	8.106	ppb	3.9	134282.70	50000	
Si	28	45	H2	10140.102	1014.010	ppb	7.7	1078990.71	5000	
P	31	45	No Gas	49.006	4.901	ppb	50.7	43428.38	500	
K	39	45	He	3735.195	373.520	ppb	2.8	335426.16	50000	
Ca	40	45	H2	163490.374	16349.037	ppb	10.4	138514224.00	50000	
Ti	47	45	No Gas	1.820	0.182	ppb	36.0	580.02	500	
V	51	45	He	0.998	0.100	ppb	8.2	2310.86	500	
Cr	52	45	He	1.358	0.136	ppb	5.1	2106.83	500	
Mn	55	45	No Gas	7.590	0.759	ppb	7.8	30687.06	3000	
Fe	56	45	H2	111.545	11.155	ppb	12.6	165829.53	50000	
Co	59	45	No Gas	0.259	0.026	ppb	2.9	808.02	500	
Ni	60	45	He	5.428	0.543	ppb	4.4	1340.06	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	2918.98	500	
Zn	66	72	No Gas	7.309	0.731	ppb	6.9	4346.70	500	
As	75	72	He	0.570	0.057	ppb	26.4	173.33	500	
Se	78	72	H2	2.859	0.286	ppb	8.0	121.67	500	
Sr	88	72	No Gas	1443.934	144.393	ppb	5.0	4153608.03	500	
Zr	90	72	No Gas	0.117	0.012	ppb	22.2	306.67	50	
Mo	95	115	No Gas	0.960	0.096	ppb	1.9	595.57	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	68.89	50	
Cd	111	115	No Gas	0.108	0.011	ppb	12.1	28.60	500	
Sn	118	115	No Gas	1.123	0.112	ppb	13.1	2424.67	500	
Sb	123	115	No Gas	0.145	0.015	ppb	10.9	235.56	100	
Ba	137	115	No Gas	42.165	4.217	ppb	3.3	16836.47	1000	
W	182	159	No Gas	0.051	0.005	ppb	33.4	46.67	50	
Hg	201	159	He	0.054	0.005	ppb	51.5	10.67	5	
Tl	205	159	No Gas	0.098	0.010	ppb	19.8	171.11	500	
Pb	208	159	No Gas	0.237	0.024	ppb	4.1	980.02	500	
U	238	159	No Gas	3.013	0.301	ppb	2.1	5316.71	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2368739.15	6.1	2164035.05	109.46	60	120	
Sc	45	No Gas	4929130.00	5.6	4836577.17	101.91	60	120	
Sc	45	H2	2766366.75	9.2	2750634.42	100.57	60	120	
Sc	45	He	435418.00	0.7	443681.93	98.14	60	120	
Ge	72	No Gas	1124384.91	3.5	1090200.04	103.14	60	120	
Ge	72	H2	711235.73	1.6	689401.36	103.17	60	120	
Ge	72	He	270777.40	0.7	260567.54	103.92	60	120	
In	115	No Gas	5810746.11	2.1	5597424.82	103.81	60	120	
Tb	159	No Gas	6338517.53	1.0	6013492.81	105.4	60	120	
Tb	159	He	4311844.58	3.5	3971667.83	108.57	60	120	

Sample Report

Sample Name	L064-06I
File Name	H6L06053.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 12:06:10
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	59.144	5.914	ppb	6.9	210817.84	50	
Be	9	6	No Gas	0.013	0.001	ppb	369.7	17.78	50	
B	11	6	No Gas	218.781	21.878	ppb	2.5	52519.53	100	
Na	23	45	H2	194054.887	19405.489	ppb	7.0	81367930.67	50000	
Mg	24	45	No Gas	76094.130	7609.413	ppb	2.8	97525576.00	50000	
Al	27	45	No Gas	21.192	2.119	ppb	105.8	42298.56	50000	
Si	28	45	H2	9801.443	980.144	ppb	4.1	1039824.04	5000	
P	31	45	No Gas	35.922	3.592	ppb	59.4	43252.56	500	
K	39	45	He	4429.953	442.995	ppb	2.4	386897.14	50000	
Ca	40	45	H2	153326.746	15332.675	ppb	5.2	129575485.33	50000	
Ti	47	45	No Gas	0.777	0.078	ppb	56.9	405.34	500	
V	51	45	He	1.231	0.123	ppb	10.0	2479.56	500	
Cr	52	45	He	11.093	1.109	ppb	1.7	8576.02	500	
Mn	55	45	No Gas	3.790	0.379	ppb	28.6	20356.08	3000	
Fe	56	45	H2	155.029	15.503	ppb	4.3	225348.23	50000	
Co	59	45	No Gas	0.578	0.058	ppb	32.0	1592.77	500	
Ni	60	45	He	17.372	1.737	ppb	2.8	4217.32	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	3312.40	500	
Zn	66	72	No Gas	6.768	0.677	ppb	4.2	4203.99	500	
As	75	72	He	0.625	0.063	ppb	18.0	178.67	500	
Se	78	72	H2	2.282	0.228	ppb	13.1	100.67	500	
Sr	88	72	No Gas	1394.327	139.433	ppb	2.7	4076623.03	500	
Zr	90	72	No Gas	0.030	0.003	ppb	109.0	146.67	50	
Mo	95	115	No Gas	1.733	0.173	ppb	10.9	1022.26	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	67.78	50	
Cd	111	115	No Gas	0.136	0.014	ppb	64.4	35.82	500	
Sn	118	115	No Gas	1.308	0.131	ppb	17.4	2483.57	500	
Sb	123	115	No Gas	0.183	0.018	ppb	31.9	260.00	100	
Ba	137	115	No Gas	60.980	6.098	ppb	2.0	23461.16	1000	
W	182	159	No Gas	0.023	0.002	ppb	159.2	26.67	50	
Hg	201	159	He	0.033	0.003	ppb	148.2	9.00	5	
Tl	205	159	No Gas	0.201	0.020	ppb	107.9	331.12	500	
Pb	208	159	No Gas	0.205	0.021	ppb	27.7	924.46	500	
U	238	159	No Gas	3.647	0.365	ppb	2.5	6493.95	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2444949.23	4.7	2164035.05	112.98	60	120	
Sc	45	No Gas	5049927.67	3.6	4836577.17	104.41	60	120	
Sc	45	H2	2745783.58	4.3	2750634.42	99.82	60	120	
Sc	45	He	441466.66	0.8	443681.93	99.5	60	120	
Ge	72	No Gas	1142269.79	0.8	1090200.04	104.78	60	120	
Ge	72	H2	717484.31	0.3	689401.36	104.07	60	120	
Ge	72	He	270041.31	1.9	260567.54	103.64	60	120	
In	115	No Gas	5607485.32	3.7	5597424.82	100.18	60	120	
Tb	159	No Gas	6396085.16	4.5	6013492.81	106.36	60	120	
Tb	159	He	4304569.75	3.6	3971667.83	108.38	60	120	

Sample Report

Sample Name	L064-07M
File Name	H6L06054.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 12:08:26
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	65.129	6.513	ppb	10.6	206970.77	50	
Be	9	6	No Gas	26.421	2.642	ppb	2.6	9978.00	50	
B	11	6	No Gas	245.538	24.554	ppb	5.1	55650.11	100	
Na	23	45	H2	136944.683	13694.468	ppb	8.0	56058732.00	50000	
Mg	24	45	No Gas	70224.623	7022.462	ppb	3.6	89628760.00	50000	
Al	27	45	No Gas	3102.085	310.208	ppb	3.0	4891447.85	50000	
Si	28	45	H2	10102.836	1010.284	ppb	11.0	1042274.50	5000	
P	31	45	No Gas	46.709	4.671	ppb	45.2	44127.92	500	
K	39	45	He	6164.985	616.498	ppb	1.0	500287.48	50000	
Ca	40	45	H2	158848.906	15884.891	ppb	3.8	130895290.67	50000	
Ti	47	45	No Gas	28.971	2.897	ppb	1.8	5480.43	500	
V	51	45	He	27.770	2.777	ppb	0.8	17821.57	500	
Cr	52	45	He	30.715	3.071	ppb	0.5	21403.36	500	
Mn	55	45	No Gas	36.542	3.654	ppb	2.6	115325.05	3000	
Fe	56	45	H2	2983.664	298.366	ppb	4.6	4008398.67	50000	
Co	59	45	No Gas	27.807	2.781	ppb	2.9	67607.86	500	
Ni	60	45	He	34.802	3.480	ppb	1.5	8329.88	500	
Cu	63	45	He	22.398	2.240	ppb	2.4	20792.53	500	
Zn	66	72	No Gas	57.456	5.746	ppb	1.7	24377.88	500	
As	75	72	He	28.455	2.845	ppb	4.2	3118.69	500	
Se	78	72	H2	30.610	3.061	ppb	1.3	1199.72	500	
Sr	88	72	No Gas	1399.709	139.971	ppb	3.3	4091130.25	500	
Zr	90	72	No Gas	0.195	0.020	ppb	15.1	460.01	50	
Mo	95	115	No Gas	26.954	2.695	ppb	0.2	15661.44	500	
Ag	107	115	No Gas	27.771	2.777	ppb	1.0	37497.45	50	
Cd	111	115	No Gas	25.873	2.587	ppb	1.0	7436.96	500	
Sn	118	115	No Gas	26.903	2.690	ppb	1.9	22865.40	500	
Sb	123	115	No Gas	28.027	2.803	ppb	1.2	24630.93	100	
Ba	137	115	No Gas	69.051	6.905	ppb	0.1	26643.99	1000	
W	182	159	No Gas	0.027	0.003	ppb	88.1	30.00	50	
Hg	201	159	He	0.035	0.004	ppb	42.0	9.17	5	
Tl	205	159	No Gas	27.402	2.740	ppb	2.2	40761.99	500	
Pb	208	159	No Gas	26.263	2.626	ppb	0.4	55775.27	500	
U	238	159	No Gas	29.239	2.924	ppb	1.4	52194.22	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2318937.90	3.5	2164035.05	107.16	60	120	
Sc	45	No Gas	5030406.50	4.2	4836577.17	104.01	60	120	
Sc	45	H2	2676124.00	4.0	2750634.42	97.29	60	120	
Sc	45	He	438343.51	0.6	443681.93	98.8	60	120	
Ge	72	No Gas	1142516.83	3.1	1090200.04	104.8	60	120	
Ge	72	H2	725111.75	0.6	689401.36	105.18	60	120	
Ge	72	He	273081.96	0.6	260567.54	104.8	60	120	
In	115	No Gas	5623008.79	1.6	5597424.82	100.46	60	120	
Tb	159	No Gas	6423988.49	1.2	6013492.81	106.83	60	120	
Tb	159	He	4274885.17	0.7	3971667.83	107.63	60	120	

Sample Report

Sample Name	L064-07S
File Name	H6L06055.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 12:10:42
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	54.717	5.472	ppb	17.4	203290.38	50	
Be	9	6	No Gas	24.767	2.477	ppb	7.8	9758.95	50	
B	11	6	No Gas	228.299	22.830	ppb	6.7	54126.43	100	
Na	23	45	H2	132885.825	13288.582	ppb	2.3	54741116.00	50000	
Mg	24	45	No Gas	67063.691	6706.369	ppb	8.6	87143154.67	50000	
Al	27	45	No Gas	3024.048	302.405	ppb	8.2	4853045.34	50000	
Si	28	45	H2	10259.104	1025.910	ppb	4.8	1064536.29	5000	
P	31	45	No Gas	40.048	4.005	ppb	74.0	44317.16	500	
K	39	45	He	6089.370	608.937	ppb	1.8	495672.49	50000	
Ca	40	45	H2	157984.599	15798.460	ppb	6.0	130713805.33	50000	
Ti	47	45	No Gas	28.449	2.845	ppb	10.2	5482.43	500	
V	51	45	He	27.799	2.780	ppb	2.9	17854.95	500	
Cr	52	45	He	31.060	3.106	ppb	0.4	21650.40	500	
Mn	55	45	No Gas	34.785	3.479	ppb	9.1	112200.63	3000	
Fe	56	45	H2	2981.661	298.166	ppb	1.8	4027558.25	50000	
Co	59	45	No Gas	26.793	2.679	ppb	8.2	66324.96	500	
Ni	60	45	He	34.545	3.454	ppb	2.9	8275.85	500	
Cu	63	45	He	21.847	2.185	ppb	1.3	20461.36	500	
Zn	66	72	No Gas	57.253	5.725	ppb	1.3	23711.35	500	
As	75	72	He	27.333	2.733	ppb	2.1	2996.33	500	
Se	78	72	H2	30.382	3.038	ppb	5.6	1172.39	500	
Sr	88	72	No Gas	1399.034	139.903	ppb	5.9	3992004.98	500	
Zr	90	72	No Gas	0.260	0.026	ppb	7.3	570.01	50	
Mo	95	115	No Gas	25.888	2.589	ppb	2.8	15433.40	500	
Ag	107	115	No Gas	26.688	2.669	ppb	2.4	36999.44	50	
Cd	111	115	No Gas	24.549	2.455	ppb	3.0	7237.37	500	
Sn	118	115	No Gas	25.769	2.577	ppb	4.5	22520.38	500	
Sb	123	115	No Gas	26.703	2.670	ppb	2.9	24074.32	100	
Ba	137	115	No Gas	65.957	6.596	ppb	2.0	26111.78	1000	
W	182	159	No Gas	0.091	0.009	ppb	22.5	73.33	50	
Hg	201	159	He	0.036	0.004	ppb	54.5	9.00	5	
Tl	205	159	No Gas	27.638	2.764	ppb	2.1	39374.21	500	
Pb	208	159	No Gas	26.609	2.661	ppb	1.6	54118.94	500	
U	238	159	No Gas	30.310	3.031	ppb	1.1	51826.02	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2422826.28	4.1	2164035.05	111.96	60	120	
Sc	45	No Gas	5134792.83	6.3	4836577.17	106.17	60	120	
Sc	45	H2	2688491.50	4.7	2750634.42	97.74	60	120	
Sc	45	He	438759.70	0.4	443681.93	98.89	60	120	
Ge	72	No Gas	1114740.91	2.8	1090200.04	102.25	60	120	
Ge	72	H2	714342.63	1.9	689401.36	103.62	60	120	
Ge	72	He	272697.27	0.6	260567.54	104.66	60	120	
In	115	No Gas	5770977.64	4.1	5597424.82	103.1	60	120	
Tb	159	No Gas	6153863.78	2.1	6013492.81	102.33	60	120	
Tb	159	He	4193266.00	2.8	3971667.83	105.58	60	120	

Sample Report

Sample Name	L064-07A
File Name	H6L06056.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 12:12:57
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	327.809	32.781	ppb	5.1	504587.97	50	
Be	9	6	No Gas	290.934	29.093	ppb	3.8	107170.27	50	
B	11	6	No Gas	513.608	51.361	ppb	5.2	111840.45	100	
Na	23	45	H2	169779.717	16977.972	ppb	8.9	66072000.00	50000	
Mg	24	45	No Gas	101950.017	10195.002	ppb	0.9	126814389.33	50000	
Al	27	45	No Gas	33291.701	3329.170	ppb	1.1	51037562.57	50000	
Si	28	45	H2	10587.012	1058.701	ppb	5.6	1041109.96	5000	
P	31	45	No Gas	69.236	6.924	ppb	19.9	45137.18	500	
K	39	45	He	39172.041	3917.204	ppb	2.5	2664465.75	50000	
Ca	40	45	H2	203670.252	20367.025	ppb	8.5	159587269.33	50000	
Ti	47	45	No Gas	305.277	30.528	ppb	2.8	53785.11	500	
V	51	45	He	289.190	28.919	ppb	0.6	166351.67	500	
Cr	52	45	He	299.279	29.928	ppb	0.4	194552.29	500	
Mn	55	45	No Gas	319.730	31.973	ppb	2.1	912470.13	3000	
Fe	56	45	H2	31643.683	3164.368	ppb	5.1	40380181.33	50000	
Co	59	45	No Gas	301.061	30.106	ppb	2.0	711270.92	500	
Ni	60	45	He	303.354	30.335	ppb	0.8	70966.70	500	
Cu	63	45	He	290.337	29.034	ppb	0.4	188578.72	500	
Zn	66	72	No Gas	571.709	57.171	ppb	1.7	230634.12	500	
As	75	72	He	297.389	29.739	ppb	1.6	30818.07	500	
Se	78	72	H2	308.211	30.821	ppb	0.9	11612.66	500	
Sr	88	72	No Gas	1670.586	167.059	ppb	4.2	4918101.33	500	
Zr	90	72	No Gas	0.170	0.017	ppb	12.1	416.68	50	
Mo	95	115	No Gas	282.964	28.296	ppb	0.8	162316.49	500	
Ag	107	115	No Gas	282.318	28.232	ppb	0.7	368292.98	50	
Cd	111	115	No Gas	274.344	27.434	ppb	1.2	77975.92	500	
Sn	118	115	No Gas	280.680	28.068	ppb	1.4	222255.95	500	
Sb	123	115	No Gas	291.347	29.135	ppb	1.8	252078.17	100	
Ba	137	115	No Gas	317.979	31.798	ppb	1.9	120979.33	1000	
W	182	159	No Gas	0.122	0.012	ppb	10.4	100.00	50	
Hg	201	159	He	0.002	0.000	ppb	868.0	6.50	5	
Tl	205	159	No Gas	288.345	28.834	ppb	1.6	433319.04	500	
Pb	208	159	No Gas	272.913	27.291	ppb	1.9	581237.66	500	
U	238	159	No Gas	283.400	28.340	ppb	1.6	511267.08	497	

Sample Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2267587.81	6.5	2164035.05	104.79	60	120	
Sc	45	No Gas	4897473.00	1.7	4836577.17	101.26	60	120	
Sc	45	H2	2550876.67	6.1	2750634.42	92.74	60	120	
Sc	45	He	431146.28	0.6	443681.93	97.17	60	120	
Ge	72	No Gas	1150129.79	1.7	1090200.04	105.5	60	120	
Ge	72	H2	704085.86	1.1	689401.36	102.13	60	120	
Ge	72	He	267069.92	1.4	260567.54	102.5	60	120	
In	115	No Gas	5557382.16	2.4	5597424.82	99.28	60	120	
Tb	159	No Gas	6493560.57	1.1	6013492.81	107.98	60	120	
Tb	159	He	4242120.58	2.5	3971667.83	106.81	60	120	

Sample Report

Sample Name	L064-07I
File Name	H6L06057.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 12:15:12
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	40.862	4.086	ppb	11.7	176289.14	50	
Be	9	6	No Gas	0.067	0.007	ppb	38.9	36.67	50	
B	11	6	No Gas	228.803	22.880	ppb	5.5	51329.15	100	
Na	23	45	H2	136265.541	13626.554	ppb	8.3	55029236.00	50000	
Mg	24	45	No Gas	65615.492	6561.549	ppb	3.6	83422834.67	50000	
Al	27	45	No Gas	98.329	9.833	ppb	3.7	163573.05	50000	
Si	28	45	H2	10617.126	1061.713	ppb	5.1	1082349.29	5000	
P	31	45	No Gas	60.073	6.007	ppb	29.7	45246.84	500	
K	39	45	He	3682.000	368.200	ppb	1.7	335450.48	50000	
Ca	40	45	H2	168166.544	16816.654	ppb	7.4	136599925.33	50000	
Ti	47	45	No Gas	1.481	0.148	ppb	9.5	530.68	500	
V	51	45	He	1.447	0.145	ppb	8.7	2596.25	500	
Cr	52	45	He	2.516	0.252	ppb	7.6	2892.97	500	
Mn	55	45	No Gas	8.760	0.876	ppb	2.6	34607.73	3000	
Fe	56	45	H2	171.007	17.101	ppb	5.0	237959.27	50000	
Co	59	45	No Gas	0.362	0.036	ppb	11.6	1066.04	500	
Ni	60	45	He	7.115	0.712	ppb	4.2	1756.78	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	2992.33	500	
Zn	66	72	No Gas	4.777	0.478	ppb	7.9	3369.09	500	
As	75	72	He	0.572	0.057	ppb	30.8	174.67	500	
Se	78	72	H2	2.513	0.251	ppb	13.4	109.67	500	
Sr	88	72	No Gas	1456.456	145.646	ppb	2.7	4202589.42	500	
Zr	90	72	No Gas	0.142	0.014	ppb	12.0	356.68	50	
Mo	95	115	No Gas	0.990	0.099	ppb	2.0	610.02	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	114.44	50	
Cd	111	115	No Gas	0.165	0.016	ppb	15.8	45.07	500	
Sn	118	115	No Gas	1.601	0.160	ppb	18.4	2800.31	500	
Sb	123	115	No Gas	0.331	0.033	ppb	16.3	401.12	100	
Ba	137	115	No Gas	43.646	4.365	ppb	1.4	17333.77	1000	
W	182	159	No Gas	0.019	0.002	ppb	94.4	23.33	50	
Hg	201	159	He	0.025	0.002	ppb	93.2	8.33	5	
Tl	205	159	No Gas	0.186	0.019	ppb	27.0	296.67	500	
Pb	208	159	No Gas	0.296	0.030	ppb	21.5	1097.79	500	
U	238	159	No Gas	3.101	0.310	ppb	3.8	5464.56	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2291074.06	2.3	2164035.05	105.87	60	120	
Sc	45	No Gas	5008423.67	3.4	4836577.17	103.55	60	120	
Sc	45	H2	2645358.42	7.7	2750634.42	96.17	60	120	
Sc	45	He	440044.60	0.7	443681.93	99.18	60	120	
Ge	72	No Gas	1127623.83	2.4	1090200.04	103.43	60	120	
Ge	72	H2	718069.60	1.2	689401.36	104.16	60	120	
Ge	72	He	272272.40	1.3	260567.54	104.49	60	120	
In	115	No Gas	5780509.41	3.4	5597424.82	103.27	60	120	
Tb	159	No Gas	6337290.44	6.3	6013492.81	105.38	60	120	
Tb	159	He	4261343.92	2.2	3971667.83	107.29	60	120	

Sample Report

Sample Name	L064-07J
File Name	H6L06058.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 12:17:29
Sample Type	Sample
Total Dilution	50.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	67.798	1.356	ppb	19.4	138753.87	50	
Be	9	6	No Gas	0.168	0.003	ppb	23.5	23.33	50	
B	11	6	No Gas	285.247	5.705	ppb	3.3	13522.07	100	
Na	23	45	H2	124716.363	2494.327	ppb	1.7	11250019.67	50000	
Mg	24	45	No Gas	66354.702	1327.094	ppb	5.1	16635687.33	50000	
Al	27	45	No Gas	112.851	2.257	ppb	10.0	44183.36	50000	
Si	28	45	H2	8249.803	164.996	ppb	6.5	187302.07	5000	
P	31	45	No Gas	246.247	4.925	ppb	40.2	43567.50	500	
K	39	45	He	3867.859	77.357	ppb	6.9	140338.98	50000	
Ca	40	45	H2	150050.619	3001.012	ppb	7.3	26476137.33	50000	
Ti	47	45	No Gas	2.592	0.052	ppb	65.8	352.67	500	
V	51	45	He	2.826	0.057	ppb	3.8	2088.16	500	
Cr	52	45	He	1.299	0.026	ppb	27.2	1407.41	500	
Mn	55	45	No Gas	11.207	0.224	ppb	13.3	15540.82	3000	
Fe	56	45	H2	174.728	3.495	ppb	13.3	62790.89	50000	
Co	59	45	No Gas	0.321	0.006	ppb	13.8	344.00	500	
Ni	60	45	He	7.432	0.149	ppb	13.6	414.68	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	2668.26	500	
Zn	66	72	No Gas	1.695	0.034	ppb	104.8	1597.43	500	
As	75	72	He	1.235	0.025	ppb	11.6	140.00	500	
Se	78	72	H2	2.035	0.041	ppb	4.3	28.67	500	
Sr	88	72	No Gas	1323.346	26.467	ppb	2.6	752635.87	500	
Zr	90	72	No Gas	0.140	0.003	ppb	34.0	140.00	50	
Mo	95	115	No Gas	0.953	0.019	ppb	2.7	135.55	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	55.56	50	
Cd	111	115	No Gas	0.475	0.009	ppb	22.0	24.87	500	
Sn	118	115	No Gas	8.450	0.169	ppb	16.9	2925.89	500	
Sb	123	115	No Gas	0.826	0.017	ppb	24.1	256.67	100	
Ba	137	115	No Gas	41.785	0.836	ppb	1.9	3434.90	1000	
W	182	159	No Gas	0.160	0.003	ppb	108.6	33.33	50	
Hg	201	159	He	0.118	0.002	ppb	148.0	8.00	5	
Tl	205	159	No Gas	0.396	0.008	ppb	14.5	142.22	500	
Pb	208	159	No Gas	0.707	0.014	ppb	17.7	776.68	500	
U	238	159	No Gas	3.074	0.061	ppb	2.7	1088.94	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2200183.74	4.4	2164035.05	101.67	60	120	
Sc	45	No Gas	4938674.50	4.5	4836577.17	102.11	60	120	
Sc	45	H2	2862727.75	3.9	2750634.42	104.08	60	120	
Sc	45	He	440854.00	1.5	443681.93	99.36	60	120	
Ge	72	No Gas	1110734.71	3.6	1090200.04	101.88	60	120	
Ge	72	H2	714233.52	1.7	689401.36	103.6	60	120	
Ge	72	He	271828.66	0.9	260567.54	104.32	60	120	
In	115	No Gas	5878744.62	0.6	5597424.82	105.03	60	120	
Tb	159	No Gas	6300103.64	1.5	6013492.81	104.77	60	120	
Tb	159	He	4186468.83	6.2	3971667.83	105.41	60	120	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV5
File Name	H6L06059.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 12:19:49
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	23.364	ppb	8.5	396510.94	25	93.46	90	110	
Be	9	6	No Gas	23.634	ppb	4.3	87189.30	25	94.54	90	110	
B	11	6	No Gas	46.666	ppb	2.6	102010.66	50	93.33	90	110	
Na	23	45	H2	24972.395	ppb	5.6	97645162.67	25000	99.89	90	110	
Mg	24	45	No Gas	25096.958	ppb	8.1	325033781.33	25000	100.39	90	110	
Al	27	45	No Gas	24312.726	ppb	5.8	388231140.88	25000	97.25	90	110	
Si	28	45	H2	2695.684	ppb	5.8	2656352.25	2500	107.83	90	110	
P	31	45	No Gas	239.759	ppb	4.4	276704.69	250	95.9	90	110	
K	39	45	He	26286.598	ppb	4.8	17465350.33	25000	105.15	90	110	
Ca	40	45	H2	24945.005	ppb	5.7	196740058.67	25000	99.78	90	110	
Ti	47	45	No Gas	236.200	ppb	4.4	431730.84	250	94.48	90	110	
V	51	45	He	270.233	ppb	2.6	1548432.75	250	108.09	90	110	
Cr	52	45	He	266.774	ppb	1.6	1733058.33	250	106.71	90	110	
Mn	55	45	No Gas	1469.705	ppb	5.2	43270684.00	1500	97.98	90	110	
Fe	56	45	H2	25478.124	ppb	1.9	326978741.33	25000	101.91	90	110	
Co	59	45	No Gas	248.045	ppb	5.8	6104882.83	250	99.22	90	110	
Ni	60	45	He	246.461	ppb	2.7	578869.67	250	98.58	90	110	
Cu	63	45	He	271.974	ppb	3.8	1720813.71	250	108.79	90	110	
Zn	66	72	No Gas	231.850	ppb	1.6	915434.95	250	92.74	90	110	
As	75	72	He	251.640	ppb	1.3	259388.07	250	100.66	90	110	
Se	78	72	H2	256.169	ppb	1.1	96593.30	250	102.47	90	110	
Sr	88	72	No Gas	260.447	ppb	4.4	7536202.20	250	104.18	90	110	
Zr	90	72	No Gas	24.101	ppb	1.6	452974.90	25	96.4	90	110	
Mo	95	115	No Gas	252.583	ppb	2.0	1438016.75	250	101.03	90	110	
Ag	107	115	No Gas	25.391	ppb	2.9	328674.72	25	101.56	90	110	
Cd	111	115	No Gas	239.608	ppb	3.0	675569.67	250	95.84	90	110	
Sn	118	115	No Gas	265.367	ppb	4.1	2077643.32	250	106.15	90	110	
Sb	123	115	No Gas	50.891	ppb	3.8	436630.12	50	101.78	90	110	
Ba	137	115	No Gas	519.351	ppb	1.5	1960650.06	500	103.87	90	110	
W	182	159	No Gas	24.974	ppb	0.1	181340.84	25	99.9	90	110	
Hg	201	159	He	2.671	ppb	6.4	2015.66	2.5	106.84	90	110	
Tl	205	159	No Gas	259.090	ppb	4.6	3881652.90	250	103.64	90	110	
Pb	208	159	No Gas	254.369	ppb	3.8	5397536.45	250	101.75	90	110	
U	238	159	No Gas	249.377	ppb	3.4	4484975.93	250	99.75	90	110	

Continuing Calibration Verification (CCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2272495.37	7.6	2164035.05	105.01	60	120	
Sc	45	No Gas	5106072.67	3.8	4836577.17	105.57	60	120	
Sc	45	H2	2562326.42	4.6	2750634.42	93.15	60	120	
Sc	45	He	433328.57	2.0	443681.93	97.67	60	120	
Ge	72	No Gas	1131394.04	3.8	1090200.04	103.78	60	120	
Ge	72	H2	705345.67	0.4	689401.36	102.31	60	120	
Ge	72	He	266512.58	2.0	260567.54	102.28	60	120	
In	115	No Gas	5518327.90	5.4	5597424.82	98.59	60	120	
Tb	159	No Gas	6476647.80	2.2	6013492.81	107.7	60	120	
Tb	159	He	4148447.17	4.3	3971667.83	104.45	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB5
File Name	H6L06060.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 12:22:03
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	<0.000	ppb	N/A	128062.15	0.8	
Be	9	6	No Gas	0.008	ppb	33.1	42.22	0.08	
B	11	6	No Gas	1.303	ppb	7.0	4656.33	4	
Na	23	45	H2	13.636	ppb	33.6	435854.93	50	
Mg	24	45	No Gas	7.737	ppb	10.0	102011.47	20	
Al	27	45	No Gas	7.102	ppb	10.7	118793.07	15	
Si	28	45	H2	<0.000	ppb	N/A	5196.97	8	
P	31	45	No Gas	2.677	ppb	33.2	41429.64	40	
K	39	45	He	10.740	ppb	64.7	96329.86	25	
Ca	40	45	H2	6.456	ppb	8.3	112769.51	60	
Ti	47	45	No Gas	0.068	ppb	58.4	378.67	0.5	
V	51	45	He	<0.000	ppb	N/A	1649.43	0.5	
Cr	52	45	He	0.029	ppb	31.1	1442.08	0.25	
Mn	55	45	No Gas	0.477	ppb	12.8	22702.15	0.5	
Fe	56	45	H2	5.482	ppb	5.4	91194.22	25	
Co	59	45	No Gas	0.073	ppb	10.4	1916.80	0.15	
Ni	60	45	He	0.050	ppb	20.1	180.67	0.5	
Cu	63	45	He	<0.000	ppb	N/A	2794.29	1	
Zn	66	72	No Gas	0.129	ppb	45.3	1982.15	10	
As	75	72	He	0.067	ppb	23.3	181.33	0.25	
Se	78	72	H2	0.067	ppb	10.2	38.33	0.2	
Sr	88	72	No Gas	0.078	ppb	10.3	2755.84	0.3	
Zr	90	72	No Gas	0.007	ppb	33.6	220.00	5	
Mo	95	115	No Gas	0.064	ppb	17.5	410.01	0.2	
Ag	107	115	No Gas	0.004	ppb	130.0	1024.49	0.08	
Cd	111	115	No Gas	0.102	ppb	16.5	302.11	0.2	
Sn	118	115	No Gas	0.202	ppb	8.1	3199.28	0.2	>LOD
Sb	123	115	No Gas	0.025	ppb	10.2	331.12	0.4	
Ba	137	115	No Gas	0.135	ppb	4.0	615.57	0.25	
W	182	159	No Gas	0.008	ppb	33.2	66.67	0.3	
Hg	201	159	He	0.009	ppb	13.9	13.83	0.1	
Tl	205	159	No Gas	0.176	ppb	7.9	2598.05	0.1	~~>LOD~~
Pb	208	159	No Gas	0.090	ppb	11.3	2351.20	0.1	
U	238	159	No Gas	0.071	ppb	9.5	1252.29	0.05	>LOD

< ½ LOQ
LV 12/18/19

Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2351056.51	0.5	2164035.05	108.64	60	120	
Sc	45	No Gas	4935867.17	3.8	4836577.17	102.05	60	120	
Sc	45	H2	2858619.75	4.7	2750634.42	103.93	60	120	
Sc	45	He	444693.61	1.3	443681.93	100.23	60	120	
Ge	72	No Gas	1123318.92	5.9	1090200.04	103.04	60	120	
Ge	72	H2	706684.81	0.8	689401.36	102.51	60	120	
Ge	72	He	266530.41	0.5	260567.54	102.29	60	120	
In	115	No Gas	5873727.19	3.1	5597424.82	104.94	60	120	
Tb	159	No Gas	6305972.53	3.3	6013492.81	104.86	60	120	
Tb	159	He	4356291.50	1.5	3971667.83	109.68	60	120	

Sample Report

Sample Name	L064-08I
File Name	H6L06061.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 12:24:26
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	18.634	1.863	ppb	39.3	142783.49	50	
Be	9	6	No Gas	0.015	0.002	ppb	115.2	16.67	50	
B	11	6	No Gas	90.661	9.066	ppb	9.3	20279.10	100	
Na	23	45	H2	89356.604	8935.660	ppb	4.2	36352197.33	50000	
Mg	24	45	No Gas	64515.429	6451.543	ppb	4.6	80924058.67	50000	
Al	27	45	No Gas	31.652	3.165	ppb	26.8	57908.06	50000	
Si	28	45	H2	7019.614	701.961	ppb	4.8	719149.73	5000	
P	31	45	No Gas	55.099	5.510	ppb	50.3	44130.58	500	
K	39	45	He	2278.335	227.834	ppb	4.0	245454.62	50000	
Ca	40	45	H2	175998.398	17599.840	ppb	4.0	143491648.00	50000	
Ti	47	45	No Gas	0.671	0.067	ppb	35.3	379.34	500	
V	51	45	He	0.922	0.092	ppb	8.7	2332.20	500	
Cr	52	45	He	0.323	0.032	ppb	13.3	1472.75	500	
Mn	55	45	No Gas	81.858	8.186	ppb	3.6	242399.21	3000	
Fe	56	45	H2	40.338	4.034	ppb	7.1	65306.24	50000	
Co	59	45	No Gas	0.367	0.037	ppb	15.6	1061.38	500	
Ni	60	45	He	1.126	0.113	ppb	2.7	334.00	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	2924.98	500	
Zn	66	72	No Gas	6.768	0.677	ppb	10.9	4263.34	500	
As	75	72	He	0.561	0.056	ppb	14.9	173.00	500	
Se	78	72	H2	0.721	0.072	ppb	21.6	40.67	500	
Sr	88	72	No Gas	1269.280	126.928	ppb	1.3	3767974.71	500	
Zr	90	72	No Gas	0.029	0.003	ppb	61.0	146.67	50	
Mo	95	115	No Gas	1.332	0.133	ppb	8.2	802.25	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	50.00	50	
Cd	111	115	No Gas	0.244	0.024	ppb	0.3	67.53	500	
Sn	118	115	No Gas	1.905	0.191	ppb	14.2	3009.24	500	
Sb	123	115	No Gas	0.196	0.020	ppb	21.6	275.56	100	
Ba	137	115	No Gas	66.343	6.634	ppb	2.9	25942.55	1000	
W	182	159	No Gas	0.070	0.007	ppb	19.7	60.00	50	
Hg	201	159	He	0.077	0.008	ppb	8.7	12.17	5	
Tl	205	159	No Gas	0.442	0.044	ppb	15.8	667.79	500	
Pb	208	159	No Gas	0.253	0.025	ppb	11.1	1003.35	500	
U	238	159	No Gas	1.608	0.161	ppb	2.5	2819.22	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2177255.99	4.1	2164035.05	100.61	60	120	
Sc	45	No Gas	4943727.67	5.3	4836577.17	102.22	60	120	
Sc	45	H2	2648067.92	4.3	2750634.42	96.27	60	120	
Sc	45	He	447909.75	0.8	443681.93	100.95	60	120	
Ge	72	No Gas	1159830.38	3.1	1090200.04	106.39	60	120	
Ge	72	H2	715212.48	0.7	689401.36	103.74	60	120	
Ge	72	He	271879.17	0.9	260567.54	104.34	60	120	
In	115	No Gas	5701359.40	3.6	5597424.82	101.86	60	120	
Tb	159	No Gas	6282923.92	2.9	6013492.81	104.48	60	120	
Tb	159	He	4182433.08	1.2	3971667.83	105.31	60	120	

Sample Report

Sample Name	L064-09I
File Name	H6L06062.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 12:26:44
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	7.144	0.714	ppb	131.2	140617.77	50	
Be	9	6	No Gas	0.035	0.004	ppb	19.7	25.56	50	
B	11	6	No Gas	48.787	4.879	ppb	8.1	12624.58	100	
Na	23	45	H2	31368.320	3136.832	ppb	3.8	13867891.00	50000	
Mg	24	45	No Gas	45668.509	4566.851	ppb	2.9	58139644.00	50000	
Al	27	45	No Gas	49.529	4.953	ppb	6.8	87525.11	50000	
Si	28	45	H2	6545.682	654.568	ppb	3.1	716669.77	5000	
P	31	45	No Gas	44.836	4.484	ppb	65.4	43779.50	500	
K	39	45	He	1813.886	181.389	ppb	2.8	211134.74	50000	
Ca	40	45	H2	121855.328	12185.533	ppb	3.2	106106112.00	50000	
Ti	47	45	No Gas	0.868	0.087	ppb	15.9	420.01	500	
V	51	45	He	0.935	0.094	ppb	4.5	2312.19	500	
Cr	52	45	He	0.203	0.020	ppb	57.5	1375.40	500	
Mn	55	45	No Gas	120.252	12.025	ppb	3.0	357069.56	3000	
Fe	56	45	H2	47.513	4.751	ppb	8.0	79960.79	50000	
Co	59	45	No Gas	0.354	0.035	ppb	3.7	1050.71	500	
Ni	60	45	He	1.218	0.122	ppb	11.4	352.01	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	2692.93	500	
Zn	66	72	No Gas	7.696	0.770	ppb	9.0	4526.09	500	
As	75	72	He	0.342	0.034	ppb	41.7	151.33	500	
Se	78	72	H2	0.868	0.087	ppb	11.4	46.67	500	
Sr	88	72	No Gas	924.742	92.474	ppb	0.9	2679253.44	500	
Zr	90	72	No Gas	0.078	0.008	ppb	35.6	236.67	50	
Mo	95	115	No Gas	1.181	0.118	ppb	6.4	722.24	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	66.67	50	
Cd	111	115	No Gas	0.186	0.019	ppb	9.6	51.18	500	
Sn	118	115	No Gas	2.595	0.260	ppb	5.3	3606.05	500	
Sb	123	115	No Gas	0.162	0.016	ppb	34.4	247.78	100	
Ba	137	115	No Gas	35.005	3.501	ppb	2.8	13878.53	1000	
W	182	159	No Gas	0.057	0.006	ppb	27.6	50.00	50	
Hg	201	159	He	0.072	0.007	ppb	64.8	12.00	5	
Tl	205	159	No Gas	0.429	0.043	ppb	7.1	641.13	500	
Pb	208	159	No Gas	0.247	0.025	ppb	17.6	980.01	500	
U	238	159	No Gas	1.484	0.148	ppb	5.5	2564.72	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2357220.53	6.1	2164035.05	108.93	60	120	
Sc	45	No Gas	5018141.00	6.1	4836577.17	103.75	60	120	
Sc	45	H2	2826455.75	3.1	2750634.42	102.76	60	120	
Sc	45	He	442479.50	0.4	443681.93	99.73	60	120	
Ge	72	No Gas	1131797.42	3.4	1090200.04	103.82	60	120	
Ge	72	H2	720131.33	1.1	689401.36	104.46	60	120	
Ge	72	He	274127.99	0.9	260567.54	105.2	60	120	
In	115	No Gas	5765558.46	3.8	5597424.82	103	60	120	
Tb	159	No Gas	6195105.45	2.3	6013492.81	103.02	60	120	
Tb	159	He	4297931.75	7.3	3971667.83	108.21	60	120	

Sample Report

Sample Name	L064-10I
File Name	H6L06063.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 12:29:02
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	15.138	1.514	ppb	35.7	144439.69	50	
Be	9	6	No Gas	0.032	0.003	ppb	28.0	23.33	50	
B	11	6	No Gas	61.705	6.171	ppb	8.3	14890.14	100	
Na	23	45	H2	50038.483	5003.848	ppb	7.0	22131984.67	50000	
Mg	24	45	No Gas	39266.134	3926.613	ppb	1.5	48557773.33	50000	
Al	27	45	No Gas	32.520	3.252	ppb	26.7	58302.81	50000	
Si	28	45	H2	6650.229	665.023	ppb	4.1	736272.17	5000	
P	31	45	No Gas	62.848	6.285	ppb	38.4	44182.76	500	
K	39	45	He	1971.395	197.139	ppb	3.6	221782.77	50000	
Ca	40	45	H2	114178.017	11417.802	ppb	4.0	100608664.00	50000	
Ti	47	45	No Gas	0.769	0.077	ppb	35.0	389.34	500	
V	51	45	He	0.105	0.010	ppb	81.3	1827.46	500	
Cr	52	45	He	0.055	0.006	ppb	192.8	1277.39	500	
Mn	55	45	No Gas	481.574	48.157	ppb	5.8	1360710.37	3000	
Fe	56	45	H2	119.809	11.981	ppb	4.8	184283.71	50000	
Co	59	45	No Gas	0.954	0.095	ppb	5.6	2424.22	500	
Ni	60	45	He	3.775	0.378	ppb	7.2	965.37	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	5457.10	500	
Zn	66	72	No Gas	9.975	0.998	ppb	4.8	5439.09	500	
As	75	72	He	0.369	0.037	ppb	37.9	153.67	500	
Se	78	72	H2	0.897	0.090	ppb	17.5	48.00	500	
Sr	88	72	No Gas	1326.145	132.615	ppb	4.6	3846021.37	500	
Zr	90	72	No Gas	0.046	0.005	ppb	85.9	176.67	50	
Mo	95	115	No Gas	4.772	0.477	ppb	1.8	2832.53	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	55.56	50	
Cd	111	115	No Gas	0.148	0.015	ppb	4.7	39.58	500	
Sn	118	115	No Gas	1.519	0.152	ppb	19.9	2699.17	500	
Sb	123	115	No Gas	0.213	0.021	ppb	16.1	292.23	100	
Ba	137	115	No Gas	26.381	2.638	ppb	0.8	10378.61	1000	
W	182	159	No Gas	0.088	0.009	ppb	38.5	73.33	50	
Hg	201	159	He	0.046	0.005	ppb	80.2	9.83	5	
Tl	205	159	No Gas	0.270	0.027	ppb	33.0	423.34	500	
Pb	208	159	No Gas	0.225	0.022	ppb	10.5	958.90	500	
U	238	159	No Gas	1.593	0.159	ppb	3.8	2829.22	497	

Sample Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2261989.60	2.7	2164035.05	104.53	60	120	
Sc	45	No Gas	4866938.50	5.6	4836577.17	100.63	60	120	
Sc	45	H2	2860411.58	4.8	2750634.42	103.99	60	120	
Sc	45	He	442557.07	0.9	443681.93	99.75	60	120	
Ge	72	No Gas	1133270.84	1.1	1090200.04	103.95	60	120	
Ge	72	H2	723749.00	0.4	689401.36	104.98	60	120	
Ge	72	He	273361.82	1.0	260567.54	104.91	60	120	
In	115	No Gas	5710023.25	2.9	5597424.82	102.01	60	120	
Tb	159	No Gas	6364233.50	1.5	6013492.81	105.83	60	120	
Tb	159	He	4194487.33	0.9	3971667.83	105.61	60	120	

Sample Report

Sample Name	L064-11I
File Name	H6L06064.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 12:31:18
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	17.038	1.704	ppb	36.6	146232.14	50	
Be	9	6	No Gas	0.024	0.002	ppb	192.6	20.00	50	
B	11	6	No Gas	124.199	12.420	ppb	6.1	28209.42	100	
Na	23	45	H2	89890.489	8989.049	ppb	5.5	38904358.67	50000	
Mg	24	45	No Gas	49002.779	4900.278	ppb	2.3	64543845.33	50000	
Al	27	45	No Gas	9.608	0.961	ppb	1.5	25456.73	50000	
Si	28	45	H2	6939.744	693.974	ppb	3.0	757116.31	5000	
P	31	45	No Gas	33.636	3.364	ppb	43.9	44208.17	500	
K	39	45	He	2251.664	225.166	ppb	2.9	239690.93	50000	
Ca	40	45	H2	132129.244	13212.924	ppb	3.4	114686922.67	50000	
Ti	47	45	No Gas	0.381	0.038	ppb	7.8	344.67	500	
V	51	45	He	1.334	0.133	ppb	7.1	2534.24	500	
Cr	52	45	He	0.574	0.057	ppb	19.1	1614.76	500	
Mn	55	45	No Gas	5.717	0.572	ppb	2.0	26736.78	3000	
Fe	56	45	H2	4.758	0.476	ppb	15.1	19312.96	50000	
Co	59	45	No Gas	0.103	0.010	ppb	5.4	457.34	500	
Ni	60	45	He	0.253	0.025	ppb	19.7	120.00	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	2484.90	500	
Zn	66	72	No Gas	5.613	0.561	ppb	5.1	3779.20	500	
As	75	72	He	0.532	0.053	ppb	11.3	171.00	500	
Se	78	72	H2	0.789	0.079	ppb	21.6	43.67	500	
Sr	88	72	No Gas	1119.669	111.967	ppb	5.3	3304800.22	500	
Zr	90	72	No Gas	0.023	0.002	ppb	113.0	133.33	50	
Mo	95	115	No Gas	0.242	0.024	ppb	8.8	164.45	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	48.89	50	
Cd	111	115	No Gas	0.096	0.010	ppb	6.4	24.91	500	
Sn	118	115	No Gas	1.316	0.132	ppb	5.2	2573.59	500	
Sb	123	115	No Gas	0.150	0.015	ppb	21.1	238.89	100	
Ba	137	115	No Gas	55.317	5.532	ppb	4.3	21954.08	1000	
W	182	159	No Gas	0.024	0.002	ppb	37.5	26.67	50	
Hg	201	159	He	0.040	0.004	ppb	112.2	9.33	5	
Tl	205	159	No Gas	0.141	0.014	ppb	6.3	225.56	500	
Pb	208	159	No Gas	0.131	0.013	ppb	8.0	735.56	500	
U	238	159	No Gas	1.484	0.148	ppb	3.9	2540.27	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2258538.25	6.0	2164035.05	104.37	60	120	
Sc	45	No Gas	5185927.83	3.2	4836577.17	107.22	60	120	
Sc	45	H2	2818327.42	4.2	2750634.42	102.46	60	120	
Sc	45	He	440634.07	1.0	443681.93	99.31	60	120	
Ge	72	No Gas	1153834.29	4.6	1090200.04	105.84	60	120	
Ge	72	H2	720748.02	0.4	689401.36	104.55	60	120	
Ge	72	He	273432.95	0.6	260567.54	104.94	60	120	
In	115	No Gas	5783449.98	2.2	5597424.82	103.32	60	120	
Tb	159	No Gas	6134656.70	1.9	6013492.81	102.01	60	120	
Tb	159	He	4183601.33	1.9	3971667.83	105.34	60	120	

Sample Report

Sample Name	L064-12I
File Name	H6L06065.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 12:33:35
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	31.775	3.177	ppb	10.2	163871.83	50	
Be	9	6	No Gas	0.026	0.003	ppb	71.1	21.11	50	
B	11	6	No Gas	116.635	11.664	ppb	3.4	26719.88	100	
Na	23	45	H2	137971.211	13797.121	ppb	1.6	62501893.33	50000	
Mg	24	45	No Gas	54692.545	5469.254	ppb	1.5	69148501.33	50000	
Al	27	45	No Gas	183.036	18.304	ppb	2.5	294934.61	50000	
Si	28	45	H2	7285.344	728.534	ppb	1.7	833414.73	5000	
P	31	45	No Gas	55.281	5.528	ppb	31.6	44519.16	500	
K	39	45	He	3511.440	351.144	ppb	1.8	324441.96	50000	
Ca	40	45	H2	128948.541	12894.854	ppb	3.2	117401672.00	50000	
Ti	47	45	No Gas	4.047	0.405	ppb	13.8	982.04	500	
V	51	45	He	0.318	0.032	ppb	3.5	1943.47	500	
Cr	52	45	He	3.143	0.314	ppb	8.0	3311.07	500	
Mn	55	45	No Gas	67.228	6.723	ppb	2.3	202304.11	3000	
Fe	56	45	H2	289.591	28.959	ppb	2.5	441850.09	50000	
Co	59	45	No Gas	1.230	0.123	ppb	4.5	3144.36	500	
Ni	60	45	He	97.054	9.705	ppb	0.8	23245.79	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	3070.35	500	
Zn	66	72	No Gas	16.640	1.664	ppb	7.1	8070.40	500	
As	75	72	He	0.225	0.023	ppb	25.8	138.67	500	
Se	78	72	H2	0.458	0.046	ppb	16.8	31.00	500	
Sr	88	72	No Gas	1108.367	110.837	ppb	1.1	3219120.85	500	
Zr	90	72	No Gas	0.260	0.026	ppb	8.1	580.01	50	
Mo	95	115	No Gas	3.128	0.313	ppb	7.1	1853.46	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	293.34	50	
Cd	111	115	No Gas	0.119	0.012	ppb	23.0	31.08	500	
Sn	118	115	No Gas	1.587	0.159	ppb	25.0	2749.18	500	
Sb	123	115	No Gas	0.183	0.018	ppb	11.8	264.45	100	
Ba	137	115	No Gas	115.440	11.544	ppb	3.0	44975.51	1000	
W	182	159	No Gas	0.033	0.003	ppb	104.3	33.33	50	
Hg	201	159	He	0.025	0.003	ppb	37.2	8.17	5	
Tl	205	159	No Gas	0.129	0.013	ppb	15.0	214.45	500	
Pb	208	159	No Gas	0.384	0.038	ppb	10.5	1274.46	500	
U	238	159	No Gas	5.070	0.507	ppb	6.0	8856.55	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2265469.49	4.2	2164035.05	104.69	60	120	
Sc	45	No Gas	4980049.00	4.3	4836577.17	102.97	60	120	
Sc	45	H2	2954631.08	2.4	2750634.42	107.42	60	120	
Sc	45	He	440662.12	0.2	443681.93	99.32	60	120	
Ge	72	No Gas	1134856.33	3.6	1090200.04	104.1	60	120	
Ge	72	H2	722761.02	2.2	689401.36	104.84	60	120	
Ge	72	He	273656.62	0.4	260567.54	105.02	60	120	
In	115	No Gas	5685108.57	2.0	5597424.82	101.57	60	120	
Tb	159	No Gas	6285431.69	2.9	6013492.81	104.52	60	120	
Tb	159	He	4162944.33	2.2	3971667.83	104.82	60	120	

Sample Report

Sample Name	L064-14I
File Name	H6L06066.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 12:35:53
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	13.361	1.336	ppb	39.1	143586.57	50	
Be	9	6	No Gas	0.023	0.002	ppb	79.7	20.00	50	
B	11	6	No Gas	59.734	5.973	ppb	7.1	14590.93	100	
Na	23	45	H2	31072.315	3107.232	ppb	4.6	13622780.67	50000	
Mg	24	45	No Gas	42925.904	4292.590	ppb	5.7	54443498.67	50000	
Al	27	45	No Gas	15.543	1.554	ppb	18.3	33915.96	50000	
Si	28	45	H2	7151.877	715.188	ppb	3.6	775809.11	5000	
P	31	45	No Gas	53.470	5.347	ppb	26.3	44517.17	500	
K	39	45	He	1793.230	179.323	ppb	3.3	213070.73	50000	
Ca	40	45	H2	113694.880	11369.488	ppb	3.4	98161112.00	50000	
Ti	47	45	No Gas	0.582	0.058	ppb	5.2	368.01	500	
V	51	45	He	1.157	0.116	ppb	9.6	2480.89	500	
Cr	52	45	He	0.648	0.065	ppb	15.0	1696.77	500	
Mn	55	45	No Gas	7.785	0.779	ppb	4.6	31716.09	3000	
Fe	56	45	H2	12.335	1.233	ppb	7.3	29847.86	50000	
Co	59	45	No Gas	0.126	0.013	ppb	20.0	496.68	500	
Ni	60	45	He	0.208	0.021	ppb	43.6	111.33	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	2411.55	500	
Zn	66	72	No Gas	5.497	0.550	ppb	14.6	3688.50	500	
As	75	72	He	0.417	0.042	ppb	40.4	159.00	500	
Se	78	72	H2	0.981	0.098	ppb	6.9	50.33	500	
Sr	88	72	No Gas	1157.328	115.733	ppb	1.6	3386334.73	500	
Zr	90	72	No Gas	0.000	0.000	ppb	12091.6	93.33	50	
Mo	95	115	No Gas	0.553	0.055	ppb	22.6	335.56	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	43.33	50	
Cd	111	115	No Gas	0.127	0.013	ppb	19.5	32.58	500	
Sn	118	115	No Gas	1.581	0.158	ppb	22.8	2682.50	500	
Sb	123	115	No Gas	0.169	0.017	ppb	2.6	247.78	100	
Ba	137	115	No Gas	28.531	2.853	ppb	4.1	10956.84	1000	
W	182	159	No Gas	0.040	0.004	ppb	97.9	40.00	50	
Hg	201	159	He	<0.000	<0.000	ppb	N/A	5.50	5	
Tl	205	159	No Gas	0.189	0.019	ppb	55.6	298.89	500	
Pb	208	159	No Gas	0.134	0.013	ppb	11.9	762.23	500	
U	238	159	No Gas	1.215	0.122	ppb	4.1	2140.19	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2282196.67	5.3	2164035.05	105.46	60	120	
Sc	45	No Gas	4997540.33	3.5	4836577.17	103.33	60	120	
Sc	45	H2	2802813.58	3.4	2750634.42	101.9	60	120	
Sc	45	He	449537.00	0.5	443681.93	101.32	60	120	
Ge	72	No Gas	1142701.58	5.4	1090200.04	104.82	60	120	
Ge	72	H2	710661.75	0.1	689401.36	103.08	60	120	
Ge	72	He	273519.94	1.3	260567.54	104.97	60	120	
In	115	No Gas	5584391.16	6.0	5597424.82	99.77	60	120	
Tb	159	No Gas	6313495.17	7.0	6013492.81	104.99	60	120	
Tb	159	He	4174095.92	0.3	3971667.83	105.1	60	120	

Sample Report

Sample Name	L064-15I
File Name	H6L06067.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 12:38:10
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	17.970	1.797	ppb	18.9	150606.99	50	
Be	9	6	No Gas	0.001	0.000	ppb	1479.5	12.22	50	
B	11	6	No Gas	55.814	5.581	ppb	4.6	13901.33	100	
Na	23	45	H2	30253.249	3025.325	ppb	2.8	13558422.67	50000	
Mg	24	45	No Gas	37431.407	3743.141	ppb	2.4	48049296.00	50000	
Al	27	45	No Gas	20.266	2.027	ppb	1.5	41705.86	50000	
Si	28	45	H2	7312.670	731.267	ppb	1.3	809859.02	5000	
P	31	45	No Gas	43.270	4.327	ppb	52.8	44023.59	500	
K	39	45	He	2117.892	211.789	ppb	2.2	232911.59	50000	
Ca	40	45	H2	95248.458	9524.846	ppb	3.2	83964840.00	50000	
Ti	47	45	No Gas	0.709	0.071	ppb	15.7	396.01	500	
V	51	45	He	0.197	0.020	ppb	24.2	1890.80	500	
Cr	52	45	He	0.135	0.013	ppb	116.2	1337.40	500	
Mn	55	45	No Gas	537.144	53.714	ppb	6.5	1573796.83	3000	
Fe	56	45	H2	160.170	16.017	ppb	0.6	242344.45	50000	
Co	59	45	No Gas	0.830	0.083	ppb	1.2	2220.85	500	
Ni	60	45	He	2.929	0.293	ppb	7.5	766.69	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	2480.23	500	
Zn	66	72	No Gas	11.180	1.118	ppb	4.3	5856.60	500	
As	75	72	He	0.378	0.038	ppb	36.1	153.67	500	
Se	78	72	H2	0.917	0.092	ppb	26.4	48.33	500	
Sr	88	72	No Gas	1244.933	124.493	ppb	6.8	3573313.19	500	
Zr	90	72	No Gas	0.028	0.003	ppb	105.2	140.00	50	
Mo	95	115	No Gas	7.317	0.732	ppb	2.8	4265.13	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	44.45	50	
Cd	111	115	No Gas	0.079	0.008	ppb	32.7	19.14	500	
Sn	118	115	No Gas	1.366	0.137	ppb	15.0	2541.36	500	
Sb	123	115	No Gas	0.169	0.017	ppb	16.6	248.89	100	
Ba	137	115	No Gas	44.406	4.441	ppb	3.4	17154.67	1000	
W	182	159	No Gas	0.039	0.004	ppb	115.7	36.67	50	
Hg	201	159	He	0.053	0.005	ppb	85.5	10.17	5	
Tl	205	159	No Gas	0.078	0.008	ppb	15.6	141.11	500	
Pb	208	159	No Gas	0.152	0.015	ppb	36.2	793.34	500	
U	238	159	No Gas	1.516	0.152	ppb	6.2	2655.85	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2305440.21	2.0	2164035.05	106.53	60	120	
Sc	45	No Gas	5057226.67	4.2	4836577.17	104.56	60	120	
Sc	45	H2	2859799.75	1.0	2750634.42	103.97	60	120	
Sc	45	He	444860.89	0.5	443681.93	100.27	60	120	
Ge	72	No Gas	1123505.79	5.2	1090200.04	103.06	60	120	
Ge	72	H2	716341.94	1.1	689401.36	103.91	60	120	
Ge	72	He	271701.23	0.2	260567.54	104.27	60	120	
In	115	No Gas	5623739.11	1.7	5597424.82	100.47	60	120	
Tb	159	No Gas	6297702.67	8.3	6013492.81	104.73	60	120	
Tb	159	He	4147969.25	2.4	3971667.83	104.44	60	120	

Sample Report

Sample Name	L064-17I
File Name	H6L06068.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 12:40:26
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	14.295	1.430	ppb	21.5	147960.63	50	
Be	9	6	No Gas	0.016	0.002	ppb	330.4	17.78	50	
B	11	6	No Gas	82.339	8.234	ppb	2.0	19928.59	100	
Na	23	45	H2	79523.774	7952.377	ppb	6.2	32867490.00	50000	
Mg	24	45	No Gas	62439.954	6243.995	ppb	3.4	80289770.67	50000	
Al	27	45	No Gas	85.752	8.575	ppb	9.6	145468.80	50000	
Si	28	45	H2	7168.498	716.850	ppb	2.9	745491.00	5000	
P	31	45	No Gas	58.664	5.866	ppb	20.8	45655.52	500	
K	39	45	He	2427.087	242.709	ppb	2.5	254317.44	50000	
Ca	40	45	H2	170355.856	17035.586	ppb	4.9	140920165.33	50000	
Ti	47	45	No Gas	1.485	0.148	ppb	20.4	538.01	500	
V	51	45	He	1.497	0.150	ppb	8.4	2658.92	500	
Cr	52	45	He	0.837	0.084	ppb	5.4	1808.12	500	
Mn	55	45	No Gas	25.322	2.532	ppb	2.5	83405.61	3000	
Fe	56	45	H2	119.252	11.925	ppb	1.9	172535.13	50000	
Co	59	45	No Gas	0.248	0.025	ppb	7.7	802.02	500	
Ni	60	45	He	0.669	0.067	ppb	16.9	222.00	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	2418.88	500	
Zn	66	72	No Gas	12.907	1.291	ppb	3.7	6470.21	500	
As	75	72	He	0.688	0.069	ppb	20.0	187.33	500	
Se	78	72	H2	0.946	0.095	ppb	22.7	49.00	500	
Sr	88	72	No Gas	1274.756	127.476	ppb	5.0	3626338.33	500	
Zr	90	72	No Gas	0.086	0.009	ppb	19.5	246.67	50	
Mo	95	115	No Gas	0.461	0.046	ppb	15.3	294.45	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	62.22	50	
Cd	111	115	No Gas	0.123	0.012	ppb	6.7	32.72	500	
Sn	118	115	No Gas	1.332	0.133	ppb	15.5	2583.59	500	
Sb	123	115	No Gas	0.161	0.016	ppb	26.4	248.89	100	
Ba	137	115	No Gas	64.899	6.490	ppb	1.3	25743.25	1000	
W	182	159	No Gas	0.023	0.002	ppb	127.3	26.67	50	
Hg	201	159	He	0.017	0.002	ppb	176.9	7.50	5	
Tl	205	159	No Gas	0.221	0.022	ppb	8.9	347.78	500	
Pb	208	159	No Gas	0.205	0.020	ppb	15.2	905.57	500	
U	238	159	No Gas	1.453	0.145	ppb	3.1	2548.05	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2331797.23	2.8	2164035.05	107.75	60	120	
Sc	45	No Gas	5066555.33	3.0	4836577.17	104.75	60	120	
Sc	45	H2	2686437.50	2.9	2750634.42	97.67	60	120	
Sc	45	He	445585.66	0.5	443681.93	100.43	60	120	
Ge	72	No Gas	1112119.83	2.4	1090200.04	102.01	60	120	
Ge	72	H2	711098.58	0.8	689401.36	103.15	60	120	
Ge	72	He	273237.65	0.6	260567.54	104.86	60	120	
In	115	No Gas	5779601.35	0.2	5597424.82	103.25	60	120	
Tb	159	No Gas	6278229.06	1.3	6013492.81	104.4	60	120	
Tb	159	He	4186999.92	6.7	3971667.83	105.42	60	120	

Sample Report

Sample Name	L064-18I
File Name	H6L06069.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 12:42:45
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	24.224	2.422	ppb	9.2	152784.89	50	
Be	9	6	No Gas	0.042	0.004	ppb	80.3	26.67	50	
B	11	6	No Gas	89.025	8.903	ppb	5.9	20459.36	100	
Na	23	45	H2	74254.030	7425.403	ppb	5.1	31545614.67	50000	
Mg	24	45	No Gas	52298.651	5229.865	ppb	6.2	67498337.33	50000	
Al	27	45	No Gas	155.714	15.571	ppb	3.2	257415.60	50000	
Si	28	45	H2	6955.792	695.579	ppb	5.6	742763.10	5000	
P	31	45	No Gas	54.874	5.487	ppb	32.6	45450.17	500	
K	39	45	He	2735.212	273.521	ppb	4.1	272313.02	50000	
Ca	40	45	H2	139337.992	13933.799	ppb	5.8	118371384.00	50000	
Ti	47	45	No Gas	3.441	0.344	ppb	5.0	895.36	500	
V	51	45	He	0.253	0.025	ppb	58.3	1906.80	500	
Cr	52	45	He	3.606	0.361	ppb	2.6	3618.48	500	
Mn	55	45	No Gas	438.350	43.835	ppb	4.1	1295012.63	3000	
Fe	56	45	H2	958.364	95.836	ppb	8.4	1335678.79	50000	
Co	59	45	No Gas	4.644	0.464	ppb	5.0	11580.92	500	
Ni	60	45	He	7.169	0.717	ppb	2.6	1772.78	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	2500.90	500	
Zn	66	72	No Gas	7.830	0.783	ppb	7.0	4614.12	500	
As	75	72	He	2.415	0.242	ppb	8.6	368.67	500	
Se	78	72	H2	0.897	0.090	ppb	11.7	47.67	500	
Sr	88	72	No Gas	1144.628	114.463	ppb	5.4	3336999.59	500	
Zr	90	72	No Gas	0.204	0.020	ppb	19.8	476.68	50	
Mo	95	115	No Gas	2.607	0.261	ppb	12.5	1561.21	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	91.11	50	
Cd	111	115	No Gas	0.124	0.012	ppb	13.2	32.80	500	
Sn	118	115	No Gas	1.364	0.136	ppb	19.3	2589.15	500	
Sb	123	115	No Gas	0.135	0.013	ppb	14.8	223.34	100	
Ba	137	115	No Gas	75.841	7.584	ppb	1.0	29872.07	1000	
W	182	159	No Gas	0.050	0.005	ppb	66.3	46.67	50	
Hg	201	159	He	0.026	0.003	ppb	188.9	8.17	5	
Tl	205	159	No Gas	0.218	0.022	ppb	17.1	352.23	500	
Pb	208	159	No Gas	0.279	0.028	ppb	14.0	1086.68	500	
U	238	159	No Gas	3.065	0.306	ppb	5.3	5507.91	497	

Sample Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2229974.68	1.2	2164035.05	103.05	60	120	
Sc	45	No Gas	5086681.00	2.8	4836577.17	105.17	60	120	
Sc	45	H2	2761210.08	4.8	2750634.42	100.38	60	120	
Sc	45	He	440857.31	1.0	443681.93	99.36	60	120	
Ge	72	No Gas	1140242.75	3.4	1090200.04	104.59	60	120	
Ge	72	H2	718761.94	0.4	689401.36	104.26	60	120	
Ge	72	He	272328.45	0.7	260567.54	104.51	60	120	
In	115	No Gas	5741724.18	2.7	5597424.82	102.58	60	120	
Tb	159	No Gas	6463149.47	4.1	6013492.81	107.48	60	120	
Tb	159	He	4160395.25	2.3	3971667.83	104.75	60	120	

Sample Report

Sample Name	L064-20I
File Name	H6L06070.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 12:45:01
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	18.754	1.875	ppb	19.6	148268.44	50	
Be	9	6	No Gas	<0.000	<0.000	ppb	N/A	10.00	50	
B	11	6	No Gas	176.977	17.698	ppb	5.6	39483.26	100	
Na	23	45	H2	64687.396	6468.740	ppb	3.4	25890013.33	50000	
Mg	24	45	No Gas	65073.661	6507.366	ppb	3.6	80021474.67	50000	
Al	27	45	No Gas	14.297	1.430	ppb	3.3	30890.96	50000	
Si	28	45	H2	7626.401	762.640	ppb	2.1	765622.23	5000	
P	31	45	No Gas	77.446	7.745	ppb	16.6	45414.06	500	
K	39	45	He	2548.156	254.816	ppb	3.6	261098.42	50000	
Ca	40	45	H2	171592.336	17159.234	ppb	3.4	137124600.00	50000	
Ti	47	45	No Gas	0.728	0.073	ppb	13.8	382.01	500	
V	51	45	He	1.534	0.153	ppb	4.2	2666.26	500	
Cr	52	45	He	5.488	0.549	ppb	2.8	4886.21	500	
Mn	55	45	No Gas	1.749	0.175	ppb	3.8	13890.38	3000	
Fe	56	45	H2	31.372	3.137	ppb	1.9	52382.75	50000	
Co	59	45	No Gas	0.240	0.024	ppb	5.7	748.02	500	
Ni	60	45	He	4.215	0.422	ppb	5.4	1072.71	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	2582.24	500	
Zn	66	72	No Gas	7.814	0.781	ppb	0.8	4585.45	500	
As	75	72	He	0.530	0.053	ppb	12.9	170.67	500	
Se	78	72	H2	0.630	0.063	ppb	22.9	37.67	500	
Sr	88	72	No Gas	1206.394	120.639	ppb	3.2	3500119.03	500	
Zr	90	72	No Gas	0.018	0.002	ppb	134.8	123.33	50	
Mo	95	115	No Gas	1.573	0.157	ppb	3.8	962.26	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	55.56	50	
Cd	111	115	No Gas	0.097	0.010	ppb	13.7	25.26	500	
Sn	118	115	No Gas	1.349	0.135	ppb	7.1	2606.93	500	
Sb	123	115	No Gas	0.186	0.019	ppb	21.7	272.23	100	
Ba	137	115	No Gas	66.370	6.637	ppb	4.0	26406.82	1000	
W	182	159	No Gas	0.009	0.001	ppb	96.8	16.67	50	
Hg	201	159	He	0.006	0.001	ppb	518.0	6.67	5	
Tl	205	159	No Gas	0.150	0.015	ppb	16.9	246.67	500	
Pb	208	159	No Gas	0.122	0.012	ppb	15.0	743.34	500	
U	238	159	No Gas	1.502	0.150	ppb	4.1	2662.51	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2256045.20	2.0	2164035.05	104.25	60	120	
Sc	45	No Gas	4844653.33	2.8	4836577.17	100.17	60	120	
Sc	45	H2	2593572.67	1.5	2750634.42	94.29	60	120	
Sc	45	He	443186.46	1.2	443681.93	99.89	60	120	
Ge	72	No Gas	1133492.45	0.6	1090200.04	103.97	60	120	
Ge	72	H2	723445.81	0.9	689401.36	104.94	60	120	
Ge	72	He	273268.54	0.8	260567.54	104.87	60	120	
In	115	No Gas	5800868.89	2.7	5597424.82	103.63	60	120	
Tb	159	No Gas	6351855.72	2.2	6013492.81	105.63	60	120	
Tb	159	He	4099061.67	2.5	3971667.83	103.21	60	120	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV6
File Name	H6L06071.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 12:47:19
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	22.592	ppb	1.7	402837.44	25	90.37	90	110	
Be	9	6	No Gas	22.833	ppb	0.4	87479.57	25	91.33	90	110	
B	11	6	No Gas	45.038	ppb	1.7	102230.19	50	90.08	90	110	
Na	23	45	H2	25166.918	ppb	6.5	98543968.00	25000	100.67	90	110	
Mg	24	45	No Gas	25438.250	ppb	4.4	320379946.67	25000	101.75	90	110	
Al	27	45	No Gas	25276.114	ppb	0.3	392557860.82	25000	101.1	90	110	
Si	28	45	H2	2760.156	ppb	7.3	2722837.50	2500	110.41	90	110	> +/- 10%
P	31	45	No Gas	249.771	ppb	2.5	278610.31	250	99.91	90	110	
K	39	45	He	26399.784	ppb	0.9	17593264.00	25000	105.6	90	110	
Ca	40	45	H2	25442.758	ppb	4.8	200955792.00	25000	101.77	90	110	
Ti	47	45	No Gas	243.323	ppb	1.9	432418.53	250	97.33	90	110	
V	51	45	He	268.315	ppb	2.1	1540705.71	250	107.33	90	110	
Cr	52	45	He	269.976	ppb	4.3	1759057.75	250	107.99	90	110	
Mn	55	45	No Gas	1533.864	ppb	2.7	43952889.33	1500	102.26	90	110	
Fe	56	45	H2	24601.964	ppb	3.1	316141941.33	25000	98.41	90	110	
Co	59	45	No Gas	256.056	ppb	3.3	6125426.67	250	102.42	90	110	
Ni	60	45	He	244.464	ppb	1.5	575801.44	250	97.79	90	110	
Cu	63	45	He	267.056	ppb	1.6	1694972.71	250	106.82	90	110	
Zn	66	72	No Gas	234.437	ppb	0.7	920094.25	250	93.77	90	110	
As	75	72	He	248.607	ppb	0.2	258465.08	250	99.44	90	110	
Se	78	72	H2	256.368	ppb	0.4	96434.82	250	102.55	90	110	
Sr	88	72	No Gas	261.533	ppb	1.6	7525637.75	250	104.61	90	110	
Zr	90	72	No Gas	24.429	ppb	2.0	456467.36	25	97.72	90	110	
Mo	95	115	No Gas	249.038	ppb	1.6	1439043.00	250	99.62	90	110	
Ag	107	115	No Gas	24.780	ppb	1.6	325833.45	25	99.12	90	110	
Cd	111	115	No Gas	235.669	ppb	0.7	674932.83	250	94.27	90	110	
Sn	118	115	No Gas	259.691	ppb	3.0	2059677.56	250	103.88	90	110	
Sb	123	115	No Gas	50.679	ppb	1.8	441755.02	50	101.36	90	110	
Ba	137	115	No Gas	519.537	ppb	2.9	1990860.82	500	103.91	90	110	
W	182	159	No Gas	25.491	ppb	1.2	180599.04	25	101.96	90	110	
Hg	201	159	He	2.568	ppb	5.8	2045.67	2.5	102.72	90	110	
Tl	205	159	No Gas	268.601	ppb	1.8	3928334.15	250	107.44	90	110	
Pb	208	159	No Gas	262.076	ppb	2.3	5426183.21	250	104.83	90	110	
U	238	159	No Gas	264.167	ppb	5.3	4634163.84	250	105.67	90	110	

Continuing Calibration Verification (CCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2355061.44	1.3	2164035.05	108.83	60	120	
Sc	45	No Gas	4962946.33	3.7	4836577.17	102.61	60	120	
Sc	45	H2	2566346.92	4.2	2750634.42	93.3	60	120	
Sc	45	He	434477.03	1.5	443681.93	97.93	60	120	
Ge	72	No Gas	1124413.96	2.1	1090200.04	103.14	60	120	
Ge	72	H2	703617.52	0.1	689401.36	102.06	60	120	
Ge	72	He	268757.96	0.5	260567.54	103.14	60	120	
In	115	No Gas	5599534.52	1.5	5597424.82	100.04	60	120	
Tb	159	No Gas	6320377.53	2.4	6013492.81	105.1	60	120	
Tb	159	He	4375833.50	3.7	3971667.83	110.18	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB6
File Name	H6L06072.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 12:49:34
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	<0.000	ppb	N/A	128805.47	0.8	
Be	9	6	No Gas	0.011	ppb	59.5	56.67	0.08	
B	11	6	No Gas	1.080	ppb	18.6	4379.58	4	
Na	23	45	H2	8.012	ppb	45.5	405067.41	50	
Mg	24	45	No Gas	8.228	ppb	10.1	109098.05	20	
Al	27	45	No Gas	7.588	ppb	9.3	127445.16	15	
Si	28	45	H2	<0.000	ppb	N/A	5183.64	8	
P	31	45	No Gas	3.253	ppb	71.8	42319.63	40	
K	39	45	He	11.524	ppb	43.9	96648.02	25	
Ca	40	45	H2	7.909	ppb	22.4	123452.90	60	
Ti	47	45	No Gas	0.064	ppb	14.2	376.68	0.5	
V	51	45	He	<0.000	ppb	N/A	1567.42	0.5	
Cr	52	45	He	0.029	ppb	26.7	1436.08	0.25	
Mn	55	45	No Gas	0.499	ppb	11.6	23553.59	0.5	
Fe	56	45	H2	6.184	ppb	5.1	99679.33	25	
Co	59	45	No Gas	0.079	ppb	10.6	2093.50	0.15	
Ni	60	45	He	0.061	ppb	16.3	206.67	0.5	
Cu	63	45	He	<0.000	ppb	N/A	2526.24	1	
Zn	66	72	No Gas	0.143	ppb	39.9	1998.81	10	
As	75	72	He	0.065	ppb	9.6	178.67	0.25	
Se	78	72	H2	0.080	ppb	38.9	42.33	0.2	
Sr	88	72	No Gas	0.089	ppb	6.5	2990.34	0.3	
Zr	90	72	No Gas	0.011	ppb	18.8	286.67	5	
Mo	95	115	No Gas	0.070	ppb	19.2	444.45	0.2	
Ag	107	115	No Gas	0.001	ppb	456.3	991.15	0.08	
Cd	111	115	No Gas	0.110	ppb	19.2	326.04	0.2	
Sn	118	115	No Gas	0.213	ppb	12.0	3295.97	0.2	>LOD
Sb	123	115	No Gas	0.022	ppb	12.9	303.34	0.4	
Ba	137	115	No Gas	0.138	ppb	14.9	628.91	0.25	
W	182	159	No Gas	0.013	ppb	49.3	103.33	0.3	
Hg	201	159	He	0.013	ppb	27.4	16.17	0.1	
Tl	205	159	No Gas	0.171	ppb	7.0	2558.05	0.1	~~>LOD~~
Pb	208	159	No Gas	0.095	ppb	7.5	2496.76	0.1	
U	238	159	No Gas	0.069	ppb	7.6	1244.51	0.05	>LOD

<1/2 LOQ
LV 12/18/19

Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2473441.07	2.8	2164035.05	114.3	60	120	
Sc	45	No Gas	4980783.17	4.2	4836577.17	102.98	60	120	
Sc	45	H2	2812777.42	3.1	2750634.42	102.26	60	120	
Sc	45	He	443600.51	0.9	443681.93	99.98	60	120	
Ge	72	No Gas	1099037.21	3.1	1090200.04	100.81	60	120	
Ge	72	H2	692477.06	0.2	689401.36	100.45	60	120	
Ge	72	He	266277.47	1.0	260567.54	102.19	60	120	
In	115	No Gas	5900968.55	4.3	5597424.82	105.42	60	120	
Tb	159	No Gas	6404194.74	3.6	6013492.81	106.5	60	120	
Tb	159	He	4174149.00	2.5	3971667.83	105.1	60	120	

Sample Report

Sample Name	L064-21I
File Name	H6L06073.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 12:51:58
Sample Type	Sample
Total Dilution	10.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	10.697	1.070	ppb	34.4	145747.77	50	
Be	9	6	No Gas	0.009	0.001	ppb	209.3	15.55	50	
B	11	6	No Gas	55.565	5.556	ppb	5.3	14204.97	100	
Na	23	45	H2	30662.013	3066.201	ppb	2.4	13105591.67	50000	
Mg	24	45	No Gas	42866.373	4286.637	ppb	3.9	53929924.00	50000	
Al	27	45	No Gas	21.245	2.125	ppb	4.2	42357.97	50000	
Si	28	45	H2	7018.078	701.808	ppb	2.8	741731.60	5000	
P	31	45	No Gas	62.641	6.264	ppb	9.7	45045.51	500	
K	39	45	He	1766.559	176.656	ppb	2.4	206870.02	50000	
Ca	40	45	H2	112224.482	11222.448	ppb	2.7	94402501.33	50000	
Ti	47	45	No Gas	0.663	0.066	ppb	25.9	379.34	500	
V	51	45	He	0.942	0.094	ppb	5.1	2304.19	500	
Cr	52	45	He	1.050	0.105	ppb	9.1	1927.47	500	
Mn	55	45	No Gas	7.533	0.753	ppb	3.8	30739.14	3000	
Fe	56	45	H2	18.400	1.840	ppb	3.2	37380.34	50000	
Co	59	45	No Gas	0.105	0.010	ppb	16.3	442.68	500	
Ni	60	45	He	0.200	0.020	ppb	32.1	107.33	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	2282.19	500	
Zn	66	72	No Gas	14.986	1.499	ppb	2.1	7426.70	500	
As	75	72	He	0.298	0.030	ppb	21.3	146.00	500	
Se	78	72	H2	1.055	0.105	ppb	24.5	53.67	500	
Sr	88	72	No Gas	1057.876	105.788	ppb	4.3	3075058.00	500	
Zr	90	72	No Gas	0.012	0.001	ppb	257.2	113.33	50	
Mo	95	115	No Gas	0.517	0.052	ppb	18.0	325.56	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	52.22	50	
Cd	111	115	No Gas	0.251	0.025	ppb	4.7	70.21	500	
Sn	118	115	No Gas	1.944	0.194	ppb	7.4	3064.80	500	
Sb	123	115	No Gas	0.153	0.015	ppb	15.5	240.00	100	
Ba	137	115	No Gas	26.662	2.666	ppb	2.7	10545.40	1000	
W	182	159	No Gas	0.013	0.001	ppb	116.8	20.00	50	
Hg	201	159	He	0.046	0.005	ppb	75.6	9.50	5	
Tl	205	159	No Gas	0.406	0.041	ppb	16.5	638.91	500	
Pb	208	159	No Gas	0.157	0.016	ppb	10.2	841.12	500	
U	238	159	No Gas	1.143	0.114	ppb	11.9	2082.40	497	

Sample Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2365404.92	2.3	2164035.05	109.31	60	120	
Sc	45	No Gas	4955474.67	1.8	4836577.17	102.46	60	120	
Sc	45	H2	2729614.17	2.8	2750634.42	99.24	60	120	
Sc	45	He	440173.61	0.8	443681.93	99.21	60	120	
Ge	72	No Gas	1135009.66	2.1	1090200.04	104.11	60	120	
Ge	72	H2	718352.06	1.2	689401.36	104.2	60	120	
Ge	72	He	273099.55	0.4	260567.54	104.81	60	120	
In	115	No Gas	5741109.07	1.0	5597424.82	102.57	60	120	
Tb	159	No Gas	6551768.21	7.1	6013492.81	108.95	60	120	
Tb	159	He	4076917.67	3.6	3971667.83	102.65	60	120	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	MRLL1804
File Name	H6L06074.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 12:54:16
Sample Type	LLCCV
Total Dilution	1.0000
Comment	1/100/10 ppb
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	**LVicto**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Li	7	6	No Gas	0.245	ppb	215.9	138694.52	1	24.5	80	120	> +/- 20%
Be	9	6	No Gas	0.926	ppb	4.8	3649.37	1	92.6	80	120	
B	11	6	No Gas	9.834	ppb	1.4	24325.51	10	98.34	80	120	
Na	23	45	H2	90.405	ppb	6.5	759987.58	100	90.4	80	120	
Mg	24	45	No Gas	105.828	ppb	8.1	1400327.08	100	105.83	80	120	
Al	27	45	No Gas	114.800	ppb	5.3	1873787.83	100	114.8	80	120	
Si	28	45	H2	91.403	ppb	3.0	105000.50	100	91.4	80	120	
P	31	45	No Gas	51.247	ppb	4.6	92267.94	50	102.49	80	120	
K	39	45	He	99.801	ppb	7.7	156980.90	100	99.8	80	120	
Ca	40	45	H2	94.845	ppb	2.4	879208.25	100	94.84	80	120	
Ti	47	45	No Gas	1.030	ppb	4.6	2186.84	1	103	80	120	
V	51	45	He	0.918	ppb	1.4	7172.54	1	91.8	80	120	
Cr	52	45	He	0.990	ppb	1.9	7854.25	1	99	80	120	
Mn	55	45	No Gas	1.039	ppb	4.8	40724.55	1	103.9	80	120	
Fe	56	45	H2	101.867	ppb	4.1	1451700.04	100	101.87	80	120	
Co	59	45	No Gas	0.988	ppb	3.7	24920.10	1	98.8	80	120	
Ni	60	45	He	1.043	ppb	2.6	2577.58	1	104.3	80	120	
Cu	63	45	He	0.355	ppb	4.8	8905.58	1	35.5	80	120	> +/- 20%
Zn	66	72	No Gas	10.992	ppb	7.1	44092.85	10	109.92	80	120	
As	75	72	He	1.010	ppb	1.3	1174.05	1	101	80	120	
Se	78	72	H2	1.084	ppb	7.1	422.34	1	108.4	80	120	
Sr	88	72	No Gas	2.125	ppb	5.8	61042.10	2	106.25	80	120	
Zr	90	72	No Gas	5.050	ppb	7.0	93452.61	5	101	80	120	
Mo	95	115	No Gas	0.941	ppb	1.7	5583.40	1	94.1	80	120	
Ag	107	115	No Gas	1.029	ppb	1.3	14753.78	1	102.9	80	120	
Cd	111	115	No Gas	0.976	ppb	2.3	2855.63	1	97.6	80	120	
Sn	118	115	No Gas	1.131	ppb	3.1	10653.21	1	113.1	80	120	
Sb	123	115	No Gas	1.025	ppb	3.4	9243.27	1	102.5	80	120	
Ba	137	115	No Gas	0.965	ppb	5.6	3856.13	1	96.5	80	120	
W	182	159	No Gas	1.933	ppb	1.8	13880.97	2	96.65	80	120	
Hg	201	159	He	0.015	ppb	26.8	17.50	0.1	15	80	120	> +/- 20%
Tl	205	159	No Gas	1.019	ppb	1.9	15114.72	1	101.9	80	120	
Pb	208	159	No Gas	0.947	ppb	3.4	20350.96	1	94.7	80	120	
U	238	159	No Gas	0.935	ppb	1.6	16644.64	1	93.5	80	120	

Low Level Continuing Calibration Verification (LLCCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2418768.07	6.2	2164035.05	111.77	60	120	
Sc	45	No Gas	5187914.50	1.2	4836577.17	107.26	60	120	
Sc	45	H2	2821168.08	4.1	2750634.42	102.56	60	120	
Sc	45	He	445332.49	1.6	443681.93	100.37	60	120	
Ge	72	No Gas	1114597.21	4.0	1090200.04	102.24	60	120	
Ge	72	H2	706306.16	1.1	689401.36	102.45	60	120	
Ge	72	He	271329.74	1.3	260567.54	104.13	60	120	
In	115	No Gas	5729999.05	1.3	5597424.82	102.37	60	120	
Tb	159	No Gas	6401366.97	0.5	6013492.81	106.45	60	120	
Tb	159	He	4202559.00	1.2	3971667.83	105.81	60	120	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	MRLL1805
File Name	H6L06075.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\IH6L06.b
Acq Time	2019-12-18 12:56:38
Sample Type	LLCCV2
Total Dilution	1.0000
Comment	0.4/40/4 ppb
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Li	7	6	No Gas	0.074	ppb	528.4	130889.93	0.4	18.5	80	120	> +/- 20%
Be	9	6	No Gas	0.354	ppb	6.2	1343.40	0.4	88.5	80	120	
B	11	6	No Gas	1.278	ppb	5.5	4527.40	0.4	319.5	80	120	> +/- 20%
Na	23	45	H2	35.799	ppb	14.0	516973.40	40	89.5	80	120	
Mg	24	45	No Gas	41.266	ppb	2.7	512946.57	40	103.16	80	120	
Al	27	45	No Gas	40.943	ppb	2.2	630035.16	40	102.36	80	120	
K	39	45	He	44.210	ppb	12.5	117562.46	40	110.52	80	120	
Ca	40	45	H2	35.675	ppb	4.6	359173.42	40	89.19	80	120	
Ti	47	45	No Gas	0.390	ppb	13.6	932.70	0.4	97.5	80	120	
V	51	45	He	0.339	ppb	1.1	3714.50	0.4	84.75	80	120	
Cr	52	45	He	0.363	ppb	5.2	3617.81	0.4	90.75	80	120	
Mn	55	45	No Gas	0.436	ppb	1.7	21201.75	0.4	109	80	120	
Fe	56	45	H2	36.051	ppb	4.2	513342.64	40	90.13	80	120	
Co	59	45	No Gas	0.389	ppb	3.0	9282.50	0.4	97.25	80	120	
Ni	60	45	He	0.378	ppb	3.5	959.37	0.4	94.5	80	120	
Cu	63	45	He	<0.000	ppb	N/A	5675.19	0.4	-32.75	80	120	> +/- 20%
Zn	66	72	No Gas	4.083	ppb	3.1	17096.76	4	102.08	80	120	
As	75	72	He	0.389	ppb	14.3	494.68	0.4	97.25	80	120	
Se	78	72	H2	0.425	ppb	3.1	164.67	0.4	106.25	80	120	
Sr	88	72	No Gas	0.407	ppb	0.9	11954.24	0.4	101.75	80	120	
Mo	95	115	No Gas	0.353	ppb	2.7	2041.27	0.4	88.25	80	120	
Ag	107	115	No Gas	0.414	ppb	3.3	6290.39	0.4	103.5	80	120	
Cd	111	115	No Gas	0.357	ppb	3.8	1009.03	0.4	89.25	80	120	
Sn	118	115	No Gas	0.649	ppb	2.8	6531.62	0.4	162.25	80	120	> +/- 20%
Sb	123	115	No Gas	0.396	ppb	5.0	3524.92	0.4	99	80	120	
Ba	137	115	No Gas	0.435	ppb	6.8	1719.00	0.4	108.75	80	120	
Tl	205	159	No Gas	0.386	ppb	4.1	5772.45	0.4	96.5	80	120	
Pb	208	159	No Gas	0.356	ppb	3.3	7988.78	0.4	89	80	120	
U	238	159	No Gas	0.349	ppb	3.2	6243.82	0.4	87.25	80	120	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2315745.99	4.7	2164035.05	107.01	60	120	
Sc	45	No Gas	4845301.50	0.4	4836577.17	100.18	60	120	

Low Level Continuing Calibration Verification (LLCCV) Report

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	H2	2775194.33	3.3	2750634.42	100.89	60	120	
Sc	45	He	439023.92	0.1	443681.93	98.95	60	120	
Ge	72	No Gas	1100582.02	4.9	1090200.04	100.95	60	120	
Ge	72	H2	670294.13	0.9	689401.36	97.23	60	120	
Ge	72	He	256909.49	0.9	260567.54	98.6	60	120	
In	115	No Gas	5550199.72	1.2	5597424.82	99.16	60	120	
Tb	159	No Gas	6433485.30	2.5	6013492.81	106.98	60	120	
Tb	159	He	4211586.50	1.9	3971667.83	106.04	60	120	

Sample Report

Sample Name	MRLL1806
File Name	H6L06076.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 12:59:02
Sample Type	Sample
Total Dilution	1.0000
Comment	500 ppb CAT
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Meas. Conc.	Units	RSD	CPS	LDR	QC Flag
Li	7	6	No Gas	0.256	0.256	ppb	61.2	129647.96	50	
Be	9	6	No Gas	0.004	0.004	ppb	4.3	26.67	50	
B	11	6	No Gas	0.794	0.794	ppb	3.8	3378.19	100	
Na	23	45	H2	536.872	536.872	ppb	7.3	2565524.75	50000	
Mg	24	45	No Gas	512.645	512.645	ppb	5.0	6814711.67	50000	
Al	27	45	No Gas	508.669	508.669	ppb	1.5	8341379.88	50000	
Si	28	45	H2	<0.000	<0.000	ppb	N/A	4866.85	5000	
P	31	45	No Gas	4.166	4.166	ppb	38.5	45440.80	500	
K	39	45	He	473.110	473.110	ppb	1.3	406407.51	50000	
Ca	40	45	H2	528.428	528.428	ppb	8.8	4446414.50	50000	
Ti	47	45	No Gas	0.028	0.028	ppb	21.0	328.67	500	
V	51	45	He	<0.000	<0.000	ppb	N/A	1355.40	500	
Cr	52	45	He	<0.000	<0.000	ppb	N/A	996.71	500	
Mn	55	45	No Gas	0.046	0.046	ppb	25.0	11120.52	3000	
Fe	56	45	H2	510.843	510.843	ppb	8.2	6922254.00	50000	
Co	59	45	No Gas	0.006	0.006	ppb	23.3	346.67	500	
Ni	60	45	He	0.008	0.008	ppb	86.8	78.00	500	
Cu	63	45	He	<0.000	<0.000	ppb	N/A	1960.81	500	
Zn	66	72	No Gas	0.807	0.807	ppb	5.6	4682.14	500	
As	75	72	He	<0.000	<0.000	ppb	N/A	93.67	500	
Se	78	72	H2	0.000	0.000	ppb	3652.3	12.33	500	
Sr	88	72	No Gas	0.033	0.033	ppb	26.1	1476.75	500	
Zr	90	72	No Gas	0.010	0.010	ppb	24.6	273.34	50	
Mo	95	115	No Gas	0.027	0.027	ppb	6.3	177.78	500	
Ag	107	115	No Gas	<0.000	<0.000	ppb	N/A	46.67	50	
Cd	111	115	No Gas	0.016	0.016	ppb	14.5	43.67	500	
Sn	118	115	No Gas	0.071	0.071	ppb	26.7	2057.94	500	
Sb	123	115	No Gas	0.012	0.012	ppb	19.7	213.34	100	
Ba	137	115	No Gas	0.062	0.062	ppb	8.4	312.23	1000	
W	182	159	No Gas	0.004	0.004	ppb	57.8	40.00	50	
Hg	201	159	He	0.008	0.008	ppb	54.0	12.33	5	
Tl	205	159	No Gas	0.020	0.020	ppb	14.6	324.45	500	
Pb	208	159	No Gas	0.014	0.014	ppb	17.3	797.79	500	
U	238	159	No Gas	0.002	0.002	ppb	44.3	45.56	497	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2254287.17	2.4	2164035.05	104.17	60	120	
Sc	45	No Gas	5235292.17	3.0	4836577.17	108.24	60	120	
Sc	45	H2	2709118.33	7.0	2750634.42	98.49	60	120	
Sc	45	He	440581.82	0.2	443681.93	99.3	60	120	
Ge	72	No Gas	1132784.46	1.9	1090200.04	103.91	60	120	
Ge	72	H2	665584.94	9.6	689401.36	96.55	60	120	
Ge	72	He	262613.46	0.2	260567.54	100.79	60	120	
In	115	No Gas	5746290.18	4.9	5597424.82	102.66	60	120	
Tb	159	No Gas	6477981.55	3.2	6013492.81	107.72	60	120	
Tb	159	He	4198310.83	5.5	3971667.83	105.71	60	120	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV7
File Name	H6L06077.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 13:01:20
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Li	7	6	No Gas	22.966	ppb	5.0	392892.37	25	91.86	90	110	
Be	9	6	No Gas	23.436	ppb	2.8	86601.03	25	93.74	90	110	
B	11	6	No Gas	45.853	ppb	5.2	100324.89	50	91.71	90	110	
Na	23	45	H2	26912.229	ppb	9.5	98985290.67	25000	107.65	90	110	
Mg	24	45	No Gas	25742.134	ppb	9.9	322260970.67	25000	102.97	90	110	
Al	27	45	No Gas	26167.208	ppb	8.8	404658300.64	25000	104.67	90	110	
Si	28	45	H2	3030.109	ppb	9.8	2808023.17	2500	121.2	90	110	> +/- 10%
P	31	45	No Gas	248.492	ppb	7.0	276148.14	250	99.4	90	110	
K	39	45	He	26380.533	ppb	1.1	17315806.67	25000	105.52	90	110	
Ca	40	45	H2	26864.633	ppb	9.3	199324629.33	25000	107.46	90	110	
Ti	47	45	No Gas	240.067	ppb	5.1	424855.96	250	96.03	90	110	
V	51	45	He	268.533	ppb	2.3	1518802.96	250	107.41	90	110	
Cr	52	45	He	268.619	ppb	3.8	1723782.92	250	107.45	90	110	
Mn	55	45	No Gas	1533.438	ppb	6.5	43699994.67	1500	102.23	90	110	
Fe	56	45	H2	26434.131	ppb	9.6	318816992.00	25000	105.74	90	110	
Co	59	45	No Gas	247.999	ppb	7.8	5903751.50	250	99.2	90	110	
Ni	60	45	He	241.373	ppb	0.6	559983.69	250	96.55	90	110	
Cu	63	45	He	267.492	ppb	2.6	1672298.29	250	107	90	110	
Zn	66	72	No Gas	226.872	ppb	1.4	880130.13	250	90.75	90	110	
As	75	72	He	250.654	ppb	0.5	252713.57	250	100.26	90	110	
Se	78	72	H2	271.676	ppb	5.7	94548.13	250	108.67	90	110	
Sr	88	72	No Gas	263.722	ppb	2.5	7504255.81	250	105.49	90	110	
Zr	90	72	No Gas	23.601	ppb	2.0	435825.76	25	94.4	90	110	
Mo	95	115	No Gas	250.544	ppb	3.3	1433802.06	250	100.22	90	110	
Ag	107	115	No Gas	23.902	ppb	3.6	311052.47	25	95.61	90	110	
Cd	111	115	No Gas	227.262	ppb	3.5	644082.22	250	90.9	90	110	
Sn	118	115	No Gas	258.494	ppb	1.6	2030466.45	250	103.4	90	110	
Sb	123	115	No Gas	48.884	ppb	2.7	421832.60	50	97.77	90	110	
Ba	137	115	No Gas	515.853	ppb	5.2	1958687.77	500	103.17	90	110	
W	182	159	No Gas	24.521	ppb	1.9	170997.67	25	98.08	90	110	
Hg	201	159	He	2.581	ppb	2.5	1969.65	2.5	103.24	90	110	
Tl	205	159	No Gas	264.093	ppb	5.5	3802259.57	250	105.64	90	110	
Pb	208	159	No Gas	252.342	ppb	3.7	5144775.90	250	100.94	90	110	
U	238	159	No Gas	262.488	ppb	5.7	4536300.79	250	105	90	110	

Continuing Calibration Verification (CCV) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2271440.33	1.1	2164035.05	104.96	60	120	
Sc	45	No Gas	4951760.50	6.8	4836577.17	102.38	60	120	
Sc	45	H2	2418637.17	7.8	2750634.42	87.93	60	120	
Sc	45	He	427896.60	0.7	443681.93	96.44	60	120	
Ge	72	No Gas	1111603.79	2.2	1090200.04	101.96	60	120	
Ge	72	H2	652235.85	5.2	689401.36	94.61	60	120	
Ge	72	He	260629.41	0.4	260567.54	100.02	60	120	
In	115	No Gas	5547541.20	5.1	5597424.82	99.11	60	120	
Tb	159	No Gas	6222581.98	3.5	6013492.81	103.48	60	120	
Tb	159	He	4187637.08	2.7	3971667.83	105.44	60	120	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB7
File Name	H6L06078.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\L\H6L06.b
Acq Time	2019-12-18 13:03:35
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	H6L06003.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	LVicto

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Li	7	6	No Gas	<0.000	ppb	N/A	127234.69	0.8	
Be	9	6	No Gas	0.009	ppb	24.7	45.56	0.08	
B	11	6	No Gas	1.107	ppb	7.4	4139.50	4	
Na	23	45	H2	6.268	ppb	41.9	392279.90	50	
Mg	24	45	No Gas	12.364	ppb	18.6	159888.18	20	
Al	27	45	No Gas	9.153	ppb	15.5	150464.97	15	
Si	28	45	H2	<0.000	ppb	N/A	5115.61	8	
P	31	45	No Gas	3.985	ppb	18.1	42664.06	40	
K	39	45	He	11.377	ppb	60.6	94862.41	25	
Ca	40	45	H2	10.262	ppb	0.6	142134.92	60	
Ti	47	45	No Gas	0.086	ppb	33.6	411.34	0.5	
V	51	45	He	<0.000	ppb	N/A	1498.08	0.5	
Cr	52	45	He	0.032	ppb	31.9	1430.08	0.25	
Mn	55	45	No Gas	0.567	ppb	11.8	25292.09	0.5	>LOD
Fe	56	45	H2	6.706	ppb	3.4	105612.01	25	
Co	59	45	No Gas	0.090	ppb	14.6	2328.87	0.15	
Ni	60	45	He	0.053	ppb	7.5	184.67	0.5	
Cu	63	45	He	<0.000	ppb	N/A	2370.87	1	
Zn	66	72	No Gas	0.153	ppb	51.3	2032.82	10	
As	75	72	He	0.054	ppb	22.7	164.00	0.25	
Se	78	72	H2	0.106	ppb	11.8	51.00	0.2	
Sr	88	72	No Gas	0.157	ppb	25.6	4888.70	0.3	
Zr	90	72	No Gas	0.009	ppb	39.4	246.67	5	
Mo	95	115	No Gas	0.087	ppb	12.2	524.46	0.2	
Ag	107	115	No Gas	0.012	ppb	31.6	1084.49	0.08	
Cd	111	115	No Gas	0.121	ppb	4.6	344.41	0.2	
Sn	118	115	No Gas	0.232	ppb	5.4	3301.53	0.2	>LOD
Sb	123	115	No Gas	0.026	ppb	10.7	328.89	0.4	
Ba	137	115	No Gas	0.171	ppb	11.3	726.69	0.25	
W	182	159	No Gas	0.013	ppb	44.6	110.00	0.3	
Hg	201	159	He	0.008	ppb	42.5	13.00	0.1	
Tl	205	159	No Gas	0.200	ppb	19.8	3084.84	0.1	~~>LOD~~
Pb	208	159	No Gas	0.091	ppb	15.8	2482.32	0.1	
U	238	159	No Gas	0.082	ppb	14.8	1506.76	0.05	>LOD

<1/2 LOQ
LV 12/18/19

Continuing Calibration Blank (CCB) Report

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	2305991.21	3.5	2164035.05	106.56	60	120	
Sc	45	No Gas	4932455.33	1.7	4836577.17	101.98	60	120	
Sc	45	H2	2774538.92	3.1	2750634.42	100.87	60	120	
Sc	45	He	435991.57	1.2	443681.93	98.27	60	120	
Ge	72	No Gas	1098287.92	2.5	1090200.04	100.74	60	120	
Ge	72	H2	678811.75	2.0	689401.36	98.46	60	120	
Ge	72	He	260794.20	0.9	260567.54	100.09	60	120	
In	115	No Gas	5620384.73	1.2	5597424.82	100.41	60	120	
Tb	159	No Gas	6612964.04	4.0	6013492.81	109.97	60	120	
Tb	159	He	4275787.75	2.1	3971667.83	107.66	60	120	

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ICP-MS

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 12|19|19 09:49

End Date: 12|19|19 13:49

Comments:

All soil/solid samples are diluted at 10x dilution prior to analysis.

Filter Lot #: NA

see analytical sequence.

Book #: AF6-027

Instrument No.: F6

Analytical Batch: 1F6L04

Analytical Sequence: F6L04

Method File: EM6020119

Micropipette ID: ☐ 142781004

Micropipette ID: ☑ ICP-06

Micropipette ID: ☑ 339362028

Micropipette ID: ☑ GFAA-07

Micropipette ID: ☐ 339342032

Micropipette ID: ☑ 542780515

Micropipette ID: ☐ 542761827

Micropipette ID: ☐

SOP #	Rev. #
☐ EMAX-200.8	6
☑ EMAX-6020	11
☐ EMAX-6020CA	1
☐ EMAX-	
☐ EMAX-	

STANDARDS ID		STANDARDS ID	
S0	SM6B-18-26-01	MRL1 (1)	SM6B-18-38-01
S1	50-01	MRL2 (04)	48-02
S2	50-02	MRL3 (CAL)	46-02
S3	51-01	MRL4	NA
S4	51-02	MRL5	↓
S5	NA	MRL6	↓
S6	↓	Internal Standard	SM6B-18-30-01
S7	↓	Post-Spike 1	SM6A-007-06-09
ICV	SM6B-18-47-01	Post-Spike 2	06-10
CCV	52-01	Post-Spike 3	NA
ICSA	66-02	Post-Spike 4	↓
ICSAB	67-01		
6020 TUNE SOLN.	72-02		
200.8 TUNE SOLN.	73-01		

Analyzed By: LY

Date: 12|19|19

INITIAL CALIBRATION VERIFICATION SUMMARY FORM

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L064
Method : METHOD SW6020A
Sequence : IF6L04
InstrumentID: F6

Lab Samp ID :	ICV	ICSA	ICSAB
QC Limit :	%R:90-110/RSD:<5	%R:80-120/<LOD	%R:80-120
Lab File ID :	F6L04009	F6L04013	F6L04014
DateAnalyed :	12/19/1910:29	12/19/1910:58	12/19/1911:03

Parameter		Result	ICV EV	RSD	%Recovery	Result	ICSA EV	%Rec/LOD	Result	ICSAB EV	%Recovery
Lithium		28.97	30	1.40	97	0.60050	0	>0	20.420	20	102
Beryllium	T	28.76	30	0.59	96	0.0064560	0	<0.10	20.480	20	102
Boron		27.89	30	0.88	93	0.37160	0	<5.0	17.510	20	88
Sodium	T	29540	30000	0.28	98	106100	100000	106	104400	100000	104
Magnesium	T	30000	30000	0.59	100	102800	100000	103	101900	100000	102
Aluminum	T	28990	30000	1.15	97	100000	100000	100	98410	100000	98
Silicon		3003	3000	0.49	100	8.9920	0	<20	210.50	200	105
Phosphorus		294.7	300	0.82	98	101500	100000	102	99500	100000	100
Potassium	T	29240	30000	0.79	97	102200	100000	102	101400	100000	101
Calcium	T	29570	30000	0.51	99	105000	100000	105	103500	100000	104
Titanium		302.5	300	0.60	101	2224.0	2000	111	2205.0	2000	110
Vanadium	T	302.6	300	0.42	101	0.093240	0	<0.25	19.800	20	99
Chromium	T	309.4	300	0.42	103	0.26520	0	>0.1	20.410	20	102
Manganese	T	1936	2000	0.55	97	0.32820	0	>0.25	20.800	20	104
Iron	T	28320	30000	0.58	94	96900	100000	97	96480	100000	96
Cobalt	T	308.8	300	0.46	103	0.54990	0	>0.1	21.140	20	106
Nickel	T	295.1	300	0.12	98	0.31640	0	>0.25	18.100	20	91
Copper	T	282.5	300	1.07	94	0.35790	0	<0.50	17.730	20	89
Zinc	T	316.8	300	0.95	106	0.61390	0	<5	19.440	20	97
Arsenic	T	306.7	300	0.51	102	0.31080	0	>0.125	19.510	20	98
Selenium	T	303.6	300	0.25	101	0.18270	0	>0.15	21.570	20	108
Strontium		306.2	300	0.08	102	0.80310	0	<1.0	20.310	20	102
Zirconium		29.01	30	0.43	97	0.098080	0	<2.0	8.5520	20	43*
Molybdenum		315.4	300	0.82	105	2034.0	2000	102	2023.0	2000	101
Silver	T	27.99	30	1.03	93	0.013800	0	<0.1	17.880	20	89
Cadmium	T	306.4	300	0.73	102	0.10920	0	>0.1	19.050	20	95
Tin		311.8	300	0.86	104	0.33920	0	>0.2	20.470	20	102
Antimony	T	57.61	60	0.43	96	0.15200	0	<0.25	20.360	20	102
Barium	T	310.0	300	0.72	103	0.32110	0	>0.25	20.670	20	103
Tungsten		34.25	30	0.34	114*	0.27250	0	<1.0	22.790	20	114
Thallium	T	300.1	300	0.76	100	0.021980	0	<0.1	20.400	20	102
Lead	T	292.4	300	0.10	97	0.060090	0	>0.05	20.030	20	100
Uranium		300.8	300	0.32	100	0.0036850	0	<0.1	21.290	20	106

| Unit: ug/L
| T: Target analyte
| EV: Expected Value
| Comment: * Out of QC limit

CONTINUING CALIBRATION VERIFICATION SUMMARY FORM

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L064
Method : METHOD SW6020A
Sequence : IF6L04
Instrument ID: F6

CCV SampleID			CCV1			CCV2			CCV3			CCV4		
CCV DataFileID			F6L04016			F6L04026			F6L04038			F6L04047		
CCV DateTime			12/19/19 11:12			12/19/19 11:58			12/19/19 12:54			12/19/19 13:36		
PARAMETER		CCV EV	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD
Lithium		25	25.3	101	0.47	24.6	98	1.55	24.6	99	1.36	24.0	96	1.61
Beryllium	T	25	25.3	101	0.58	24.6	98	0.89	24.0	96	0.67	23.2	93	0.66
Boron		50	48.8	98	0.56	49.2	98	1.57	47.5	95	0.63	44.4	89*	0.59
Sodium	T	25000	25200	101	0.75	25700	103	0.38	25800	103	1.31	26100	105	0.34
Magnesium	T	25000	25700	103	0.05	25700	103	0.59	25700	103	0.98	25600	102	0.59
Aluminum	T	25000	24900	100	0.30	25000	100	0.31	24900	100	0.40	25100	101	0.28
Silicon		2500	2480	99	0.62	2590	104	0.31	2760	110	0.97	2800	112*	0.49
Phosphorus		250	247	99	0.43	253	101	0.70	262	105	0.81	268	107	0.78
Potassium	T	25000	25200	101	1.01	26100	104	0.53	26500	106	1.15	26800	107	0.83
Calcium	T	25000	25500	102	0.98	25700	103	0.93	25700	103	0.76	25800	103	0.83
Titanium		250	247	99	0.37	250	100	0.80	250	100	0.12	251	101	0.47
Vanadium	T	250	253	101	0.93	250	100	0.79	252	101	0.27	255	102	1.36
Chromium	T	250	258	103	1.20	255	102	0.76	251	101	0.74	251	100	0.54
Manganese	T	1500	1550	104	0.55	1530	102	0.43	1520	101	0.86	1500	100	0.33
Iron	T	25000	24900	100	1.17	24900	100	0.11	24700	99	1.10	24400	98	0.73
Cobalt	T	250	258	103	0.40	258	103	0.98	258	103	0.16	258	103	0.22
Nickel	T	250	245	98	0.19	241	97	0.19	239	96	0.14	237	95	0.28
Copper	T	250	237	95	1.90	230	92	0.54	229	91	1.88	227	91	0.87
Zinc	T	250	271	108	0.89	266	106	0.36	261	104	0.84	258	103	0.10
Arsenic	T	250	255	102	0.20	254	102	0.14	257	103	0.46	259	104	0.57
Selenium	T	250	266	107	0.42	259	103	0.44	256	103	0.87	254	102	0.71
Strontium		250	258	103	0.84	255	102	0.34	252	101	0.42	251	101	0.79
Zirconium		25	23.1	92	1.55	22.8	91	0.55	22.6	90	0.17	22.6	90	0.28
Molybdenum		250	258	103	0.57	262	105	0.86	260	104	1.18	263	105	1.46
Silver	T	25	24.7	99	0.63	24.8	99	0.97	24.8	99	0.78	24.8	99	1.01
Cadmium	T	250	258	103	0.41	258	103	0.52	254	102	0.65	252	101	1.20
Tin		250	259	103	0.52	259	103	0.85	255	102	0.50	255	102	0.90
Antimony	T	50	51.6	103	0.41	51.5	103	0.88	50.9	102	1.00	50.9	102	1.28
Barium	T	500	517	103	0.84	526	105	0.86	521	104	0.80	524	105	0.82
Tungsten		25	29.9	120*	0.48	29.6	119*	0.39	29.2	117*	0.37	29.0	116*	0.57
Mercury		2.5	0.000000	0*		0.000000	0*		0.000000	0*		0.000000	0*	
Thallium	T	250	252	101	0.57	248	99	1.17	250	100	1.51	247	99	0.38
Lead	T	250	250	100	0.16	247	99	1.16	247	99	1.02	243	97	0.41
Uranium		250	259	104	0.04	254	102	0.30	250	100	1.08	245	98	0.20

| Unit: ug/L
| T: Target analyte
|%Rec QC Limit: 90-110
| RSD QC Limit: <5
| CCV EV: CCV Expected Value ug/L
| Comment: * Out of QC limit

CONTINUING CALIBRATION BLANK SUMMARY FORM

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG NO. : 19L064
Method : SW6020A
Sequence : IF6L04
Instrument ID: F6

CB SampleID		ICB	CCB1	CCB2	CCB3	CCB4
CB DataFileID		F6L04010	F6L04017	F6L04027	F6L04039	F6L04048
CB DateTime		12/19/1910:44	12/19/1911:16	12/19/1912:03	12/19/1912:58	12/19/1913:40

PARAMETER		LOD	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >
Lithium		0	0.01	>0	0.02	>0	0.02	>0	0.1	>0	0.1	>0
Beryllium	T	0.10	0.0007	<0.10	0.003	<0.10	0.002	<0.10	0.001	<0.10	0.003	<0.10
Boron		5.0	0.9	<5.0	1	<5.0	0.02	<5.0	0.03	<5.0	0.5	<5.0
Sodium	T	25	3	<25	2	<25	6	<25	4	<25	1.0	<25
Magnesium	T	25	1	<25	3	<25	4	<25	4	<25	5	<25
Aluminum	T	25	2	<25	3	<25	5	<25	3	<25	3	<25
Silicon		20	0.1	<20	0.09	<20	1.0	<20	3	<20	2	<20
Phosphorus		25	2	<25	0.4	<25	3	<25	5	<25	7	<25
Potassium	T	25	3	<25	9	<25	5	<25	10	<25	10	<25
Calcium	T	25	3	<25	1	<25	4	<25	5	<25	8	<25
Titanium		0.5	0.02	<0.5	0.06	<0.5	0.04	<0.5	0.04	<0.5	0.04	<0.5
Vanadium	T	0.25	0.05	<0.25	0.02	<0.25	0.1	<0.25	0.2	<0.25	0.2	<0.25
Chromium	T	0.1	0.01	<0.1	0.003	<0.1	0.02	<0.1	0.03	<0.1	0.03	<0.1
Manganese	T	0.25	0.1	<0.25	0.08	<0.25	0.10	<0.25	0.1	<0.25	0.1	<0.25
Iron	T	25	0.9	<25	4	<25	3	<25	3	<25	3	<25
Cobalt	T	0.1	0.008	<0.1	0.006	<0.1	0.002	<0.1	0.004	<0.1	0.003	<0.1
Nickel	T	0.25	0.01	<0.25	0.001	<0.25	0.007	<0.25	0.004	<0.25	0.008	<0.25
Copper	T	0.50	0.003	<0.50	0.010	<0.50	0.006	<0.50	0.002	<0.50	0.004	<0.50
Zinc	T	5	2	<5	3	<5	3	<5	3	<5	3	<5
Arsenic	T	0.125	0.03	<0.125	0.008	<0.125	0.02	<0.125	0.04	<0.125	0.05	<0.125
Selenium	T	0.15	0.06	<0.15	0.04	<0.15	0.04	<0.15	0.05	<0.15	0.03	<0.15
Strontium		1.0	0.009	<1.0	0.010	<1.0	0.08	<1.0	0.1	<1.0	0.1	<1.0
Zirconium		2.0	0.01	<2.0	0.008	<2.0	0.010	<2.0	0.009	<2.0	0.008	<2.0
Molybdenum		0.5	0.02	<0.5	0.1	<0.5	0.06	<0.5	0.05	<0.5	0.05	<0.5
Silver	T	0.1	0.0007	<0.1	0.00001	<0.1	0.0005	<0.1	0.0003	<0.1	0.0003	<0.1
Cadmium	T	0.1	0.08	<0.1	0.08	<0.1	0.08	<0.1	0.08	<0.1	0.08	<0.1
Tin		0.2	0.04	<0.2	0.06	<0.2	0.05	<0.2	0.05	<0.2	0.04	<0.2
Antimony	T	0.25	0.0009	<0.25	0.002	<0.25	0.002	<0.25	0.003	<0.25	0.004	<0.25
Barium	T	0.25	0.02	<0.25	0.03	<0.25	0.04	<0.25	0.03	<0.25	0.04	<0.25
Tungsten		1.0	0.05	<1.0	0.06	<1.0	0.05	<1.0	0.06	<1.0	0.05	<1.0
Mercury		0.1	0.00	<0.1	0.00	<0.1	0.00	<0.1	0.00	<0.1	0.00	<0.1
Thallium	T	0.1	0.03	<0.1	0.05	<0.1	0.05	<0.1	0.04	<0.1	0.04	<0.1
Lead	T	0.05	0.003	<0.05	0.001	<0.05	0.003	<0.05	0.007	<0.05	0.009	<0.05
Uranium		0.1	0.01	<0.1	0.02	<0.1	0.03	<0.1	0.02	<0.1	0.02	<0.1

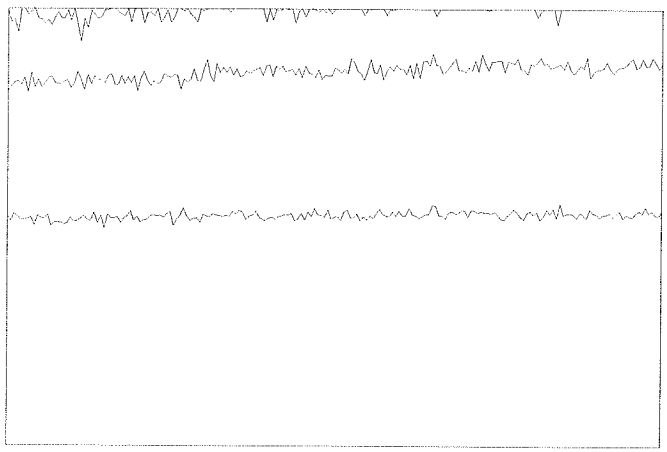
Unit: ug/L
CB: Calibration Blank
T: Target analyte
Acceptance Criteria: CCB Result <LOD
Comment:

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		TUNBEG	Start of TUNE						
2	C:\ICPCHEM\1\METHODS\TN6020.M	Tun6	1301	F6L04001	6020tunchk		1.000				
3	C:\ICPCHEM\1\METHODS\TN200_8C.M	Tun2	1302	F6L04002	200.8tunchk		1.000				
4		Keyword		TUNEND	End of TUNE						
5		Keyword		CALBEG	Start of CALIB						
6	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CalBlk	1101	F6L04003	BLNK		Level 1				
7	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CalBlk	1102	F6L04004	S0		Level 1				
8	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CalStd	1104	F6L04005	S1 0.5		Level 2				
9	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CalStd	1105	F6L04006	S2 50		Level 3				
10	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CalStd	1106	F6L04007	S3 250		Level 4				
11	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CalStd	1107	F6L04008	S4 500		Level 5				
12	C:\ICPCHEM\1\METHODS\EM6020Hg.M	ICV1	1204	F6L04009	ICV		1.000				
13	C:\ICPCHEM\1\METHODS\EM6020Hg.M	ICB	1102	F6L04010	ICB		1.000				
14	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	1305	F6L04011	MRLL1901 ✓	1/100/10 ppb	1.000				
15	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	1306	F6L04012	MRLL1902	0.4/40/4 ppb	1.000				
16	C:\ICPCHEM\1\METHODS\EM6020Hg.M	ICS-A	1303	F6L04013	ICSA		1.000				
17	C:\ICPCHEM\1\METHODS\EM6020Hg.M	ICS-AB	1304	F6L04014	ICSAB	6Li IS<70%.	1.000				
18	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	1307	F6L04015	MRLL1903	500 ppb CAT	1.000				
19	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCV	1206	F6L04016	CCV1		1.000				
20	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCB	1102	F6L04017	CCB1		1.000				
21		Keyword		CALEND	End of CALIB						
22		Keyword		SMPLBEG	Start of SMPL						
23	C:\ICPCHEM\1\METHODS\EM6020Hg.M	MBW	2101	F6L04018	IML010WB Na Ca 7½ LOQ (samples x10)		1.000				
24	C:\ICPCHEM\1\METHODS\EM6020Hg.M	LCS	2102	F6L04019	IML010WL		1.000				
25	C:\ICPCHEM\1\METHODS\EM6020Hg.M	LCS	2103	F6L04020	IML010WC inj error. — reprep		1.000				
26	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2104	F6L04021	L064-01N Ca↑		1.000				
27	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2105	F6L04022	L064-02N Na Ca↑		1.000				
28	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2106	F6L04023	L064-03N Ca↑		1.000				
29	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2107	F6L04024	L064-04N Na Mg Ca↑ X Se 72Ge IS<70%. #1		1.000				
30	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2108	F6L04025	L064-06N Na Mg Ca↑		1.000				
31	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCV	1206	F6L04026	CCV2		1.000				
32	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCB	1102	F6L04027	CCB2		1.000				
33	C:\ICPCHEM\1\METHODS\EM6020Hg.M	LCS	2301	F6L04028	IML010WC ✓		1.000				
34	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2109	F6L04029	L064-07M Na Mg Ca↑		1.000				
35	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2110	F6L04030	L064-07S		1.000				
36	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2111	F6L04031	L064-07A		1.000				
37	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2112	F6L04032	L064-07N		1.000				
38	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2201	F6L04033	L064-07J		5.000				
39	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2202	F6L04034	L064-08N Na Mg Ca↑		1.000				
40	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2203	F6L04035	L064-09N Ca↑		1.000				
41	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2204	F6L04036	L064-10N Na Ca↑		1.000				
42	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2205	F6L04037	L064-11N Na Ca↑		1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
43	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCV	1206	F6L04038	CCV3		1.000				
44	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCB	1102	F6L04039	CCB3		1.000				
45	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2206	F6L04040	L064-12N Na Ca↑		1.000				
46	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2207	F6L04041	L064-14N Ca↑		1.000				
47	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2208	F6L04042	L064-15N Ca↑		1.000				
48	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2209	F6L04043	L064-17N Na mg Ca↑		1.000				
49	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2210	F6L04044	L064-18N Na Ca↑		1.000				
50	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2211	F6L04045	L064-20N Na mg Ca↑		1.000				
51	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	2212	F6L04046	L064-21N Ca↑		1.000				
52	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCV	1206	F6L04047	CCV4		1.000				
53	C:\ICPCHEM\1\METHODS\EM6020Hg.M	CCB	1102	F6L04048	CCB4		1.000				
54	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	1305	F6L04049	MRLL1904 ✓	1/100/10 ppb	1.000				
55	C:\ICPCHEM\1\METHODS\EM6020Hg.M	Sample	1306	F6L04050	MRLL1905	0.4/40/4 ppb	1.000				
56		Keyword		SMPLEND	End of SMPL						
57		Keyword		End	End of Sequence						
58		Keyword		BLKBEG	Start of BLANK						
59		Keyword		BLKEND	End of BLANK						
60		Keyword		ERRBEG	Start of ERRTERM						
61		Keyword		ERREND	End of ERRTERM						

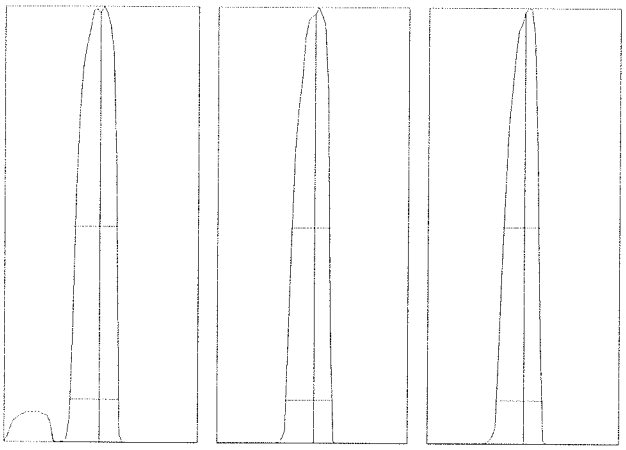
Tune Report

Tune File : NORM.U
Comment : IF6L04



Integration Time:	0.1000 sec	
Sampling Period:	0.6200 sec	
n:	200	
Oxide:	156/140	1.626%
Doubly Charged:	70/140	1.537%

m/z	Range	Count	Mean	RSD%	Background
7	50,000	50882.0	50491.6	2.48	10.60
89	100,000	53636.0	52600.5	1.79	11.50
205	50,000	43790.0	42814.4	2.23	11.20
156/140	5	1.822%	1.788%	5.22	
70/140	2	1.476%	1.569%	4.59	



m/z:	7	89	205
Height:	15,034	16,405	13,642
Axis:	7.00	89.05	205.05
W-50%:	0.70	0.60	0.60
W-10%:	0.7500	0.7500	0.7500

Integration Time: 0.0300 sec
Acquisition Time: 10.1600 sec

Y axis : Linear

Generated : Dec 19, 2019 09:33:35
Printed : Dec 19, 2019 09:33:37

Tune Report

Tune File : NORM.U
Comment : IF6L04

Tuning Parameters

===Plasma Condition===			===Ion Lenses===			===Q-Pole Parameters===		
RF Power	:	1500 W	Extract 1	:	0 V	AMU Gain	:	129
RF Matching	:	1.74 V	Extract 2	:	-123 V	AMU Offset	:	125
Smpl Depth	:	8 mm	Omega Bias-ce	:	-28 V	Axis Gain	:	0.9995
Torch-H	:	-0.6 mm	Omega Lens-ce	:	0.4 V	Axis Offset	:	-0.03
Torch-V	:	-0.1 mm	Cell Entrance	:	-30 V	QP Bias	:	-3 V
Carrier Gas	:	0.9 L/min	QP Focus	:	2 V			
Makeup Gas	:	0.13 L/min	Cell Exit	:	-30 V	===Detector Parameters===		
Optional Gas	:	--- %				Discriminator	:	8 mV
Nebulizer Pump	:	0.1 rps	===Octopole Parameters===			Analog HV	:	2110 V
Sample Pump	:	--- rps	OctP RF	:	169 V	Pulse HV	:	1500 V
S/C Temp	:	2 degC	OctP Bias	:	-6 V			

===Reaction Cell===								
Reaction Mode	:	OFF						
H2 Gas	:	0 mL/min	He Gas	:	0 mL/min	Optional Gas	:	--- %

Generated : Dec 19, 2019 09:33:35
Printed : Dec 19, 2019 09:33:39

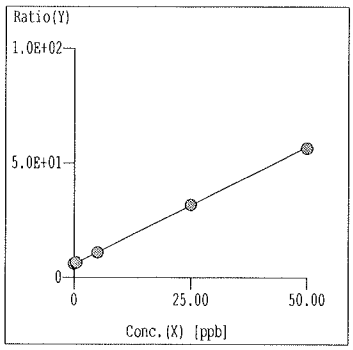
Last Calib: Dec 19, 2019 10:20 am
Calibration Type: External Calibration Method
Calibration Title:
Weighting Method: 1/(SD*SD)
Mass Interpolation Fit for VIS: Point to Point
Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Multi Tune: #1 h2.u
#2 he.u
#3 norm.u

=== Standard Files ===
<Data Correction>
Bkg File: ---
Rejected Masses: ---
Interference Correction: ON

	Data File	Sample Name	Date Acquired
1	c:\data\if62019\l\if6l04.b\f6l04004.d\f6l04004.d#	S0	Dec 19 2019 09:54 am
2	c:\data\if62019\l\if6l04.b\f6l04005.d\f6l04005.d#	S1 0.5	Dec 19 2019 09:59 am
3	c:\data\if62019\l\if6l04.b\f6l04006.d\f6l04006.d#	S2 50	Dec 19 2019 10:03 am
4	c:\data\if62019\l\if6l04.b\f6l04007.d\f6l04007.d#	S3 250	Dec 19 2019 10:08 am
5	c:\data\if62019\l\if6l04.b\f6l04008.d\f6l04008.d#	S4 500	Dec 19 2019 10:18 am
6	---		
7	---		
8	---		
9	---		
10	---		
11	---		
12	---		
13	---		
14	---		
15	---		
16	---		
17	---		
18	---		
19	---		
20	---		

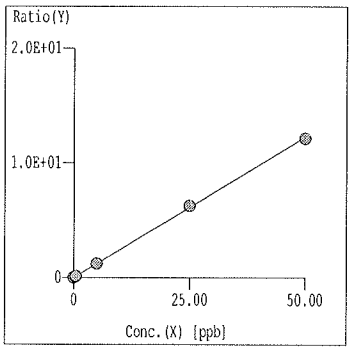
=== Graph Detail ===

Step Mass Element (3) 7 Li | ISTD 6 | Unit ppb



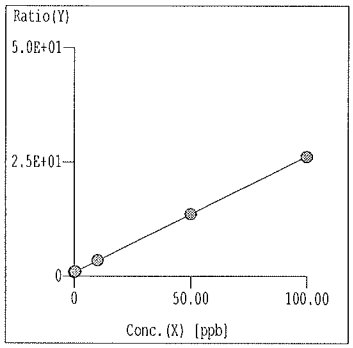
Curve Fit: Y=aX+b
r = 0.9999
Y = 1.021E+000*X +6.014E+000
X = 9.792E-001*Y -5.889E+000
DL = 1.487E-01 ppb
BEC = 5.889 ppb

Step Mass Element (3) 9 Be | ISTD 6 | Unit ppb



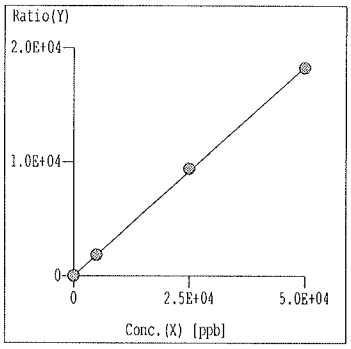
Curve Fit: Y=aX+b
r = 0.9999
Y = 2.449E-001*X +3.312E-003
X = 4.084E+000*Y -1.352E-002
DL = 6.578E-03 ppb
BEC = 1.352E-02 ppb

Step Mass Element (3) 11 B | ISTD 6 | Unit ppb



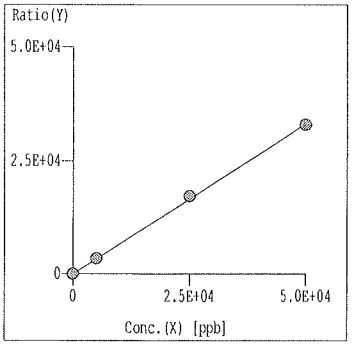
Curve Fit: Y=aX+b
r = 1.0000
Y = 2.535E-001*X +8.994E-001
X = 3.945E+000*Y -3.548E+000
DL = 4.947E-01 ppb
BEC = 3.548 ppb

Step Mass Element (1) 23 Na | ISTD 45 | Unit ppb



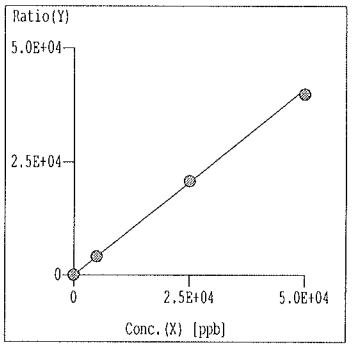
Curve Fit: Y=aX+b
r = 0.9999
Y = 3.661E-001*X +9.641E+000
X = 2.731E+000*Y -2.633E+001
DL = 1.416 ppb
BEC = 26.33 ppb

Step Mass Element (3) 24 Mg | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9998
Y = 6.630E-001*X +6.797E-001
X = 1.508E+000*Y -1.025E+000
DL = 7.978E-02 ppb
BEC = 1.025 ppb

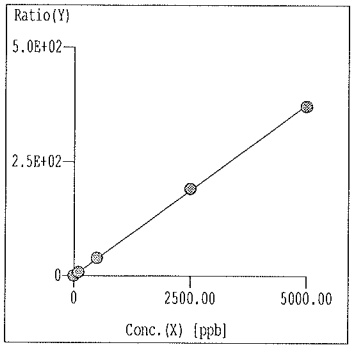
Step Mass Element (3) 27 Al | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9998
Y = 8.221E-001*X +8.944E-001
X = 1.216E+000*Y -1.088E+000
DL = 1.115E-01 ppb
BEC = 1.088 ppb

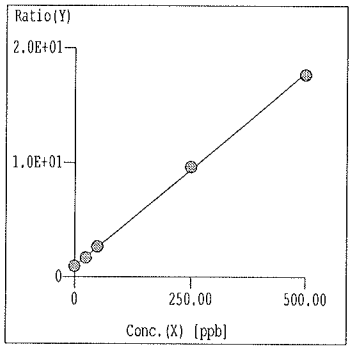
=== Graph Detail ===

Step Mass Element (1) 28 Si | ISTD 45 | Unit ppb



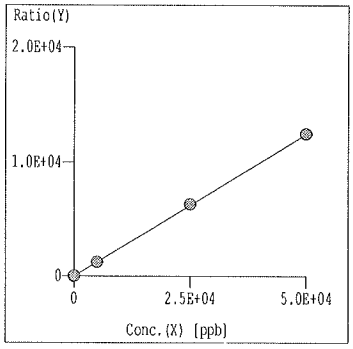
Curve Fit: Y=aX+b
r = 0.9999
Y = 7.495E-002*X +2.038E-001
X = 1.334E+001*Y -2.720E+000
DL = 2.626E-01 ppb
BEC = 2.720 ppb

Step Mass Element (3) 31 P | ISTD 45 | Unit ppb



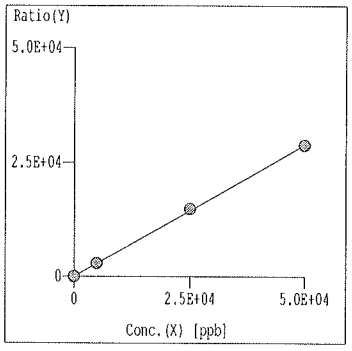
Curve Fit: Y=aX+b
r = 0.9998
Y = 3.387E-002*X +9.200E-001
X = 2.953E+001*Y -2.716E+001
DL = 1.121 ppb
BEC = 27.16 ppb

Step Mass Element (2) 39 K | ISTD 45 | Unit ppb



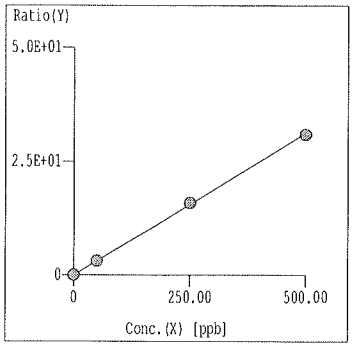
Curve Fit: Y=aX+b
r = 1.0000
Y = 2.486E-001*X +1.148E+001
X = 4.022E+000*Y -4.619E+001
DL = 1.905 ppb
BEC = 46.19 ppb

Step Mass Element (1) 40 Ca | ISTD 45 | Unit ppb



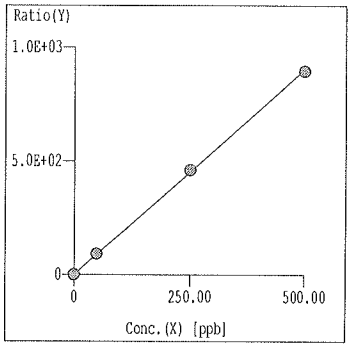
Curve Fit: Y=aX+b
r = 0.9999
Y = 5.782E-001*X +1.109E+001
X = 1.730E+000*Y -1.918E+001
DL = 7.230E-01 ppb
BEC = 19.18 ppb

Step Mass Element (3) 47 Ti | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9999
Y = 6.241E-002*X +4.496E-003
X = 1.602E+001*Y -7.204E-002
DL = 1.388E-02 ppb
BEC = 7.204E-02 ppb

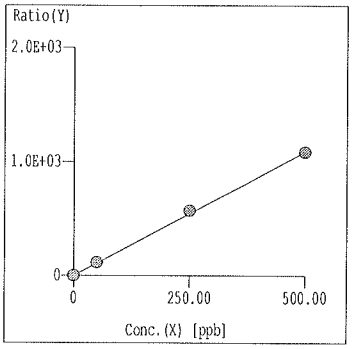
Step Mass Element (2) 51 V | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9999
Y = 1.807E+000*X +8.042E-001
X = 5.533E-001*Y -4.449E-001
DL = 2.495E-02 ppb
BEC = 4.449E-01 ppb

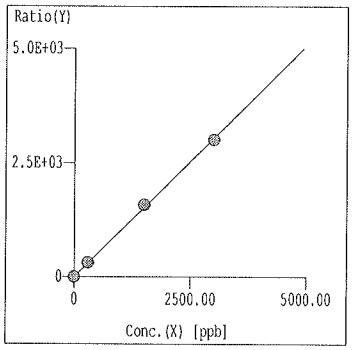
=== Graph Detail ===

Step Mass Element (2) 52 Cr | ISTD 45 | Unit ppb



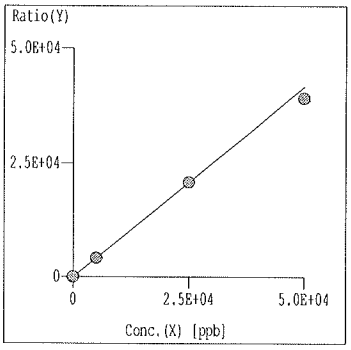
Curve Fit: Y=aX+b
r = 0.9997
Y = 2.174E+000*X +3.091E-001
X = 4.599E-001*Y -1.422E-001
DL = 1.571E-02 ppb
BEC = 1.422E-01 ppb

Step Mass Element (3) 55 Mn | ISTD 45 | Unit ppb



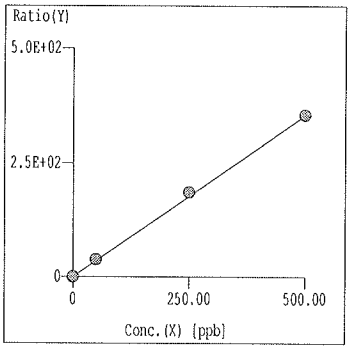
Curve Fit: Y=aX+b
r = 0.9997
Y = 1.016E+000*X +1.289E-001
X = 9.846E-001*Y -1.269E-001
DL = 1.387E-02 ppb
BEC = 1.269E-01 ppb

Step Mass Element (1) 56 Fe | ISTD 45 | Unit ppb



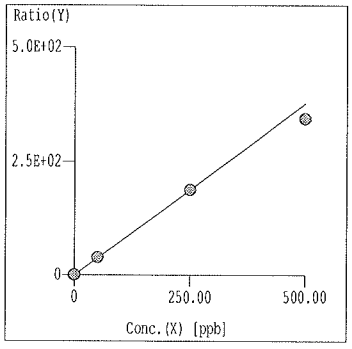
Curve Fit: Y=aX+b
r = 0.9995
Y = 8.320E-001*X +2.016E+000
X = 1.202E+000*Y -2.424E+000
DL = 2.515E-01 ppb
BEC = 2.424 ppb

Step Mass Element (3) 59 Co | ISTD 45 | Unit ppb



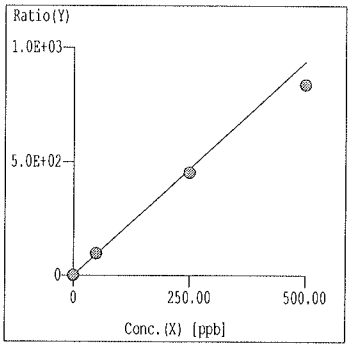
Curve Fit: Y=aX+b
r = 0.9997
Y = 7.088E-001*X +2.985E-002
X = 1.411E+000*Y -4.212E-002
DL = 8.370E-03 ppb
BEC = 4.212E-02 ppb

Step Mass Element (2) 60 Ni | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9989
Y = 7.528E-001*X +6.007E-002
X = 1.328E+000*Y -7.979E-002
DL = 8.492E-03 ppb
BEC = 7.979E-02 ppb

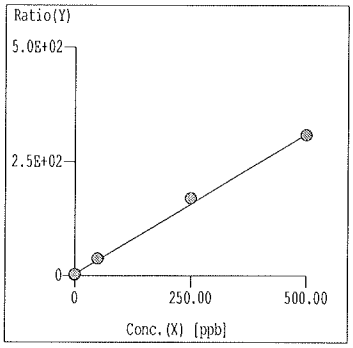
Step Mass Element (2) 63 Cu | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9992
Y = 1.874E+000*X +1.719E-001
X = 5.336E-001*Y -9.173E-002
DL = 5.216E-03 ppb
BEC = 9.173E-02 ppb

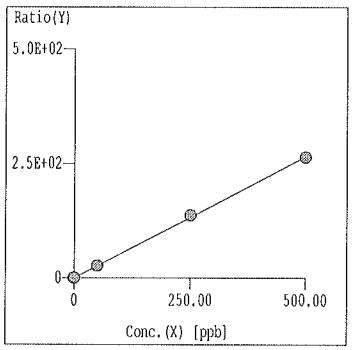
=== Graph Detail ===

Step Mass Element (3) 66 Zn | ISTD 72 | Unit ppb



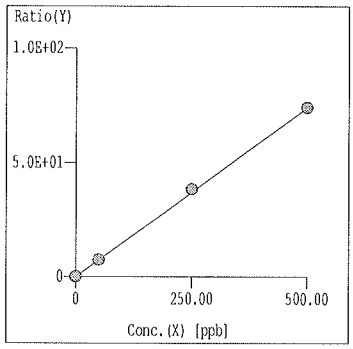
Curve Fit: Y=aX+b
r = 0.9989
Y = 6.139E-001*X +3.576E+000
X = 1.629E+000*Y -5.824E+000
DL = 1.536 ppb
BEC = 5.824 ppb

Step Mass Element (2) 75 As | ISTD 72 | Unit ppb



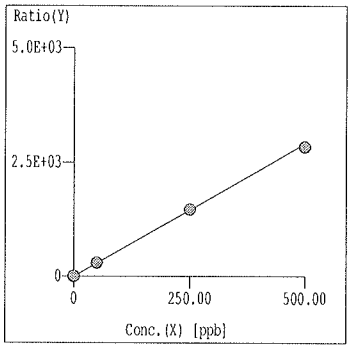
Curve Fit: Y=aX+b
r = 0.9998
Y = 5.308E-001*X +4.901E-002
X = 1.884E+000*Y -9.234E-002
DL = 2.348E-02 ppb
BEC = 9.234E-02 ppb

Step Mass Element (1) 78 Se | ISTD 72 | Unit ppb



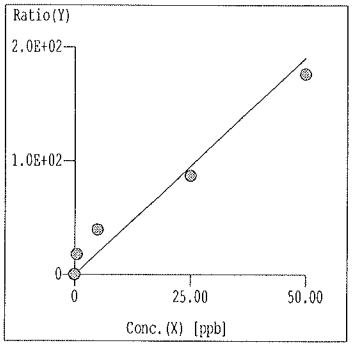
Curve Fit: Y=aX+b
r = 0.9998
Y = 1.480E-001*X +3.966E-003
X = 6.756E+000*Y -2.680E-002
DL = 3.092E-02 ppb
BEC = 2.680E-02 ppb

Step Mass Element (3) 88 Sr | ISTD 72 | Unit ppb



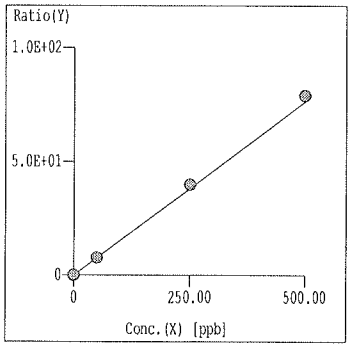
Curve Fit: Y=aX+b
r = 0.9999
Y = 5.819E+000*X +1.628E-001
X = 1.719E-001*Y -2.798E-002
DL = 2.027E-03 ppb
BEC = 2.798E-02 ppb

Step Mass Element (3) 90 Zr | ISTD 72 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9918
Y = 3.811E+000*X +8.153E-002
X = 2.624E-001*Y -2.139E-002
DL = 1.503E-03 ppb
BEC = 2.139E-02 ppb

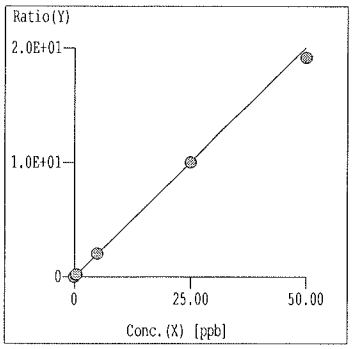
Step Mass Element (3) 95 Mo | ISTD 115 | Unit ppb



Curve Fit: Y=aX+b
r = 1.0000
Y = 1.527E-001*X +2.722E-003
X = 6.551E+000*Y -1.783E-002
DL = 3.978E-03 ppb
BEC = 1.783E-02 ppb

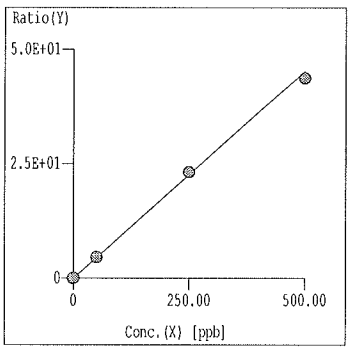
=== Graph Detail ===

Step Mass Element (3) 107 Ag | ISTD 115 | Unit ppb



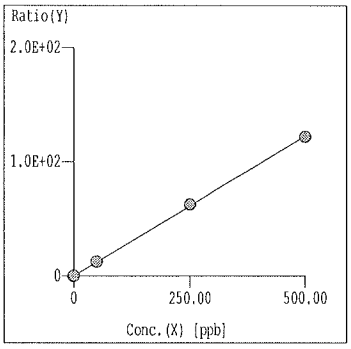
Curve Fit: Y=aX+b
r = 0.9998
Y = 4.016E-001*X +3.535E-003
X = 2.490E+000*Y -8.803E-003
DL = 5.884E-03 ppb
BEC = 8.803E-03 ppb

Step Mass Element (3) 111 Cd | ISTD 115 | Unit ppb



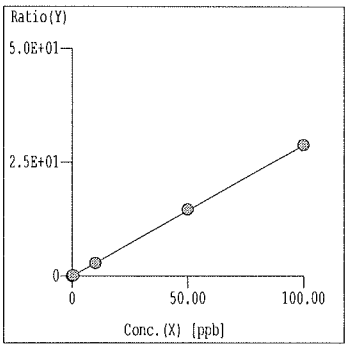
Curve Fit: Y=aX+b
r = 0.9996
Y = 9.038E-002*X +9.421E-003
X = 1.106E+001*Y -1.042E-001
DL = 1.032E-02 ppb
BEC = 1.042E-01 ppb

Step Mass Element (3) 118 Sn | ISTD 115 | Unit ppb



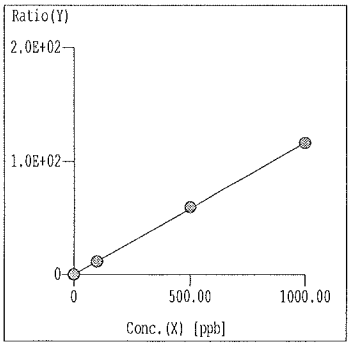
Curve Fit: Y=aX+b
r = 0.9999
Y = 2.449E-001*X +1.247E-002
X = 4.083E+000*Y -5.092E-002
DL = 4.865E-03 ppb
BEC = 5.092E-02 ppb

Step Mass Element (3) 121 Sb | ISTD 115 | Unit ppb



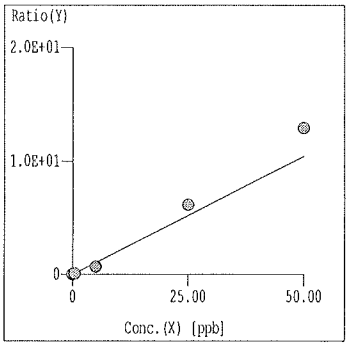
Curve Fit: Y=aX+b
r = 1.0000
Y = 2.869E-001*X +5.941E-003
X = 3.486E+000*Y -2.071E-002
DL = 6.555E-04 ppb
BEC = 2.071E-02 ppb

Step Mass Element (3) 137 Ba | ISTD 115 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9999
Y = 1.167E-001*X +4.385E-003
X = 8.569E+000*Y -3.757E-002
DL = 1.589E-02 ppb
BEC = 3.757E-02 ppb

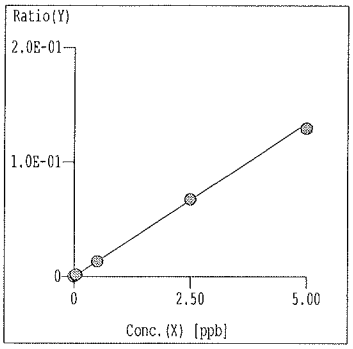
Step Mass Element (3) 182 W | ISTD 159 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9989
Y = 2.089E-001*X -5.638E-003
X = 4.787E+000*Y +2.698E-002
DL = 7.192E-03 ppb
BEC = -2.698E-02 ppb

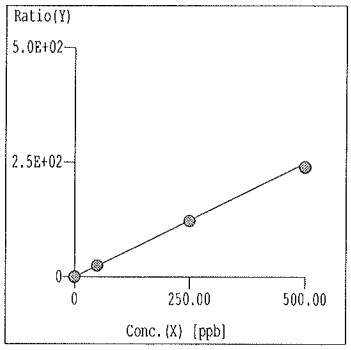
=== Graph Detail ===

Step Mass Element (3) 201 Hg | ISTD 159 | Unit ppb



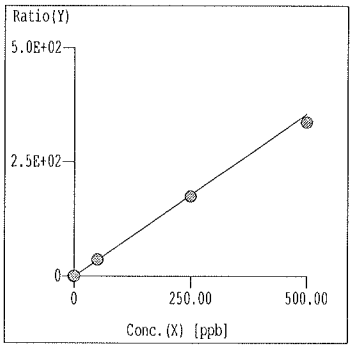
Curve Fit: Y=aX+b
r = 0.9998
Y = 2.672E-002*X +1.416E-004
X = 3.743E+001*Y -5.300E-003
DL = 3.197E-03 ppb
BEC = 5.300E-03 ppb

Step Mass Element (3) 205 Tl | ISTD 159 | Unit ppb



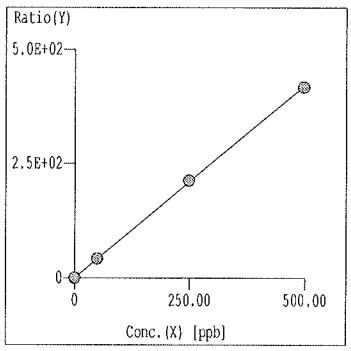
Curve Fit: Y=aX+b
r = 0.9999
Y = 4.953E-001*X +5.668E-003
X = 2.019E+000*Y -1.144E-002
DL = 5.445E-04 ppb
BEC = 1.144E-02 ppb

Step Mass Element (3) 208 Pb | ISTD 159 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9999
Y = 7.090E-001*X +3.642E-002
X = 1.410E+000*Y -5.137E-002
DL = 6.231E-03 ppb
BEC = 5.137E-02 ppb

Step Mass Element (3) 238 U | ISTD 159 | Unit ppb



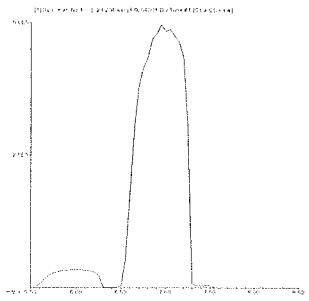
Curve Fit: Y=aX+b
r = 1.0000
Y = 8.438E-001*X +4.783E-003
X = 1.185E+000*Y -5.668E-003
DL = 2.153E-03 ppb
BEC = 5.668E-03 ppb

6020 QC Tune Report

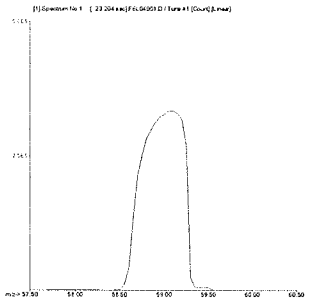
Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04001.D
Date Acquired: Dec 19 2019 09:39 am
Acq. Method: TN6020.M
Operator: LYaman
Sample Name: 6020tunchk
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

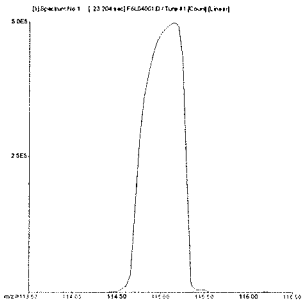
Element	Actual	Required	Flag
7 Li	2.85	5.00	
59 Co	3.58	5.00	
115 In	2.21	5.00	
205 Tl	1.35	5.00	



7 Li
Mass Calib.
Actual: 7.00
Required: 6.90 - 7.10
Flag:
Peak Width-10%
Actual: 0.65
Limit 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width-10%
Actual: 0.65
Limit 0.90
Flag:



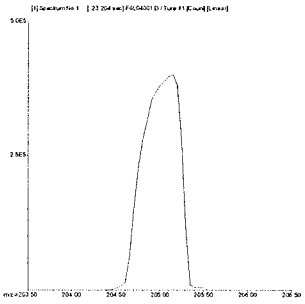
115 In

Mass Calib.

Actual:	115.10	
Required:	114.90 -	115.10
Flag:		

Peak Width-10%

Actual:	0.60
Limit	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.10	
Required:	204.90 -	205.10
Flag:		

Peak Width-10%

Actual:	0.65
Limit	0.90
Flag:	

Calibration Blank QC Report

Data File:	C:\DATA\IF62019\L\IF6L04.B\F6L04003
Date Acquired:	Dec 19 2019 09:49 am
Operator:	LYaman
Sample Name:	BLNK
Misc Info:	
Vial Number:	1101
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020Hg
Last Cal Update:	Dec 19 2019 09:52 am
Sample Type:	CalBlk
Total Dil Factor:	1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	4364962.00	A	111100.00	2.55
7	Li	264589.00	P	4901.00	1.85
9	Be	182.23	P	32.38	17.77
11	B	47844.25	P	1993.00	4.17
23	Na	193083.30	P	907.10	0.47
24	Mg	49067.51	P	283.00	0.58
27	Al	83914.82	P	789.90	0.94
28	Si	5452.28	P	520.60	9.55
31	P	34389.82	P	313.60	0.91
39	K	45573.16	P	277.00	0.61
40	Ca	184460.09	P	16820.00	9.12
45	Sc	1436907.00	A	181500.00	12.63
45	Sc	347723.00	P	5230.00	1.50
45	Sc	3662708.00	A	75870.00	2.07
47	Ti	154.45	P	8.39	5.43
51	V	2560.24	P	70.48	2.75
52	Cr	1164.28	P	17.11	1.47
55	Mn	6107.00	P	21.41	0.35
56	Fe	41072.35	P	4752.00	11.57
59	Co	1262.32	P	95.71	7.58
60	Ni	230.67	P	15.93	6.91
63	Cu	760.02	P	10.26	1.35
66	Zn	19928.51	P	1797.00	9.02
72	Ge	276251.81	P	28780.00	10.42
72	Ge	143549.59	P	2533.00	1.76
72	Ge	602369.00	P	8998.00	1.49
75	As	81.11	P	2.04	2.51
78	Se	13.11	P	4.29	32.69
88	Sr	1351.22	P	67.03	4.96
90	Zr	312.24	P	66.70	21.36
95	Mo	145.56	P	27.15	18.65
107	Ag	150.01	P	10.00	6.67
111	Cd	65.78	P	17.26	26.24
115	In	4223861.00	A	52200.00	1.24
118	Sn	565.59	P	45.50	8.04
121	Sb	305.57	P	10.72	3.51
137	Ba	368.91	P	18.96	5.14
159	Tb	6221297.00	A	121600.00	1.95
182	W	270.01	P	29.63	10.97
201	Hg		P		
201	Hg	14.44	P	1.93	13.33
205	Tl	708.93	P	53.16	7.50
208	Pb	2273.49	P	49.78	2.19
209	Bi	3797656.00	A	72580.00	1.91
235	U	10.00	P	10.00	100.00
238	U	682.26	P	30.25	4.43

Calibration Blank QC Report

Data File:	C:\DATA\IF62019\L\IF6L04.B\F6L04004
Date Acquired:	Dec 19 2019 09:54 am
Operator:	LYaman
Sample Name:	S0
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020Hg
Last Cal Update:	Dec 19 2019 09:52 am
Sample Type:	CalBlk
Total Dil Factor:	1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	4565332.00	A	114200.00	2.50
7	Li	275262.69	P	4630.00	1.68
9	Be	157.78	P	21.43	13.58
11	B	40737.02	P	896.30	2.20
23	Na	172104.70	P	818.80	0.48
24	Mg	25875.93	P	281.10	1.09
27	Al	33991.05	P	940.50	2.77
28	Si	3639.46	P	68.69	1.89
31	P	35440.69	P	759.70	2.14
39	K	44423.11	P	74.42	0.17
40	Ca	200684.80	P	1619.00	0.81
45	Sc	1791487.00	A	25300.00	1.41
45	Sc	367419.59	P	4345.00	1.18
45	Sc	3822492.00	A	59410.00	1.55
47	Ti	166.67	P	12.02	7.21
51	V	3142.35	P	66.15	2.11
52	Cr	1170.94	P	28.35	2.42
55	Mn	4767.58	P	167.40	3.51
56	Fe	35364.55	P	779.70	2.20
59	Co	905.62	P	62.58	6.91
60	Ni	220.00	P	5.29	2.41
63	Cu	587.79	P	9.72	1.65
66	Zn	13684.56	P	1773.00	12.96
72	Ge	329311.19	P	4177.00	1.27
72	Ge	151460.30	P	1838.00	1.21
72	Ge	623990.13	P	8419.00	1.35
75	As	80.89	P	6.05	7.48
78	Se	14.22	P	5.05	35.49
88	Sr	1015.63	P	28.74	2.83
90	Zr	352.24	P	10.18	2.89
95	Mo	135.56	P	8.39	6.19
107	Ag	126.67	P	34.80	27.47
111	Cd	41.92	P	14.04	33.49
115	In	4320472.00	A	78870.00	1.83
118	Sn	544.47	P	22.20	4.08
121	Sb	256.68	P	3.33	1.30
137	Ba	227.79	P	26.74	11.74
159	Tb	6298565.00	A	112800.00	1.79
182	W	251.12	P	33.56	13.36
201	Hg		P		
201	Hg	8.89	P	1.93	21.66
205	Tl	355.57	P	8.39	2.36
208	Pb	1437.86	P	73.37	5.10
209	Bi	3780839.00	A	74140.00	1.96
235	U	12.22	P	13.47	110.20
238	U	294.46	P	41.14	13.97

Calibration Standard QC Report

Data File:	C:\DATA\IF62019\L\IF6L04.B\F6L04005.D\F6L04005.D#
Date Acquired:	Dec 19 2019 09:59 am
Operator:	LYaman
Sample Name:	S1 0.5
Misc Info:	
Vial Number:	1104
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal Update:	Dec 19 2019 09:57 am
Sample Type:	CalStd
Total Dil Factor:	1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	4630582.00	A	74500.00	1.61
7 Li	301928.81	P	3602.00	1.19
9 Be	5644.55	P	218.90	3.88
11 B	46712.99	P	2259.00	4.84
23 Na	509935.91	P	8247.00	1.62
24 Mg	1402645.00	A	7788.00	0.56
27 Al	1646387.00	A	42270.00	2.57
28 Si	139707.00	P	4001.00	2.86
31 P	63671.24	P	782.20	1.23
39 K	89893.61	P	1259.00	1.40
40 Ca	679893.81	P	23470.00	3.45
45 Sc	1774122.00	A	81520.00	4.59
45 Sc	377953.81	P	5296.00	1.40
45 Sc	3816342.00	A	74070.00	1.94
47 Ti	1579.03	P	58.35	3.70
51 V	6017.69	P	12.34	0.21
52 Cr	5115.35	P	150.70	2.95
55 Mn	24930.42	P	142.30	0.57
56 Fe	831624.13	P	27070.00	3.26
59 Co	16133.68	P	276.20	1.71
60 Ni	1654.99	P	56.78	3.43
63 Cu	4385.12	P	36.19	0.83
66 Zn	19372.13	P	1466.00	7.57
72 Ge	332755.09	P	6675.00	2.01
72 Ge	154874.50	P	1764.00	1.14
72 Ge	635302.38	P	7665.00	1.21
75 As	472.90	P	7.31	1.55
78 Se	251.12	P	13.73	5.47
88 Sr	19522.48	P	185.30	0.95
90 Zr	111796.70	P	1433.00	1.28
95 Mo	3344.95	P	86.71	2.59
107 Ag	9487.88	P	317.20	3.34
111 Cd	2464.58	P	47.93	1.94
115 In	4383462.00	A	94740.00	2.16
118 Sn	5710.22	P	38.66	0.68
121 Sb	6459.47	P	156.90	2.43
137 Ba	2705.91	P	55.52	2.05
159 Tb	6384498.00	A	141600.00	2.22
182 W	4330.83	P	146.20	3.38
201 Hg		P		
201 Hg	103.34	P	32.15	31.11
205 Tl	17234.86	P	431.50	2.50
208 Pb	25140.04	P	564.00	2.24
209 Bi	3807668.00	A	54740.00	1.44
235 U	65.56	P	16.44	25.08
238 U	27636.27	P	260.90	0.94

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4630582.50	1.61	4565332.00	101.4	60 - 125	
45 Sc	1774121.90	4.59	1791487.00	99.0	60 - 125	
45 Sc	377953.78	1.40	367419.63	102.9	60 - 125	
45 Sc	3816342.00	1.94	3822492.00	99.8	60 - 125	
72 Ge	332755.13	2.01	329311.25	101.0	60 - 125	
72 Ge	154874.47	1.14	151460.27	102.3	60 - 125	
72 Ge	635302.38	1.21	623990.13	101.8	60 - 125	
115 In	4383461.50	2.16	4320472.50	101.5	60 - 125	
159 Tb	6384498.00	2.22	6298565.50	101.4	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04006.D\F6L04006.D#
Date Acquired: Dec 19 2019 10:03 am
Operator: LYaman
Sample Name: S2 50
Misc Info:
Vial Number: 1105
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal Update: Dec 19 2019 10:02 am
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	4150808.00	A	89330.00	2.15
7 Li	454080.91	P	8198.00	1.81
9 Be	50388.71	P	782.50	1.55
11 B	144258.91	P	664.10	0.46
23 Na	26383440.00	A	4348000.00	16.48
24 Mg	121577400.00	A	2145000.00	1.76
27 Al	145343700.00	A	2840000.00	1.95
28 Si	559894.81	P	86190.00	15.39
31 P	93761.33	P	1102.00	1.18
39 K	4357534.00	A	33410.00	0.77
40 Ca	41680768.00	A	6809000.00	16.34
45 Sc	1434371.00	A	239100.00	16.67
45 Sc	351719.59	P	700.80	0.20
45 Sc	3555728.00	A	50200.00	1.41
47 Ti	110520.50	P	1292.00	1.17
51 V	324378.81	P	1708.00	0.53
52 Cr	404973.31	P	1613.00	0.40
55 Mn	11098990.00	A	96410.00	0.87
56 Fe	59584168.00	A	9392000.00	15.76
59 Co	1358845.00	A	19810.00	1.46
60 Ni	136363.70	P	518.50	0.38
63 Cu	339381.19	P	438.80	0.13
66 Zn	213754.00	P	428.20	0.20
72 Ge	270890.59	P	36400.00	13.44
72 Ge	142473.59	P	987.50	0.69
72 Ge	570916.63	P	5941.00	1.04
75 As	38012.13	P	223.60	0.59
78 Se	20219.51	P	3285.00	16.25
88 Sr	1683757.00	A	29590.00	1.76
90 Zr	224476.09	P	2285.00	1.02
95 Mo	298511.19	P	3599.00	1.21
107 Ag	79697.66	P	1187.00	1.49
111 Cd	179327.20	P	3423.00	1.91
115 In	3916742.00	A	53990.00	1.38
118 Sn	488068.19	P	6612.00	1.35
121 Sb	110869.20	P	881.50	0.80
137 Ba	448154.00	P	8321.00	1.86
159 Tb	5827305.00	A	83070.00	1.43
182 W	38992.88	P	1086.00	2.79
201 Hg		P		
201 Hg	770.05	P	49.78	6.46
205 Tl	1426062.00	A	32740.00	2.30
208 Pb	2100885.00	P	35490.00	1.69
209 Bi	3350804.00	A	63460.00	1.89
235 U	5241.22	P	5.77	0.11
238 U	2455092.00	A	47270.00	1.93

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4150807.80	2.15	4565332.00	90.9	60 - 125	
45 Sc	1434371.50	16.67	1791487.00	80.1	60 - 125	
45 Sc	351719.56	0.20	367419.63	95.7	60 - 125	
45 Sc	3555728.30	1.41	3822492.00	93.0	60 - 125	
72 Ge	270890.66	13.44	329311.25	82.3	60 - 125	
72 Ge	142473.63	0.69	151460.27	94.1	60 - 125	
72 Ge	570916.56	1.04	623990.13	91.5	60 - 125	
115 In	3916742.50	1.38	4320472.50	90.7	60 - 125	
159 Tb	5827305.50	1.43	6298565.50	92.5	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04007.D\F6L04007.D#
Date Acquired: Dec 19 2019 10:08 am
Operator: LYaman
Sample Name: S3 250
Misc Info:
Vial Number: 1106
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal Update: Dec 19 2019 10:06 am
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	3900679.00	A	40550.00	1.04
7 Li	1238227.00	A	13040.00	1.05
9 Be	243621.20	P	1950.00	0.80
11 B	529371.63	P	5447.00	1.03
23 Na	148919810.00	A	7406000.00	4.97
24 Mg	584514880.00	A	9521000.00	1.63
27 Al	705665920.00	A	14160000.00	2.01
28 Si	3035175.00	A	166500.00	5.49
31 P	326284.81	P	2556.00	0.78
39 K	21576420.00	A	220300.00	1.02
40 Ca	235501700.00	A	10750000.00	4.56
45 Sc	1588246.00	A	67160.00	4.23
45 Sc	341330.91	P	1579.00	0.46
45 Sc	3397825.00	A	68570.00	2.02
47 Ti	540064.88	P	3412.00	0.63
51 V	1571564.00	A	19420.00	1.24
52 Cr	1943275.00	A	31850.00	1.64
55 Mn	53632080.00	A	628700.00	1.17
56 Fe	330373500.00	A	13950000.00	4.22
59 Co	6322389.00	A	65830.00	1.04
60 Ni	642153.38	P	4409.00	0.69
63 Cu	1542251.00	A	20500.00	1.33
66 Zn	924915.38	P	6889.00	0.74
72 Ge	284783.81	P	11290.00	3.96
72 Ge	135366.91	P	1052.00	0.78
72 Ge	544629.13	P	4472.00	0.82
75 As	185574.70	P	589.10	0.32
78 Se	109355.50	P	6482.00	5.93
88 Sr	7976997.00	A	111200.00	1.39
90 Zr	473082.91	P	3901.00	0.82
95 Mo	1451296.00	A	22250.00	1.53
107 Ag	364069.50	P	4305.00	1.18
111 Cd	842448.38	P	7307.00	0.87
115 In	3644147.00	A	54310.00	1.49
118 Sn	2274381.00	A	8711.00	0.38
121 Sb	531590.63	P	7803.00	1.47
137 Ba	2165953.00	A	35510.00	1.64
159 Tb	5555821.00	A	75370.00	1.36
182 W	341239.59	P	5080.00	1.49
201 Hg		P		
201 Hg	3742.88	P	73.15	1.95
205 Tl	6774829.00	A	140000.00	2.07
208 Pb	9644857.00	A	160800.00	1.67
209 Bi	3041249.00	A	49820.00	1.64
235 U	25277.03	P	213.70	0.85
238 U	11795610.00	A	200200.00	1.70

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3900678.80	1.04	4565332.00	85.4	60 - 125	
45 Sc	1588246.40	4.23	1791487.00	88.7	60 - 125	
45 Sc	341330.91	0.46	367419.63	92.9	60 - 125	
45 Sc	3397825.00	2.02	3822492.00	88.9	60 - 125	
72 Ge	284783.81	3.96	329311.25	86.5	60 - 125	
72 Ge	135366.91	0.78	151460.27	89.4	60 - 125	
72 Ge	544629.13	0.82	623990.13	87.3	60 - 125	
115 In	3644147.50	1.49	4320472.50	84.3	60 - 125	
159 Tb	5555821.00	1.36	6298565.50	88.2	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04008.D\F6L04008.D#
Date Acquired: Dec 19 2019 10:18 am
Operator: LYaman
Sample Name: S4 500
Misc Info:
Vial Number: 1107
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal Update: Dec 19 2019 10:15 am
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	3851894.00	A	38560.00	1.00
7 Li	2168592.00	A	13380.00	0.62
9 Be	466262.81	P	4064.00	0.87
11 B	1005116.00	A	8918.00	0.89
23 Na	317212610.00	A	1056000.00	0.33
24 Mg	1126317100.00	A	13960000.00	1.24
27 Al	1363947000.00	A	19770000.00	1.45
28 Si	6458930.00	A	37690.00	0.58
31 P	603268.63	P	3075.00	0.51
39 K	42729920.00	A	510400.00	1.19
40 Ca	500591810.00	A	4075000.00	0.81
45 Sc	1740456.00	A	14590.00	0.84
45 Sc	342841.19	P	3322.00	0.97
45 Sc	3421308.00	A	34650.00	1.01
47 Ti	1054271.00	A	17480.00	1.66
51 V	3066919.00	A	26990.00	0.88
52 Cr	3715914.00	A	40210.00	1.08
55 Mn	102800500.00	A	1195000.00	1.16
56 Fe	680746500.00	A	11330000.00	1.66
59 Co	12125050.00	A	119200.00	0.98
60 Ni	1177386.00	A	17480.00	1.48
63 Cu	2866271.00	A	25000.00	0.87
66 Zn	1684519.00	A	11260.00	0.67
72 Ge	295673.59	P	2353.00	0.80
72 Ge	133816.59	P	676.20	0.51
72 Ge	546803.69	P	3204.00	0.59
75 As	352877.69	P	2406.00	0.68
78 Se	218763.50	P	1437.00	0.66
88 Sr	15491830.00	A	229100.00	1.48
90 Zr	963190.31	P	8781.00	0.91
95 Mo	2812254.00	A	40190.00	1.43
107 Ag	681825.50	P	3366.00	0.49
111 Cd	1554239.00	A	18520.00	1.19
115 In	3563648.00	A	41970.00	1.18
118 Sn	4335274.00	A	59730.00	1.38
121 Sb	1024450.00	P	10490.00	1.02
137 Ba	4137350.00	A	47310.00	1.14
159 Tb	5404162.00	A	69130.00	1.28
182 W	697758.19	P	3068.00	0.44
201 Hg		P		
201 Hg	6965.39	P	194.10	2.79
205 Tl	12892410.00	A	223800.00	1.74
208 Pb	18154920.00	A	280300.00	1.54
209 Bi	2916208.00	A	25060.00	0.86
235 U	48324.49	P	808.90	1.67
238 U	22534150.00	A	335700.00	1.49

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3851894.00	1.00	4565332.00	84.4	60 - 125	
45 Sc	1740455.80	0.84	1791487.00	97.2	60 - 125	
45 Sc	342841.25	0.97	367419.63	93.3	60 - 125	
45 Sc	3421307.80	1.01	3822492.00	89.5	60 - 125	
72 Ge	295673.59	0.80	329311.25	89.8	60 - 125	
72 Ge	133816.61	0.51	151460.27	88.4	60 - 125	
72 Ge	546803.69	0.59	623990.13	87.6	60 - 125	
115 In	3563648.30	1.18	4320472.50	82.5	60 - 125	
159 Tb	5404162.00	1.28	6298565.50	85.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

ICV QC Report

Data File:	C:\DATA\IF62019\L\IF6L04.B\F6L04009.D\F6L04009.D#
Date Acquired:	Dec 19 2019 10:29 am
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	ICV
Misc Info:	
Vial Number:	1204
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update:	Dec 19 2019 10:20 am
Sample Type:	ICV1
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc. RSD(%)	Expected	QC Range(%)	Flag
7 Li	28.97	ppb	1396122.0	1.40	30.00	90 - 110	
9 Be	28.76	ppb	276355.6	0.59	30.00	90 - 110	
11 B	27.89	ppb	312567.6	0.88	30.00	90 - 110	
23 Na	29540.00	ppb	166334900.0	0.28	30000.00	90 - 110	
24 Mg	30000.00	ppb	677710910.0	0.59	30000.00	90 - 110	
27 Al	28990.00	ppb	812000770.0	1.15	30000.00	90 - 110	
28 Si	3003.00	ppb	3461847.0	0.49	3000.00	90 - 110	
31 P	294.70	ppb	371466.2	0.82	300.00	90 - 110	
39 K	29240.00	ppb	24307170.0	0.79	30000.00	90 - 110	
40 Ca	29570.00	ppb	262906700.0	0.51	30000.00	90 - 110	
47 Ti	302.50	ppb	643374.2	0.60	300.00	90 - 110	
51 V	302.60	ppb	1828478.0	0.42	300.00	90 - 110	
52 Cr	309.40	ppb	2246751.0	0.42	300.00	90 - 110	
55 Mn	1936.00	ppb	66990728.0	0.55	2000.00	90 - 110	
56 Fe	28320.00	ppb	362060990.0	0.58	30000.00	90 - 110	
59 Co	308.80	ppb	7458343.0	0.46	300.00	90 - 110	
60 Ni	295.10	ppb	741625.1	0.12	300.00	90 - 110	
63 Cu	282.50	ppb	1767750.0	1.07	300.00	90 - 110	
66 Zn	316.80	ppb	1062319.0	0.95	300.00	90 - 110	
75 As	306.70	ppb	214853.6	0.51	300.00	90 - 110	
78 Se	303.60	ppb	122046.2	0.25	300.00	90 - 110	
88 Sr	306.20	ppb	9556464.0	0.08	300.00	90 - 110	
90 Zr	29.01	ppb	593291.4	0.43	30.00	90 - 110	
95 Mo	315.40	ppb	1736174.0	0.82	300.00	90 - 110	
107 Ag	27.99	ppb	405392.1	1.03	30.00	90 - 110	
111 Cd	306.40	ppb	999022.8	0.73	300.00	90 - 110	
118 Sn	311.80	ppb	2753409.0	0.86	300.00	90 - 110	
121 Sb	57.61	ppb	596146.1	0.43	60.00	90 - 110	
137 Ba	310.00	ppb	1304621.0	0.72	300.00	90 - 110	
182 W	34.25	ppb	394694.3	0.34	30.00	90 - 110	Fail
201 Hg	2.81	ppb	4146.3	3.54	3.00	90 - 110	
205 Tl	300.10	ppb	8207718.0	0.76	300.00	90 - 110	
208 Pb	292.40	ppb	11448960.0	0.10	300.00	90 - 110	
235 U	1.80	ppb	28637.2	1.63	2.20	90 - 110	Fail
238 U	300.80	ppb	14014330.0	0.32	300.00	90 - 110	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3922153.3	0.74	4565332.00	85.9	60 - 125	
45 Sc	1536512.6	4.78	1791487.00	85.8	60 - 125	
45 Sc	333787.1	0.10	367419.63	90.8	60 - 125	
45 Sc	3407209.5	1.27	3822492.00	89.1	60 - 125	
72 Ge	271527.6	4.75	329311.25	82.5	60 - 125	
72 Ge	131932.0	0.67	151460.27	87.1	60 - 125	
72 Ge	536321.1	0.94	623990.13	86.0	60 - 125	
115 In	3605848.8	1.39	4320472.50	83.5	60 - 125	
159 Tb	5520687.5	1.33	6298565.50	87.6	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

2 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes:	Fail
ISTD:	Pass

ICB QC Report

Data File:	C:\DATA\IF62019\L\IF6L04.B\F6L04010.D\F6L04010.D#
Date Acquired:	Dec 19 2019 10:44 am
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	ICB
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update:	Dec 19 2019 10:20 am
Sample Type:	ICB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	-0.0100	ppb	265415.0	718.90	0.20	
9 Be	0.0007	ppb	154.5	277.27	0.10	
11 B	-0.8591	ppb	30114.7	19.31	5.00	
23 Na	-3.2350	ppb	143270.5	23.54	40.00	
24 Mg	1.0730	ppb	50194.8	4.23	10.00	
27 Al	1.5570	ppb	78410.5	7.59	20.00	
28 Si	0.1034	ppb	3583.9	164.99	20.00	
31 P	1.6530	ppb	35212.0	9.84	10.00	
39 K	3.0510	ppb	42650.3	38.91	20.00	
40 Ca	-2.9290	ppb	159150.4	20.58	25.00	
47 Ti	0.0158	ppb	197.8	43.94	0.50	
51 V	0.0547	ppb	3147.5	20.28	0.50	
52 Cr	0.0112	ppb	1162.3	60.40	0.20	
55 Mn	0.1060	ppb	8532.7	4.54	0.20	
56 Fe	0.9361	ppb	47317.5	40.06	10.00	
59 Co	0.0076	ppb	1271.2	34.95	0.20	
60 Ni	0.0123	ppb	241.6	26.10	0.20	
63 Cu	0.0034	ppb	621.1	41.84	0.40	
66 Zn	-1.8230	ppb	14532.1	25.22	2.00	
75 As	0.0274	ppb	90.2	57.77	0.20	
78 Se	0.0632	ppb	41.8	4.73	0.20	
90 Zr	0.0119	ppb	752.3	16.76	2.00	
95 Mo	0.0205	ppb	243.3	30.26	0.40	
107 Ag	0.0007	ppb	160.0	178.57	0.20	
111 Cd	-0.0797	ppb	92.5	2.98	0.20	
118 Sn	0.0410	ppb	936.7	23.61	0.20	
121 Sb	-0.0009	ppb	236.7	305.33	0.40	
137 Ba	0.0235	ppb	296.7	41.47	0.20	
182 W	0.0535	ppb	340.0	2.94	1.00	
201 Hg	0.0096	ppb	24.4	34.68	0.10	
205 Tl	0.0312	ppb	1295.7	6.91	0.20	
208 Pb	-0.0031	ppb	2102.4	35.77	0.10	
235 U	0.0011	ppb	16.7	51.53	1.00	
238 U	0.0138	ppb	1011.2	6.81	0.10	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4421121.0	1.79	4565332.00	96.8	60 - 125	
45 Sc	1694715.1	1.47	1791487.00	94.6	60 - 125	
45 Sc	348464.4	1.66	367419.63	94.8	60 - 125	
45 Sc	3607911.3	1.13	3822492.00	94.4	60 - 125	
72 Ge	313650.5	1.85	329311.25	95.2	60 - 125	
72 Ge	142149.6	1.09	151460.27	93.9	60 - 125	
72 Ge	592367.8	1.72	623990.13	94.9	60 - 125	
115 In	4164475.3	1.76	4320472.50	96.4	60 - 125	
159 Tb	6139963.0	1.82	6298565.50	97.5	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:

Analytes: Pass
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04011.D\F6L04011.D#
Date Acquired: Dec 19 2019 10:49 am
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: MRLL1901
Misc Info: 1/100/10 ppb
Vial Number: 1305
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	307163.3	0.0000	0.9362	ppb	9.44	50.00	
9 Be	# 3	6	9789.0	0.0000	0.8936	ppb	1.96	50.00	
11 B	# 3	6	131494.9	0.0000	8.2240	ppb	1.03	100.00	
23 Na	# 1	45	722806.8	0.0000	100.4000	ppb	2.95	50000.00	
24 Mg	# 3	45	2533829.0	0.0000	105.2000	ppb	0.72	50000.00	
27 Al	# 3	45	3415817.0	0.0000	114.4000	ppb	0.87	50000.00	
28 Si	# 1	45	119152.3	0.0000	99.3200	ppb	1.66	5000.00	
31 P	# 3	45	93109.9	0.0000	49.2300	ppb	2.16	500.00	
39 K	# 2	45	127994.8	0.0000	100.2000	ppb	0.84	50000.00	
40 Ca	# 1	45	1083607.0	0.0000	101.1000	ppb	1.31	50000.00	
47 Ti	# 3	45	2662.5	0.0000	1.1130	ppb	1.69	500.00	
51 V	# 2	45	8937.2	0.0000	0.9608	ppb	0.04	500.00	
52 Cr	# 2	45	9034.3	0.0000	1.0390	ppb	1.09	500.00	
55 Mn	# 3	45	46823.4	0.0000	1.1540	ppb	0.63	3000.00	
56 Fe	# 1	45	1361711.0	0.0000	102.6000	ppb	1.02	50000.00	
59 Co	# 3	45	29240.6	0.0000	1.1040	ppb	0.15	500.00	
60 Ni	# 2	45	2941.2	0.0000	1.0310	ppb	2.47	500.00	
63 Cu	# 2	45	7471.0	0.0000	1.0420	ppb	1.14	500.00	
66 Zn	# 3	72	57079.8	0.0000	9.7890	ppb	4.93	500.00	
75 As	# 2	72	829.4	0.0000	0.9885	ppb	4.03	500.00	
78 Se	# 1	72	466.9	0.0000	1.0350	ppb	3.08	500.00	
88 Sr	# 3	72	72227.3	0.0000	2.0560	ppb	0.77	500.00	
90 Zr	# 3	72	100976.0	0.0000	4.4270	ppb	0.99	50.00	
95 Mo	# 3	115	6152.6	0.0000	0.9432	ppb	5.31	500.00	
107 Ag	# 3	115	17032.8	0.0000	1.0020	ppb	0.99	50.00	
111 Cd	# 3	115	4029.4	0.0000	0.9586	ppb	4.66	500.00	
118 Sn	# 3	115	11024.6	0.0000	1.0230	ppb	1.48	500.00	
121 Sb	# 3	115	11617.3	0.0000	0.9448	ppb	1.97	500.00	
137 Ba	# 3	115	5052.2	0.0000	0.9945	ppb	4.77	1000.00	
182 W	# 3	159	28164.0	0.0000	2.2150	ppb	1.49	50.00	
201 Hg	# 3	159	184.5	0.0000	0.1068	ppb	6.37	25.00	
205 Tl	# 3	159	32515.5	0.0000	1.0540	ppb	1.55	500.00	
208 Pb	# 3	159	46419.4	0.0000	1.0110	ppb	1.59	500.00	
235 U	# 3	159	130.0	0.0000	0.0075	ppb	14.54	30.00	
238 U	# 3	159	51472.0	0.0000	0.9845	ppb	0.66	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4406643.50	0.61	4565332.00	96.5	60 - 125	
45 Sc # 1	1559107.00	6.38	1791487.00	87.0	60 - 125	
45 Sc # 2	351744.72	1.14	367419.63	95.7	60 - 125	
45 Sc # 3	3598700.00	1.09	3822492.00	94.1	60 - 125	
72 Ge # 1	297199.50	4.42	329311.25	90.2	60 - 125	
72 Ge # 2	144549.91	0.98	151460.27	95.4	60 - 125	
72 Ge # 3	595704.44	1.78	623990.13	95.5	60 - 125	
115 In # 3	4193327.00	0.93	4320472.50	97.1	60 - 125	
159 Tb # 3	6160566.50	1.51	6298565.50	97.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04012.D\F6L04012.D#
Date Acquired: Dec 19 2019 10:53 am
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: MRLL1902
Misc Info: 0.4/40/4 ppb
Vial Number: 1306
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	289667.0	0.0000	0.3952	ppb	17.16	50.00	
9 Be	# 3	6	4511.9	0.0000	0.3947	ppb	4.04	50.00	
11 B	# 3	6	33883.6	0.0000	-0.5858	ppb	19.99	100.00	
23 Na	# 1	45	415846.2	0.0000	42.0600	ppb	2.58	50000.00	
24 Mg	# 3	45	1168097.0	0.0000	47.1800	ppb	1.79	50000.00	
27 Al	# 3	45	1386265.0	0.0000	45.0500	ppb	1.20	50000.00	
28 Si	# 1	45	13826.8	0.0000	8.3880	ppb	1.83	5000.00	
31 P	# 3	45	35628.3	0.0000	1.6160	ppb	20.79	500.00	
39 K	# 2	45	81206.9	0.0000	45.4000	ppb	0.67	50000.00	
40 Ca	# 1	45	854786.9	0.0000	69.8200	ppb	0.79	50000.00	
47 Ti	# 3	45	1310.1	0.0000	0.5022	ppb	6.97	500.00	
51 V	# 2	45	5518.8	0.0000	0.4113	ppb	4.98	500.00	
52 Cr	# 2	45	4155.7	0.0000	0.3938	ppb	0.65	500.00	
55 Mn	# 3	45	26520.9	0.0000	0.5875	ppb	0.83	3000.00	
56 Fe	# 1	45	710931.6	0.0000	49.0100	ppb	0.51	50000.00	
59 Co	# 3	45	13767.9	0.0000	0.4893	ppb	1.00	500.00	
60 Ni	# 2	45	1319.4	0.0000	0.4118	ppb	2.07	500.00	
63 Cu	# 2	45	4180.6	0.0000	0.5337	ppb	1.40	500.00	
66 Zn	# 3	72	46460.4	0.0000	6.8560	ppb	7.56	500.00	
75 As	# 2	72	420.9	0.0000	0.4566	ppb	5.67	500.00	
78 Se	# 1	72	220.2	0.0000	0.4524	ppb	4.23	500.00	
88 Sr	# 3	72	16933.6	0.0000	0.4595	ppb	1.09	500.00	
90 Zr	# 3	72	996.7	0.0000	0.0225	ppb	28.87	50.00	
95 Mo	# 3	115	2874.8	0.0000	0.4271	ppb	0.43	500.00	
107 Ag	# 3	115	7531.1	0.0000	0.4342	ppb	1.37	50.00	
111 Cd	# 3	115	1787.7	0.0000	0.3630	ppb	6.47	500.00	
118 Sn	# 3	115	5406.8	0.0000	0.4707	ppb	0.76	500.00	
121 Sb	# 3	115	5216.7	0.0000	0.4090	ppb	3.50	500.00	
137 Ba	# 3	115	2610.3	0.0000	0.4911	ppb	4.14	1000.00	
182 W	# 3	159	322.2	0.0000	0.0518	ppb	5.41	50.00	
201 Hg	# 3	159	41.1	0.0000	0.0196	ppb	58.19	25.00	
205 Tl	# 3	159	14912.0	0.0000	0.4734	ppb	1.76	500.00	
208 Pb	# 3	159	22196.8	0.0000	0.4526	ppb	1.51	500.00	
235 U	# 3	159	71.1	0.0000	0.0041	ppb	17.10	30.00	
238 U	# 3	159	23303.4	0.0000	0.4391	ppb	1.59	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4513317.00	0.92	4565332.00	98.9	60 - 125	
45 Sc # 1	1661409.30	3.72	1791487.00	92.7	60 - 125	
45 Sc # 2	356598.28	1.41	367419.63	97.1	60 - 125	
45 Sc # 3	3655173.30	1.10	3822492.00	95.6	60 - 125	
72 Ge # 1	310745.69	2.77	329311.25	94.4	60 - 125	
72 Ge # 2	144415.81	1.19	151460.27	95.3	60 - 125	
72 Ge # 3	596984.06	1.10	623990.13	95.7	60 - 125	
115 In # 3	4232781.00	1.93	4320472.50	98.0	60 - 125	
159 Tb # 3	6210651.00	1.93	6298565.50	98.6	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

ICS-A QC Report

Data File:	C:\DATA\IF62019\L\IF6L04.B\F6L04013.D\F6L04013.D#
Date Acquired:	Dec 19 2019 10:58 am
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	ICSA
Misc Info:	
Vial Number:	1303
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update:	Dec 19 2019 10:20 am
Sample Type:	ICS-A
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	0.60	ppb	216598.8	3.85	---	
9 Be	-0.01	ppb	56.7	31.30	---	
11 B	-0.37	ppb	26307.7	41.20	---	
23 Na	106100.00	ppb	563543870.0	1.59	120000.00	
24 Mg	102800.00	ppb	1942334000.0	0.34	120000.00	
27 Al	100000.00	ppb	2343431900.0	0.37	120000.00	
28 Si	8.99	ppb	12738.2	1.82	---	
31 P	101500.00	ppb	98029752.0	0.52	---	
39 K	102200.00	ppb	78930560.0	0.65	120000.00	
40 Ca	105000.00	ppb	881068670.0	1.70	120000.00	
47 Ti	2224.00	ppb	3957987.0	0.60	2400.00	
51 V	0.09	ppb	3020.8	11.02	---	
52 Cr	0.27	ppb	2750.5	2.36	---	
55 Mn	0.33	ppb	13177.4	2.51	---	
56 Fe	96900.00	ppb	1169819000.0	0.83	120000.00	
59 Co	0.55	ppb	11960.8	2.66	---	
60 Ni	0.32	ppb	926.5	3.36	---	
63 Cu	0.36	ppb	2616.9	1.74	---	
66 Zn	0.61	ppb	19355.6	68.42	---	
75 As	0.31	ppb	268.2	3.66	---	
78 Se	0.18	ppb	79.1	5.71	---	
88 Sr	0.80	ppb	23684.3	0.95	---	
90 Zr	0.10	ppb	2230.3	3.44	---	
95 Mo	2034.00	ppb	9794782.0	1.27	2400.00	
107 Ag	0.01	ppb	286.7	24.96	---	
111 Cd	0.11	ppb	607.0	50.05	---	
118 Sn	0.34	ppb	3013.8	1.54	---	
121 Sb	0.15	ppb	1563.5	7.88	---	
137 Ba	0.32	ppb	1321.2	2.99	---	
182 W	0.27	ppb	2491.4	2.19	---	
201 Hg	0.01	ppb	20.0	26.38	---	
205 Tl	0.02	ppb	804.5	10.64	---	
208 Pb	0.06	ppb	3835.9	6.93	---	
235 U	0.00	ppb	4.4	29.39	---	
238 U	0.00	ppb	383.4	10.63	---	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3268352.5	1.42	4565332.00	71.6	60 - 125	
45 Sc	1450938.0	3.29	1791487.00	81.0	60 - 125	
45 Sc	310539.0	0.89	367419.63	84.5	60 - 125	
45 Sc	2850703.3	0.90	3822492.00	74.6	60 - 125	
72 Ge	255321.6	2.87	329311.25	77.5	60 - 125	
72 Ge	125383.0	1.20	151460.27	82.8	60 - 125	
72 Ge	489812.7	0.51	623990.13	78.5	60 - 125	
115 In	3155169.3	1.62	4320472.50	73.0	60 - 125	
159 Tb	4855422.0	1.54	6298565.50	77.1	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

0 :Element Failures	0 :Max. Number of Failures Allowed
0 :ISTD Failures	0 :Max. Nnumber of ISTD Failures Allowed

Data Results:

Analytes:	Pass
ISTD:	Pass

ICS-AB QC Report

Data File:	C:\DATA\IF62019\L\IF6L04.B\F6L04014.D\F6L04014.D#
Date Acquired:	Dec 19 2019 11:03 am
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	ICSAB
Misc Info:	
Vial Number:	1304
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update:	Dec 19 2019 10:20 am
Sample Type:	ICS-AB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	Expected	QC Range(%)	Flag
7 Li	20.42	ppb	821367.7	1.31	20.00	80 - 120	
9 Be	20.48	ppb	153373.7	1.40	20.00	80 - 120	
11 B	17.51	ppb	163167.9	2.01	20.00	80 - 120	
23 Na	104400.00	ppb	557251900.0	0.61	100000.00	80 - 120	
24 Mg	101900.00	ppb	1873662000.0	0.48	100000.00	80 - 120	
27 Al	98410.00	ppb	2243067900.0	0.39	100000.00	80 - 120	
28 Si	210.50	ppb	232769.0	0.57	200.00	80 - 120	
31 P	99500.00	ppb	93464944.0	0.42	100000.00	80 - 120	
39 K	101400.00	ppb	75241048.0	0.80	100000.00	80 - 120	
40 Ca	103500.00	ppb	872104380.0	0.37	100000.00	80 - 120	
47 Ti	2205.00	ppb	3815400.0	0.57	2000.00	80 - 120	
51 V	19.80	ppb	109098.6	0.56	20.00	80 - 120	
52 Cr	20.41	ppb	133265.9	0.61	20.00	80 - 120	
55 Mn	20.80	ppb	589391.8	1.23	20.00	80 - 120	
56 Fe	96480.00	ppb	1169357100.0	0.07	100000.00	80 - 120	
59 Co	21.14	ppb	416266.2	0.23	20.00	80 - 120	
60 Ni	18.10	ppb	40801.8	0.77	20.00	80 - 120	
63 Cu	17.73	ppb	99580.2	0.58	20.00	80 - 120	
66 Zn	19.44	ppb	72764.7	1.76	20.00	80 - 120	
75 As	19.51	ppb	12442.6	1.15	20.00	80 - 120	
78 Se	21.57	ppb	8083.4	1.18	20.00	80 - 120	
88 Sr	20.31	ppb	555370.4	0.94	20.00	80 - 120	
90 Zr	8.55	ppb	153298.5	1.19	20.00	80 - 120	Fail
95 Mo	2023.00	ppb	9626591.0	0.71	2000.00	80 - 120	
107 Ag	17.88	ppb	223877.3	0.50	20.00	80 - 120	
111 Cd	19.05	ppb	53973.2	0.87	20.00	80 - 120	
118 Sn	20.47	ppb	156662.2	1.33	20.00	80 - 120	
121 Sb	20.36	ppb	182210.7	1.32	20.00	80 - 120	
137 Ba	20.67	ppb	75302.1	1.22	20.00	80 - 120	
182 W	22.79	ppb	229117.5	0.37	20.00	80 - 120	
201 Hg	2.02	ppb	2605.9	3.06	2.00	80 - 120	
205 Tl	20.40	ppb	487084.7	0.77	20.00	80 - 120	
208 Pb	20.03	ppb	685994.1	0.56	20.00	80 - 120	
235 U	0.13	ppb	1828.0	1.68	0.14	80 - 120	
238 U	21.29	ppb	866010.8	0.26	19.86	80 - 120	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3056766.3	1.40	4565332.00	67.0	60 - 125	15<70%. LY 12/19/19
45 Sc	1456778.6	1.45	1791487.00	81.3	60 - 125	
45 Sc	298179.5	1.01	367419.63	81.2	60 - 125	
45 Sc	2772774.3	1.09	3822492.00	72.5	60 - 125	
72 Ge	252892.4	0.78	329311.25	76.8	60 - 125	
72 Ge	119604.5	0.50	151460.27	79.0	60 - 125	
72 Ge	469256.8	1.01	623990.13	75.2	60 - 125	
115 In	3116963.5	1.71	4320472.50	72.1	60 - 125	
159 Tb	4818386.5	1.05	6298565.50	76.5	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

1 :Element Failures	0 :Max. Number of Failures Allowed
0 :ISTD Failures	0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes:	Fail
ISTD:	Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04015.D\F6L04015.D#
Date Acquired: Dec 19 2019 11:08 am
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: MRLL1903
Misc Info: 500 ppb CAT
Vial Number: 1307
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	241065.5	0.0000	0.0001	ppb	54962.00	50.00	
9 Be	# 3	6	125.6	0.0000	-0.0007	ppb	265.86	50.00	
11 B	# 3	6	27909.4	0.0000	-0.8011	ppb	29.48	100.00	
23 Na	# 1	45	3107351.0	0.0000	508.0000	ppb	0.60	50000.00	
24 Mg	# 3	45	12084300.0	0.0000	511.5000	ppb	0.80	50000.00	
27 Al	# 3	45	14297660.0	0.0000	488.0000	ppb	0.99	50000.00	
28 Si	# 1	45	5783.5	0.0000	2.1430	ppb	21.07	5000.00	
31 P	# 3	45	34673.6	0.0000	1.6240	ppb	19.66	500.00	
39 K	# 2	45	470348.2	0.0000	513.8000	ppb	0.25	50000.00	
40 Ca	# 1	45	4769867.0	0.0000	500.3000	ppb	0.54	50000.00	
47 Ti	# 3	45	628.9	0.0000	0.2115	ppb	11.84	500.00	
51 V	# 2	45	2213.3	0.0000	-0.0824	ppb	1.23	500.00	
52 Cr	# 2	45	899.4	0.0000	-0.0197	ppb	6.33	500.00	
55 Mn	# 3	45	5340.0	0.0000	0.0210	ppb	13.59	3000.00	
56 Fe	# 1	45	6834169.0	0.0000	514.8000	ppb	0.48	50000.00	
59 Co	# 3	45	618.9	0.0000	-0.0176	ppb	10.80	500.00	
60 Ni	# 2	45	190.7	0.0000	-0.0048	ppb	52.88	500.00	
63 Cu	# 2	45	530.2	0.0000	-0.0079	ppb	105.42	500.00	
66 Zn	# 3	72	8428.3	0.0000	-3.4700	ppb	7.43	500.00	
75 As	# 2	72	58.0	0.0000	-0.0151	ppb	46.93	500.00	
78 Se	# 1	72	14.2	0.0000	0.0058	ppb	163.73	500.00	
88 Sr	# 3	72	1397.9	0.0000	0.0132	ppb	16.77	500.00	
90 Zr	# 3	72	337.8	0.0000	-0.0062	ppb	19.63	50.00	
95 Mo	# 3	115	2767.0	0.0000	0.4148	ppb	5.36	500.00	
107 Ag	# 3	115	144.5	0.0000	-0.0002	ppb	457.89	50.00	
111 Cd	# 3	115	56.7	0.0000	-0.0893	ppb	4.72	500.00	
118 Sn	# 3	115	505.6	0.0000	-0.0017	ppb	516.49	500.00	
121 Sb	# 3	115	200.0	0.0000	-0.0041	ppb	54.56	500.00	
137 Ba	# 3	115	284.5	0.0000	0.0206	ppb	49.64	1000.00	
182 W	# 3	159	400.0	0.0000	0.0574	ppb	4.99	50.00	
201 Hg	# 3	159	27.8	0.0000	0.0113	ppb	46.23	25.00	
205 Tl	# 3	159	930.1	0.0000	0.0184	ppb	9.18	500.00	
208 Pb	# 3	159	1673.4	0.0000	-0.0139	ppb	6.59	500.00	
235 U	# 3	159	2.2	0.0000	0.0003	ppb	36.47	30.00	
238 U	# 3	159	535.6	0.0000	0.0044	ppb	1.64	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4008403.80	0.51	4565332.00	87.8	60 - 125	
45 Sc # 1	1588243.00	1.69	1791487.00	88.7	60 - 125	
45 Sc # 2	337820.69	1.61	367419.63	91.9	60 - 125	
45 Sc # 3	3556294.00	0.85	3822492.00	93.0	60 - 125	
72 Ge # 1	295803.63	1.52	329311.25	89.8	60 - 125	
72 Ge # 2	141500.55	1.19	151460.27	93.4	60 - 125	
72 Ge # 3	583776.38	1.14	623990.13	93.6	60 - 125	
115 In # 3	4190048.80	0.42	4320472.50	97.0	60 - 125	
159 Tb # 3	6298227.50	1.64	6298565.50	100.0	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

CCV QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04016.D\F6L04016.D#
Date Acquired: Dec 19 2019 11:12 am
Operator: LYaman
Sample Name: CCV1
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal Update: Dec 19 2019 10:20 am
Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
7 Li	25.26 ppb	0.47	25.00	90 - 110	
9 Be	25.26 ppb	0.58	25.00	90 - 110	
11 B	48.77 ppb	0.56	50.00	90 - 110	
23 Na	25230.00 ppb	0.75	25000.00	90 - 110	
24 Mg	25660.00 ppb	0.05	25000.00	90 - 110	
27 Al	24890.00 ppb	0.30	25000.00	90 - 110	
28 Si	2484.00 ppb	0.62	2500.00	90 - 110	
31 P	247.10 ppb	0.43	250.00	90 - 110	
39 K	25160.00 ppb	1.01	25000.00	90 - 110	
40 Ca	25490.00 ppb	0.98	25000.00	90 - 110	
47 Ti	247.20 ppb	0.37	250.00	90 - 110	
51 V	253.30 ppb	0.93	250.00	90 - 110	
52 Cr	258.40 ppb	1.20	250.00	90 - 110	
55 Mn	1555.00 ppb	0.55	1500.00	90 - 110	
56 Fe	24900.00 ppb	1.17	25000.00	90 - 110	
59 Co	257.80 ppb	0.40	250.00	90 - 110	
60 Ni	245.10 ppb	0.19	250.00	90 - 110	
63 Cu	236.80 ppb	1.90	250.00	90 - 110	
66 Zn	270.70 ppb	0.89	250.00	90 - 110	
75 As	254.70 ppb	0.20	250.00	90 - 110	
78 Se	266.40 ppb	0.42	250.00	90 - 110	
88 Sr	258.10 ppb	0.84	250.00	90 - 110	
90 Zr	23.12 ppb	1.55	25.00	90 - 110	
95 Mo	257.80 ppb	0.57	250.00	90 - 110	
107 Ag	24.70 ppb	0.63	25.00	90 - 110	
111 Cd	258.20 ppb	0.41	250.00	90 - 110	
118 Sn	258.70 ppb	0.52	250.00	90 - 110	
121 Sb	51.62 ppb	0.41	50.00	90 - 110	
137 Ba	516.50 ppb	0.84	500.00	90 - 110	
182 W	29.95 ppb	0.48	25.00	90 - 110	Fail
201 Hg	2.46 ppb	1.28	2.50	90 - 110	
205 Tl	252.50 ppb	0.57	250.00	90 - 110	
208 Pb	249.70 ppb	0.16	250.00	90 - 110	
235 U	1.60 ppb	0.28	1.80	90 - 110	Fail
238 U	259.20 ppb	0.04	250.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3566315.80	1.33	4565332.00	78.1	60 - 125	
45 Sc	1547872.10	2.50	1791487.00	86.4	60 - 125	
45 Sc	310045.63	0.50	367419.63	84.4	60 - 125	
45 Sc	3253316.00	1.26	3822492.00	85.1	60 - 125	
72 Ge	271447.09	1.53	329311.25	82.4	60 - 125	
72 Ge	124028.91	0.81	151460.27	81.9	60 - 125	
72 Ge	519325.56	1.37	623990.13	83.2	60 - 125	
115 In	3559887.50	1.60	4320472.50	82.4	60 - 125	
159 Tb	5596424.50	1.53	6298565.50	88.9	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

2 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04017.D\F6L04017.D#
Date Acquired: Dec 19 2019 11:16 am
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: CCB1
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: CCB
Dilution Factor: 1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	0.0231	ppb	244487.1	228.82	0.20	
9 Be	-0.0025	ppb	108.9	39.56	0.10	
11 B	-1.3820	ppb	22223.3	9.99	5.00	
23 Na	-2.0250	ppb	143498.0	31.64	40.00	
24 Mg	2.8170	ppb	89244.8	3.02	10.00	
27 Al	2.6310	ppb	107085.8	3.72	20.00	
28 Si	0.0883	ppb	3390.5	374.93	20.00	
31 P	0.3716	ppb	32667.7	113.81	10.00	
39 K	9.3350	ppb	45460.6	6.61	20.00	
40 Ca	-1.4790	ppb	164993.3	28.21	25.00	
47 Ti	0.0576	ppb	283.3	12.88	0.50	
51 V	0.0208	ppb	2773.2	75.01	0.50	
52 Cr	0.0034	ppb	1042.5	56.88	0.20	
55 Mn	0.0761	ppb	7220.9	6.85	0.20	
56 Fe	4.0000	ppb	86135.1	9.97	10.00	
59 Co	-0.0059	ppb	897.8	70.56	0.20	
60 Ni	0.0013	ppb	200.9	536.11	0.20	
63 Cu	0.0099	ppb	626.9	23.49	0.40	
66 Zn	-2.5580	ppb	11569.3	15.29	2.00	~~Fail~~ $<\frac{1}{2}$ LOQ LY 12/19/19
75 As	0.0083	ppb	72.7	150.65	0.20	
78 Se	0.0386	ppb	28.9	37.96	0.20	
88 Sr	0.0096	ppb	1261.2	2.50	0.20	
90 Zr	-0.0084	ppb	286.7	15.96	2.00	
95 Mo	0.1189	ppb	865.6	5.25	0.40	
107 Ag	0.0000	ppb	146.7	18933.00	0.20	
111 Cd	-0.0752	ppb	108.8	2.63	0.20	
118 Sn	0.0575	ppb	1100.1	2.31	0.20	
121 Sb	-0.0022	ppb	220.0	143.48	0.40	
137 Ba	0.0348	ppb	350.0	13.98	0.20	
182 W	0.0608	ppb	440.0	3.02	1.00	
201 Hg	0.0061	ppb	18.9	40.72	0.10	
205 Tl	0.0477	ppb	1822.4	15.98	0.20	
208 Pb	-0.0014	ppb	2202.4	303.59	0.10	
235 U	0.0005	ppb	5.6	59.12	1.00	
238 U	0.0240	ppb	1554.6	9.61	0.10	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4049682.0	1.44	4565332.00	88.7	60 - 125	
45 Sc	1612833.5	1.67	1791487.00	90.0	60 - 125	
45 Sc	329343.1	1.76	367419.63	89.6	60 - 125	
45 Sc	3503167.8	1.43	3822492.00	91.6	60 - 125	
72 Ge	297840.3	1.62	329311.25	90.4	60 - 125	
72 Ge	136194.8	1.86	151460.27	89.9	60 - 125	
72 Ge	577491.6	1.11	623990.13	92.5	60 - 125	
115 In	4145118.8	1.32	4320472.50	95.9	60 - 125	
159 Tb	6224095.0	1.29	6298565.50	98.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File:	C:\DATA\IF62019\L\IF6L04.B\F6L04018.D\F6L04018.D#
Date Acquired:	Dec 19 2019 11:21 am
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	IML010WB
Misc Info:	
Vial Number:	2101
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update:	Dec 19 2019 10:20 am
Sample Type:	MBW
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	0.0554	ppb	248812.9	50.37	1.00	
9 Be	-0.0027	ppb	108.9	60.65	0.50	
11 B	-0.2994	ppb	33746.9	67.13	5.00	
23 Na	98.6300	ppb	680532.8	2.30	50.00	Fail
24 Mg	23.3500	ppb	573455.8	0.93	50.00	
27 Al	3.6980	ppb	139606.6	4.14	50.00	
28 Si	8.5180	ppb	12460.4	19.14	25.00	
31 P	-2.7730	ppb	29311.1	30.34	25.00	
39 K	8.8390	ppb	46325.6	3.43	50.00	
40 Ca	68.2700	ppb	752351.7	1.15	50.00	Fail
47 Ti	0.1568	ppb	506.7	4.11	1.00	
51 V	-0.0965	ppb	2132.2	8.59	0.50	
52 Cr	0.0901	ppb	1709.9	1.74	0.50	
55 Mn	0.1197	ppb	8887.4	8.66	0.50	
56 Fe	4.3520	ppb	83851.4	2.52	50.00	
59 Co	-0.0085	ppb	844.5	13.13	0.50	
60 Ni	0.4403	ppb	1325.6	0.57	0.50	
63 Cu	0.3054	ppb	2520.2	1.73	0.50	
66 Zn	1.7360	ppb	27142.3	5.50	10.00	
75 As	-0.0244	ppb	50.7	20.52	0.50	
78 Se	0.0083	ppb	14.7	77.10	0.50	
88 Sr	0.6307	ppb	22412.3	1.65	1.00	
90 Zr	-0.0025	ppb	421.1	13.16	2.50	
95 Mo	0.0776	ppb	608.9	11.09	1.00	
107 Ag	-0.0001	ppb	145.6	762.05	0.50	
111 Cd	-0.0844	ppb	75.1	4.90	0.50	
118 Sn	0.0606	ppb	1141.2	9.06	0.50	
121 Sb	0.0195	ppb	482.2	7.13	0.50	
137 Ba	0.3620	ppb	1949.1	2.19	0.50	
182 W	0.0480	ppb	273.3	9.90	1.00	
201 Hg	0.0108	ppb	26.7	33.68	---	
205 Tl	0.0224	ppb	1043.4	8.64	0.50	
208 Pb	0.0435	ppb	4189.3	7.37	0.50	
235 U	0.0006	ppb	7.8	47.85	---	
238 U	0.0092	ppb	782.3	7.62	0.50	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4098595.8	0.45	4565332.00	89.8	60 - 125	
45 Sc	1488527.6	6.45	1791487.00	83.1	60 - 125	
45 Sc	338584.1	1.22	367419.63	92.2	60 - 125	
45 Sc	3548065.0	0.53	3822492.00	92.8	60 - 125	
72 Ge	281651.2	4.61	329311.25	85.5	60 - 125	
72 Ge	140668.1	2.83	151460.27	92.9	60 - 125	
72 Ge	584804.8	0.97	623990.13	93.7	60 - 125	
115 In	4180146.3	0.18	4320472.50	96.8	60 - 125	
159 Tb	6227611.5	1.06	6298565.50	98.9	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

2 :Element Failures 0 :Max. Number of Failures Allowed

0 :ISTD Failures 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:

Analytes: Fail

ISTD: Pass

LCS QC Report

Data File:	C:\DATA\IF62019\L\IF6L04.B\F6L04019.D\F6L04019.D#
Date Acquired:	Dec 19 2019 11:26 am
Operator:	LYaman
Sample Name:	IML010WL
Misc Info:	
Vial Number:	2102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update:	Dec 19 2019 10:20 am
Sample Type:	LCS
Final Dil Factor:	1.00

Analyte Elements

Element	CPS Mean	Conc.		RSD(%)	Expected	QC Range(%)	Flag
7 Li	1349725.00	28.04	ppb	1.39	30.00	80 - 120	
9 Be	268722.91	28.16	ppb	1.09	30.00	80 - 120	
11 B	298888.50	26.72	ppb	1.38	30.00	80 - 120	
23 Na	17105430.00	2994.00	ppb	0.61	3000.00	80 - 120	
24 Mg	69436928.00	3049.00	ppb	0.73	3000.00	80 - 120	
27 Al	82203296.00	2911.00	ppb	0.54	3000.00	80 - 120	
28 Si	5192.17	1.76	ppb	12.89	3000.00	80 - 120	Fail
31 P	28863.38	-2.35	ppb	10.75	300.00	80 - 120	Fail
39 K	2455060.00	2957.00	ppb	1.53	3000.00	80 - 120	
40 Ca	26816890.00	2980.00	ppb	1.46	3000.00	80 - 120	
47 Ti	61530.40	28.64	ppb	0.64	30.00	80 - 120	
51 V	172457.70	28.58	ppb	0.56	30.00	80 - 120	
52 Cr	219259.00	30.53	ppb	0.37	30.00	80 - 120	
55 Mn	1078697.00	30.80	ppb	1.07	30.00	80 - 120	
56 Fe	38460100.00	2986.00	ppb	0.94	3000.00	80 - 120	
59 Co	779602.69	31.99	ppb	0.36	30.00	80 - 120	
60 Ni	73014.89	29.42	ppb	0.24	30.00	80 - 120	
63 Cu	184709.30	29.89	ppb	0.26	30.00	80 - 120	
66 Zn	252067.00	68.05	ppb	0.47	60.00	80 - 120	
75 As	20765.75	28.87	ppb	0.43	30.00	80 - 120	
78 Se	13038.71	30.51	ppb	1.39	30.00	80 - 120	
88 Sr	973268.38	30.07	ppb	0.83	30.00	80 - 120	
90 Zr	584.48	0.01	ppb	5.42	20.00	80 - 120	Fail
95 Mo	172095.00	28.55	ppb	0.98	30.00	80 - 120	
107 Ag	466835.41	29.45	ppb	0.59	30.00	80 - 120	
111 Cd	103781.30	29.00	ppb	0.89	30.00	80 - 120	
118 Sn	287048.59	29.65	ppb	0.70	30.00	80 - 120	
121 Sb	327158.19	28.88	ppb	0.61	30.00	80 - 120	
137 Ba	132329.70	28.70	ppb	0.97	30.00	80 - 120	
182 W	295.57	0.05	ppb	6.51	30.00	80 - 120	Fail
201 Hg	14.44	0.00	ppb	81.06	2.50	80 - 120	Fail
205 Tl	931736.13	31.52	ppb	0.25	30.00	80 - 120	
208 Pb	1283826.00	30.30	ppb	0.64	30.00	80 - 120	
235 U	3790.68	0.22	ppb	1.10	0.21	80 - 120	
238 U	1511400.00	30.02	ppb	0.71	29.79	80 - 120	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3895391.30	2.05	4565332.00	85.3	60 - 125	
45 Sc	1547142.90	3.20	1791487.00	86.4	60 - 125	
45 Sc	328738.69	0.59	367419.63	89.5	60 - 125	
45 Sc	3434016.80	1.09	3822492.00	89.8	60 - 125	
72 Ge	288458.50	2.05	329311.25	87.6	60 - 125	
72 Ge	135092.45	0.78	151460.27	89.2	60 - 125	
72 Ge	555760.25	0.62	623990.13	89.1	60 - 125	
115 In	3946244.50	1.61	4320472.50	91.3	60 - 125	
159 Tb	5965453.00	2.01	6298565.50	94.7	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

5 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04021.D\F6L04021.D#
Date Acquired: Dec 19 2019 11:35 am
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-01N
Misc Info:
Vial Number: 2104
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	839323.7	0.0000	17.3800	ppb	2.55	50.00	
9 Be	# 3	6	110.0	0.0000	-0.0008	ppb	27.04	50.00	
11 B	# 3	6	509089.9	0.0000	53.3100	ppb	1.38	100.00	
23 Na	# 1	45	217946590.0	0.0000	37480.0000	ppb	0.92	50000.00	
24 Mg	# 3	45	753343680.0	0.0000	34640.0000	ppb	0.76	50000.00	
27 Al	# 3	45	144552.8	0.0000	4.2730	ppb	0.75	50000.00	
28 Si	# 1	45	9991506.0	0.0000	8398.0000	ppb	0.82	5000.00	>LRS
31 P	# 3	45	33755.4	0.0000	3.2200	ppb	16.48	500.00	
39 K	# 2	45	1714928.0	0.0000	2110.0000	ppb	0.75	50000.00	
40 Ca	# 1	45	1186574000.0	0.0000	129300.0000	ppb	0.64	50000.00	>LRS
47 Ti	# 3	45	4437.5	0.0000	2.0970	ppb	4.79	500.00	
51 V	# 2	45	9262.0	0.0000	1.1570	ppb	0.39	500.00	
52 Cr	# 2	45	28721.3	0.0000	3.9870	ppb	1.59	500.00	
55 Mn	# 3	45	34028.5	0.0000	0.8946	ppb	0.92	3000.00	
56 Fe	# 1	45	267011.9	0.0000	17.8000	ppb	0.98	50000.00	
59 Co	# 3	45	9845.8	0.0000	0.3814	ppb	4.36	500.00	
60 Ni	# 2	45	9730.6	0.0000	3.9610	ppb	1.55	500.00	
63 Cu	# 2	45	2146.6	0.0000	0.2663	ppb	1.85	500.00	
66 Zn	# 3	72	26956.4	0.0000	2.9720	ppb	18.16	500.00	
75 As	# 2	72	432.5	0.0000	0.5600	ppb	1.23	500.00	
78 Se	# 1	72	494.5	0.0000	1.1820	ppb	4.54	500.00	
88 Sr	# 3	72	42370088.0	0.0000	1458.0000	ppb	0.44	500.00	>LRS
90 Zr	# 3	72	488.9	0.0000	0.0043	ppb	79.50	50.00	
95 Mo	# 3	115	4174.1	0.0000	0.7418	ppb	3.61	500.00	
107 Ag	# 3	115	152.2	0.0000	0.0017	ppb	74.22	50.00	
111 Cd	# 3	115	91.6	0.0000	-0.0760	ppb	5.65	500.00	
118 Sn	# 3	115	849.0	0.0000	0.0454	ppb	15.18	500.00	
121 Sb	# 3	115	757.8	0.0000	0.0527	ppb	6.38	500.00	
137 Ba	# 3	115	97058.2	0.0000	23.0600	ppb	0.55	1000.00	
182 W	# 3	159	420.0	0.0000	0.0630	ppb	2.59	50.00	
201 Hg	# 3	159	57.8	0.0000	0.0334	ppb	7.46	25.00	
205 Tl	# 3	159	845.6	0.0000	0.0191	ppb	11.62	500.00	
208 Pb	# 3	159	3089.1	0.0000	0.0266	ppb	13.42	500.00	
235 U	# 3	159	304.5	0.0000	0.0191	ppb	2.69	30.00	
238 U	# 3	159	41384.4	0.0000	0.8726	ppb	0.20	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	3532462.50	1.37	4565332.00	77.4	60 - 125	
45 Sc # 1	1587203.80	2.86	1791487.00	88.6	60 - 125	
45 Sc # 2	319937.78	1.14	367419.63	87.1	60 - 125	
45 Sc # 3	3279863.00	1.23	3822492.00	85.8	60 - 125	
72 Ge # 1	276263.19	1.16	329311.25	83.9	60 - 125	
72 Ge # 2	124898.36	0.56	151460.27	82.5	60 - 125	
72 Ge # 3	499323.00	0.84	623990.13	80.0	60 - 125	
115 In # 3	3600533.80	1.70	4320472.50	83.3	60 - 125	
159 Tb # 3	5584390.50	0.85	6298565.50	88.7	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04022.D\F6L04022.D#
Date Acquired: Dec 19 2019 11:40 am
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-02N
Misc Info:
Vial Number: 2105
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	895421.8	0.0000	19.1500	ppb	0.62	50.00	
9 Be	# 3	6	2018.0	0.0000	0.2218	ppb	2.81	50.00	
11 B	# 3	6	791175.9	0.0000	85.5800	ppb	1.24	100.00	
23 Na	# 1	45	295493600.0	0.0000	54190.0000	ppb	1.66	50000.00	>LRS
24 Mg	# 3	45	953167870.0	0.0000	43580.0000	ppb	1.25	50000.00	
27 Al	# 3	45	732940.0	0.0000	25.9400	ppb	1.59	50000.00	
28 Si	# 1	45	8899237.0	0.0000	7972.0000	ppb	1.59	5000.00	>LRS
31 P	# 3	45	37112.6	0.0000	6.0540	ppb	10.97	500.00	
39 K	# 2	45	1941412.0	0.0000	2380.0000	ppb	0.76	50000.00	
40 Ca	# 1	45	1114967000.0	0.0000	129500.0000	ppb	2.11	50000.00	>LRS
47 Ti	# 3	45	4679.8	0.0000	2.2020	ppb	4.07	500.00	
51 V	# 2	45	10916.7	0.0000	1.4320	ppb	1.27	500.00	
52 Cr	# 2	45	8361.9	0.0000	1.0530	ppb	0.69	500.00	
55 Mn	# 3	45	121311.4	0.0000	3.4940	ppb	0.46	3000.00	
56 Fe	# 1	45	666107.9	0.0000	51.3500	ppb	2.53	50000.00	
59 Co	# 3	45	13685.6	0.0000	0.5432	ppb	1.44	500.00	
60 Ni	# 2	45	3635.1	0.0000	1.4210	ppb	1.20	500.00	
63 Cu	# 2	45	10249.6	0.0000	1.6080	ppb	0.98	500.00	
66 Zn	# 3	72	423975.5	0.0000	133.1000	ppb	0.29	500.00	
75 As	# 2	72	638.7	0.0000	0.8718	ppb	4.07	500.00	
78 Se	# 1	72	431.8	0.0000	1.0690	ppb	2.82	500.00	
88 Sr	# 3	72	28544400.0	0.0000	986.6000	ppb	0.77	500.00	>LRS
90 Zr	# 3	72	458.9	0.0000	0.0028	ppb	82.07	50.00	
95 Mo	# 3	115	3233.8	0.0000	0.5731	ppb	6.02	500.00	
107 Ag	# 3	115	3163.8	0.0000	0.2111	ppb	0.34	50.00	
111 Cd	# 3	115	787.2	0.0000	0.1388	ppb	7.92	500.00	
118 Sn	# 3	115	10785.5	0.0000	1.1780	ppb	0.80	500.00	
121 Sb	# 3	115	3249.4	0.0000	0.2955	ppb	3.75	500.00	
137 Ba	# 3	115	197708.1	0.0000	47.2500	ppb	0.25	1000.00	
182 W	# 3	159	350.0	0.0000	0.0572	ppb	10.03	50.00	
201 Hg	# 3	159	24.4	0.0000	0.0111	ppb	75.14	25.00	
205 Tl	# 3	159	7177.7	0.0000	0.2492	ppb	3.06	500.00	
208 Pb	# 3	159	46535.3	0.0000	1.1290	ppb	0.17	500.00	
235 U	# 3	159	525.6	0.0000	0.0329	ppb	14.56	30.00	
238 U	# 3	159	80729.5	0.0000	1.7160	ppb	0.52	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	3502112.80	1.82	4565332.00	76.7	60 - 125	
45 Sc # 1	1489545.90	5.41	1791487.00	83.1	60 - 125	
45 Sc # 2	321759.28	1.14	367419.63	87.6	60 - 125	
45 Sc # 3	3299026.50	1.47	3822492.00	86.3	60 - 125	
72 Ge # 1	266052.34	3.04	329311.25	80.8	60 - 125	
72 Ge # 2	124856.57	1.73	151460.27	82.4	60 - 125	
72 Ge # 3	497202.28	0.80	623990.13	79.7	60 - 125	
115 In # 3	3582415.30	1.52	4320472.50	82.9	60 - 125	
159 Tb # 3	5557603.50	2.31	6298565.50	88.2	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04023.D\F6L04023.D#
Date Acquired: Dec 19 2019 11:44 am
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-03N
Misc Info:
Vial Number: 2106
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	708686.1	0.0000	13.3800	ppb	1.44	50.00	
9 Be	# 3	6	128.9	0.0000	0.0011	ppb	270.92	50.00	
11 B	# 3	6	457650.4	0.0000	46.5900	ppb	0.89	100.00	
23 Na	# 1	45	136004300.0	0.0000	24620.0000	ppb	0.50	50000.00	
24 Mg	# 3	45	783594180.0	0.0000	34920.0000	ppb	0.88	50000.00	
27 Al	# 3	45	375370.3	0.0000	12.4100	ppb	6.50	50000.00	
28 Si	# 1	45	9138145.0	0.0000	8089.0000	ppb	0.55	5000.00	>LRS
31 P	# 3	45	56191.9	0.0000	21.8600	ppb	4.15	500.00	
39 K	# 2	45	1506906.0	0.0000	1799.0000	ppb	0.47	50000.00	
40 Ca	# 1	45	996564930.0	0.0000	114400.0000	ppb	0.40	50000.00	>LRS
47 Ti	# 3	45	4803.2	0.0000	2.2010	ppb	3.05	500.00	
51 V	# 2	45	11943.7	0.0000	1.5670	ppb	0.22	500.00	
52 Cr	# 2	45	6428.1	0.0000	0.7579	ppb	0.22	500.00	
55 Mn	# 3	45	159207.4	0.0000	4.5050	ppb	0.75	3000.00	
56 Fe	# 1	45	249417.5	0.0000	17.4800	ppb	1.94	50000.00	
59 Co	# 3	45	7374.3	0.0000	0.2653	ppb	4.96	500.00	
60 Ni	# 2	45	3688.5	0.0000	1.4120	ppb	0.57	500.00	
63 Cu	# 2	45	1423.9	0.0000	0.1396	ppb	1.87	500.00	
66 Zn	# 3	72	35505.6	0.0000	5.3990	ppb	7.29	500.00	
75 As	# 2	72	525.6	0.0000	0.6750	ppb	4.02	500.00	
78 Se	# 1	72	443.8	0.0000	1.0970	ppb	4.50	500.00	
88 Sr	# 3	72	31002320.0	0.0000	1034.0000	ppb	0.68	500.00	>LRS
90 Zr	# 3	72	607.9	0.0000	0.0095	ppb	49.87	50.00	
95 Mo	# 3	115	3918.4	0.0000	0.6785	ppb	2.10	500.00	
107 Ag	# 3	115	148.9	0.0000	0.0012	ppb	189.59	50.00	
111 Cd	# 3	115	91.0	0.0000	-0.0769	ppb	3.98	500.00	
118 Sn	# 3	115	533.4	0.0000	0.0082	ppb	81.61	500.00	
121 Sb	# 3	115	812.3	0.0000	0.0561	ppb	6.27	500.00	
137 Ba	# 3	115	108410.1	0.0000	25.1700	ppb	1.13	1000.00	
182 W	# 3	159	422.2	0.0000	0.0622	ppb	5.06	50.00	
201 Hg	# 3	159	25.6	0.0000	0.0113	ppb	38.15	25.00	
205 Tl	# 3	159	737.8	0.0000	0.0145	ppb	9.11	500.00	
208 Pb	# 3	159	4194.9	0.0000	0.0517	ppb	9.89	500.00	
235 U	# 3	159	488.9	0.0000	0.0296	ppb	15.63	30.00	
238 U	# 3	159	61782.8	0.0000	1.2700	ppb	0.63	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	3601389.00	1.93	4565332.00	78.9	60 - 125	
45 Sc # 1	1506700.80	4.05	1791487.00	84.1	60 - 125	
45 Sc # 2	328480.78	1.18	367419.63	89.4	60 - 125	
45 Sc # 3	3384521.50	0.95	3822492.00	88.5	60 - 125	
72 Ge # 1	267091.31	3.07	329311.25	81.1	60 - 125	
72 Ge # 2	129093.93	1.49	151460.27	85.2	60 - 125	
72 Ge # 3	515405.25	0.93	623990.13	82.6	60 - 125	
115 In # 3	3685836.50	1.17	4320472.50	85.3	60 - 125	
159 Tb # 3	5740640.50	1.51	6298565.50	91.1	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04024.D\F6L04024.D#
Date Acquired: Dec 19 2019 11:49 am
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-04N
Misc Info:
Vial Number: 2107
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	1656036.0	0.0000	41.7800	ppb	0.32	50.00	
9 Be	# 3	6	178.9	0.0000	0.0080	ppb	35.32	50.00	
11 B	# 3	6	2009471.0	0.0000	229.5000	ppb	0.51	100.00	>LRS
23 Na	# 1	45	621033790.0	0.0000	131600.0000	ppb	0.88	50000.00	>LRS
24 Mg	# 3	45	1343415000.0	0.0000	62170.0000	ppb	0.98	50000.00	>LRS
27 Al	# 3	45	2034794.0	0.0000	74.8600	ppb	1.71	50000.00	
28 Si	# 1	45	9289865.0	0.0000	9613.0000	ppb	0.61	5000.00	>LRS
31 P	# 3	45	52305.8	0.0000	20.2300	ppb	1.17	500.00	
39 K	# 2	45	3261380.0	0.0000	4068.0000	ppb	0.72	50000.00	
40 Ca	# 1	45	1232002000.0	0.0000	165300.0000	ppb	0.47	50000.00	>LRS
47 Ti	# 3	45	7491.4	0.0000	3.6090	ppb	10.09	500.00	
51 V	# 2	45	9254.7	0.0000	1.1610	ppb	1.58	500.00	
52 Cr	# 2	45	12814.4	0.0000	1.7070	ppb	1.34	500.00	
55 Mn	# 3	45	231648.4	0.0000	6.8720	ppb	0.31	3000.00	
56 Fe	# 1	45	1229373.0	0.0000	112.3000	ppb	1.79	50000.00	
59 Co	# 3	45	13300.8	0.0000	0.5337	ppb	2.00	500.00	
60 Ni	# 2	45	11978.2	0.0000	4.9110	ppb	0.36	500.00	
63 Cu	# 2	45	4615.4	0.0000	0.6806	ppb	0.58	500.00	
66 Zn	# 3	72	30554.5	0.0000	4.5530	ppb	8.97	500.00	
75 As	# 2	72	534.5	0.0000	0.7398	ppb	5.36	500.00	
78 Se	# 1	72	932.0	0.0000	2.7650	ppb	3.26	500.00	
88 Sr	# 3	72	39794340.0	0.0000	1426.0000	ppb	0.49	500.00	>LRS
90 Zr	# 3	72	2609.3	0.0000	0.1213	ppb	4.01	50.00	
95 Mo	# 3	115	5687.4	0.0000	1.0690	ppb	4.88	500.00	
107 Ag	# 3	115	250.0	0.0000	0.0093	ppb	15.78	50.00	
111 Cd	# 3	115	107.7	0.0000	-0.0695	ppb	5.63	500.00	
118 Sn	# 3	115	1365.7	0.0000	0.1118	ppb	7.19	500.00	
121 Sb	# 3	115	956.7	0.0000	0.0765	ppb	7.03	500.00	
137 Ba	# 3	115	196353.6	0.0000	49.0500	ppb	0.61	1000.00	
182 W	# 3	159	600.7	0.0000	0.0806	ppb	26.45	50.00	
201 Hg	# 3	159	18.9	0.0000	0.0080	ppb	92.09	25.00	
205 Tl	# 3	159	910.1	0.0000	0.0230	ppb	13.25	500.00	
208 Pb	# 3	159	6489.8	0.0000	0.1200	ppb	3.88	500.00	
235 U	# 3	159	1035.6	0.0000	0.0673	ppb	4.20	30.00	
238 U	# 3	159	147026.7	0.0000	3.2560	ppb	0.88	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	3401784.80	1.81	4565332.00	74.5	60 - 125	
45 Sc # 1	1289604.60	11.00	1791487.00	72.0	60 - 125	
45 Sc # 2	318827.63	1.77	367419.63	86.8	60 - 125	
45 Sc # 3	3258992.30	0.99	3822492.00	85.3	60 - 125	
72 Ge # 1	225160.86	8.04	329311.25	68.4	60 - 125	-15670. LY 12/19/19
72 Ge # 2	121035.16	1.77	151460.27	79.9	60 - 125	
72 Ge # 3	479699.00	0.96	623990.13	76.9	60 - 125	
115 In # 3	3427779.50	1.45	4320472.50	79.3	60 - 125	
159 Tb # 3	5341842.00	1.58	6298565.50	84.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

6 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04025.D\F6L04025.D#
Date Acquired: Dec 19 2019 11:54 am
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-06N
Misc Info:
Vial Number: 2108
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	2824848.0	0.0000	75.7200	ppb	0.43	50.00	>LRS
9 Be	# 3	6	131.1	0.0000	0.0023	ppb	54.06	50.00	
11 B	# 3	6	2089386.0	0.0000	239.7000	ppb	0.81	100.00	>LRS
23 Na	# 1	45	1114798000.0	0.0000	200900.0000	ppb	1.37	50000.00	>LRS
24 Mg	# 3	45	1499093000.0	0.0000	69560.0000	ppb	0.49	50000.00	>LRS
27 Al	# 3	45	237380.7	0.0000	7.7940	ppb	0.90	50000.00	
28 Si	# 1	45	11182250.0	0.0000	9842.0000	ppb	1.02	5000.00	>LRS
31 P	# 3	45	45764.8	0.0000	14.4000	ppb	4.30	500.00	
39 K	# 2	45	3942850.0	0.0000	4875.0000	ppb	1.06	50000.00	
40 Ca	# 1	45	1405654000.0	0.0000	160400.0000	ppb	0.64	50000.00	>LRS
47 Ti	# 3	45	5294.5	0.0000	2.5380	ppb	2.05	500.00	
51 V	# 2	45	10227.3	0.0000	1.3110	ppb	0.83	500.00	
52 Cr	# 2	45	81157.1	0.0000	11.4400	ppb	0.86	500.00	
55 Mn	# 3	45	101198.5	0.0000	2.9380	ppb	0.18	3000.00	
56 Fe	# 1	45	1634785.0	0.0000	127.2000	ppb	0.58	50000.00	
59 Co	# 3	45	18683.4	0.0000	0.7687	ppb	0.32	500.00	
60 Ni	# 2	45	35884.9	0.0000	14.7200	ppb	0.77	500.00	
63 Cu	# 2	45	7781.4	0.0000	1.1970	ppb	1.29	500.00	
66 Zn	# 3	72	28199.8	0.0000	3.9150	ppb	12.50	500.00	
75 As	# 2	72	502.7	0.0000	0.7013	ppb	2.85	500.00	
78 Se	# 1	72	916.3	0.0000	2.3730	ppb	3.02	500.00	
88 Sr	# 3	72	39185152.0	0.0000	1427.0000	ppb	0.75	500.00	>LRS
90 Zr	# 3	72	594.5	0.0000	0.0117	ppb	31.44	50.00	
95 Mo	# 3	115	9014.2	0.0000	1.7330	ppb	0.50	500.00	
107 Ag	# 3	115	227.8	0.0000	0.0080	ppb	11.53	50.00	
111 Cd	# 3	115	56.7	0.0000	-0.0856	ppb	3.00	500.00	
118 Sn	# 3	115	635.6	0.0000	0.0261	ppb	14.66	500.00	
121 Sb	# 3	115	983.4	0.0000	0.0810	ppb	4.87	500.00	
137 Ba	# 3	115	272073.1	0.0000	69.1000	ppb	0.37	1000.00	
182 W	# 3	159	426.7	0.0000	0.0659	ppb	3.09	50.00	
201 Hg	# 3	159	13.3	0.0000	0.0043	ppb	115.65	25.00	
205 Tl	# 3	159	521.1	0.0000	0.0086	ppb	32.18	500.00	
208 Pb	# 3	159	3930.4	0.0000	0.0542	ppb	6.74	500.00	
235 U	# 3	159	1321.2	0.0000	0.0874	ppb	4.68	30.00	
238 U	# 3	159	178416.7	0.0000	4.0220	ppb	0.87	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	3389389.30	2.15	4565332.00	74.2	60 - 125	
45 Sc # 1	1515805.10	3.24	1791487.00	84.6	60 - 125	
45 Sc # 2	322215.41	1.43	367419.63	87.7	60 - 125	
45 Sc # 3	3250846.00	1.91	3822492.00	85.0	60 - 125	
72 Ge # 1	258047.42	2.23	329311.25	78.4	60 - 125	
72 Ge # 2	119328.99	1.12	151460.27	78.8	60 - 125	
72 Ge # 3	471871.75	1.56	623990.13	75.6	60 - 125	
115 In # 3	3372197.80	2.25	4320472.50	78.1	60 - 125	
159 Tb # 3	5249812.00	2.16	6298565.50	83.3	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

7 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCV QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04026.D\F6L04026.D#
Date Acquired: Dec 19 2019 11:58 am
Operator: LYaman
Sample Name: CCV2
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal Update: Dec 19 2019 10:20 am
Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
7 Li	24.59 ppb	1.55	25.00	90 - 110	
9 Be	24.61 ppb	0.89	25.00	90 - 110	
11 B	49.17 ppb	1.57	50.00	90 - 110	
23 Na	25750.00 ppb	0.38	25000.00	90 - 110	
24 Mg	25720.00 ppb	0.59	25000.00	90 - 110	
27 Al	25040.00 ppb	0.31	25000.00	90 - 110	
28 Si	2591.00 ppb	0.31	2500.00	90 - 110	
31 P	253.10 ppb	0.70	250.00	90 - 110	
39 K	26070.00 ppb	0.53	25000.00	90 - 110	
40 Ca	25690.00 ppb	0.93	25000.00	90 - 110	
47 Ti	249.80 ppb	0.80	250.00	90 - 110	
51 V	250.20 ppb	0.79	250.00	90 - 110	
52 Cr	254.60 ppb	0.76	250.00	90 - 110	
55 Mn	1533.00 ppb	0.43	1500.00	90 - 110	
56 Fe	24890.00 ppb	0.11	25000.00	90 - 110	
59 Co	257.90 ppb	0.98	250.00	90 - 110	
60 Ni	241.30 ppb	0.19	250.00	90 - 110	
63 Cu	230.40 ppb	0.54	250.00	90 - 110	
66 Zn	266.00 ppb	0.36	250.00	90 - 110	
75 As	253.80 ppb	0.14	250.00	90 - 110	
78 Se	258.50 ppb	0.44	250.00	90 - 110	
88 Sr	254.90 ppb	0.34	250.00	90 - 110	
90 Zr	22.79 ppb	0.55	25.00	90 - 110	
95 Mo	261.70 ppb	0.86	250.00	90 - 110	
107 Ag	24.78 ppb	0.97	25.00	90 - 110	
111 Cd	257.60 ppb	0.52	250.00	90 - 110	
118 Sn	258.60 ppb	0.85	250.00	90 - 110	
121 Sb	51.46 ppb	0.88	50.00	90 - 110	
137 Ba	525.50 ppb	0.86	500.00	90 - 110	
182 W	29.65 ppb	0.39	25.00	90 - 110	Fail
201 Hg	2.49 ppb	2.39	2.50	90 - 110	
205 Tl	248.30 ppb	1.17	250.00	90 - 110	
208 Pb	247.00 ppb	1.16	250.00	90 - 110	
235 U	1.57 ppb	2.03	1.80	90 - 110	Fail
238 U	254.10 ppb	0.30	250.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4090859.00	1.19	4565332.00	89.6	60 - 125	
45 Sc	1657089.90	3.71	1791487.00	92.5	60 - 125	
45 Sc	356097.31	0.91	367419.63	96.9	60 - 125	
45 Sc	3680156.30	1.24	3822492.00	96.3	60 - 125	
72 Ge	295699.91	2.68	329311.25	89.8	60 - 125	
72 Ge	142330.44	0.58	151460.27	94.0	60 - 125	
72 Ge	585855.50	1.08	623990.13	93.9	60 - 125	
115 In	3911975.80	1.78	4320472.50	90.5	60 - 125	
159 Tb	6065161.50	0.87	6298565.50	96.3	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

2 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File:	C:\DATA\IF62019\L\IF6L04.B\F6L04027.D\F6L04027.D#
Date Acquired:	Dec 19 2019 12:03 pm
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	CCB2
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update:	Dec 19 2019 10:20 am
Sample Type:	CCB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	0.0157	ppb	276705.2	162.32	0.20	
9 Be	-0.0021	ppb	128.9	130.34	0.10	
11 B	-0.0236	ppb	40978.8	844.33	5.00	
23 Na	6.2360	ppb	218878.0	19.77	40.00	
24 Mg	4.0870	ppb	134368.9	5.89	10.00	
27 Al	5.1980	ppb	204812.1	11.58	20.00	
28 Si	0.9807	ppb	5090.3	17.47	20.00	
31 P	2.5400	ppb	39903.3	7.60	10.00	
39 K	4.5730	ppb	48811.1	1.13	20.00	
40 Ca	3.5860	ppb	241619.8	20.47	25.00	
47 Ti	0.0361	ppb	267.8	9.79	0.50	
51 V	0.1123	ppb	3895.4	5.75	0.50	
52 Cr	0.0199	ppb	1362.7	14.52	0.20	
55 Mn	0.0993	ppb	9109.7	10.48	0.20	
56 Fe	3.4090	ppb	89045.2	9.23	10.00	
59 Co	-0.0023	ppb	1117.9	86.91	0.20	
60 Ni	0.0071	ppb	252.9	29.63	0.20	
63 Cu	0.0062	ppb	710.0	71.73	0.40	
66 Zn	-2.6260	ppb	12662.5	13.85	2.00	~~Fail~~ LY 12/19/19
75 As	0.0228	ppb	95.8	11.72	0.20	
78 Se	0.0436	ppb	35.1	19.50	0.20	
88 Sr	0.0751	ppb	3868.4	6.76	0.20	
90 Zr	-0.0100	ppb	281.1	5.81	2.00	
95 Mo	0.0602	ppb	538.9	23.87	0.40	
107 Ag	0.0005	ppb	168.9	249.69	0.20	
111 Cd	-0.0757	ppb	117.0	7.41	0.20	
118 Sn	0.0486	ppb	1103.4	32.98	0.20	
121 Sb	0.0022	ppb	297.8	164.77	0.40	
137 Ba	0.0388	ppb	403.4	22.95	0.20	
182 W	0.0548	ppb	383.4	4.63	1.00	
201 Hg	0.0124	ppb	31.1	24.83	0.10	
205 Tl	0.0456	ppb	1864.6	12.39	0.20	
208 Pb	-0.0027	ppb	2276.8	67.80	0.10	
235 U	0.0005	ppb	6.7	68.17	1.00	
238 U	0.0264	ppb	1786.9	9.17	0.10	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4588576.5	1.11	4565332.00	100.5	60 - 125	
45 Sc	1836817.0	2.77	1791487.00	102.5	60 - 125	
45 Sc	386737.3	0.43	367419.63	105.3	60 - 125	
45 Sc	3966212.8	1.18	3822492.00	103.8	60 - 125	
72 Ge	337146.3	2.28	329311.25	102.4	60 - 125	
72 Ge	156783.4	1.40	151460.27	103.5	60 - 125	
72 Ge	645348.3	0.83	623990.13	103.4	60 - 125	
115 In	4530693.5	0.99	4320472.50	104.9	60 - 125	
159 Tb	6602374.0	1.16	6298565.50	104.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

LCS QC Report

Data File:	C:\DATA\IF62019\L\IF6L04.B\F6L04028.D\F6L04028.D#
Date Acquired:	Dec 19 2019 12:07 pm
Operator:	LYaman
Sample Name:	IML010WC
Misc Info:	
Vial Number:	2301
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update:	Dec 19 2019 10:20 am
Sample Type:	LCS
Final Dil Factor:	1.00

Analyte Elements

Element	CPS Mean	Conc.		RSD(%)	Expected	QC Range(%)	Flag
7 Li	1540165.00	28.27	ppb	2.08	30.00	80 - 120	
9 Be	299599.41	27.70	ppb	1.51	30.00	80 - 120	
11 B	342570.59	27.06	ppb	2.11	30.00	80 - 120	
23 Na	19040420.00	2966.00	ppb	0.65	3000.00	80 - 120	
24 Mg	77585200.00	3058.00	ppb	0.83	3000.00	80 - 120	
27 Al	92237024.00	2932.00	ppb	0.27	3000.00	80 - 120	
28 Si	8306.04	3.66	ppb	6.45	3000.00	80 - 120	Fail
31 P	35518.26	0.25	ppb	116.84	300.00	80 - 120	Fail
39 K	2815645.00	3038.00	ppb	0.75	3000.00	80 - 120	
40 Ca	30063600.00	2973.00	ppb	1.07	3000.00	80 - 120	
47 Ti	68719.18	28.71	ppb	0.92	30.00	80 - 120	
51 V	193688.09	28.74	ppb	0.83	30.00	80 - 120	
52 Cr	242470.00	30.23	ppb	0.28	30.00	80 - 120	
55 Mn	1182612.00	30.31	ppb	1.13	30.00	80 - 120	
56 Fe	42563420.00	2941.00	ppb	0.68	3000.00	80 - 120	
59 Co	863040.31	31.78	ppb	0.29	30.00	80 - 120	
60 Ni	80741.47	29.13	ppb	0.31	30.00	80 - 120	
63 Cu	203895.09	29.53	ppb	0.44	30.00	80 - 120	
66 Zn	281472.91	68.14	ppb	0.35	60.00	80 - 120	
75 As	23034.43	28.90	ppb	1.49	30.00	80 - 120	
78 Se	14240.04	30.00	ppb	0.70	30.00	80 - 120	
88 Sr	1070781.00	29.66	ppb	0.81	30.00	80 - 120	
90 Zr	791.17	0.01	ppb	23.77	20.00	80 - 120	Fail
95 Mo	188723.20	28.69	ppb	0.83	30.00	80 - 120	
107 Ag	512875.41	29.64	ppb	0.32	30.00	80 - 120	
111 Cd	110993.90	28.41	ppb	0.65	30.00	80 - 120	
118 Sn	312782.19	29.61	ppb	0.22	30.00	80 - 120	
121 Sb	354890.81	28.70	ppb	0.48	30.00	80 - 120	
137 Ba	145948.70	29.00	ppb	0.47	30.00	80 - 120	
182 W	342.24	0.05	ppb	3.88	30.00	80 - 120	Fail
201 Hg	24.45	0.01	ppb	72.39	2.50	80 - 120	Fail
205 Tl	984277.63	30.96	ppb	0.47	30.00	80 - 120	
208 Pb	1359242.00	29.83	ppb	0.52	30.00	80 - 120	
235 U	3781.79	0.20	ppb	4.38	0.21	80 - 120	
238 U	1586702.00	29.31	ppb	1.46	29.79	80 - 120	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4415969.00	2.50	4565332.00	96.7	60 - 125	
45 Sc	1738207.30	2.52	1791487.00	97.0	60 - 125	
45 Sc	367194.19	1.24	367419.63	99.9	60 - 125	
45 Sc	3825975.80	1.15	3822492.00	100.1	60 - 125	
72 Ge	320429.19	1.20	329311.25	97.3	60 - 125	
72 Ge	149708.16	1.02	151460.27	98.8	60 - 125	
72 Ge	619890.31	1.29	623990.13	99.3	60 - 125	
115 In	4306783.00	1.36	4320472.50	99.7	60 - 125	
159 Tb	6414823.00	1.68	6298565.50	101.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

5 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04029.D\F6L04029.D#
Date Acquired: Dec 19 2019 12:12 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-07M
Misc Info:
Vial Number: 2109
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	2784121.0	0.0000	71.2800	ppb	0.57	50.00	>LRS
9 Be	# 3	6	251208.9	0.0000	29.0300	ppb	0.60	50.00	
11 B	# 3	6	2360507.0	0.0000	260.1000	ppb	1.53	100.00	>LRS
23 Na	# 1	45	783460800.0	0.0000	139300.0000	ppb	0.96	50000.00	>LRS
24 Mg	# 3	45	1472730000.0	0.0000	66150.0000	ppb	0.07	50000.00	>LRS
27 Al	# 3	45	81700392.0	0.0000	2958.0000	ppb	0.24	50000.00	
28 Si	# 1	45	11904890.0	0.0000	10340.0000	ppb	1.20	5000.00	>LRS
31 P	# 3	45	58839.4	0.0000	24.5700	ppb	1.53	500.00	
39 K	# 2	45	5993594.0	0.0000	7144.0000	ppb	1.35	50000.00	
40 Ca	# 1	45	1536365100.0	0.0000	173000.0000	ppb	1.10	50000.00	>LRS
47 Ti	# 3	45	67133.8	0.0000	31.9600	ppb	0.36	500.00	
51 V	# 2	45	184816.8	0.0000	30.0600	ppb	0.64	500.00	
52 Cr	# 2	45	235072.1	0.0000	32.1100	ppb	0.63	500.00	
55 Mn	# 3	45	1242420.0	0.0000	36.3000	ppb	1.00	3000.00	
56 Fe	# 1	45	38412488.0	0.0000	3004.0000	ppb	1.54	50000.00	
59 Co	# 3	45	689524.3	0.0000	28.9300	ppb	0.56	500.00	
60 Ni	# 2	45	80334.4	0.0000	31.7500	ppb	0.73	500.00	
63 Cu	# 2	45	160613.0	0.0000	25.4700	ppb	0.72	500.00	
66 Zn	# 3	72	204424.1	0.0000	62.3800	ppb	0.85	500.00	
75 As	# 2	72	20674.9	0.0000	30.9600	ppb	0.74	500.00	
78 Se	# 1	72	12604.3	0.0000	32.3200	ppb	1.35	500.00	
88 Sr	# 3	72	42405832.0	0.0000	1493.0000	ppb	0.58	500.00	>LRS
90 Zr	# 3	72	4176.3	0.0000	0.2031	ppb	2.15	50.00	
95 Mo	# 3	115	167037.7	0.0000	31.5600	ppb	0.56	500.00	
107 Ag	# 3	115	377100.4	0.0000	27.0900	ppb	1.34	50.00	
111 Cd	# 3	115	87087.7	0.0000	27.7100	ppb	1.34	500.00	
118 Sn	# 3	115	248128.9	0.0000	29.1900	ppb	0.90	500.00	
121 Sb	# 3	115	292142.8	0.0000	29.3700	ppb	1.00	500.00	
137 Ba	# 3	115	325304.8	0.0000	80.4100	ppb	1.36	1000.00	
182 W	# 3	159	594.5	0.0000	0.0799	ppb	2.26	50.00	
201 Hg	# 3	159	21.1	0.0000	0.0094	ppb	30.35	25.00	
205 Tl	# 3	159	779827.7	0.0000	29.2600	ppb	0.69	500.00	
208 Pb	# 3	159	1081986.0	0.0000	28.3200	ppb	0.58	500.00	
235 U	# 3	159	4338.7	0.0000	0.2798	ppb	2.67	30.00	
238 U	# 3	159	1490255.0	0.0000	32.8300	ppb	1.13	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	3532695.80	1.72	4565332.00	77.4	60 - 125	
45 Sc # 1	1536470.10	5.52	1791487.00	85.8	60 - 125	
45 Sc # 2	335243.31	0.82	367419.63	91.2	60 - 125	
45 Sc # 3	3358210.80	1.17	3822492.00	87.9	60 - 125	
72 Ge # 1	263215.47	3.60	329311.25	79.9	60 - 125	
72 Ge # 2	125452.19	1.02	151460.27	82.8	60 - 125	
72 Ge # 3	488196.56	1.13	623990.13	78.2	60 - 125	
115 In # 3	3464987.50	1.77	4320472.50	80.2	60 - 125	
159 Tb # 3	5378554.00	1.66	6298565.50	85.4	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

7 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04030.D\F6L04030.D#
Date Acquired: Dec 19 2019 12:17 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-07S
Misc Info:
Vial Number: 2110
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	2782981.0	0.0000	67.2400	ppb	0.75	50.00	>LRS
9 Be	# 3	6	250742.3	0.0000	27.4700	ppb	0.29	50.00	
11 B	# 3	6	2351875.0	0.0000	245.4000	ppb	1.30	100.00	>LRS
23 Na	# 1	45	830486980.0	0.0000	131500.0000	ppb	0.67	50000.00	>LRS
24 Mg	# 3	45	1466648100.0	0.0000	62840.0000	ppb	0.19	50000.00	>LRS
27 Al	# 3	45	80634736.0	0.0000	2785.0000	ppb	0.73	50000.00	
28 Si	# 1	45	12570470.0	0.0000	9722.0000	ppb	0.25	5000.00	>LRS
31 P	# 3	45	59585.3	0.0000	22.8200	ppb	4.15	500.00	
39 K	# 2	45	5937512.0	0.0000	6725.0000	ppb	0.49	50000.00	
40 Ca	# 1	45	1615122900.0	0.0000	161900.0000	ppb	0.37	50000.00	>LRS
47 Ti	# 3	45	67344.5	0.0000	30.5800	ppb	1.32	500.00	
51 V	# 2	45	184645.1	0.0000	28.5200	ppb	0.45	500.00	
52 Cr	# 2	45	239635.3	0.0000	31.1100	ppb	0.31	500.00	
55 Mn	# 3	45	1241586.0	0.0000	34.6000	ppb	1.10	3000.00	
56 Fe	# 1	45	40361920.0	0.0000	2810.0000	ppb	0.49	50000.00	
59 Co	# 3	45	689148.9	0.0000	27.5800	ppb	0.75	500.00	
60 Ni	# 2	45	79532.5	0.0000	29.8800	ppb	0.25	500.00	
63 Cu	# 2	45	160326.4	0.0000	24.1600	ppb	0.39	500.00	
66 Zn	# 3	72	209217.5	0.0000	60.1700	ppb	1.05	500.00	
75 As	# 2	72	20553.4	0.0000	29.4900	ppb	0.23	500.00	
78 Se	# 1	72	13274.5	0.0000	31.1800	ppb	1.22	500.00	
88 Sr	# 3	72	42241100.0	0.0000	1406.0000	ppb	0.30	500.00	>LRS
90 Zr	# 3	72	5881.4	0.0000	0.2774	ppb	3.12	50.00	
95 Mo	# 3	115	166606.6	0.0000	29.8500	ppb	1.07	500.00	
107 Ag	# 3	115	375696.0	0.0000	25.5900	ppb	0.21	50.00	
111 Cd	# 3	115	86374.8	0.0000	26.0500	ppb	0.96	500.00	
118 Sn	# 3	115	245226.5	0.0000	27.3600	ppb	1.12	500.00	
121 Sb	# 3	115	291479.0	0.0000	27.7800	ppb	0.33	500.00	
137 Ba	# 3	115	323155.8	0.0000	75.7400	ppb	0.17	1000.00	
182 W	# 3	159	634.5	0.0000	0.0810	ppb	2.91	50.00	
201 Hg	# 3	159	12.2	0.0000	0.0028	ppb	181.42	25.00	
205 Tl	# 3	159	784723.6	0.0000	28.1400	ppb	0.60	500.00	
208 Pb	# 3	159	1068974.0	0.0000	26.7400	ppb	0.83	500.00	
235 U	# 3	159	4235.3	0.0000	0.2610	ppb	1.79	30.00	
238 U	# 3	159	1478504.0	0.0000	31.1300	ppb	1.13	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	3726050.30	1.54	4565332.00	81.6	60 - 125	
45 Sc # 1	1724760.80	2.06	1791487.00	96.3	60 - 125	
45 Sc # 2	352678.44	0.65	367419.63	96.0	60 - 125	
45 Sc # 3	3520552.80	1.55	3822492.00	92.1	60 - 125	
72 Ge # 1	287442.69	2.19	329311.25	87.3	60 - 125	
72 Ge # 2	130919.40	0.46	151460.27	86.4	60 - 125	
72 Ge # 3	516425.41	1.06	623990.13	82.8	60 - 125	
115 In # 3	3654010.00	1.55	4320472.50	84.6	60 - 125	
159 Tb # 3	5627373.00	1.78	6298565.50	89.3	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

7 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04031.D\F6L04031.D#
Date Acquired: Dec 19 2019 12:21 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-07A
Misc Info:
Vial Number: 2111
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	2893903.0	0.0000	70.9800	ppb	1.15	50.00	>LRS
9 Be	# 3	6	279174.2	0.0000	30.9100	ppb	0.71	50.00	
11 B	# 3	6	2417848.0	0.0000	255.2000	ppb	0.56	100.00	>LRS
23 Na	# 1	45	839697730.0	0.0000	136200.0000	ppb	1.40	50000.00	>LRS
24 Mg	# 3	45	1491666900.0	0.0000	64700.0000	ppb	0.39	50000.00	>LRS
27 Al	# 3	45	87796280.0	0.0000	3070.0000	ppb	0.18	50000.00	
28 Si	# 1	45	12524880.0	0.0000	9926.0000	ppb	1.22	5000.00	>LRS
31 P	# 3	45	60917.9	0.0000	24.5600	ppb	1.61	500.00	
39 K	# 2	45	6221067.0	0.0000	7120.0000	ppb	1.35	50000.00	
40 Ca	# 1	45	1626548000.0	0.0000	167100.0000	ppb	1.44	50000.00	>LRS
47 Ti	# 3	45	73773.5	0.0000	33.9300	ppb	2.84	500.00	
51 V	# 2	45	202819.6	0.0000	31.7000	ppb	0.81	500.00	
52 Cr	# 2	45	255569.1	0.0000	33.5300	ppb	0.98	500.00	
55 Mn	# 3	45	1339248.0	0.0000	37.7900	ppb	1.11	3000.00	
56 Fe	# 1	45	42870032.0	0.0000	3059.0000	ppb	1.14	50000.00	
59 Co	# 3	45	768423.4	0.0000	31.1300	ppb	0.62	500.00	
60 Ni	# 2	45	86830.3	0.0000	32.9600	ppb	0.68	500.00	
63 Cu	# 2	45	177523.5	0.0000	27.0400	ppb	0.71	500.00	
66 Zn	# 3	72	230270.8	0.0000	68.1400	ppb	1.07	500.00	
75 As	# 2	72	22563.3	0.0000	32.6200	ppb	0.50	500.00	
78 Se	# 1	72	14462.3	0.0000	34.5800	ppb	1.33	500.00	
88 Sr	# 3	72	42663660.0	0.0000	1446.0000	ppb	0.19	500.00	>LRS
90 Zr	# 3	72	3786.3	0.0000	0.1745	ppb	1.24	50.00	
95 Mo	# 3	115	184341.0	0.0000	33.6300	ppb	0.52	500.00	
107 Ag	# 3	115	402895.3	0.0000	27.9400	ppb	0.64	50.00	
111 Cd	# 3	115	96253.1	0.0000	29.5700	ppb	0.81	500.00	
118 Sn	# 3	115	282373.4	0.0000	32.0800	ppb	0.82	500.00	
121 Sb	# 3	115	317526.2	0.0000	30.8200	ppb	0.70	500.00	
137 Ba	# 3	115	336279.0	0.0000	80.2500	ppb	0.46	1000.00	
182 W	# 3	159	582.3	0.0000	0.0772	ppb	2.84	50.00	
201 Hg	# 3	159	20.0	0.0000	0.0082	ppb	2.87	25.00	
205 Tl	# 3	159	873818.0	0.0000	31.7600	ppb	0.10	500.00	
208 Pb	# 3	159	1179344.0	0.0000	29.9100	ppb	0.36	500.00	
235 U	# 3	159	4587.6	0.0000	0.2865	ppb	0.69	30.00	
238 U	# 3	159	1612989.0	0.0000	34.4300	ppb	0.71	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	3686356.30	1.46	4565332.00	80.7	60 - 125	
45 Sc # 1	1683481.90	3.23	1791487.00	94.0	60 - 125	
45 Sc # 2	349137.69	0.79	367419.63	95.0	60 - 125	
45 Sc # 3	3477260.00	1.26	3822492.00	91.0	60 - 125	
72 Ge # 1	282342.84	2.08	329311.25	85.7	60 - 125	
72 Ge # 2	129948.84	0.72	151460.27	85.8	60 - 125	
72 Ge # 3	507127.84	1.30	623990.13	81.3	60 - 125	
115 In # 3	3589141.30	1.89	4320472.50	83.1	60 - 125	
159 Tb # 3	5551886.00	1.75	6298565.50	88.1	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

7 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File:	C:\DATA\IF62019\L\IF6L04.B\F6L04032.D\F6L04032.D#
Date Acquired:	Dec 19 2019 12:26 pm
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	L064-07N
Misc Info:	
Vial Number:	2112
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update:	Dec 19 2019 10:20 am
Sample Type:	Sample
Dilution Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	1828001.0	0.0000	40.5500	ppb	0.83	50.00	
9 Be	# 3	6	220.0	0.0000	0.0098	ppb	37.49	50.00	
11 B	# 3	6	2195700.0	0.0000	221.2000	ppb	0.59	100.00	>LRS
23 Na	# 1	45	777178620.0	0.0000	132500.0000	ppb	1.18	50000.00	>LRS
24 Mg	# 3	45	1441124000.0	0.0000	61160.0000	ppb	0.47	50000.00	>LRS
27 Al	# 3	45	2589676.0	0.0000	87.5600	ppb	2.17	50000.00	
28 Si	# 1	45	11933770.0	0.0000	9943.0000	ppb	1.21	5000.00	>LRS
31 P	# 3	45	62062.0	0.0000	24.4000	ppb	3.53	500.00	
39 K	# 2	45	3489381.0	0.0000	3984.0000	ppb	0.39	50000.00	
40 Ca	# 1	45	1530895000.0	0.0000	165300.0000	ppb	0.81	50000.00	>LRS
47 Ti	# 3	45	9557.2	0.0000	4.2430	ppb	15.80	500.00	
51 V	# 2	45	10251.1	0.0000	1.1840	ppb	0.41	500.00	
52 Cr	# 2	45	22436.2	0.0000	2.8210	ppb	1.03	500.00	
55 Mn	# 3	45	292040.5	0.0000	7.9640	ppb	1.10	3000.00	
56 Fe	# 1	45	2223565.0	0.0000	164.5000	ppb	0.64	50000.00	
59 Co	# 3	45	16638.7	0.0000	0.6183	ppb	0.62	500.00	
60 Ni	# 2	45	16247.1	0.0000	6.1180	ppb	1.25	500.00	
63 Cu	# 2	45	5178.5	0.0000	0.7018	ppb	0.57	500.00	
66 Zn	# 3	72	29146.1	0.0000	3.3200	ppb	10.41	500.00	
75 As	# 2	72	580.9	0.0000	0.7476	ppb	3.28	500.00	
78 Se	# 1	72	1109.6	0.0000	2.7300	ppb	0.85	500.00	
88 Sr	# 3	72	42234160.0	0.0000	1398.0000	ppb	1.14	500.00	>LRS
90 Zr	# 3	72	3295.2	0.0000	0.1450	ppb	4.25	50.00	
95 Mo	# 3	115	6172.6	0.0000	1.0830	ppb	1.29	500.00	
107 Ag	# 3	115	456.7	0.0000	0.0221	ppb	8.77	50.00	
111 Cd	# 3	115	120.8	0.0000	-0.0679	ppb	17.09	500.00	
118 Sn	# 3	115	742.3	0.0000	0.0316	ppb	12.94	500.00	
121 Sb	# 3	115	1361.2	0.0000	0.1085	ppb	9.94	500.00	
137 Ba	# 3	115	209419.8	0.0000	48.8100	ppb	0.06	1000.00	
182 W	# 3	159	508.9	0.0000	0.0706	ppb	7.83	50.00	
201 Hg	# 3	159	14.4	0.0000	0.0045	ppb	120.82	25.00	
205 Tl	# 3	159	989.0	0.0000	0.0244	ppb	16.31	500.00	
208 Pb	# 3	159	8699.2	0.0000	0.1686	ppb	0.14	500.00	
235 U	# 3	159	1035.6	0.0000	0.0645	ppb	6.69	30.00	
238 U	# 3	159	147669.0	0.0000	3.1320	ppb	0.23	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	3854238.30	1.26	4565332.00	84.4	60 - 125	
45 Sc # 1	1601413.80	3.44	1791487.00	89.4	60 - 125	
45 Sc # 2	348178.59	0.86	367419.63	94.8	60 - 125	
45 Sc # 3	3554334.50	1.54	3822492.00	93.0	60 - 125	
72 Ge # 1	271921.03	2.17	329311.25	82.6	60 - 125	
72 Ge # 2	130343.30	1.49	151460.27	86.1	60 - 125	
72 Ge # 3	519358.75	1.36	623990.13	83.2	60 - 125	
115 In # 3	3673496.50	1.42	4320472.50	85.0	60 - 125	
159 Tb # 3	5577999.50	1.80	6298565.50	88.6	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

6 :Element Failures	0 :Max. Number of Failures Allowed
0 :ISTD Failures	0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes:	Fail
ISTD:	Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04033.D\F6L04033.D#
Date Acquired: Dec 19 2019 12:31 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-07J
Misc Info:
Vial Number: 2201
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 5.00
Autodil Factor: Undiluted
Final Dil Factor: 5.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	617174.2	0.0000	7.6650	ppb	1.33	50.00	
9 Be	# 3	6	156.7	0.0000	0.0008	ppb	234.31	50.00	
11 B	# 3	6	535720.2	0.0000	43.8800	ppb	4.14	100.00	
23 Na	# 1	45	171870300.0	0.0000	26750.0000	ppb	0.59	50000.00	
24 Mg	# 3	45	321065980.0	0.0000	12890.0000	ppb	0.23	50000.00	
27 Al	# 3	45	644293.3	0.0000	19.7700	ppb	2.44	50000.00	
28 Si	# 1	45	2634504.0	0.0000	2003.0000	ppb	1.12	5000.00	
31 P	# 3	45	47041.1	0.0000	9.7970	ppb	4.97	500.00	
39 K	# 2	45	790571.7	0.0000	825.6000	ppb	0.39	50000.00	
40 Ca	# 1	45	332555490.0	0.0000	32800.0000	ppb	0.92	50000.00	
47 Ti	# 3	45	2210.4	0.0000	0.8705	ppb	3.71	500.00	
51 V	# 2	45	6003.5	0.0000	0.4658	ppb	0.22	500.00	
52 Cr	# 2	45	5905.0	0.0000	0.6024	ppb	1.64	500.00	
55 Mn	# 3	45	70645.7	0.0000	1.7240	ppb	1.20	3000.00	
56 Fe	# 1	45	572290.4	0.0000	36.8200	ppb	1.26	50000.00	
59 Co	# 3	45	4334.1	0.0000	0.1206	ppb	1.31	500.00	
60 Ni	# 2	45	3830.3	0.0000	1.3150	ppb	0.83	500.00	
63 Cu	# 2	45	1920.8	0.0000	0.1893	ppb	2.70	500.00	
66 Zn	# 3	72	23106.5	0.0000	0.5373	ppb	80.27	500.00	
75 As	# 2	72	231.8	0.0000	0.2120	ppb	3.90	500.00	
78 Se	# 1	72	262.4	0.0000	0.5360	ppb	2.05	500.00	
88 Sr	# 3	72	9303814.0	0.0000	270.1000	ppb	0.26	500.00	
90 Zr	# 3	72	1065.7	0.0000	0.0259	ppb	8.10	50.00	
95 Mo	# 3	115	1486.8	0.0000	0.2192	ppb	5.67	500.00	
107 Ag	# 3	115	210.0	0.0000	0.0039	ppb	20.06	50.00	
111 Cd	# 3	115	35.5	0.0000	-0.0946	ppb	9.60	500.00	
118 Sn	# 3	115	677.8	0.0000	0.0165	ppb	35.80	500.00	
121 Sb	# 3	115	780.0	0.0000	0.0454	ppb	6.22	500.00	
137 Ba	# 3	115	46266.7	0.0000	9.6060	ppb	0.17	1000.00	
182 W	# 3	159	356.7	0.0000	0.0548	ppb	3.72	50.00	
201 Hg	# 3	159	15.6	0.0000	0.0042	ppb	76.08	25.00	
205 Tl	# 3	159	637.8	0.0000	0.0096	ppb	12.50	500.00	
208 Pb	# 3	159	3395.9	0.0000	0.0268	ppb	9.95	500.00	
235 U	# 3	159	256.7	0.0000	0.0147	ppb	17.39	30.00	
238 U	# 3	159	31922.7	0.0000	0.6118	ppb	1.78	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4459418.50	3.17	4565332.00	97.7	60 - 125	
45 Sc # 1	1753071.30	2.42	1791487.00	97.9	60 - 125	
45 Sc # 2	364723.72	0.96	367419.63	99.3	60 - 125	
45 Sc # 3	3757780.80	0.21	3822492.00	98.3	60 - 125	
72 Ge # 1	315118.06	1.75	329311.25	95.7	60 - 125	
72 Ge # 2	143480.72	1.01	151460.27	94.7	60 - 125	
72 Ge # 3	591926.06	1.04	623990.13	94.9	60 - 125	
115 In # 3	4111025.30	1.52	4320472.50	95.2	60 - 125	
159 Tb # 3	6127726.00	1.68	6298565.50	97.3	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04034.D\F6L04034.D#
Date Acquired: Dec 19 2019 12:35 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-08N
Misc Info:
Vial Number: 2202
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	882668.0	0.0000	14.8100	ppb	0.54	50.00	
9 Be	# 3	6	167.8	0.0000	0.0029	ppb	132.95	50.00	
11 B	# 3	6	873300.7	0.0000	78.9600	ppb	0.74	100.00	
23 Na	# 1	45	540089280.0	0.0000	87720.0000	ppb	0.21	50000.00	>LRS
24 Mg	# 3	45	1435788000.0	0.0000	59270.0000	ppb	0.32	50000.00	>LRS
27 Al	# 3	45	705692.5	0.0000	22.4100	ppb	2.12	50000.00	
28 Si	# 1	45	9720762.0	0.0000	7712.0000	ppb	0.44	5000.00	>LRS
31 P	# 3	45	47618.0	0.0000	11.3200	ppb	2.68	500.00	
39 K	# 2	45	2344922.0	0.0000	2563.0000	ppb	0.56	50000.00	
40 Ca	# 1	45	1720015000.0	0.0000	176900.0000	ppb	0.32	50000.00	>LRS
47 Ti	# 3	45	5168.9	0.0000	2.1950	ppb	2.75	500.00	
51 V	# 2	45	12052.2	0.0000	1.4000	ppb	2.42	500.00	
52 Cr	# 2	45	6134.2	0.0000	0.6385	ppb	0.52	500.00	
55 Mn	# 3	45	2874557.0	0.0000	77.3300	ppb	0.94	3000.00	
56 Fe	# 1	45	621433.2	0.0000	42.0100	ppb	1.46	50000.00	
59 Co	# 3	45	18802.5	0.0000	0.6839	ppb	1.03	500.00	
60 Ni	# 2	45	3321.7	0.0000	1.1410	ppb	1.66	500.00	
63 Cu	# 2	45	3018.8	0.0000	0.3539	ppb	2.49	500.00	
66 Zn	# 3	72	33015.4	0.0000	4.1690	ppb	12.52	500.00	
75 As	# 2	72	749.8	0.0000	0.9554	ppb	6.12	500.00	
78 Se	# 1	72	335.6	0.0000	0.7687	ppb	6.34	500.00	
88 Sr	# 3	72	39475288.0	0.0000	1260.0000	ppb	0.33	500.00	>LRS
90 Zr	# 3	72	1110.1	0.0000	0.0327	ppb	17.95	50.00	
95 Mo	# 3	115	8550.6	0.0000	1.4650	ppb	3.00	500.00	
107 Ag	# 3	115	206.7	0.0000	0.0048	ppb	36.88	50.00	
111 Cd	# 3	115	104.5	0.0000	-0.0737	ppb	12.42	500.00	
118 Sn	# 3	115	863.6	0.0000	0.0425	ppb	38.64	500.00	
121 Sb	# 3	115	1062.3	0.0000	0.0773	ppb	8.69	500.00	
137 Ba	# 3	115	334393.7	0.0000	75.8000	ppb	0.97	1000.00	
182 W	# 3	159	764.5	0.0000	0.0908	ppb	1.71	50.00	
201 Hg	# 3	159	13.3	0.0000	0.0034	ppb	64.79	25.00	
205 Tl	# 3	159	856.7	0.0000	0.0187	ppb	8.96	500.00	
208 Pb	# 3	159	4614.9	0.0000	0.0621	ppb	4.90	500.00	
235 U	# 3	159	617.8	0.0000	0.0375	ppb	7.17	30.00	
238 U	# 3	159	80483.6	0.0000	1.6570	ppb	1.19	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4175787.80	2.21	4565332.00	91.5	60 - 125	
45 Sc # 1	1681249.60	2.83	1791487.00	93.8	60 - 125	
45 Sc # 2	361433.81	1.63	367419.63	98.4	60 - 125	
45 Sc # 3	3653776.30	1.24	3822492.00	95.6	60 - 125	
72 Ge # 1	284965.00	2.19	329311.25	86.5	60 - 125	
72 Ge # 2	134784.02	0.88	151460.27	89.0	60 - 125	
72 Ge # 3	538473.81	1.75	623990.13	86.3	60 - 125	
115 In # 3	3778720.00	1.90	4320472.50	87.5	60 - 125	
159 Tb # 3	5738132.50	1.89	6298565.50	91.1	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

5 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04035.D\F6L04035.D#
Date Acquired: Dec 19 2019 12:40 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-09N
Misc Info:
Vial Number: 2203
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	772543.2	0.0000	11.6300	ppb	1.61	50.00	
9 Be	# 3	6	228.9	0.0000	0.0081	ppb	22.15	50.00	
11 B	# 3	6	489956.2	0.0000	41.2300	ppb	1.62	100.00	
23 Na	# 1	45	214520190.0	0.0000	33080.0000	ppb	0.30	50000.00	
24 Mg	# 3	45	1065794000.0	0.0000	43090.0000	ppb	0.60	50000.00	
27 Al	# 3	45	1247987.0	0.0000	39.6100	ppb	2.41	50000.00	
28 Si	# 1	45	10225420.0	0.0000	7706.0000	ppb	0.17	5000.00	>LRS
31 P	# 3	45	47918.8	0.0000	10.7700	ppb	6.83	500.00	
39 K	# 2	45	1820890.0	0.0000	1949.0000	ppb	0.94	50000.00	
40 Ca	# 1	45	1321152000.0	0.0000	129100.0000	ppb	0.52	50000.00	>LRS
47 Ti	# 3	45	5593.6	0.0000	2.3310	ppb	1.91	500.00	
51 V	# 2	45	10431.5	0.0000	1.1270	ppb	1.35	500.00	
52 Cr	# 2	45	5226.3	0.0000	0.5127	ppb	1.51	500.00	
55 Mn	# 3	45	4370365.0	0.0000	115.2000	ppb	0.22	3000.00	
56 Fe	# 1	45	725312.0	0.0000	46.8400	ppb	0.93	50000.00	
59 Co	# 3	45	16102.6	0.0000	0.5668	ppb	3.73	500.00	
60 Ni	# 2	45	3266.2	0.0000	1.1020	ppb	2.15	500.00	
63 Cu	# 2	45	2471.6	0.0000	0.2675	ppb	2.41	500.00	
66 Zn	# 3	72	40059.3	0.0000	5.7990	ppb	6.33	500.00	
75 As	# 2	72	546.2	0.0000	0.6408	ppb	5.40	500.00	
78 Se	# 1	72	443.1	0.0000	0.9424	ppb	2.41	500.00	
88 Sr	# 3	72	29447950.0	0.0000	901.2000	ppb	0.92	500.00	>LRS
90 Zr	# 3	72	1334.6	0.0000	0.0410	ppb	5.67	50.00	
95 Mo	# 3	115	7852.4	0.0000	1.2910	ppb	0.77	500.00	
107 Ag	# 3	115	176.7	0.0000	0.0024	ppb	63.46	50.00	
111 Cd	# 3	115	140.7	0.0000	-0.0649	ppb	43.25	500.00	
118 Sn	# 3	115	9649.1	0.0000	0.9515	ppb	1.24	500.00	
121 Sb	# 3	115	868.9	0.0000	0.0563	ppb	9.00	500.00	
137 Ba	# 3	115	184107.8	0.0000	40.1000	ppb	0.60	1000.00	
182 W	# 3	159	500.0	0.0000	0.0677	ppb	1.82	50.00	
201 Hg	# 3	159	12.2	0.0000	0.0025	ppb	132.62	25.00	
205 Tl	# 3	159	638.9	0.0000	0.0105	ppb	0.89	500.00	
208 Pb	# 3	159	5614.0	0.0000	0.0835	ppb	3.71	500.00	
235 U	# 3	159	551.1	0.0000	0.0327	ppb	2.02	30.00	
238 U	# 3	159	76489.0	0.0000	1.5380	ppb	0.98	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4316866.00	1.38	4565332.00	94.6	60 - 125	
45 Sc # 1	1769769.50	1.84	1791487.00	98.8	60 - 125	
45 Sc # 2	367056.66	0.65	367419.63	99.9	60 - 125	
45 Sc # 3	3730484.50	0.82	3822492.00	97.6	60 - 125	
72 Ge # 1	308870.84	1.26	329311.25	93.8	60 - 125	
72 Ge # 2	140392.89	0.46	151460.27	92.7	60 - 125	
72 Ge # 3	561536.94	1.31	623990.13	90.0	60 - 125	
115 In # 3	3930313.30	1.84	4320472.50	91.0	60 - 125	
159 Tb # 3	5870767.00	1.41	6298565.50	93.2	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

3 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04036.D\F6L04036.D#
Date Acquired: Dec 19 2019 12:45 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-10N
Misc Info:
Vial Number: 2204
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	1047402.0	0.0000	18.7800	ppb	0.94	50.00	
9 Be	# 3	6	154.5	0.0000	0.0017	ppb	139.14	50.00	
11 B	# 3	6	605741.0	0.0000	53.9400	ppb	1.27	100.00	
23 Na	# 1	45	312334780.0	0.0000	52550.0000	ppb	0.24	50000.00	>LRS
24 Mg	# 3	45	863682620.0	0.0000	34940.0000	ppb	0.50	50000.00	
27 Al	# 3	45	676071.6	0.0000	20.9700	ppb	0.60	50000.00	
28 Si	# 1	45	9824399.0	0.0000	8077.0000	ppb	0.89	5000.00	>LRS
31 P	# 3	45	47608.1	0.0000	10.5400	ppb	6.47	500.00	
39 K	# 2	45	1979016.0	0.0000	2153.0000	ppb	0.16	50000.00	
40 Ca	# 1	45	1126374000.0	0.0000	120100.0000	ppb	0.87	50000.00	>LRS
47 Ti	# 3	45	5469.0	0.0000	2.2790	ppb	2.97	500.00	
51 V	# 2	45	5216.3	0.0000	0.3527	ppb	4.42	500.00	
52 Cr	# 2	45	4048.8	0.0000	0.3725	ppb	2.22	500.00	
55 Mn	# 3	45	15814660.0	0.0000	417.5000	ppb	0.23	3000.00	
56 Fe	# 1	45	1838425.0	0.0000	133.8000	ppb	1.00	50000.00	
59 Co	# 3	45	30215.9	0.0000	1.1010	ppb	1.35	500.00	
60 Ni	# 2	45	10341.7	0.0000	3.7160	ppb	3.37	500.00	
63 Cu	# 2	45	29413.5	0.0000	4.2450	ppb	0.86	500.00	
66 Zn	# 3	72	46386.8	0.0000	7.7360	ppb	4.34	500.00	
75 As	# 2	72	512.0	0.0000	0.6028	ppb	6.74	500.00	
78 Se	# 1	72	396.9	0.0000	0.8914	ppb	8.95	500.00	
88 Sr	# 3	72	41666060.0	0.0000	1285.0000	ppb	0.56	500.00	>LRS
90 Zr	# 3	72	955.6	0.0000	0.0236	ppb	9.95	50.00	
95 Mo	# 3	115	31891.4	0.0000	5.3430	ppb	3.26	500.00	
107 Ag	# 3	115	127.8	0.0000	-0.0006	ppb	353.59	50.00	
111 Cd	# 3	115	99.9	0.0000	-0.0759	ppb	4.87	500.00	
118 Sn	# 3	115	1053.4	0.0000	0.0594	ppb	14.41	500.00	
121 Sb	# 3	115	1301.2	0.0000	0.0957	ppb	7.37	500.00	
137 Ba	# 3	115	136017.8	0.0000	29.8700	ppb	0.98	1000.00	
182 W	# 3	159	1035.6	0.0000	0.1113	ppb	7.19	50.00	
201 Hg	# 3	159	12.2	0.0000	0.0025	ppb	47.23	25.00	
205 Tl	# 3	159	635.6	0.0000	0.0104	ppb	10.40	500.00	
208 Pb	# 3	159	5085.0	0.0000	0.0706	ppb	4.82	500.00	
235 U	# 3	159	670.0	0.0000	0.0396	ppb	7.27	30.00	
238 U	# 3	159	86520.5	0.0000	1.7370	ppb	0.48	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4157137.80	1.53	4565332.00	91.1	60 - 125	
45 Sc # 1	1622472.10	5.23	1791487.00	90.6	60 - 125	
45 Sc # 2	361843.31	1.07	367419.63	98.5	60 - 125	
45 Sc # 3	3728368.30	1.30	3822492.00	97.5	60 - 125	
72 Ge # 1	291424.44	3.64	329311.25	88.5	60 - 125	
72 Ge # 2	138832.88	1.23	151460.27	91.7	60 - 125	
72 Ge # 3	557332.63	1.27	623990.13	89.3	60 - 125	
115 In # 3	3897774.50	1.52	4320472.50	90.2	60 - 125	
159 Tb # 3	5882278.00	0.97	6298565.50	93.4	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04037.D\F6L04037.D#
Date Acquired: Dec 19 2019 12:49 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-11N
Misc Info:
Vial Number: 2205
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	1045179.0	0.0000	18.8700	ppb	1.07	50.00	
9 Be	# 3	6	138.9	0.0000	0.0002	ppb	1353.10	50.00	
11 B	# 3	6	1256976.0	0.0000	116.4000	ppb	0.56	100.00	>LRS
23 Na	# 1	45	555189820.0	0.0000	92490.0000	ppb	0.47	50000.00	>LRS
24 Mg	# 3	45	1112573100.0	0.0000	46090.0000	ppb	0.97	50000.00	
27 Al	# 3	45	222107.4	0.0000	6.3310	ppb	1.58	50000.00	
28 Si	# 1	45	9986786.0	0.0000	8127.0000	ppb	0.20	5000.00	>LRS
31 P	# 3	45	45965.4	0.0000	10.1100	ppb	6.43	500.00	
39 K	# 2	45	2182369.0	0.0000	2442.0000	ppb	0.19	50000.00	
40 Ca	# 1	45	1309022000.0	0.0000	138100.0000	ppb	0.22	50000.00	>LRS
47 Ti	# 3	45	5102.1	0.0000	2.1730	ppb	1.06	500.00	
51 V	# 2	45	12416.7	0.0000	1.5030	ppb	1.46	500.00	
52 Cr	# 2	45	7938.6	0.0000	0.8930	ppb	0.60	500.00	
55 Mn	# 3	45	211674.6	0.0000	5.5970	ppb	0.88	3000.00	
56 Fe	# 1	45	139966.8	0.0000	7.8490	ppb	8.06	50000.00	
59 Co	# 3	45	11046.7	0.0000	0.3858	ppb	0.93	500.00	
60 Ni	# 2	45	956.9	0.0000	0.2805	ppb	2.95	500.00	
63 Cu	# 2	45	1670.8	0.0000	0.1610	ppb	2.49	500.00	
66 Zn	# 3	72	28702.9	0.0000	2.7710	ppb	14.47	500.00	
75 As	# 2	72	657.4	0.0000	0.8352	ppb	3.30	500.00	
78 Se	# 1	72	341.8	0.0000	0.7965	ppb	1.62	500.00	
88 Sr	# 3	72	34140980.0	0.0000	1078.0000	ppb	0.25	500.00	>LRS
90 Zr	# 3	72	724.5	0.0000	0.0136	ppb	12.17	50.00	
95 Mo	# 3	115	1899.1	0.0000	0.3095	ppb	1.60	500.00	
107 Ag	# 3	115	187.8	0.0000	0.0035	ppb	24.46	50.00	
111 Cd	# 3	115	88.2	0.0000	-0.0786	ppb	6.05	500.00	
118 Sn	# 3	115	382.2	0.0000	-0.0098	ppb	58.26	500.00	
121 Sb	# 3	115	813.4	0.0000	0.0540	ppb	10.23	500.00	
137 Ba	# 3	115	279143.1	0.0000	62.9100	ppb	0.61	1000.00	
182 W	# 3	159	305.6	0.0000	0.0528	ppb	1.29	50.00	
201 Hg	# 3	159	16.7	0.0000	0.0058	ppb	68.58	25.00	
205 Tl	# 3	159	513.4	0.0000	0.0069	ppb	10.62	500.00	
208 Pb	# 3	159	2485.7	0.0000	0.0106	ppb	7.24	500.00	
235 U	# 3	159	551.1	0.0000	0.0340	ppb	18.27	30.00	
238 U	# 3	159	73918.9	0.0000	1.5420	ppb	0.90	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4134536.30	2.32	4565332.00	90.6	60 - 125	
45 Sc # 1	1639021.60	2.16	1791487.00	91.5	60 - 125	
45 Sc # 2	352716.31	1.19	367419.63	96.0	60 - 125	
45 Sc # 3	3641663.30	2.10	3822492.00	95.3	60 - 125	
72 Ge # 1	280484.34	1.76	329311.25	85.2	60 - 125	
72 Ge # 2	133555.28	1.29	151460.27	88.2	60 - 125	
72 Ge # 3	544147.13	1.34	623990.13	87.2	60 - 125	
115 In # 3	3799774.00	1.56	4320472.50	87.9	60 - 125	
159 Tb # 3	5659076.00	1.66	6298565.50	89.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

5 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCV QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04038.D\F6L04038.D#
Date Acquired: Dec 19 2019 12:54 pm
Operator: LYaman
Sample Name: CCV3
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal Update: Dec 19 2019 10:20 am
Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
7 Li	24.63 ppb	1.36	25.00	90 - 110	
9 Be	23.96 ppb	0.67	25.00	90 - 110	
11 B	47.50 ppb	0.63	50.00	90 - 110	
23 Na	25810.00 ppb	1.31	25000.00	90 - 110	
24 Mg	25720.00 ppb	0.98	25000.00	90 - 110	
27 Al	24950.00 ppb	0.40	25000.00	90 - 110	
28 Si	2762.00 ppb	0.97	2500.00	90 - 110	Fail
31 P	262.30 ppb	0.81	250.00	90 - 110	
39 K	26500.00 ppb	1.15	25000.00	90 - 110	
40 Ca	25680.00 ppb	0.76	25000.00	90 - 110	
47 Ti	249.80 ppb	0.12	250.00	90 - 110	
51 V	251.90 ppb	0.27	250.00	90 - 110	
52 Cr	251.50 ppb	0.74	250.00	90 - 110	
55 Mn	1516.00 ppb	0.86	1500.00	90 - 110	
56 Fe	24660.00 ppb	1.10	25000.00	90 - 110	
59 Co	258.00 ppb	0.16	250.00	90 - 110	
60 Ni	238.80 ppb	0.14	250.00	90 - 110	
63 Cu	228.50 ppb	1.88	250.00	90 - 110	
66 Zn	260.80 ppb	0.84	250.00	90 - 110	
75 As	256.60 ppb	0.46	250.00	90 - 110	
78 Se	256.30 ppb	0.87	250.00	90 - 110	
88 Sr	252.30 ppb	0.42	250.00	90 - 110	
90 Zr	22.57 ppb	0.17	25.00	90 - 110	
95 Mo	260.40 ppb	1.18	250.00	90 - 110	
107 Ag	24.84 ppb	0.78	25.00	90 - 110	
111 Cd	254.30 ppb	0.65	250.00	90 - 110	
118 Sn	255.50 ppb	0.50	250.00	90 - 110	
121 Sb	50.85 ppb	1.00	50.00	90 - 110	
137 Ba	521.00 ppb	0.80	500.00	90 - 110	
182 W	29.25 ppb	0.37	25.00	90 - 110	Fail
201 Hg	2.42 ppb	2.64	2.50	90 - 110	
205 Tl	250.20 ppb	1.51	250.00	90 - 110	
208 Pb	246.80 ppb	1.02	250.00	90 - 110	
235 U	1.55 ppb	1.17	1.80	90 - 110	Fail
238 U	249.90 ppb	1.08	250.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4472363.00	1.69	4565332.00	98.0	60 - 125	
45 Sc	1746227.40	2.30	1791487.00	97.5	60 - 125	
45 Sc	366703.44	0.91	367419.63	99.8	60 - 125	
45 Sc	3847934.50	1.23	3822492.00	100.7	60 - 125	
72 Ge	309889.03	2.06	329311.25	94.1	60 - 125	
72 Ge	145110.66	0.97	151460.27	95.8	60 - 125	
72 Ge	608435.75	1.56	623990.13	97.5	60 - 125	
115 In	4031567.50	1.90	4320472.50	93.3	60 - 125	
159 Tb	6055478.50	1.08	6298565.50	96.1	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

3 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File:	C:\DATA\IF62019\L\IF6L04.B\F6L04039.D\F6L04039.D#
Date Acquired:	Dec 19 2019 12:58 pm
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	CCB3
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update:	Dec 19 2019 10:20 am
Sample Type:	CCB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	-0.1145	ppb	301334.0	26.17	0.20	
9 Be	-0.0014	ppb	152.2	46.25	0.10	
11 B	-0.0341	ppb	45515.1	606.98	5.00	
23 Na	3.5430	ppb	205806.0	18.82	40.00	
24 Mg	4.4790	ppb	150201.3	9.71	10.00	
27 Al	3.1280	ppb	142689.5	5.66	20.00	
28 Si	3.2940	ppb	8473.8	13.20	20.00	
31 P	5.0200	ppb	44893.9	10.79	10.00	
39 K	9.9220	ppb	56001.5	4.08	20.00	
40 Ca	4.9890	ppb	262918.9	6.87	25.00	
47 Ti	0.0360	ppb	277.8	47.18	0.50	
51 V	0.1533	ppb	4340.2	0.53	0.50	
52 Cr	0.0288	ppb	1492.3	8.58	0.20	
55 Mn	0.1083	ppb	9836.9	8.63	0.20	
56 Fe	3.1330	ppb	86939.2	8.65	10.00	
59 Co	-0.0041	ppb	1109.0	22.15	0.20	
60 Ni	0.0040	ppb	253.1	75.06	0.20	
63 Cu	0.0019	ppb	704.0	273.35	0.40	
66 Zn	-3.0150	ppb	11494.9	11.55	2.00	~~Fail~~ LY 12/19/19
75 As	0.0355	ppb	109.1	26.50	0.20	
78 Se	0.0496	ppb	39.3	9.40	0.20	
88 Sr	0.1030	ppb	5082.2	9.67	0.20	
90 Zr	-0.0087	ppb	322.2	12.65	2.00	
95 Mo	0.0501	ppb	478.9	10.28	0.40	
107 Ag	-0.0003	ppb	157.8	1310.10	0.20	
111 Cd	-0.0785	ppb	107.4	3.84	0.20	
118 Sn	0.0530	ppb	1175.6	13.20	0.20	
121 Sb	0.0030	ppb	314.5	17.55	0.40	
137 Ba	0.0333	ppb	382.2	14.72	0.20	
182 W	0.0580	ppb	430.0	7.65	1.00	
201 Hg	0.0098	ppb	26.7	70.20	0.10	
205 Tl	0.0448	ppb	1848.0	12.54	0.20	
208 Pb	-0.0071	ppb	2081.2	28.08	0.10	
235 U	0.0005	ppb	5.6	43.07	1.00	
238 U	0.0225	ppb	1574.6	11.28	0.10	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	5109961.0	0.47	4565332.00	111.9	60 - 125	
45 Sc	1882063.5	2.17	1791487.00	105.1	60 - 125	
45 Sc	401426.5	1.28	367419.63	109.3	60 - 125	
45 Sc	4118491.5	1.12	3822492.00	107.7	60 - 125	
72 Ge	347850.8	1.47	329311.25	105.6	60 - 125	
72 Ge	160926.4	1.16	151460.27	106.2	60 - 125	
72 Ge	667104.4	0.67	623990.13	106.9	60 - 125	
115 In	4619226.5	0.62	4320472.50	106.9	60 - 125	
159 Tb	6639883.0	1.32	6298565.50	105.4	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

1 :Element Failures	0 :Max. Number of Failures Allowed
0 :ISTD Failures	0 :Max. Nnumber of ISTD Failures Allowed

Data Results:

Analytes:	Fail
ISTD:	Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04040.D\F6L04040.D#
Date Acquired: Dec 19 2019 01:03 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-12N
Misc Info:
Vial Number: 2206
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	1652171.0	0.0000	32.4200	ppb	0.37	50.00	
9 Be	# 3	6	425.6	0.0000	0.0277	ppb	18.81	50.00	
11 B	# 3	6	1152159.0	0.0000	104.1000	ppb	0.65	100.00	>LRS
23 Na	# 1	45	1015045000.0	0.0000	154200.0000	ppb	0.14	50000.00	>LRS
24 Mg	# 3	45	1242893100.0	0.0000	49800.0000	ppb	0.18	50000.00	
27 Al	# 3	45	4965795.0	0.0000	159.4000	ppb	1.21	50000.00	
28 Si	# 1	45	12202220.0	0.0000	9055.0000	ppb	0.62	5000.00	>LRS
31 P	# 3	45	59823.2	0.0000	19.7600	ppb	2.54	500.00	
39 K	# 2	45	3560757.0	0.0000	3827.0000	ppb	0.44	50000.00	
40 Ca	# 1	45	1461913000.0	0.0000	140700.0000	ppb	0.60	50000.00	>LRS
47 Ti	# 3	45	13991.0	0.0000	5.8830	ppb	0.51	500.00	
51 V	# 2	45	6169.8	0.0000	0.4785	ppb	2.66	500.00	
52 Cr	# 2	45	27519.7	0.0000	3.2810	ppb	0.07	500.00	
55 Mn	# 3	45	2385712.0	0.0000	62.2800	ppb	0.23	3000.00	
56 Fe	# 1	45	4701229.0	0.0000	312.0000	ppb	0.83	50000.00	
59 Co	# 3	45	41407.5	0.0000	1.5100	ppb	2.55	500.00	
60 Ni	# 2	45	235157.4	0.0000	84.4100	ppb	0.43	500.00	
63 Cu	# 2	45	6871.6	0.0000	0.9000	ppb	0.22	500.00	
66 Zn	# 3	72	56863.3	0.0000	11.1700	ppb	2.62	500.00	
75 As	# 2	72	418.9	0.0000	0.4823	ppb	5.46	500.00	
78 Se	# 1	72	189.3	0.0000	0.3912	ppb	6.44	500.00	
88 Sr	# 3	72	34374580.0	0.0000	1083.0000	ppb	0.57	500.00	>LRS
90 Zr	# 3	72	7133.4	0.0000	0.3221	ppb	6.20	50.00	
95 Mo	# 3	115	20611.9	0.0000	3.5220	ppb	2.83	500.00	
107 Ag	# 3	115	2728.1	0.0000	0.1692	ppb	1.26	50.00	
111 Cd	# 3	115	201.8	0.0000	-0.0457	ppb	20.39	500.00	
118 Sn	# 3	115	2088.0	0.0000	0.1725	ppb	1.20	500.00	
121 Sb	# 3	115	1261.2	0.0000	0.0945	ppb	4.20	500.00	
137 Ba	# 3	115	580246.0	0.0000	130.3000	ppb	0.33	1000.00	
182 W	# 3	159	427.8	0.0000	0.0625	ppb	3.39	50.00	
201 Hg	# 3	159	24.4	0.0000	0.0106	ppb	71.22	25.00	
205 Tl	# 3	159	2325.8	0.0000	0.0701	ppb	2.22	500.00	
208 Pb	# 3	159	13198.6	0.0000	0.2720	ppb	0.46	500.00	
235 U	# 3	159	1884.6	0.0000	0.1137	ppb	2.21	30.00	
238 U	# 3	159	261211.4	0.0000	5.3720	ppb	0.40	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4222495.50	0.87	4565332.00	92.5	60 - 125	
45 Sc # 1	1797534.80	2.15	1791487.00	100.3	60 - 125	
45 Sc # 2	369714.59	0.98	367419.63	100.6	60 - 125	
45 Sc # 3	3764368.80	1.37	3822492.00	98.5	60 - 125	
72 Ge # 1	306040.22	0.99	329311.25	92.9	60 - 125	
72 Ge # 2	137326.80	0.56	151460.27	90.7	60 - 125	
72 Ge # 3	545197.38	1.11	623990.13	87.4	60 - 125	
115 In # 3	3815466.30	1.67	4320472.50	88.3	60 - 125	
159 Tb # 3	5756562.00	1.57	6298565.50	91.4	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

5 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04041.D\F6L04041.D#
Date Acquired: Dec 19 2019 01:08 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-14N
Misc Info:
Vial Number: 2207
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	934167.1	0.0000	14.9300	ppb	0.70	50.00	
9 Be	# 3	6	134.4	0.0000	-0.0010	ppb	155.18	50.00	
11 B	# 3	6	596837.3	0.0000	50.0500	ppb	0.93	100.00	
23 Na	# 1	45	207414590.0	0.0000	32670.0000	ppb	0.76	50000.00	
24 Mg	# 3	45	1006761000.0	0.0000	40420.0000	ppb	0.98	50000.00	
27 Al	# 3	45	268392.9	0.0000	7.6020	ppb	0.80	50000.00	
28 Si	# 1	45	11222210.0	0.0000	8638.0000	ppb	1.13	5000.00	>LRS
31 P	# 3	45	47500.4	0.0000	10.1600	ppb	2.92	500.00	
39 K	# 2	45	1876051.0	0.0000	2015.0000	ppb	1.10	50000.00	
40 Ca	# 1	45	1213802000.0	0.0000	121100.0000	ppb	1.00	50000.00	>LRS
47 Ti	# 3	45	5545.7	0.0000	2.2930	ppb	3.52	500.00	
51 V	# 2	45	13118.7	0.0000	1.5380	ppb	1.89	500.00	
52 Cr	# 2	45	10012.3	0.0000	1.1160	ppb	1.16	500.00	
55 Mn	# 3	45	282868.3	0.0000	7.2860	ppb	0.73	3000.00	
56 Fe	# 1	45	312037.6	0.0000	19.2200	ppb	0.50	50000.00	
59 Co	# 3	45	10399.5	0.0000	0.3484	ppb	3.96	500.00	
60 Ni	# 2	45	944.0	0.0000	0.2628	ppb	1.86	500.00	
63 Cu	# 2	45	20545.6	0.0000	2.9030	ppb	0.92	500.00	
66 Zn	# 3	72	27146.6	0.0000	1.9820	ppb	18.81	500.00	
75 As	# 2	72	607.6	0.0000	0.7280	ppb	1.62	500.00	
78 Se	# 1	72	452.9	0.0000	0.9685	ppb	3.45	500.00	
88 Sr	# 3	72	34608592.0	0.0000	1050.0000	ppb	0.56	500.00	>LRS
90 Zr	# 3	72	683.4	0.0000	0.0103	ppb	26.48	50.00	
95 Mo	# 3	115	3606.1	0.0000	0.5816	ppb	4.48	500.00	
107 Ag	# 3	115	142.2	0.0000	0.0002	ppb	319.29	50.00	
111 Cd	# 3	115	87.7	0.0000	-0.0796	ppb	4.19	500.00	
118 Sn	# 3	115	1859.1	0.0000	0.1418	ppb	3.23	500.00	
121 Sb	# 3	115	855.6	0.0000	0.0550	ppb	10.83	500.00	
137 Ba	# 3	115	146837.4	0.0000	31.8900	ppb	0.56	1000.00	
182 W	# 3	159	321.1	0.0000	0.0532	ppb	2.69	50.00	
201 Hg	# 3	159	18.9	0.0000	0.0068	ppb	38.23	25.00	
205 Tl	# 3	159	618.9	0.0000	0.0099	ppb	3.08	500.00	
208 Pb	# 3	159	3093.6	0.0000	0.0232	ppb	8.11	500.00	
235 U	# 3	159	437.8	0.0000	0.0261	ppb	8.27	30.00	
238 U	# 3	159	64902.0	0.0000	1.3090	ppb	0.40	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4393212.50	1.64	4565332.00	96.2	60 - 125	
45 Sc # 1	1732898.90	2.60	1791487.00	96.7	60 - 125	
45 Sc # 2	366035.19	0.23	367419.63	99.6	60 - 125	
45 Sc # 3	3757231.30	0.71	3822492.00	98.3	60 - 125	
72 Ge # 1	307276.78	2.31	329311.25	93.3	60 - 125	
72 Ge # 2	139541.66	0.62	151460.27	92.1	60 - 125	
72 Ge # 3	566626.44	1.05	623990.13	90.8	60 - 125	
115 In # 3	3940595.00	1.56	4320472.50	91.2	60 - 125	
159 Tb # 3	5852623.50	1.05	6298565.50	92.9	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04042.D\F6L04042.D#
Date Acquired: Dec 19 2019 01:12 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-15N
Misc Info:
Vial Number: 2208
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	1227916.0	0.0000	21.3100	ppb	1.73	50.00	
9 Be	# 3	6	128.9	0.0000	-0.0016	ppb	114.12	50.00	
11 B	# 3	6	584436.8	0.0000	48.6100	ppb	1.61	100.00	
23 Na	# 1	45	207860800.0	0.0000	31230.0000	ppb	0.08	50000.00	
24 Mg	# 3	45	902448900.0	0.0000	35000.0000	ppb	0.37	50000.00	
27 Al	# 3	45	486879.1	0.0000	14.1500	ppb	5.12	50000.00	
28 Si	# 1	45	11968050.0	0.0000	8789.0000	ppb	0.47	5000.00	>LRS
31 P	# 3	45	48441.6	0.0000	9.6120	ppb	2.84	500.00	
39 K	# 2	45	2220552.0	0.0000	2312.0000	ppb	0.70	50000.00	
40 Ca	# 1	45	1055486000.0	0.0000	100500.0000	ppb	0.35	50000.00	>LRS
47 Ti	# 3	45	6137.3	0.0000	2.4570	ppb	3.08	500.00	
51 V	# 2	45	5259.2	0.0000	0.3233	ppb	2.23	500.00	
52 Cr	# 2	45	3755.8	0.0000	0.3139	ppb	2.03	500.00	
55 Mn	# 3	45	18367260.0	0.0000	464.9000	ppb	0.58	3000.00	
56 Fe	# 1	45	2651381.0	0.0000	173.0000	ppb	0.89	50000.00	
59 Co	# 3	45	29928.8	0.0000	1.0440	ppb	1.20	500.00	
60 Ni	# 2	45	7503.3	0.0000	2.5510	ppb	0.98	500.00	
63 Cu	# 2	45	1725.4	0.0000	0.1513	ppb	1.59	500.00	
66 Zn	# 3	72	46742.3	0.0000	7.3050	ppb	4.43	500.00	
75 As	# 2	72	568.7	0.0000	0.6451	ppb	2.90	500.00	
78 Se	# 1	72	454.5	0.0000	0.9297	ppb	4.22	500.00	
88 Sr	# 3	72	39089400.0	0.0000	1158.0000	ppb	0.40	500.00	>LRS
90 Zr	# 3	72	841.2	0.0000	0.0167	ppb	11.05	50.00	
95 Mo	# 3	115	49769.4	0.0000	8.0950	ppb	0.82	500.00	
107 Ag	# 3	115	117.8	0.0000	-0.0015	ppb	134.53	50.00	
111 Cd	# 3	115	88.0	0.0000	-0.0801	ppb	8.62	500.00	
118 Sn	# 3	115	535.6	0.0000	0.0035	ppb	97.24	500.00	
121 Sb	# 3	115	897.8	0.0000	0.0572	ppb	10.28	500.00	
137 Ba	# 3	115	234259.7	0.0000	49.9100	ppb	0.38	1000.00	
182 W	# 3	159	944.5	0.0000	0.1022	ppb	1.96	50.00	
201 Hg	# 3	159	18.9	0.0000	0.0065	ppb	99.65	25.00	
205 Tl	# 3	159	516.7	0.0000	0.0059	ppb	23.55	500.00	
208 Pb	# 3	159	2619.1	0.0000	0.0101	ppb	14.29	500.00	
235 U	# 3	159	620.0	0.0000	0.0359	ppb	2.86	30.00	
238 U	# 3	159	83270.7	0.0000	1.6360	ppb	0.70	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4420270.00	0.70	4565332.00	96.8	60 - 125	
45 Sc # 1	1816373.30	1.73	1791487.00	101.4	60 - 125	
45 Sc # 2	378767.53	0.25	367419.63	103.1	60 - 125	
45 Sc # 3	3889170.00	1.48	3822492.00	101.7	60 - 125	
72 Ge # 1	320843.81	1.77	329311.25	97.4	60 - 125	
72 Ge # 2	145292.22	0.80	151460.27	95.9	60 - 125	
72 Ge # 3	580022.63	1.23	623990.13	93.0	60 - 125	
115 In # 3	4018969.00	1.34	4320472.50	93.0	60 - 125	
159 Tb # 3	6012545.50	1.24	6298565.50	95.5	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04043.D\F6L04043.D#
Date Acquired: Dec 19 2019 01:17 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-17N
Misc Info:
Vial Number: 2209
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	1105447.0	0.0000	19.7800	ppb	2.43	50.00	
9 Be	# 3	6	236.7	0.0000	0.0094	ppb	19.81	50.00	
11 B	# 3	6	864539.0	0.0000	77.3300	ppb	1.32	100.00	
23 Na	# 1	45	487517500.0	0.0000	81700.0000	ppb	1.04	50000.00	>LRS
24 Mg	# 3	45	1433182000.0	0.0000	58990.0000	ppb	0.12	50000.00	>LRS
27 Al	# 3	45	1881446.0	0.0000	61.3800	ppb	3.07	50000.00	
28 Si	# 1	45	10384430.0	0.0000	8501.0000	ppb	0.67	5000.00	>LRS
31 P	# 3	45	61465.4	0.0000	22.3700	ppb	5.19	500.00	
39 K	# 2	45	2454821.0	0.0000	2744.0000	ppb	0.30	50000.00	
40 Ca	# 1	45	1625830000.0	0.0000	172600.0000	ppb	1.24	50000.00	>LRS
47 Ti	# 3	45	7252.2	0.0000	3.0990	ppb	0.95	500.00	
51 V	# 2	45	13473.9	0.0000	1.6620	ppb	1.11	500.00	
52 Cr	# 2	45	9558.0	0.0000	1.1000	ppb	1.40	500.00	
55 Mn	# 3	45	923827.1	0.0000	24.7000	ppb	0.22	3000.00	
56 Fe	# 1	45	1640506.0	0.0000	118.6000	ppb	1.33	50000.00	
59 Co	# 3	45	15426.3	0.0000	0.5518	ppb	0.31	500.00	
60 Ni	# 2	45	1921.5	0.0000	0.6417	ppb	2.42	500.00	
63 Cu	# 2	45	2577.6	0.0000	0.2970	ppb	1.50	500.00	
66 Zn	# 3	72	48106.5	0.0000	8.8060	ppb	4.87	500.00	
75 As	# 2	72	804.5	0.0000	1.0520	ppb	3.40	500.00	
78 Se	# 1	72	400.9	0.0000	0.9201	ppb	1.16	500.00	
88 Sr	# 3	72	38629312.0	0.0000	1239.0000	ppb	0.76	500.00	>LRS
90 Zr	# 3	72	1781.4	0.0000	0.0658	ppb	12.08	50.00	
95 Mo	# 3	115	2772.6	0.0000	0.4670	ppb	4.16	500.00	
107 Ag	# 3	115	325.6	0.0000	0.0128	ppb	3.30	50.00	
111 Cd	# 3	115	95.4	0.0000	-0.0760	ppb	8.34	500.00	
118 Sn	# 3	115	825.6	0.0000	0.0392	ppb	14.05	500.00	
121 Sb	# 3	115	745.6	0.0000	0.0487	ppb	4.10	500.00	
137 Ba	# 3	115	336595.2	0.0000	77.0100	ppb	0.95	1000.00	
182 W	# 3	159	302.2	0.0000	0.0529	ppb	3.06	50.00	
201 Hg	# 3	159	16.7	0.0000	0.0058	ppb	166.81	25.00	
205 Tl	# 3	159	788.9	0.0000	0.0171	ppb	14.24	500.00	
208 Pb	# 3	159	5604.0	0.0000	0.0900	ppb	1.70	500.00	
235 U	# 3	159	524.5	0.0000	0.0327	ppb	5.65	30.00	
238 U	# 3	159	72171.5	0.0000	1.5250	ppb	0.57	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4216788.50	1.12	4565332.00	92.4	60 - 125	
45 Sc # 1	1629133.00	2.34	1791487.00	90.9	60 - 125	
45 Sc # 2	353766.59	0.68	367419.63	96.3	60 - 125	
45 Sc # 3	3664479.50	1.11	3822492.00	95.9	60 - 125	
72 Ge # 1	286056.59	2.69	329311.25	86.9	60 - 125	
72 Ge # 2	132511.55	1.26	151460.27	87.5	60 - 125	
72 Ge # 3	535673.81	0.93	623990.13	85.8	60 - 125	
115 In # 3	3744030.30	2.23	4320472.50	86.7	60 - 125	
159 Tb # 3	5589379.50	0.89	6298565.50	88.7	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

5 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04044.D\F6L04044.D#
Date Acquired: Dec 19 2019 01:22 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-18N
Misc Info:
Vial Number: 2210
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	1190177.0	0.0000	20.8600	ppb	1.37	50.00	
9 Be	# 3	6	326.7	0.0000	0.0171	ppb	12.88	50.00	
11 B	# 3	6	881843.7	0.0000	76.3200	ppb	1.92	100.00	
23 Na	# 1	45	482035200.0	0.0000	76180.0000	ppb	0.46	50000.00	>LRS
24 Mg	# 3	45	1201153000.0	0.0000	48640.0000	ppb	0.82	50000.00	
27 Al	# 3	45	4521416.0	0.0000	146.6000	ppb	0.47	50000.00	
28 Si	# 1	45	10626200.0	0.0000	8204.0000	ppb	0.72	5000.00	>LRS
31 P	# 3	45	55970.6	0.0000	17.2000	ppb	0.46	500.00	
39 K	# 2	45	2787316.0	0.0000	2992.0000	ppb	1.08	50000.00	
40 Ca	# 1	45	1452468000.0	0.0000	145400.0000	ppb	0.29	50000.00	>LRS
47 Ti	# 3	45	11983.0	0.0000	5.0820	ppb	1.32	500.00	
51 V	# 2	45	5819.4	0.0000	0.4277	ppb	4.33	500.00	
52 Cr	# 2	45	31761.3	0.0000	3.8170	ppb	0.82	500.00	
55 Mn	# 3	45	14501410.0	0.0000	383.2000	ppb	0.52	3000.00	
56 Fe	# 1	45	12627850.0	0.0000	876.1000	ppb	0.52	50000.00	
59 Co	# 3	45	133265.1	0.0000	5.0050	ppb	0.41	500.00	
60 Ni	# 2	45	18214.3	0.0000	6.4780	ppb	1.45	500.00	
63 Cu	# 2	45	3217.3	0.0000	0.3735	ppb	1.69	500.00	
66 Zn	# 3	72	32780.4	0.0000	3.8390	ppb	9.93	500.00	
75 As	# 2	72	2066.2	0.0000	2.7000	ppb	2.21	500.00	
78 Se	# 1	72	425.1	0.0000	0.9228	ppb	4.41	500.00	
88 Sr	# 3	72	35930752.0	0.0000	1117.0000	ppb	0.64	500.00	>LRS
90 Zr	# 3	72	4253.0	0.0000	0.1805	ppb	1.66	50.00	
95 Mo	# 3	115	16937.0	0.0000	2.8660	ppb	2.67	500.00	
107 Ag	# 3	115	547.8	0.0000	0.0266	ppb	9.82	50.00	
111 Cd	# 3	115	187.4	0.0000	-0.0503	ppb	16.06	500.00	
118 Sn	# 3	115	751.2	0.0000	0.0289	ppb	23.42	500.00	
121 Sb	# 3	115	886.7	0.0000	0.0596	ppb	9.56	500.00	
137 Ba	# 3	115	386688.1	0.0000	86.0900	ppb	0.72	1000.00	
182 W	# 3	159	812.3	0.0000	0.0948	ppb	5.58	50.00	
201 Hg	# 3	159	16.7	0.0000	0.0056	ppb	102.16	25.00	
205 Tl	# 3	159	1350.1	0.0000	0.0361	ppb	9.57	500.00	
208 Pb	# 3	159	10279.7	0.0000	0.2015	ppb	1.02	500.00	
235 U	# 3	159	1194.5	0.0000	0.0724	ppb	4.98	30.00	
238 U	# 3	159	157867.7	0.0000	3.2570	ppb	0.53	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4356208.50	0.99	4565332.00	95.4	60 - 125	
45 Sc # 1	1727647.60	2.06	1791487.00	96.4	60 - 125	
45 Sc # 2	368967.66	0.42	367419.63	100.4	60 - 125	
45 Sc # 3	3725149.50	0.57	3822492.00	97.5	60 - 125	
72 Ge # 1	302550.22	1.65	329311.25	91.9	60 - 125	
72 Ge # 2	139440.28	1.33	151460.27	92.1	60 - 125	
72 Ge # 3	552708.13	0.92	623990.13	88.6	60 - 125	
115 In # 3	3847460.30	1.62	4320472.50	89.1	60 - 125	
159 Tb # 3	5734159.50	0.89	6298565.50	91.0	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04045.D\F6L04045.D#
Date Acquired: Dec 19 2019 01:26 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-20N
Misc Info:
Vial Number: 2211
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	1020094.0	0.0000	17.2600	ppb	0.91	50.00	
9 Be	# 3	6	120.0	0.0000	-0.0022	ppb	23.48	50.00	
11 B	# 3	6	1801292.0	0.0000	161.1000	ppb	1.72	100.00	>LRS
23 Na	# 1	45	386296000.0	0.0000	62590.0000	ppb	0.60	50000.00	>LRS
24 Mg	# 3	45	1428380000.0	0.0000	59160.0000	ppb	0.34	50000.00	>LRS
27 Al	# 3	45	171042.8	0.0000	4.6270	ppb	3.62	50000.00	
28 Si	# 1	45	10887770.0	0.0000	8619.0000	ppb	0.49	5000.00	>LRS
31 P	# 3	45	52485.8	0.0000	15.4000	ppb	6.80	500.00	
39 K	# 2	45	2500710.0	0.0000	2809.0000	ppb	0.11	50000.00	
40 Ca	# 1	45	1660629000.0	0.0000	170400.0000	ppb	0.24	50000.00	>LRS
47 Ti	# 3	45	5233.3	0.0000	2.2320	ppb	4.62	500.00	
51 V	# 2	45	14944.8	0.0000	1.9030	ppb	0.45	500.00	
52 Cr	# 2	45	44233.6	0.0000	5.6340	ppb	0.46	500.00	
55 Mn	# 3	45	45239.4	0.0000	1.0960	ppb	1.49	3000.00	
56 Fe	# 1	45	437157.3	0.0000	28.7600	ppb	0.50	50000.00	
59 Co	# 3	45	15574.3	0.0000	0.5612	ppb	1.36	500.00	
60 Ni	# 2	45	10162.2	0.0000	3.7530	ppb	0.70	500.00	
63 Cu	# 2	45	4401.3	0.0000	0.5750	ppb	1.78	500.00	
66 Zn	# 3	72	30388.4	0.0000	3.4230	ppb	6.78	500.00	
75 As	# 2	72	851.6	0.0000	1.1170	ppb	1.04	500.00	
78 Se	# 1	72	366.0	0.0000	0.8155	ppb	1.09	500.00	
88 Sr	# 3	72	37618608.0	0.0000	1208.0000	ppb	0.15	500.00	>LRS
90 Zr	# 3	72	574.8	0.0000	0.0068	ppb	185.28	50.00	
95 Mo	# 3	115	8987.5	0.0000	1.5660	ppb	2.94	500.00	
107 Ag	# 3	115	191.1	0.0000	0.0040	ppb	27.47	50.00	
111 Cd	# 3	115	69.8	0.0000	-0.0834	ppb	12.24	500.00	
118 Sn	# 3	115	596.7	0.0000	0.0147	ppb	29.18	500.00	
121 Sb	# 3	115	915.6	0.0000	0.0652	ppb	8.22	500.00	
137 Ba	# 3	115	327746.2	0.0000	75.5500	ppb	0.03	1000.00	
182 W	# 3	159	342.2	0.0000	0.0566	ppb	7.49	50.00	
201 Hg	# 3	159	20.0	0.0000	0.0082	ppb	46.35	25.00	
205 Tl	# 3	159	454.5	0.0000	0.0051	ppb	18.51	500.00	
208 Pb	# 3	159	2593.5	0.0000	0.0148	ppb	22.50	500.00	
235 U	# 3	159	562.3	0.0000	0.0354	ppb	12.19	30.00	
238 U	# 3	159	77196.6	0.0000	1.6480	ppb	0.91	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4314606.50	1.42	4565332.00	94.5	60 - 125	
45 Sc # 1	1684881.40	1.50	1791487.00	94.0	60 - 125	
45 Sc # 2	352211.16	0.84	367419.63	95.9	60 - 125	
45 Sc # 3	3641960.00	1.59	3822492.00	95.3	60 - 125	
72 Ge # 1	293572.31	1.11	329311.25	89.1	60 - 125	
72 Ge # 2	132683.58	0.83	151460.27	87.6	60 - 125	
72 Ge # 3	535377.94	0.98	623990.13	85.8	60 - 125	
115 In # 3	3715663.30	1.45	4320472.50	86.0	60 - 125	
159 Tb # 3	5531146.00	0.90	6298565.50	87.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

6 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04046.D\F6L04046.D#
Date Acquired: Dec 19 2019 01:31 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: L064-21N
Misc Info:
Vial Number: 2212
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	927092.7	0.0000	14.5200	ppb	2.40	50.00	
9 Be	# 3	6	116.7	0.0000	-0.0028	ppb	66.42	50.00	
11 B	# 3	6	591327.0	0.0000	48.8900	ppb	0.91	100.00	
23 Na	# 1	45	205385790.0	0.0000	32330.0000	ppb	1.47	50000.00	
24 Mg	# 3	45	993122620.0	0.0000	39870.0000	ppb	0.21	50000.00	
27 Al	# 3	45	731551.3	0.0000	22.6000	ppb	0.62	50000.00	
28 Si	# 1	45	11181990.0	0.0000	8602.0000	ppb	1.37	5000.00	>LRS
31 P	# 3	45	48374.5	0.0000	10.8600	ppb	5.48	500.00	
39 K	# 2	45	1821381.0	0.0000	1986.0000	ppb	0.49	50000.00	
40 Ca	# 1	45	1204114000.0	0.0000	120100.0000	ppb	1.84	50000.00	>LRS
47 Ti	# 3	45	5770.2	0.0000	2.3890	ppb	0.86	500.00	
51 V	# 2	45	12862.0	0.0000	1.5300	ppb	0.27	500.00	
52 Cr	# 2	45	10409.4	0.0000	1.1860	ppb	1.02	500.00	
55 Mn	# 3	45	277708.4	0.0000	7.1520	ppb	0.38	3000.00	
56 Fe	# 1	45	339821.2	0.0000	21.1400	ppb	2.21	50000.00	
59 Co	# 3	45	10467.4	0.0000	0.3511	ppb	4.37	500.00	
60 Ni	# 2	45	916.7	0.0000	0.2581	ppb	0.75	500.00	
63 Cu	# 2	45	2065.4	0.0000	0.2140	ppb	11.03	500.00	
66 Zn	# 3	72	134403.8	0.0000	33.1300	ppb	1.41	500.00	
75 As	# 2	72	593.3	0.0000	0.7203	ppb	0.32	500.00	
78 Se	# 1	72	427.3	0.0000	0.9207	ppb	4.80	500.00	
88 Sr	# 3	72	34003752.0	0.0000	1040.0000	ppb	0.36	500.00	>LRS
90 Zr	# 3	72	657.8	0.0000	0.0093	ppb	15.47	50.00	
95 Mo	# 3	115	3239.4	0.0000	0.5262	ppb	1.46	500.00	
107 Ag	# 3	115	135.6	0.0000	-0.0002	ppb	374.11	50.00	
111 Cd	# 3	115	86.2	0.0000	-0.0798	ppb	2.35	500.00	
118 Sn	# 3	115	1196.8	0.0000	0.0743	ppb	10.16	500.00	
121 Sb	# 3	115	757.8	0.0000	0.0470	ppb	6.20	500.00	
137 Ba	# 3	115	143694.3	0.0000	31.5300	ppb	0.56	1000.00	
182 W	# 3	159	287.8	0.0000	0.0509	ppb	8.32	50.00	
201 Hg	# 3	159	8.9	0.0000	0.0005	ppb	669.70	25.00	
205 Tl	# 3	159	454.5	0.0000	0.0045	ppb	25.90	500.00	
208 Pb	# 3	159	3608.1	0.0000	0.0370	ppb	6.20	500.00	
235 U	# 3	159	433.4	0.0000	0.0262	ppb	7.99	30.00	
238 U	# 3	159	62644.5	0.0000	1.2840	ppb	0.31	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	4449109.00	1.03	4565332.00	97.5	60 - 125	
45 Sc # 1	1734203.30	3.08	1791487.00	96.8	60 - 125	
45 Sc # 2	360401.84	0.57	367419.63	98.1	60 - 125	
45 Sc # 3	3756760.00	1.27	3822492.00	98.3	60 - 125	
72 Ge # 1	304601.41	1.28	329311.25	92.5	60 - 125	
72 Ge # 2	137562.45	0.27	151460.27	90.8	60 - 125	
72 Ge # 3	562054.19	1.10	623990.13	90.1	60 - 125	
115 In # 3	3900528.30	0.70	4320472.50	90.3	60 - 125	
159 Tb # 3	5756799.00	1.47	6298565.50	91.4	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCV QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04047.D\F6L04047.D#
Date Acquired: Dec 19 2019 01:36 pm
Operator: LYaman
Sample Name: CCV4
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal Update: Dec 19 2019 10:20 am
Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
7 Li	23.97 ppb	1.61	25.00	90 - 110	
9 Be	23.16 ppb	0.66	25.00	90 - 110	
11 B	44.36 ppb	0.59	50.00	90 - 110	Fail
23 Na	26150.00 ppb	0.34	25000.00	90 - 110	
24 Mg	25590.00 ppb	0.59	25000.00	90 - 110	
27 Al	25140.00 ppb	0.28	25000.00	90 - 110	
28 Si	2805.00 ppb	0.49	2500.00	90 - 110	Fail
31 P	267.60 ppb	0.78	250.00	90 - 110	
39 K	26840.00 ppb	0.83	25000.00	90 - 110	
40 Ca	25800.00 ppb	0.83	25000.00	90 - 110	
47 Ti	251.50 ppb	0.47	250.00	90 - 110	
51 V	255.40 ppb	1.36	250.00	90 - 110	
52 Cr	250.90 ppb	0.54	250.00	90 - 110	
55 Mn	1496.00 ppb	0.33	1500.00	90 - 110	
56 Fe	24430.00 ppb	0.73	25000.00	90 - 110	
59 Co	257.60 ppb	0.22	250.00	90 - 110	
60 Ni	237.00 ppb	0.28	250.00	90 - 110	
63 Cu	227.50 ppb	0.87	250.00	90 - 110	
66 Zn	257.60 ppb	0.10	250.00	90 - 110	
75 As	258.90 ppb	0.57	250.00	90 - 110	
78 Se	254.30 ppb	0.71	250.00	90 - 110	
88 Sr	251.30 ppb	0.79	250.00	90 - 110	
90 Zr	22.58 ppb	0.28	25.00	90 - 110	
95 Mo	263.20 ppb	1.46	250.00	90 - 110	
107 Ag	24.80 ppb	1.01	25.00	90 - 110	
111 Cd	252.10 ppb	1.20	250.00	90 - 110	
118 Sn	254.60 ppb	0.90	250.00	90 - 110	
121 Sb	50.86 ppb	1.28	50.00	90 - 110	
137 Ba	523.90 ppb	0.82	500.00	90 - 110	
182 W	28.99 ppb	0.57	25.00	90 - 110	Fail
201 Hg	2.46 ppb	4.08	2.50	90 - 110	
205 Tl	246.80 ppb	0.38	250.00	90 - 110	
208 Pb	242.70 ppb	0.41	250.00	90 - 110	
235 U	1.52 ppb	1.24	1.80	90 - 110	Fail
238 U	245.40 ppb	0.20	250.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4698118.00	1.27	4565332.00	102.9	60 - 125	
45 Sc	1820704.50	1.48	1791487.00	101.6	60 - 125	
45 Sc	373216.81	0.47	367419.63	101.6	60 - 125	
45 Sc	3879992.80	1.19	3822492.00	101.5	60 - 125	
72 Ge	325000.91	0.97	329311.25	98.7	60 - 125	
72 Ge	146417.92	0.29	151460.27	96.7	60 - 125	
72 Ge	613802.31	1.08	623990.13	98.4	60 - 125	
115 In	4035505.30	0.63	4320472.50	93.4	60 - 125	
159 Tb	6009116.50	1.62	6298565.50	95.4	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

4 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File:	C:\DATA\IF62019\L\IF6L04.B\F6L04048.D\F6L04048.D#
Date Acquired:	Dec 19 2019 01:40 pm
Acq. Method:	EM6020Hg.M
Operator:	LYaman
Sample Name:	CCB4
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update:	Dec 19 2019 10:20 am
Sample Type:	CCB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	-0.1467	ppb	304607.4	11.95	0.20	
9 Be	-0.0029	ppb	135.6	23.27	0.10	
11 B	-0.5445	ppb	39537.4	18.22	5.00	
23 Na	0.9541	ppb	184514.8	107.54	40.00	
24 Mg	5.0710	ppb	163965.4	5.32	10.00	
27 Al	3.1640	ppb	141831.5	4.50	20.00	
28 Si	1.7870	ppb	6235.9	16.95	20.00	
31 P	7.3940	ppb	47498.6	10.08	10.00	
39 K	10.1100	ppb	54906.5	2.68	20.00	
40 Ca	7.5460	ppb	285320.1	16.61	25.00	
47 Ti	0.0368	ppb	275.6	43.11	0.50	
51 V	0.1619	ppb	4302.2	2.48	0.50	
52 Cr	0.0292	ppb	1461.6	5.96	0.20	
55 Mn	0.1115	ppb	9823.6	9.82	0.20	
56 Fe	2.9840	ppb	83046.1	12.08	10.00	
59 Co	-0.0027	ppb	1133.4	160.22	0.20	
60 Ni	0.0082	ppb	259.6	96.82	0.20	
63 Cu	-0.0041	ppb	643.8	94.76	0.40	
66 Zn	-2.5070	ppb	13343.2	15.93	2.00	~~Fail~~ LY 12/19/19
75 As	0.0513	ppb	120.2	16.68	0.20	
78 Se	0.0346	ppb	31.3	44.75	0.20	
88 Sr	0.1229	ppb	5756.9	4.40	0.20	
90 Zr	-0.0077	ppb	343.4	22.83	2.00	
95 Mo	0.0529	ppb	481.1	17.86	0.40	
107 Ag	-0.0003	ppb	151.1	543.85	0.20	
111 Cd	-0.0786	ppb	103.4	8.79	0.20	
118 Sn	0.0447	ppb	1043.4	22.71	0.20	
121 Sb	0.0036	ppb	311.1	37.89	0.40	
137 Ba	0.0387	ppb	396.7	19.04	0.20	
182 W	0.0526	ppb	343.4	2.04	1.00	
201 Hg	0.0032	ppb	14.4	129.54	0.10	
205 Tl	0.0416	ppb	1682.4	8.31	0.20	
208 Pb	-0.0090	ppb	1924.6	9.12	0.10	
235 U	0.0005	ppb	5.6	58.86	1.00	
238 U	0.0246	ppb	1636.8	13.03	0.10	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	5194392.0	1.41	4565332.00	113.8	60 - 125	
45 Sc	1847987.9	2.44	1791487.00	103.2	60 - 125	
45 Sc	392270.1	1.41	367419.63	106.8	60 - 125	
45 Sc	4058905.3	1.51	3822492.00	106.2	60 - 125	
72 Ge	345323.3	1.28	329311.25	104.9	60 - 125	
72 Ge	157768.1	1.33	151460.27	104.2	60 - 125	
72 Ge	655841.3	1.12	623990.13	105.1	60 - 125	
115 In	4457821.0	1.35	4320472.50	103.2	60 - 125	
159 Tb	6410480.5	1.26	6298565.50	101.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

1 :Element Failures — 0 :Max. Number of Failures Allowed

0 :ISTD Failures — 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:

Analytes: Fail

ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04049.D\F6L04049.D#
Date Acquired: Dec 19 2019 01:45 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: MRLL1904
Misc Info: 1/100/10 ppb
Vial Number: 1305
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	349485.6	0.0000	0.6532	ppb	8.23	50.00	
9 Be	# 3	6	10860.9	0.0000	0.8345	ppb	2.02	50.00	
11 B	# 3	6	146014.1	0.0000	7.4650	ppb	2.13	100.00	
23 Na	# 1	45	850206.5	0.0000	100.4000	ppb	0.26	50000.00	
24 Mg	# 3	45	2887263.0	0.0000	106.4000	ppb	0.67	50000.00	
27 Al	# 3	45	3898085.0	0.0000	115.9000	ppb	0.91	50000.00	
28 Si	# 1	45	154096.1	0.0000	109.5000	ppb	0.26	5000.00	
31 P	# 3	45	113145.0	0.0000	55.2600	ppb	1.20	500.00	
39 K	# 2	45	154902.6	0.0000	112.9000	ppb	0.55	50000.00	
40 Ca	# 1	45	1359405.0	0.0000	109.1000	ppb	0.21	50000.00	
47 Ti	# 3	45	3312.7	0.0000	1.2370	ppb	3.87	500.00	
51 V	# 2	45	10677.2	0.0000	1.0640	ppb	1.74	500.00	
52 Cr	# 2	45	9809.0	0.0000	1.0100	ppb	0.90	500.00	
55 Mn	# 3	45	50342.4	0.0000	1.0960	ppb	1.15	3000.00	
56 Fe	# 1	45	1582908.0	0.0000	101.4000	ppb	0.13	50000.00	
59 Co	# 3	45	31614.4	0.0000	1.0580	ppb	0.55	500.00	
60 Ni	# 2	45	3111.9	0.0000	0.9760	ppb	1.36	500.00	
63 Cu	# 2	45	7882.8	0.0000	0.9828	ppb	1.94	500.00	
66 Zn	# 3	72	56073.6	0.0000	7.9700	ppb	2.26	500.00	
75 As	# 2	72	909.4	0.0000	0.9826	ppb	0.47	500.00	
78 Se	# 1	72	505.1	0.0000	0.9711	ppb	5.96	500.00	
88 Sr	# 3	72	83091.2	0.0000	2.1290	ppb	0.63	500.00	
90 Zr	# 3	72	109498.0	0.0000	4.3180	ppb	1.21	50.00	
95 Mo	# 3	115	6929.7	0.0000	0.9877	ppb	0.62	500.00	
107 Ag	# 3	115	18978.6	0.0000	1.0380	ppb	2.08	50.00	
111 Cd	# 3	115	4463.5	0.0000	0.9895	ppb	3.63	500.00	
118 Sn	# 3	115	11944.3	0.0000	1.0300	ppb	2.54	500.00	
121 Sb	# 3	115	12672.7	0.0000	0.9577	ppb	1.17	500.00	
137 Ba	# 3	115	5439.0	0.0000	0.9949	ppb	1.87	1000.00	
182 W	# 3	159	29689.6	0.0000	2.2270	ppb	1.13	50.00	
201 Hg	# 3	159	180.0	0.0000	0.0990	ppb	8.97	25.00	
205 Tl	# 3	159	34117.1	0.0000	1.0550	ppb	1.37	500.00	
208 Pb	# 3	159	47727.9	0.0000	0.9907	ppb	0.45	500.00	
235 U	# 3	159	135.6	0.0000	0.0074	ppb	7.80	30.00	
238 U	# 3	159	51721.8	0.0000	0.9432	ppb	0.54	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	5231426.50	1.87	4565332.00	114.6	60 - 125	
45 Sc # 1	1832742.60	1.64	1791487.00	102.3	60 - 125	
45 Sc # 2	391508.72	1.70	367419.63	106.6	60 - 125	
45 Sc # 3	4053280.30	0.88	3822492.00	106.0	60 - 125	
72 Ge # 1	341947.31	1.15	329311.25	103.8	60 - 125	
72 Ge # 2	159391.72	1.21	151460.27	105.2	60 - 125	
72 Ge # 3	662163.19	0.85	623990.13	106.1	60 - 125	
115 In # 3	4514404.00	1.70	4320472.50	104.5	60 - 125	
159 Tb # 3	6459967.50	1.37	6298565.50	102.6	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\L\IF6L04.B\F6L04050.D\F6L04050.D#
Date Acquired: Dec 19 2019 01:49 pm
Acq. Method: EM6020Hg.M
Operator: LYaman
Sample Name: MRLL1905
Misc Info: 0.4/40/4 ppb
Vial Number: 1306
Current Method: C:\ICPCHEM\1\METHODS\EM6020Hg.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020Hg.C
Last Cal. Update: Dec 19 2019 10:20 am
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	324504.8	0.0000	0.1464	ppb	22.71	50.00	
9 Be	# 3	6	4906.5	0.0000	0.3670	ppb	2.81	50.00	
11 B	# 3	6	40535.4	0.0000	-0.5108	ppb	20.20	100.00	
23 Na	# 1	45	486220.3	0.0000	44.9800	ppb	1.99	50000.00	
24 Mg	# 3	45	1385031.0	0.0000	50.6500	ppb	1.03	50000.00	
27 Al	# 3	45	1565732.0	0.0000	46.0300	ppb	0.91	50000.00	
28 Si	# 1	45	20684.8	0.0000	12.1000	ppb	1.82	5000.00	
31 P	# 3	45	45622.5	0.0000	6.1500	ppb	6.46	500.00	
39 K	# 2	45	95749.4	0.0000	50.2000	ppb	1.29	50000.00	
40 Ca	# 1	45	1017243.0	0.0000	75.3000	ppb	1.04	50000.00	
47 Ti	# 3	45	1345.7	0.0000	0.4613	ppb	12.02	500.00	
51 V	# 2	45	6846.5	0.0000	0.5032	ppb	2.05	500.00	
52 Cr	# 2	45	4605.6	0.0000	0.3880	ppb	1.58	500.00	
55 Mn	# 3	45	27803.3	0.0000	0.5502	ppb	0.58	3000.00	
56 Fe	# 1	45	790988.1	0.0000	48.6300	ppb	0.96	50000.00	
59 Co	# 3	45	14743.3	0.0000	0.4723	ppb	1.97	500.00	
60 Ni	# 2	45	1385.4	0.0000	0.3808	ppb	0.53	500.00	
63 Cu	# 2	45	4398.7	0.0000	0.4957	ppb	1.42	500.00	
66 Zn	# 3	72	44491.0	0.0000	5.2420	ppb	3.25	500.00	
75 As	# 2	72	421.3	0.0000	0.4046	ppb	1.90	500.00	
78 Se	# 1	72	234.4	0.0000	0.4269	ppb	4.41	500.00	
88 Sr	# 3	72	21834.7	0.0000	0.5450	ppb	1.11	500.00	
90 Zr	# 3	72	1014.5	0.0000	0.0193	ppb	4.44	50.00	
95 Mo	# 3	115	3021.5	0.0000	0.4197	ppb	2.01	500.00	
107 Ag	# 3	115	8100.3	0.0000	0.4372	ppb	2.78	50.00	
111 Cd	# 3	115	1698.7	0.0000	0.3117	ppb	12.35	500.00	
118 Sn	# 3	115	5389.0	0.0000	0.4357	ppb	7.07	500.00	
121 Sb	# 3	115	5616.9	0.0000	0.4122	ppb	1.52	500.00	
137 Ba	# 3	115	2854.8	0.0000	0.5032	ppb	2.97	1000.00	
182 W	# 3	159	256.7	0.0000	0.0460	ppb	1.01	50.00	
201 Hg	# 3	159	20.0	0.0000	0.0063	ppb	51.90	25.00	
205 Tl	# 3	159	15438.2	0.0000	0.4704	ppb	1.87	500.00	
208 Pb	# 3	159	22175.7	0.0000	0.4323	ppb	0.67	500.00	
235 U	# 3	159	61.1	0.0000	0.0034	ppb	7.41	30.00	
238 U	# 3	159	23439.2	0.0000	0.4238	ppb	1.27	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	5264822.50	0.12	4565332.00	115.3	60 - 125	
45 Sc # 1	1862469.80	2.49	1791487.00	104.0	60 - 125	
45 Sc # 2	399535.03	0.67	367419.63	108.7	60 - 125	
45 Sc # 3	4042889.00	1.55	3822492.00	105.8	60 - 125	
72 Ge # 1	349120.84	1.60	329311.25	106.0	60 - 125	
72 Ge # 2	159746.20	0.83	151460.27	105.5	60 - 125	
72 Ge # 3	654886.19	0.50	623990.13	105.0	60 - 125	
115 In # 3	4523218.00	1.72	4320472.50	104.7	60 - 125	
159 Tb # 3	6467165.50	1.06	6298565.50	102.7	60 - 125	

ISTD Ref File : C:\DATA\IF62019\L\IF6L04.B\F6L04004.D\F6L04004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

EMAX LABORATORIES, INC.

DIGESTION LOG
for
ICP-MS METALS

Note: For samples, relevant QCs/Standards digested, refer to attached digestion sequence.

Comments:

Digestion Vessel Lot # 1902243

All samples pH<2

Book #: EIM-078
Batch: IMLO10W
Matrix: water
Digestor ID: E

SOP #	Rev. #
☐ EMAX-200.8	6
☑ EMAX-6020	11
☐ EMAX-6020CA	1
☐ EMAX-	

Start	Temp	End	Temp
	93.1 °C		93.5 °C

Standards	ID	Amount Added (ml/g)
LCS-1	SMGA-007-06-15	0.15
LCS-2	↓ -06-16	0.15
MS	Same spike soln and vol. as	LCS 1 and 2
Blank Soil (Bead)	N/A	N/A
Reagent	**Lot# / ID**	**Amount Added (ml)**
HNO_3	SWA-08-18-09	0.5+1.0
HCl	↓ -21-03	0.25+0.25
H_2O_2	N/A	N/A
HNO_3(1:1)	↓	↓
pH Strip (0-14)	HC863463	
Digestate Location		Metals
Extract Location		N/A
☐ Reagent Water ID:	SMSA-04-01-08	
☑ Thermometer ID:	161292128 / E31	
☐ Pipette ID:	7427663331	
☐ Pipette ID:		
☐ Pipette ID:		
☐ HNO_3 dispenser checked @ 5.0 ml with Class A volumetric flask		
☐ HCl dispenser checked @ 5.0 ml with Class A volumetric flask		

Prepared By: MC
Standard Added By: MC Witnessed By: LY
Extract Rcvd By: LY Checked By: MC

EMAX LABORATORIES

DIGESTION LOG FOR METALS

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Vd(ml)	ExpAmt	ExpVd(ml)	PrepFctr	Comments
19IML010W01	IML010WB	50	ml	12/12/19 10:00	50	50	50	1	
19IML010W02	IML010WL	50	ml	12/12/19 10:00	50	50	50	1	
19IML010W03	IML010WC	50	ml	12/12/19 10:00	50	50	50	1	
19IML010W04	L064-01	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W05	L064-02	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W06	L064-03	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W07	L064-04	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W08	L064-06	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W09	L064-07	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W10	L064-07M	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W11	L064-07S	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W12	L064-08	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W13	L064-09	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W14	L064-10	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W15	L064-11	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W16	L064-12	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W17	L064-14	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W18	L064-15	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W19	L064-17	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W20	L064-18	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W21	L064-20	50	ml	12/12/19 10:00	50	50	50	1	TOTAL
19IML010W22	L064-21	50	ml	12/12/19 10:00	50	50	50	1	TOTAL

MC
12/12/19

Vd=digestate volume PrepFctr=(ExpAmt/Aliquot)*(Vd/ExpVd)

☑ Digestion Started @ 12/12/19 10:43 Prepared By: MCande

☑ Digestion Ended @ 12/12/19 13:15 Checked By: LY

Comments: Date 12/12/19

SOP EMAX-6020 Rev. 11

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L064

METHOD SW7470A
MERCURY BY COLD VAPOR

A total of seventeen(17) water samples were received on 12/10/19 to be analyzed for Mercury by Cold Vapor in accordance with Method SW7470A and project specific requirements.

Holding Time
Samples were digested and analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Mercury was not detected in HGL006WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. HGL006WL/HGL006WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. Mercury was within MS QC limits in L064-07M/L064-07S. Refer to Matrix QC summary form for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
MERCURY BY COLD VAPOR

Client : CDM SMITH
Project : VA SALT LAKE CITY

SDG NO. : 19L064
Instrument ID : 47

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	HGL006WB	1	NA	12/16/1917:23	12/16/1913:14	M47L007013	M47L007	19HGL006W	Method Blank
LCS1W	HGL006WL	1	NA	12/16/1917:26	12/16/1913:14	M47L007014	M47L007	19HGL006W	Lab Control Sample (LCS)
LCD1W	HGL006WC	1	NA	12/16/1917:29	12/16/1913:14	M47L007015	M47L007	19HGL006W	LCS Duplicate
OU2-MW01D-GW120619	L064-01	1	NA	12/16/1917:32	12/16/1913:14	M47L007016	M47L007	19HGL006W	Field Sample
OU2-MW14D-GW120719	L064-02	1	NA	12/16/1917:35	12/16/1913:14	M47L007017	M47L007	19HGL006W	Field Sample
OU2-MW03RC-GW120719	L064-03	1	NA	12/16/1917:38	12/16/1913:14	M47L007018	M47L007	19HGL006W	Field Sample
OU2-FD03-GW120719	L064-04	1	NA	12/16/1917:40	12/16/1913:14	M47L007019	M47L007	19HGL006W	Field Sample
OU2-MW15S-GW120719	L064-06	1	NA	12/16/1917:43	12/16/1913:14	M47L007020	M47L007	19HGL006W	Field Sample
OU2-MW15D-GW120719	L064-07	1	NA	12/16/1917:47	12/16/1913:14	M47L007022	M47L007	19HGL006W	Field Sample
OU2-MW15D-GW120719MS	L064-07M	1	NA	12/16/1917:58	12/16/1913:14	M47L007026	M47L007	19HGL006W	Matrix Spike Sample (MS)
OU2-MW15D-GW120719MSD	L064-07S	1	NA	12/16/1918:01	12/16/1913:14	M47L007027	M47L007	19HGL006W	MS Duplicate (MSD)
OU2-MW03RA-GW120719	L064-08	1	NA	12/16/1918:03	12/16/1913:14	M47L007028	M47L007	19HGL006W	Field Sample
OU2-MW03RB-GW120819	L064-09	1	NA	12/16/1918:06	12/16/1913:14	M47L007029	M47L007	19HGL006W	Field Sample
OU2-MW03RD-GW120719	L064-10	1	NA	12/16/1918:08	12/16/1913:14	M47L007030	M47L007	19HGL006W	Field Sample
OU2-MW17D-GW120819	L064-11	1	NA	12/16/1918:10	12/16/1913:14	M47L007031	M47L007	19HGL006W	Field Sample
OU2-MW17S-GW120819	L064-12	1	NA	12/16/1918:13	12/16/1913:14	M47L007032	M47L007	19HGL006W	Field Sample
OU2-FD02-GW120819	L064-14	1	NA	12/16/1918:15	12/16/1913:14	M47L007033	M47L007	19HGL006W	Field Sample
OU2-MW08C-GW120819	L064-15	1	NA	12/16/1918:18	12/16/1913:14	M47L007034	M47L007	19HGL006W	Field Sample
OU2-MW08A-GW120819	L064-17	1	NA	12/16/1918:24	12/16/1913:14	M47L007037	M47L007	19HGL006W	Field Sample
OU2-MW14S-GW120719	L064-18	1	NA	12/16/1918:27	12/16/1913:14	M47L007038	M47L007	19HGL006W	Field Sample
OU2-MW05R-GW120819	L064-20	1	NA	12/16/1918:30	12/16/1913:14	M47L007039	M47L007	19HGL006W	Field Sample
OU2-MW08B-GW120819	L064-21	1	NA	12/16/1918:32	12/16/1913:14	M47L007040	M47L007	19HGL006W	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD SW7470A
MERCURY BY COLD VAPOR

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L064

Matrix : WATER
InstrumentID : 47

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DILT'N FACTOR	MOIST (%)	RL (ug/L)	MDL (ug/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	HGL006WB	ND	1	NA	0.500	0.100	12/16/1917:23	12/16/1913:14	M47L007013	M47L007	19HGL006W	NA	NA
LCS1W	HGL006WL	2.43	1	NA	0.500	0.100	12/16/1917:26	12/16/1913:14	M47L007014	M47L007	19HGL006W	NA	NA
LCD1W	HGL006WC	2.34	1	NA	0.500	0.100	12/16/1917:29	12/16/1913:14	M47L007015	M47L007	19HGL006W	NA	NA
OU2-MW01D-GW120619	L064-01	ND	1	NA	0.500	0.100	12/16/1917:32	12/16/1913:14	M47L007016	M47L007	19HGL006W	12/06/1916:05	12/10/19
OU2-MW14D-GW120719	L064-02	ND	1	NA	0.500	0.100	12/16/1917:35	12/16/1913:14	M47L007017	M47L007	19HGL006W	12/07/1913:05	12/10/19
OU2-MW03RC-GW120719	L064-03	ND	1	NA	0.500	0.100	12/16/1917:38	12/16/1913:14	M47L007018	M47L007	19HGL006W	12/07/1911:40	12/10/19
OU2-FD03-GW120719	L064-04	ND	1	NA	0.500	0.100	12/16/1917:40	12/16/1913:14	M47L007019	M47L007	19HGL006W	12/07/1911:00	12/10/19
OU2-MW15S-GW120719	L064-06	ND	1	NA	0.500	0.100	12/16/1917:43	12/16/1913:14	M47L007020	M47L007	19HGL006W	12/07/1911:45	12/10/19
OU2-MW15D-GW120719	L064-07	ND	1	NA	0.500	0.100	12/16/1917:47	12/16/1913:14	M47L007022	M47L007	19HGL006W	12/07/1910:00	12/10/19
OU2-MW15D-GW120719MS	L064-07M	2.42	1	NA	0.500	0.100	12/16/1917:58	12/16/1913:14	M47L007026	M47L007	19HGL006W	12/07/1910:00	12/10/19
OU2-MW15D-GW120719MSD	L064-07S	2.45	1	NA	0.500	0.100	12/16/1918:01	12/16/1913:14	M47L007027	M47L007	19HGL006W	12/07/1910:00	12/10/19
OU2-MW03RA-GW120719	L064-08	ND	1	NA	0.500	0.100	12/16/1918:03	12/16/1913:14	M47L007028	M47L007	19HGL006W	12/07/1910:00	12/10/19
OU2-MW03RB-GW120819	L064-09	ND	1	NA	0.500	0.100	12/16/1918:06	12/16/1913:14	M47L007029	M47L007	19HGL006W	12/08/1914:50	12/10/19
OU2-MW03RD-GW120719	L064-10	ND	1	NA	0.500	0.100	12/16/1918:08	12/16/1913:14	M47L007030	M47L007	19HGL006W	12/07/1914:50	12/10/19
OU2-MW17D-GW120819	L064-11	ND	1	NA	0.500	0.100	12/16/1918:10	12/16/1913:14	M47L007031	M47L007	19HGL006W	12/08/1911:05	12/10/19
OU2-MW17S-GW120819	L064-12	ND	1	NA	0.500	0.100	12/16/1918:13	12/16/1913:14	M47L007032	M47L007	19HGL006W	12/08/1910:00	12/10/19
OU2-FD02-GW120819	L064-14	ND	1	NA	0.500	0.100	12/16/1918:15	12/16/1913:14	M47L007033	M47L007	19HGL006W	12/08/1912:20	12/10/19
OU2-MW08C-GW120819	L064-15	ND	1	NA	0.500	0.100	12/16/1918:18	12/16/1913:14	M47L007034	M47L007	19HGL006W	12/08/1909:55	12/10/19
OU2-MW08A-GW120819	L064-17	ND	1	NA	0.500	0.100	12/16/1918:24	12/16/1913:14	M47L007037	M47L007	19HGL006W	12/08/1912:15	12/10/19
OU2-MW14S-GW120719	L064-18	ND	1	NA	0.500	0.100	12/16/1918:27	12/16/1913:14	M47L007038	M47L007	19HGL006W	12/07/1914:10	12/10/19
OU2-MW05R-GW120819	L064-20	ND	1	NA	0.500	0.100	12/16/1918:30	12/16/1913:14	M47L007039	M47L007	19HGL006W	12/08/1910:15	12/10/19
OU2-MW08B-GW120819	L064-21	ND	1	NA	0.500	0.100	12/16/1918:32	12/16/1913:14	M47L007040	M47L007	19HGL006W	12/08/1911:05	12/10/19

Note: Detection limits are reported relative to sample result significant figures.

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : METHOD SW7470A

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: HGL006WB	HGL006WL	HGL006WC
LAB FILE ID	: M47L007013	M47L007014	M47L007015
DATE PREPARED	: 12/16/1913:14	12/16/1913:14	12/16/1913:14
DATE ANALYZED	: 12/16/1917:23	12/16/1917:26	12/16/1917:29
PREP BATCH	: 19HGL006W	19HGL006W	19HGL006W
CALIBRATION REF	: M47L007	M47L007	M47L007

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Mercury	ND	2.50	2.43	97	2.50	2.34	94	4	80-120	20

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : METHOD SW7470A

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: OU2-MW15D-GW120719	OU2-MW15D-GW120719MS	OU2-MW15D-GW120719MSD
LAB SAMPLE ID	: L064-07	L064-07M	L064-07S
LAB FILE ID	: M47L007022	M47L007026	M47L007027
DATE PREPARED	: 12/16/1913:14	12/16/1913:14	12/16/1913:14
DATE ANALYZED	: 12/16/1917:47	12/16/1917:58	12/16/1918:01
PREP BATCH	: 19HGL006W	19HGL006W	19HGL006W
CALIBRATION REF	: M47L007	M47L007	M47L007

ACCESSION:

PARAMETERS	PSResult (ug/L)	SpikeAmt (ug/L)	MSResult (ug/L)	MSRec (%)	SpikeAmt (ug/L)	MSDResult (ug/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Mercury	ND	2.50	2.42	97	2.50	2.45	98	1	80-120	20

PS: Parent Sample MS: Matrix Spike MSD: Matrix Spike Duplicate

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 12/16/19 **Start Time:** 16:53

End Date: 12/16/19 **End Time:** 19:05

Comments: QC OK

L100-04J Inadvertently not analyzed. However, MS/MSD ~~within control.~~ within control. JA 12/16/19

Book #:	A47-118
Instrument No.:	47
Analytical Sequence/Batch:	HG.L007
Method File:	HG1
Micropipette ID:	☐ 339342032
Micropipette ID:	☑ HG-03
Micropipette ID:	☑ 742781062
Micropipette ID:	☑ HG-06
Micropipette ID:	☐

SOP #	Rev. #
☑ EMAX-7470	8
☐ EMAX-7471	9
☐ EMAX-245.1	4
☐ EMAX-	

STANDARDS ID	
S1	BLANK
S2	SM3B-18-38-07
S3	
S4	
S5	
S6	
CCV	
ICV	SM3B-18-38-08
LCS	
Analytical Spike	
	SM3B-18-38-09 TV 3µg/L

Analyzed By: JA

Date: 12/16/19

Disposed By:

Date:

"M47L007"

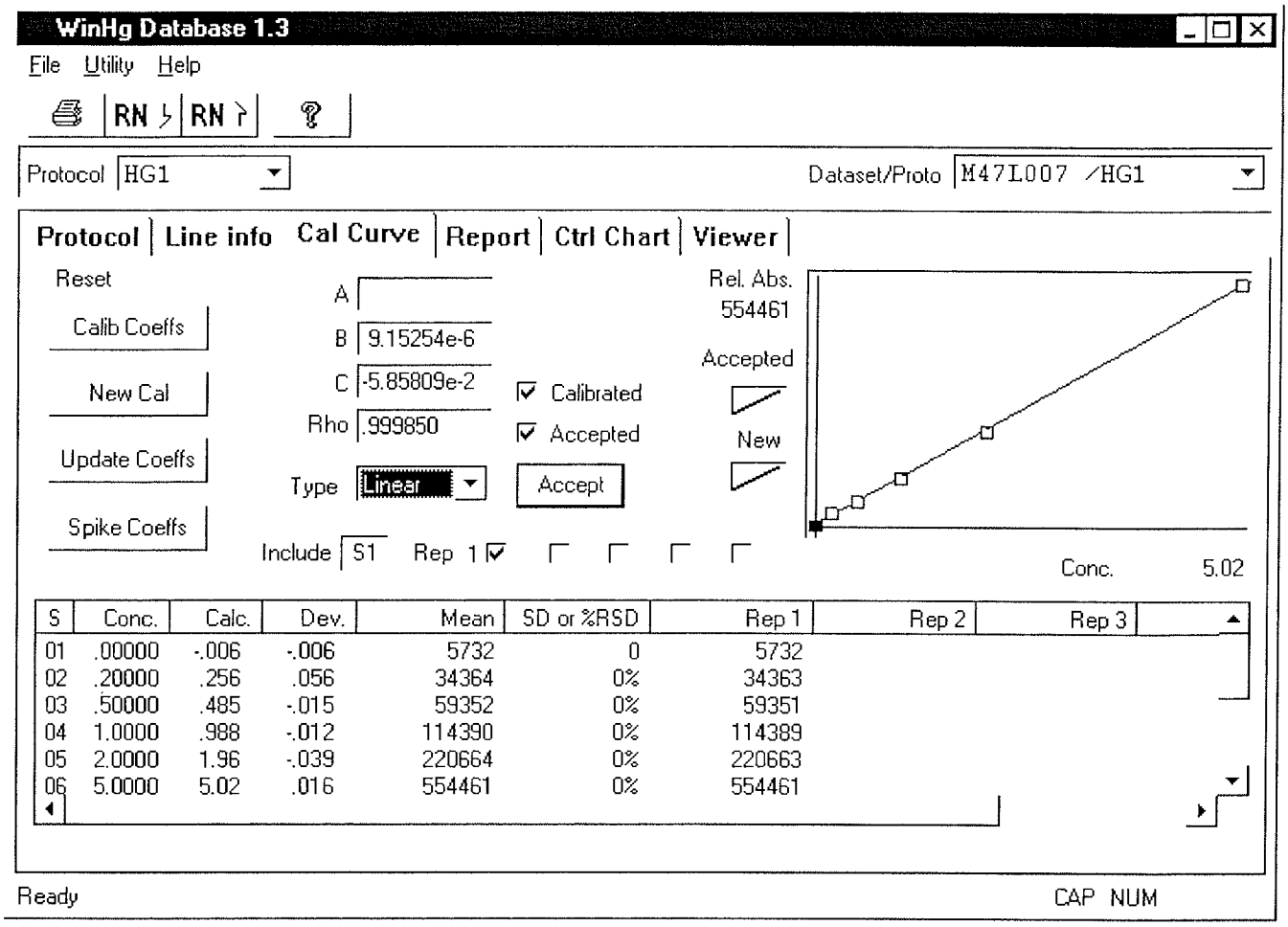
EMAX1fid	EMAXlsid	conc	Raw_resp	rsd/rf	adatetime	DF
M47L007001	STD01REP1	0	5732		12/16/1916:53	1
M47L007002	STD02REP1	.2	34363		12/16/1916:55	1
M47L007003	STD03REP1	.5	59351		12/16/1916:58	1
M47L007004	STD04REP1	1	114389		12/16/1917:00	1
M47L007005	STD05REP1	2	220663		12/16/1917:03	1
M47L007006	STD06REP1	5	554461		12/16/1917:05	1
M47L007007	ICV	1.99	223788	0	12/16/1917:09	1
M47L007008	ICB	-.019	4339	0	12/16/1917:11	1
M47L007009	MRLL1601	.603	72288	0	12/16/1917:14	1
M47L007010	MRLL1601	.52	63201	0	12/16/1917:16	1
M47L007011	CCV1	2.01	225900	0	12/16/1917:19	1
M47L007012	CCB1	.005	6924	0	12/16/1917:21	1
M47L007013	HGL006WB	-.002	6196	0	12/16/1917:23	1
M47L007014	HGL006WL	2.43	271693	0	12/16/1917:26	1
M47L007015	HGL006WC	2.34	261788	0	12/16/1917:29	1
M47L007016	L064-01	.002	6600	0	12/16/1917:32	1
M47L007017	L064-02	.011	7590	0	12/16/1917:35	1
M47L007018	L064-03	-.086	-2970	0	12/16/1917:38	1
M47L007019	L064-04	.004	6848	0	12/16/1917:40	1
M47L007020	L064-06	-.011	5174	0	12/16/1917:43	1
M47L007021	L064-07A	3.1	344832	0	12/16/1917:45	1
M47L007022	L064-07	.092	16479	0	12/16/1917:47	1
M47L007023	CCV2	2.01	225874	0	12/16/1917:51	1
M47L007024	CCB2	-.033	2759	0	12/16/1917:54	1
M47L007025	L064-07J	.022	8813	0	12/16/1917:56	5
M47L007026	L064-07M	2.42	270530	0	12/16/1917:58	1
M47L007027	L064-07S	2.45	274034	0	12/16/1918:01	1
M47L007028	L064-08	.033	10014	0	12/16/1918:03	1
M47L007029	L064-09	-.01	5276	0	12/16/1918:06	1
M47L007030	L064-10	.021	8746	0	12/16/1918:08	1
M47L007031	L064-11	-.011	5191	0	12/16/1918:10	1
M47L007032	L064-12	.04	10795	0	12/16/1918:13	1
M47L007033	L064-14	-.006	5714	0	12/16/1918:15	1
M47L007034	L064-15	.022	8827	0	12/16/1918:18	1
M47L007035	CCV3	1.99	223349	0	12/16/1918:20	1
M47L007036	CCB3	-.061	-211	0	12/16/1918:22	1
M47L007037	L064-17	.02	8601	0	12/16/1918:24	1
M47L007038	L064-18	.039	10610	0	12/16/1918:27	1
M47L007039	L064-20	.065	13544	0	12/16/1918:30	1
M47L007040	L064-21	.01	7522	0	12/16/1918:32	1
M47L007041	HGL007WB	.059	12847	0	12/16/1918:34	1
M47L007042	HGL007WL	2.46	274700	0	12/16/1918:37	1
M47L007043	HGL007WC	2.48	277210	0	12/16/1918:39	1
M47L007044	L100-01	.009	7401	0	12/16/1918:41	1
M47L007045	L100-02	.012	7670	0	12/16/1918:43	1
M47L007046	L100-03	-.057	223	0	12/16/1918:46	1
M47L007047	CCV4	1.95	219385	0	12/16/1918:48	1
M47L007048	CCB4	.032	9927	0	12/16/1918:51	1
M47L007049	L100-04A	3.01	335536	0	12/16/1918:53	1
M47L007050	L100-04	-.005	5840	0	12/16/1918:55	1
M47L007051	L100-04M	2.59	289141	0	12/16/1918:57	1
M47L007052	L100-04S	2.62	292645	0	12/16/1919:00	1
M47L007053	CCV5	2.02	227605	0	12/16/1919:02	1
M47L007054	CCB5	-.009	5392	0	12/16/1919:05	1
**********	**********	**********	**********	**********	**********	***
EMAX1fid	EMAXlsid	Xint	Yint	rrf	adatetime	DF
M47L007000		0	0	0	12/16/1919:05	1
M47L007001	BLANK	-5.903463E-02	6448.143	.9998496	12/16/1919:05	1

* M47 L007 *

cup	sample ID	extended ID	weight	volume	? A D F P S U SC UI US C1..7
1	ICV		1.0000	1.0000	
2	ICB		1.0000	1.0000	
3	MRLL1601	0.5	1.0000	1.0000	
4	CCV1		1.0000	1.0000	
5	CCB1		1.0000	1.0000	
6	HGL006WB		1.0000	1.0000	
7	HGL006WL		1.0000	1.0000	
8	HGL006WC		1.0000	1.0000	
9	L064-01		1.0000	1.0000	
10	L064-02		1.0000	1.0000	
11	L064-03		1.0000	1.0000	
12	L064-04		1.0000	1.0000	
13	L064-06		1.0000	1.0000	
14	L064-07A		1.0000	1.0000	
15	L064-07		1.0000	1.0000	
16	CCV2		1.0000	1.0000	
17	CCB2		1.0000	1.0000	
18	L064-07J	5X	1.0000	1.0000	
19	L064-07M		1.0000	1.0000	
20	L064-07S		1.0000	1.0000	
21	L064-08		1.0000	1.0000	
22	L064-09		1.0000	1.0000	
23	L064-10		1.0000	1.0000	
24	L064-11		1.0000	1.0000	
25	L064-12		1.0000	1.0000	
26	L064-14		1.0000	1.0000	
27	L064-15		1.0000	1.0000	
28	CCV3		1.0000	1.0000	
29	CCB3		1.0000	1.0000	
30	L064-17		1.0000	1.0000	
31	L064-18		1.0000	1.0000	
32	L064-20		1.0000	1.0000	
33	L064-21		1.0000	1.0000	
34	HGL007WB		1.0000	1.0000	
35	HGL007WL		1.0000	1.0000	
36	HGL007WC		1.0000	1.0000	
37	L100-01		1.0000	1.0000	
38	L100-02		1.0000	1.0000	
39	L100-03		1.0000	1.0000	
40	CCV4		1.0000	1.0000	
41	CCB4		1.0000	1.0000	
42	L100-04A		1.0000	1.0000	
43	L100-04		1.0000	1.0000	
44	L100-04J	5X	1.0000	1.0000	

* M47 L007 *

cup	sample ID	extended ID	weight	volume	? A D F P S U SC UI US C1..7
1	L100-04M		1.0000	1.0000	
2	L100-04S		1.0000	1.0000	
3	CCV5		1.0000	1.0000	
4	CCB5		1.0000	1.0000	
5			1.0000	1.0000	
6			1.0000	1.0000	
7			1.0000	1.0000	
8			1.0000	1.0000	
9			1.0000	1.0000	
10			1.0000	1.0000	
11			1.0000	1.0000	
12			1.0000	1.0000	
13			1.0000	1.0000	
14			1.0000	1.0000	
15			1.0000	1.0000	
16			1.0000	1.0000	
17			1.0000	1.0000	
18			1.0000	1.0000	
19			1.0000	1.0000	
20			1.0000	1.0000	
21			1.0000	1.0000	
22			1.0000	1.0000	
23			1.0000	1.0000	
24			1.0000	1.0000	
25			1.0000	1.0000	
26			1.0000	1.0000	
27			1.0000	1.0000	
28			1.0000	1.0000	
29			1.0000	1.0000	
30			1.0000	1.0000	
31			1.0000	1.0000	
32			1.0000	1.0000	
33			1.0000	1.0000	
34			1.0000	1.0000	
35			1.0000	1.0000	
36			1.0000	1.0000	
37			1.0000	1.0000	
38			1.0000	1.0000	
39			1.0000	1.0000	
40			1.0000	1.0000	
41			1.0000	1.0000	
42			1.0000	1.0000	
43			1.0000	1.0000	
44			1.0000	1.0000	


WinHg Database 1.3
File Utility Help
RN
RN
Protocol HG1
Dataset/Proto M47L007 /HG1
Protocol
Line info
Cal Curve
Report
Ctrl Chart
Viewer
Reset
Calib Coeffs
New Cal
Update Coeffs
Spike Coeffs
A
B 9.15254e-6
C -5.85809e-2
Rho .999850
Type Linear
Calibrated
Accepted
Accept
Include S1
Rep 1
Rel. Abs.
554461
Accepted
New
Conc. 5.02
S Conc. Calc. Dev. Mean SD or %RSD Rep 1 Rep 2 Rep 3
01 .00000 -.006 -.006 5732 0 5732
02 .20000 .256 .056 34364 0% 34363
03 .50000 .485 -.015 59352 0% 59351
04 1.0000 .988 -.012 114390 0% 114389
05 2.0000 1.96 -.039 220664 0% 220663
06 5.0000 5.02 .016 554461 0% 554461
Ready
CAP NUM

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 1 Rep: 1				Seq: 1	16:53:14 16 Dec 19	HG		
Hg	.000	ppb	5732					
*** Standard: 2 Rep: 1				Seq: 2	16:55:30 16 Dec 19	HG		
Hg	.200	ppb	34363					
*** Standard: 3 Rep: 1				Seq: 3	16:58:23 16 Dec 19	HG		
Hg	.500	ppb	59351					
*** Standard: 4 Rep: 1				Seq: 4	17:00:47 16 Dec 19	HG		
Hg	1.00	ppb	114389					
*** Standard: 5 Rep: 1				Seq: 5	17:03:00 16 Dec 19	HG		
Hg	2.00	ppb	220663					
*** Standard: 6 Rep: 1				Seq: 6	17:05:21 16 Dec 19	HG		
Hg	5.00	ppb	554461					
*** Sample ID: ICV				Seq: 7	17:09:27 16 Dec 19	HG		
Hg	1.99	ppb	223788					
*** Sample ID: ICB				Seq: 8	17:11:39 16 Dec 19	HG		
Hg	-.019	ppb	4339					
*** Sample ID: MRLL1601				Seq: 9	17:14:04 16 Dec 19	HG		
			0.5					
Hg	.603	ppb	72288					
*** Sample ID: MRLL1601				Seq: 10	17:16:41 16 Dec 19	HG		
			0.5					
Hg	.520	ppb	63201					
*** Sample ID: CCV1				Seq: 11	17:19:11 16 Dec 19	HG		
Hg	2.01	ppb	225900					
*** Sample ID: CCB1				Seq: 12	17:21:25 16 Dec 19	HG		
Hg	.005	ppb	6924					
*** Sample ID: HGL006WB				Seq: 13	17:23:50 16 Dec 19	HG		
Hg	-.002	ppb	6196					
*** Sample ID: HGL006WL				Seq: 14	17:26:56 16 Dec 19	HG		
Hg	2.43	ppb	271693					
*** Sample ID: HGL006WC				Seq: 15	17:29:37 16 Dec 19	HG		
Hg	2.34	ppb	261788					

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: L064-01				Seq: 16	17:32:38 16 Dec 19	HG		
Hg	.002	ppb	6600					
*** Sample ID: L064-02				Seq: 17	17:35:28 16 Dec 19	HG		
Hg	.011	ppb	7590					
*** Sample ID: L064-03				Seq: 18	17:38:22 16 Dec 19	HG		
Hg	-.086	ppb	-2970					
*** Sample ID: L064-04				Seq: 19	17:40:54 16 Dec 19	HG		
Hg	.004	ppb	6848					
*** Sample ID: L064-06				Seq: 20	17:43:07 16 Dec 19	HG		
Hg	-.011	ppb	5174					
*** Sample ID: L064-07A				Seq: 21	17:45:16 16 Dec 19	HG		
Hg	3.10	ppb	344832					
*** Sample ID: L064-07				Seq: 22	17:47:36 16 Dec 19	HG		
Hg	.092	ppb	16479					
*** Sample ID: CCV2				Seq: 23	17:51:41 16 Dec 19	HG		
Hg	2.01	ppb	225874					
*** Sample ID: CCB2				Seq: 24	17:54:01 16 Dec 19	HG		
Hg	-.033	ppb	2759					
*** Sample ID: L064-07J				Seq: 25	17:56:27 16 Dec 19	HG		
			5X					
Hg	.022	ppb	8813					
*** Sample ID: L064-07M				Seq: 26	17:58:41 16 Dec 19	HG		
Hg	2.42	ppb	270530					
*** Sample ID: L064-07S				Seq: 27	18:01:24 16 Dec 19	HG		
Hg	2.45	ppb	274034					
*** Sample ID: L064-08				Seq: 28	18:03:57 16 Dec 19	HG		
Hg	.033	ppb	10014					
*** Sample ID: L064-09				Seq: 29	18:06:09 16 Dec 19	HG		
Hg	-.010	ppb	5276					
*** Sample ID: L064-10				Seq: 30	18:08:41 16 Dec 19	HG		
Hg	.021	ppb	8746					

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: L064-11				Seq: 31	18:10:57 16 Dec 19	HG		
Hg	-.011	ppb	5191					
*** Sample ID: L064-12				Seq: 32	18:13:37 16 Dec 19	HG		
Hg	.040	ppb	10795					
*** Sample ID: L064-14				Seq: 33	18:15:57 16 Dec 19	HG		
Hg	-.006	ppb	5714					
*** Sample ID: L064-15				Seq: 34	18:18:11 16 Dec 19	HG		
Hg	.022	ppb	8827					
*** Sample ID: CCV3				Seq: 35	18:20:23 16 Dec 19	HG		
Hg	1.99	ppb	223349					
*** Sample ID: CCB3				Seq: 36	18:22:38 16 Dec 19	HG		
Hg	-.061	ppb	-211					
*** Sample ID: L064-17				Seq: 37	18:24:53 16 Dec 19	HG		
Hg	.020	ppb	8601					
*** Sample ID: L064-18				Seq: 38	18:27:46 16 Dec 19	HG		
Hg	.039	ppb	10610					
*** Sample ID: L064-20				Seq: 39	18:30:07 16 Dec 19	HG		
Hg	.065	ppb	13544					
*** Sample ID: L064-21				Seq: 40	18:32:18 16 Dec 19	HG		
Hg	.010	ppb	7522					
*** Sample ID: HGL007WB				Seq: 41	18:34:39 16 Dec 19	HG		
Hg	.059	ppb	12847					
*** Sample ID: HGL007WL				Seq: 42	18:37:01 16 Dec 19	HG		
Hg	2.46	ppb	274700					
*** Sample ID: HGL007WC				Seq: 43	18:39:11 16 Dec 19	HG		
Hg	2.48	ppb	277210					
*** Sample ID: L100-01				Seq: 44	18:41:32 16 Dec 19	HG		
Hg	.009	ppb	7401					
*** Sample ID: L100-02				Seq: 45	18:43:45 16 Dec 19	HG		
Hg	.012	ppb	7670					

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: L100-03				Seq: 46	18:46:02 16 Dec 19		HG	
Hg	-.057	ppb	223					
*** Sample ID: CCV4				Seq: 47	18:48:15 16 Dec 19		HG	
Hg	1.95	ppb	219385					
*** Sample ID: CCB4				Seq: 48	18:51:01 16 Dec 19		HG	
Hg	.032	ppb	9927					
*** Sample ID: L100-04A				Seq: 49	18:53:17 16 Dec 19		HG	
Hg	3.01	ppb	335536					
*** Sample ID: L100-04				Seq: 50	18:55:39 16 Dec 19		HG	
Hg	-.005	ppb	5840					
*** Sample ID: L100-04M				Seq: 51	18:57:50 16 Dec 19		HG	
Hg	2.59	ppb	289141					
*** Sample ID: L100-04S				Seq: 52	19:00:00 16 Dec 19		HG	
Hg	2.62	ppb	292645					
*** Sample ID: CCV5				Seq: 53	19:02:12 16 Dec 19		HG	
Hg	2.02	ppb	227605					
*** Sample ID: CCB5				Seq: 54	19:05:05 16 Dec 19		HG	
Hg	-.009	ppb	5392					

EMAX LABORATORIES, INC.

DIGESTION LOG
for
MERCURY

Note: For samples, relevant QCs/Standards digested, refer to attached digestion sequence.

Comments: SAMPLES PH = <2

Digestion Vessel Lot #: 04119002

Aqua Regia Prep. Vessel Lot#: N/A

Book #: E47-113

Batch No.: HGL006W

Matrix: WATER

SOP #	Rev. #
☑ EMAX-7470	8
☐ EMAX-7471	9
☐ EMAX-245.1	4
☐ EMAX-	

Standards	ID	Conc. (µg/L)	Amount Added (ml)
ICAL	SM3β-1838-07	50	0.2, 0.5, 1, 2.5
CCV	↓	|	2
ICV	SM3β-1838-08	|	2
LCS/MS	↓	↓	2.5

Reagent	ID / Lot #
HNO_3	S-WIA-08-18-09
HCl	N/A
H_2SO_4	S-WIA-08-16-04
$KMnO_4$	SM5β-04-11-03
$K_2S_2O_8$	SM5β-04-10-01
$NH_2OH \cdot HCl \cdot NaCl$	SM5β-04-10-03
$SnCl_2$	SM5β-04-11-04
Silica Sand	N/A
Reagent Water	RWI-19-002
pH strip 0-14	HC857466
Digestor ID/ Temp (°C)	A-95.1 B-95.1
Thermometer ID/LOC:	192272438 A-B4
Thermometer ID/LOC:	192832081 B-10
Pipette ID:	HG-05, HG-06-339342032

☐ H_2SO_4 dispenser checked @ 2.5 ml with Class A graduated cylinder

☐ HCl dispenser checked @ ___ ml with Class A graduated cylinder

☐ HNO_3 dispenser checked @ ___ ml with Class A graduated cylinder

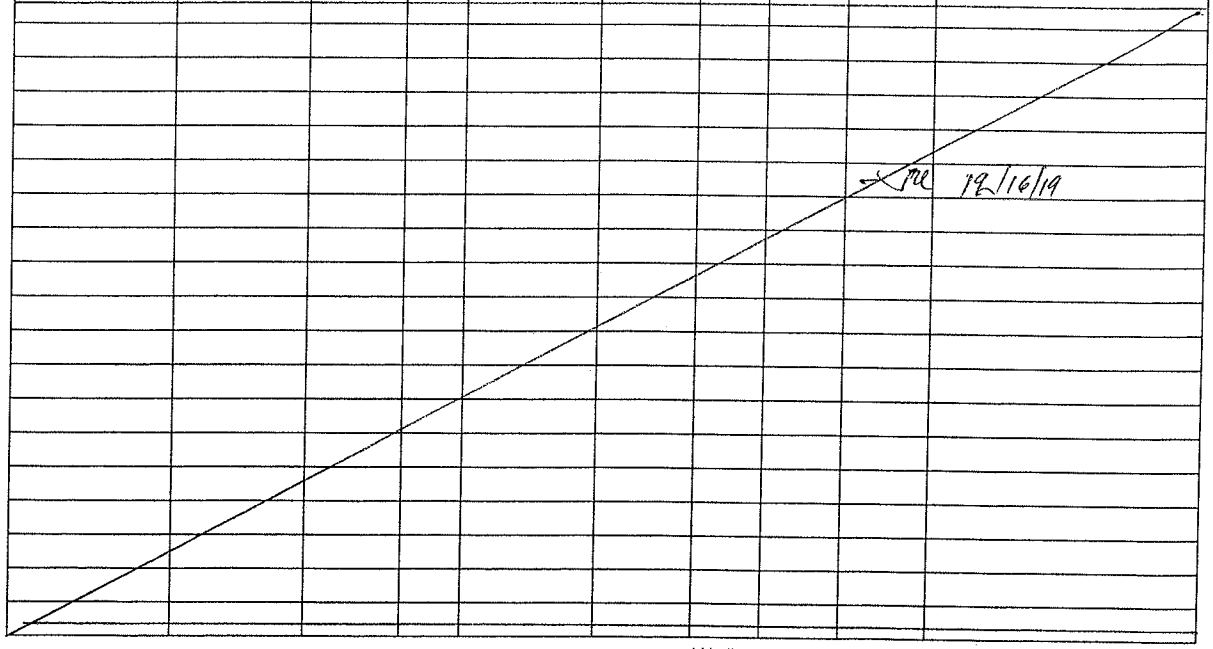
Prepared By: JW

Standard Added By: JW Witnessed By: NT

EMAX LABORATORIES

DIGESTION LOG FOR MERCURY

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Vd(ml)	ExpAmt	ExpVd(ml)	PrepFctr	Comments
19HGL006W01	HGL006WB	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W02	HGL006WL	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W03	HGL006WC	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W04	L064-01	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W05	L064-02	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W06	L064-03	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W07	L064-04	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W08	L064-06	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W09	L064-07	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W10	L064-07M	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W11	L064-07S	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W12	L064-08	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W13	L064-09	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W14	L064-10	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W15	L064-11	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W16	L064-12	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W17	L064-14	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W18	L064-15	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W19	L064-17	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W20	L064-18	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W21	L064-20	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W22	L064-21	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W23	S-0/CCB/ICB	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W24	S-0.2	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W25	S-0.5	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W26	S-1	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W27	S-2/CCV	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W28	S-5	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W29	ICV	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W30	PS H2O	50	ml	12/16/19 11:16	80	50	80	1	
19HGL006W31	MRL-0.5	50	ml	12/16/19 11:49	80	50	80	1	



Vd=digestate volume PrepFctr=(ExpAmt/Aliquot)*(Vd/ExpVd)

☑ Digestion Started @ 12/16/19 13:14 Prepared By: JVille

☑ Digestion Ended @ 12/16/19 15:45 Checked By:

Comments: Date 12/16/19

SOP EMAX-7470 Rev. 8

LABORATORY REPORT FOR

CDM SMITH

VA SALT LAKE CITY

WET CHEMICAL ANALYSES

SDG#: 19L064

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L064

METHOD E300.0
CHLORIDE

A total of seventeen(17) water samples were received on 12/10/19 to be analyzed for Chloride in accordance with Method E300.0 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, three(3) method blanks were analyzed. ICL013WB, ICL015WB and ICL017WB were compliant to project requirement. Refer to sample result summary forms for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, three(3) sets of LCS/LCD were analyzed. ICL013WL/ICL013WC, ICL015WL/ICL015WC and ICL017WL/ICL017WC were within LCS limits. Refer to LCS summary forms for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. Chloride was within MS QC limits in L064-07KM/L064-07KS. Sample duplicate was analyzed and RPD was within expected value. Refer to Matrix QC summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L064

METHOD E300.0
SULFATE

A total of seventeen(17) water samples were received on 12/10/19 to be analyzed for Sulfate in accordance with Method E300.0 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Sulfate was not detected in ICL013WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. ICL013WL/ICL013WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. Sulfate was within MS QC limits in L064-07JM/L064-07JS. Sample duplicate was analyzed and RPD was within expected value. Refer to Matrix QC summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

SAMPLE RESULTS

METHOD E300.0
CHLORIDE

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L064

Matrix : WATER
InstrumentID : DO

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ICL013WB	ND	1	NA	0.2	0.05	12/12/1911:52	NA	AL13-03	AL13-01	ICL013W	NA	NA
LCS1W	ICL013WL	1.88	1	NA	0.2	0.05	12/12/1912:09	NA	AL13-04	AL13-01	ICL013W	NA	NA
LCD1W	ICL013WC	1.88	1	NA	0.2	0.05	12/12/1912:26	NA	AL13-05	AL13-01	ICL013W	NA	NA
OU2-MW03RC-GW120719	L064-03I	90.1	20	NA	4	1	12/12/1917:49	NA	AL13-15	AL13-13	ICL013W	12/07/1911:40	12/10/19
OU2-MW03RD-GW120719	L064-10I	86.5	20	NA	4	1	12/12/1919:30	NA	AL13-20	AL13-13	ICL013W	12/07/1914:50	12/10/19
OU2-MW08C-GW120819	L064-15I	54.6	20	NA	4	1	12/12/1920:38	NA	AL13-24	AL13-13	ICL013W	12/08/1909:55	12/10/19
OU2-MW15D-GW120719	L064-07K	316	200	NA	40	10	12/12/1922:37	NA	AL13-31	AL13-25	ICL013W	12/07/1910:00	12/10/19
OU2-MW15D-GW120719DUP	L064-07KD	314	200	NA	40	10	12/12/1922:55	NA	AL13-32	AL13-25	ICL013W	12/07/1910:00	12/10/19
OU2-MW15D-GW120719MS	L064-07KM	711	200	NA	40	10	12/12/1923:12	NA	AL13-33	AL13-25	ICL013W	12/07/1910:00	12/10/19
OU2-MW15D-GW120719MSD	L064-07KS	713	200	NA	40	10	12/12/1923:29	NA	AL13-34	AL13-25	ICL013W	12/07/1910:00	12/10/19
OU2-MW14D-GW120719	L064-02J	213	200	NA	40	10	12/13/1900:03	NA	AL13-36	AL13-25	ICL013W	12/07/1913:05	12/10/19
OU2-MW15S-GW120719	L064-06J	451	200	NA	40	10	12/13/1901:28	NA	AL13-41	AL13-37	ICL013W	12/07/1911:45	12/10/19
OU2-MW03RA-GW120719	L064-08J	440	200	NA	40	10	12/13/1901:45	NA	AL13-42	AL13-37	ICL013W	12/07/1910:00	12/10/19
OU2-MW03RB-GW120819	L064-09J	194	200	NA	40	10	12/13/1902:02	NA	AL13-43	AL13-37	ICL013W	12/08/1914:50	12/10/19
OU2-MW17D-GW120819	L064-11J	292	200	NA	40	10	12/13/1902:37	NA	AL13-45	AL13-37	ICL013W	12/08/1911:05	12/10/19
OU2-MW17S-GW120819	L064-12J	357	200	NA	40	10	12/13/1902:54	NA	AL13-46	AL13-37	ICL013W	12/08/1910:00	12/10/19
OU2-MW08A-GW120819	L064-17J	385	200	NA	40	10	12/13/1904:19	NA	AL13-51	AL13-49	ICL013W	12/08/1912:15	12/10/19
OU2-MW14S-GW120719	L064-18J	303	200	NA	40	10	12/13/1904:36	NA	AL13-52	AL13-49	ICL013W	12/07/1914:10	12/10/19
OU2-MW05R-GW120819	L064-20J	319	200	NA	40	10	12/13/1904:53	NA	AL13-53	AL13-49	ICL013W	12/08/1910:15	12/10/19
MBLK2W	ICL015WB	ND	1	NA	0.2	0.05	12/16/1915:57	NA	AL15-03	AL15-01	ICL015W	NA	NA
LCS2W	ICL015WL	1.85	1	NA	0.2	0.05	12/16/1916:14	NA	AL15-04	AL15-01	ICL015W	NA	NA
LCD2W	ICL015WC	1.84	1	NA	0.2	0.05	12/16/1916:37	NA	AL15-05	AL15-01	ICL015W	NA	NA
OU2-MW01D-GW120619	L064-01I	106	40	NA	8	2	12/16/1923:30	NA	AL15-29	AL15-25	ICL015W	12/06/1916:05	12/10/19
OU2-FD02-GW120819	L064-14I	116	40	NA	8	2	12/17/1900:04	NA	AL15-31	AL15-25	ICL015W	12/08/1912:20	12/10/19
OU2-MW08B-GW120819	L064-21I	114	40	NA	8	2	12/17/1900:21	NA	AL15-32	AL15-25	ICL015W	12/08/1911:05	12/10/19
MBLK3W	ICL017WB	ND	1	NA	0.2	0.05	12/17/1911:32	NA	AL17-03	AL17-01	ICL017W	NA	NA
LCS3W	ICL017WL	1.90	1	NA	0.2	0.05	12/17/1911:49	NA	AL17-04	AL17-01	ICL017W	NA	NA
LCD3W	ICL017WC	1.87	1	NA	0.2	0.05	12/17/1912:06	NA	AL17-05	AL17-01	ICL017W	NA	NA
OU2-FD03-GW120719	L064-04I	308	200	NA	40	10	12/17/1913:02	NA	AL17-06	AL17-01	ICL017W	12/07/1911:00	12/10/19

METHOD E300.0
SULFATE

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L064

Matrix : WATER
InstrumentID : DO

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ICL013WB	ND	1	NA	0.5	0.13	12/12/1911:52	NA	AL13-03	AL13-01	ICL013W	NA	NA
LCS1W	ICL013WL	4.69	1	NA	0.5	0.13	12/12/1912:09	NA	AL13-04	AL13-01	ICL013W	NA	NA
LCD1W	ICL013WC	4.70	1	NA	0.5	0.13	12/12/1912:26	NA	AL13-05	AL13-01	ICL013W	NA	NA
OU2-MW15D-GW120719	L064-07J	150	20	NA	10	2.6	12/12/1915:27	NA	AL13-07	AL13-01	ICL013W	12/07/1910:00	12/10/19
OU2-MW15D-GW120719MS	L064-07JM	247	20	NA	10	2.6	12/12/1915:45	NA	AL13-08	AL13-01	ICL013W	12/07/1910:00	12/10/19
OU2-MW15D-GW120719MSD	L064-07JS	247	20	NA	10	2.6	12/12/1916:02	NA	AL13-09	AL13-01	ICL013W	12/07/1910:00	12/10/19
OU2-MW15D-GW120719DUP	L064-07JD	151	20	NA	10	2.6	12/12/1916:19	NA	AL13-10	AL13-01	ICL013W	12/07/1910:00	12/10/19
OU2-MW01D-GW120619	L064-01I	151	20	NA	10	2.6	12/12/1916:36	NA	AL13-11	AL13-01	ICL013W	12/06/1916:05	12/10/19
OU2-MW14D-GW120719	L064-02I	104	20	NA	10	2.6	12/12/1916:53	NA	AL13-12	AL13-01	ICL013W	12/07/1913:05	12/10/19
OU2-MW03RC-GW120719	L064-03I	168	20	NA	10	2.6	12/12/1917:49	NA	AL13-15	AL13-13	ICL013W	12/07/1911:40	12/10/19
OU2-FD03-GW120719	L064-04I	161	20	NA	10	2.6	12/12/1918:06	NA	AL13-16	AL13-13	ICL013W	12/07/1911:00	12/10/19
OU2-MW15S-GW120719	L064-06I	152	20	NA	10	2.6	12/12/1918:29	NA	AL13-17	AL13-13	ICL013W	12/07/1911:45	12/10/19
OU2-MW03RA-GW120719	L064-08I	100	20	NA	10	2.6	12/12/1918:55	NA	AL13-18	AL13-13	ICL013W	12/07/1910:00	12/10/19
OU2-MW03RB-GW120819	L064-09I	111	20	NA	10	2.6	12/12/1919:13	NA	AL13-19	AL13-13	ICL013W	12/08/1914:50	12/10/19
OU2-MW03RD-GW120719	L064-10I	212	20	NA	10	2.6	12/12/1919:30	NA	AL13-20	AL13-13	ICL013W	12/07/1914:50	12/10/19
OU2-MW17D-GW120819	L064-11I	111	20	NA	10	2.6	12/12/1919:47	NA	AL13-21	AL13-13	ICL013W	12/08/1911:05	12/10/19
OU2-MW17S-GW120819	L064-12I	122	20	NA	10	2.6	12/12/1920:04	NA	AL13-22	AL13-13	ICL013W	12/08/1910:00	12/10/19
OU2-FD02-GW120819	L064-14I	137	20	NA	10	2.6	12/12/1920:21	NA	AL13-23	AL13-13	ICL013W	12/08/1912:20	12/10/19
OU2-MW08C-GW120819	L064-15I	163	20	NA	10	2.6	12/12/1920:38	NA	AL13-24	AL13-13	ICL013W	12/08/1909:55	12/10/19
OU2-MW08A-GW120819	L064-17I	105	20	NA	10	2.6	12/12/1921:29	NA	AL13-27	AL13-25	ICL013W	12/08/1912:15	12/10/19
OU2-MW14S-GW120719	L064-18I	109	20	NA	10	2.6	12/12/1921:46	NA	AL13-28	AL13-25	ICL013W	12/07/1914:10	12/10/19
OU2-MW05R-GW120819	L064-20I	94.4	20	NA	10	2.6	12/12/1922:03	NA	AL13-29	AL13-25	ICL013W	12/08/1910:15	12/10/19
OU2-MW08B-GW120819	L064-21I	139	20	NA	10	2.6	12/12/1922:20	NA	AL13-30	AL13-25	ICL013W	12/08/1911:05	12/10/19

Report date: 12/13/2019 12:06:51 PM
Printed by: LDip

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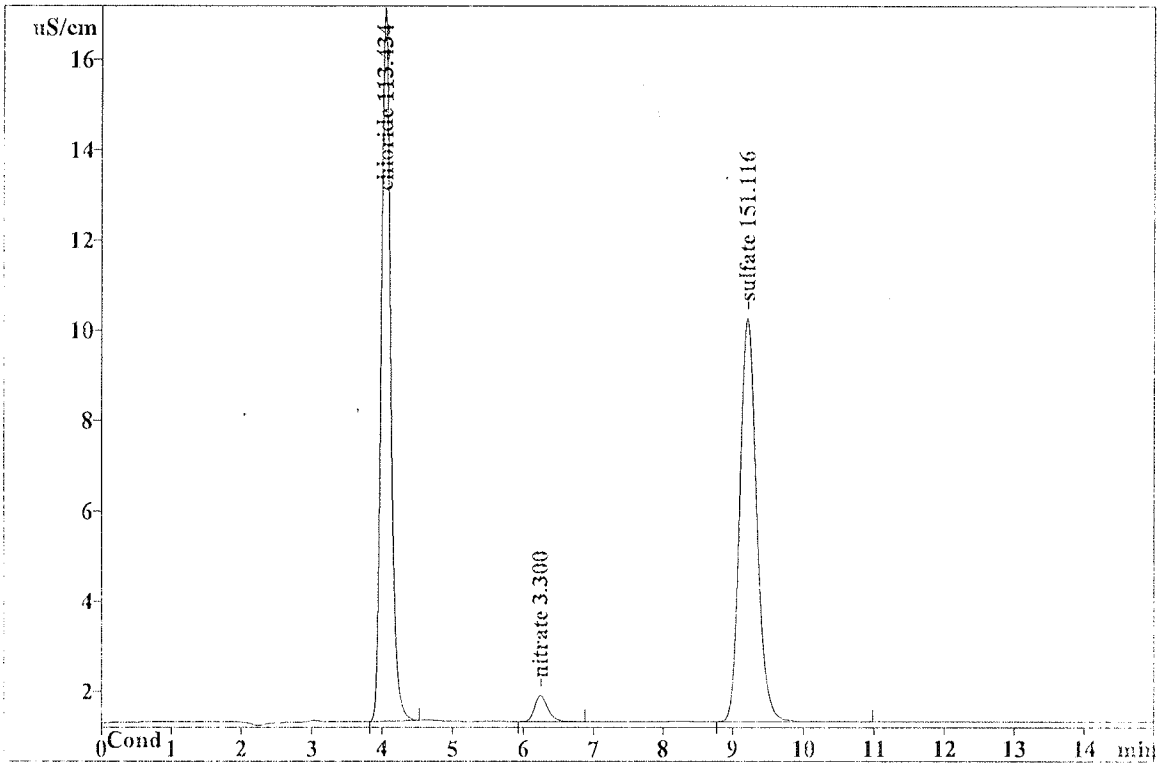
Analysis from: 12/12/2019 4:36:14 PM
File: _2019-12-12_16-36.chw Last save: 12/12/2019 4:51:11 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154238

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 11
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

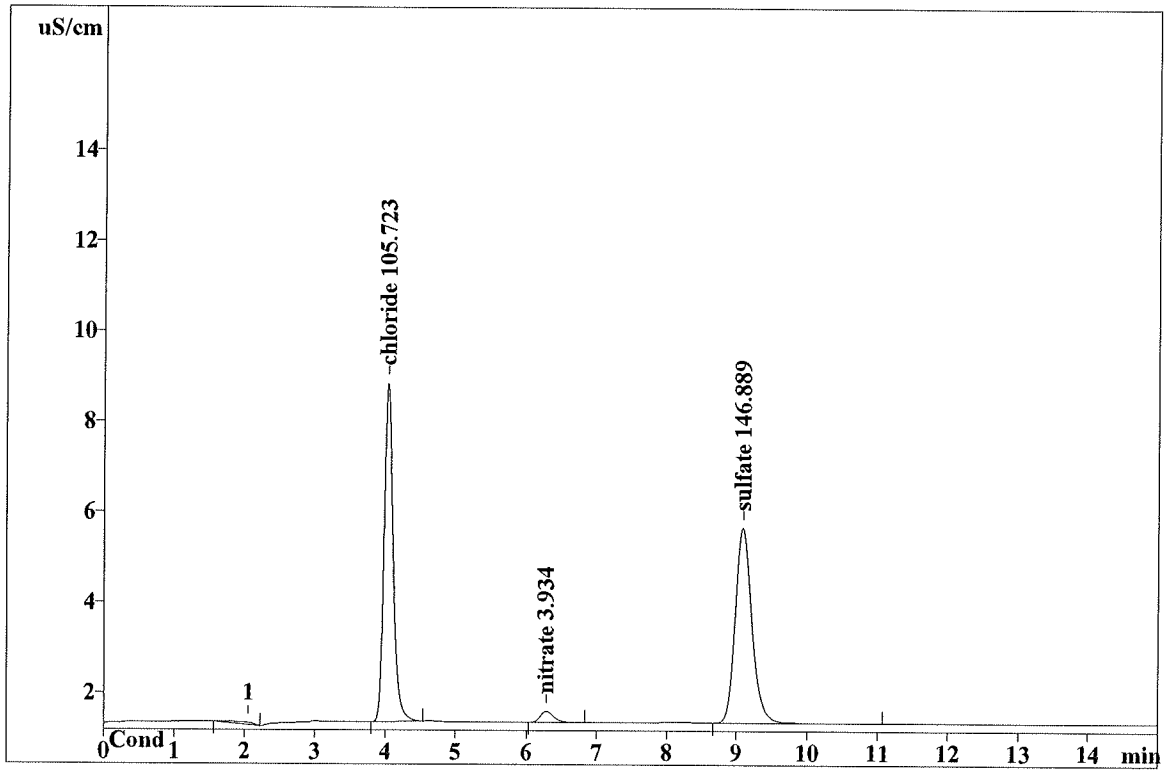
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.04	15.84	145.625	113.434	chloride
2	6.24	0.58	7.595	3.300	nitrate
3	9.20	8.92	148.428	151.116	sulfate
3	15.00	25.34	301.649	267.850	

This report has been created by IC Net
METROHM LTD

Report date: 12/17/2019 12:32:52 PM
Printed by: LDip

Ident: AL15-29 L064-01I DF=40
Analysis from: 12/16/2019 11:30:35 PM
File: _2019-12-16_23-30.chw Last save: 12/17/2019 12:15:07 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/16/2019 11:57:57 AM
Run operator: LDip
Analysis number: 154331

SAMPLE: METHOD300/9056/4110B
:
Vial number: 29
Volume: 1.0 µL
Dilution: 40.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.04	0.05	1.164	0.000	
2	4.03	7.49	66.664	105.723	chloride ✓
3	6.29	0.25	3.245	3.934	nitrate
4	9.08	4.32	69.970	146.889	sulfate
4	15.00	12.10	141.043	256.546	

This report has been created by IC Net
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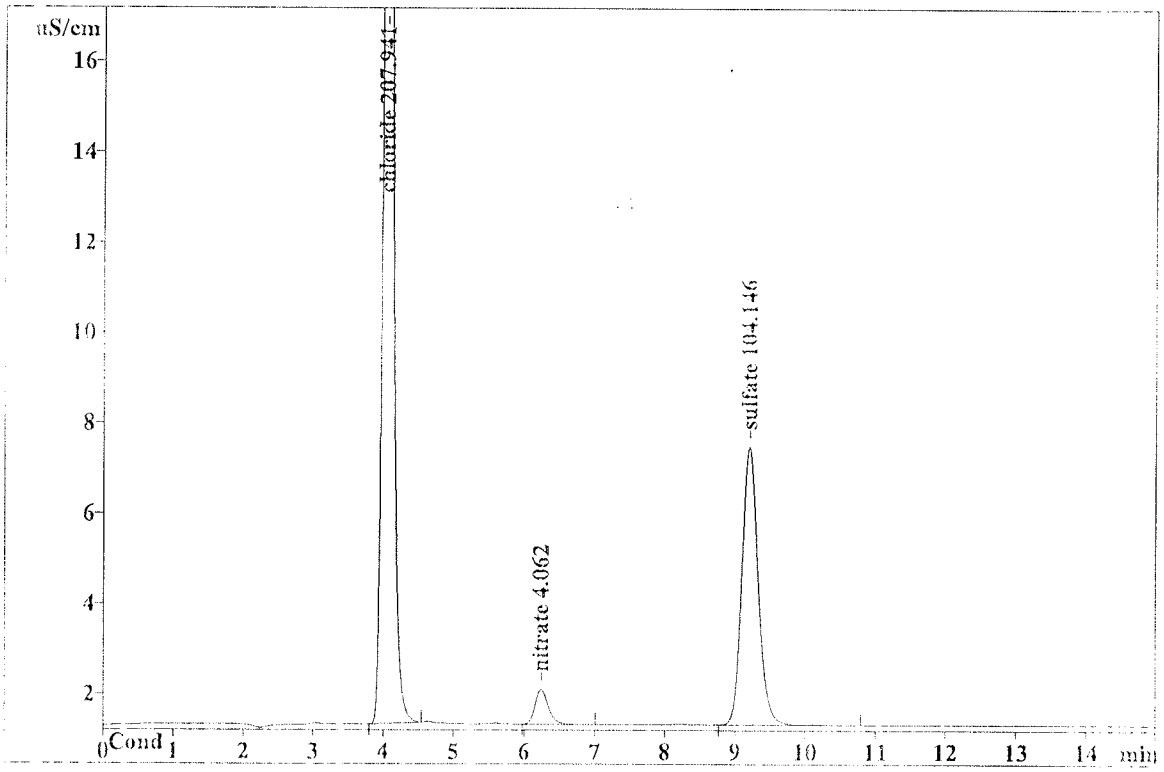
Report date: 12/13/2019 12:09:51 PM
Printed by: LDip

Ident: AL13-12 L064-02I DF=20
Analysis from: 12/12/2019 4:53:19 PM
File: _2019-12-12_16-53.chw Last save: 12/12/2019 5:08:16 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154239

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 12
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

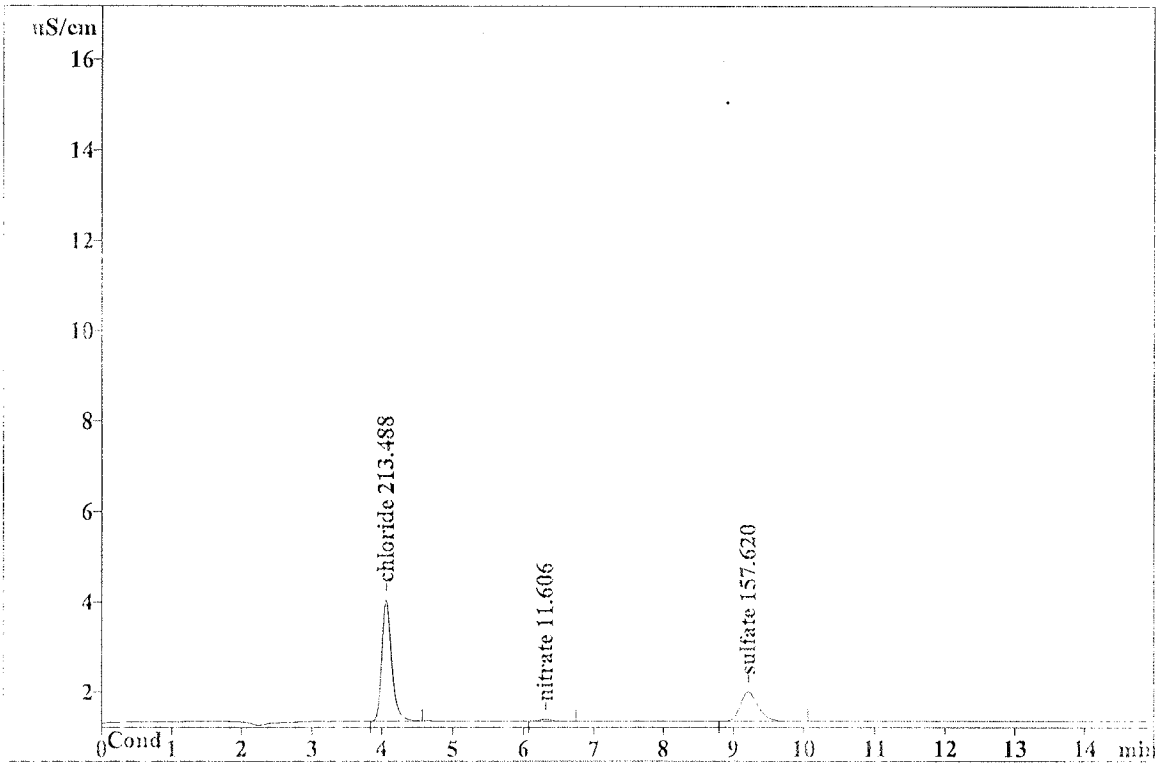
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.04	29.35	268.823	207.941	chloride
2	6.24	0.78	10.080	4.062	nitrate
3	9.19	6.14	100.983	104.146	sulfate✓
3	15.00	36.27	379.886	316.149	

This report has been created by IC Net
METROHM LTD

Report date: 12/16/2019 12:51:07 PM
Printed by: LDip

Ident: AL13-36 L064-02J DF=200
Analysis from: 12/13/2019 12:03:22 AM
File: _2019-12-13_00-03.chw Last save: 12/13/2019 3:00:26 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154263

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 36
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.06	2.70	25.585	213.488	chloride ✓
2	6.31	0.04	0.614	11.606	nitrate
3	9.21	0.66	11.703	157.620	sulfate
3	15.00	3.40	37.901	382.714	

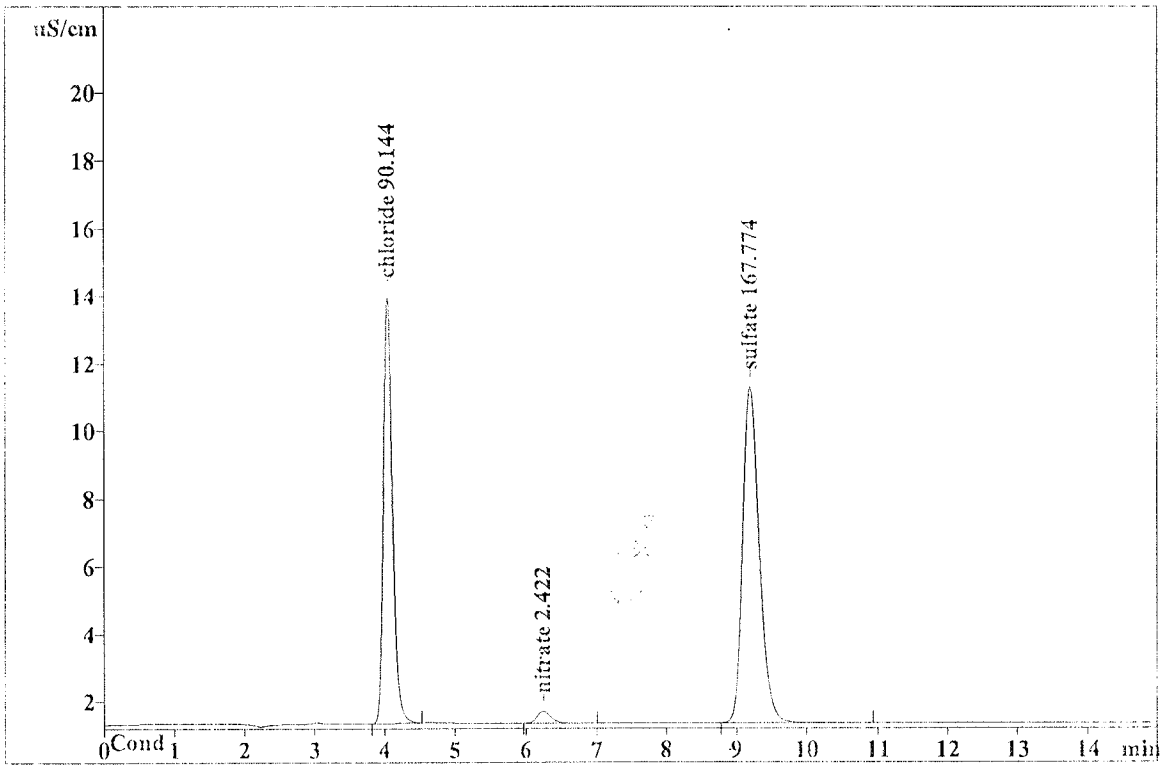
This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 2:29:44 PM
Printed by: LDip

Ident: AL13-15 L064-03I DF=20
Analysis from: 12/12/2019 5:49:19 PM
File: _2019-12-12_17-49.chw Last save: 12/13/2019 2:02:25 PM

Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154242

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 15
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

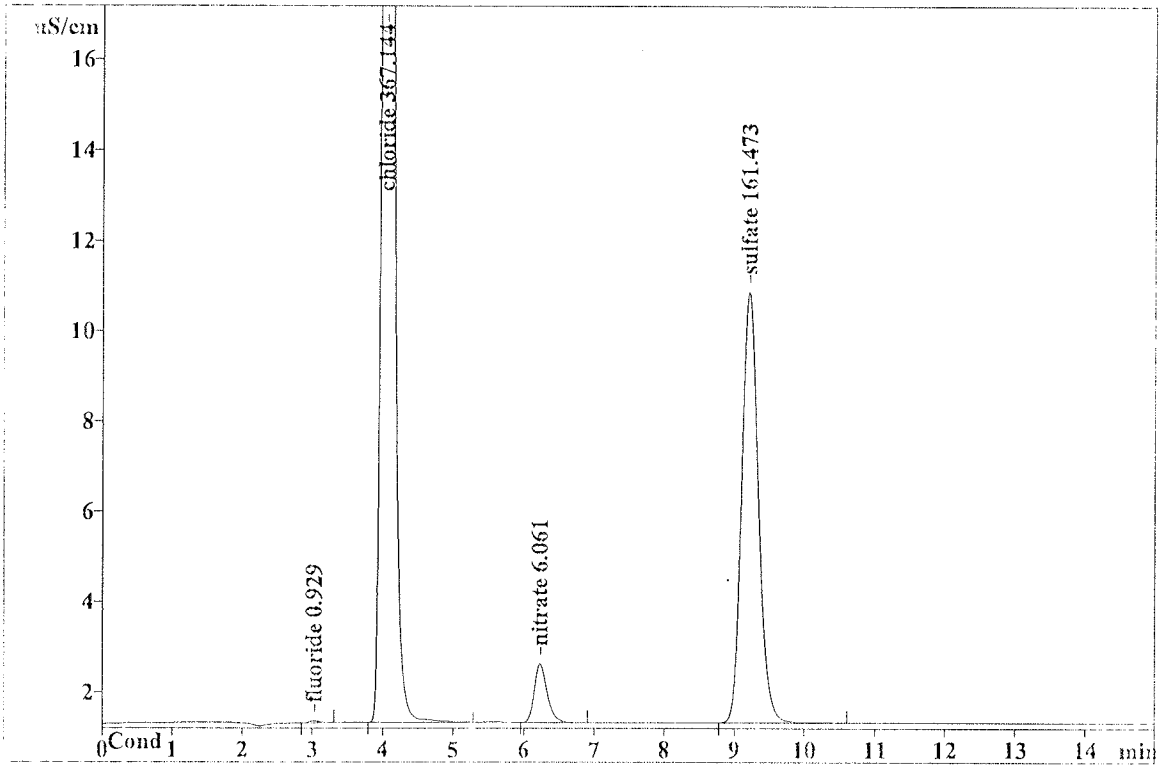
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.04	12.67	115.265	90.144	chloride ✓
2	6.25	0.36	4.731	2.422	nitrate
3	9.20	9.96	165.255	167.774	sulfate ✓
3	15.00	22.98	285.251	260.341	

This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 12:12:26 PM
Printed by: LDip

Ident: AL13-16 L064-04I DF=20
Analysis from: 12/12/2019 6:06:24 PM
File: _2019-12-12_18-06.chw Last save: 12/12/2019 6:21:21 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154243

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 16
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

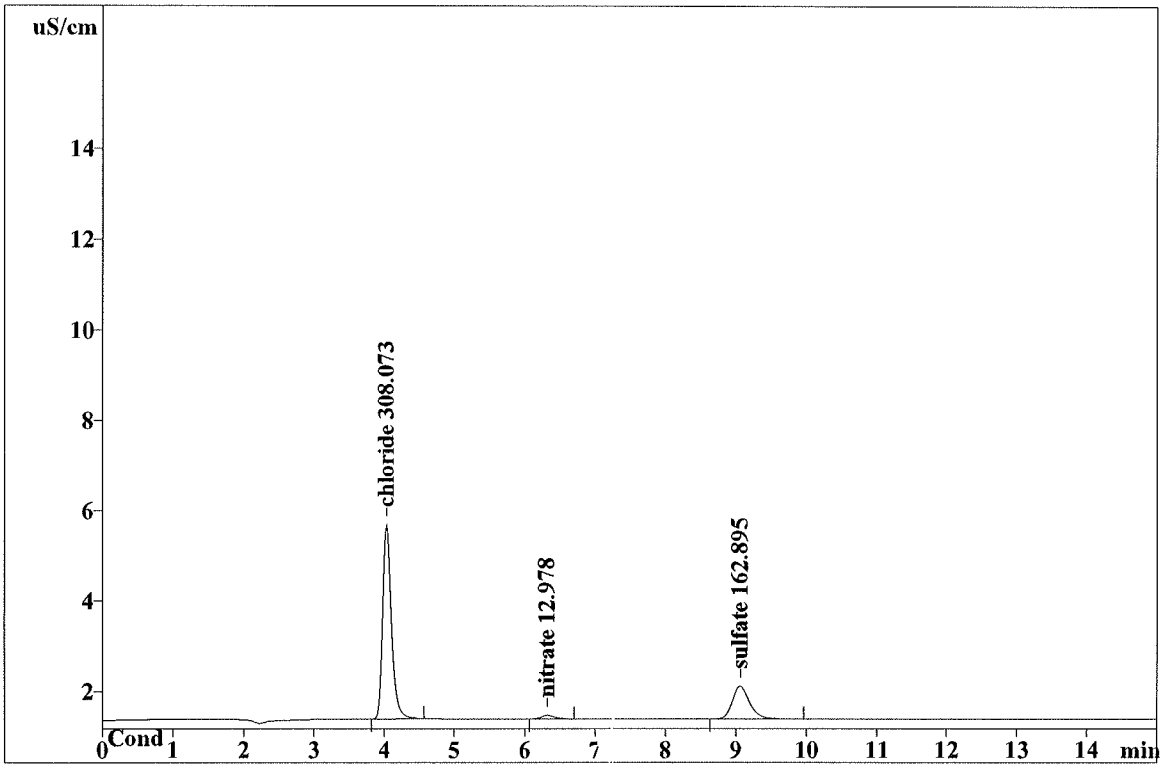
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	0.04	0.422	0.929	fluoride
2	4.04	50.79	476.359	367.144	chloride
3	6.24	1.30	16.605	6.061	nitrate
4	9.20	9.56	158.890	161.473	sulfate ✓
4	15.00	61.69	652.276	535.607	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 11:00:40 AM
Printed by: LDip

Ident: AL17-06 L064-04I DF=200
Analysis from: 12/17/2019 1:02:37 PM
File: _2019-12-17_13-02.chw Last save: 12/17/2019 3:10:26 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/17/2019 11:03:31 AM
Run operator: LDip
Analysis number: 154343

SAMPLE: METHOD300/9056/4110B
:
Vial number: 6
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

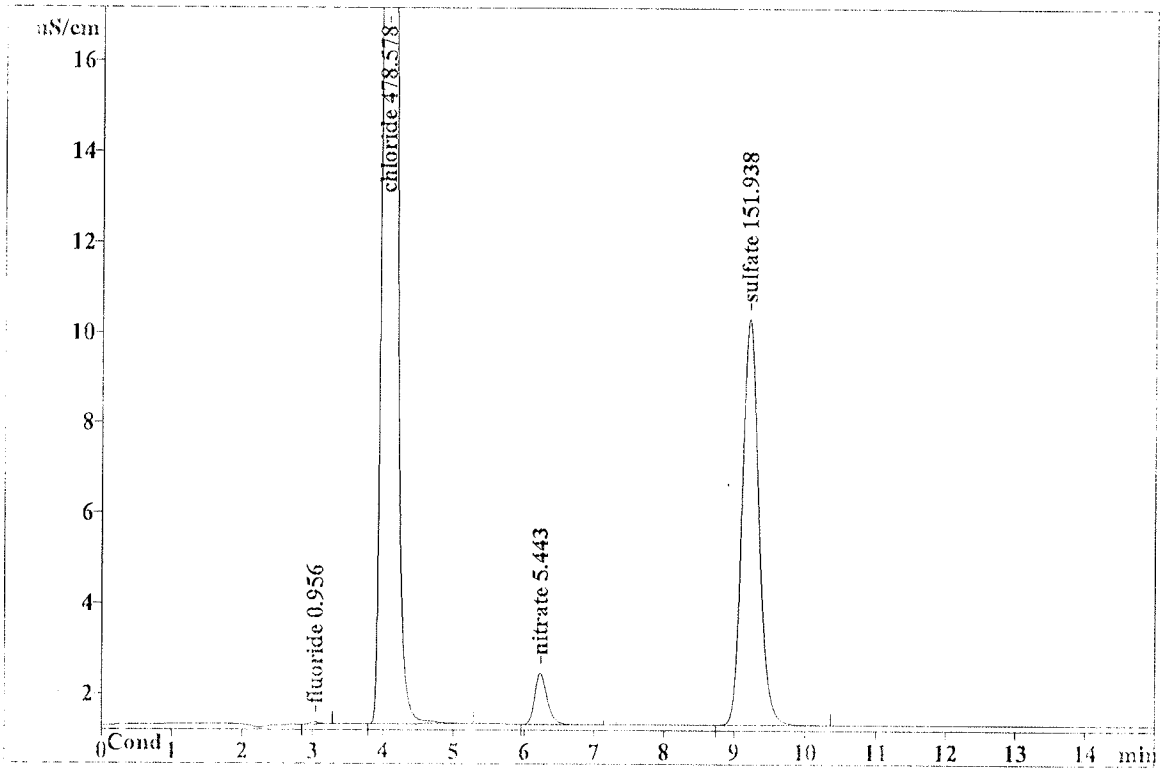
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.03	4.29	37.915	308.073	chloride ✓
2	6.32	0.08	1.061	12.978	nitrate
3	9.06	0.73	12.236	162.895	sulfate
3	15.00	5.10	51.212	483.946	

This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 12:13:20 PM
Printed by: LDip

Ident: AL13-17 L064-06I DF=20
Analysis from: 12/12/2019 6:29:43 PM
File: _2019-12-12_18-29.chw Last save: 12/12/2019 6:44:40 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154244

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 17
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

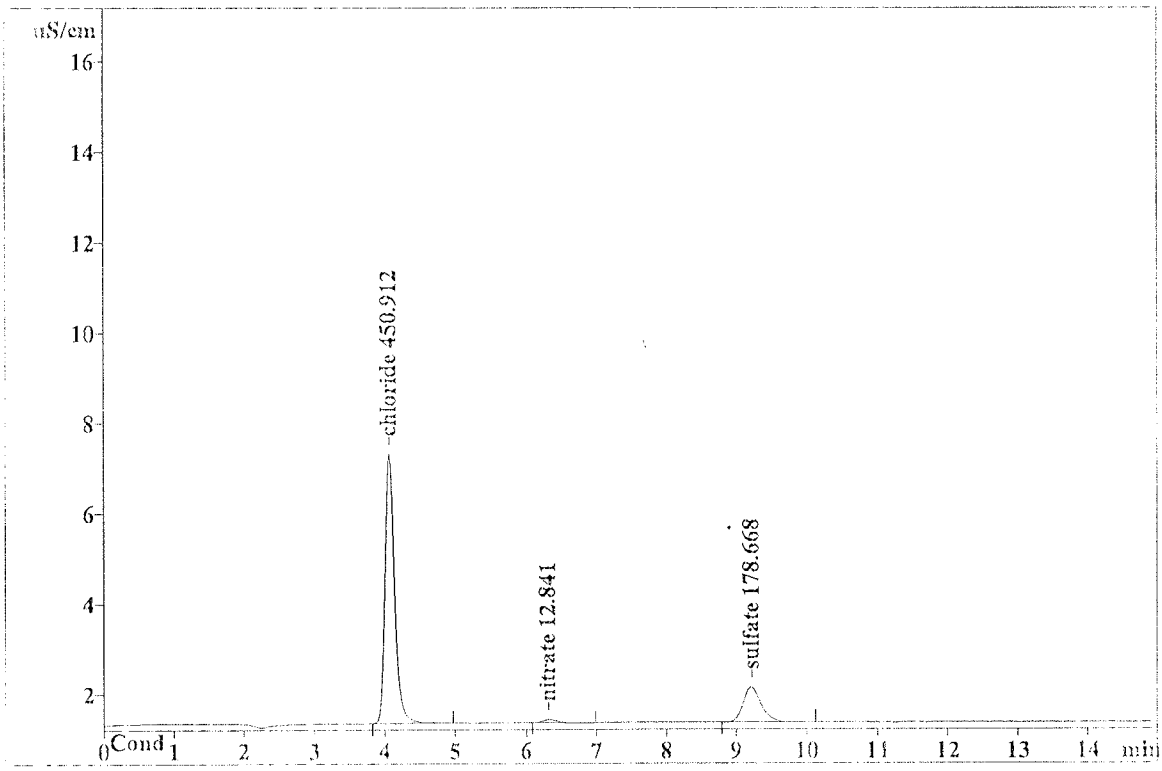
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	0.05	0.481	0.956	fluoride
2	4.05	66.03	621.622	478.578	chloride
3	6.24	1.14	14.586	5.443	nitrate
4	9.21	8.99	149.258	151.938	sulfate ✓
4	15.00	76.22	785.947	636.914	

This report has been created by IC Net
METROHM LTD

Report date: 12/16/2019 12:53:03 PM
Printed by: LDip

Ident: AL13-41 L064-06J DF=200
Analysis from: 12/13/2019 1:28:46 AM
File: _2019-12-13_01-28.chw Last save: 12/13/2019 3:00:27 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154268

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 41
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

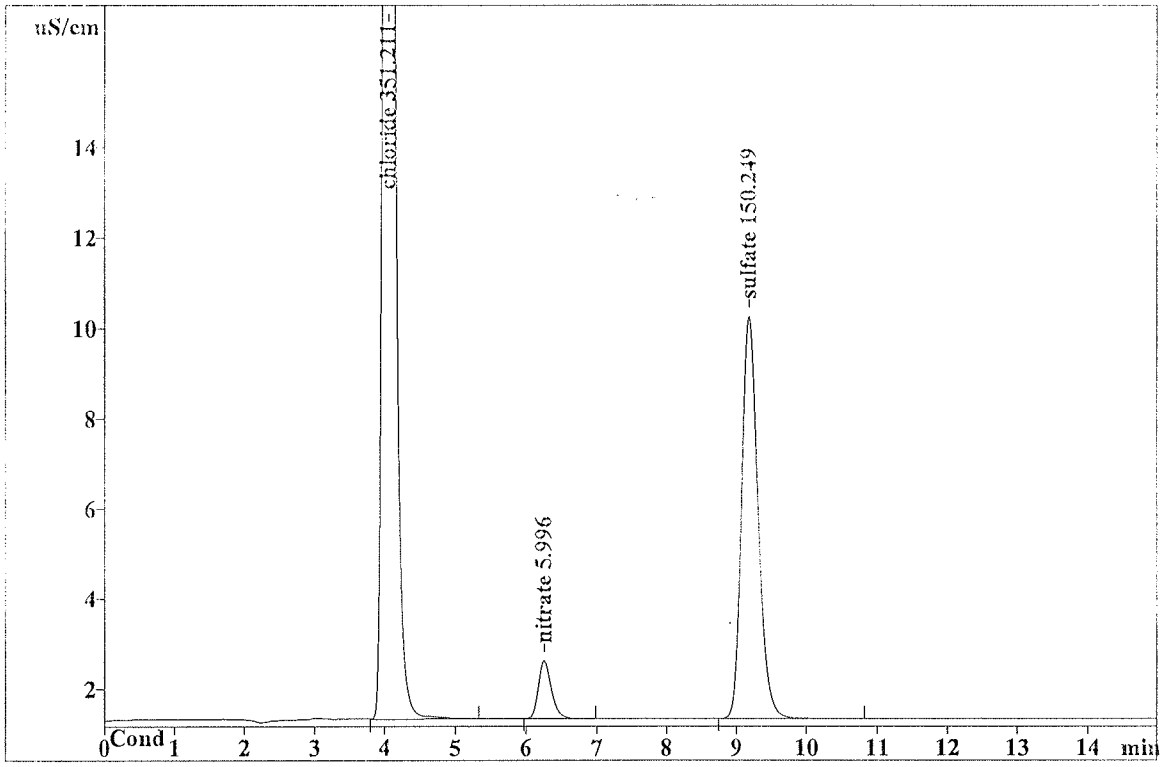
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.06	5.97	56.535	450.912	chloride ✓
2	6.33	0.07	1.017	12.841	nitrate
3	9.21	0.78	13.829	178.668	sulfate
3	15.00	6.82	71.381	642.422	

This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 12:00:44 PM
Printed by: LDip

Ident: AL13-07 L064-07J DF=20
Analysis from: 12/12/2019 3:27:56 PM
File: _2019-12-12_15-27.chw Last save: 12/12/2019 3:42:53 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154234

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 7
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.05	48.60	455.589	351.211	chloride
2	6.26	1.28	16.394	5.996	nitrate
3	9.18	8.92	147.552	150.249	sulfate ✓
3	15.00	58.80	619.534	507.456	

This report has been created by IC Net
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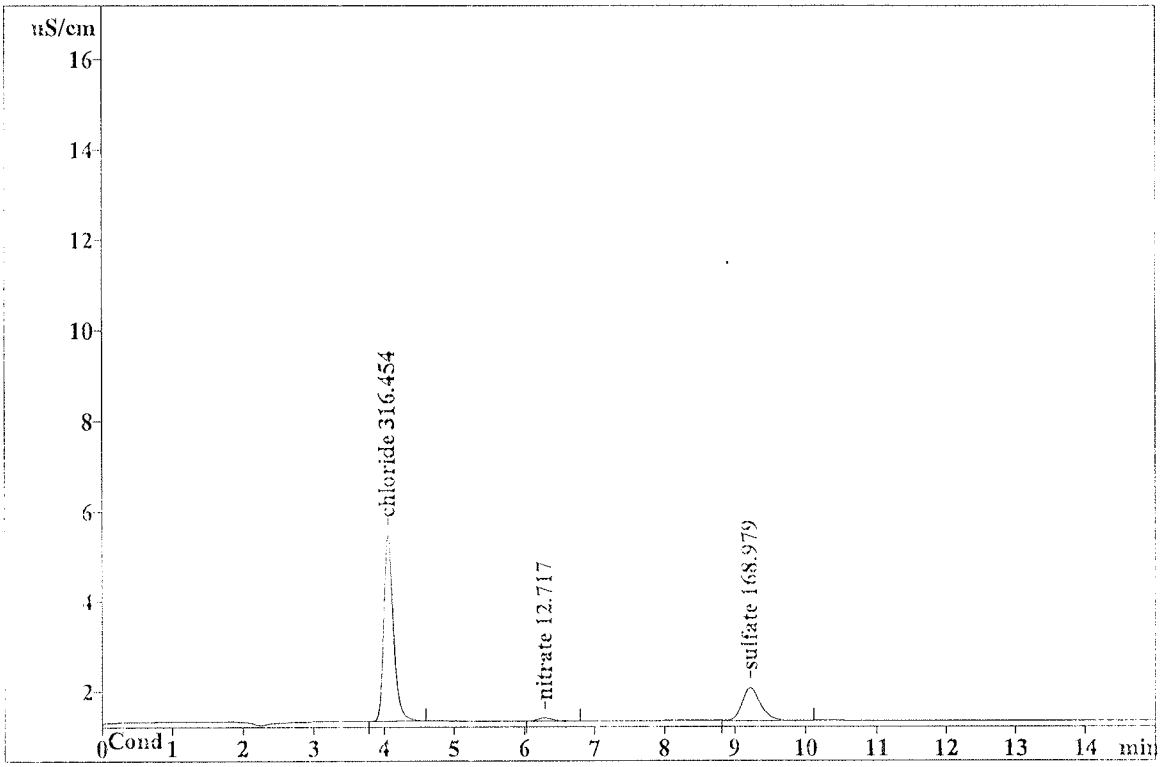
Report date: 12/16/2019 12:49:16 PM
Printed by: LDip

Ident: AL13-31 L064-07K DF=200
Analysis from: 12/12/2019 10:37:59 PM
File: _2019-12-12_22-37.chw Last save: 12/16/2019 12:44:04 PM

Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154258

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 31
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

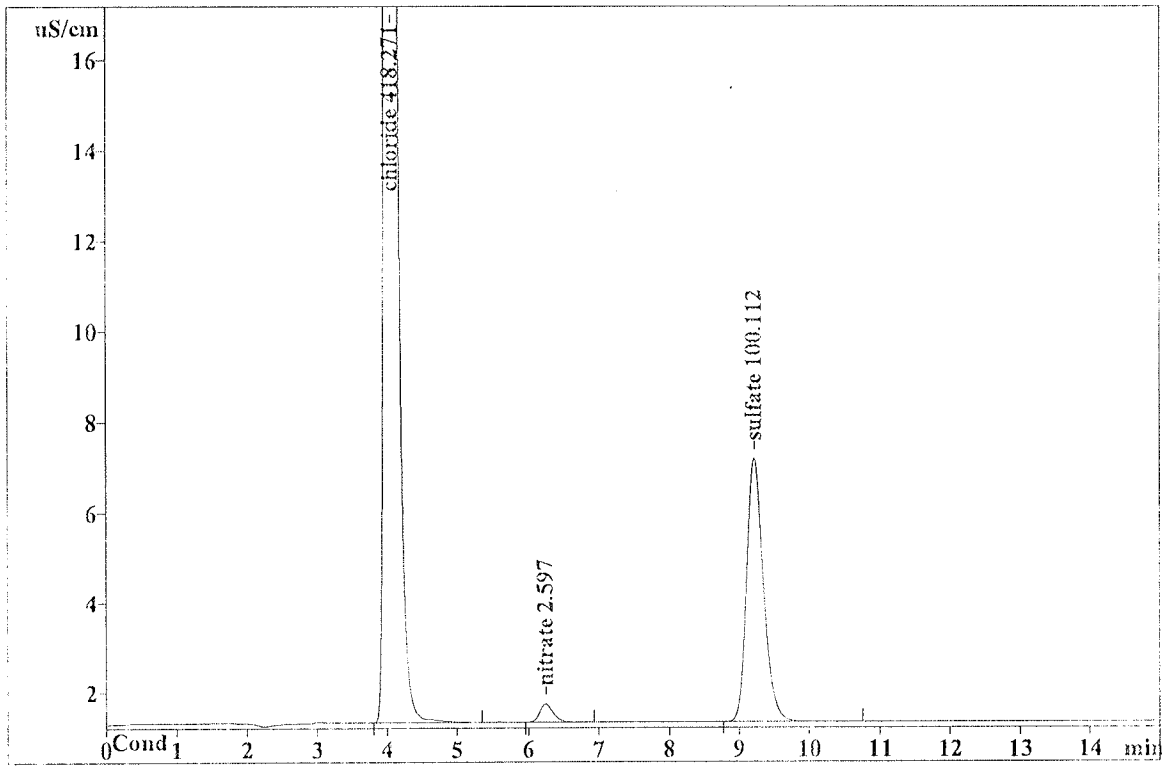
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.05	4.13	39.007	316.454	chloride ✓
2	6.29	0.07	0.976	12.717	nitrate
3	9.22	0.72	12.851	168.979	sulfate
3	15.00	4.93	52.834	498.150	

This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 2:31:04 PM
Printed by: LDip

Ident: AL13-18 L064-08I DF=20
Analysis from: 12/12/2019 6:55:58 PM
File: _2019-12-12_18-55.chw Last save: 12/13/2019 2:02:26 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154245

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 18
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

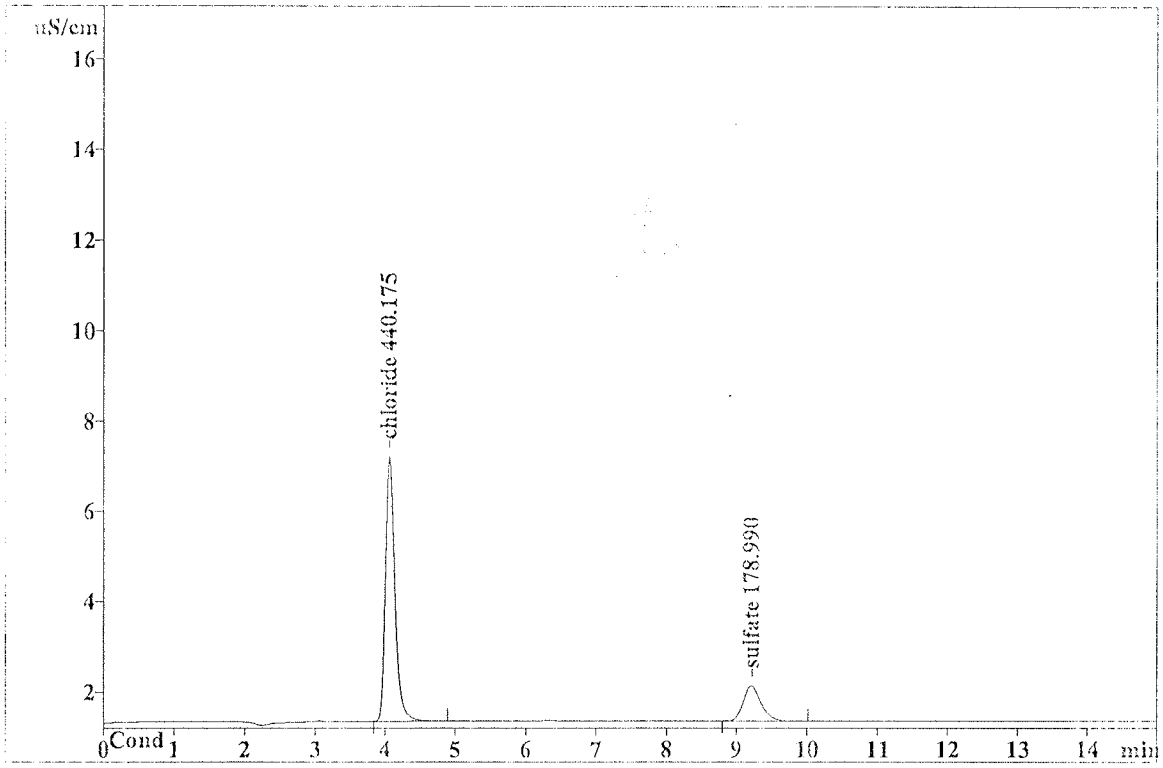
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.05	58.14	543.007	418.271	chloride
2	6.24	0.40	5.301	2.597	nitrate
3	9.21	5.84	96.908	100.112	sulfate ✓
3	15.00	64.39	645.216	520.980	

This report has been created by IC Net
METROHM LTD

Report date: 12/16/2019 12:54:49 PM
Printed by: LDip

Ident: AL13-42 L064-08J DF=200
Analysis from: 12/13/2019 1:45:51 AM
File: _2019-12-13_01-45.chw Last save: 12/13/2019 3:00:27 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154269

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 42
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

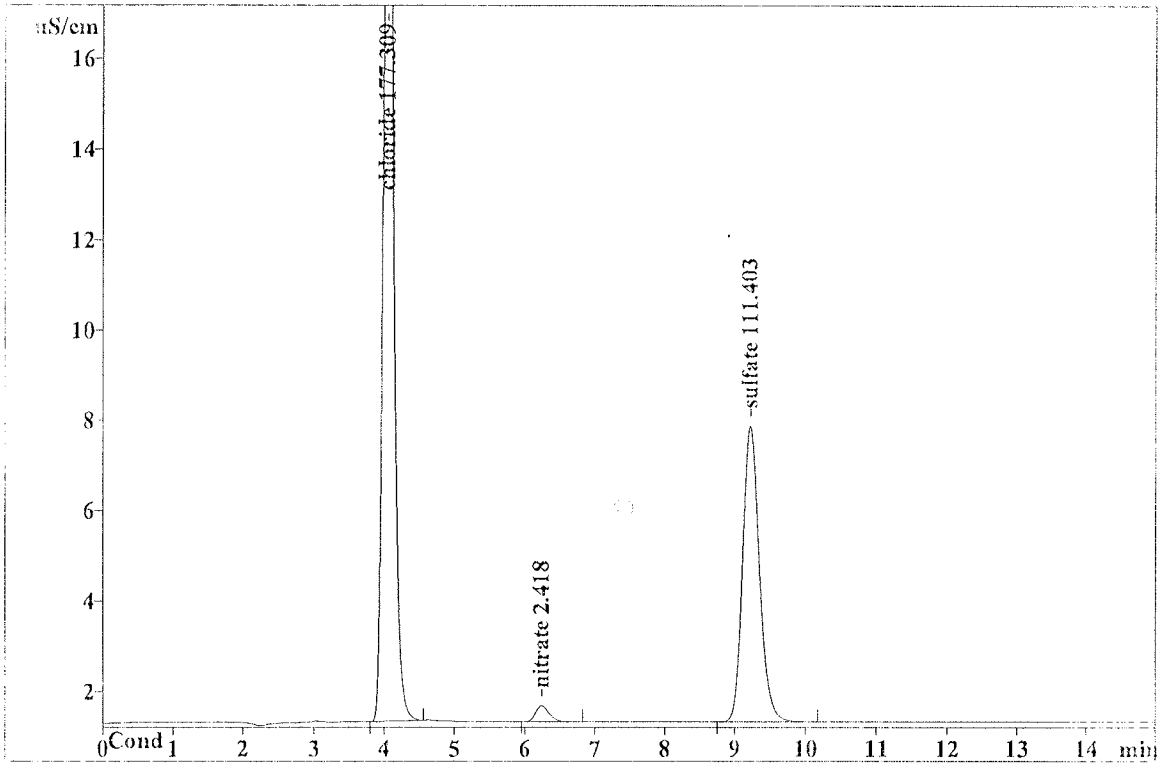
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.06	5.85	55.135	440.175	chloride ✓
2	9.21	0.78	13.862	178.990	sulfate
2	15.00	6.63	68.997	619.165	

This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 12:15:16 PM
Printed by: LDip

Ident: AL13-19 L064-09I DF=20
Analysis from: 12/12/2019 7:13:03 PM
File: _2019-12-12_19-13.chw Last save: 12/12/2019 7:28:00 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154246

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 19
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

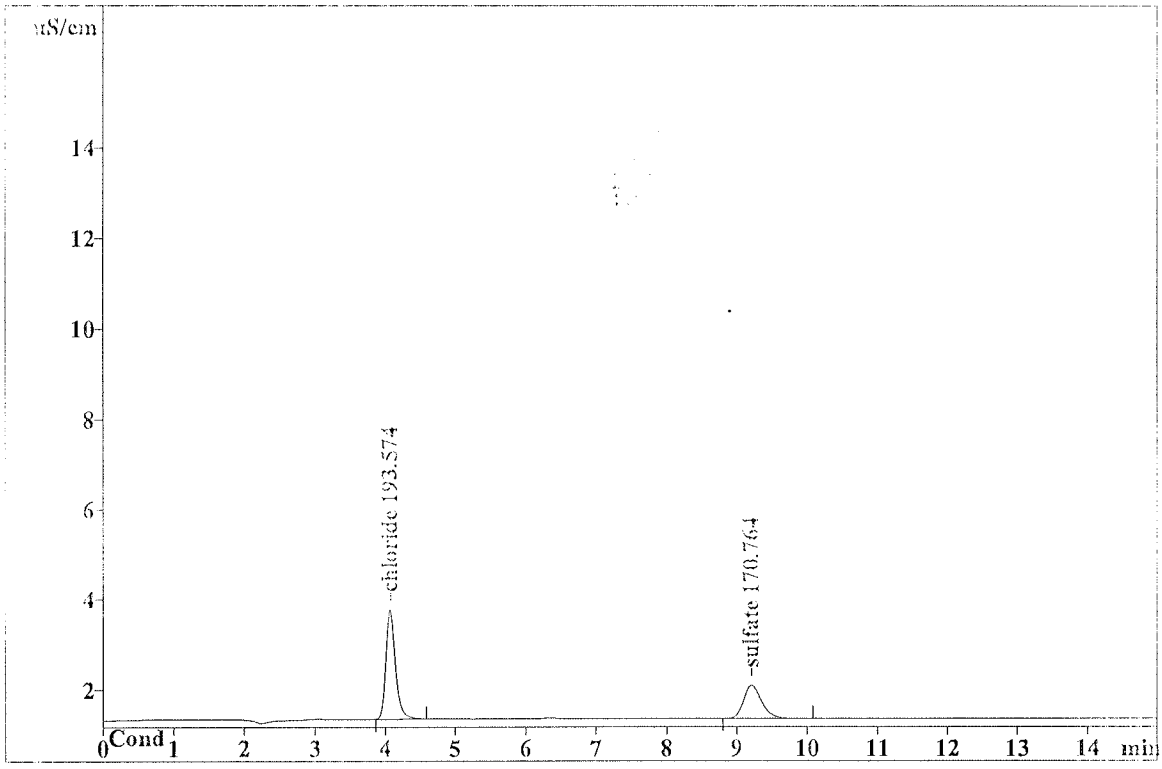
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.04	24.75	228.892	177.309	chloride
2	6.24	0.36	4.716	2.418	nitrate
3	9.21	6.55	108.312	111.403	sulfate ✓
3	15.00	31.66	341.920	291.129	

This report has been created by IC Net
METROHM LTD

Report date: 12/16/2019 12:55:23 PM
Printed by: LDip

Ident: AL13-43 L064-09J DF=200
Analysis from: 12/13/2019 2:02:55 AM
File: _2019-12-13_02-02.chw Last save: 12/13/2019 3:00:27 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154270

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 43
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.06	2.41	22.989	193.574	chloride
2	9.21	0.74	13.031	170.764	sulfate
2	15.00	3.15	36.020	364.337	

This report has been created by IC Net
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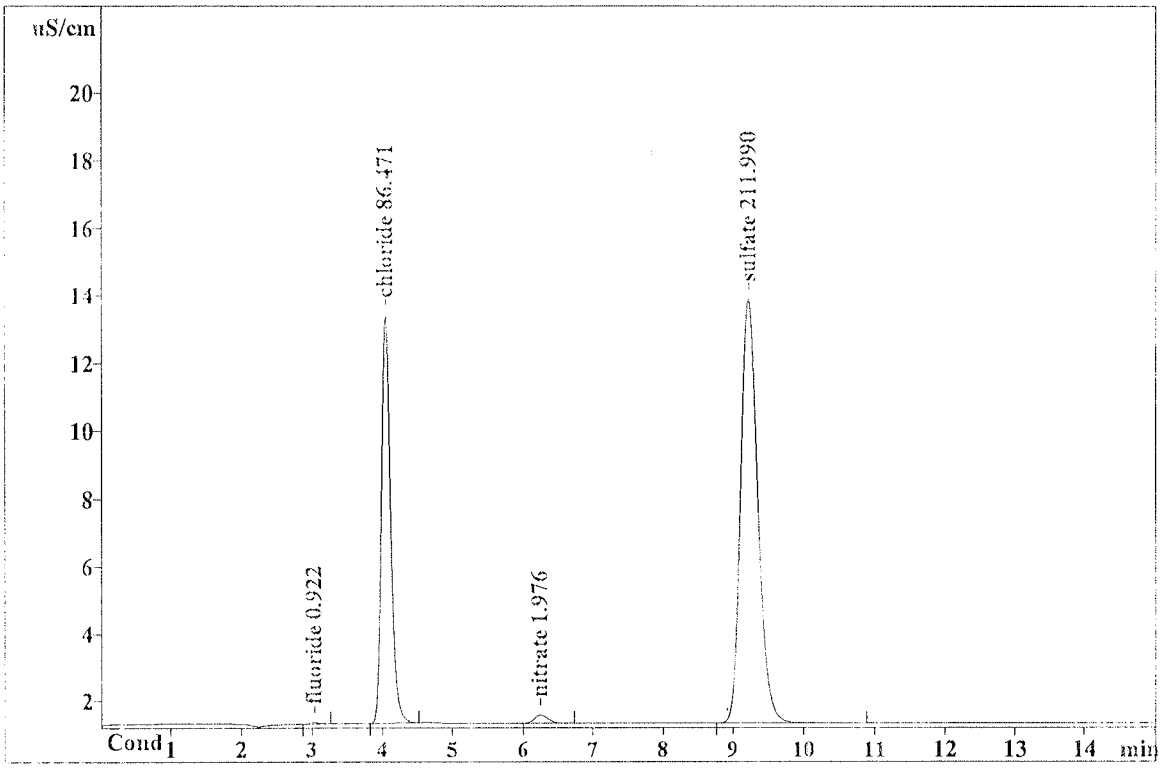
Report date: 12/13/2019 2:31:51 PM
Printed by: LDip

Ident: AL13-20 L064-10I DF=20
Analysis from: 12/12/2019 7:30:08 PM
File: _2019-12-12_19-30.chw Last save: 12/13/2019 2:02:26 PM

Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154247

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 20
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

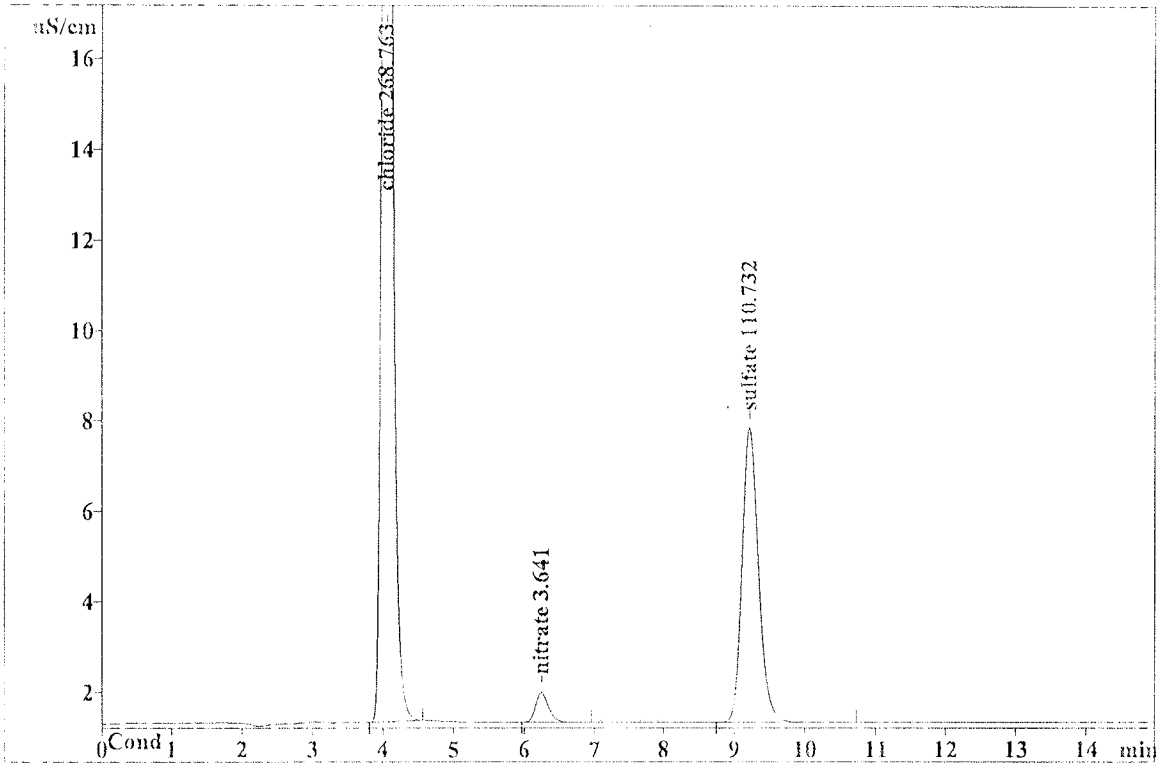
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	0.04	0.407	0.922	fluoride
2	4.04	12.08	110.477	86.471	chloride ✓
3	6.25	0.25	3.276	1.976	nitrate
4	9.21	12.55	209.919	211.990	sulfate ✓
4	15.00	24.92	324.079	301.360	

This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 2:32:11 PM
Printed by: LDip

Ident: AL13-21 L064-11I DF=20
Analysis from: 12/12/2019 7:47:12 PM
File: _2019-12-12_19-47.chw Last save: 12/13/2019 2:02:26 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154248

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 21
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

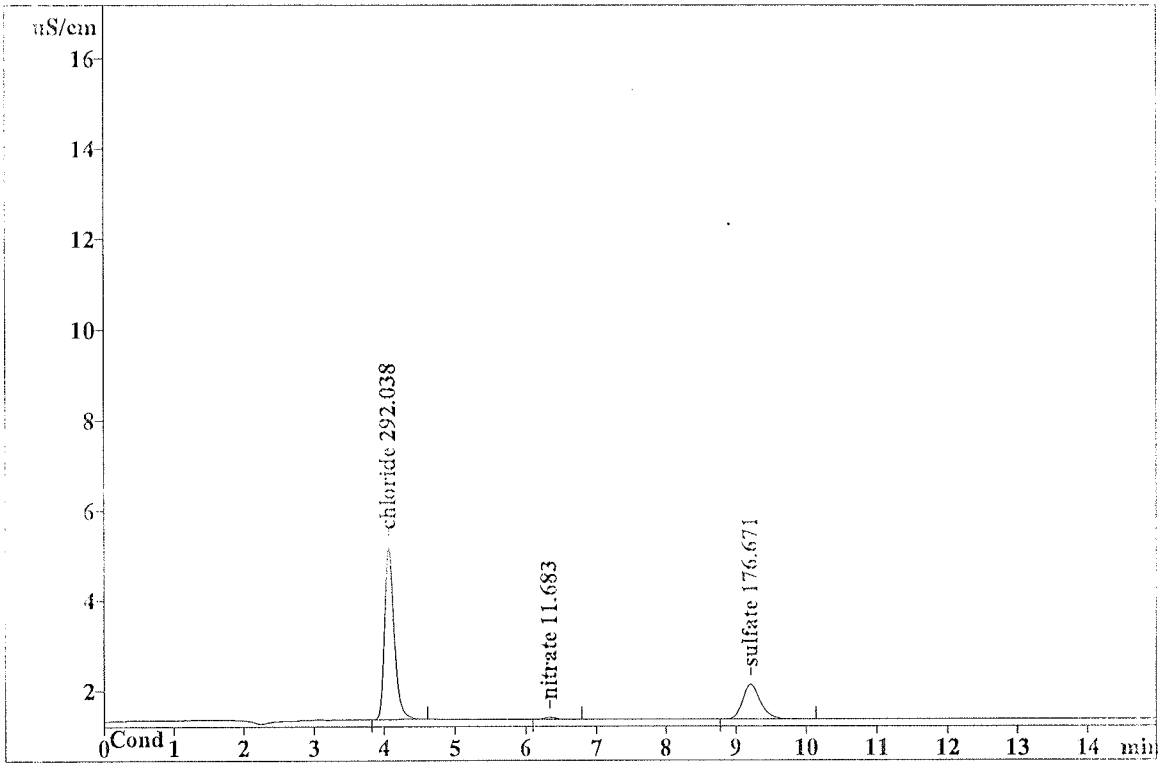
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.05	37.67	348.111	268.763	chloride
2	6.25	0.67	8.708	3.641	nitrate
3	9.21	6.51	107.635	110.732	sulfate ✓
3	15.00	44.85	464.454	383.137	

This report has been created by IC Net
METROHM LTD

Report date: 12/16/2019 12:58:16 PM
Printed by: LDip

Ident: AL13-45 L064-11J DF=200
Analysis from: 12/13/2019 2:37:04 AM
File: _2019-12-13_02-37.chw Last save: 12/13/2019 3:00:28 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154272

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 45
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

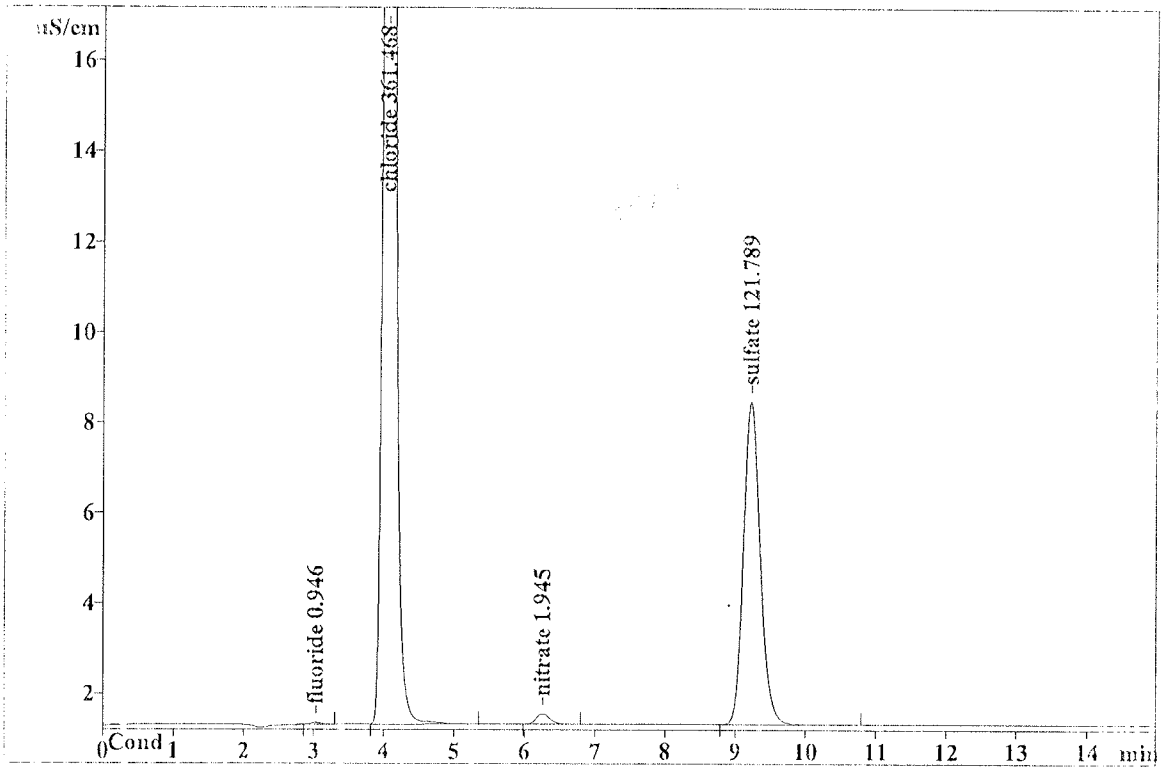
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.06	3.83	35.824	292.038	chloride ✓
2	6.34	0.04	0.639	11.683	nitrate
3	9.21	0.77	13.628	176.671	sulfate
3	15.00	4.65	50.091	480.392	

This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 12:18:24 PM
Printed by: LDip

Ident: AL13-22 L064-12I DF=20
Analysis from: 12/12/2019 8:04:17 PM
File: _2019-12-12_20-04.chw Last save: 12/12/2019 8:19:14 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154249

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 22
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

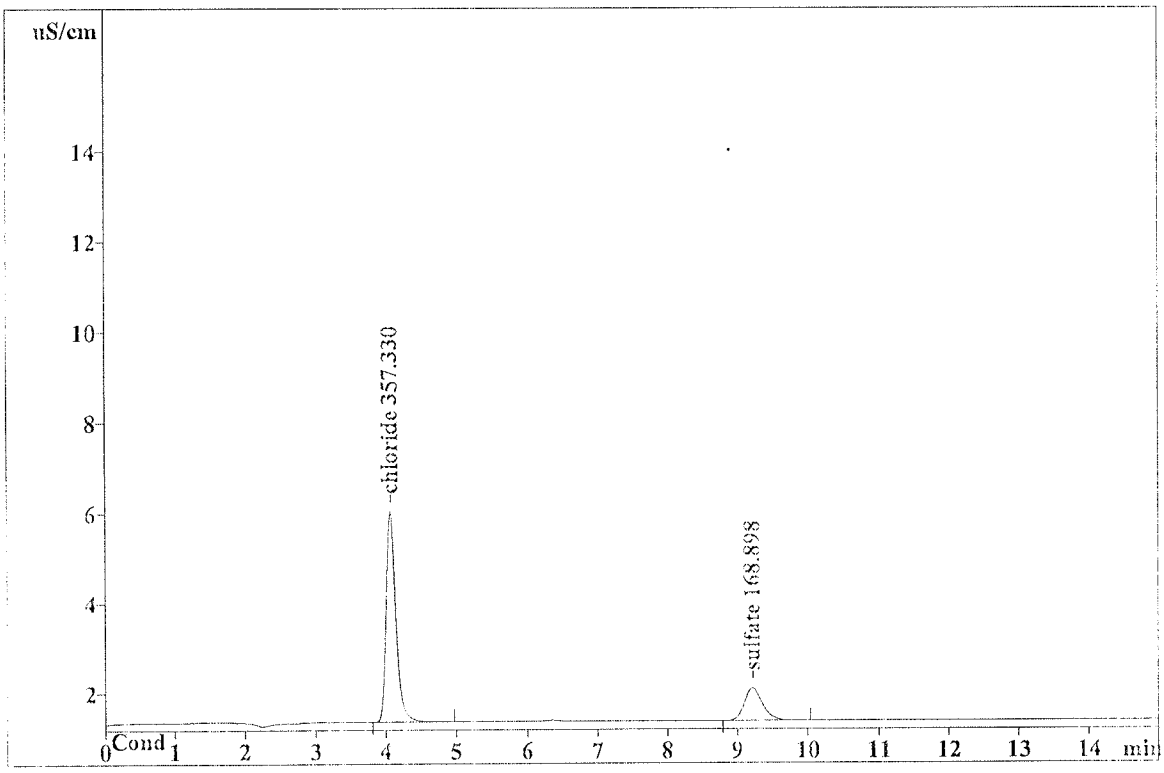
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	0.05	0.458	0.946	fluoride
2	4.05	49.90	468.960	361.468	chloride
3	6.26	0.24	3.175	1.945	nitrate
4	9.21	7.15	118.804	121.789	sulfate
4	15.00	57.33	591.397	486.149	

This report has been created by IC Net
METROHM LTD

Report date: 12/16/2019 12:58:47 PM
Printed by: LDip

Ident: AL13-46 L064-12J DF=200
Analysis from: 12/13/2019 2:54:10 AM
File: _2019-12-13_02-54.chw Last save: 12/13/2019 3:00:28 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154273

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 46
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

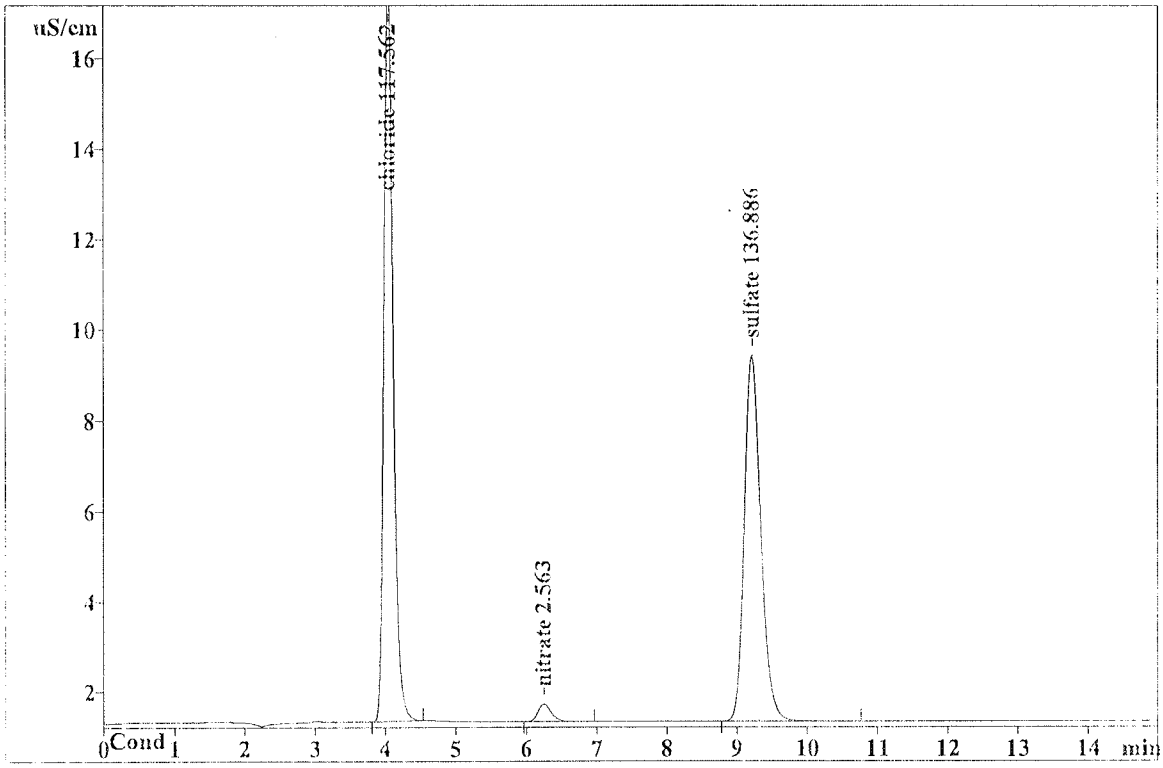
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.06	4.69	44.336	357.330	chloride ✓
2	9.21	0.72	12.842	168.898	sulfate
2	15.00	5.41	57.178	526.228	

This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 2:34:29 PM
Printed by: LDip

Ident: AL13-23 L064-14I DF=20
Analysis from: 12/12/2019 8:21:22 PM
File: _2019-12-12_20-21.chw Last save: 12/13/2019 2:18:54 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154250

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 23
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

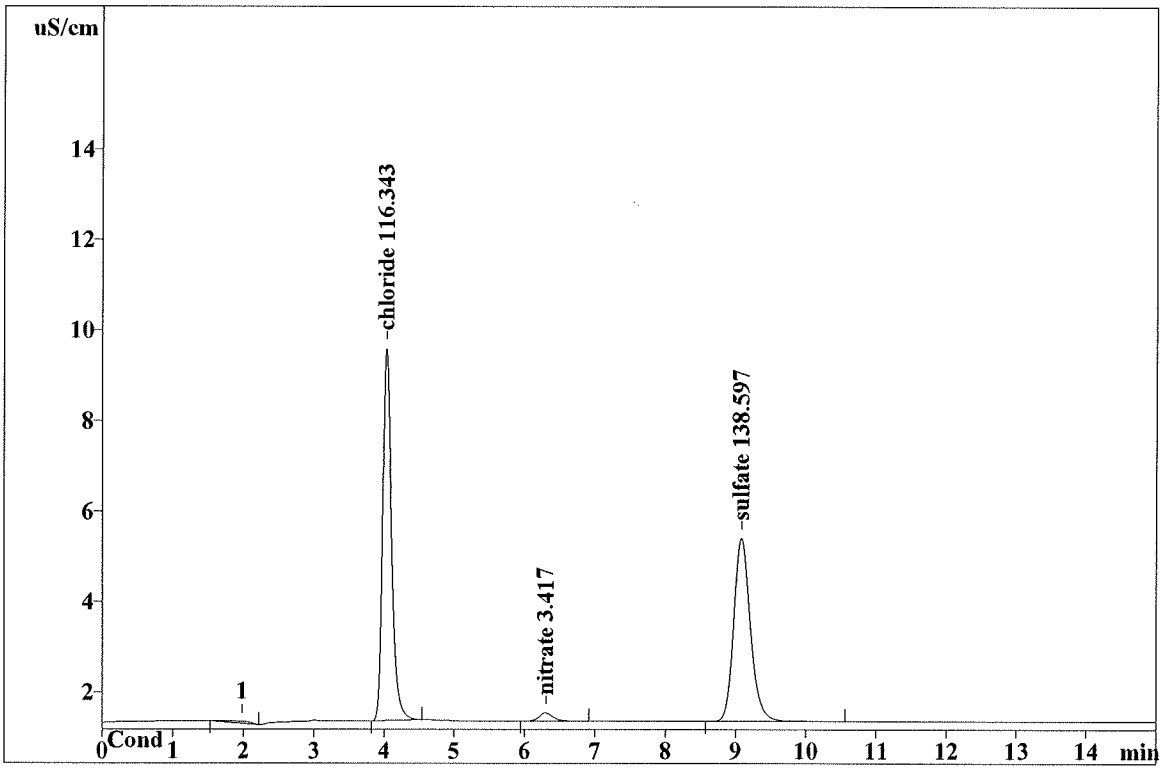
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.04	16.46	151.006	117.562	chloride
2	6.25	0.39	5.190	2.563	nitrate
3	9.21	8.08	134.054	136.886	sulfate ✓
3	15.00	24.93	290.251	257.011	

This report has been created by IC Net
METROHM LTD

Report date: 12/17/2019 12:33:19 PM
Printed by: LDip

Ident: AL15-31 L064-14I DF=40
Analysis from: 12/17/2019 12:04:45 AM
File: _2019-12-17_00-04.chw Last save: 12/17/2019 12:20:22 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/16/2019 11:57:57 AM
Run operator: LDip
Analysis number: 154333

SAMPLE: METHOD300/9056/4110B
:
Vial number: 31
Volume: 1.0 µL
Dilution: 40.00
Amount: 1.0000



Quantitation method: Custom

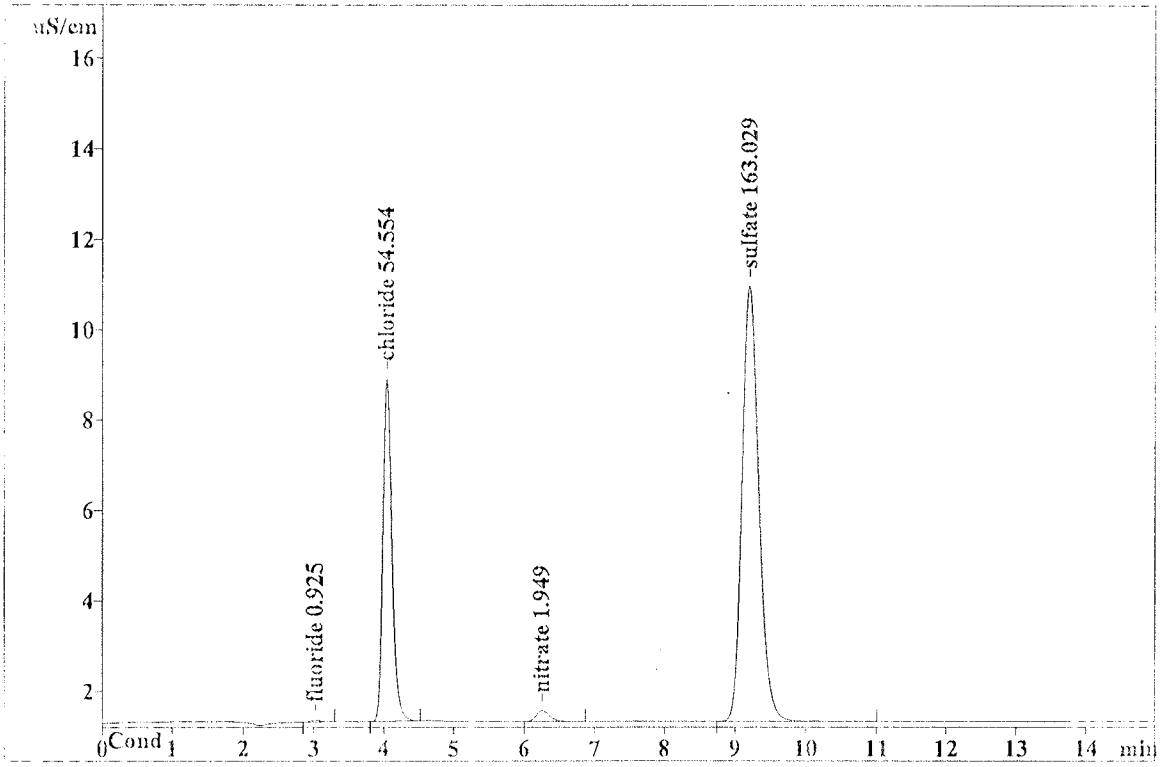
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	1.99	0.05	1.235	0.000	
2	4.03	8.24	73.586	116.343	chloride ✓
3	6.30	0.18	2.401	3.417	nitrate
4	9.08	4.05	65.782	138.597	sulfate
4	15.00	12.51	143.004	258.357	

This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 12:20:29 PM
Printed by: LDip

Ident: AL13-24 L064-15I DF=20
Analysis from: 12/12/2019 8:38:27 PM
File: _2019-12-12_20-38.chw Last save: 12/12/2019 8:53:24 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154251

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 24
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

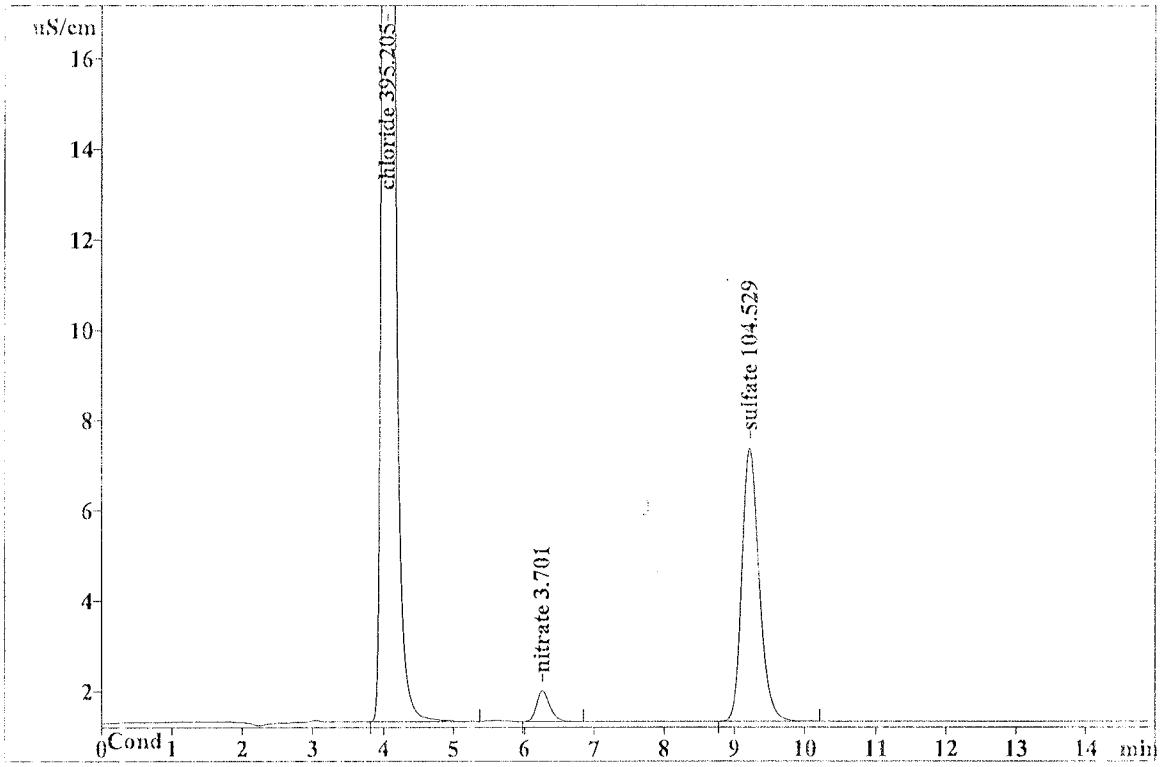
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	0.04	0.413	0.925	fluoride ✓
2	4.04	7.58	68.870	54.554	chloride ✓
3	6.26	0.24	3.186	1.949	nitrate
4	9.20	9.64	160.462	163.029	sulfate ✓
4	15.00	17.50	232.932	220.457	

This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 12:21:25 PM
Printed by: LDip

Ident: AL13-27 L064-17I DF=20
Analysis from: 12/12/2019 9:29:40 PM
File: _2019-12-12_21-29.chw Last save: 12/12/2019 9:44:37 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154254

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 27
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

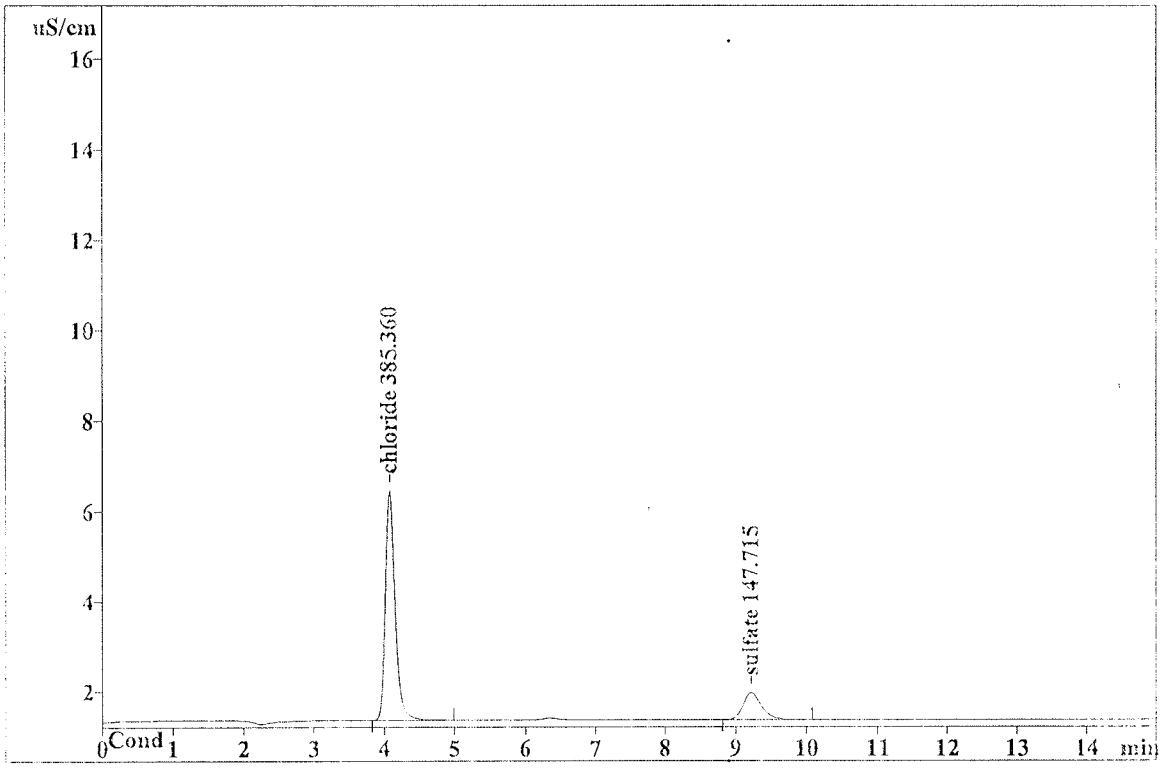
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.05	53.15	512.938	395.205	chloride
2	6.26	0.67	8.904	3.701	nitrate
3	9.21	6.05	101.370	104.529	sulfate
3	15.00	59.87	623.212	503.435	

This report has been created by IC Net
METROHM LTD

Report date: 12/16/2019 1:00:25 PM
Printed by: LDip

Ident: AL13-51 L064-17J DF=200
Analysis from: 12/13/2019 4:19:33 AM
File: _2019-12-13_04-19.chw Last save: 12/13/2019 3:00:29 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154278

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 51
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

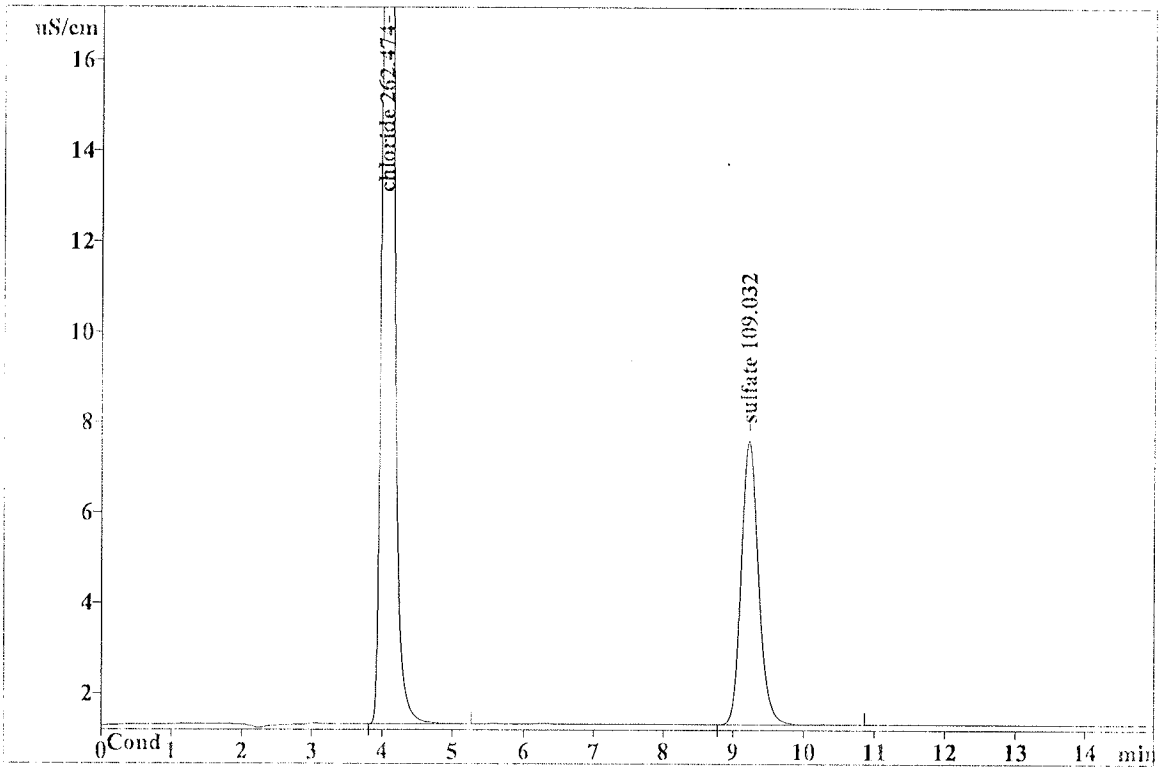
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.07	5.09	47.990	385.360	chloride ✓
2	9.22	0.60	10.703	147.715	sulfate
2	15.00	5.68	58.692	533.076	

This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 12:22:20 PM
Printed by: LDip

Ident: AL13-28 L064-18I DF=20
Analysis from: 12/12/2019 9:46:45 PM
File: _2019-12-12_21-46.chw Last save: 12/12/2019 10:01:42 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154255

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 28
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

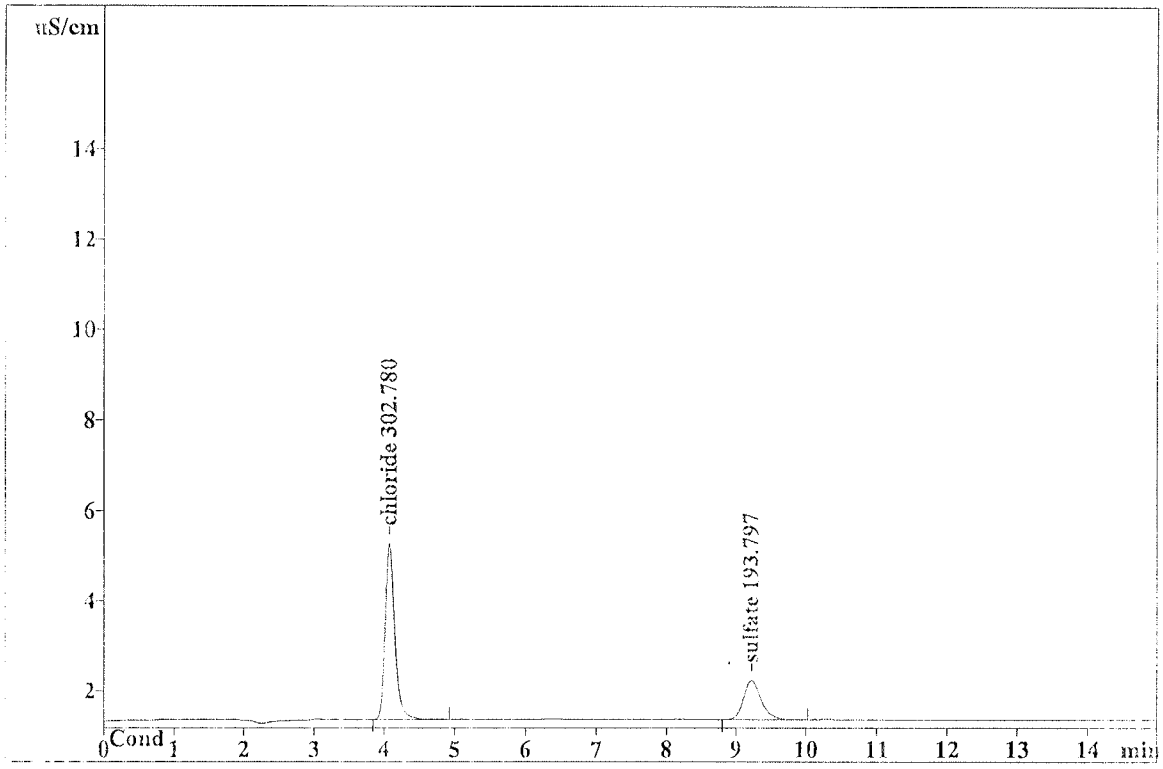
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.05	35.15	339.913	262.474	chloride
2	9.21	6.27	105.918	109.032	sulfate
2	15.00	41.42	445.831	371.506	

This report has been created by IC Net
METROHM LTD

Report date: 12/16/2019 1:01:00 PM
Printed by: LDip

Ident: AL13-52 L064-18J DF=200
Analysis from: 12/13/2019 4:36:38 AM
File: _2019-12-13_04-36.chw Last save: 12/13/2019 3:00:29 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154279

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 52
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.07	3.91	37.225	302.780	chloride ✓
2	9.22	0.87	15.358	193.797	sulfate
2	15.00	4.78	52.582	496.578	

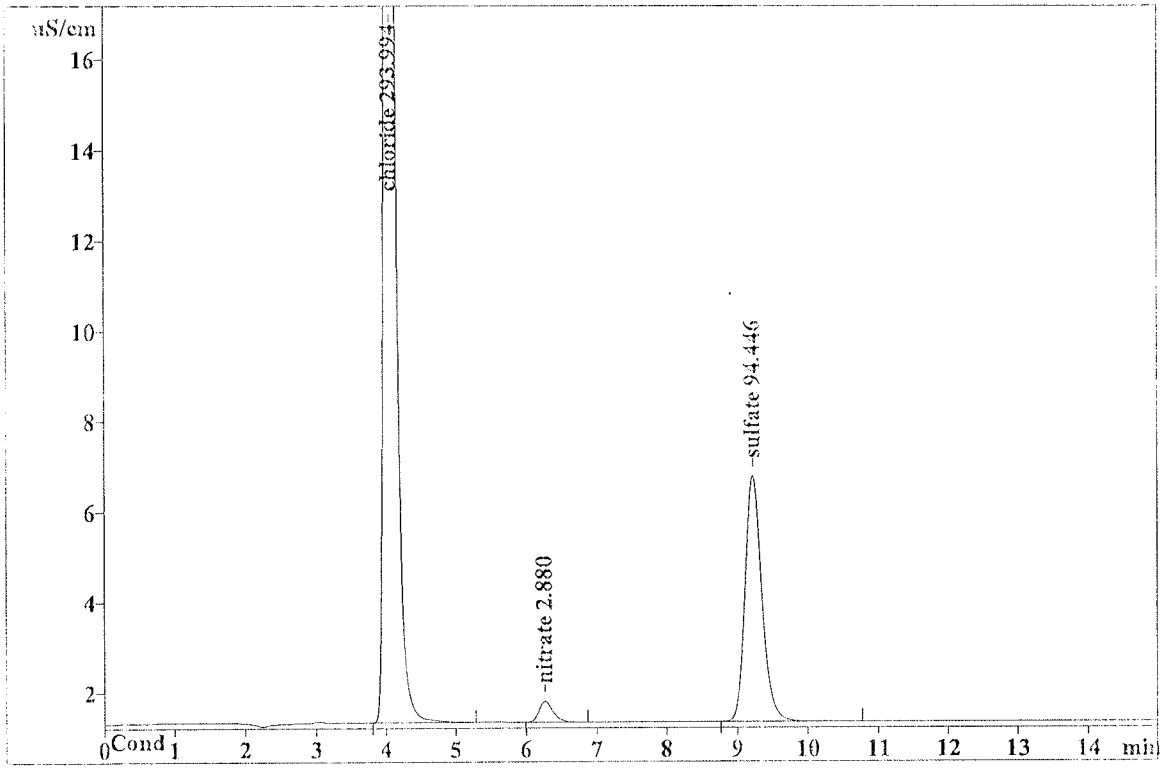
This report has been created by IC Net
METROHM LTD

Report date: 12/16/2019 1:20:34 PM
Printed by: LDip

Ident: AL13-29 L064-20I DF=20
Analysis from: 12/12/2019 10:03:49 PM
File: _2019-12-12_22-03.chw Last save: 12/13/2019 3:00:25 PM

Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154256

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 29
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

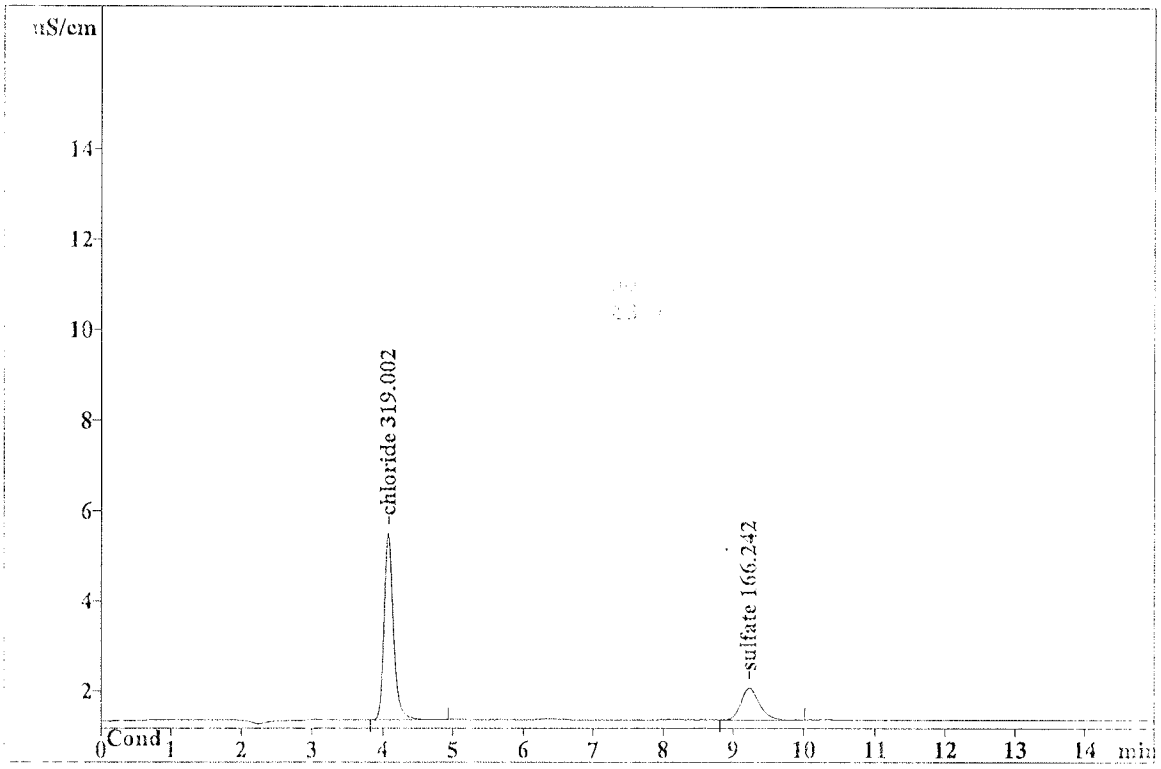
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.05	39.45	381.002	293.994	chloride
2	6.27	0.46	6.223	2.880	nitrate
3	9.21	5.43	91.184	94.446	sulfate ✓
3	15.00	45.34	478.409	391.320	

This report has been created by IC Net
METROHM LTD

Report date: 12/16/2019 1:01:34 PM
Printed by: LDip

Ident: AL13-53 L064-20J DF=200
Analysis from: 12/13/2019 4:53:43 AM
File: _2019-12-13_04-53.chw Last save: 12/13/2019 3:00:29 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154280

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 53
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

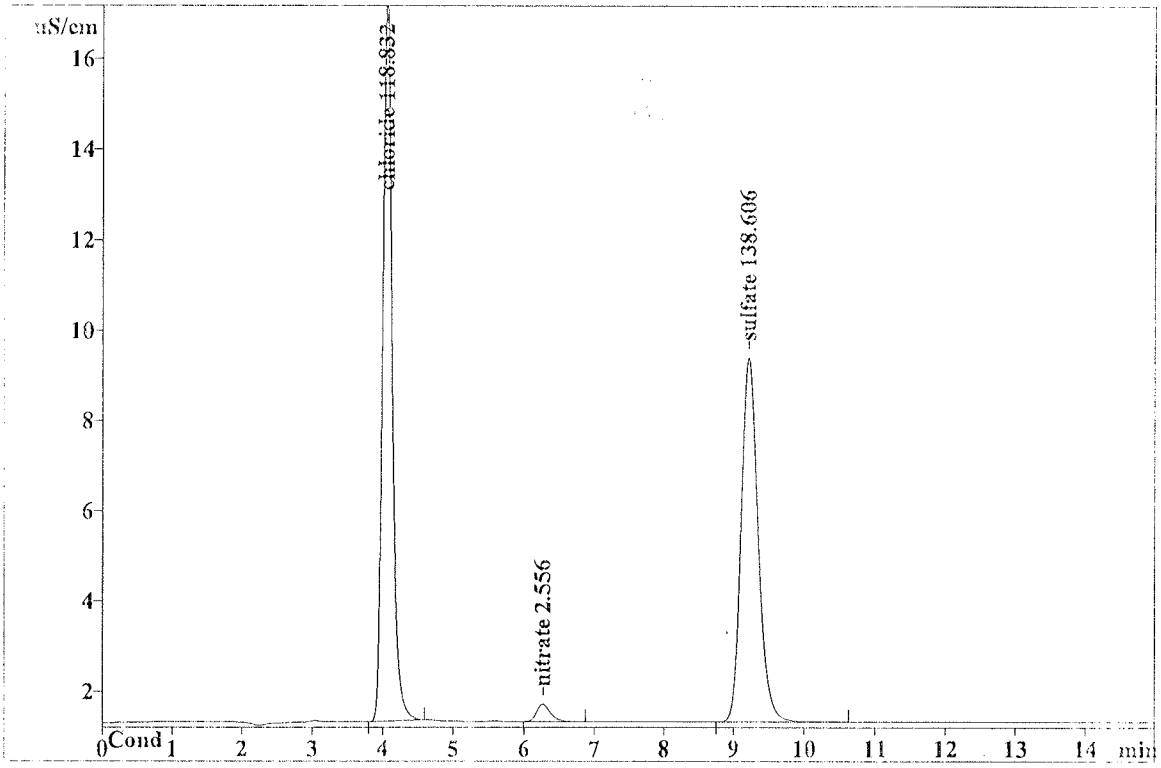
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.07	4.14	39.339	319.002	chloride ✓
2	9.22	0.71	12.574	166.242	sulfate
2	15.00	4.84	51.913	485.244	

This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 12:23:53 PM
Printed by: LDip

Ident: AL13-30 L064-21I DF=20
Analysis from: 12/12/2019 10:20:54 PM
File: _2019-12-12_22-20.chw Last save: 12/12/2019 10:35:51 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154257

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 30
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

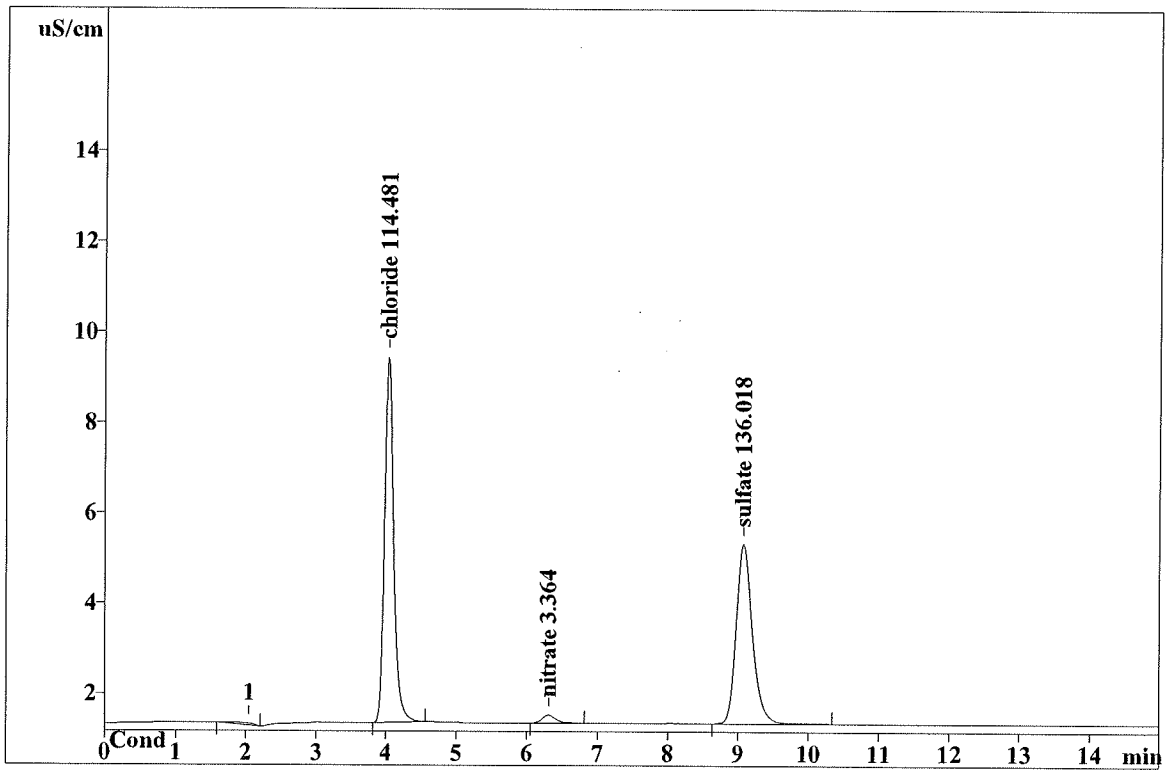
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.05	16.21	152.662	118.832	chloride
2	6.27	0.39	5.168	2.556	nitrate
3	9.21	8.07	135.792	138.606	sulfate ✓
3	15.00	24.66	293.621	259.994	

This report has been created by IC Net
METROHM LTD

Report date: 12/17/2019 12:33:46 PM
Printed by: LDip

Ident: AL15-32 L064-21I DF=40
Analysis from: 12/17/2019 12:21:50 AM
File: _2019-12-17_00-21.chw Last save: 12/17/2019 12:21:00 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/16/2019 11:57:57 AM
Run operator: LDip
Analysis number: 154334

SAMPLE: METHOD300/9056/4110B
:
Vial number: 32
Volume: 1.0 µL
Dilution: 40.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.04	0.04	1.078	0.000	
2	4.03	8.09	72.372	114.481	chloride ✓
3	6.30	0.17	2.315	3.364	nitrate
4	9.07	3.97	64.480	136.018	sulfate
4	15.00	12.28	140.246	253.863	

This report has been created by IC Net
METROHM LTD

QC SUMMARIES

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : E300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ICL013WB	ICL013WL	ICL013WC
LAB FILE ID :	AL13-03	AL13-04	AL13-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/12/1911:52	12/12/1912:09	12/12/1912:26
PREP BATCH :	ICL013W	ICL013W	ICL013W
CALIBRATION REF:	AL13-01	AL13-01	AL13-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride	ND	2	1.88	94	2	1.88	94	0	87-111	20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : E300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK2W	LCS2W	LCD2W
LAB SAMPLE ID :	ICL015WB	ICL015WL	ICL015WC
LAB FILE ID :	AL15-03	AL15-04	AL15-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/16/1915:57	12/16/1916:14	12/16/1916:37
PREP BATCH :	ICL015W	ICL015W	ICL015W
CALIBRATION REF:	AL15-01	AL15-01	AL15-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride	ND	2	1.85	93	2	1.84	92	1	87-111	20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : E300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK3W	LCS3W	LCD3W
LAB SAMPLE ID :	ICL017WB	ICL017WL	ICL017WC
LAB FILE ID :	AL17-03	AL17-04	AL17-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/17/1911:32	12/17/1911:49	12/17/1912:06
PREP BATCH :	ICL017W	ICL017W	ICL017W
CALIBRATION REF:	AL17-01	AL17-01	AL17-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride	ND	2	1.90	95	2	1.87	94	2	87-111	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : E300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	200	200	200
SAMPLE ID :	OU2-MW15D-GW120719	OU2-MW15D-GW120719MS	OU2-MW15D-GW120719MSD
LAB SAMPLE ID :	L064-07K	L064-07KM	L064-07KS
LAB FILE ID :	AL13-31	AL13-33	AL13-34
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/12/1922:37	12/12/1923:12	12/12/1923:29
PREP BATCH :	ICL013W	ICL013W	ICL013W
CALIBRATION REF:	AL13-25	AL13-25	AL13-25

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	SPIKE AMT (mg/L)	MS RESULT (mg/L)	MS REC (%)	SPIKE AMT (mg/L)	MSD RESULT (mg/L)	MSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride	316	400	711	99	400	713	99	0	87-111	20

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : E300.0

MATRIX :	WATER	
DILUTION FACTOR:	200	200
SAMPLE ID :	OU2-MW15D-GW120719	OU2-MW15D-GW120719DUP
LAB SAMPLE ID :	L064-07K	L064-07KD
LAB FILE ID :	AL13-31	AL13-32
DATE PREPARED :	NA	NA
DATE ANALYZED :	12/12/1922:37	12/12/1922:55
PREP BATCH :	ICL013W	ICL013W
CALIBRATION REF:	AL13-25	AL13-25

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	RPD (%)	MAX RPD (%)
Chloride	316	314	1	20

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : E300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ICL013WB	ICL013WL	ICL013WC
LAB FILE ID :	AL13-03	AL13-04	AL13-05
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/12/1911:52	12/12/1912:09	12/12/1912:26
PREP BATCH :	ICL013W	ICL013W	ICL013W
CALIBRATION REF:	AL13-01	AL13-01	AL13-01

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	5	4.69	94	5	4.70	94	0	87-112	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : E300.0

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	20	20	20
SAMPLE ID :	OU2-MW15D-GW120719	OU2-MW15D-GW120719MS	OU2-MW15D-GW120719MSD
LAB SAMPLE ID :	L064-07J	L064-07JM	L064-07JS
LAB FILE ID :	AL13-07	AL13-08	AL13-09
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/12/1915:27	12/12/1915:45	12/12/1916:02
PREP BATCH :	ICL013W	ICL013W	ICL013W
CALIBRATION REF:	AL13-01	AL13-01	AL13-01

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	SPIKE AMT (mg/L)	MS RESULT (mg/L)	MS REC (%)	SPIKE AMT (mg/L)	MSD RESULT (mg/L)	MSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	150	100	247	97	100	247	97	0	87-112	20

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : E300.0

MATRIX	: WATER	
DILUTION FACTOR	: 20	20
SAMPLE ID	: OU2-MW15D-GW120719	OU2-MW15D-GW120719DUP
LAB SAMPLE ID	: L064-07J	L064-07JD
LAB FILE ID	: AL13-07	AL13-10
DATE PREPARED	: NA	NA
DATE ANALYZED	: 12/12/1915:27	12/12/1916:19
PREP BATCH	: ICL013W	ICL013W
CALIBRATION REF	: AL13-01	AL13-01

ACCESSION:

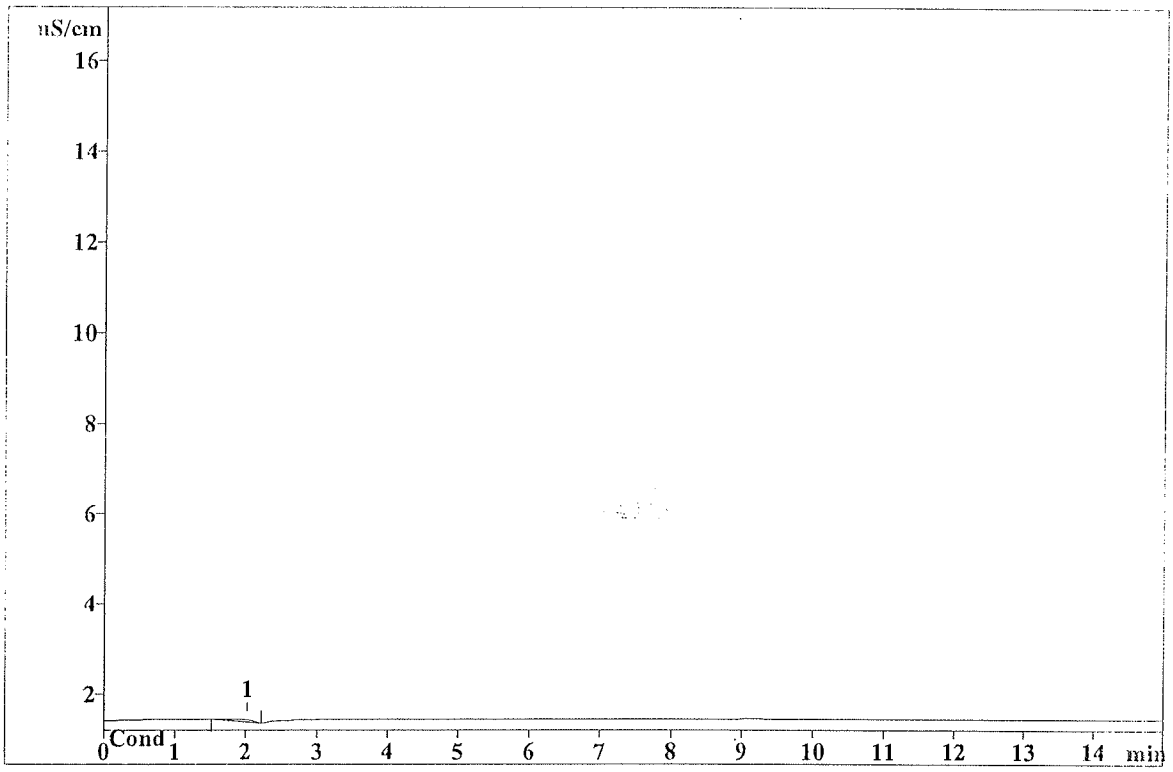
PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	RPD (%)	MAX RPD (%)
Sulfate	150	151	1	20

QC DATA

Report date: 12/13/2019 11:10:32 AM
Printed by: LDip

Ident: AL13-03 ICL013WB
Analysis from: 12/12/2019 11:52:34 AM
File: _2019-12-12_11-52.chw Last save: 12/12/2019 12:07:31 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154230

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 3
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

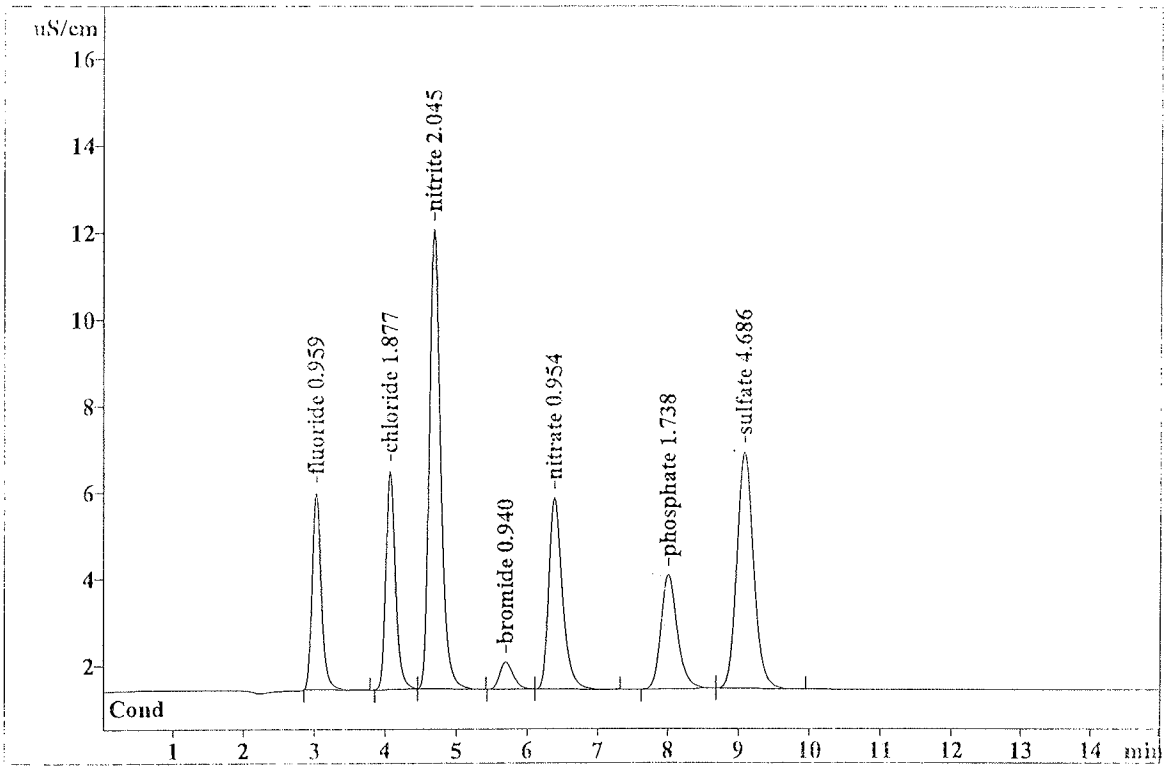
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.03	0.05	1.237	0.000	

This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 11:05:33 AM
Printed by: LDip

Ident: AL13-04 ICL013WL
Analysis from: 12/12/2019 12:09:39 PM
File: _2019-12-12_12-09.chw Last save: 12/12/2019 12:25:09 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154231

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 4
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

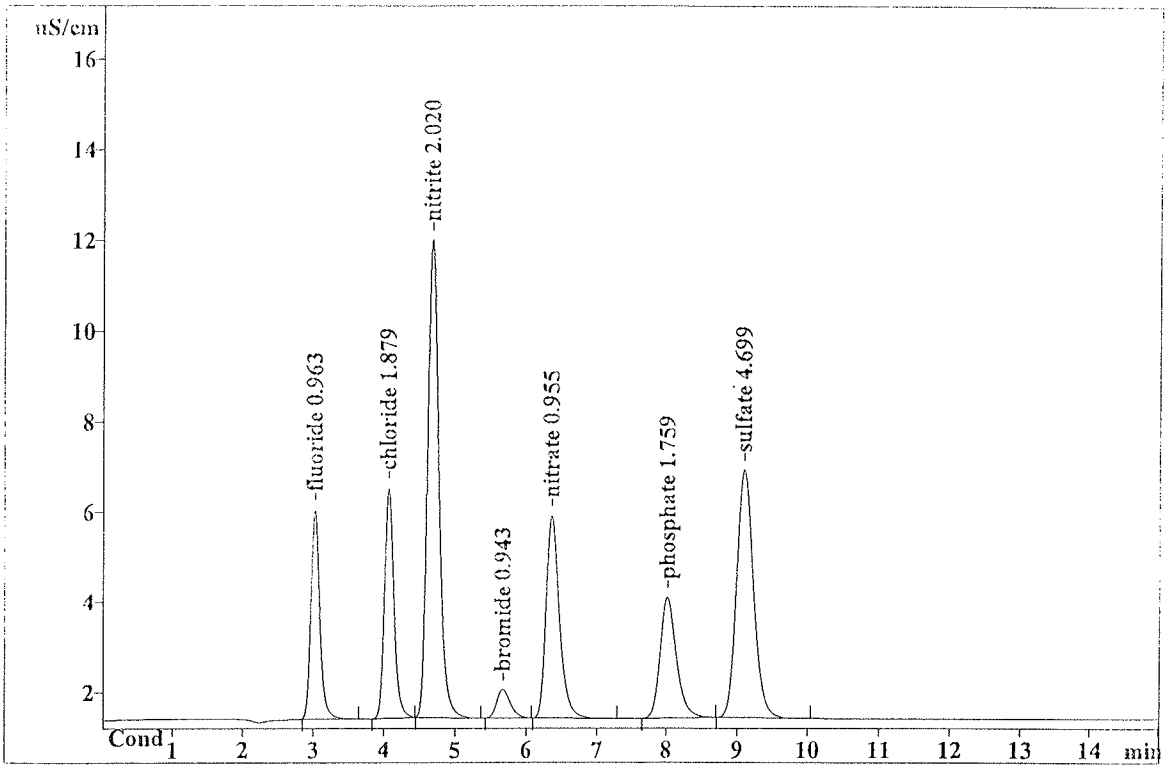
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.02	4.55	40.281	0.959	fluoride
2	4.06	5.05	46.680	1.877	chloride
3	4.68	10.61	116.912	2.045	nitrite
4	5.69	0.62	8.378	0.940	bromide
5	6.39	4.42	59.061	0.954	nitrate
6	8.00	2.63	42.648	1.738	phosphate
7	9.08	5.46	90.451	4.686	sulfate
7	15.00	33.35	404.412	13.199	

This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 11:07:52 AM
Printed by: LDip

Ident: AL13-05 ICL013WC
Analysis from: 12/12/2019 12:26:44 PM
File: _2019-12-12_12-26.chw Last save: 12/12/2019 12:41:41 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154232

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 5
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

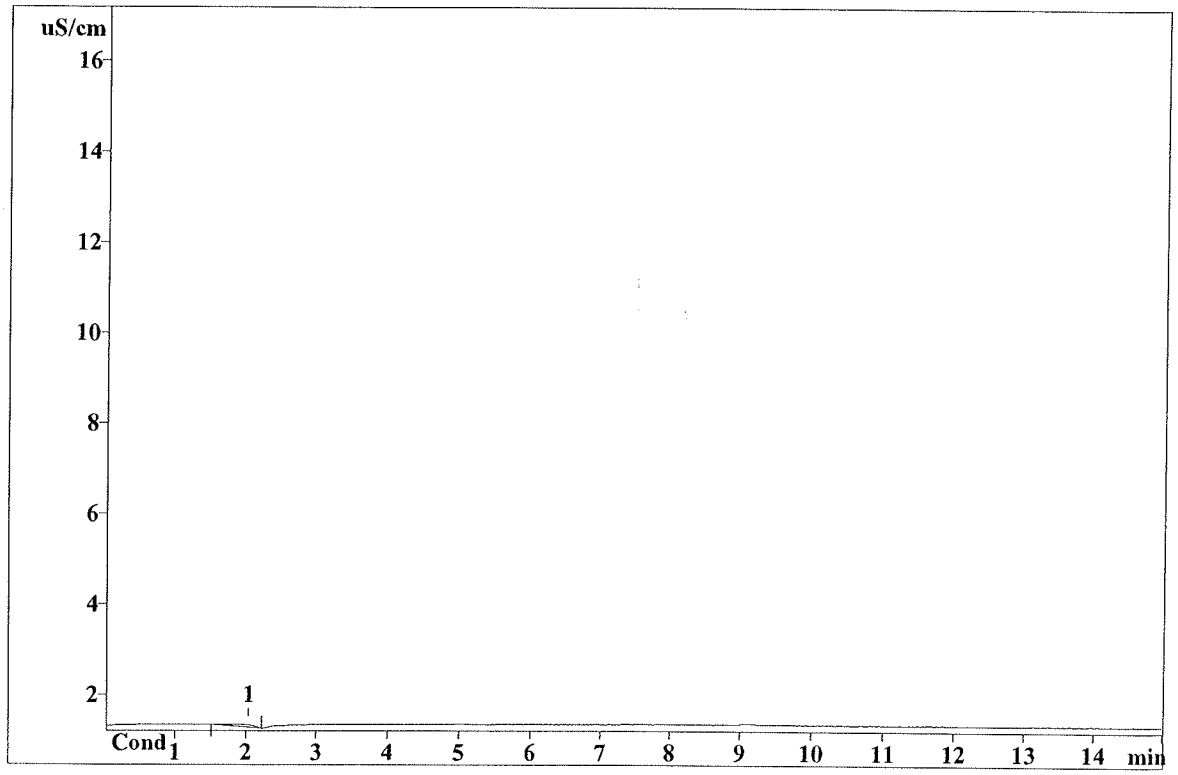
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.02	4.63	40.447	0.963	fluoride
2	4.06	5.10	46.752	1.879	chloride
3	4.67	10.58	115.472	2.020	nitrite
4	5.67	0.63	8.406	0.943	bromide
5	6.36	4.48	59.166	0.955	nitrate
6	8.01	2.67	43.209	1.759	phosphate
7	9.09	5.49	90.705	4.699	sulfate
7	15.00	33.58	404.157	13.218	

This report has been created by IC Net
METROHM LTD

Report date: 12/17/2019 12:26:41 PM
Printed by: LDip

Ident: AL15-03 ICL015WB
Analysis from: 12/16/2019 3:57:40 PM
File: _2019-12-16_15-57.chw Last save: 12/16/2019 4:12:37 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/16/2019 11:57:57 AM
Run operator: LDip
Analysis number: 154305

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 3
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.03	0.05	1.349	0.000	

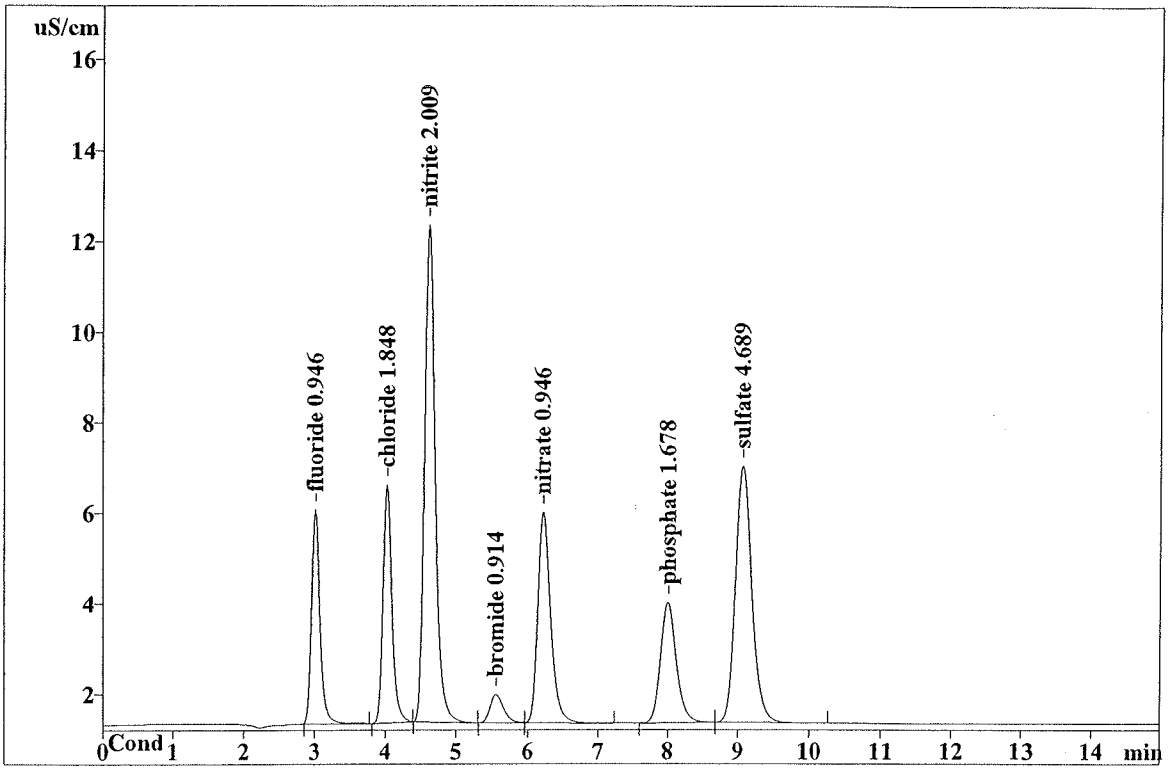
This report has been created by IC Net
METROHM LTD

Report date: 12/17/2019 10:58:35 AM
Printed by: LDip

Ident: AL15-04 ICL015WL
Analysis from: 12/16/2019 4:14:45 PM
File: _2019-12-16_16-14.chw Last save: 12/16/2019 5:30:32 PM

Method: ICD0-H26.mtw Last save: 12/16/2019 11:57:57 AM
Run operator: LDip
Analysis number: 154306

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 4
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

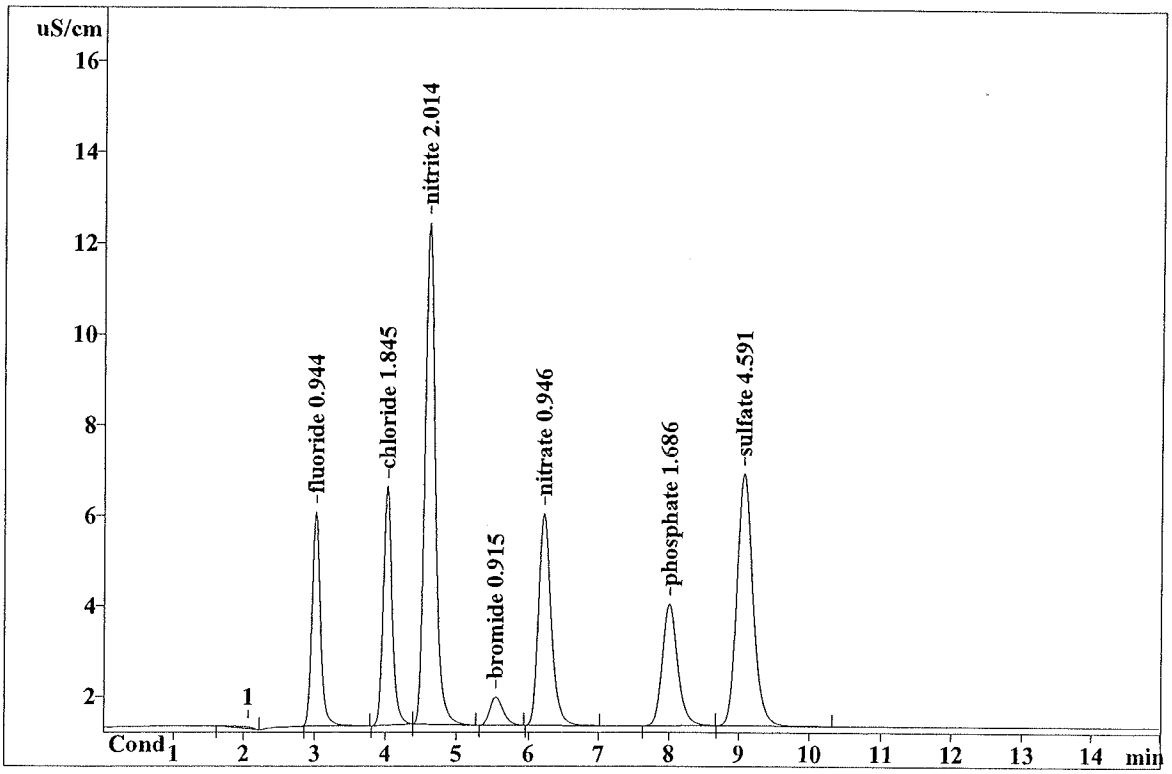
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.01	4.72	39.721	0.946	fluoride
2	4.02	5.25	45.947	1.848	chloride
3	4.61	10.97	114.838	2.009	nitrite
4	5.56	0.62	8.138	0.914	bromide
5	6.22	4.65	58.577	0.946	nitrate
6	8.00	2.66	40.985	1.678	phosphate
7	9.06	5.67	90.511	4.689	sulfate
7	15.00	34.54	398.716	13.031	

This report has been created by IC Net
METROHM LTD

Report date: 12/17/2019 10:58:54 AM
Printed by: LDip

Ident: AL15-05 ICL015WC
Analysis from: 12/16/2019 4:37:33 PM
File: _2019-12-16_16-37.chw Last save: 12/16/2019 5:30:41 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/16/2019 11:57:57 AM
Run operator: LDip
Analysis number: 154307

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 5
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

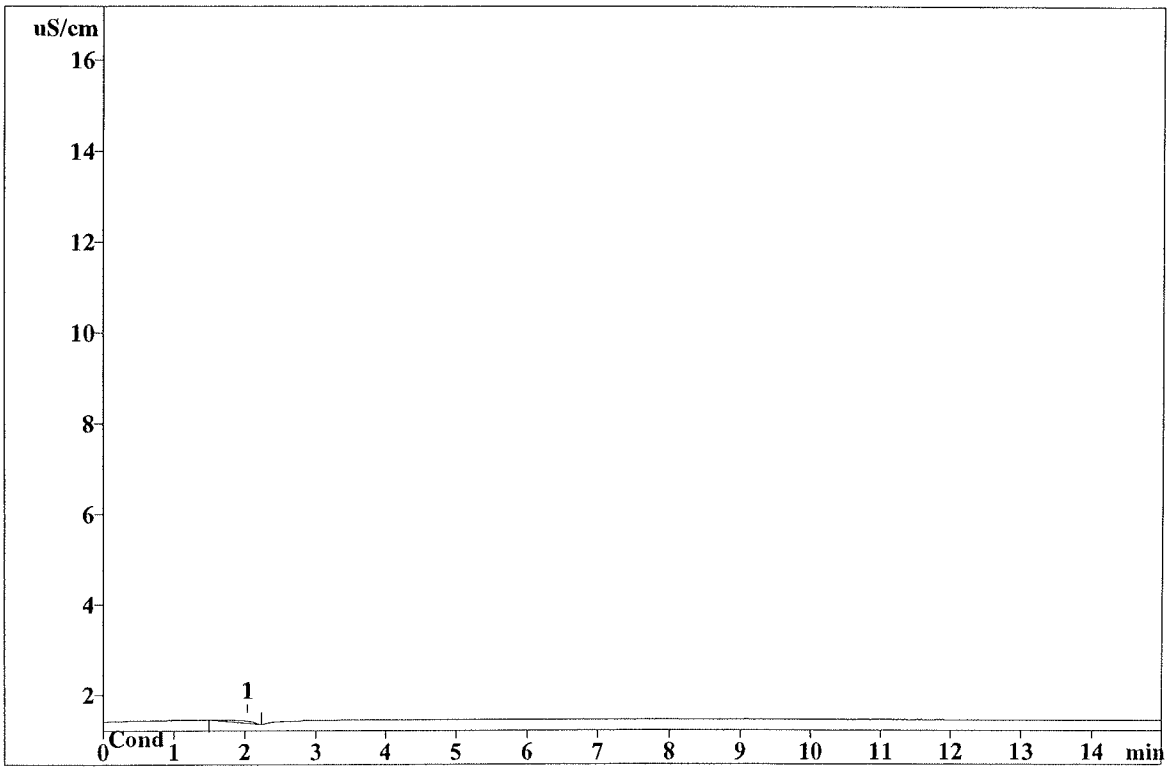
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.05	0.04	0.998	0.000	
2	3.01	4.74	39.623	0.944	fluoride
3	4.02	5.27	45.848	1.845	chloride
4	4.60	11.07	115.125	2.014	nitrite
5	5.55	0.63	8.154	0.915	bromide
6	6.21	4.68	58.565	0.946	nitrate
7	8.00	2.69	41.194	1.686	phosphate
8	9.06	5.57	88.523	4.591	sulfate
8	15.00	34.70	398.030	12.940	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 10:26:52 AM
Printed by: LDip

Ident: AL17-03 ICL017WB
Analysis from: 12/17/2019 11:32:42 AM
File: _2019-12-17_11-32.chw Last save: 12/17/2019 3:06:30 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/17/2019 11:03:31 AM
Run operator: LDip
Analysis number: 154340

SAMPLE: METHOD300/9056/4110B
:
Vial number: 3
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.01	0.05	1.354	0.000	

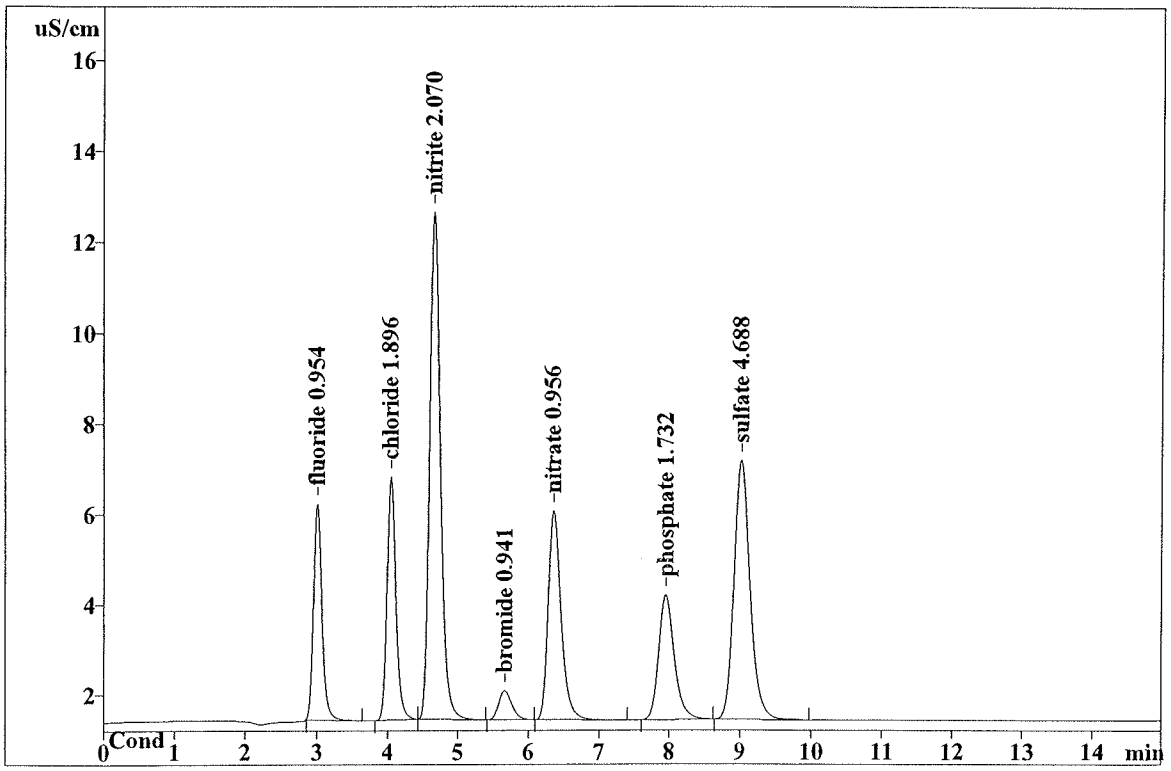
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 10:27:40 AM
Printed by: LDip

Ident: AL17-04 ICL017WL
Analysis from: 12/17/2019 11:49:47 AM
File: _2019-12-17_11-49.chw Last save: 12/17/2019 3:06:42 PM

Method: ICD0-H26.mtw Last save: 12/17/2019 11:03:31 AM
Run operator: LDip
Analysis number: 154341

SAMPLE: METHOD300/9056/4110B
:
Vial number: 4
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.00	4.80	40.044	0.954	fluoride
2	4.04	5.37	47.192	1.896	chloride
3	4.65	11.21	118.328	2.070	nitrite
4	5.66	0.64	8.390	0.941	bromide
5	6.35	4.63	59.197	0.956	nitrate
6	7.95	2.76	42.481	1.732	phosphate
7	9.01	5.73	90.498	4.688	sulfate
7	15.00	35.12	406.130	13.237	

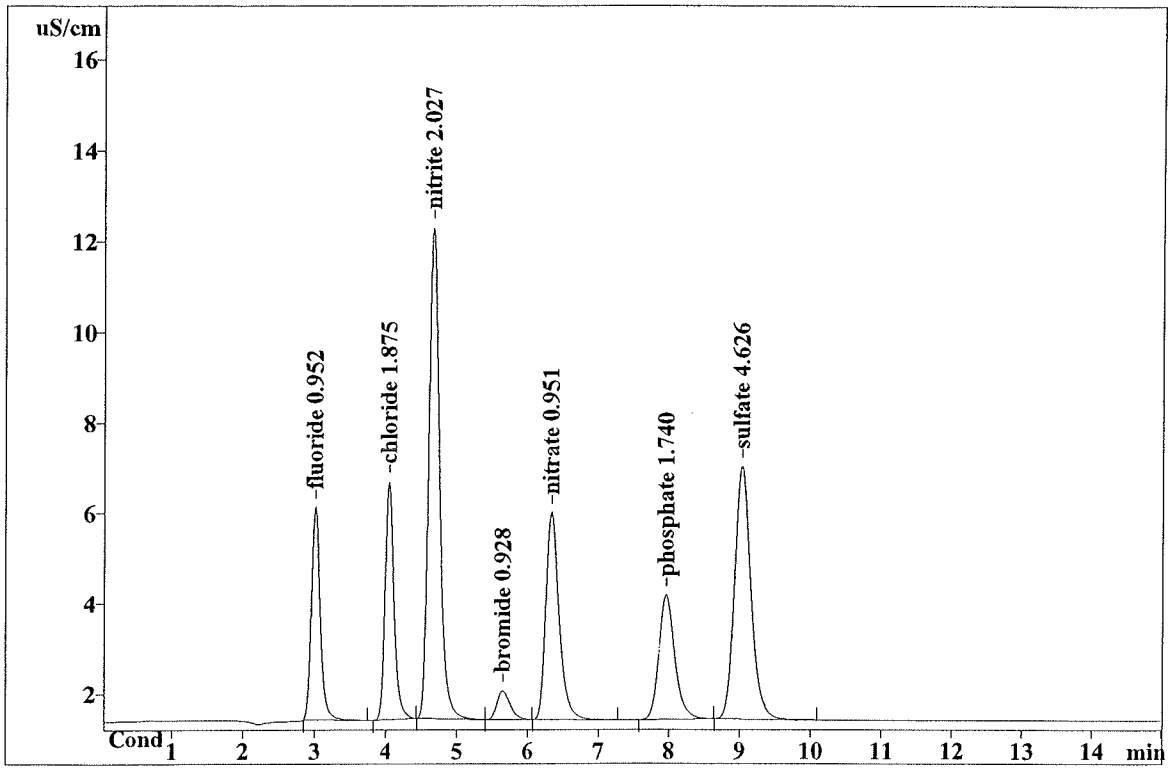
This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 10:28:11 AM
Printed by: LDip

Ident: AL17-05 ICL017WC
Analysis from: 12/17/2019 12:06:51 PM
File: _2019-12-17_12-06.chw Last save: 12/17/2019 3:07:00 PM

Method: ICD0-H26.mtw Last save: 12/17/2019 11:03:31 AM
Run operator: LDip
Analysis number: 154342

SAMPLE: METHOD300/9056/4110B
:
Vial number: 5
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.01	4.71	39.960	0.952	fluoride
2	4.04	5.27	46.635	1.875	chloride
3	4.65	10.86	115.848	2.027	nitrite
4	5.65	0.63	8.274	0.928	bromide
5	6.33	4.58	58.861	0.951	nitrate
6	7.96	2.75	42.680	1.740	phosphate
7	9.02	5.60	89.237	4.626	sulfate
7	15.00	34.39	401.495	13.098	

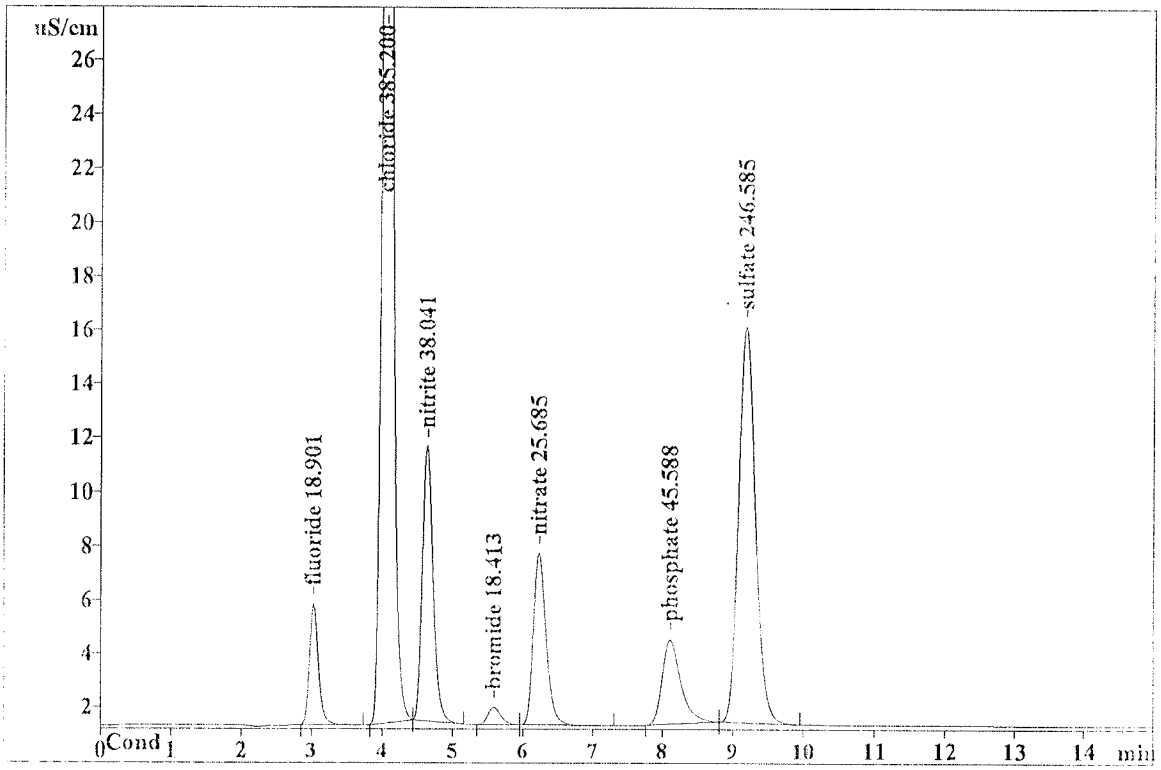
This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 12:05:21 PM
Printed by: LDip

Ident: AL13-08 L064-07JM DF=20
Analysis from: 12/12/2019 3:45:00 PM
File: _2019-12-12_15-45.chw Last save: 12/13/2019 12:02:45 PM

Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154235

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 8
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

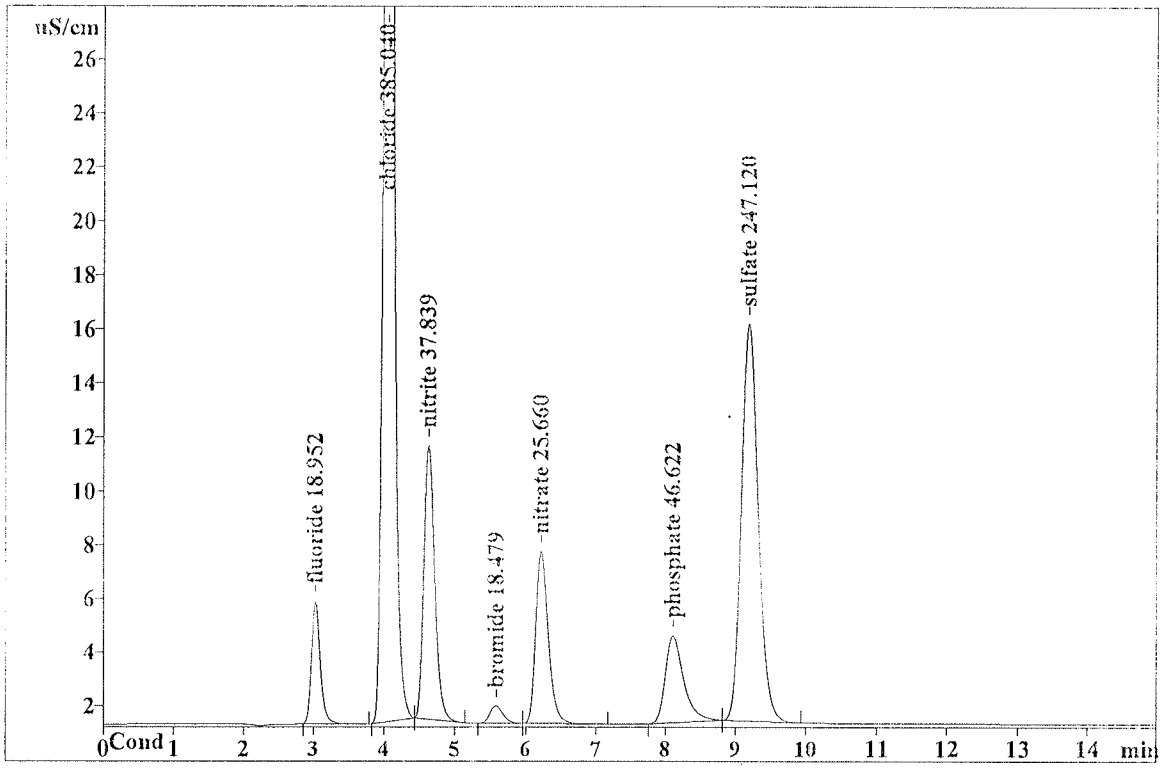
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	4.50	39.666	18.901	fluoride
2	4.04	53.73	499.895	385.200	chloride
3	4.63	10.20	108.622	38.041	nitrite
4	5.58	0.65	8.203	18.413	bromide
5	6.23	6.39	80.639	25.685	nitrate
6	8.10	3.14	57.536	45.588	phosphate
7	9.18	14.71	244.864	246.585	sulfate
7	15.00	93.32	1039.425	778.411	

This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 12:04:17 PM
Printed by: LDip

Ident: AL13-09 L064-07JS DF=20
Analysis from: 12/12/2019 4:02:05 PM
File: _2019-12-12_16-02.chw Last save: 12/12/2019 4:17:02 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154236

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 9
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

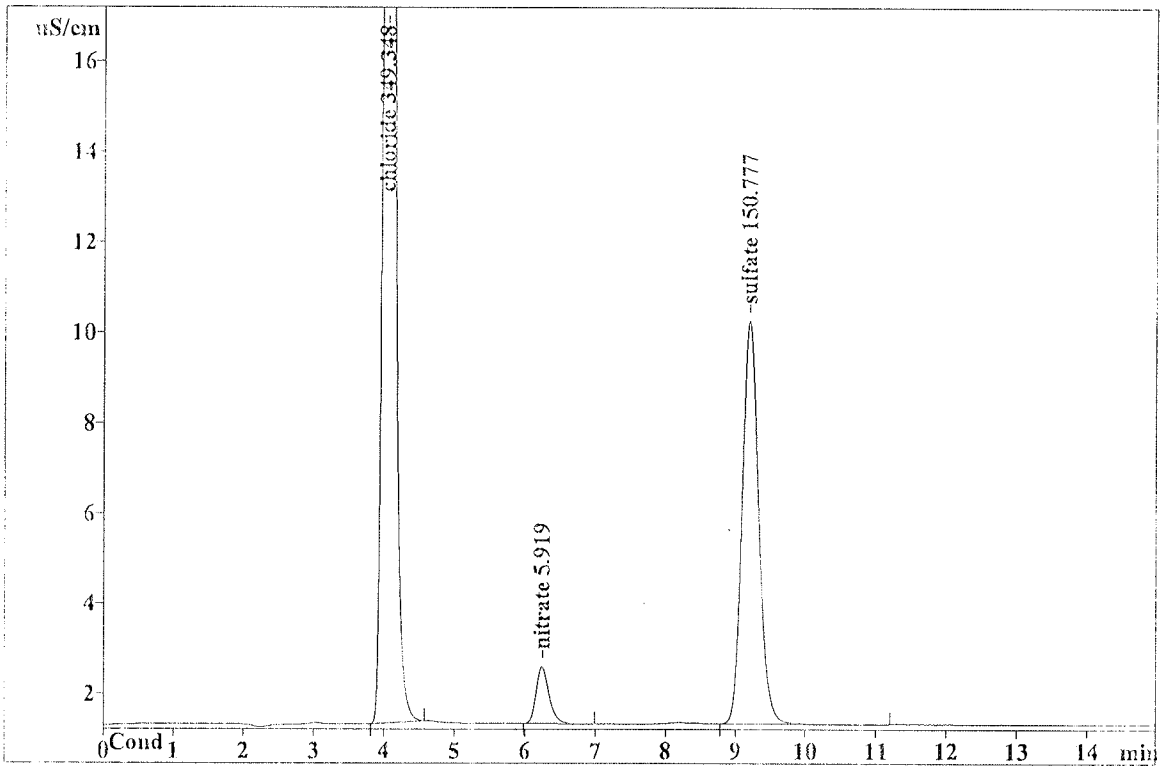
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	4.54	39.779	18.952	fluoride
2	4.04	54.00	499.687	385.040	chloride
3	4.63	10.21	108.039	37.839	nitrite
4	5.58	0.65	8.233	18.479	bromide
5	6.22	6.41	80.557	25.660	nitrate
6	8.11	3.22	58.959	46.622	phosphate
7	9.18	14.76	245.405	247.120	sulfate ✓
7	15.00	93.78	1040.660	779.713	

This report has been created by IC Net
METROHM LTD

Report date: 12/13/2019 12:27:13 PM
Printed by: LDip

Ident: AL13-10 L064-07JD DF=20
Analysis from: 12/12/2019 4:19:10 PM
File: _2019-12-12_16-19.chw Last save: 12/12/2019 4:34:07 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154237

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 10
Volume: 1.0 µL
Dilution: 20.00
Amount: 1.0000



Quantitation method: Custom

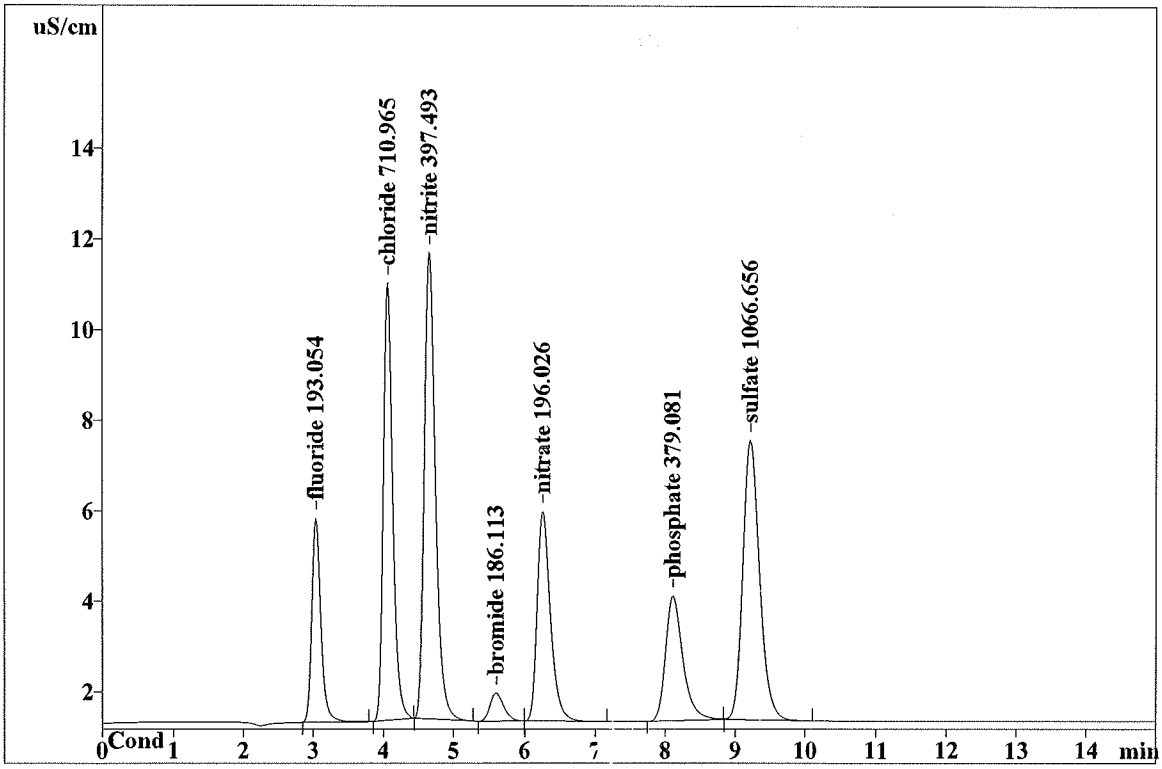
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.04	48.44	453.160	349.348	chloride
2	6.24	1.26	16.141	5.919	nitrate
3	9.19	8.92	148.086	150.777	sulfate ✓
3	15.00	58.62	617.387	506.044	

This report has been created by IC Net
METROHM LTD

Report date: 1/2/2020 3:54:43 PM
Printed by: LDip

Ident: AL13-33 L064-07KM DF=200
Analysis from: 12/12/2019 11:12:08 PM
File: _2019-12-12_23-12.chw Last save: 12/18/2019 7:44:20 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154260

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 33
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

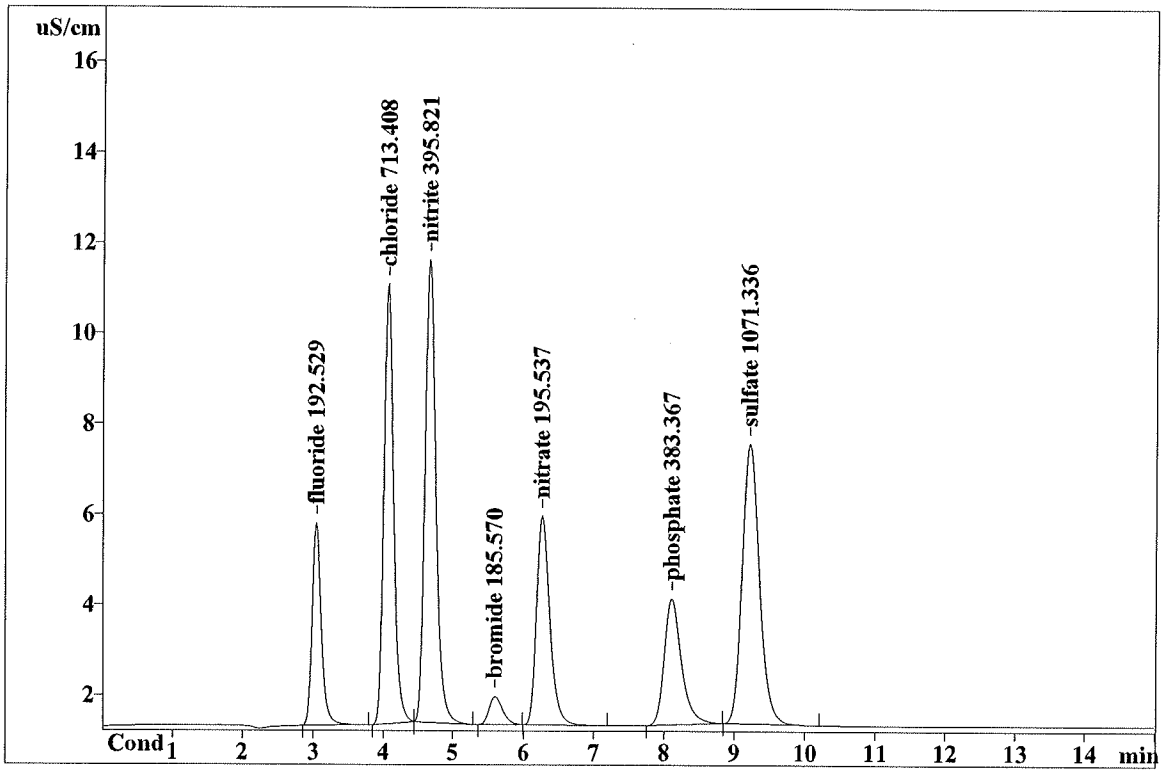
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.04	4.51	40.550	193.054	fluoride
2	4.05	9.66	90.435	710.965	chloride
3	4.65	10.30	113.572	397.493	nitrite
4	5.60	0.62	8.294	186.113	bromide
5	6.26	4.63	60.792	196.026	nitrate
6	8.11	2.75	46.969	379.081	phosphate
7	9.21	6.17	103.528	1066.656	sulfate
7	15.00	38.64	464.139	3129.388	

This report has been created by IC Net
METROHM LTD

Report date: 1/2/2020 3:54:53 PM
Printed by: LDip

Ident: AL13-34 L064-07KS DF=200
Analysis from: 12/12/2019 11:29:13 PM
File: _2019-12-12_23-29.chw Last save: 12/18/2019 7:44:20 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154261

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 34
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

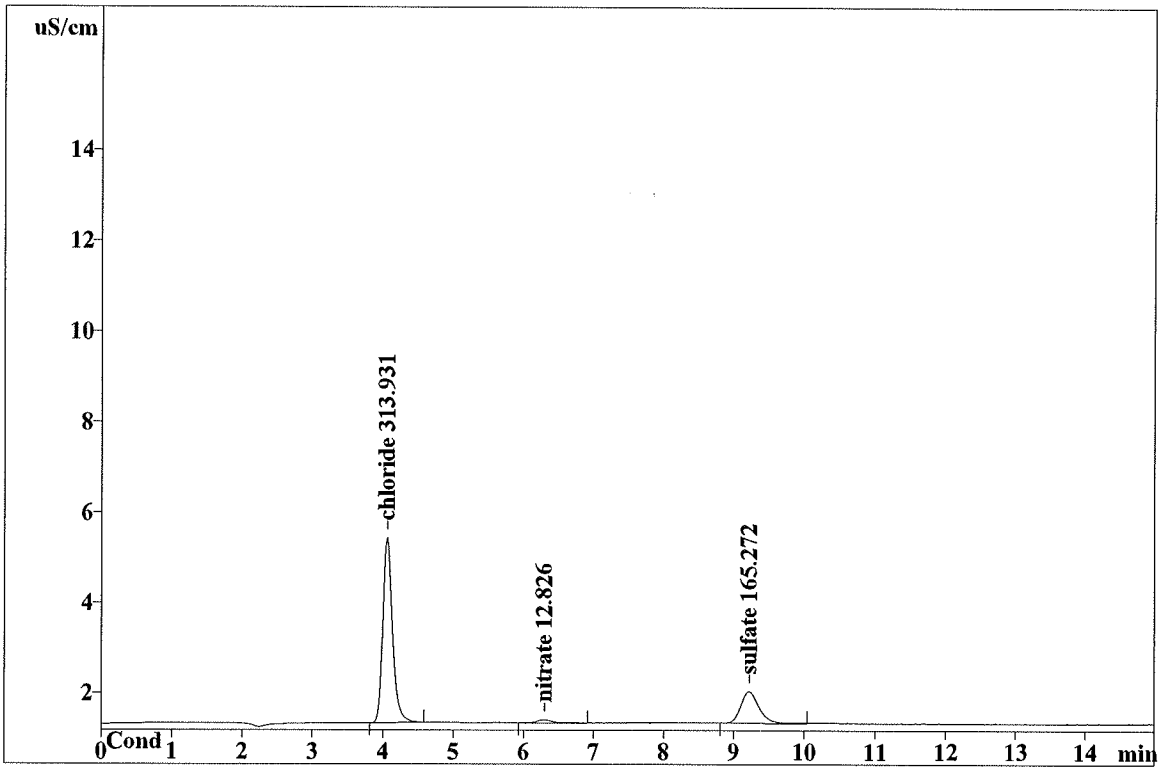
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.04	4.48	40.435	192.529	fluoride
2	4.05	9.71	90.754	713.408	chloride ✓
3	4.65	10.22	113.088	395.821	nitrite
4	5.60	0.62	8.269	185.570	bromide
5	6.26	4.61	60.632	195.537	nitrate
6	8.10	2.78	47.559	383.367	phosphate
7	9.21	6.18	104.000	1071.336	sulfate
7	15.00	38.60	464.737	3137.568	

This report has been created by IC Net
METROHM LTD

Report date: 1/2/2020 3:54:29 PM
Printed by: LDip

Ident: AL13-32 L064-07KD DF=200
Analysis from: 12/12/2019 10:55:04 PM
File: _2019-12-12_22-55.chw Last save: 12/18/2019 7:44:20 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154259

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 32
Volume: 1.0 µL
Dilution: 200.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	4.05	4.09	38.678	313.931	chloride✓
2	6.29	0.07	1.012	12.826	nitrate
3	9.22	0.70	12.476	165.272	sulfate
3	15.00	4.86	52.166	492.029	

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INITIAL CALIBRATION(S)

IC Result Check FormVersion : H26/AH23(2019)

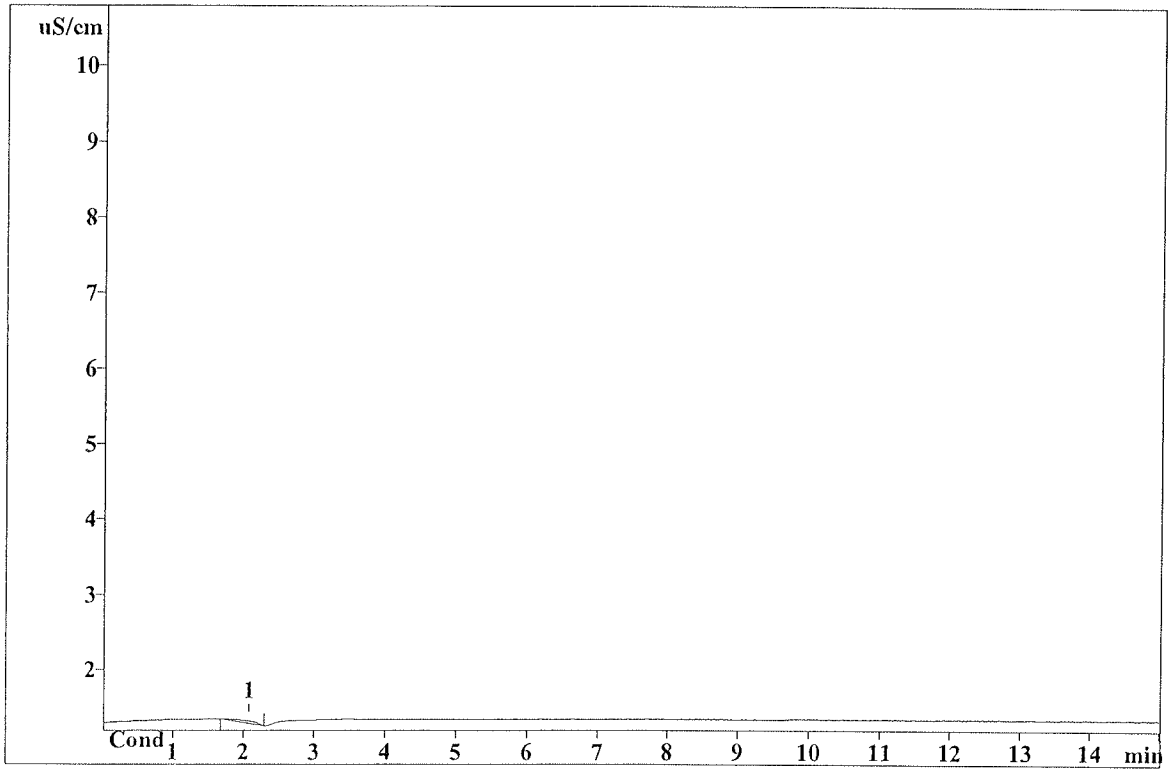
LFID	LSID	Selection	iodide	chloride	fluoride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH23-01	IB	OCFIBNPS	0	0	0	0	0	0	0	0	_2019-08-26_16-58	1
AH23-02	S0	OCFIBNPS	0	0	0	0	0	0	0	0	_2019-08-26_17-15	1
AH23-03	S1	OCFIBNPS	0	0.122926	0.0729115	0.0621884	0.0715218	0.0830175	0.219566	0.249228	_2019-08-26_17-32	1
AH23-04	S2	OCFIBNPS	0	0.157548	0.109866	0.0981438	0.116351	0.11867	0.253794	0.285689	_2019-08-26_17-49	1
AH23-05	S3	OCFIBNPS	0	0.22767	0.197892	0.178646	0.200404	0.196142	0.320261	0.352025	_2019-08-26_18-07	1
AH23-06	S4	OCFIBNPS	0	0.478707	0.477942	0.458922	0.482834	0.470745	0.542934	0.577414	_2019-08-26_18-24	1
AH23-07	S5	OCFIBNPS	0	0.91309	0.97287	0.953088	0.955536	0.955878	0.934155	0.95798	_2019-08-26_18-41	1
AH23-08	S6	OCFIBNPS	0	1.89927	2.01946	2.03599	2.02335	2.02555	1.83242	1.81849	_2019-08-26_18-58	1
AH23-09	S7	OCFIBNPS	0	5.05079	4.99906	5.13176	5.62802	5.3309	4.75924	4.66788	_2019-08-26_19-15	1
AH23-10	S8	OCFIBNPS	0	10.3733	9.50029	9.93126	12.0423	10.8293	9.84223	9.72306	_2019-08-26_19-32	1
AH23-11	S9	OCFIBNPS	0	21.1998	17.5315	18.5971	25.4225	21.9492	20.1454	20.2182	_2019-08-26_19-49	1
AH23-12	ICV	OCFIBNPS	0%*	91.9%	97.8%	100.1%	95.7%	95.6%	90.5%	94.1%	_2019-08-26_20-06	1
AH23-13	ICV1	OCFIBNPS	0%*	91%	98.2%	97.5%	93.4%	94.9%	93%	94.6%	_2019-08-26_20-23	1
AH23-14	ICB	OCFIBNPS	0	0	0	0	0	0	0	0	_2019-08-26_20-40	1

Report date: 8/27/2019 1:35:07 PM
Printed by: LDip

Ident: AH23-02 S0
Analysis from: 8/26/2019 5:15:48 PM
File: _2019-08-26_17-15.chw Last save: 8/27/2019 1:33:08 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150958

SAMPLE: METHOD 300
:
Vial number: 2
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.09	0.03	0.769	0.000	

This report has been created by IC Net
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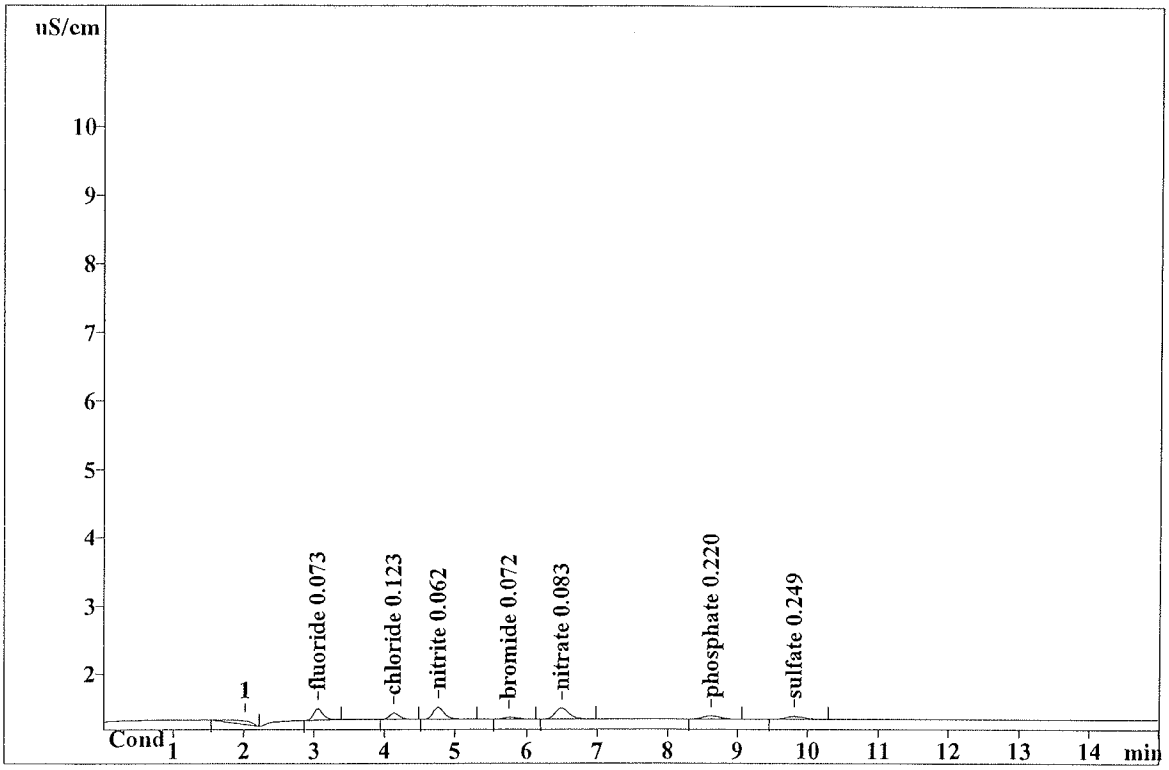
Report date: 8/27/2019 1:35:20 PM
Printed by: LDip

Ident: AH23-03 S1
Analysis from: 8/26/2019 5:32:53 PM
File: _2019-08-26_17-32.chw Last save: 8/27/2019 1:33:08 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150959

SAMPLE: METHOD 300
: 0.05 PPM
Vial number: 3
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.02	0.05	1.338	0.000	
2	3.05	0.17	1.577	0.073	fluoride
3	4.13	0.09	0.960	0.123	chloride
4	4.76	0.18	2.040	0.062	nitrite
5	5.76	0.03	0.425	0.072	bromide
6	6.49	0.16	2.244	0.083	nitrate
7	8.62	0.05	0.852	0.220	phosphate
8	9.82	0.04	0.817	0.249	sulfate
8	15.00	0.78	10.252	0.881	

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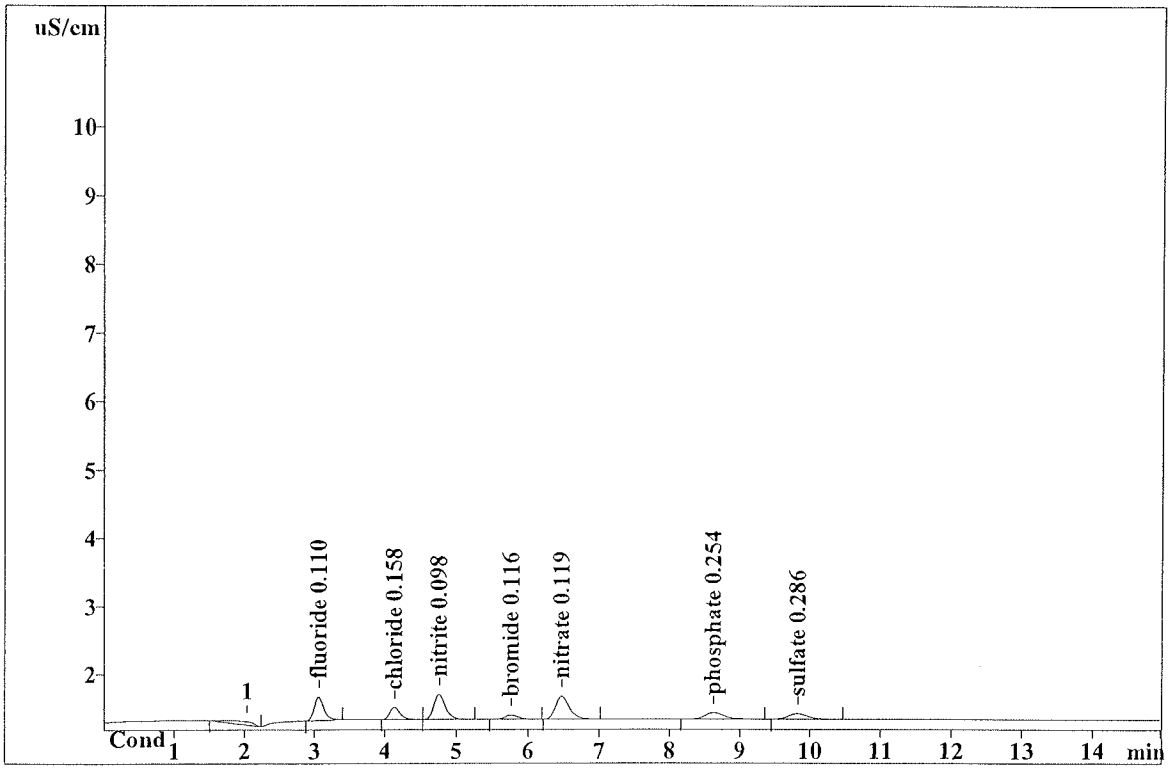
8/27/19

Report date: 8/27/2019 1:35:27 PM
Printed by: LDip

Ident: AH23-04 S2
Analysis from: 8/26/2019 5:49:58 PM
File: _2019-08-26_17-49.chw Last save: 8/27/2019 1:33:08 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150960

SAMPLE: METHOD 300
: 0.1 PPM
Vial number: 4
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.03	0.05	1.405	0.000	
2	3.06	0.35	3.191	0.110	fluoride
3	4.13	0.19	1.862	0.158	chloride
4	4.76	0.37	4.123	0.098	nitrite
5	5.77	0.06	0.836	0.116	bromide
6	6.48	0.34	4.571	0.119	nitrate
7	8.62	0.10	1.794	0.254	phosphate
8	9.82	0.08	1.553	0.286	sulfate
8	15.00	1.53	19.335	1.140	

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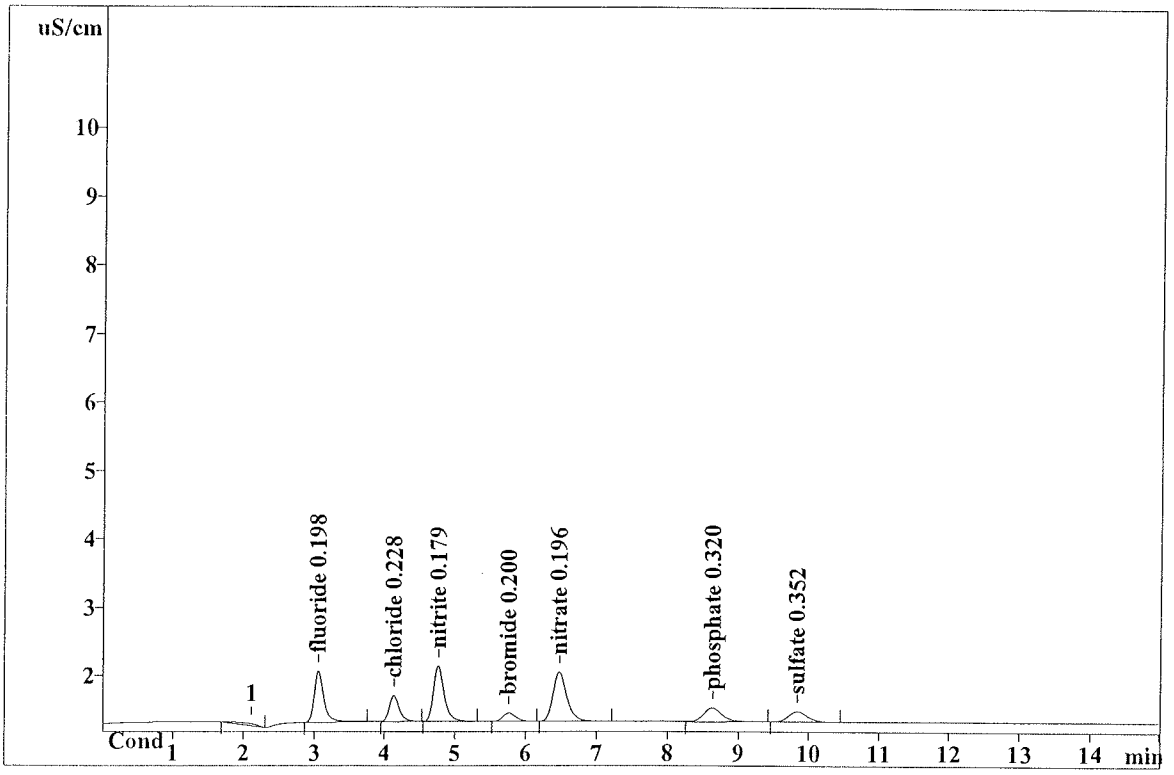
Report date: 8/27/2019 1:35:33 PM
Printed by: LDip

Ident: AH23-05 S3
Analysis from: 8/26/2019 6:07:03 PM
File: _2019-08-26_18-07.chw Last save: 8/27/2019 1:33:08 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150961

SAMPLE: METHOD 300
: 0.2 PPM
Vial number: 5
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.11	0.03	0.743	0.000	
2	3.06	0.75	7.036	0.198	fluoride
3	4.13	0.38	3.690	0.228	chloride
4	4.76	0.81	8.786	0.179	nitrite
5	5.76	0.12	1.605	0.200	bromide
6	6.47	0.72	9.627	0.196	nitrate
7	8.62	0.20	3.623	0.320	phosphate
8	9.84	0.15	2.893	0.352	sulfate
8	15.00	3.17	38.004	1.673	

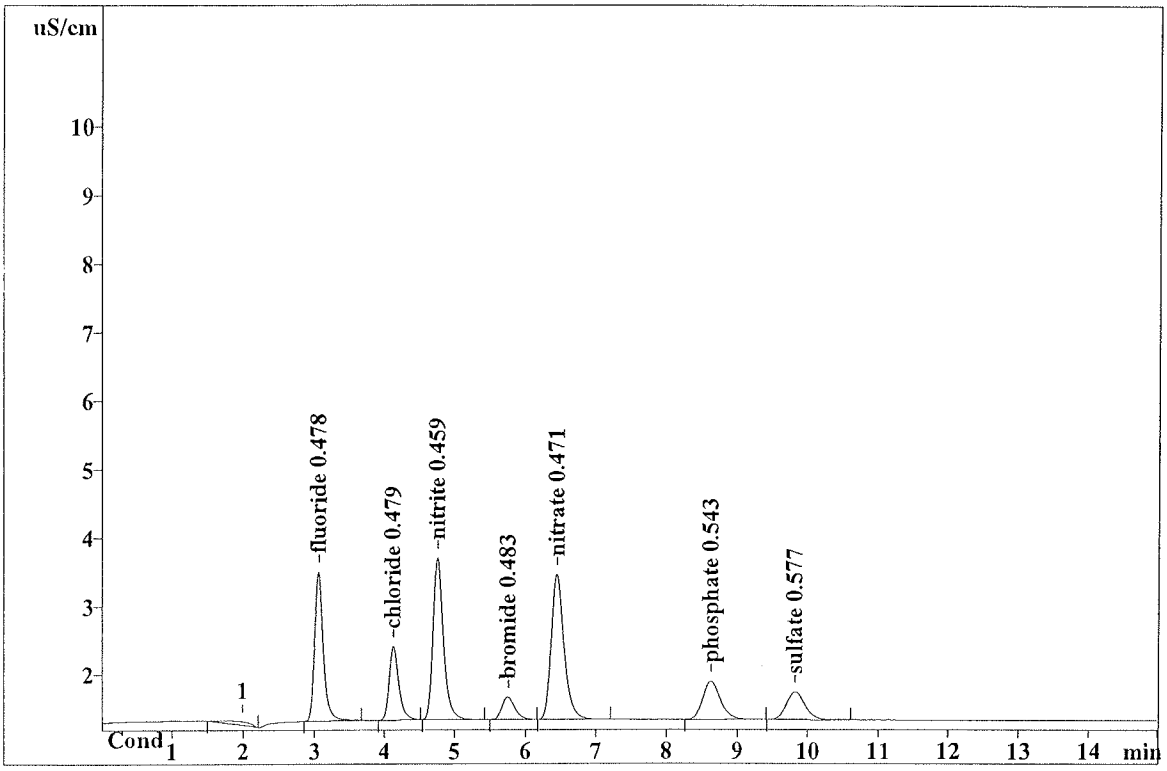
This report has been created by IC Net
METROHM LTD

Report date: 8/27/2019 1:35:41 PM
Printed by: LDip

Ident: AH23-06 S4
Analysis from: 8/26/2019 6:24:08 PM
File: _2019-08-26_18-24.chw Last save: 8/27/2019 1:33:08 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150962

SAMPLE: METHOD 300
: 0.5 PPM
Vial number: 6
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.00	0.05	1.443	0.000	
2	3.06	2.19	19.266	0.478	fluoride
3	4.13	1.08	10.235	0.479	chloride
4	4.75	2.38	25.023	0.459	nitrite
5	5.75	0.34	4.192	0.483	bromide
6	6.45	2.13	27.548	0.471	nitrate
7	8.62	0.56	9.751	0.543	phosphate
8	9.82	0.41	7.447	0.577	sulfate
8	15.00	9.15	104.906	3.489	

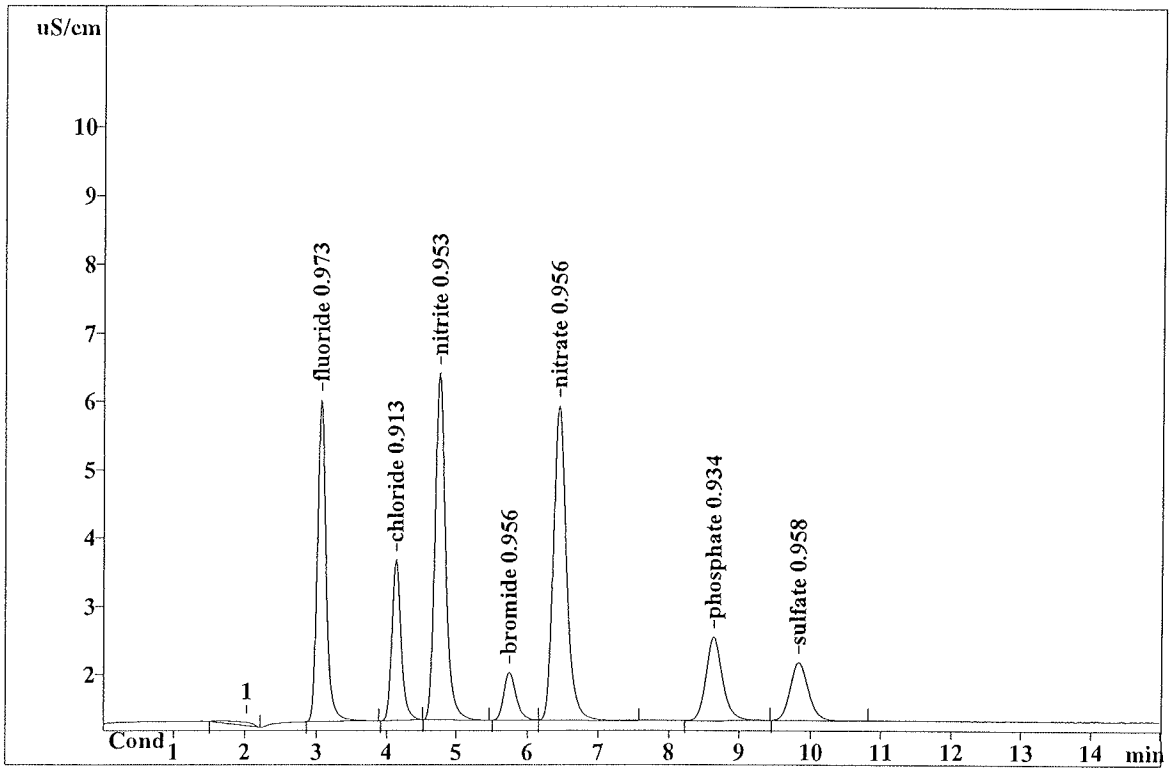
This report has been created by IC Net
METROHM LTD

Report date: 8/27/2019 1:35:47 PM
Printed by: LDip

Ident: AH23-07 S5
Analysis from: 8/26/2019 6:41:13 PM
File: _2019-08-26_18-41.chw Last save: 8/27/2019 1:33:08 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150963

SAMPLE: METHOD 300
: 1.0 PPM
Vial number: 7
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.03	0.05	1.313	0.000	
2	3.06	4.71	40.882	0.973	fluoride
3	4.13	2.34	21.560	0.913	chloride
4	4.75	5.07	53.650	0.953	nitrite
5	5.74	0.69	8.522	0.956	bromide
6	6.43	4.60	59.209	0.956	nitrate
7	8.62	1.21	20.517	0.934	phosphate
8	9.82	0.85	15.135	0.958	sulfate
8	15.00	19.53	220.789	6.643	

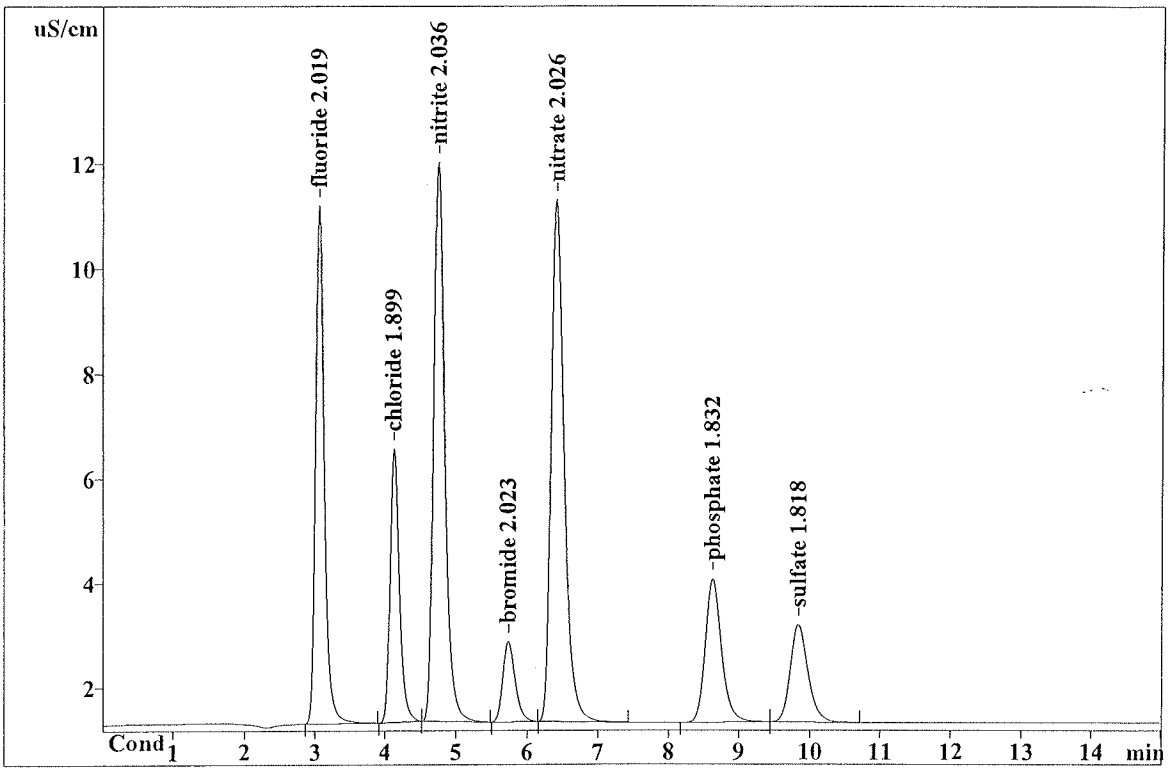
This report has been created by IC Net
METROHM LTD

Report date: 8/27/2019 1:35:58 PM
Printed by: LDip

Ident: AH23-08 S6
Analysis from: 8/26/2019 6:58:17 PM
File: _2019-08-26_18-58.chw Last save: 8/27/2019 1:33:08 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150964

SAMPLE: METHOD 300
: 2.0 PPM
Vial number: 8
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



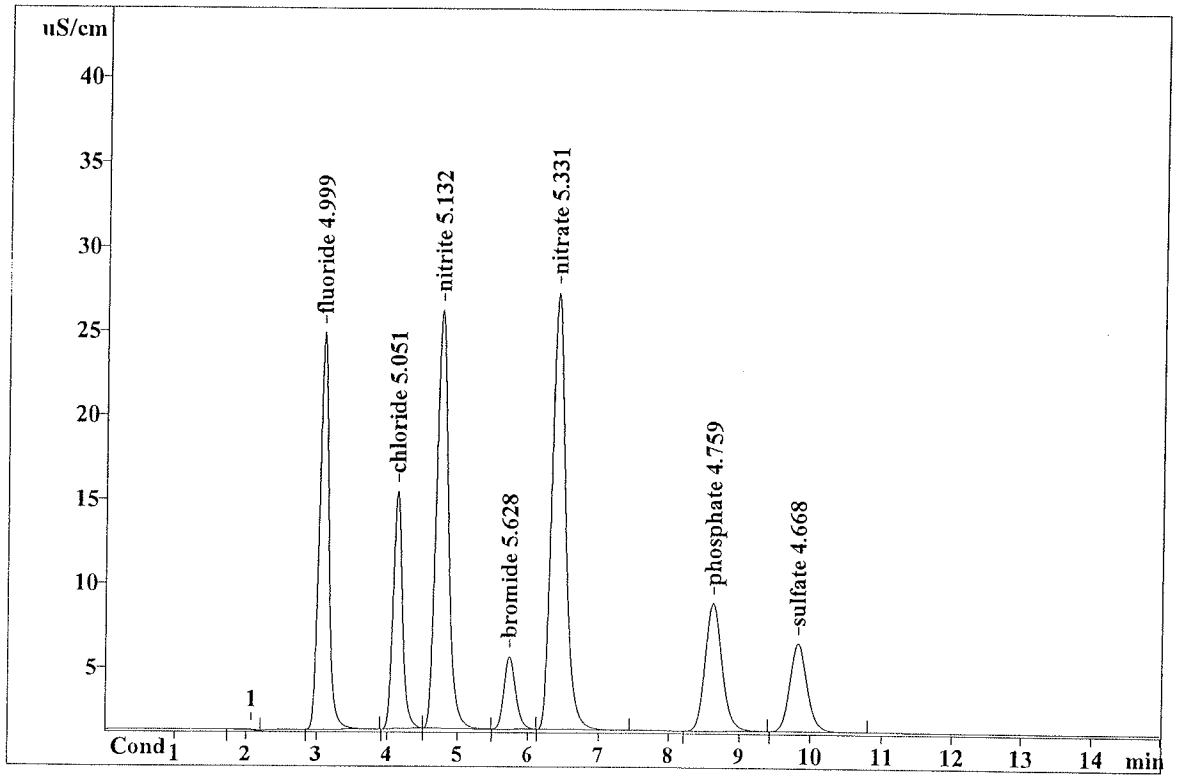
Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.06	9.88	86.591	2.019	fluoride
2	4.13	5.22	47.272	1.899	chloride
3	4.75	10.67	116.383	2.036	nitrite
4	5.74	1.54	18.303	2.023	bromide
5	6.42	9.96	129.018	2.026	nitrate
6	8.62	2.74	45.236	1.832	phosphate
7	9.83	1.86	32.520	1.818	sulfate
7	15.00	41.87	475.322	13.655	

This report has been created by IC Net
METROHM LTD

8/27/19

Report date:	8/27/2019 1:36:19 PM
Printed by:	LDip
Ident:	AH23-09 S7
Analysis from:	8/26/2019 7:15:22 PM
File:	_2019-08-26_19-15.chw Last save: 8/27/2019 1:33:08 PM
Method:	ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator:	LDip
Analysis number:	150965
SAMPLE:	METHOD 300
:	5.0 PPM
Vial number:	9
Volume:	1.0 µL
Dilution:	1.00
Amount:	1.0000

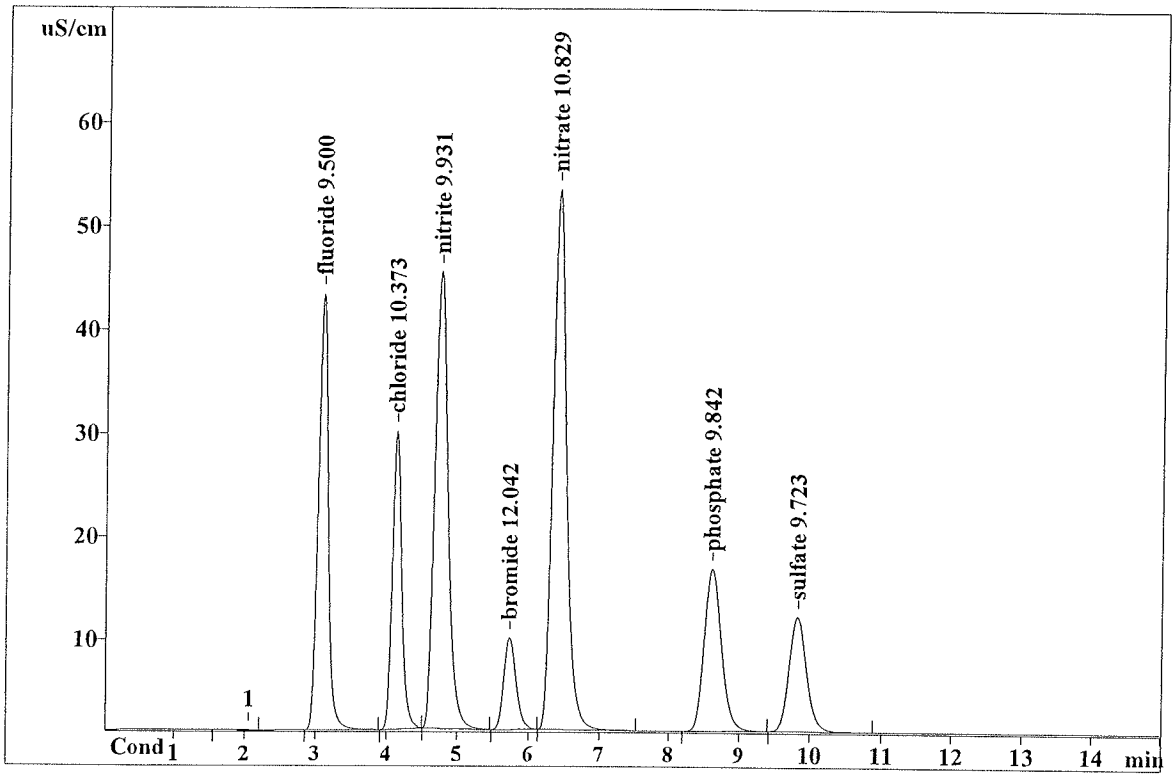


Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.06	0.04	0.593	0.000	
2	3.07	23.59	216.722	4.999	fluoride
3	4.12	14.16	129.437	5.051	chloride
4	4.74	24.88	295.722	5.132	nitrite
5	5.72	4.32	51.322	5.628	bromide
6	6.39	25.98	344.731	5.331	nitrate
7	8.61	7.60	125.779	4.759	phosphate
8	9.82	5.24	90.085	4.668	sulfate
8	15.00	105.80	1254.391	35.568	

This report has been created by IC Net
METROHM LTD

Report date:	8/27/2019 1:36:33 PM	
Printed by:	LDip	
Ident:	AH23-10 S8	
Analysis from:	8/26/2019 7:32:27 PM	
File:	_2019-08-26_19-32.chw	Last save: 8/27/2019 1:33:09 PM
Method:	ICD0-H26.mtw	Last save: 8/26/2019 6:22:00 PM
Run operator:	LDip	
Analysis number:	150966	
SAMPLE:	METHOD 300	
:	10.0 PPM	
Vial number:	10	
Volume:	1.0 µL	
Dilution:	1.00	
Amount:	1.0000	



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.03	0.03	0.753	0.000	
2	3.09	42.21	413.310	9.500	fluoride
3	4.12	28.90	268.205	10.373	chloride
4	4.74	44.18	573.758	9.931	nitrite
5	5.72	8.85	110.075	12.042	bromide
6	6.39	52.22	703.570	10.829	nitrate
7	8.60	15.70	265.658	9.842	phosphate
8	9.81	11.06	192.212	9.723	sulfate
8	15.00	203.16	2527.542	72.242	

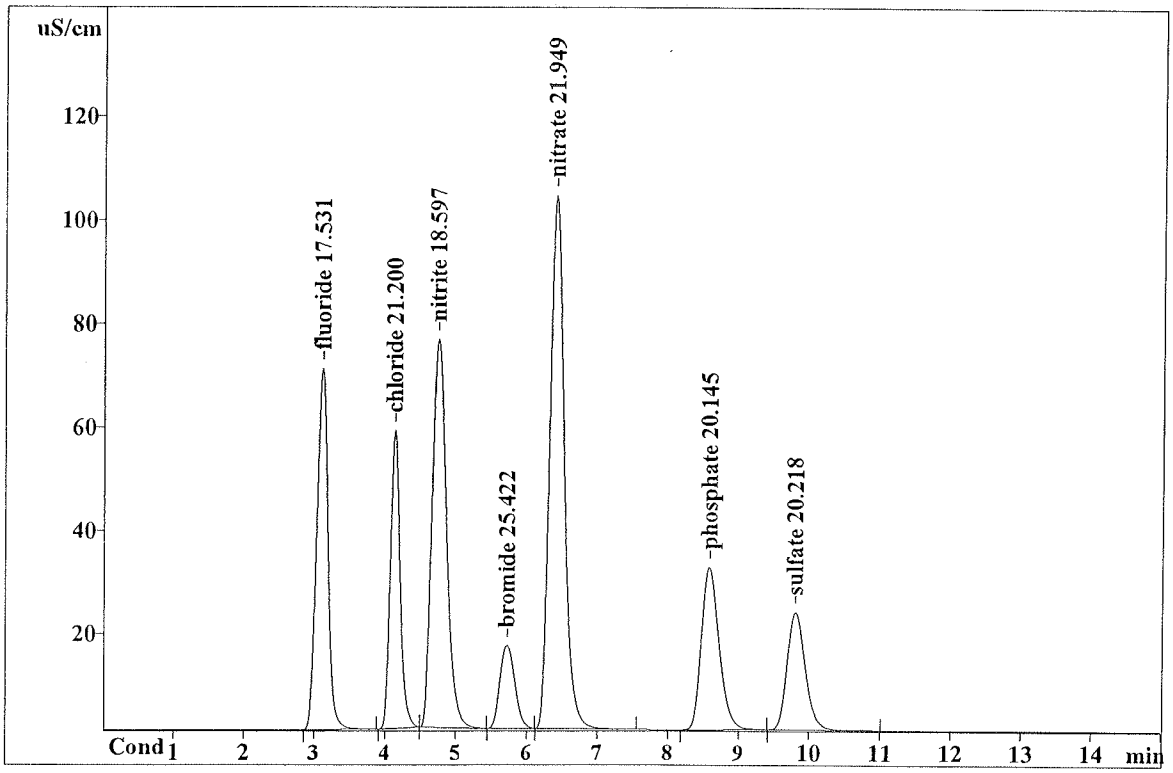
This report has been created by IC Net
METROHM LTD

Report date: 8/27/2019 1:36:53 PM
Printed by: LDip

Ident: AH23-11 S9
Analysis from: 8/26/2019 7:49:31 PM
File: _2019-08-26_19-49.chw Last save: 8/27/2019 1:33:09 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150967

SAMPLE: METHOD 300
: 20.0 PPM
Vial number: 11
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.10	70.11	764.065	17.531	fluoride
2	4.13	57.85	550.471	21.200	chloride
3	4.74	75.28	1075.773	18.597	nitrite
4	5.72	16.08	232.636	25.422	bromide
5	6.40	103.31	1429.276	21.949	nitrate
6	8.57	31.51	549.191	20.145	phosphate
7	9.80	22.77	404.242	20.218	sulfate
7	15.00	376.91	5005.653	145.064	

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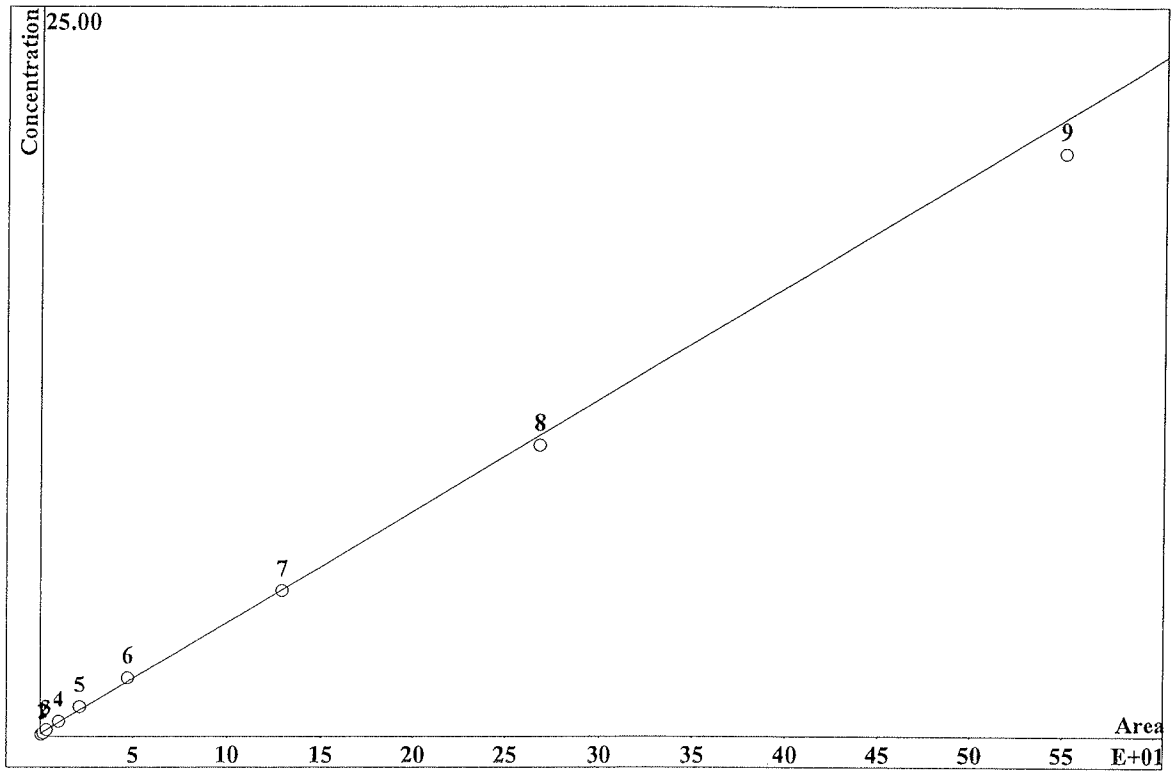
CALIBRATION OF COMPONENT chloride

Method: ICD0-H26.mtw
Equation: Q = 0.0383557·A + 0.0861225
RSD: 6.140 %
Correlation coefficient: 0.999212

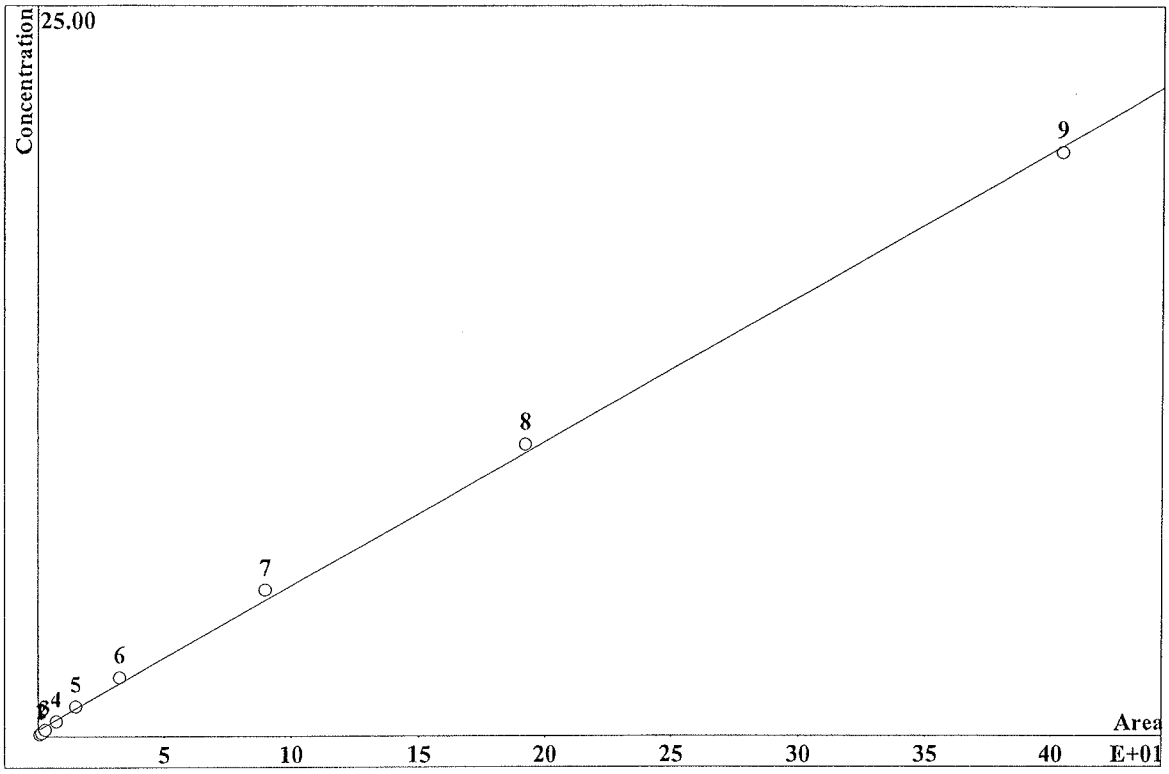


K3 = 0 K2 = 0 K1 = 0.0383557 K0 = 0.0861225
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.09513	0.9595	0.05	1	4.13	Yes	_2019-08-26_1□
2	0.1858	1.862	0.1	1	4.13	Yes	_2019-08-26_1□
3	0.3776	3.69	0.2	1	4.13	Yes	_2019-08-26_1□
4	1.083	10.24	0.5	1	4.13	Yes	_2019-08-26_1□
5	2.342	21.56	1	1	4.13	Yes	_2019-08-26_1□
6	5.223	47.27	2	1	4.13	Yes	_2019-08-26_1□
7	14.16	129.4	5	1	4.13	Yes	_2019-08-26_1□
8	28.9	268.2	10	1	4.13	No	_2019-08-26_1
9	57.85	550.5	20	1	4.13	No	_2019-08-26_1

CALIBRATION OF COMPONENT sulfate

Method: ICD0-H26.mtw
Equation: Q = 0.0494987·A + 0.208807
RSD: 5.345 %
Correlation coefficient: 0.999486



K3 = 0 K2 = 0 K1 = 0.0494987 K0 = 0.208807
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.044	0.8166	0.05	1	9.82	Yes	_2019-08-26_10
2	0.08097	1.553	0.1	1	9.82	Yes	_2019-08-26_10
3	0.1547	2.893	0.2	1	9.82	Yes	_2019-08-26_10
4	0.4101	7.447	0.5	1	9.82	Yes	_2019-08-26_10
5	0.8475	15.14	1	1	9.82	Yes	_2019-08-26_10
6	1.859	32.52	2	1	9.82	Yes	_2019-08-26_10
7	5.239	90.08	5	1	9.82	Yes	_2019-08-26_10
8	11.06	192.2	10	1	9.82	Yes	_2019-08-26_1
9	22.77	404.2	20	1	9.82	Yes	_2019-08-26_1

SECOND SOURCE VERIFICATION

IC Result Check FormVersion : H26/AH23(2019)

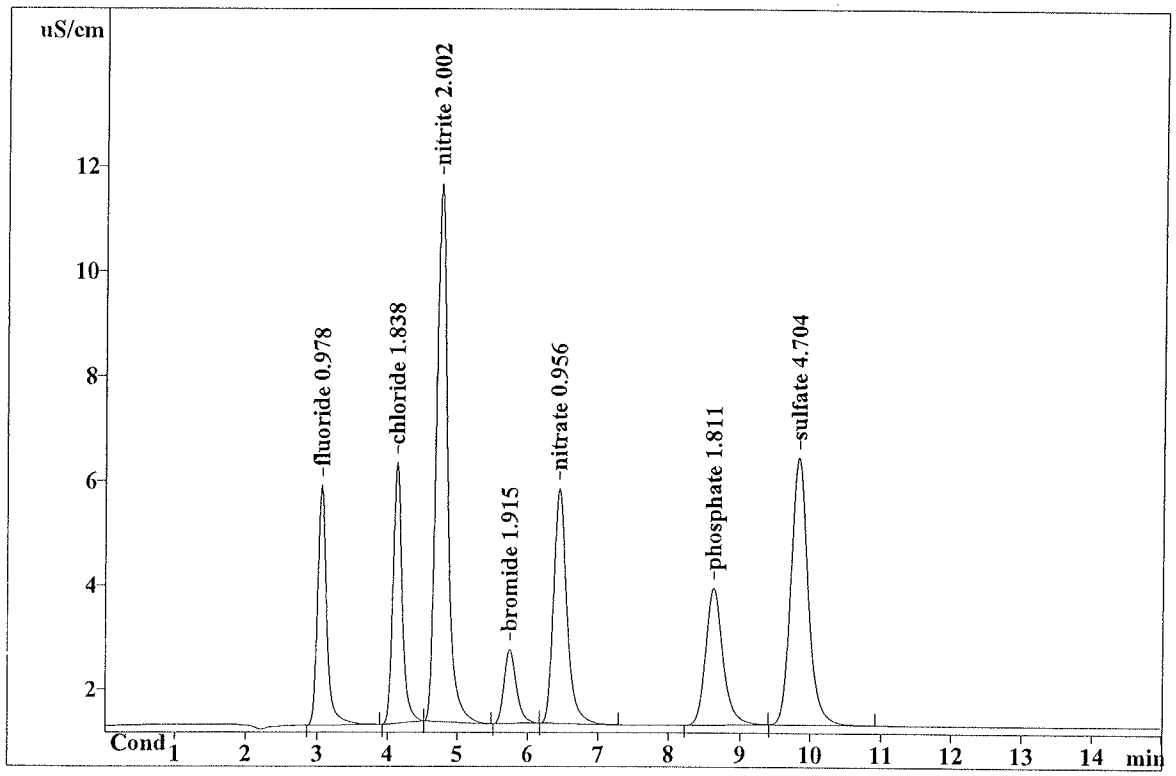
LFID	LSID	Selection	phosphate	nitrite	nitrate	iodide	fluoride	chloride	bromide	sulfate	RawNetID	DF
AH23-01	IB	PINOFCBS	0	0	0	0	0	0	0	0	_2019-08-26_16-58	1
AH23-12	ICV	PINOFCBS	90.5%	100.1%	95.6%	0%*	97.8%	91.9%	95.7%	94.1%	_2019-08-26_20-06	1
AH23-13	ICV1	PINOFCBS	93%	97.5%	94.9%	0%*	98.2%	91%	93.4%	94.6%	_2019-08-26_20-23	1
AH23-14	ICB	PINOFCBS	0	0	0	0	0	0	0	0	_2019-08-26_20-40	1

Report date: 8/27/2019 1:37:06 PM
Printed by: LDip

Ident: AH23-12 ICV
Analysis from: 8/26/2019 8:06:36 PM
File: _2019-08-26_20-06.chw Last save: 8/27/2019 1:33:09 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150968

SAMPLE: METHOD 300
:
Vial number: 12
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.06	4.61	41.090	0.978	fluoride
2	4.12	4.99	45.665	1.838	chloride
3	4.75	10.29	114.386	2.002	nitrite
4	5.74	1.43	17.308	1.915	bromide
5	6.44	4.51	59.217	0.956	nitrate
6	8.62	2.63	44.640	1.811	phosphate
7	9.81	5.12	90.824	4.704	sulfate
7	15.00	33.59	413.130	14.203	

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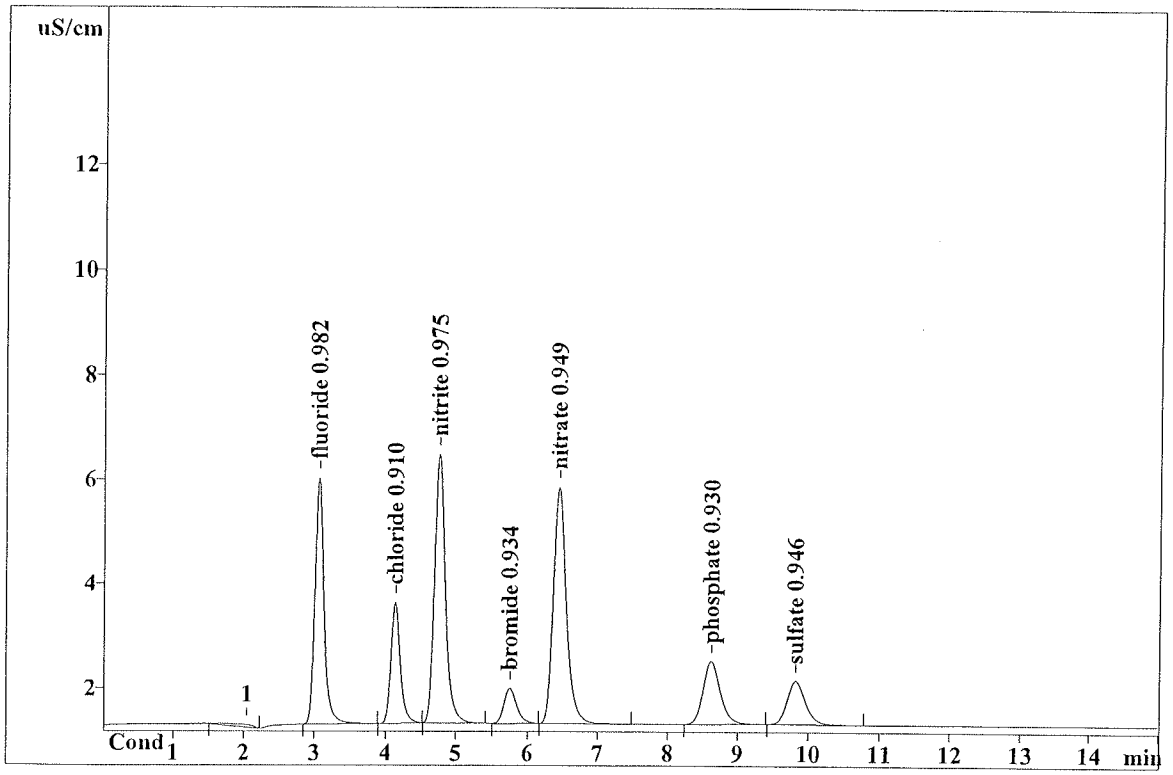
Report date: 8/27/2019 1:37:13 PM
Printed by: LDip

Ident: AH23-13 ICV1
Analysis from: 8/26/2019 8:23:41 PM
File: _2019-08-26_20-23.chw Last save: 8/27/2019 1:33:09 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150969

SAMPLE: METHOD 300
: 1.0 PPM
Vial number: 13
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.03	0.05	1.298	0.000	
2	3.06	4.72	41.271	0.982	fluoride
3	4.13	2.31	21.467	0.910	chloride
4	4.75	5.15	54.925	0.975	nitrite
5	5.75	0.67	8.323	0.934	bromide
6	6.44	4.52	58.756	0.949	nitrate
7	8.62	1.20	20.389	0.930	phosphate
8	9.82	0.82	14.887	0.946	sulfate
8	15.00	19.45	221.317	6.624	

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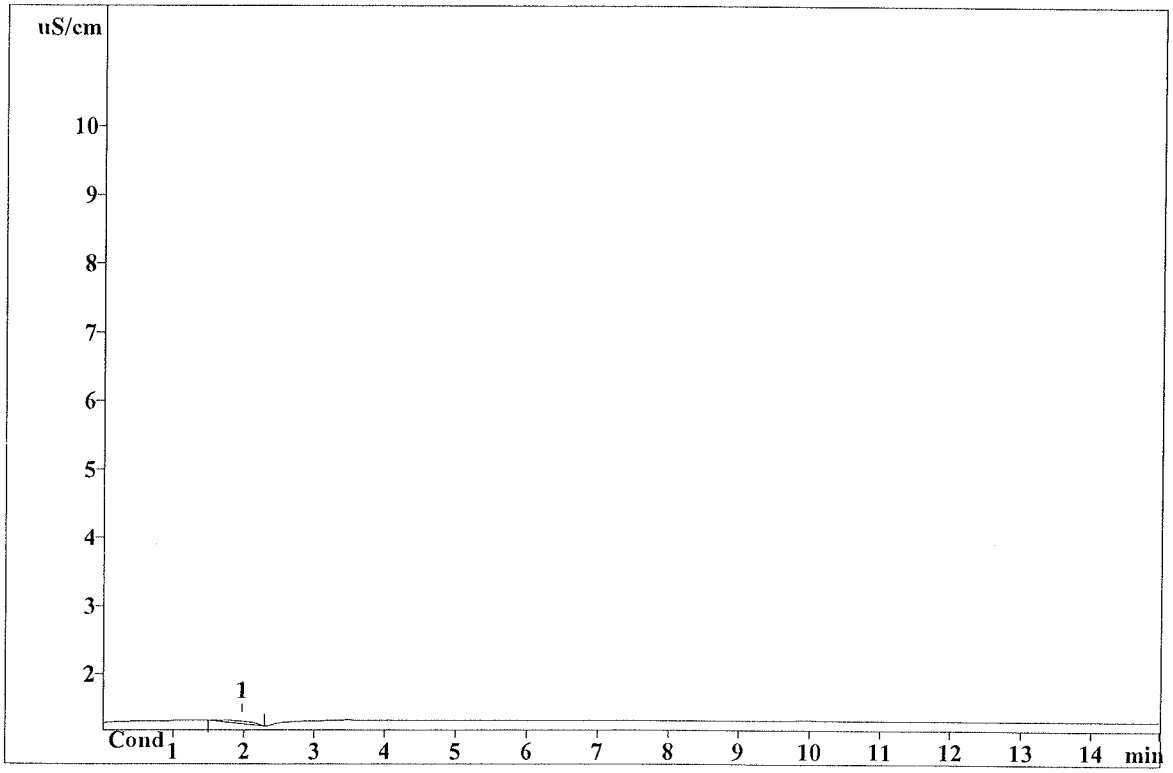
08/27/19

Report date: 8/27/2019 1:37:19 PM
Printed by: LDip

Ident: AH23-14 ICB
Analysis from: 8/26/2019 8:40:46 PM
File: _2019-08-26_20-40.chw Last save: 8/27/2019 1:33:09 PM

Method: ICD0-H26.mtw Last save: 8/26/2019 6:22:00 PM
Run operator: LDip
Analysis number: 150970

SAMPLE: METHOD 300
:
Vial number: 14
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	1.96	0.04	1.196	0.000	

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08/27/19

DAILY CALIBRATION(S)

Continuing Calibration Summary Form

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG : 19L064
Method : E300.0
ICAL Ref. : 19AH23
InstrumentID: DO
Parameter : CHLORIDE

LFID	LSID	Recovery (%)	AnalysisDateTime
AL13-01	CCV675	93.7	12/12/1911:16
AL13-13	CCV677	95.5	12/12/1917:15
AL13-25	CCV679	95.4	12/12/1920:55
AL13-37	CCV681	93.9	12/13/1900:20
AL13-49	CCV683	94.7	12/13/1903:45
AL13-55	CCV685	94.6	12/13/1905:28
AL15-01	CCV687	92.5	12/16/1912:39
AL15-13	CCV689	92.8	12/16/1918:55
AL15-25	CCV691	93.2	12/16/1922:22
AL15-33	CCV693	93.2	12/17/1900:38
AL17-01	CCV695	93.2	12/17/1910:57
AL17-13	CCV697	94.8	12/17/1915:31

CCV Acceptance Criteria: 90-110%

Continuing Calibration Summary Form

Client : CDM SMITH
Project : VA SALT LAKE CITY
SDG : 19L064
Method : E300.0
ICAL Ref. : 19AH23
InstrumentID: DO
Parameter : SULFATE

LFID	LSID	Recovery (%)	AnalysisDateTime
AL13-01	CCV675	95.8	12/12/1911:16
AL13-13	CCV677	94.4	12/12/1917:15
AL13-25	CCV679	94.4	12/12/1920:55
AL13-37	CCV681	93.9	12/13/1900:20

CCV Acceptance Criteria: 90-110%

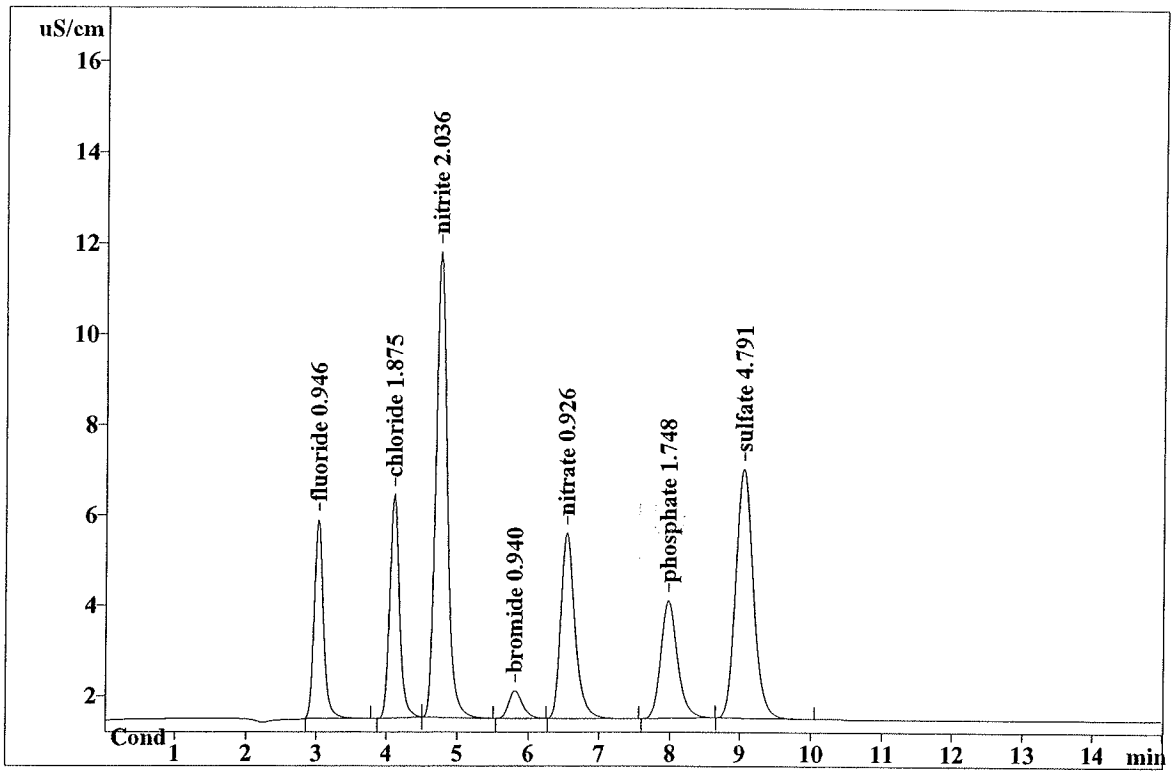
IC Result Check FormVersion : H26/AH23(2019)

LFID	LSID	Selection	bromide	sulfate	fluoride	iodide	nitrate	chloride	nitrite	phosphate	RawNetID	DF
AL13-01	CCV675	BSFONCIP	94%	95.8%	94.6%	0%*	92.6%	93.7%	101.8%	87.4%*	_2019-12-12_11-16	1
AL13-02	CCB675	BSFONCIP	0	0	0	0	0	0	0	0	_2019-12-12_11-35	1
AL13-13	CCV677	BSFONCIP	95.9%	94.4%	96.8%	0%*	94%	95.5%	99.5%	91.9%	_2019-12-12_17-15	1
AL13-14	CCB677	BSFONCIP	0	0	0	0	0	0	0	0	_2019-12-12_17-32	1
AL13-25	CCV679	BSFONCIP	95.8%	94.4%	96.9%	0%*	94%	95.4%	100.4%	91%	_2019-12-12_20-55	1
AL13-26	CCB679	BSFONCIP	0	0	0	0	0	0	0	0	_2019-12-12_21-12	1
AL13-37	CCV681	BSFONCIP	94.5%	93.9%	96.5%	0%*	93.3%	93.9%	101.3%	89.6%*	_2019-12-13_00-20	1
AL13-38	CCB681	BSFONCIP	0	0	0	0	0	0	0	0	_2019-12-13_00-37	1
AL13-49	CCV683	BSFONCIP	94.4%	93.2%	96%	0%*	93.2%	94.7%	101.1%	87.5%*	_2019-12-13_03-45	1
AL13-50	CCB683	BSFONCIP	0	0	0	0	0	0	0	0	_2019-12-13_04-02	1
AL13-55	CCV685	BSFONCIP	94.7%	93.7%	96.4%	0%*	93.4%	94.6%	101.8%	87.7%*	_2019-12-13_05-28	1
AL13-56	CCB685	BSFONCIP	0	0	0	0	0	0	0	0	_2019-12-13_05-45	1

Report date: 12/18/2019 7:33:18 PM
Printed by: LDip

Ident: AL13-01 CCV675
Analysis from: 12/12/2019 11:16:11 AM
File: _2019-12-12_11-16.chw Last save: 12/16/2019 3:12:46 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154228

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 1
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.02	4.39	39.702	0.946	fluoride
2	4.10	4.93	46.637	1.875	chloride
3	4.74	10.28	116.390	2.036	nitrite
4	5.81	0.61	8.384	0.940	bromide
5	6.54	4.10	57.274	0.926	nitrate
6	7.97	2.60	42.912	1.748	phosphate
7	9.04	5.52	92.567	4.791	sulfate
7	15.00	32.43	403.865	13.262	

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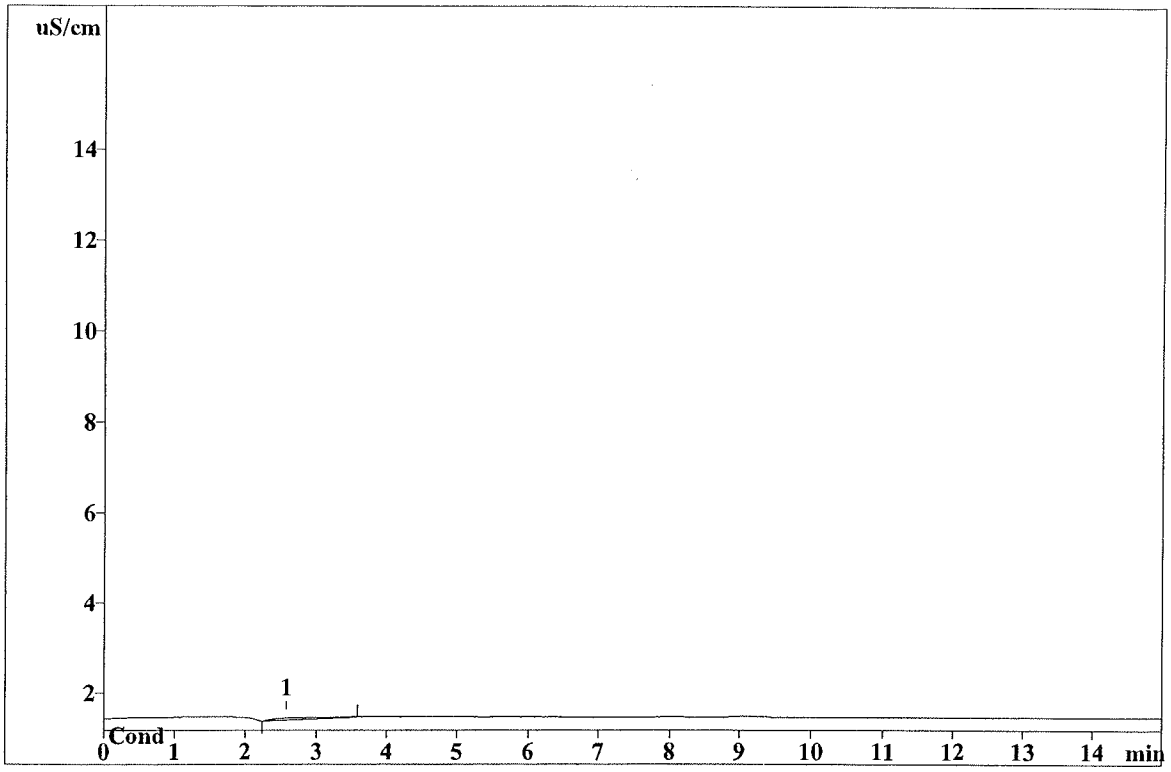
Report date: 12/18/2019 7:33:44 PM
Printed by: LDip

Ident: AL13-02 CCB675
Analysis from: 12/12/2019 11:35:29 AM
File: _2019-12-12_11-35.chw Last save: 12/16/2019 3:12:46 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154229

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 2
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.54	0.04	2.121	0.000	

This report has been created by IC Net
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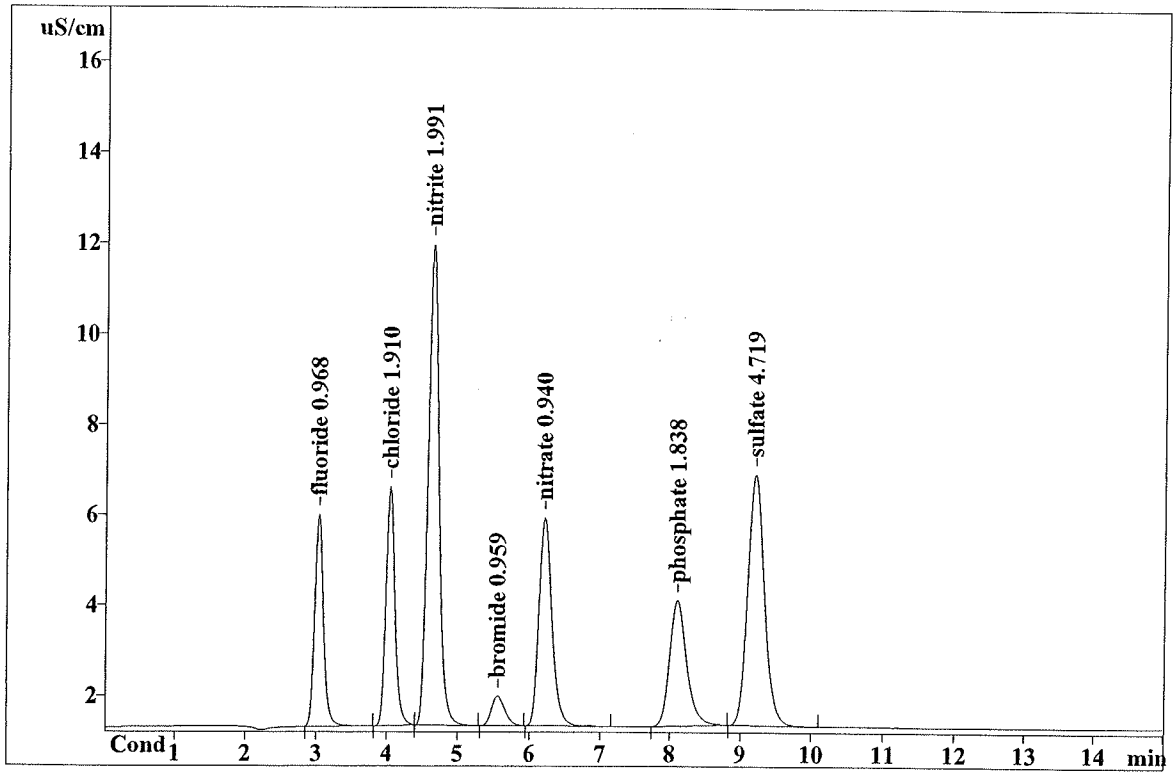
Report date: 12/18/2019 7:33:59 PM
Printed by: LDip

Ident: AL13-13 CCV677
Analysis from: 12/12/2019 5:15:10 PM
File: _2019-12-12_17-15.chw Last save: 12/16/2019 3:12:48 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154240

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 13
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	4.69	40.671	0.968	fluoride
2	4.04	5.28	47.549	1.910	chloride
3	4.62	10.63	113.756	1.991	nitrite
4	5.56	0.66	8.552	0.959	bromide
5	6.21	4.60	58.203	0.940	nitrate
6	8.10	2.76	45.376	1.838	phosphate
7	9.20	5.55	91.109	4.719	sulfate
7	15.00	34.16	405.217	13.324	

This report has been created by IC Net
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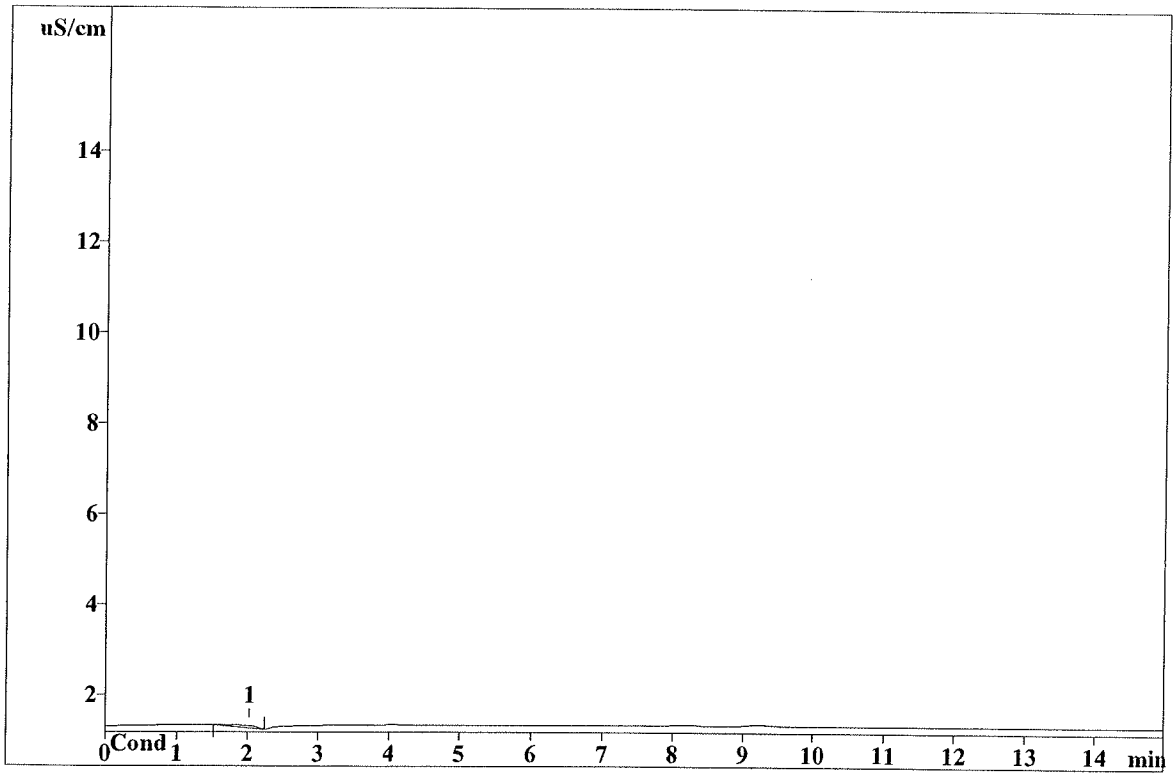
Report date:	12/18/2019 7:34:07 PM		
Printed by:	LDip		
Ident:	AL13-14 CCB677		
Analysis from:	12/12/2019 5:32:14 PM		
File:	_2019-12-12_17-32.chw	Last save:	12/16/2019 3:12:48 PM
Modified!			
Method:	ICD0-H26.mtw	Last save:	12/12/2019 11:16:51 AM
Run operator:	LDip		
Analysis number:	154241		
SAMPLE:	METHOD 300/9056/4110B		
:			
Vial number:	14		
Volume:	1.0 µL		
Dilution:	1.00		
Amount:	1.0000		



Quantitation method: Custom

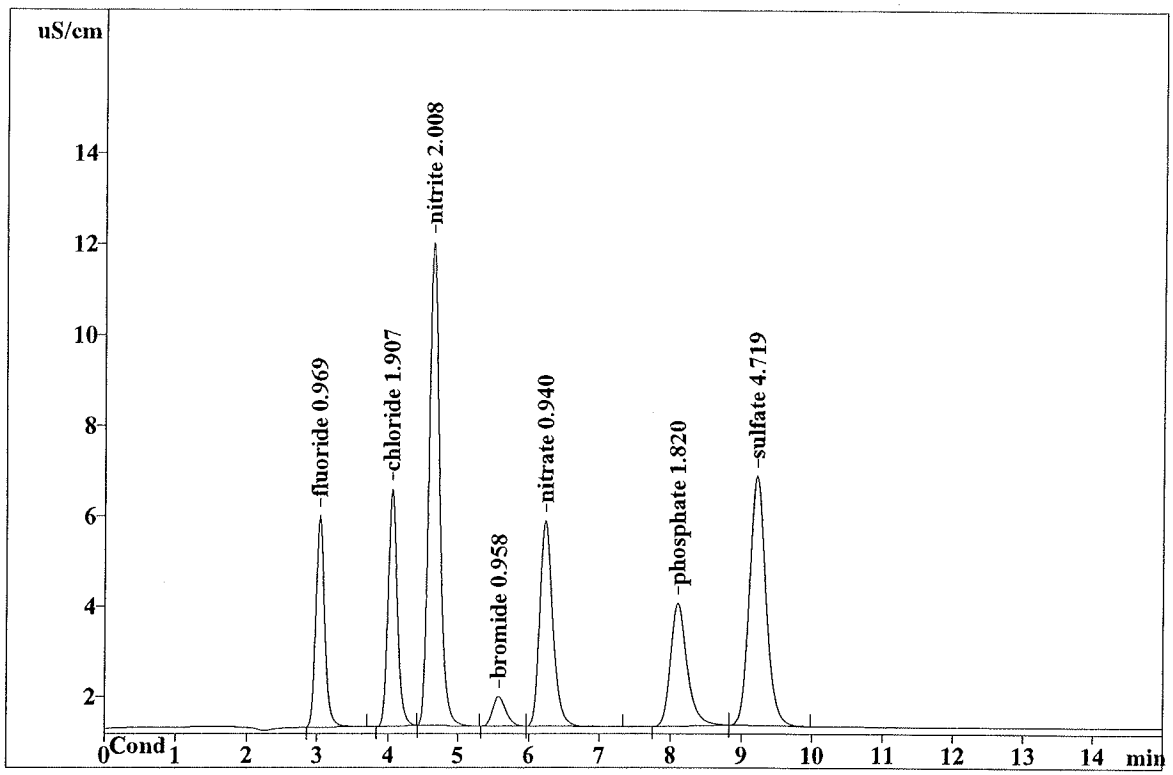
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.03	0.05	1.327	0.000	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 7:34:22 PM
Printed by: LDip

Ident: AL13-25 CCV679
Analysis from: 12/12/2019 8:55:31 PM
File: _2019-12-12_20-55.chw Last save: 12/16/2019 3:12:50 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154252

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 25
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.03	4.69	40.699	0.969	fluoride
2	4.04	5.25	47.475	1.907	chloride
3	4.63	10.68	114.772	2.008	nitrite
4	5.57	0.65	8.543	0.958	bromide
5	6.23	4.56	58.183	0.940	nitrate
6	8.10	2.72	44.886	1.820	phosphate
7	9.20	5.52	91.119	4.719	sulfate
7	15.00	34.07	405.677	13.321	

This report has been created by IC Net
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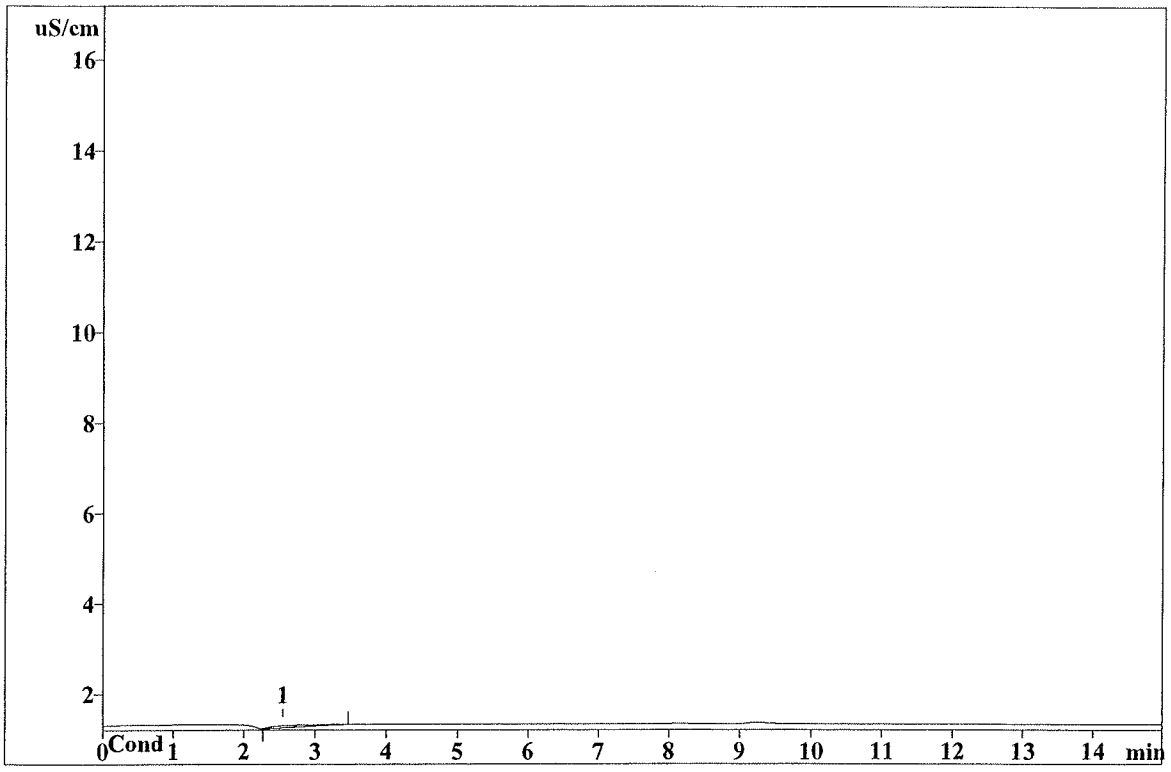
Report date: 12/18/2019 7:34:36 PM
Printed by: LDip

Ident: AL13-26 CCB679
Analysis from: 12/12/2019 9:12:36 PM
File: _2019-12-12_21-12.chw Last save: 12/16/2019 3:12:50 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154253

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 26
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.53	0.04	1.869	0.000	

This report has been created by IC Net
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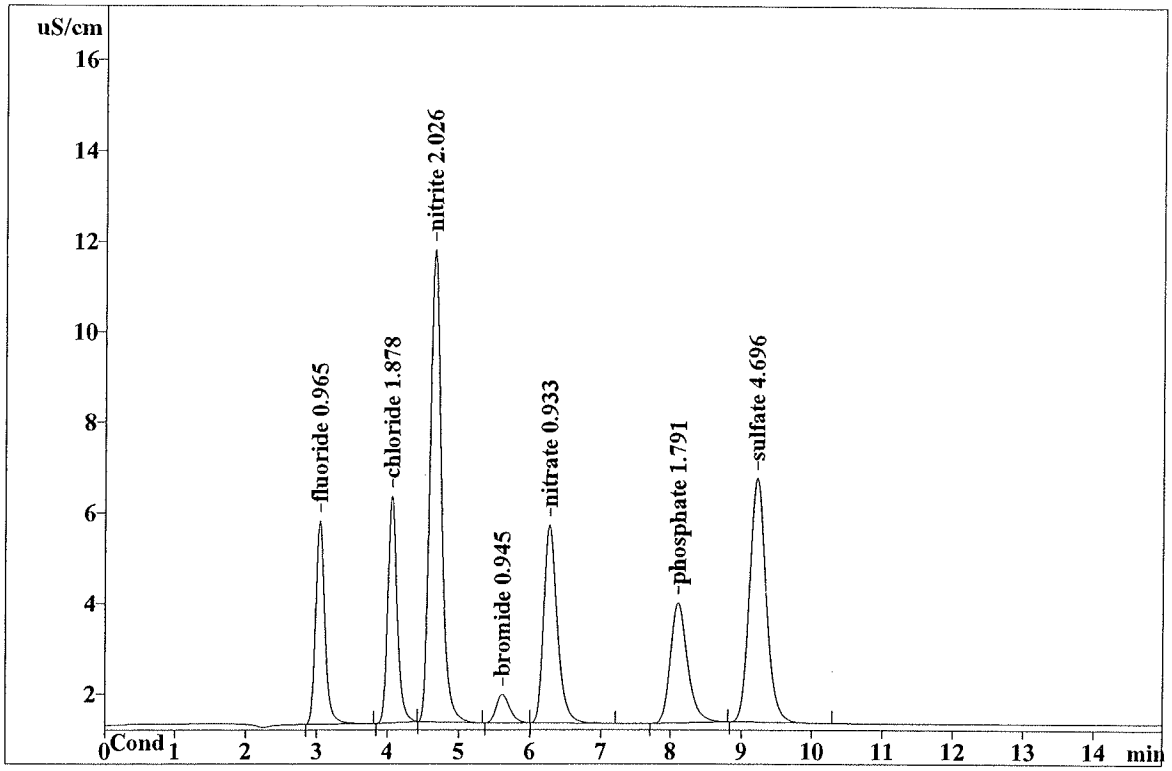
Report date: 12/18/2019 7:34:53 PM
Printed by: LDip

Ident: AL13-37 CCV681
Analysis from: 12/13/2019 12:20:27 AM
File: _2019-12-13_00-20.chw Last save: 12/16/2019 3:12:53 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154264

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 37
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.04	4.50	40.553	0.965	fluoride
2	4.06	5.01	46.711	1.878	chloride
3	4.65	10.43	115.821	2.026	nitrite
4	5.61	0.63	8.423	0.945	bromide
5	6.27	4.37	57.708	0.933	nitrate
6	8.10	2.65	44.110	1.791	phosphate
7	9.21	5.39	90.661	4.696	sulfate
7	15.00	32.98	403.987	13.235	

This report has been created by IC Net
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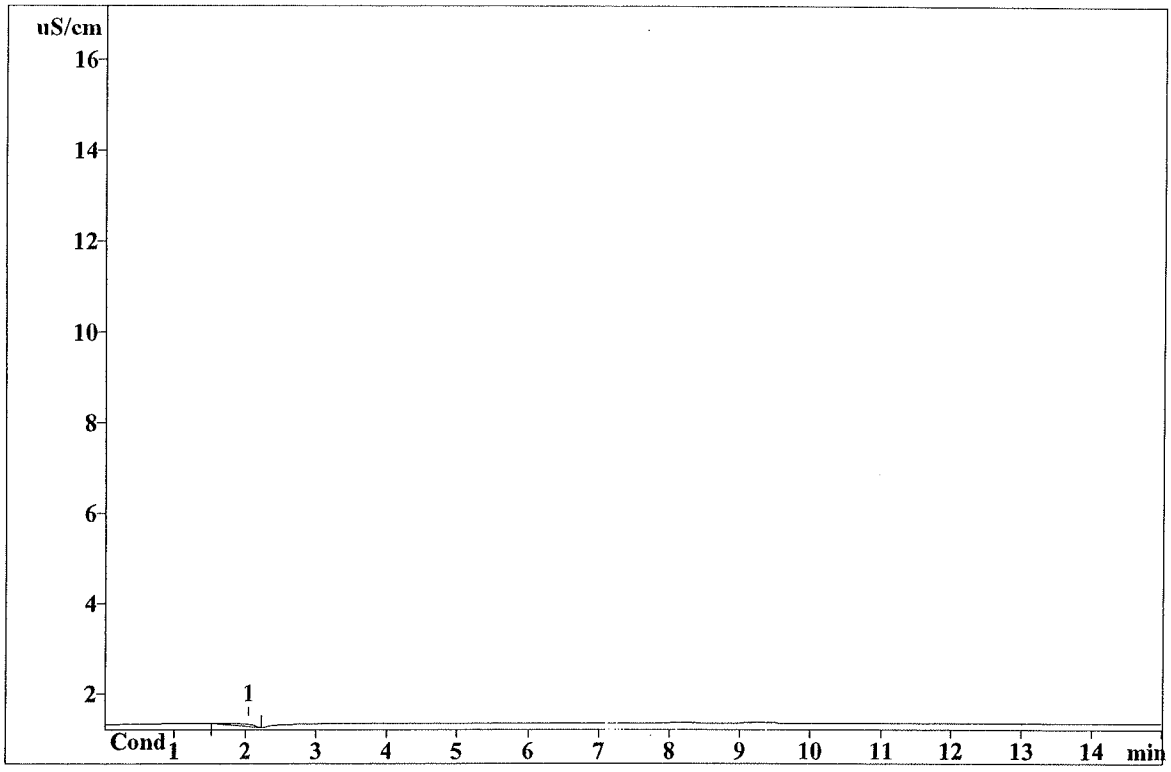
Report date: 12/18/2019 7:35:53 PM
Printed by: LDip

Ident: AL13-38 CCB681
Analysis from: 12/13/2019 12:37:32 AM
File: _2019-12-13_00-37.chw Last save: 12/16/2019 3:12:53 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154265

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 38
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

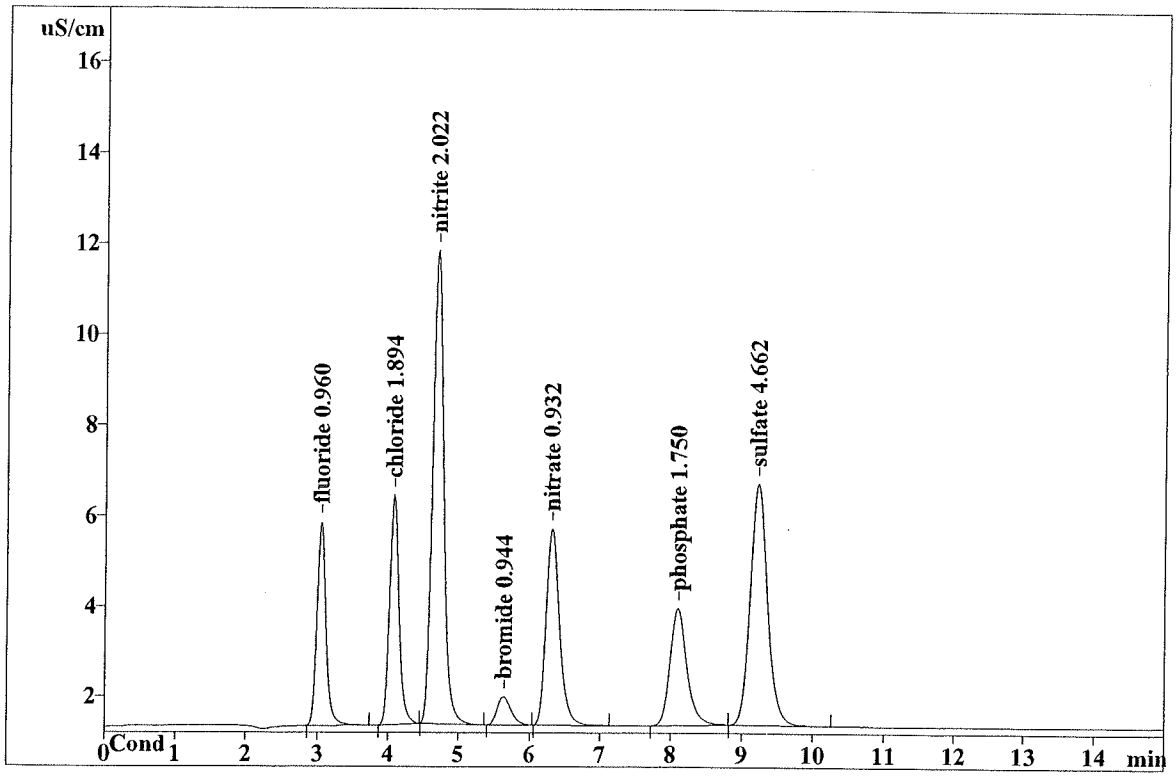
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.03	0.05	1.318	0.000	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 7:36:09 PM
Printed by: LDip

Ident: AL13-49 CCV683
Analysis from: 12/13/2019 3:45:24 AM
File: _2019-12-13_03-45.chw Last save: 12/16/2019 3:12:55 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154276

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 49
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

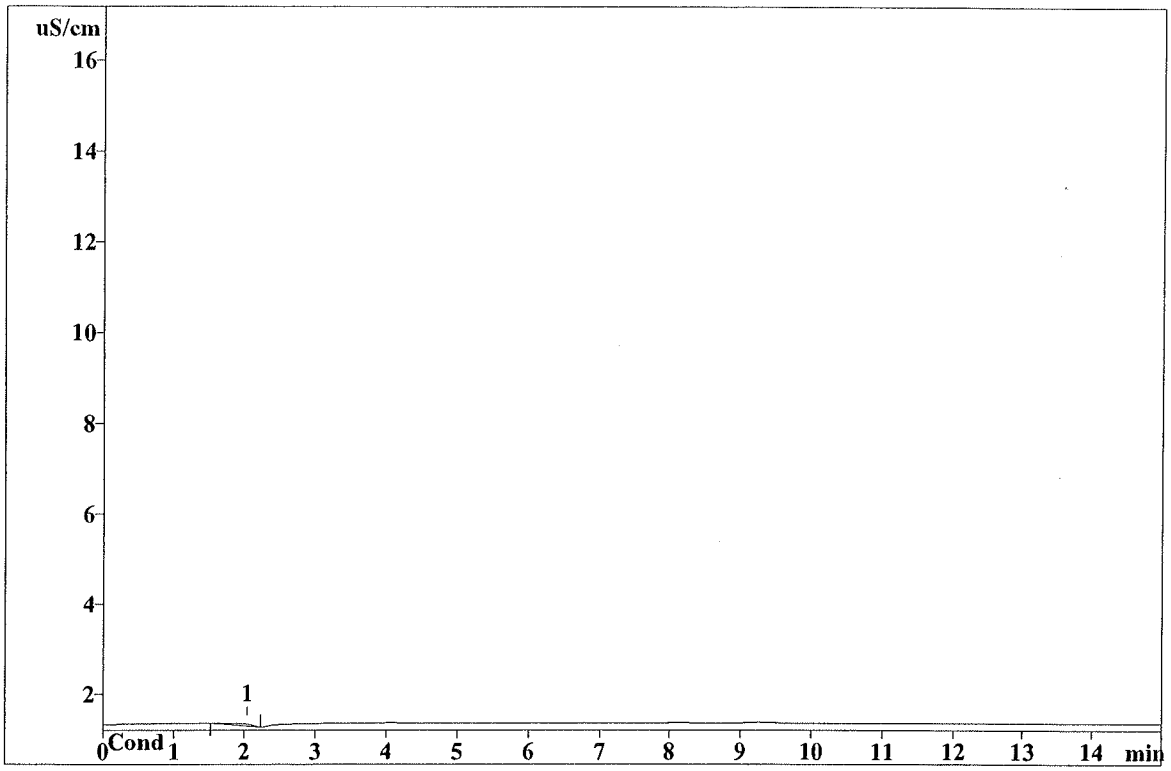
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.04	4.51	40.340	0.960	fluoride
2	4.07	5.08	47.125	1.894	chloride
3	4.66	10.45	115.587	2.022	nitrite
4	5.63	0.63	8.415	0.944	bromide
5	6.31	4.36	57.630	0.932	nitrate
6	8.09	2.60	42.957	1.750	phosphate
7	9.21	5.35	89.962	4.662	sulfate
7	15.00	32.97	402.016	13.163	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 7:36:23 PM
Printed by: LDip

Ident: AL13-50 CCB683
Analysis from: 12/13/2019 4:02:29 AM
File: _2019-12-13_04-02.chw Last save: 12/16/2019 3:12:55 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154277

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 50
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

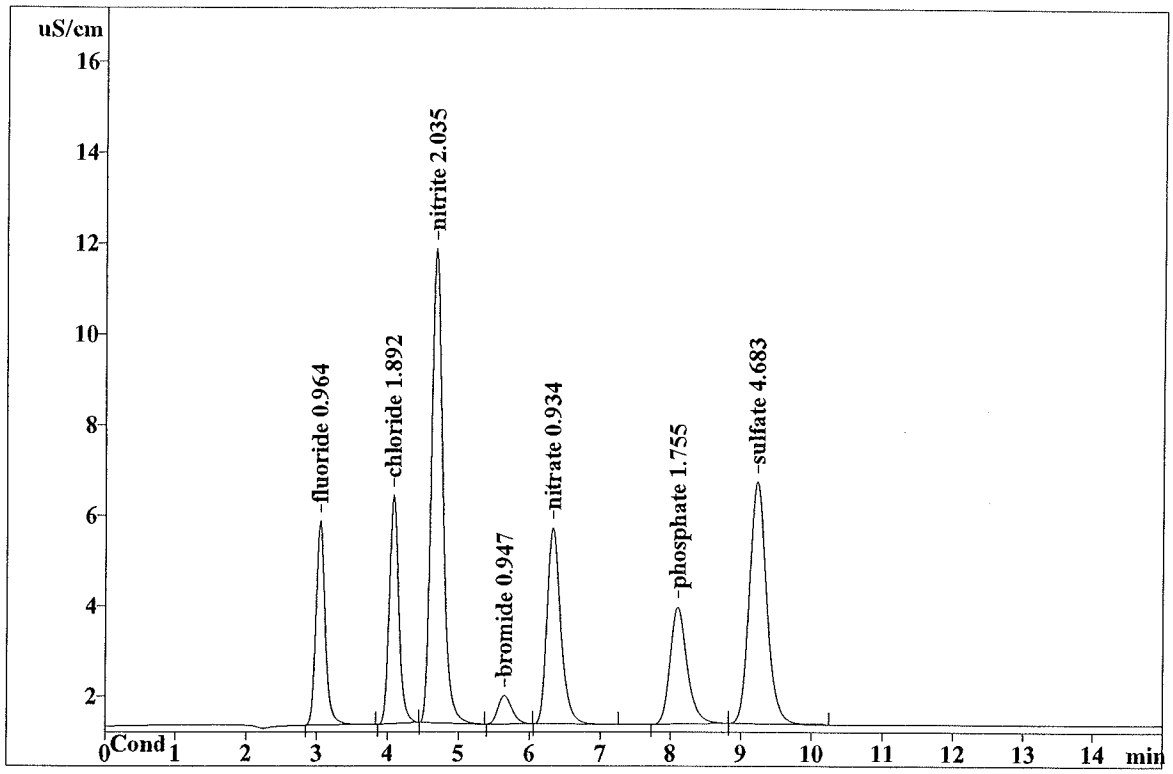
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.04	0.05	1.325	0.000	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 7:36:35 PM
Printed by: LDip

Ident: AL13-55 CCV685
Analysis from: 12/13/2019 5:28:00 AM
File: _2019-12-13_05-28.chw Last save: 12/16/2019 3:12:56 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154282

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 55
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

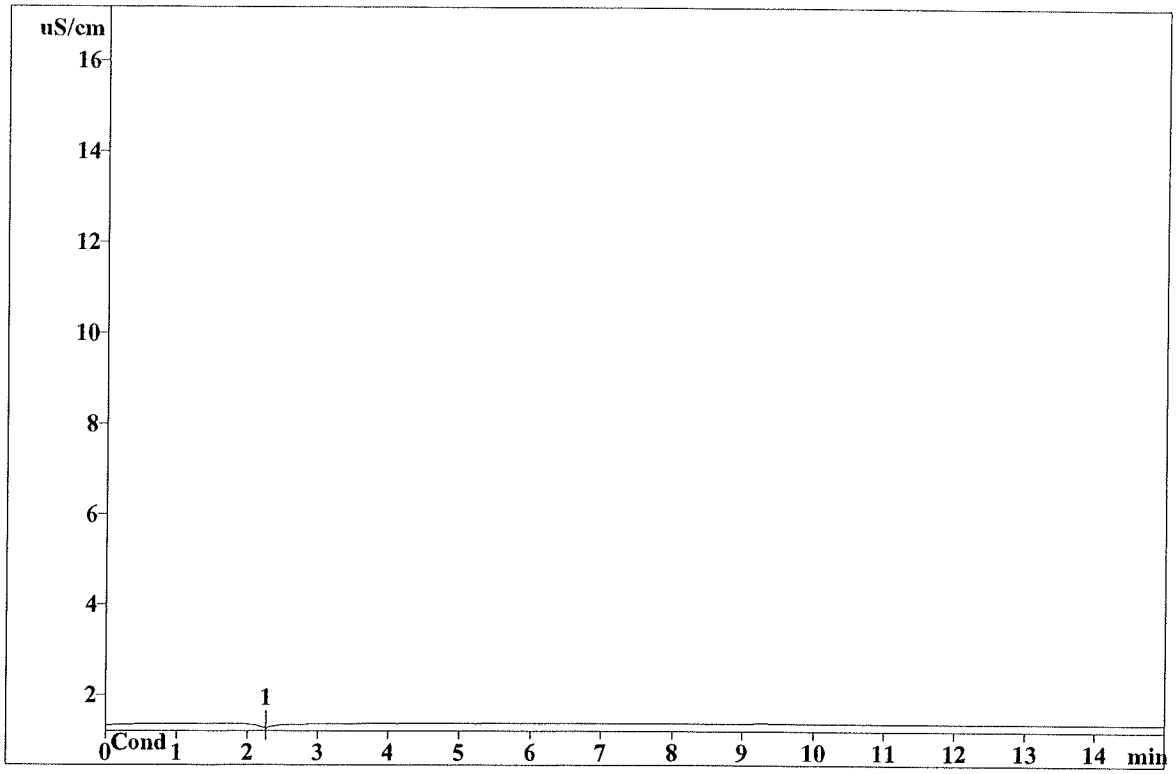
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.04	4.51	40.500	0.964	fluoride
2	4.07	5.06	47.093	1.892	chloride
3	4.67	10.48	116.342	2.035	nitrite
4	5.65	0.63	8.442	0.947	bromide
5	6.32	4.34	57.782	0.934	nitrate
6	8.10	2.60	43.099	1.755	phosphate
7	9.22	5.35	90.385	4.683	sulfate
7	15.00	32.97	403.642	13.210	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 7:36:52 PM
Printed by: LDip

Ident: AL13-56 CCB685
Analysis from: 12/13/2019 5:45:05 AM
File: _2019-12-13_05-45.chw Last save: 12/16/2019 3:12:57 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/12/2019 11:16:51 AM
Run operator: LDip
Analysis number: 154283

SAMPLE: METHOD 300/9056/4110B
:
Vial number: 56
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.25	-0.00	-0.000	0.000	

This report has been created by IC Net
METROHM LTD

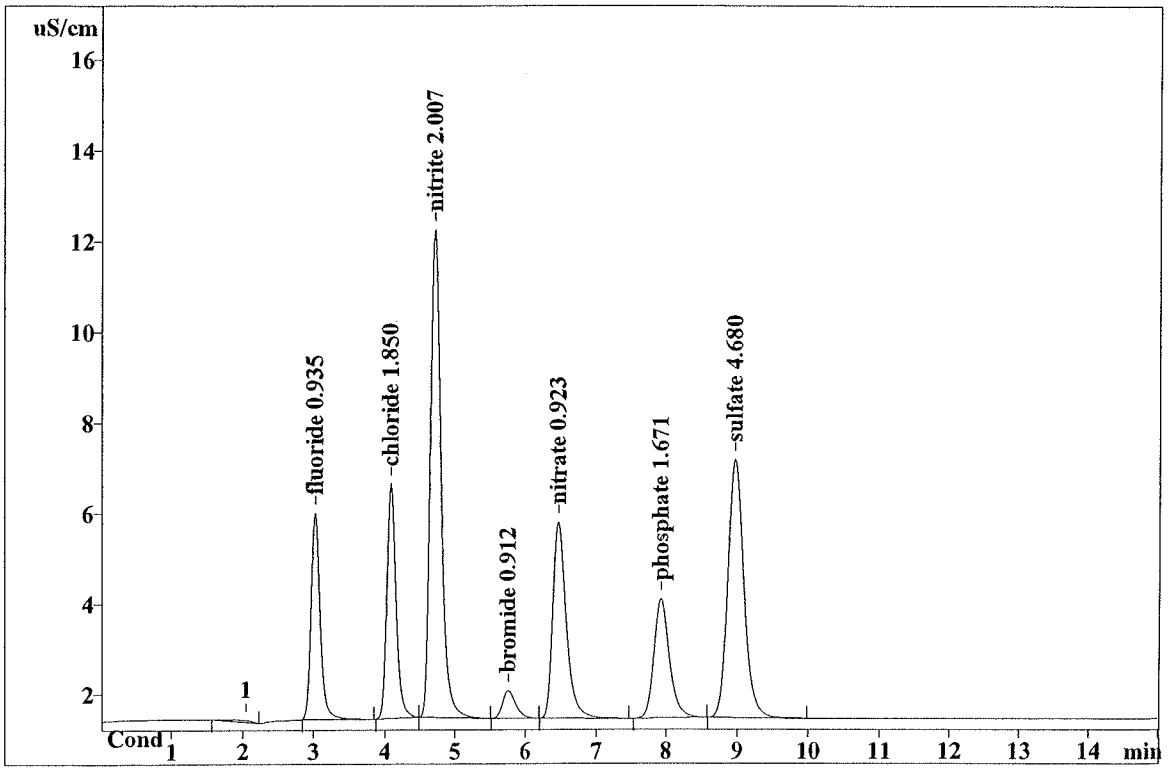
IC Result Check FormVersion : H26/AH23(2019)

LFID	LSID	Selection	bromide	chloride	fluoride	iodide	phosphate	nitrite	nitrate	sulfate	RawNetID	DF
AL15-01	CCV687	BCFOPINS	91.2%	92.5%	93.5%	0%*	83.5%*	100.4%	92.3%	93.6%	_2019-12-16_12-39	1
AL15-02	CCB687	BCFOPINS	0	0	0	0	0	0	0	0	_2019-12-16_13-09	1
AL15-13	CCV689	BCFOPINS	91.2%	92.8%	93.9%	0%*	84.2%*	100%	91.5%	92.3%	_2019-12-16_18-55	1
AL15-14	CCB689	BCFOPINS	0	0	0	0	0	0	0	0	_2019-12-16_19-14	1
AL15-25	CCV691	BCFOPINS	91.2%	93.2%	93.7%	0%*	85.9%*	100.8%	91.8%	92.3%	_2019-12-16_22-22	1
AL15-26	CCB691	BCFOPINS	0	0	0	0	0	0	0	0	_2019-12-16_22-39	1
AL15-33	CCV693	BCFOPINS	91.8%	93.2%	93.9%	0%*	86.6%*	100%	91.8%	92.5%	_2019-12-17_00-38	1
AL15-34	CCB693	BCFOPINS	0	0	0	0	0	0	0	0	_2019-12-17_00-55	1

Report date: 12/18/2019 7:39:45 PM
Printed by: LDip

Ident: AL15-01 CCV687
Analysis from: 12/16/2019 12:39:21 PM
File: _2019-12-16_12-39.chw Last save: 12/17/2019 12:42:59 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/16/2019 11:57:57 AM
Run operator: LDip
Analysis number: 154296

SAMPLE: METHOD300/9056/4110B
:
Vial number: 1
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

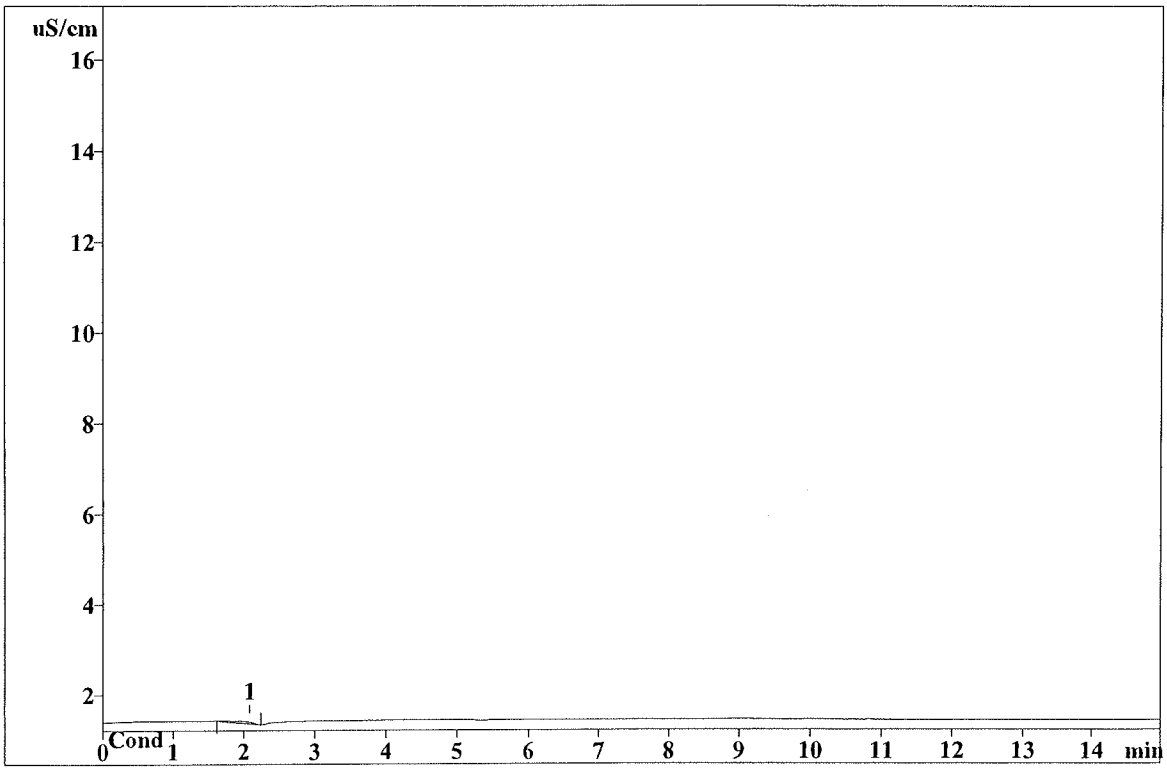
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.05	0.05	1.145	0.000	
2	3.02	4.57	39.209	0.935	fluoride
3	4.08	5.19	45.992	1.850	chloride
4	4.71	10.78	114.719	2.007	nitrite
5	5.75	0.62	8.126	0.912	bromide
6	6.47	4.34	57.077	0.923	nitrate
7	7.92	2.64	40.781	1.671	phosphate
8	8.96	5.71	90.320	4.680	sulfate
8	15.00	33.88	397.369	12.978	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 7:39:54 PM
Printed by: LDip

Ident: AL15-02 CCB687
Analysis from: 12/16/2019 1:09:06 PM
File: _2019-12-16_13-09.chw Last save: 12/17/2019 12:42:59 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/16/2019 11:57:57 AM
Run operator: LDip
Analysis number: 154297

SAMPLE: METHOD300/9056/4110B
:
Vial number: 2
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

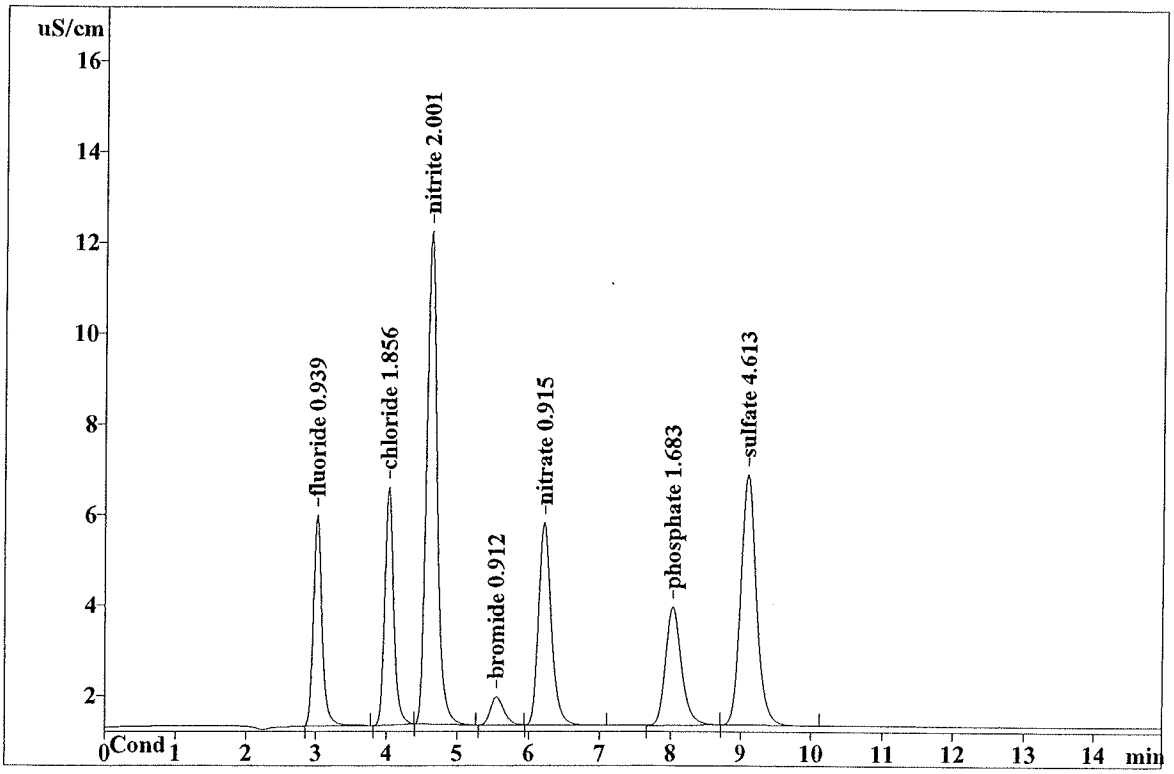
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.06	0.05	1.037	0.000	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 7:40:05 PM
Printed by: LDip

Ident: AL15-13 CCV689
Analysis from: 12/16/2019 6:55:52 PM
File: _2019-12-16_18-55.chw Last save: 12/17/2019 12:42:59 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/16/2019 11:57:57 AM
Run operator: LDip
Analysis number: 154315

SAMPLE: METHOD300/9056/4110B
:
Vial number: 13
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

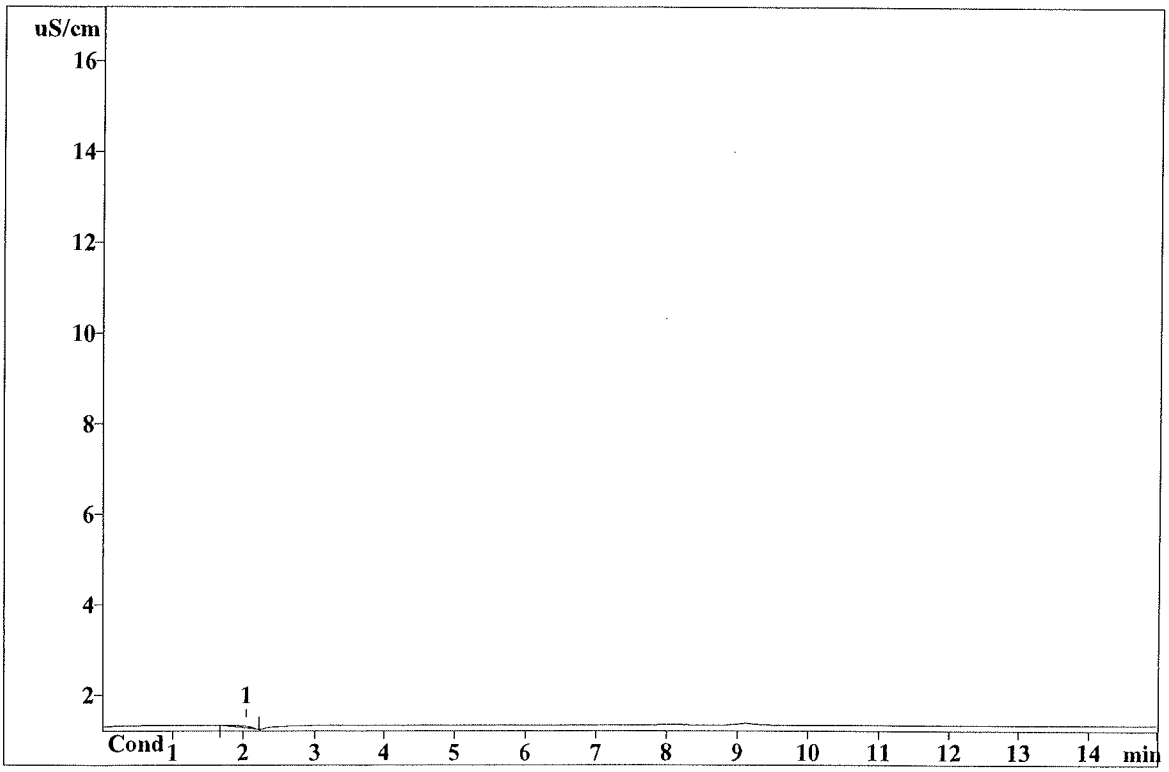
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.02	4.66	39.397	0.939	fluoride
2	4.02	5.25	46.156	1.856	chloride
3	4.61	10.88	114.343	2.001	nitrite
4	5.55	0.62	8.125	0.912	bromide
5	6.21	4.48	56.570	0.915	nitrate
6	8.02	2.62	41.125	1.683	phosphate
7	9.09	5.53	88.985	4.613	sulfate
7	15.00	34.03	394.700	12.920	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 7:40:16 PM
Printed by: LDip

Ident: AL15-14 CCB689
Analysis from: 12/16/2019 7:14:24 PM
File: _2019-12-16_19-14.chw Last save: 12/17/2019 12:43:00 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/16/2019 11:57:57 AM
Run operator: LDip
Analysis number: 154316

SAMPLE: METHOD300/9056/4110B
:
Vial number: 14
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

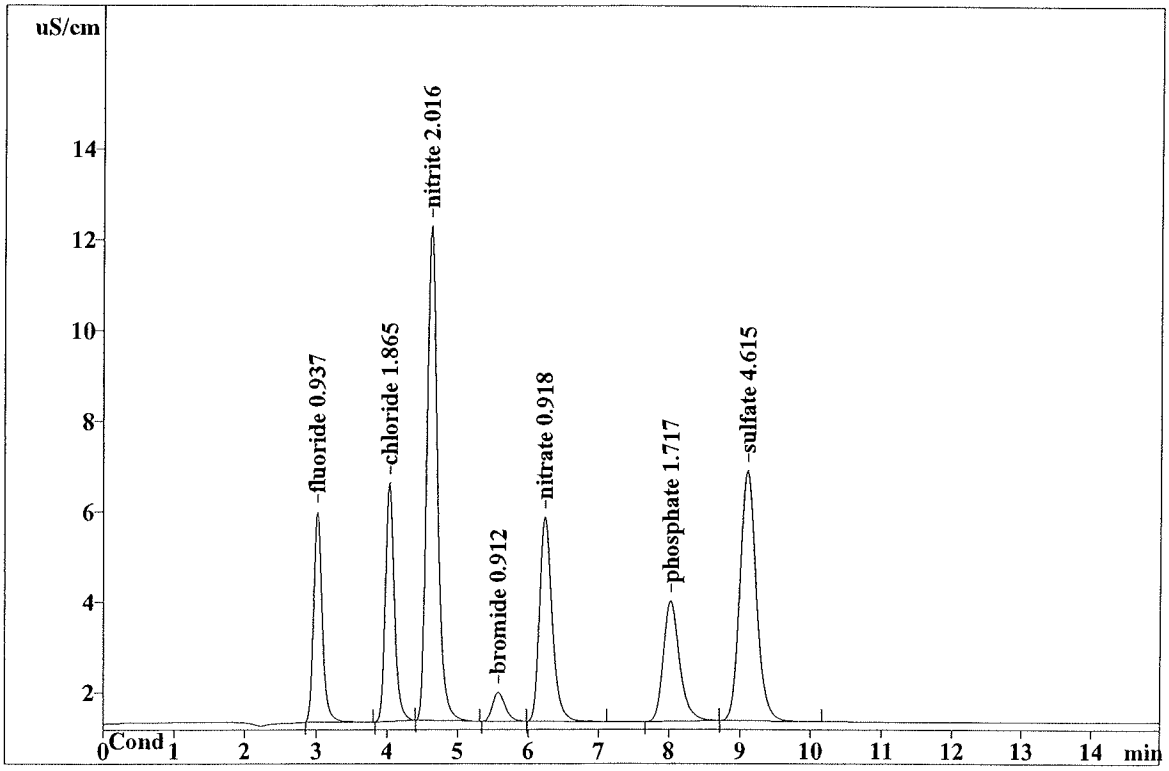
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.05	0.04	0.878	0.000	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 7:40:27 PM
Printed by: LDip

Ident: AL15-25 CCV691
Analysis from: 12/16/2019 10:22:16 PM
File: _2019-12-16_22-22.chw Last save: 12/17/2019 12:43:00 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/16/2019 11:57:57 AM
Run operator: LDip
Analysis number: 154327

SAMPLE: METHOD300/9056/4110B
:
Vial number: 25
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

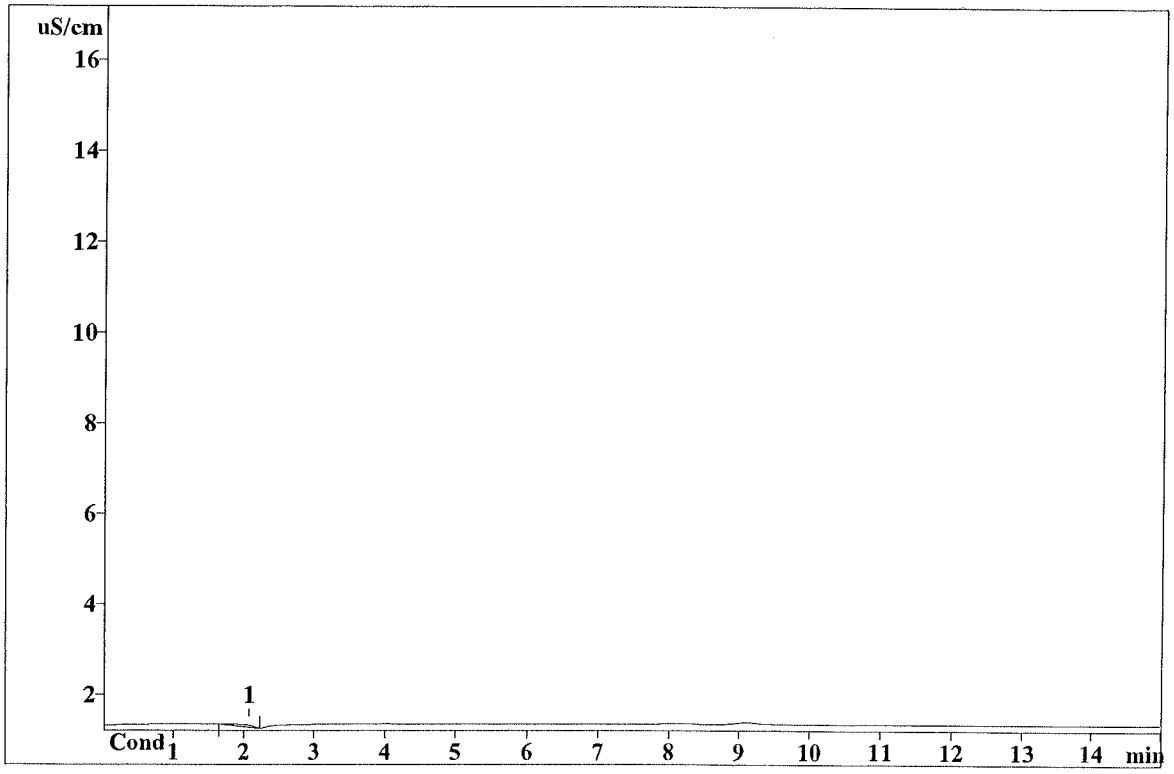
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.01	4.66	39.320	0.937	fluoride
2	4.02	5.27	46.377	1.865	chloride
3	4.62	10.92	115.209	2.016	nitrite
4	5.57	0.64	8.128	0.912	bromide
5	6.23	4.51	56.744	0.918	nitrate
6	8.02	2.66	42.066	1.717	phosphate
7	9.09	5.53	89.007	4.615	sulfate
7	15.00	34.19	396.851	12.980	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 7:40:37 PM
Printed by: LDip

Ident: AL15-26 CCB691
Analysis from: 12/16/2019 10:39:21 PM
File: _2019-12-16_22-39.chw Last save: 12/17/2019 12:43:00 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/16/2019 11:57:57 AM
Run operator: LDip
Analysis number: 154328

SAMPLE: METHOD300/9056/4110B
:
Vial number: 26
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

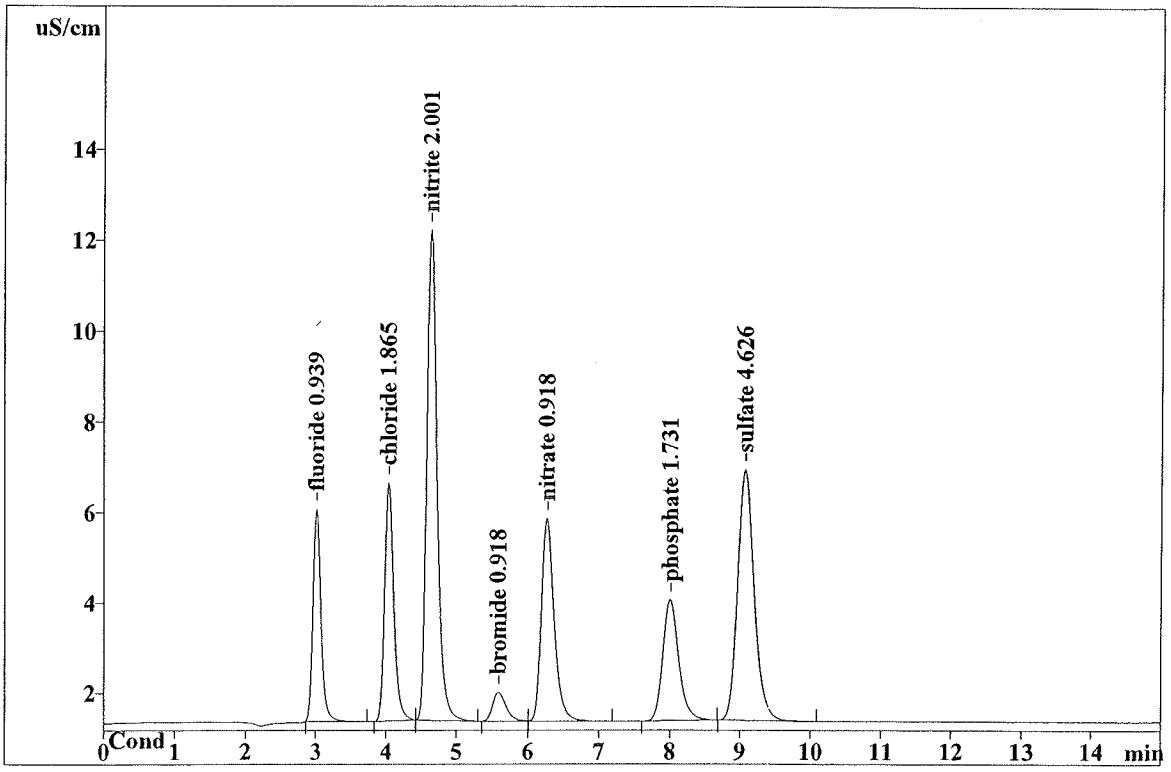
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.06	0.04	0.925	0.000	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 7:40:47 PM
Printed by: LDip

Ident: AL15-33 CCV693
Analysis from: 12/17/2019 12:38:54 AM
File: _2019-12-17_00-38.chw Last save: 12/17/2019 12:43:00 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/16/2019 11:57:57 AM
Run operator: LDip
Analysis number: 154335

SAMPLE: METHOD300/9056/4110B
:
Vial number: 33
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

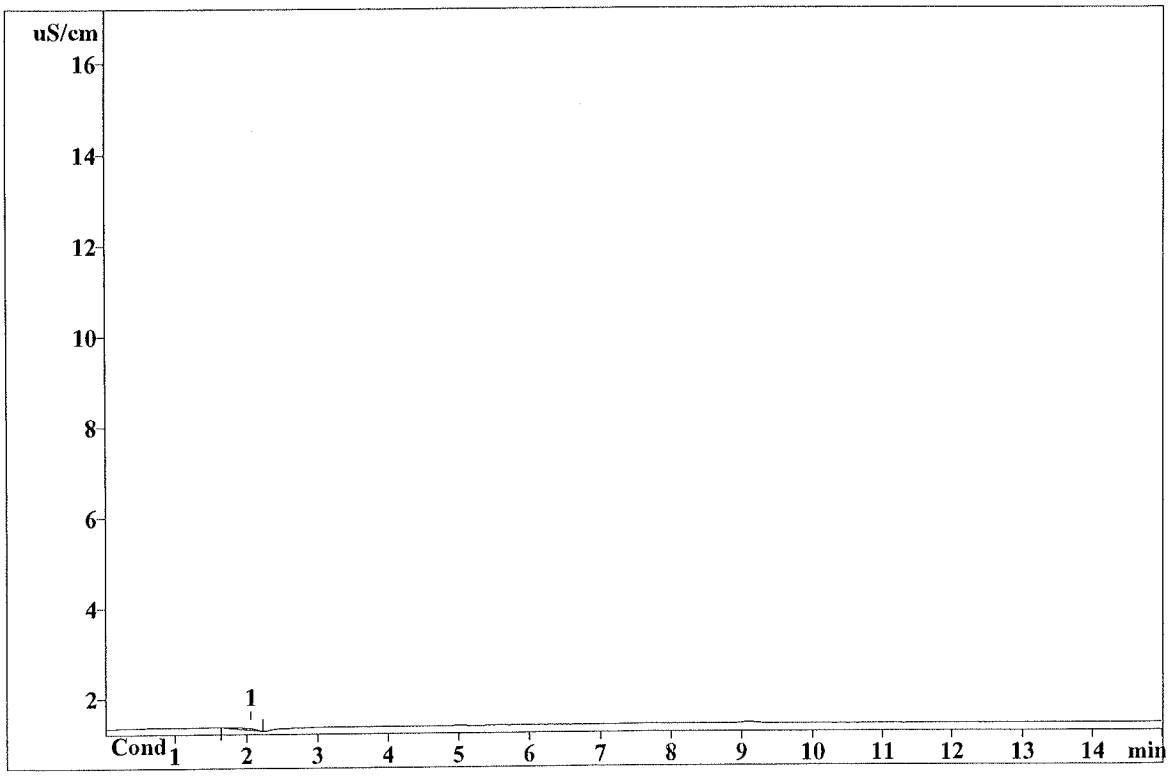
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.01	4.69	39.398	0.939	fluoride
2	4.03	5.27	46.370	1.865	chloride
3	4.63	10.82	114.328	2.001	nitrite
4	5.59	0.64	8.177	0.918	bromide
5	6.26	4.48	56.755	0.918	nitrate
6	8.00	2.68	42.446	1.731	phosphate
7	9.06	5.54	89.248	4.626	sulfate
7	15.00	34.12	396.723	12.998	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 7:40:55 PM
Printed by: LDip

Ident: AL15-34 CCB693
Analysis from: 12/17/2019 12:55:59 AM
File: _2019-12-17_00-55.chw Last save: 12/17/2019 12:43:00 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/16/2019 11:57:57 AM
Run operator: LDip
Analysis number: 154336

SAMPLE: METHOD300/9056/4110B
:
Vial number: 34
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.05	0.04	0.955	0.000	

This report has been created by IC Net
METROHM LTD

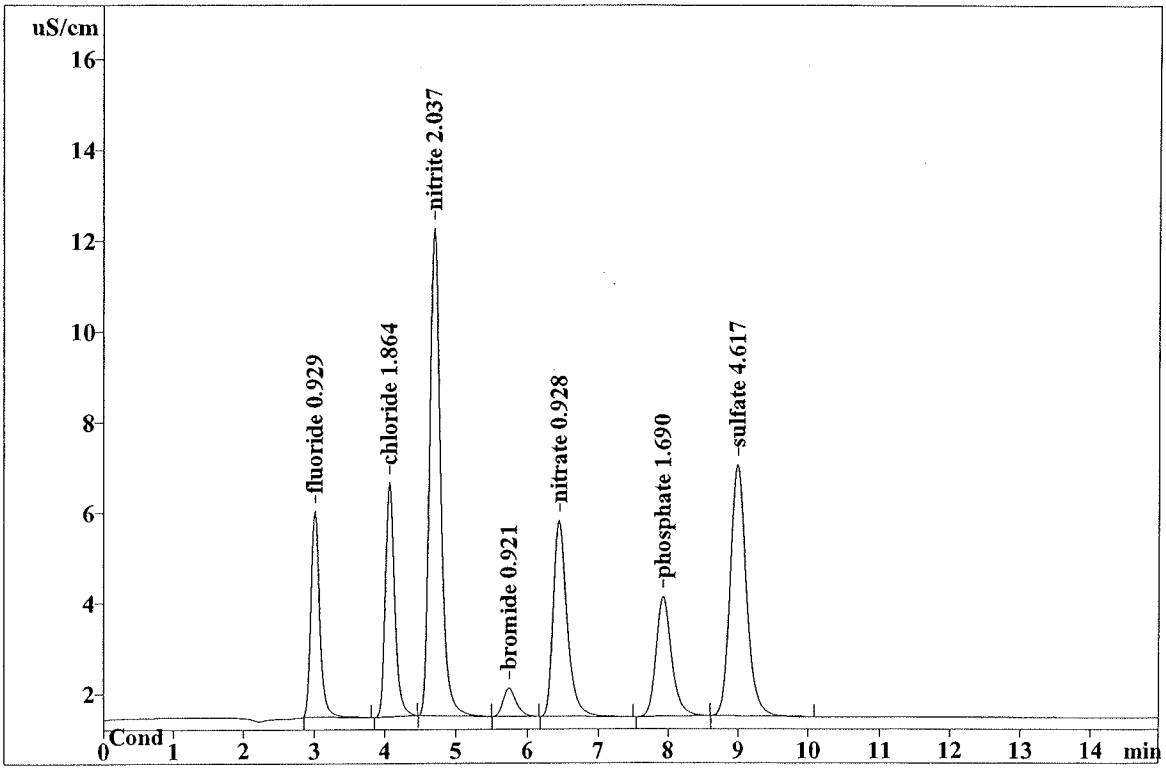
IC Result Check FormVersion : H26/AH23(2019)

LFID	LSID	Selection	bromide	chloride	nitrate	iodide	fluoride	nitrite	phosphate	sulfate	RawNetID	DF
AL17-01	CCV695	BCNOFIPS	92.1%	93.2%	92.8%	0%*	92.9%	101.9%	84.5%*	92.3%	_2019-12-17_10-57	1
AL17-02	CCB695	BCNOFIPS	0	0	0	0	0	0	0	0	_2019-12-17_11-15	1
AL17-13	CCV697	BCNOFIPS	92.9%	94.8%	93.3%	0%*	95.2%	102.2%	88.5%*	93.6%	_2019-12-17_15-31	1
AL17-14	CCB697	BCNOFIPS	0	0	0	0	0	0	0	0	_2019-12-17_16-00	1
AL17-25	CCV699	BCNOFIPS	93.4%	96.8%	93.8%	0%*	95.6%	102.1%	87.3%*	94.4%	_2019-12-17_19-09	1
AL17-26	CCB699	BCNOFIPS	0	0	0	0	0	0	0	0	_2019-12-17_19-30	1
AL17-37	CCV701	BCNOFIPS	93.8%	95.4%	93.6%	0%*	95.8%	102.7%	90.3%	94.3%	_2019-12-17_22-38	1
AL17-38	CCB701	BCNOFIPS	0	0	0	0	0	0	0	0	_2019-12-17_22-55	1
AL17-41	CCV703	BCNOFIPS	94.2%	95.8%	93.7%	0%*	96.1%	101.5%	89.5%*	94.4%	_2019-12-17_23-46	1
AL17-42	CCB703	BCNOFIPS	0	0	0	0	0	0	0	0	_2019-12-18_00-03	1

Report date: 12/18/2019 7:47:47 PM
Printed by: LDip

Ident: AL17-01 CCV695
Analysis from: 12/17/2019 10:57:22 AM
File: _2019-12-17_10-57.chw Last save: 12/18/2019 2:55:21 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/17/2019 11:03:31 AM
Run operator: LDip
Analysis number: 154338

SAMPLE: METHOD300/9056/4110B
:
Vial number: 1
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000

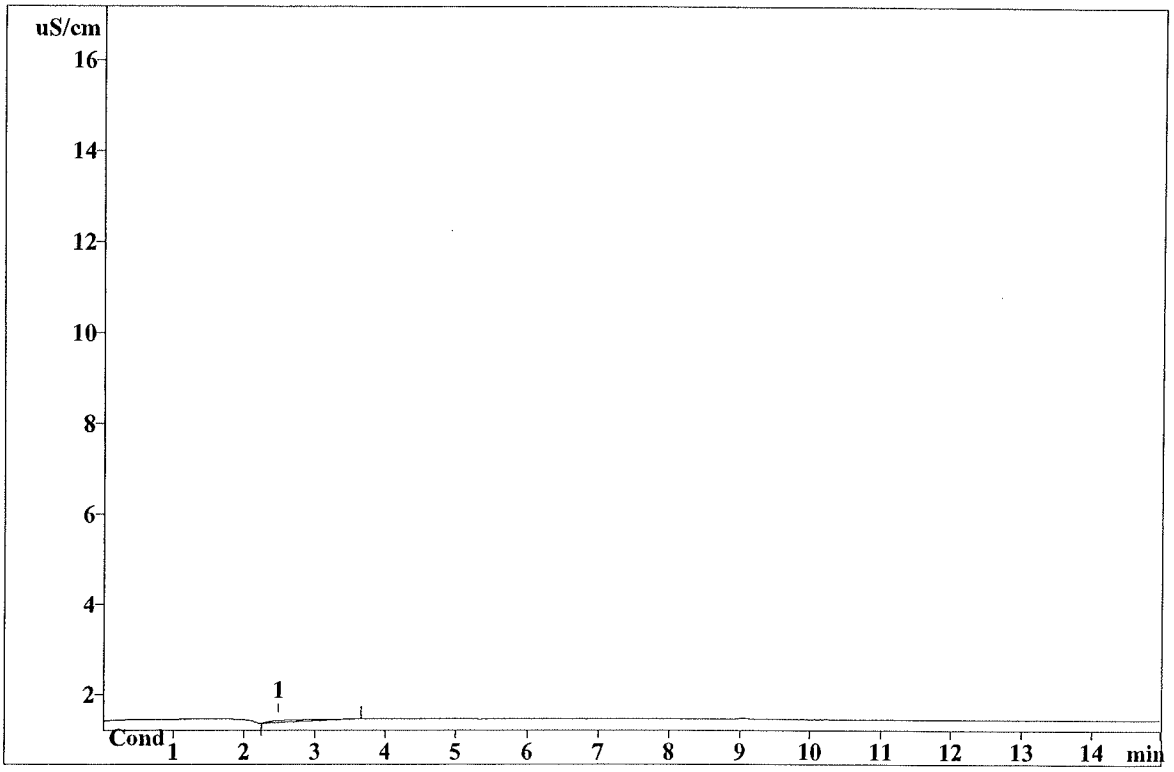


Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.01	4.54	38.957	0.929	fluoride
2	4.06	5.18	46.349	1.864	chloride
3	4.69	10.77	116.465	2.037	nitrite
4	5.74	0.62	8.204	0.921	bromide
5	6.45	4.33	57.360	0.928	nitrate
6	7.92	2.64	41.308	1.690	phosphate
7	8.98	5.56	89.063	4.617	sulfate
7	15.00	33.63	397.706	12.985	

This report has been created by IC Net
METROHM LTD

Report date:	12/18/2019 7:47:55 PM		
Printed by:	LDip		
Ident:	AL17-02 CCB695		
Analysis from:	12/17/2019 11:15:37 AM		
File:	_2019-12-17_11-15.chw	Last save:	12/18/2019 2:55:21 PM
Modified!			
Method:	ICD0-H26.mtw	Last save:	12/17/2019 11:03:31 AM
Run operator:	LDip		
Analysis number:	154339		
SAMPLE:	METHOD300/9056/4110B		
:			
Vial number:	2		
Volume:	1.0 µL		
Dilution:	1.00		
Amount:	1.0000		



Quantitation method: Custom

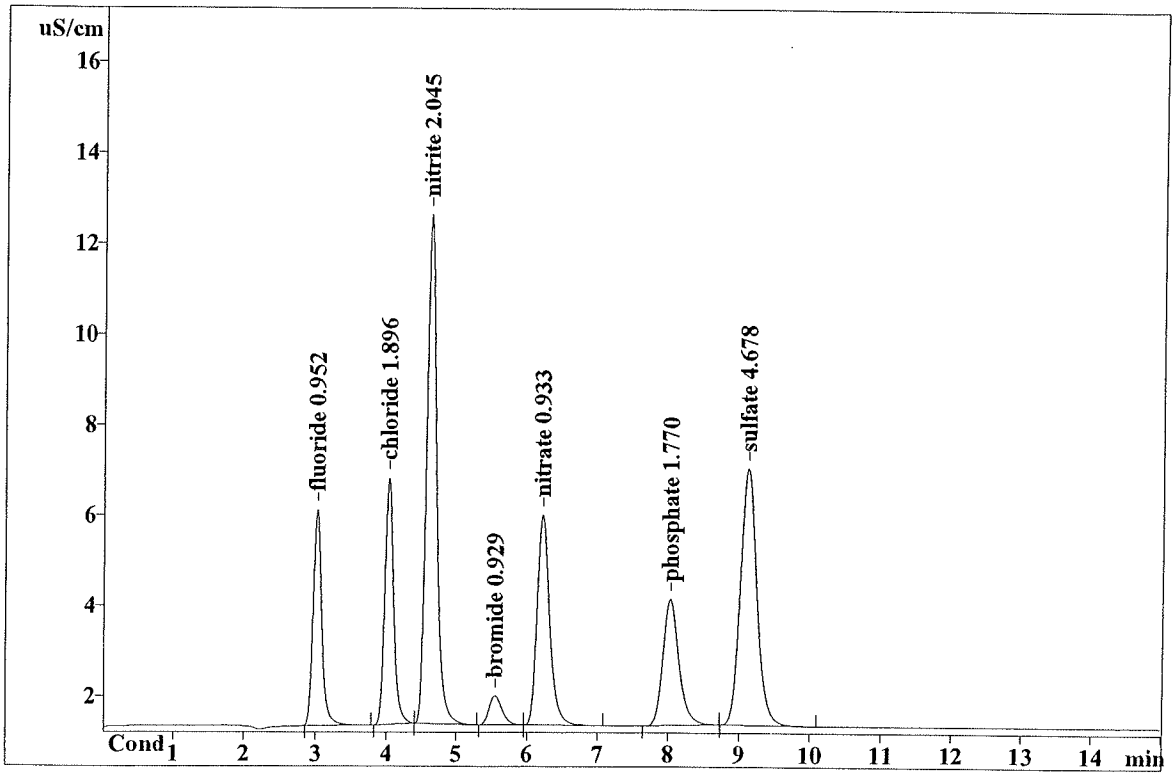
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.49	0.04	2.390	0.000	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 7:48:08 PM
Printed by: LDip

Ident: AL17-13 CCV697
Analysis from: 12/17/2019 3:31:55 PM
File: _2019-12-17_15-31.chw Last save: 12/18/2019 2:55:21 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/17/2019 11:03:31 AM
Run operator: LDip
Analysis number: 154351

SAMPLE: METHOD300/9056/4110B
:
Vial number: 13
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

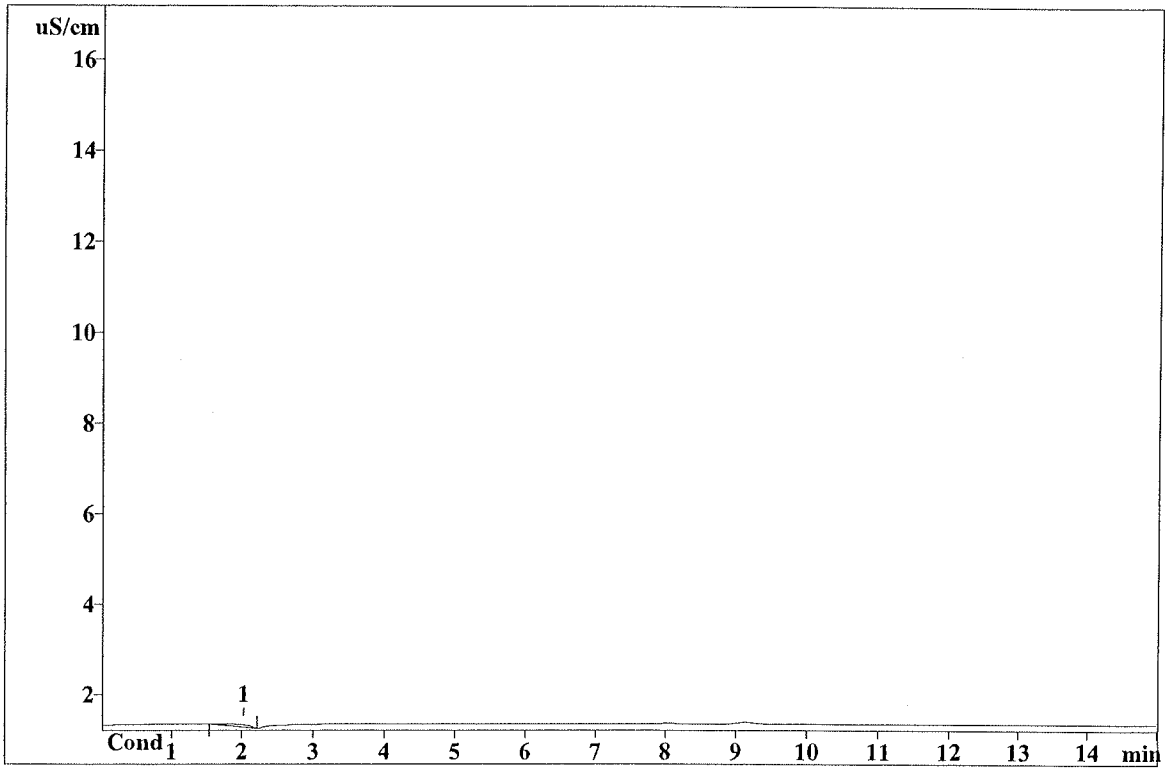
No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	3.01	4.77	39.958	0.952	fluoride
2	4.02	5.46	47.198	1.896	chloride
3	4.61	11.25	116.898	2.045	nitrite
4	5.56	0.65	8.282	0.929	bromide
5	6.21	4.65	57.696	0.933	nitrate
6	8.02	2.79	43.526	1.770	phosphate
7	9.10	5.68	90.292	4.678	sulfate
7	15.00	35.26	403.850	13.203	

This report has been created by IC Net
METROHM LTD

Report date: 12/18/2019 7:48:17 PM
Printed by: LDip

Ident: AL17-14 CCB697
Analysis from: 12/17/2019 4:00:19 PM
File: _2019-12-17_16-00.chw Last save: 12/18/2019 2:55:21 PM
Modified!
Method: ICD0-H26.mtw Last save: 12/17/2019 11:03:31 AM
Run operator: LDip
Analysis number: 154352

SAMPLE: METHOD300/9056/4110B
:
Vial number: 14
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	2.00	0.05	1.293	0.000	

This report has been created by IC Net
METROHM LTD

ANALYTICAL LOG(S)

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

	CONCENTRATIONS (ppm)
S_1	0.05
S_2	0.1
S_3	0.2
S_4	0.5
S_5	1.0
S_6	2.0
S_7	5.0
S_8	10.0
S_9	20.0

	LINEARITY (ppm)
F	5
Cl	5
NO_2	10
Br	2
NO_3	2
PO_4	20
SO_4	20

IC ELUENT PREPARATION Expiration Date: 9/23/19

Std ID	Aliquot	Final Vol*
SW4-04-31-01	20 mL	2 L

IC REGENERANT PREPARATION Expiration Date: 9/26/19

Std ID	Aliquot	Final Vol*
SP2-01-12-02	100 mL	1 L

* Reagent Water ID: SMSA-04-03-10

Book #: AD0-065
Instrument No.: D0
Pipette ID's: 039380124
SW3-02-02-02
439350100
Analytical Sequence: AH23
Method File: ICD0-H26.mtw
Analytical Batch: N/A

SOP #	Rev. #
☑ EMAX-300.0	12
☑ EMAX-4110B	5
☑ EMAX-9056	8
☐ EMAX-	
STANDARDS ID	
ICAL	SW3B-09-38-01
ICV	SW3B-09-37-02
~~CCV~~ LD 8/26/19 ICV1	SW3B-09-38-02
LCS	—
MS	—

Filters Lot #:
0.45 µm: —
0.2 µm: —

Snap Seal Containers Lot #:
4 oz: 04119002
1.5 oz: —

Column: Metrosep A Supp 5-100

Flow Rate: 0.70 ml/min

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC-METROHM	
☐ External Hard Drive	

Analyzed By: LD

Date: 8/26/19

File Name	Method	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Calibration Level	Sample Info 1	Sample Info 2
_2019-08-26_16-58.chw	ICD0-H26.mtw	AH23-01 IB	1	1.0	1.0	1.0	100.0	0	METHOD 300	
_2019-08-26_17-15.chw	ICD0-H26.mtw	AH23-02 S0	2	1.0	1.0	1.0	100.0	0	METHOD 300	
_2019-08-26_17-32.chw	ICD0-H26.mtw	AH23-03 S1	3	1.0	1.0	1.0	100.0	1	METHOD 300	0.05 PPM
_2019-08-26_17-49.chw	ICD0-H26.mtw	AH23-04 S2	4	1.0	1.0	1.0	100.0	2	METHOD 300	0.1 PPM
_2019-08-26_18-07.chw	ICD0-H26.mtw	AH23-05 S3	5	1.0	1.0	1.0	100.0	3	METHOD 300	0.2 PPM
_2019-08-26_18-24.chw	ICD0-H26.mtw	AH23-06 S4	6	1.0	1.0	1.0	100.0	4	METHOD 300	0.5 PPM
_2019-08-26_18-41.chw	ICD0-H26.mtw	AH23-07 S5	7	1.0	1.0	1.0	100.0	5	METHOD 300	1.0 PPM
_2019-08-26_18-58.chw	ICD0-H26.mtw	AH23-08 S6	8	1.0	1.0	1.0	100.0	6	METHOD 300	2.0 PPM
_2019-08-26_19-15.chw	ICD0-H26.mtw	AH23-09 S7	9	1.0	1.0	1.0	100.0	7	METHOD 300	5.0 PPM
_2019-08-26_19-32.chw	ICD0-H26.mtw	AH23-10 S8	10	1.0	1.0	1.0	100.0	8	METHOD 300	10.0 PPM
_2019-08-26_19-49.chw	ICD0-H26.mtw	AH23-11 S9	11	1.0	1.0	1.0	100.0	9	METHOD 300	20.0 PPM
_2019-08-26_20-06.chw	ICD0-H26.mtw	AH23-12 ICV	12	1.0	1.0	1.0	100.0	0	METHOD 300	
_2019-08-26_20-23.chw	ICD0-H26.mtw	AH23-13 ICV1	13	1.0	1.0	1.0	100.0	0	METHOD 300	1.0 PPM
_2019-08-26_20-40.chw	ICD0-H26.mtw	AH23-14 ICB	14	1.0	1.0	1.0	100.0	0	METHOD 300	

FINAL L° 8/27/19

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ION CHROMATOGRAPHY

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

Book #:	AD0-066
Instrument No.:	D0
Pipette ID's:	039380124
	SW3-02-02-02
	439350100
Analytical Sequence:	AL13
Method File:	ICD0-H26.mtv
Analytical Batch:	ICL013

SOP #	Rev. #
☑ EMAX-300.0	13
☐ EMAX-4110B	6
☑ EMAX-9056	9
☐ EMAX-	
STANDARDS ID	
ICAL	—
ICV	—
CCV	SW3B-10-49-03
LCS	SW3B-10-50-01
MS	SCP refer to LCS Parent ID

Filters Lot #:	Snap Seal Containers Lot #:
0.45 µm: 9094103	4 oz:
0.2 µm: 90060103	1.5 oz: 10419004

Column: Metrosep A Supp 5-100

Flow Rate: 0.70 ml/min

IC ELUENT PREPARATION Expiration Date: 1/9/20

Std ID	Aliquot	Final Vol*
SP2-01-07-01	20 mL	2 L

IC REGENERANT PREPARATION Expiration Date: 1/3/20

Std ID	Aliquot	Final Vol*
SP2-01-16-04	100 mL	1 L

* Reagent Water ID: SMSA-04-04-08

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC-METROHM	
☐ External Hard Drive	

Analyzed By: TW/LO

Date: 12/12/19

File Name	Method	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Calibration Level	Sample Info 1	Sample Info 2
_2019-12-12_11-16.chw	ICD0-H26.mtw	AL13-01 CCV675	1	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_11-35.chw	ICD0-H26.mtw	AL13-02 CCB675	2	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_11-52.chw	ICD0-H26.mtw	AL13-03 ICL013WB	3	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_12-09.chw	ICD0-H26.mtw	AL13-04 ICL013WL	4	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_12-26.chw	ICD0-H26.mtw	AL13-05 ICL013WC	5	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_14-57.chw	ICD0-H26.mtw	AL13-06 L064-07I DF=10	6	1.0	10.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_15-27.chw	ICD0-H26.mtw	AL13-07 L064-07J DF=20	7	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_15-45.chw	ICD0-H26.mtw	AL13-08 L064-07JM DF=20	8	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_16-02.chw	ICD0-H26.mtw	AL13-09 L064-07JS DF=20	9	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_16-19.chw	ICD0-H26.mtw	AL13-10 L064-07JD DF=20	10	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_16-36.chw	ICD0-H26.mtw	AL13-11 L064-01I DF=20	11	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_16-53.chw	ICD0-H26.mtw	AL13-12 L064-02I DF=20	12	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_17-15.chw	ICD0-H26.mtw	AL13-13 CCV677	13	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_17-32.chw	ICD0-H26.mtw	AL13-14 CCB677	14	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_17-49.chw	ICD0-H26.mtw	AL13-15 L064-03I DF=20	15	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_18-06.chw	ICD0-H26.mtw	AL13-16 L064-04I DF=20	16	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_18-29.chw	ICD0-H26.mtw	AL13-17 L064-06I DF=20	17	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_18-55.chw	ICD0-H26.mtw	AL13-18 L064-08I DF=20	18	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_19-13.chw	ICD0-H26.mtw	AL13-19 L064-09I DF=20	19	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_19-30.chw	ICD0-H26.mtw	AL13-20 L064-10I DF=20	20	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_19-47.chw	ICD0-H26.mtw	AL13-21 L064-11I DF=20	21	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_20-04.chw	ICD0-H26.mtw	AL13-22 L064-12I DF=20	22	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_20-21.chw	ICD0-H26.mtw	AL13-23 L064-14I DF=20	23	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_20-38.chw	ICD0-H26.mtw	AL13-24 L064-15I DF=20	24	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_20-55.chw	ICD0-H26.mtw	AL13-25 CCV679	25	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_21-12.chw	ICD0-H26.mtw	AL13-26 CCB679	26	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_21-29.chw	ICD0-H26.mtw	AL13-27 L064-17I DF=20	27	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_21-46.chw	ICD0-H26.mtw	AL13-28 L064-18I DF=20	28	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_22-03.chw	ICD0-H26.mtw	AL13-29 L064-20I DF=20	29	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_22-20.chw	ICD0-H26.mtw	AL13-30 L064-21I DF=20	30	1.0	20.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_22-37.chw	ICD0-H26.mtw	AL13-31 L064-07K DF=200	31	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_22-55.chw	ICD0-H26.mtw	AL13-32 L064-07ID DF=200	32	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_23-12.chw	ICD0-H26.mtw	AL13-33 L064-07IM DF=200	33	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_23-29.chw	ICD0-H26.mtw	AL13-34 L064-07IS DF=200	34	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-12_23-46.chw	ICD0-H26.mtw	AL13-35 L064-01J DF=200	35	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_00-03.chw	ICD0-H26.mtw	AL13-36 L064-02J DF=200	36	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_00-20.chw	ICD0-H26.mtw	AL13-37 CCV681	37	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_00-37.chw	ICD0-H26.mtw	AL13-38 CCB681	38	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_00-54.chw	ICD0-H26.mtw	AL13-39 L064-03J DF=200	39	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_01-11.chw	ICD0-H26.mtw	AL13-40 L064-04J DF=200	40	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_01-28.chw	ICD0-H26.mtw	AL13-41 L064-06J DF=200	41	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_01-45.chw	ICD0-H26.mtw	AL13-42 L064-08J DF=200	42	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_02-02.chw	ICD0-H26.mtw	AL13-43 L064-09J DF=200	43	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_02-20.chw	ICD0-H26.mtw	AL13-44 L064-10J DF=200	44	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_02-37.chw	ICD0-H26.mtw	AL13-45 L064-11J DF=200	45	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_02-54.chw	ICD0-H26.mtw	AL13-46 L064-12J DF=200	46	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_03-11.chw	ICD0-H26.mtw	AL13-47 L064-14J DF=200	47	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_03-28.chw	ICD0-H26.mtw	AL13-48 L064-15J DF=200	48	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_03-45.chw	ICD0-H26.mtw	AL13-49 CCV683	49	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_04-02.chw	ICD0-H26.mtw	AL13-50 CCB683	50	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_04-19.chw	ICD0-H26.mtw	AL13-51 L064-17J DF=200	51	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_04-36.chw	ICD0-H26.mtw	AL13-52 L064-18J DF=200	52	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_04-53.chw	ICD0-H26.mtw	AL13-53 L064-20J DF=200	53	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_05-10.chw	ICD0-H26.mtw	AL13-54 L064-21J DF=200	54	1.0	200.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_05-28.chw	ICD0-H26.mtw	AL13-55 CCV685	55	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-13_05-45.chw	ICD0-H26.mtw	AL13-56 CCB685	56	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	

FINAL LD 12/18/19

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ION CHROMATOGRAPHY

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

Book #:	AD0-066
Instrument No.:	D0
Pipette ID's:	039380124
	SW3-02-02-02
	439350100
Analytical Sequence:	AL15
Method File:	ICDO-H26.mtV
Analytical Batch:	ICL15W

SOP #	Rev. #
☑ EMAX-300.0	13
☐ EMAX-4110B	6
☑ EMAX-9056	9
☐ EMAX-	
STANDARDS ID	
ICAL	-
ICV	-
CCV	SW3B-11-01-01
LCS	SW3B-11-01-02
MS	SCP refer to LCS Parent ID

Filters Lot #:	Snap Seal Containers Lot #:
0.45 µm: 4094103	4 oz:
0.2 µm: 90060103	1.5 oz: 10419004

Column: Metrosep A Supp 5-100

Flow Rate: 0.70 ml/min

IC ELUENT PREPARATION Expiration Date: 1/9/20

Std ID	Aliquot	Final Vol*
SP2-01-07-01	20 mL	2 L

IC REGENERANT PREPARATION Expiration Date: 1/3/20

Std ID	Aliquot	Final Vol*
SP2-01-16-04	100 mL	1 L

* Reagent Water ID: SMSA-04-04-08

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC-METROHM	
☐ External Hard Drive	

Analyzed By: LD/TW

Date: 12/16/19

File Name	Method	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Calibration Level	Sample Info 1	Sample Info 2
_2019-12-16_12-39.chw	ICD0-H26.mtw	AL15-01 CCV687	1	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_13-09.chw	ICD0-H26.mtw	AL15-02 CCB687	2	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_15-57.chw	ICD0-H26.mtw	AL15-03 ICL015WB	3	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-16_16-14.chw	ICD0-H26.mtw	AL15-04 ICL015WL	4	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-16_16-37.chw	ICD0-H26.mtw	AL15-05 ICL015WC	5	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-16_16-55.chw	ICD0-H26.mtw	AL15-06 L108-01	6	1.0	1.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-16_17-12.chw	ICD0-H26.mtw	AL15-07 L101-01I DF=100	7	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-16_17-29.chw	ICD0-H26.mtw	AL15-08 L101-02I DF=100	8	1.0	100.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-16_17-47.chw	ICD0-H26.mtw	AL15-09 L089-04I DF=10	9	1.0	10.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_18-04.chw	ICD0-H26.mtw	AL15-10 L108-01I DF=2	10	1.0	2.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_18-21.chw	ICD0-H26.mtw	AL15-11 L108-01J DF=20	11	1.0	20.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_18-38.chw	ICD0-H26.mtw	AL15-12 L108-01K DF=100	12	1.0	100.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_18-55.chw	ICD0-H26.mtw	AL15-13 CCV689	13	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_19-14.chw	ICD0-H26.mtw	AL15-14 CCB689	14	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_19-31.chw	ICD0-H26.mtw	AL15-15 L089-04	15	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_19-48.chw	ICD0-H26.mtw	AL15-16 L089-10	16	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_20-05.chw	ICD0-H26.mtw	AL15-17 L089-12	17	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_20-22.chw	ICD0-H26.mtw	AL15-18 L089-16	18	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_20-39.chw	ICD0-H26.mtw	AL15-19 L089-17	19	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_20-56.chw	ICD0-H26.mtw	AL15-20 L101-02ID DF=100	20	1.0	100.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_21-13.chw	ICD0-H26.mtw	AL15-21 L101-02IM DF=100	21	1.0	100.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_21-31.chw	ICD0-H26.mtw	AL15-22 L101-02IS DF=100	22	1.0	100.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_21-48.chw	ICD0-H26.mtw	AL15-23 L101-02J DF=5	23	1.0	5.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_22-05.chw	ICD0-H26.mtw	AL15-24 L101-02JD DF=5	24	1.0	5.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_22-22.chw	ICD0-H26.mtw	AL15-25 CCV691	25	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_22-39.chw	ICD0-H26.mtw	AL15-26 CCB691	26	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_22-56.chw	ICD0-H26.mtw	AL15-27 L101-02JM DF=5	27	1.0	5.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_23-13.chw	ICD0-H26.mtw	AL15-28 L101-02JS DF=5	28	1.0	5.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_23-30.chw	ICD0-H26.mtw	AL15-29 L064-01I DF=40	29	1.0	40.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-16_23-47.chw	ICD0-H26.mtw	AL15-30 L064-04I DF=40	30	1.0	40.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_00-04.chw	ICD0-H26.mtw	AL15-31 L064-14I DF=40	31	1.0	40.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_00-21.chw	ICD0-H26.mtw	AL15-32 L064-21I DF=40	32	1.0	40.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_00-38.chw	ICD0-H26.mtw	AL15-33 CCV693	33	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_00-55.chw	ICD0-H26.mtw	AL15-34 CCB693	34	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	

FINAL LO 12/18/19

ANALYSIS RUN LOG
for
ION CHROMATOGRAPHY

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

Book #:	AD0-066
Instrument No.:	D0
Pipette ID's:	039380124
	SW3-02-02-02
	439350100
Analytical Sequence:	AL17
Method File:	ICD0-H26.mtw
Analytical Batch:	~~ICL17~~ ICL017W
	LO 12/17/19

SOP #	Rev. #
☑ EMAX-300.0	13
☐ EMAX-4110B	6
☑ EMAX-9056	9
☐ EMAX-	

STANDARDS ID	
ICAL	—
ICV	—
CCV	SW3B-11 — 02-01
LCS	SW3B-11 — 02-02
MS	SCP Refer to LCS parent ID

Filters Lot #: Snap Seal Containers Lot #:

0.45 µm: 9094103 4 oz:

0.2 µm: 90060103 1.5 oz: 10419004

Column: Metrosep A Supp 5-100

Flow Rate: 0.70 ml/min

IC ELUENT PREPARATION Expiration Date: 01/13/19

Std ID	Aliquot	Final Vol*
SP2-01-07-01	20 mL	2 L

IC REGENERANT PREPARATION Expiration Date: 01/13/19

Std ID	Aliquot	Final Vol*
SP2-01-16-04	100 mL	1 L

* Reagent Water ID: SMSA-04-04-08

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC-METROHM	
☐ External Hard Drive	

Analyzed By: LO

Date: 12/17/19

File Name	Method	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Calibration Level	Sample Info 1	Sample Info 2
_2019-12-17_10-57.chw	ICD0-H26.mtw	AL17-01 CCV695	1	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_11-15.chw	ICD0-H26.mtw	AL17-02 CCB695	2	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_11-32.chw	ICD0-H26.mtw	AL17-03 ICL017WB	3	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_11-49.chw	ICD0-H26.mtw	AL17-04 ICL017WL	4	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_12-06.chw	ICD0-H26.mtw	AL17-05 ICL017WC	5	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_13-02.chw	ICD0-H26.mtw	AL17-06 L064-04I DF=200	6	1.0	200.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_13-28.chw	ICD0-H26.mtw	AL17-07 L105-01	7	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_13-46.chw	ICD0-H26.mtw	AL17-08 L105-09	8	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_14-22.chw	ICD0-H26.mtw	AL17-09 L105-01I DF=40	9	1.0	40.0	1.0	100.0	0	METHOD 300/9056/4110B	
_2019-12-17_14-40.chw	ICD0-H26.mtw	AL17-10 L105-01IM DF=40	10	1.0	40.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_14-57.chw	ICD0-H26.mtw	AL17-11 L105-01IS DF=40	11	1.0	40.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_15-14.chw	ICD0-H26.mtw	AL17-12 L105-01ID DF=40	12	1.0	40.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_15-31.chw	ICD0-H26.mtw	AL17-13 CCV697	13	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_16-00.chw	ICD0-H26.mtw	AL17-14 CCB697	14	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_16-17.chw	ICD0-H26.mtw	AL17-15 L113-01I DF=10	15	1.0	10.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_16-34.chw	ICD0-H26.mtw	AL17-16 L098-01I DF=100	16	1.0	100.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_16-51.chw	ICD0-H26.mtw	AL17-17 L098-02I DF=100	17	1.0	100.0	1.0	100.0	0	METHOD300/9056/4110B	STRONG ODOR/ LIGHT YELLOW
_2019-12-17_17-08.chw	ICD0-H26.mtw	AL17-18 L098-07I DF=100	18	1.0	100.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_17-26.chw	ICD0-H26.mtw	AL17-19 L098-08I DF=100	19	1.0	100.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_17-43.chw	ICD0-H26.mtw	AL17-20 L098-09I DF=100	20	1.0	100.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_18-00.chw	ICD0-H26.mtw	AL17-21 L098-10I DF=100	21	1.0	100.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_18-17.chw	ICD0-H26.mtw	AL17-22 L113-02I DF=10	22	1.0	10.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_18-34.chw	ICD0-H26.mtw	AL17-23 L113-05I DF=10	23	1.0	10.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_18-51.chw	ICD0-H26.mtw	AL17-24 L113-06I DF=10	24	1.0	10.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_19-09.chw	ICD0-H26.mtw	AL17-25 CCV699	25	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_19-30.chw	ICD0-H26.mtw	AL17-26 CCB699	26	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_19-47.chw	ICD0-H26.mtw	AL17-27 L113-07I DF=10	27	1.0	10.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_20-04.chw	ICD0-H26.mtw	AL17-28 L113-08I DF=10	28	1.0	10.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_20-21.chw	ICD0-H26.mtw	AL17-29 L113-11I DF=10	29	1.0	10.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_20-38.chw	ICD0-H26.mtw	AL17-30 L089-10I DF=20	30	1.0	20.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_20-55.chw	ICD0-H26.mtw	AL17-31 L089-12I DF=20	31	1.0	20.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_21-12.chw	ICD0-H26.mtw	AL17-32 L089-16I DF=100	32	1.0	100.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_21-29.chw	ICD0-H26.mtw	AL17-33 L089-17I DF=40	33	1.0	40.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_21-46.chw	ICD0-H26.mtw	AL17-34 L105-09I DF=10	34	1.0	10.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_22-03.chw	ICD0-H26.mtw	AL17-35 L098-01ID DF=100	35	1.0	100.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_22-21.chw	ICD0-H26.mtw	AL17-36 L098-01IM DF=100	36	1.0	100.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_22-38.chw	ICD0-H26.mtw	AL17-37 CCV701	37	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_22-55.chw	ICD0-H26.mtw	AL17-38 CCB701	38	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_23-12.chw	ICD0-H26.mtw	AL17-39 L098-01IS DF=100	39	1.0	100.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_23-29.chw	ICD0-H26.mtw	AL17-40 L098-07J DF=10	40	1.0	10.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-17_23-46.chw	ICD0-H26.mtw	AL17-41 CCV703	41	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	
_2019-12-18_00-03.chw	ICD0-H26.mtw	AL17-42 CCB703	42	1.0	1.0	1.0	100.0	0	METHOD300/9056/4110B	

FINAL lo 12/18/19

RETENTION TIME WINDOW

RETENTION TIME WINDOW
METHOD 300.0

Lab name:	**EMAX**	**Method:**	**EMAX-300.0**
Instrument ID:	D0 (761 IC)	IC column: Column size:	METROSEP A SUPP 5 100X4.0mm

Compound		Retention time Window
FLUORIDE	**(+/-)**	**0.090**
CHLORIDE	**(+/-)**	**0.104**
NITRITE	**(+/-)**	**0.159**
BROMIDE	**(+/-)**	**0.329**
NITRATE	**(+/-)**	**0.420**
PHOSPHATE	**(+/-)**	**0.528**
SULFATE	**(+/-)**	**0.797**
IODIDE	**(+/-)**	**0.652**

AA
06/03/14

RETENTION TIME WINDOW
METHOD 300.0

Lab name: **EMAX** **Method:** **EMAX-300.0**

Instrument ID: D0 (761 IC) IC column: METROSEP A SUPP 5
Column size: 100X4.0mm

Compound	ICAL Mean RT	from	to	RTW
FLUORIDE	**3.07**	2.98	3.16	**0.090**
CHLORIDE	**4.13**	4.02	4.23	**0.104**
NITRITE	**4.75**	4.59	4.91	**0.159**
BROMIDE	**5.74**	5.41	6.07	**0.329**
NITRATE	**6.44**	6.02	6.86	**0.420**
PHOSPHATE	**8.61**	8.08	9.14	**0.528**
SULFATE	**9.82**	9.02	10.62	**0.797**

ICD0-H26.mtw

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L064

METHOD SM2320B
TOTAL ALKALINITY

A total of seventeen(17) water samples were received on 12/10/19 to be analyzed for Total Alkalinity in accordance with Method SM2320B and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Alkalinity was not detected in ALL004WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. ALL004WL/ALL004WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Sample duplicate was analyzed and RPD was within expected value.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SM2320B
TOTAL ALKALINITY

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L064
Matrix : WATER
InstrumentID : E5

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	PREP. FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ALL004WB	ND	1	NA	5	5	12/16/1920:12	NA	19E5L0320	19E5L03	ALL004W	NA	NA
LCS1W	ALL004WL	97.6	1	NA	5	5	12/16/1920:18	NA	19E5L0321	19E5L03	ALL004W	NA	NA
LCD1W	ALL004WC	98.4	1	NA	5	5	12/16/1920:25	NA	19E5L0322	19E5L03	ALL004W	NA	NA
OU2-MW01D-GW120619	L064-01	261	1	NA	5	5	12/16/1920:34	NA	19E5L0323	19E5L03	ALL004W	12/06/1916:05	12/10/19
OU2-MW14D-GW120719	L064-02	246	1	NA	5	5	12/16/1920:41	NA	19E5L0324	19E5L03	ALL004W	12/07/1913:05	12/10/19
OU2-MW03RC-GW120719	L064-03	228	1	NA	5	5	12/16/1920:48	NA	19E5L0325	19E5L03	ALL004W	12/07/1911:40	12/10/19
OU2-FD03-GW120719	L064-04	357	1	NA	5	5	12/16/1920:56	NA	19E5L0326	19E5L03	ALL004W	12/07/1911:00	12/10/19
OU2-MW15S-GW120719	L064-06	393	1	NA	5	5	12/16/1921:06	NA	19E5L0327	19E5L03	ALL004W	12/07/1911:45	12/10/19
OU2-MW15D-GW120719	L064-07	357	1	NA	5	5	12/16/1921:14	NA	19E5L0328	19E5L03	ALL004W	12/07/1910:00	12/10/19
OU2-MW15D-GW120719DUP	L064-07D	364	1	NA	5	5	12/16/1921:23	NA	19E5L0329	19E5L03	ALL004W	12/07/1910:00	12/10/19
OU2-MW03RA-GW120719	L064-08	274	1	NA	5	5	12/16/1921:31	NA	19E5L0330	19E5L03	ALL004W	12/07/1910:00	12/10/19
OU2-MW03RB-GW120819	L064-09	231	1	NA	5	5	12/16/1921:38	NA	19E5L0331	19E5L03	ALL004W	12/08/1914:50	12/10/19
OU2-MW03RD-GW120719	L064-10	253	1	NA	5	5	12/16/1921:45	NA	19E5L0332	19E5L03	ALL004W	12/07/1914:50	12/10/19
OU2-MW17D-GW120819	L064-11	298	1	NA	5	5	12/16/1921:54	NA	19E5L0333	19E5L03	ALL004W	12/08/1911:05	12/10/19
OU2-MW17S-GW120819	L064-12	331	1	NA	5	5	12/16/1922:02	NA	19E5L0334	19E5L03	ALL004W	12/08/1910:00	12/10/19
OU2-FD02-GW120819	L064-14	242	1	NA	5	5	12/16/1922:10	NA	19E5L0335	19E5L03	ALL004W	12/08/1912:20	12/10/19
OU2-MW08C-GW120819	L064-15	242	1	NA	5	5	12/16/1922:18	NA	19E5L0336	19E5L03	ALL004W	12/08/1909:55	12/10/19
OU2-MW08A-GW120819	L064-17	261	1	NA	5	5	12/16/1922:26	NA	19E5L0337	19E5L03	ALL004W	12/08/1912:15	12/10/19
OU2-MW14S-GW120719	L064-18	257	1	NA	5	5	12/16/1922:33	NA	19E5L0338	19E5L03	ALL004W	12/07/1914:10	12/10/19
OU2-MW05R-GW120819	L064-20	306	1	NA	5	5	12/16/1922:41	NA	19E5L0339	19E5L03	ALL004W	12/08/1910:15	12/10/19
OU2-MW08B-GW120819	L064-21	249	1	NA	5	5	12/16/1922:50	NA	19E5L0340	19E5L03	ALL004W	12/08/1911:05	12/10/19

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : METHOD SM2320B

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	ALL004WB	ALL004WL	ALL004WC
LAB FILE ID	19E5L0320	19E5L0321	19E5L0322
DATE EXTRACTED	NA	NA	NA
DATE ANALYZED	12/16/1920:12	12/16/1920:18	12/16/1920:25
PREP BATCH	ALL004W	ALL004W	ALL004W
CALIBRATION REF:	19E5L03	19E5L03	19E5L03

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
ALKALINITY	ND	98.8	97.6	99	98.8	98.4	100	1	80-120	20

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : METHOD SM2320B

MATRIX : WATER

DILUTION FACTOR:	1	1
SAMPLE ID :	OU2-MW15D-GW120719	OU2-MW15D-GW120719DUP
LAB SAMPLE ID :	L064-07	L064-07D
LAB FILE ID :	19E5L0328	19E5L0329
DATE PREPARED :	NA	NA
DATE ANALYZED :	12/16/1921:14	12/16/1921:23
PREP BATCH :	ALL004W	ALL004W
CALIBRATION REF:	19E5L034	19E5L034

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	RPD (%)	MAX RPD (%)
ALKALINITY	357	364	2	20

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
ALKALINITY

Note: For samples and relevent QCs/Standards analyzed, refer to attached analytical sequence.

☑ Titration end point: pH 4.5 ± 0.04

☑ Low alkalinity: pH 4.2 ± 0.04

Micropipette ID: NA

MS/MSD amount of spike: NA

Comments:

Reagent Water: RWI-19-003

Book#: AAL-042

Instrument No.: ☐ 53 ☐ 97 ☑ E5

Analytical Batch: 19E5L03

Analytical Sequence: ALL003/ALL004

SOP #	Rev. #
☑ EMAX-2320B	5
☐ EMAX-	

STANDARDS ID	Conc. (mg/L)
0.02N HCL SWRI-02-20-03	0.02N
LCS SWI-02-02-30	98.8
MS/MSD NA	NA
ICV NA	NA

pH Buffer	ID
pH 4	SWI-02-04-21
pH 7	SWI-02-04-22
pH 10	SWI-02-04-23
~~pH 8.0~~ pH 7.96 (Check)	SWI-02-04-28
~~TK 12/02/20~~ pH Strip	HC863463

Analyzed By: TK

Date: 12/16/19

PC-TitratION PLUS

pH and Alkalinity In-Run Report

Run Number 1123 **Analytical Batch#** 19E5L03

Seq. #	SampleID	Data File Name	RunDate	RunTime	pH	Volume @pH 8.3	Volume @pH 4.5	Volume @pH 4.2	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	Review Notes
1	ICV PH8	19E5L03	12/16/19	5:52 PM	7.93	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	pH cert. value = 7.96
2	ICB	19E5L03	12/16/19	6:00 PM	7.67	.00	.79	-1.00	.00	31.69	31.69	.00	.00	
3	ALL003WB	19E5L03	12/16/19	6:06 PM	5.88	.00	.04	.07	.00	.59	.59	.00	.00	
4	ALL003WL	19E5L03	12/16/19	6:13 PM	8.62	.79	2.40	-1.00	31.77	96.15	32.61	63.53	.00	
5	ALL003WC	19E5L03	12/16/19	6:20 PM	8.65	.85	2.44	-1.00	34.20	97.65	29.25	68.40	.00	
6	L057-01	19E5L03	12/16/19	6:28 PM	7.06	.00	8.80	-1.00	.00	351.97	351.97	.00	.00	
7	L057-02	19E5L03	12/16/19	6:35 PM	7.17	.00	7.06	-1.00	.00	282.24	282.24	.00	.00	
8	L057-03	19E5L03	12/16/19	6:44 PM	7.13	.00	7.10	-1.00	.00	284.16	284.16	.00	.00	
9	L057-04	19E5L03	12/16/19	6:51 PM	7.29	.00	5.83	-1.00	.00	233.38	233.38	.00	.00	
10	L057-05	19E5L03	12/16/19	6:58 PM	7.34	.00	6.95	-1.00	.00	278.10	278.10	.00	.00	
11	L057-07	19E5L03	12/16/19	7:06 PM	7.30	.00	6.02	-1.00	.00	240.64	240.64	.00	.00	
12	L057-08	19E5L03	12/16/19	7:15 PM	7.10	.00	8.70	-1.00	.00	347.86	347.86	.00	.00	
13	L057-09	19E5L03	12/16/19	7:22 PM	7.22	.00	6.02	-1.00	.00	240.84	240.84	.00	.00	
14	L057-10	19E5L03	12/16/19	7:30 PM	7.19	.00	7.33	-1.00	.00	293.20	293.20	.00	.00	
15	L057-10D	19E5L03	12/16/19	7:39 PM	7.23	.00	7.52	-1.00	.00	300.67	300.67	.00	.00	
16	L100-02	19E5L03	12/16/19	7:46 PM	7.28	.00	3.15	-1.00	.00	125.89	125.89	.00	.00	
17	L100-04	19E5L03	12/16/19	7:52 PM	7.21	.00	3.12	-1.00	.00	124.84	124.84	.00	.00	
18	L108-01	19E5L03	12/16/19	7:59 PM	7.14	.00	5.56	-1.00	.00	222.37	222.37	.00	.00	

Analyzed by: IK Reviewed by: IK Date: 12/17/19

PC-TitratION PLUS by Man-Tech Associates, Inc.

pH AND ALKALINITY IN-RUN REPORT.SRW

Run Number 1123 **Analytical Batch#** 19E5L03

Seq. #	SampleID	Data File Name	RunDate	RunTime	pH	Volume @pH 8.3	Volume @pH 4.5	Volume @pH 4.2	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	Review Notes
19	RINSE	19E5L03	12/16/19	8:06 PM	6.14	.00	.06	.10	.00	.99	.99	.00	.00	
20	ALL004WB	19E5L03	12/16/19	8:12 PM	5.87	.00	.05	.08	.00	.49	.49	.00	.00	
21	ALL004WL	19E5L03	12/16/19	8:18 PM	8.68	.91	2.44	-1.00	36.29	97.59	25.01	72.58	.00	
22	ALL004WC	19E5L03	12/16/19	8:25 PM	8.69	.93	2.46	-1.00	37.39	98.36	23.58	74.78	.00	
23	L064-01	19E5L03	12/16/19	8:34 PM	7.21	.00	6.52	-1.00	.00	260.98	260.98	.00	.00	
24	L064-02	19E5L03	12/16/19	8:41 PM	7.23	.00	6.16	-1.00	.00	246.33	246.33	.00	.00	
25	L064-03	19E5L03	12/16/19	8:48 PM	7.31	.00	5.70	-1.00	.00	227.84	227.84	.00	.00	
26	L064-04	19E5L03	12/16/19	8:56 PM	7.09	.00	8.92	-1.00	.00	356.64	356.64	.00	.00	
27	L064-06	19E5L03	12/16/19	9:06 PM	7.05	.00	9.82	-1.00	.00	392.87	392.87	.00	.00	
28	L064-07	19E5L03	12/16/19	9:14 PM	7.09	.00	8.94	-1.00	.00	357.41	357.41	.00	.00	
29	L064-07D	19E5L03	12/16/19	9:23 PM	7.14	.00	9.10	-1.00	.00	364.09	364.09	.00	.00	
30	L064-08	19E5L03	12/16/19	9:31 PM	7.21	.00	6.84	-1.00	.00	273.68	273.68	.00	.00	
31	L064-09	19E5L03	12/16/19	9:38 PM	7.38	.00	5.77	-1.00	.00	230.88	230.88	.00	.00	
32	L064-10	19E5L03	12/16/19	9:45 PM	7.39	.00	6.33	-1.00	.00	253.28	253.28	.00	.00	
33	L064-11	19E5L03	12/16/19	9:54 PM	7.23	.00	7.46	-1.00	.00	298.21	298.21	.00	.00	
34	L064-12	19E5L03	12/16/19	10:02 PM	7.33	.00	8.27	-1.00	.00	330.95	330.95	.00	.00	
35	L064-14	19E5L03	12/16/19	10:10 PM	7.37	.00	6.05	-1.00	.00	241.82	241.82	.00	.00	
36	L064-15	19E5L03	12/16/19	10:18 PM	7.45	.00	6.04	-1.00	.00	241.54	241.54	.00	.00	
37	L064-17	19E5L03	12/16/19	10:26 PM	7.23	.00	6.51	-1.00	.00	260.57	260.57	.00	.00	
38	L064-18	19E5L03	12/16/19	10:33 PM	7.38	.00	6.42	-1.00	.00	256.86	256.86	.00	.00	

Analyzed by: JK Reviewed by: JK Date: 12/17/19

PC-TitratION PLUS by Man-Tech Associates, Inc.

pH AND ALKALINITY IN-RUN REPORT.SRW

Run Number 1123 **Analytical Batch#** 19E5L03

Seq. #	SampleID	Data File Name	RunDate	RunTime	pH	Volume @pH 8.3	Volume @pH 4.5	Volume @pH 4.2	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	Review Notes
39	L064-20	19E5L03	12/16/19	10:41 PM	7.28	.00	7.66	-1.00	.00	306.39	306.39	.C0	.00	
40	L064-21	19E5L03	12/16/19	10:50 PM	7.46	.00	6.22	-1.00	.00	248.60	248.60	.C0	.00	
41	RINSE	19E5L03	12/16/19	10:57 PM	6.37	.00	.06	.10	.00	1.04	1.04	.C0	.00	

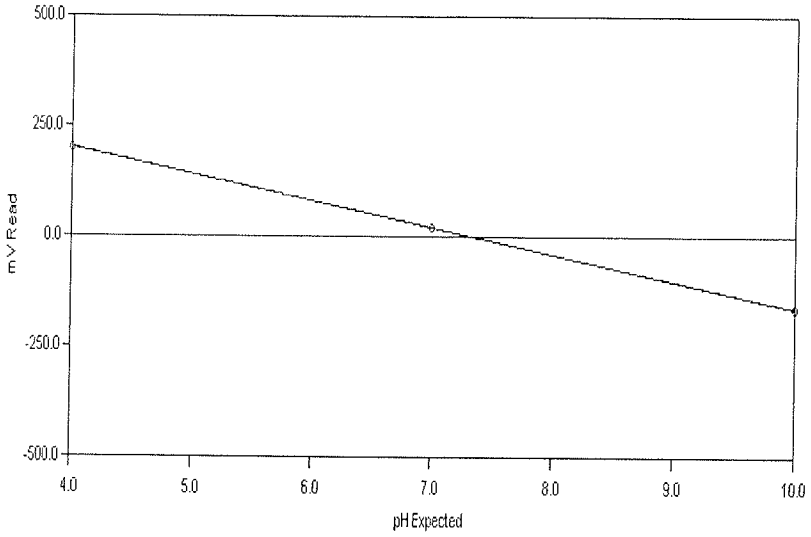
Analyzed by: JK Reviewed by: JK Date: 12/17/19

PC-TitratION PLUS by Man-Tech Associates, Inc.

pH AND ALKALINITY IN-RUN REPORT.SRW

PC-TitratION PLUS
Calibration Report

Calibration Record # 782



Calibration Settings

Calibration ID	PH CAL 4-7-10	Date	12/16/2019
Channel	1	Time	5:49 PM
Probe Type	pH	Temperature	297.89 K 24.74 C
Probe ID	PH ELECTRODE	Analysis Type	Single Line Fit

Calibration Results

Slope	-60.525	CorrCoeff	0.9999
Intercept	19.653	Equation: Y = (-60.525) X + (19.653)	

Calibration Validity True Operator

	Result	Minimum	Maximum
Slope	-60.525	-65.00	-53.00
Intercept	19.653	-40.00	40.00
Correlation Coefficient	0.9999	0.99	1.00

Note: "True" means the calibration was within the specified ranges
"False" means the calibration was NOT within the specified ranges

Calibration Data	Standard	Reading
	4.00	199.95
	7.00	22.21
	10.00	-163.20

PC-Titrate For Windows

Running List Report

Order Number - 19E5L03

	Schedule	Sample Id	Vial	Weight	Volume
1	PH CAL	CAL	1	.00	25.00
2	PH ONLY	ICV PH8	4	.00	25.00
3	PH-ALK	ICB	5	.00	25.00
4	PH-ALK	ALL003WB	6	.00	25.00
5	PH-ALK	ALL003WL	7	.00	25.00
6	PH-ALK	ALL003WC	8	.00	25.00
7	PH-ALK	L057-01	9	.00	25.00
8	PH-ALK	L057-02	10	.00	25.00
9	PH-ALK	L057-03	11	.00	25.00
10	PH-ALK	L057-04	12	.00	25.00
11	PH-ALK	L057-05	13	.00	25.00
12	PH-ALK	L057-07	14	.00	25.00
13	PH-ALK	L057-08	15	.00	25.00
14	PH-ALK	L057-09	16	.00	25.00
15	PH-ALK	L057-10	17	.00	25.00
16	PH-ALK	L057-10D	18	.00	25.00
17	PH-ALK	L100-02	19	.00	25.00
18	PH-ALK	L100-04	20	.00	25.00
19	PH-ALK	L108-01	21	.00	25.00
20	PH-ALK	RINSE	22	.00	25.00
21	PH-ALK	ALL004WB	23	.00	25.00
22	PH-ALK	ALL004WL	24	.00	25.00
23	PH-ALK	ALL004WC	25	.00	25.00
24	PH-ALK	L064-01	26	.00	25.00
25	PH-ALK	L064-02	27	.00	25.00
26	PH-ALK	L064-03	28	.00	25.00
27	PH-ALK	L064-04	29	.00	25.00
28	PH-ALK	L064-06	30	.00	25.00
29	PH-ALK	L064-07	31	.00	25.00
30	PH-ALK	L064-07D	32	.00	25.00
31	PH-ALK	L064-08	33	.00	25.00
32	PH-ALK	L064-09	34	.00	25.00
33	PH-ALK	L064-10	35	.00	25.00
34	PH-ALK	L064-11	36	.00	25.00
35	PH-ALK	L064-12	37	.00	25.00
36	PH-ALK	L064-14	38	.00	25.00
37	PH-ALK	L064-15	39	.00	25.00
38	PH-ALK	L064-17	40	.00	25.00
39	PH-ALK	L064-18	41	.00	25.00
40	PH-ALK	L064-20	42	.00	25.00

Running List Report

Order Number - 19E5L03

	Schedule	Sample Id	Vial	Weight	Volume
41	PH-ALK	L064-21	43	.00	25.00
42	PH-ALK	RINSE	44	.00	25.00

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L064

METHOD SM2540C
TOTAL DISSOLVED SOLIDS

A total of seventeen(17) water samples were received on 12/10/19 to be analyzed for Total Dissolved Solids in accordance with Method SM2540C and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Balance calibration verifications were carried out on a frequency specified by the method. All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, two(2) method blanks were analyzed. TDL003WB and TDL004WB were compliant to project requirement. Refer to sample result summary forms for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, two(2) LCSs were analyzed. Percent recovery for Total Dissolved Solids was within LCS QC limits in TDL003WL. Percent recovery for Total Dissolved Solids was within LCS QC limits in TDL004WL. Refer to LCS summary forms for details.

Matrix QC Sample
Sample duplicate was analyzed and RPD was within expected value.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SM2540C
TOTAL DISSOLVED SOLIDS

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L064

Matrix : WATER
InstrumentID : 402426

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	TDL003WB	ND	1	NA	10	10	12/11/1917:23	NA	19TDL00301	19TDL003	TDL003W	NA	NA
LCS1W	TDL003WL	1020	1	NA	10	10	12/11/1917:23	NA	19TDL00302	19TDL003	TDL003W	NA	NA
OU2-MW01D-GW120619	L064-01	708	1	NA	10	10	12/11/1917:23	NA	19TDL00313	19TDL003	TDL003W	12/06/1916:05	12/10/19
OU2-MW14D-GW120719	L064-02	827	1	NA	10	10	12/11/1917:23	NA	19TDL00314	19TDL003	TDL003W	12/07/1913:05	12/10/19
OU2-MW03RC-GW120719	L064-03	650	1	NA	10	10	12/11/1917:23	NA	19TDL00315	19TDL003	TDL003W	12/07/1911:40	12/10/19
OU2-FD03-GW120719	L064-04	1190	1	NA	10	10	12/11/1917:23	NA	19TDL00316	19TDL003	TDL003W	12/07/1911:00	12/10/19
OU2-MW15S-GW120719	L064-06	1430	1	NA	10	10	12/11/1917:23	NA	19TDL00317	19TDL003	TDL003W	12/07/1911:45	12/10/19
OU2-MW15S-GW120719DUP	L064-06D	1480	1	NA	10	10	12/11/1917:23	NA	19TDL00318	19TDL003	TDL003W	12/07/1911:45	12/10/19
MBLK2W	TDL004WB	ND	1	NA	10	10	12/11/1917:23	NA	19TDL00401	19TDL004	TDL004W	NA	NA
LCS2W	TDL004WL	1020	1	NA	10	10	12/11/1917:23	NA	19TDL00402	19TDL004	TDL004W	NA	NA
OU2-MW15D-GW120719	L064-07	1220	1	NA	10	10	12/11/1917:23	NA	19TDL00403	19TDL004	TDL004W	12/07/1910:00	12/10/19
OU2-MW15D-GW120719DUP	L064-07D	1170	1	NA	10	10	12/11/1917:23	NA	19TDL00404	19TDL004	TDL004W	12/07/1910:00	12/10/19
OU2-MW03RA-GW120719	L064-08	1200	1	NA	10	10	12/11/1917:23	NA	19TDL00405	19TDL004	TDL004W	12/07/1910:00	12/10/19
OU2-MW03RB-GW120819	L064-09	812	1	NA	10	10	12/11/1917:23	NA	19TDL00406	19TDL004	TDL004W	12/08/1914:50	12/10/19
OU2-MW03RD-GW120719	L064-10	706	1	NA	10	10	12/11/1917:23	NA	19TDL00407	19TDL004	TDL004W	12/07/1914:50	12/10/19
OU2-MW17D-GW120819	L064-11	1020	1	NA	10	10	12/11/1917:23	NA	19TDL00408	19TDL004	TDL004W	12/08/1911:05	12/10/19
OU2-MW17S-GW120819	L064-12	1190	1	NA	10	10	12/11/1917:23	NA	19TDL00409	19TDL004	TDL004W	12/08/1910:00	12/10/19
OU2-FD02-GW120819	L064-14	679	1	NA	10	10	12/11/1917:23	NA	19TDL00410	19TDL004	TDL004W	12/08/1912:20	12/10/19
OU2-MW08C-GW120819	L064-15	611	1	NA	10	10	12/11/1917:23	NA	19TDL00411	19TDL004	TDL004W	12/08/1909:55	12/10/19
OU2-MW08A-GW120819	L064-17	1100	1	NA	10	10	12/11/1917:23	NA	19TDL00412	19TDL004	TDL004W	12/08/1912:15	12/10/19
OU2-MW14S-GW120719	L064-18	930	1	NA	10	10	12/11/1917:23	NA	19TDL00413	19TDL004	TDL004W	12/07/1914:10	12/10/19
OU2-MW05R-GW120819	L064-20	1060	1	NA	10	10	12/11/1917:23	NA	19TDL00414	19TDL004	TDL004W	12/08/1910:15	12/10/19
OU2-MW08B-GW120819	L064-21	695	1	NA	10	10	12/11/1917:23	NA	19TDL00415	19TDL004	TDL004W	12/08/1911:05	12/10/19
OU2-MW08B-GW120819DUP	L064-21D	708	1	NA	10	10	12/11/1917:23	NA	19TDL00416	19TDL004	TDL004W	12/08/1911:05	12/10/19

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : SM2540C

MATRIX : WATER
DILUTION FACTOR: 1 1
SAMPLE ID : MBLK1W LCS1W
LAB SAMPLE ID : TDL003WB TDL003WL
LAB FILE ID : 19TDL00301 19TDL00302
DATE PREPARED : NA NA
DATE ANALYZED : 12/11/1917:23 12/11/1917:23
PREP BATCH : TDL003W TDL003W
CALIBRATION REF: 19TDL003 19TDL003

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	QC LIMIT (%)
Total Dissolved Solids	ND	1000	1020	102	80-120

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : SM2540C

MATRIX : WATER
DILUTION FACTOR: 1 1
SAMPLE ID : MBLK2W LCS2W
LAB SAMPLE ID : TDL004WB TDL004WL
LAB FILE ID : 19TDL00401 19TDL00402
DATE PREPARED : NA NA
DATE ANALYZED : 12/11/1917:23 12/11/1917:23
PREP BATCH : TDL004W TDL004W
CALIBRATION REF: 19TDL004 19TDL004

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	QC LIMIT (%)
Total Dissolved Solids	ND	1000	1020	102	80-120

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : SM2540C

MATRIX : WATER

DILUTION FACTOR:	1	1
SAMPLE ID :	OU2-MW15S-GW120719	OU2-MW15S-GW120719DUP
LAB SAMPLE ID :	L064-06	L064-06D
LAB FILE ID :	19TDL00317	19TDL00318
DATE PREPARED :	NA	NA
DATE ANALYZED :	12/11/1917:23	12/11/1917:23
PREP BATCH :	TDL003W	TDL003W
CALIBRATION REF:	19TDL003	19TDL003

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	RPD (%)	MAX RPD (%)
Total Dissolved Solids	1430	1480	3	20

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : SM2540C

MATRIX : WATER

DILUTION FACTOR:	1	1
SAMPLE ID :	OU2-MW15D-GW120719	OU2-MW15D-GW120719DUP
LAB SAMPLE ID :	L064-07	L064-07D
LAB FILE ID :	19TDL00403	19TDL00404
DATE PREPARED :	NA	NA
DATE ANALYZED :	12/11/1917:23	12/11/1917:23
PREP BATCH :	TDL004W	TDL004W
CALIBRATION REF:	19TDL004	19TDL004

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	RPD (%)	MAX RPD (%)
Total Dissolved Solids	1220	1170	4	20

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : SM2540C

MATRIX : WATER

DILUTION FACTOR:	1	1
SAMPLE ID :	OU2-MW08B-GW120819	OU2-MW08B-GW120819DUP
LAB SAMPLE ID :	L064-21	L064-21D
LAB FILE ID :	19TDL00415	19TDL00416
DATE PREPARED :	NA	NA
DATE ANALYZED :	12/11/1917:23	12/11/1917:23
PREP BATCH :	TDL004W	TDL004W
CALIBRATION REF:	19TDL004	19TDL004

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	RPD (%)	MAX RPD (%)
Total Dissolved Solids	695	708	2	20

EMAX LABORATORIES, INC.

TOTAL DISSOLVED SOLIDS

19TDL003

DataFileID	Sample ID	Sample Amt(ml)	Dish #	Dish (g)	1stDry Wt+Dish(g)	DateTime	2ndDry Wt+Dish(g)	DateTime	FinalDry Wt+Dish(g)	DateTime	Rdgs(<0.5mg)	Solids (mg)	TDS (mg/L)	Result (mg/L)
19TDL00301	TDL003WB	100	B	84.3855	84.3855	12/12/19 14:11	84.3858	12/12/19 16:13			0.3	0.3	3	ND
19TDL00302	TDL003WL	20	L	21.32788	21.34824	12/12/19 14:11	21.34832	12/12/19 16:13			0.08	20.44	1022	1020
19TDL00303	L057-01	20	1	21.19826	21.21845	12/12/19 14:11	21.21835	12/12/19 16:13			0.1	20.09	1004.5	1000
19TDL00304	L057-02	20	2	21.27881	21.29703	12/12/19 14:12	21.29712	12/12/19 16:13			0.09	18.31	915.5	915
19TDL00305	L057-03	20	3	21.44295	21.46029	12/12/19 14:12	21.46018	12/12/19 16:14			0.11	17.23	861.5	862
19TDL00306	L057-04	100	4	90.1023	90.1666	12/12/19 14:12	90.1664	12/12/19 16:14			0.2	64.1	641	641
19TDL00307	L057-05	50	5	42.16015	42.19269	12/12/19 14:13	42.19295	12/12/19 16:14			0.26	32.8	656	656
19TDL00308	L057-07	100	6	88.9486	89.0078	12/12/19 14:13	89.0082	12/12/19 16:14			0.4	59.6	596	596
19TDL00309	L057-08	20	7	21.34558	21.3713	12/12/19 14:13	21.37106	12/12/19 16:15			0.24	25.48	1274	1270
19TDL00310	L057-09	20	8	21.40771	21.42617	12/12/19 14:13	21.42605	12/12/19 16:15			0.12	18.34	917	917
19TDL00311	L057-10	20	9	21.37126	21.38968	12/12/19 14:14	21.38963	12/12/19 16:15			0.05	18.37	918.5	919
19TDL00312	L057-10D	20	10	21.10607	21.12463	12/12/19 14:14	21.12456	12/12/19 16:15			0.07	18.49	924.5	924
19TDL00313	L064-01	50	11	42.64446	42.68002	12/12/19 14:14	42.67984	12/12/19 16:15			0.18	35.38	707.6	708
19TDL00314	L064-02	50	12	42.47226	42.51372	12/12/19 14:14	42.51361	12/12/19 16:16			0.11	41.35	827	827
19TDL00315	L064-03	100	13	90.1503	90.2156	12/12/19 14:15	90.2153	12/12/19 16:16			0.3	65	650	650
19TDL00316	L064-04	20	14	21.37986	21.40361	12/12/19 14:15	21.40375	12/12/19 16:16			0.14	23.89	1194.5	1190
19TDL00317	L064-06	20	15	21.09389	21.12265	12/12/19 14:16	21.12246	12/12/19 16:16	UA 12/19/19		0.19	28.57	1428.5	1430
19TDL00318	L064-06D	20	16	21.36251	21.39229	12/12/19 14:16	21.39219	12/12/19 16:17			0.1	29.68	1484	1480

UA 12/19/19

Beginning Balance Check

Std. Wt. (g)	Balance Rdg (g)	Date	Comments
0.1	0.0999	12/11/19 17:23	PASSED
5	4.9997	12/11/19 17:23	PASSED
100	100.0004	12/11/19 17:23	PASSED

Ending Balance Check

Std. Wt (g)	Balance Rdg (g)	Date	Comments
0.1	0.1000	12/11/19 17:38	PASSED
5	5.0000	12/11/19 17:39	PASSED
100	100.0011	12/11/19 17:39	PASSED

Beginning Balance Check

Std. Wt (g)	Balance Rdg (g)	Date	Comments
0.1	0.1002	12/12/19 14:09	PASSED
5	4.9998	12/12/19 14:10	PASSED
100	100.0001	12/12/19 14:10	PASSED

Ending Balance Check

Std. Wt (g)	Balance Rdg (g)	Date	Comments
0.1	0.1001	12/12/19 16:22	PASSED
5	5.0001	12/12/19 16:22	PASSED
100	100.0011	12/12/19 16:22	PASSED

Balance ID: 402426 Weight ID: HN4977 / 62785

Acceptance Criteria: +/- 0.1% or +/- 0.5 mg whichever is greater

StandardID	Desc.	Conc. (mg/L)	ExpDate
RW1-19-003	MB	ND	NA
SW2B-28-08-09	LCS	1000	08/07/20
HC863463	pH strip	0-14	08/09/29

QC Check

LabSampleID	Result	Expected Value	QC Result
TDL003WB	3	ND	MB Passed
TDL003WL	1022	1000	%R=102
#N/A	#N/A	#N/A	#N/A
L057-10D	924.5	918.5	%D=1
L064-06D	1484	1428.5	%D=4

Oven Drying Thermometer ID: 3078

Evaporating			
☑ Start	12/11/2019 18:15	Temp	94 °C
☑ End	12/12/2019 12:00	Temp	94 °C
1st Drying			
☑ Start	12/12/19 12:18	Temp	180 °C
☑ End	12/12/19 13:18	Temp	180 °C
2nd Drying			
☑ Start	12/12/19 14:21	Temp	180 °C
☑ End	12/12/19 15:22	Temp	180 °C
Final Drying			
☐ Start		Temp	°C
☐ End		Temp	°C

Notes:

Samples were evaporated at 90°C (±5°C) and dried at 180°C (±2°C).

SOP

Analyzedby: YAguin

Checked by: UA

☑ EMAX-2540C Rev. 9

Date: 12/19/19

LOQ: 10 mg/L

0.45 micron Filter Lot#: J341342-20190515PZ79M-070

Micropipette ID: NA

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L064

METHOD SM4500-NO3E
NITRATE/NITRITE-N

A total of seventeen(17) water samples were received on 12/10/19 to be analyzed for Nitrate/Nitrite-N in accordance with Method SM4500-NO3E and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. Nitrogen, Nitrate-Nitrite was not detected in NAL004WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. NAL004WL/NAL004WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) MS was analyzed. Percent recovery for Nitrogen, Nitrate-Nitrite was within MS QC limits in L064-07IM. Sample duplicate was analyzed and RPD was within expected value. Refer to Matrix QC summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SM4500-NO3E
NITRATE/NITRITE-N

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L064
Matrix : WATER
InstrumentID : 70

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DFxPREP FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	NAL004WB	ND	1	NA	0.05	0.01	12/17/1918:23	NA	19NAL00410	19NAL004	NAL004W	NA	NA
LCS1W	NAL004WL	0.511	1	NA	0.05	0.01	12/17/1918:23	NA	19NAL00411	19NAL004	NAL004W	NA	NA
LCD1W	NAL004WC	0.527	1	NA	0.05	0.01	12/17/1918:23	NA	19NAL00412	19NAL004	NAL004W	NA	NA
OU2-MW01D-GW120619	L064-01I	2.89	10	NA	0.5	0.1	12/17/1918:23	NA	19NAL00413	19NAL004	NAL004W	12/06/1916:05	12/10/19
OU2-MW14D-GW120719	L064-02I	3.41	10	NA	0.5	0.1	12/17/1918:23	NA	19NAL00414	19NAL004	NAL004W	12/07/1913:05	12/10/19
OU2-MW03RC-GW120719	L064-03I	2.03	5	NA	0.25	0.05	12/17/1918:23	NA	19NAL00415	19NAL004	NAL004W	12/07/1911:40	12/10/19
OU2-FD03-GW120719	L064-04I	6.41	25	NA	1.25	0.25	12/17/1919:07	NA	19NAL00416	19NAL004	NAL004W	12/07/1911:00	12/10/19
OU2-MW15S-GW120719	L064-06I	6.97	25	NA	1.25	0.25	12/17/1919:08	NA	19NAL00417	19NAL004	NAL004W	12/07/1911:45	12/10/19
OU2-MW15D-GW120719	L064-07I	7.94	25	NA	1.25	0.25	12/17/1919:08	NA	19NAL00418	19NAL004	NAL004W	12/07/1910:00	12/10/19
OU2-MW15D-GW120719DUP	L064-07ID	7.31	25	NA	1.25	0.25	12/17/1919:08	NA	19NAL00419	19NAL004	NAL004W	12/07/1910:00	12/10/19
OU2-MW15D-GW120719MS	L064-07IM	18.9	25	NA	1.25	0.25	12/17/1919:09	NA	19NAL00422	19NAL004	NAL004W	12/07/1910:00	12/10/19
OU2-MW03RA-GW120719	L064-08I	2.31	10	NA	0.5	0.1	12/17/1919:24	NA	19NAL00423	19NAL004	NAL004W	12/07/1910:00	12/10/19
OU2-MW03RB-GW120819	L064-09I	2.36	10	NA	0.5	0.1	12/17/1919:24	NA	19NAL00424	19NAL004	NAL004W	12/08/1914:50	12/10/19
OU2-MW03RD-GW120719	L064-10I	2.43	10	NA	0.5	0.1	12/17/1919:24	NA	19NAL00425	19NAL004	NAL004W	12/07/1914:50	12/10/19
OU2-MW17D-GW120819	L064-11I	4.63	25	NA	1.25	0.25	12/17/1919:24	NA	19NAL00426	19NAL004	NAL004W	12/08/1911:05	12/10/19
OU2-MW17S-GW120819	L064-12I	1.32	5	NA	0.25	0.05	12/17/1919:24	NA	19NAL00427	19NAL004	NAL004W	12/08/1910:00	12/10/19
OU2-FD02-GW120819	L064-14I	2.57	5	NA	0.25	0.05	12/17/1919:25	NA	19NAL00428	19NAL004	NAL004W	12/08/1912:20	12/10/19
OU2-MW08C-GW120819	L064-15I	1.88	5	NA	0.25	0.05	12/17/1919:46	NA	19NAL00429	19NAL004	NAL004W	12/08/1909:55	12/10/19
OU2-MW08A-GW120819	L064-17I	4.23	10	NA	0.5	0.1	12/17/1919:46	NA	19NAL00430	19NAL004	NAL004W	12/08/1912:15	12/10/19
OU2-MW14S-GW120719	L064-18	0.197	1	NA	0.05	0.01	12/17/1919:46	NA	19NAL00431	19NAL004	NAL004W	12/07/1914:10	12/10/19
OU2-MW05R-GW120819	L064-20I	3.31	10	NA	0.5	0.1	12/17/1920:01	NA	19NAL00434	19NAL004	NAL004W	12/08/1910:15	12/10/19
OU2-MW08B-GW120819	L064-21I	2.67	10	NA	0.5	0.1	12/17/1920:01	NA	19NAL00435	19NAL004	NAL004W	12/08/1911:05	12/10/19

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : SM4500-NO3E

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: NAL004WB	NAL004WL	NAL004WC
LAB FILE ID	: 19NAL00410	19NAL00411	19NAL00412
DATE PREPARED	: NA	NA	NA
DATE ANALYZED	: 12/17/1918:23	12/17/1918:23	12/17/1918:23
PREP BATCH	: NAL004W	NAL004W	NAL004W
CALIBRATION REF	: 19NAL004	19NAL004	19NAL004

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Nitrogen, Nitrate-Nitrite	ND	0.500	0.511	102	0.500	0.527	105	3	80-120	10

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : SM4500-NO3E

MATRIX : WATER

DILUTION FACTOR:	25	25
SAMPLE ID :	OU2-MW15D-GW120719	OU2-MW15D-GW120719DUP
LAB SAMPLE ID :	L064-07I	L064-07ID
LAB FILE ID :	19NAL00418	19NAL00419
DATE PREPARED :	NA	NA
DATE ANALYZED :	12/17/1919:08	12/17/1919:08
PREP BATCH :	NAL004W	NAL004W
CALIBRATION REF:	19NAL004	19NAL004

ACCESSION:

PARAMETER	PSResult (mg/L)	DUPResult (mg/L)	RPD (%)	QCLimit (%)
Nitrogen, Nitrate-Nitrite	7.94	7.31	8	10

PS: Parent Sample DUP: Sample Duplicate

EMAX QUALITY CONTROL DATA
MATRIX SPIKE SAMPLE ANALYSIS

CLIENT : CDM SMITH
PROJECT : VA SALT LAKE CITY
BATCH NO. : 19L064
METHOD : SM4500-NO3E

MATRIX	: WATER	% Moisture: NA
DILUTION FACTOR	: 25	25
SAMPLE ID	: OU2-MW15D-GW120719	OU2-MW15D-GW120719MS
LAB SAMPLE ID	: L064-07I	L064-07IM
LAB FILE ID	: 19NAL00418	19NAL00422
DATE PREPARED	: NA	NA
DATE ANALYZED	: 12/17/1919:08	12/17/1919:09
PREP BATCH	: NAL004W	NAL004W
CALIBRATION REF	: 19NAL004	19NAL004

ACCESSION:

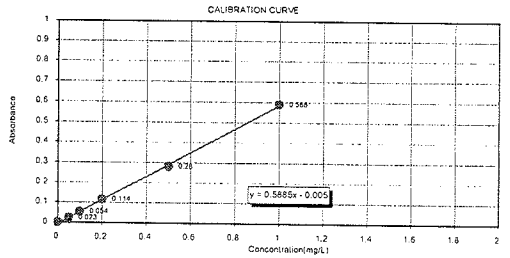
PARAMETER	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	QCLimit (%)
Nitrogen, Nitrate-Nitrite	7.94	12.5	18.9	87.7	75-125

PS: Parent Sample MS: Matrix Spike

Data File Name	Calibration ID	Conc. mg/L	WL	Abs	CalDate	FC	%Rec
19NAL00401	S0	0	543nm	0	12/17/19 17:52	0.008414089	ND
19NAL00402	S1	0.05	543nm	0.023	12/17/19 17:52	0.04749705	95
19NAL00403	S2	0.1	543nm	0.054	12/17/19 17:52	0.100174085	100
19NAL00404	S3	0.2	543nm	0.114	12/17/19 17:53	0.202129635	101
19NAL00405	S4	0.5	543nm	0.28	12/17/19 17:53	0.484206658	97
19NAL00406	S5	1	543nm	0.588	12/17/19 17:53	1.007578483	101
19NAL00407	NO2-N Std Check	0.5	543nm	0.308	12/17/19 17:53	0.531785915	106
19NAL00408	ICV	0.5	543nm	0.313	12/17/19 17:53	0.54028221	108
19NAL00409	ICB	0	543nm	0	12/17/19 17:54	0.008414089	ND
19NAL00420	CCV1	0.5	543nm	0.279	12/17/19 19:08	0.482507399	97
19NAL00421	CCB1	0	543nm	0	12/17/19 19:09	0.008414089	ND
19NAL00432	CCV2	0.5	543nm	0.266	12/17/19 20:00	0.460417029	92
19NAL00433	CCB2	0	543nm	0	12/17/19 20:01	0.008414089	ND
19NAL00436	CCV3	0.5	543nm	0.28	12/17/19 20:01	0.484206658	97
19NAL00437	CCB3	0	543nm	0	12/17/19 20:01	0.008414089	ND

Reduction Time	Coloring Time
12/17/19 17:00	12/17/19 17:02
12/17/19 17:04	12/17/19 17:05
12/17/19 17:07	12/17/19 17:08
12/17/19 17:11	12/17/19 17:12
12/17/19 17:15	12/17/19 17:16
12/17/19 17:18	12/17/19 17:20
NA	12/17/19 17:20
12/17/19 17:23	12/17/19 17:24
12/17/19 17:36	12/17/19 17:37

InstrumentID: 70



$$FC = [(A * CF) - Y] * DF$$

CF= 1.699259173 Y= -0.00841 r= 0.999735

DL Water(mg/L)	0.01	DL Soil(mg/Kg)	0.1
LOD Water(mg/L)	0.02	LOD Soil(mg/Kg)	0.2
LOQ Water(mg/L)	0.05	LOQ Soil(mg/Kg)	0.5

SOP

☑ EMAX-4500-NO3E Rev. 3

LAB QC CHECK

DataFileID	LabSampleID	Result	Expected Value	QC Result
19NAL00410	NAL004WB	ND	ND	MB Passed
19NAL00411	NAL004WL	0.511	0.5	%R=102
19NAL00412	NAL004WC	0.527	0.5	%R=105

MS CHECK

DataFileID	LabSampleID	Result	Expected Value	QC Result
19NAL00418	L064-07I	7.94		
19NAL00422	L064-07IM	18.90	12.5	%R=88

DUP CHECK

DataFileID	LabSampleID	Result	Expected Value	RPD
19NAL00418	L064-07I	7.94		8
19NAL00419	L064-07ID	7.31	7.94	

☐ Leaching Date Time Start: ☐ End:

Filter: 0.45 µm 90941103

Analyzed by: NCrist

Standard / Reagent ID	Description	Conc.	Exp.Date
SW2B-29-15-03	MCAL CCV (mg/L)	10	12/17/19
SW2B-29-15-04	ICV LCS MS Std (mg/L)	10	12/17/19
SW2B-29-15-05	NO2 CHK	10	12/17/19
SM5A-04-04-08	Reagent Water	N/A	03/31/20
N/A	Sand	N/A	N/A
SWP1-51-47-03	Coloring Reagent	**	12/19/19
SWP1-54-06-01	NH4Cl-EDTA Soln	**	06/12/20
SWP1-47-45-01	HCl	1N	03/04/20
SWR1-01-819	NH4OH	CCNC	04/30/25
N/A	Extraction Solvent	N/A	N/A
N/A	ZnSO4	N/A	N/A
SWP1-46-39-01	NaOH	10N	03/01/20
SWP1-47-44-03	NaOH	1N	03/01/20
SWP1-48-33-02	Cadmium Reduction Column	N/A	08/01/22
22319008	Snap Seal	1.5 OZ	N/A

Standard Prep	Intermediate Std Aliquot (ml)	Final Vol (ml)	DateTime
S0	0	20	12/17/19 11:24
S1	0.1	20	12/17/19 11:24
S2	0.2	20	12/17/19 11:24
S3	0.4	20	12/17/19 11:24
S4	1	20	12/17/19 11:24
S5	2	20	12/17/19 11:24
ICV	1	20	12/17/19 11:24
CCV	1	20	12/17/19 11:24
NO2 CHK	1	20	12/17/19 11:24
LCS EV	1	20	12/17/19 11:24
MS EV	1	20	12/17/19 11:24

MicropipetteID: 842750082 239360174 342780143

Expected Sample Amount: 20

Notes: **Concentration can be found in Reagent Log SWP1-51 and SWP1-54

CALIBRATION CHECK pH Meter ID: 53

Buffer ID	Buffer	Rdg	Date
SW1-02-04-12	0.99	0.98	12/17/19 12:53
SW1-02-04-22	7.01	7	12/17/19 12:56
SW1-02-04-23	10.02	10.04	12/17/19 12:58
SW1-02-04-28	Check Std (7.96)	7.93	12/17/19 13:07

Reviewed by: NNC

Date: 12/19/19

DataFileID	LabSampleID	Result	Flag	RUnit	Sample Amt	SUnit	PDateTime	FinalVol (ml)	WL	Abs	ADateTime	Sample Bkgnd	DF	%M	Conc.	DFxPrep Factor	Notes	Analyst	Sample pH	Sample pH Adj	Reduction Time	Coloring Time
19NAL00410	NAL004WB	ND		mg/L	20	ml	NA	20	543nm	0 a	12/17/19 18:23	0	1		0.008414	1		NCrist	5.7	8.92	12/17/19 17:40	12/17/19 17:41
19NAL00411	NAL004WL	0.511		mg/L	20	ml	NA	20	543nm	0.296 a	12/17/19 18:23	0	1		0.511395	1		NCrist	5.7	8.92	12/17/19 17:43	12/17/19 17:45
19NAL00412	NAL004WC	0.527		mg/L	20	ml	NA	20	543nm	0.305 a	12/17/19 18:23	0	1		0.526688	1		NCrist	5.7	8.92	12/17/19 17:47	12/17/19 17:48
19NAL00413	L064-01I	2.888		mg/L	20	ml	NA	20	543nm	0.165 a	12/17/19 18:23	0	10		2.887919	10		NCrist	1.82	8.77	12/17/19 17:53	12/17/19 17:54
19NAL00414	L064-02I	3.415		mg/L	20	ml	NA	20	543nm	0.196 a	12/17/19 18:23	0	10		3.414689	10		NCrist	1.76	8.95	12/17/19 17:58	12/17/19 17:59
19NAL00415	L064-03I	2.03		mg/L	20	ml	NA	20	543nm	0.234 a	12/17/19 18:23	0	5		2.030204	5		NCrist	1.78	8.85	12/17/19 18:03	12/17/19 18:05
19NAL00416	L064-04I	6.413		mg/L	20	ml	NA	20	542nm	0.146 a	12/17/19 19:07	0	25		6.412648	25		NCrist	1.71	8.42	12/17/19 18:08	12/17/19 18:10
19NAL00417	L064-06I	6.965		mg/L	20	ml	NA	20	543nm	0.159 a	12/17/19 19:08	0	25		6.964907	25		NCrist	1.85	8.25	12/17/19 18:13	12/17/19 18:14
19NAL00418	L064-07I	7.942		mg/L	20	ml	NA	20	543nm	0.182 a	12/17/19 19:08	0	25		7.941981	25		NCrist	1.94	8.86	12/17/19 18:17	12/17/19 18:18
19NAL00419	L064-07ID	7.305		mg/L	20	ml	NA	20	543nm	0.167 a	12/17/19 19:08	0	25		7.304759	25		NCrist	1.94	8.86	12/17/19 18:21	12/17/19 18:22
19NAL00420	CCV1	0.483		mg/L	20	ml	NA	20	543nm	0.279 a	12/17/19 19:08	0	1		0.482507	1		NCrist			12/17/19 18:24	12/17/19 18:26
19NAL00421	CCB1	ND		mg/L	20	ml	NA	20	543nm	0 a	12/17/19 19:09	0	1		0.008414	1		NCrist			12/17/19 18:31	12/17/19 18:33
19NAL00422	L064-07IM	18.9		mg/L	20	ml	NA	20	543nm	0.44 a	12/17/19 19:09	0	25		18.9022	25		NCrist	1.94	8.86	12/17/19 18:35	12/17/19 18:36
19NAL00423	L064-08I	2.31		mg/L	20	ml	NA	20	543nm	0.131 a	12/17/19 19:24	0	10		2.31017	10		NCrist	1.62	8.56	12/17/19 18:41	12/17/19 18:43
19NAL00424	L064-09I	2.361		mg/L	20	ml	NA	20	543nm	0.134 a	12/17/19 19:24	0	10		2.361148	10		NCrist	1.66	8.94	12/17/19 18:45	12/17/19 18:47
19NAL00425	L064-10I	2.429		mg/L	20	ml	NA	20	543nm	0.138 a	12/17/19 19:24	0	10		2.429119	10		NCrist	1.76	8.44	12/17/19 18:49	12/17/19 18:51
19NAL00426	L064-11I	4.628		mg/L	20	ml	NA	20	543nm	0.104 a	12/17/19 19:24	0	25		4.628426	25		NCrist	1.52	8.58	12/17/19 18:53	12/17/19 18:55
19NAL00427	L064-12I	1.317		mg/L	20	ml	NA	20	543nm	0.15 a	12/17/19 19:24	0	5		1.316515	5		NCrist	1.44	8.31	12/17/19 19:03	12/17/19 19:05
19NAL00428	L064-14I	2.574		mg/L	20	ml	NA	20	543nm	0.298 a	12/17/19 19:25	0	5		2.573967	5		NCrist	1.42	8.53	12/17/19 19:07	12/17/19 19:08
19NAL00429	L064-15I	1.877		mg/L	20	ml	NA	20	543nm	0.216 a	12/17/19 19:46	0	5		1.87727	5		NCrist	1.38	8.37	12/17/19 19:12	12/17/19 19:13
19NAL00430	L064-17I	4.23		mg/L	20	ml	NA	20	543nm	0.244 a	12/17/19 19:46	0	10		4.230333	10		NCrist	1.61	8.96	12/17/19 19:16	12/17/19 19:17
19NAL00431	L064-18	0.197		mg/L	20	ml	NA	20	543nm	0.111 a	12/17/19 19:46	0	1		0.197032	1		NCrist	1.48	8.65	12/17/19 19:21	12/17/19 19:22
19NAL00432	CCV2	0.46		mg/L	20	ml	NA	20	543nm	0.266 a	12/17/19 20:00	0	1		0.460417	1		NCrist			12/17/19 19:24	12/17/19 19:26
19NAL00433	CCB2	ND		mg/L	20	ml	NA	20	543nm	0 a	12/17/19 20:01	0	1		0.008414	1		NCrist			12/17/19 19:31	12/17/19 19:32
19NAL00434	L064-20I	3.313		mg/L	20	ml	NA	20	543nm	0.19 a	12/17/19 20:01	0	10		3.312733	10		NCrist	1.45	8.38	12/17/19 19:35	12/17/19 19:37
19NAL00435	L064-21I	2.667		mg/L	20	ml	NA	20	543nm	0.152 a	12/17/19 20:01	0	10		2.667015	10		NCrist	1.67	8.58	12/17/19 19:39	12/17/19 19:40
19NAL00436	CCV3	0.484		mg/L	20	ml	NA	20	543nm	0.28 a	12/17/19 20:01	0	1		0.484207	1		NCrist			12/17/19 19:42	12/17/19 19:43
19NAL00437	CCB3	ND		mg/L	20	ml	NA	20	543nm	0 a	12/17/19 20:01	0	1		0.008414	1		NCrist			12/17/19 19:47	12/17/19 19:48

Reviewed by: NNC

Date: 12/19/19

CASE NARRATIVE

Client : CDM SMITH

Project: VA SALT LAKE CITY

SDG : 19L064

METHOD SW9060
TOC

A total of seventeen(17) water samples were received on 12/10/19 to be analyzed for TOC in accordance with Method SW9060 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, two(2) method blanks were analyzed. TCL004WB and TCL005WB were compliant to project requirement. Refer to sample result summary forms for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, two(2) sets of LCS/LCD were analyzed. TCL004WL/TCL004WC and TCL005WL/TCL005WC were within LCS limits. Refer to LCS summary forms for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. Total Organic Carbon was within MS QC limits in L064-07M/L064-07S. Sample duplicate was analyzed and RPD was within expected value. Refer to Matrix QC summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

METHOD SW9060
TOC

Client : CDM SMITH
Project : VA SALT LAKE CITY
Batch No. : 19L064
Matrix : WATER
Instrument ID : I62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCL004WB	ND	1	NA	1.00	0.250	12/17/1919:33	NA	TCL003-05	TCL003-02	TCL004W	NA	NA
LCS1W	TCL004WL	26.4	1	NA	1.00	0.250	12/17/1919:48	NA	TCL003-06	TCL003-02	TCL004W	NA	NA
LCD1W	TCL004WC	26.5	1	NA	1.00	0.250	12/17/1920:04	NA	TCL003-07	TCL003-02	TCL004W	NA	NA
OU2-MW01D-GW120619	L064-01	0.383J	1	NA	1.00	0.250	12/17/1923:33	NA	TCL003-20	TCL003-14	TCL004W	12/06/1916:05	12/10/19
OU2-MW14D-GW120719	L064-02	0.344J	1	NA	1.00	0.250	12/17/1923:48	NA	TCL003-21	TCL003-14	TCL004W	12/07/1913:05	12/10/19
OU2-MW03Rc-GW120719	L064-03	7.22	1	NA	1.00	0.250	12/18/1900:03	NA	TCL003-22	TCL003-14	TCL004W	12/07/1911:40	12/10/19
OU2-FD03-GW120719	L064-04	0.573J	1	NA	1.00	0.250	12/18/1900:18	NA	TCL003-23	TCL003-14	TCL004W	12/07/1911:00	12/10/19
OU2-MW15S-GW120719	L064-06	0.682J	1	NA	1.00	0.250	12/18/1900:33	NA	TCL003-24	TCL003-14	TCL004W	12/07/1911:45	12/10/19
OU2-MW15D-GW120719	L064-07	0.665J	1	NA	1.00	0.250	12/18/1900:48	NA	TCL003-25	TCL003-14	TCL004W	12/07/1910:00	12/10/19
OU2-MW15D-GW120719DUP	L064-07D	0.630J	1	NA	1.00	0.250	12/18/1901:47	NA	TCL003-28	TCL003-26	TCL004W	12/07/1910:00	12/10/19
OU2-MW15D-GW120719MS	L064-07M	24.9	1	NA	1.00	0.250	12/18/1902:02	NA	TCL003-29	TCL003-26	TCL004W	12/07/1910:00	12/10/19
OU2-MW15D-GW120719MSD	L064-07S	24.4	1	NA	1.00	0.250	12/18/1902:17	NA	TCL003-30	TCL003-26	TCL004W	12/07/1910:00	12/10/19
OU2-MW03Ra-GW120719	L064-08	1.68	1	NA	1.00	0.250	12/18/1902:32	NA	TCL003-31	TCL003-26	TCL004W	12/07/1910:00	12/10/19
OU2-MW03Rb-GW120819	L064-09	1.02	1	NA	1.00	0.250	12/18/1902:48	NA	TCL003-32	TCL003-26	TCL004W	12/08/1914:50	12/10/19
OU2-MW03Rd-GW120719	L064-10	5.34	1	NA	1.00	0.250	12/18/1903:03	NA	TCL003-33	TCL003-26	TCL004W	12/07/1914:50	12/10/19
OU2-MW17D-GW120819	L064-11	0.606J	1	NA	1.00	0.250	12/18/1903:18	NA	TCL003-34	TCL003-26	TCL004W	12/08/1911:05	12/10/19
OU2-MW17S-GW120819	L064-12	1.35	1	NA	1.00	0.250	12/18/1903:33	NA	TCL003-35	TCL003-26	TCL004W	12/08/1910:00	12/10/19
OU2-FD02-GW120819	L064-14	0.507J	1	NA	1.00	0.250	12/18/1903:47	NA	TCL003-36	TCL003-26	TCL004W	12/08/1912:20	12/10/19
OU2-MW08c-GW120819	L064-15	3.87	1	NA	1.00	0.250	12/18/1904:02	NA	TCL003-37	TCL003-26	TCL004W	12/08/1909:55	12/10/19
MBLK2W	TCL005WB	ND	1	NA	1.00	0.250	12/18/1905:00	NA	TCL003-40	TCL003-38	TCL005W	NA	NA
LCS2W	TCL005WL	26.0	1	NA	1.00	0.250	12/18/1905:16	NA	TCL003-41	TCL003-38	TCL005W	NA	NA
LCD2W	TCL005WC	26.0	1	NA	1.00	0.250	12/18/1905:31	NA	TCL003-42	TCL003-38	TCL005W	NA	NA
OU2-MW08a-GW120819	L064-17	0.385J	1	NA	1.00	0.250	12/18/1905:46	NA	TCL003-43	TCL003-38	TCL005W	12/08/1912:15	12/10/19
OU2-MW14S-GW120719	L064-18	0.869J	1	NA	1.00	0.250	12/18/1906:01	NA	TCL003-44	TCL003-38	TCL005W	12/07/1914:10	12/10/19
OU2-MW05R-GW120819	L064-20	0.351J	1	NA	1.00	0.250	12/18/1906:16	NA	TCL003-45	TCL003-38	TCL005W	12/08/1910:15	12/10/19
OU2-MW08b-GW120819	L064-21	0.400J	1	NA	1.00	0.250	12/18/1906:30	NA	TCL003-46	TCL003-38	TCL005W	12/08/1911:05	12/10/19

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L064
METHOD: SW9060

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCL004WB	TCL004WL	TCL004WC		
LAB FILE ID:	TCL003-05	TCL003-06	TCL003-07		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	12/17/1919:33	12/17/1919:48	12/17/1920:04	DATE RECEIVED:	NA
PREP. BATCH:	TCL004W	TCL004W	TCL004W		
CALIB. REF:	TCL003-02	TCL003-02	TCL003-02		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Total Organic Carbon	ND	25	26.4	105	25	26.5	106	0	80-120	20

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L064
METHOD: SW9060

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK2W
LAB SAMP ID: TCL005WB TCL005WL TCL005WC
LAB FILE ID: TCL003-40 TCL003-41 TCL003-42
DATE EXTRACTED: NA NA NA DATE COLLECTED: NA
DATE ANALYZED: 12/18/1905:00 12/18/1905:16 12/18/1905:31 DATE RECEIVED: NA
PREP. BATCH: TCL005W TCL005W TCL005W
CALIB. REF: TCL003-38 TCL003-38 TCL003-38

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Total Organic Carbon	ND	25	26	104	25	26	104	0	80-120	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L064
METHOD: SW9060

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: OU2-MW15D-GW120719
LAB SAMP ID: L064-07 L064-07M L064-07S
LAB FILE ID: TCL003-25 TCL003-29 TCL003-30
DATE EXTRACTED: NA NA NA DATE COLLECTED: 12/07/19 10:00
DATE ANALYZED: 12/18/1900:48 12/18/1902:02 12/18/1902:17 DATE RECEIVED: 12/10/19
PREP. BATCH: TCL004W TCL004W TCL004W
CALIB. REF: TCL003-14 TCL003-26 TCL003-26

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Total Organic Carbon	.665J	25	24.9	97	25	24.4	95	2	80-120	20

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: CDM SMITH
PROJECT: VA SALT LAKE CITY
BATCH NO.: 19L064
METHOD: SW9060

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1
SAMPLE ID: OU2-MW15D-GW120719
EMAX SAMP ID: L064-07 L064-07D
LAB FILE ID: TCL003-25 TCL003-28
DATE EXTRACTED: NA NA DATE COLLECTED: 12/07/19 10:00
DATE ANALYZED: 12/18/1900:48 12/18/1901:47 DATE RECEIVED: 12/10/19
PREP. BATCH: TCL004W TCL004W
CALIB. REF: TCL003-14 TCL003-26

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
Total Organic Carbon	0.665J	0.630J	NA	20

EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
TOC

	Date	Time
Start	12/17/19	18:16
End	12/18/19	12:46

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

☐ Sample was filtered. Filter ID: N/A

Comments: TCL004W: 19L014
19L062
19L064
TCL005W: 19L064
19L073
19L087
19L441

Reagent Water ID #: RW1-19-003
pH Strips Lot #: HC863463
2 M HCl SWP1-50-38-02

Book #: A62-038
Instrument No.: 62
Micropipette ID: ☑ 439350020
Micropipette ID: ☑ 539360056
Micropipette ID: ☑ 642780221
Micropipette ID: ☐
Analytical Sequence: TCL003
Method File: TCL003
Analytical Batch: TCL004W/TCL005W

SOP #	Rev. #
☑ EMAX-5310B	4
☑ EMAX-9060	4
☐ EMAX-	

STANDARDS ID		CONC. (mg/L)
S0	RW1-19-003	0
S1	SW7B-01-14-05	1
S2	↓	5
S3		10
S4		40
S5		80
S6	—	—
ICV/LCS	SW7B-01-14-07	25
CCV	SW7B-01-14-04	25
	—	—

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ TOC	
☐	

Analyzed By: UA
Date: 12/17/19

	Type	Analysis	Sample Name	Sample ID	Dilutio	Result	Comment
1	Standard	NPOC	ICAL - Instrument	TCL003-01	1.000		TOC METHOD 9060/5310B
2	Control	NPOC	ICV	TCL003-02	1.000	NPOC:26.56 mg/L	
3	Unknown	NPOC	ICB	TCL003-03	1.000	NPOC:0.07357 mg/L	
4	Unknown	NPOC	HCO3/CO3	TCL003-04	1.000	NPOC:0.08272 mg/L	
5	Unknown	NPOC	TCL004WB	TCL003-05	1.000	NPOC:0.04503 mg/L	
6	Unknown	NPOC	TCL004WL	TCL003-06	1.000	NPOC:26.37 mg/L	
7	Unknown	NPOC	TCL004WC	TCL003-07	1.000	NPOC:26.47 mg/L	
8	Unknown	NPOC	L014-01I	TCL003-08	3.000	NPOC:12.49 mg/L	DF=3, ODOR, PH<2
9	Unknown	NPOC	L062-01	TCL003-09	1.000	NPOC:21.83 mg/L	PH<2
10	Unknown	NPOC	L062-03	TCL003-10	1.000	NPOC:5.712 mg/L	PH<2
11	Unknown	NPOC	L062-04	TCL003-11	1.000	NPOC:2.883 mg/L	PH<2
12	Unknown	NPOC	L062-05	TCL003-12	1.000	NPOC:16.11 mg/L	PH<2
13	Unknown	NPOC	L062-06	TCL003-13	1.000	NPOC:9.901 mg/L	PH<2
14	Control	NPOC	CCV1	TCL003-14	1.000	NPOC:24.95 mg/L	
15	Unknown	NPOC	CCB1	TCL003-15	1.000	NPOC:0.06482 mg/L	
16	Unknown	NPOC	L062-07	TCL003-16	1.000	NPOC:24.81 mg/L	PH<2
17	Unknown	NPOC	L062-07D	TCL003-17	1.000	NPOC:24.72 mg/L	PH<2
18	Unknown	NPOC	L062-07M	TCL003-18	1.000	NPOC:49.71 mg/L	PH<2
19	Unknown	NPOC	L062-07S	TCL003-19	1.000	NPOC:48.73 mg/L	PH<2
20	Unknown	NPOC	L064-01	TCL003-20	1.000	NPOC:0.3829 mg/L	PH<2
21	Unknown	NPOC	L064-02	TCL003-21	1.000	NPOC:0.3444 mg/L	PH<2
22	Unknown	NPOC	L064-03	TCL003-22	1.000	NPOC:7.225 mg/L	PH<2
23	Unknown	NPOC	L064-04	TCL003-23	1.000	NPOC:0.5732 mg/L	PH<2
24	Unknown	NPOC	L064-06	TCL003-24	1.000	NPOC:0.6819 mg/L	PH<2
25	Unknown	NPOC	L064-07	TCL003-25	1.000	NPOC:0.6646 mg/L	PH<2
26	Control	NPOC	CCV2	TCL003-26	1.000	NPOC:25.08 mg/L	
27	Unknown	NPOC	CCB2	TCL003-27	1.000	NPOC:0.07275 mg/L	
28	Unknown	NPOC	L064-07D	TCL003-28	1.000	NPOC:0.6298 mg/L	PH<2
29	Unknown	NPOC	L064-07M	TCL003-29	1.000	NPOC:24.91 mg/L	PH<2
30	Unknown	NPOC	L064-07S	TCL003-30	1.000	NPOC:24.40 mg/L	PH<2
31	Unknown	NPOC	L064-08	TCL003-31	1.000	NPOC:1.682 mg/L	PH<2
32	Unknown	NPOC	L064-09	TCL003-32	1.000	NPOC:1.016 mg/L	PH<2
33	Unknown	NPOC	L064-10	TCL003-33	1.000	NPOC:5.337 mg/L	PH<2
34	Unknown	NPOC	L064-11	TCL003-34	1.000	NPOC:0.6059 mg/L	PH<2
35	Unknown	NPOC	L064-12	TCL003-35	1.000	NPOC:1.354 mg/L	PH<2
36	Unknown	NPOC	L064-14	TCL003-36	1.000	NPOC:0.5069 mg/L	PH<2
37	Unknown	NPOC	L064-15	TCL003-37	1.000	NPOC:3.868 mg/L	PH<2
38	Control	NPOC	CCV3	TCL003-38	1.000	NPOC:24.87 mg/L	
39	Unknown	NPOC	CCB3	TCL003-39	1.000	NPOC:0.1232 mg/L	
40	Unknown	NPOC	TCL005WB	TCL003-40	1.000	NPOC:0.06125 mg/L	
41	Unknown	NPOC	TCL005WL	TCL003-41	1.000	NPOC:26.01 mg/L	
42	Unknown	NPOC	TCL005WC	TCL003-42	1.000	NPOC:26.02 mg/L	
43	Unknown	NPOC	L064-17	TCL003-43	1.000	NPOC:0.3853 mg/L	PH<2
44	Unknown	NPOC	L064-18	TCL003-44	1.000	NPOC:0.8686 mg/L	PH<2
45	Unknown	NPOC	L064-20	TCL003-45	1.000	NPOC:0.3512 mg/L	PH<2
46	Unknown	NPOC	L064-21	TCL003-46	1.000	NPOC:0.4001 mg/L	PH<2
47	Unknown	NPOC	L073-01	TCL003-47	1.000	NPOC:15.75 mg/L	PH<2
48	Unknown	NPOC	L073-01D	TCL003-48	1.000	NPOC:15.83 mg/L	PH<2
49	Unknown	NPOC	L073-01M	TCL003-49	1.000	NPOC:40.41 mg/L	PH<2
50	Control	NPOC	CCV4	TCL003-50	1.000	NPOC:24.71 mg/L	
51	Unknown	NPOC	CCB4	TCL003-51	1.000	NPOC:0.1184 mg/L	
52	Unknown	NPOC	L073-01S	TCL003-52	1.000	NPOC:40.06 mg/L	PH<2
53	Unknown	NPOC	L073-04	TCL003-53	1.000	NPOC:42.69 mg/L	PH<2
54	Unknown	NPOC	L073-06	TCL003-54	1.000	NPOC:32.25 mg/L	PH<2
55	Unknown	NPOC	L073-08	TCL003-55	1.000	NPOC:22.85 mg/L	PH<2
56	Unknown	NPOC	L087-02	TCL003-56	1.000	NPOC:1.770 mg/L	PH<2
57	Unknown	NPOC	L087-03	TCL003-57	1.000	NPOC:1.734 mg/L	PH<2
58	Unknown	NPOC	L087-04	TCL003-58	1.000	NPOC:1.574 mg/L	PH<2
59	Unknown	NPOC	L087-05	TCL003-59	1.000	NPOC:3.063 mg/L	PH<2
60	Unknown	NPOC	L087-06	TCL003-60	1.000	NPOC:0.9691 mg/L	PH<2
61	Unknown	NPOC	L087-07I	TCL003-61	10.00	NPOC:68.59 mg/L	DF=10, ODOR, PH<2
62	Control	NPOC	CCV5	TCL003-62	1.000	NPOC:24.60 mg/L	
63	Unknown	NPOC	CCB5	TCL003-63	1.000	NPOC:0.06871 mg/L	
64	Unknown	NPOC	L087-07ID	TCL003-64	10.00	NPOC:70.54 mg/L	DF=10, ODOR, PH<2
65	Unknown	NPOC	L087-07IM	TCL003-65	10.00	NPOC:311.1 mg/L	DF=10, ODOR, PH<2
66	Unknown	NPOC	L087-07IS	TCL003-66	10.00	NPOC:314.1 mg/L	DF=10, ODOR, PH<2
67	Unknown	NPOC	L441-01I	TCL003-67	100.0	NPOC:1869 mg/L	DF=100, BROWN, ODOR, PH<2

	Type	Analysis	Sample Name	Sample ID	Dilutio	Result	Comment
68	Control	NPOC	CCV6	TCL003-68	1.000	NPOC:25.12 mg/L	
69	Unknown	NPOC	CCB6	TCL003-69	1.000	NPOC:0.05060 mg/L	
70							
71							
72							
73							
74							
75							
76							
77							
78							
79							
80							
81							
82							
83							
84							
85							FINAL
86							
87							
88							
89							MA 12/19/19
90							

Instr.Information

System	TOC-9060/415.1/5310B
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

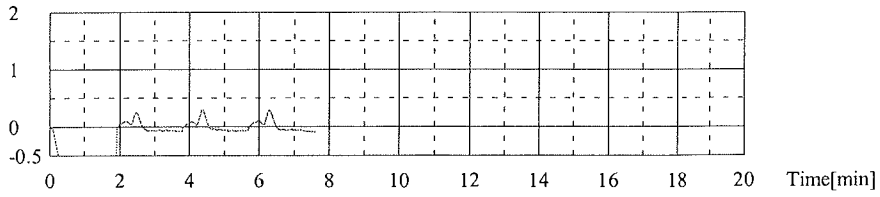
Sample Name:	ICAL - Instrument 62
Sample ID:	TCL003-01
Cal. Curve:	TCL003.2019_12_17_16_36_11.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.06450	50uL	1	*******		12/17/19 04:44:39 PM
2	0.4772	50uL	1	*******		12/17/19 04:46:43 PM
3	0.5484	50uL	1	*******		12/17/19 04:48:47 PM
4	0.4131	50uL	1	*******		12/17/19 04:50:51 PM

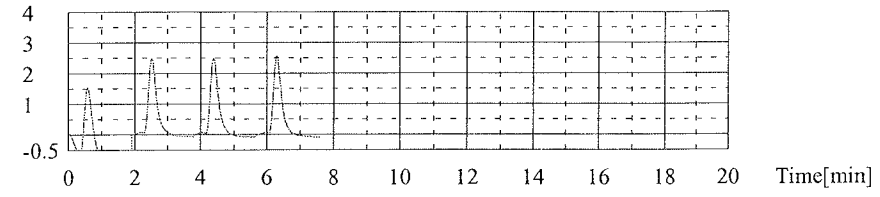
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 0.3758



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	3.424	50uL	1	*******		12/17/19 04:59:31 PM
2	4.608	50uL	1	*******		12/17/19 05:01:35 PM
3	4.410	50uL	1	*******		12/17/19 05:03:39 PM
4	4.487	50uL	1	*******		12/17/19 05:05:44 PM

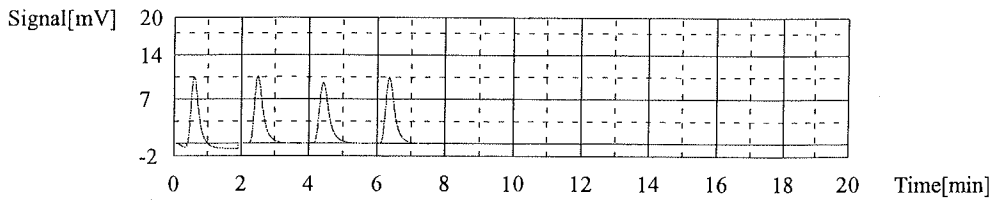
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 4.232



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	19.09	50uL	1	*******		12/17/19 05:14:23 PM
2	20.59	50uL	1	*******		12/17/19 05:16:27 PM
3	20.22	50uL	1	*******		12/17/19 05:18:33 PM
4	20.46	50uL	1	*******		12/17/19 05:20:38 PM

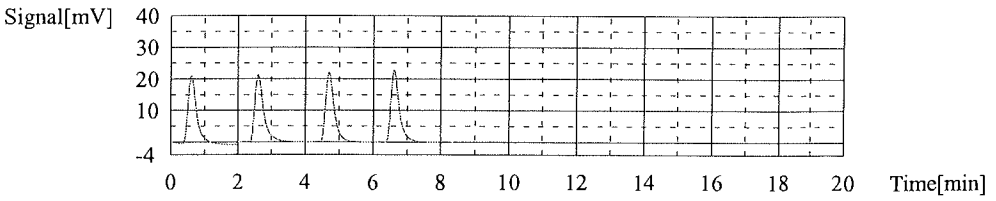
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 20.09



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	39.79	50uL	1	*******		12/17/19 05:29:25 PM
2	40.91	50uL	1	*******		12/17/19 05:31:39 PM
3	40.81	50uL	1	*******		12/17/19 05:33:45 PM
4	40.49	50uL	1	*******		12/17/19 05:35:50 PM

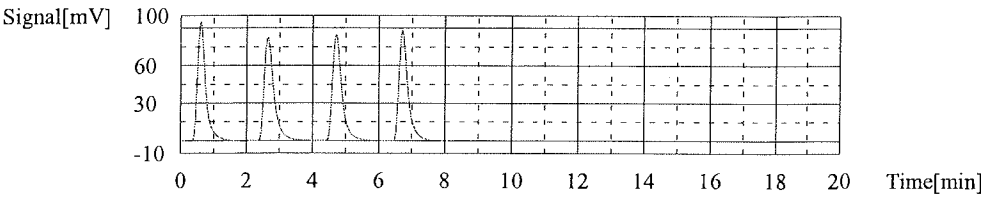
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 40.50



Conc: 40.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	169.4	50uL	1	*******		12/17/19 05:44:36 PM
2	170.9	50uL	1	*******		12/17/19 05:46:49 PM
3	168.3	50uL	1	*******		12/17/19 05:48:59 PM
4	169.6	50uL	1	*******		12/17/19 05:51:11 PM

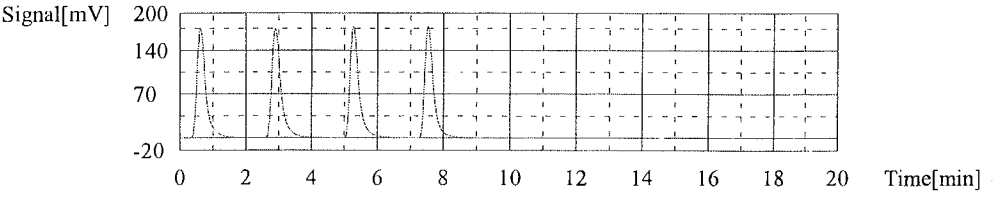
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 169.6



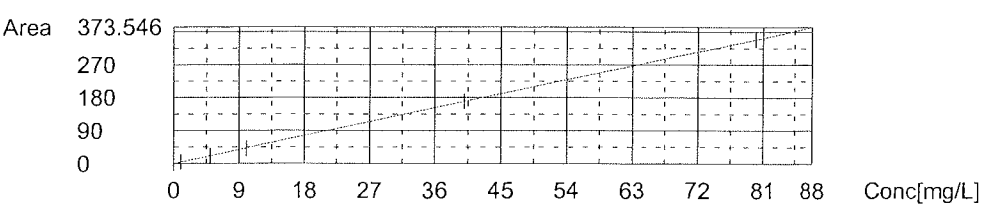
Conc: 80.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	334.9	50uL	1	*******		12/17/19 06:00:13 PM
2	342.9	50uL	1	*******		12/17/19 06:02:45 PM
3	339.2	50uL	1	*******		12/17/19 06:05:10 PM
4	339.1	50uL	1	*******		12/17/19 06:07:35 PM

Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 339.0



Slope: 4.245
Intercept 0.000
r^2 0.999961



Control Sample

Sample Name: ICV
Sample ID: TCL003-02
Method: TCL003.tpl
Chk. Result Control value: 26.56 / Control exceeds range!

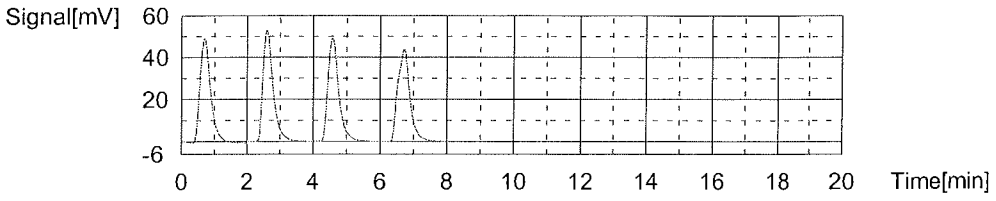
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:26.56 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	112.6	26.53mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 06:16:29 PM
2	113.5	26.74mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 06:18:35 PM
3	111.9	26.36mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 06:20:49 PM
4	112.9	26.60mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 06:23:01 PM

Mean Area 112.7
Mean Conc. 26.56mg/L



Sample

Sample Name: ICB
Sample ID: TCL003-03
Origin: TCL003.cal
Chk. Result

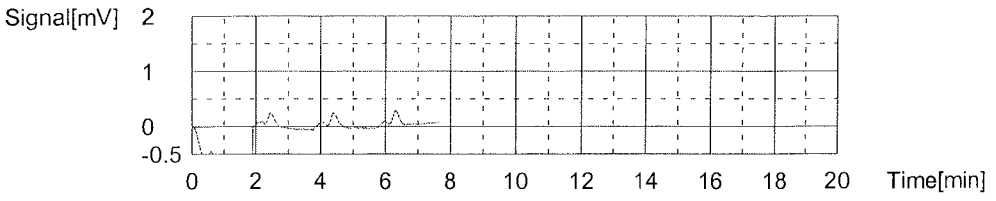
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.07357 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.2077	0.04893mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 06:31:43 PM
2	0.2502	0.05894mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 06:33:48 PM
3	0.2877	0.06778mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 06:35:52 PM
4	0.5035	0.1186mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 06:37:56 PM

Mean Area 0.3123
Mean Conc. 0.07357mg/L



Sample

Sample Name: HCO3/CO3
Sample ID: TCL003-04
Origin: TCL003.cal
Chk. Result

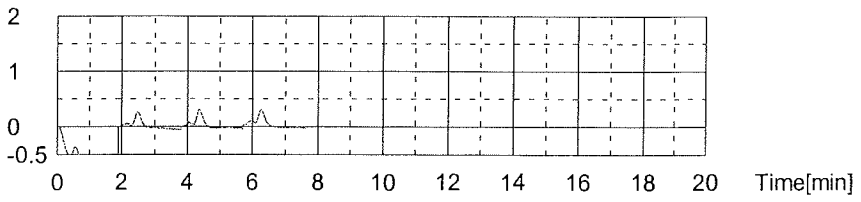
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.08272 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.1925	0.04535mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 06:59:38 PM
2	0.4084	0.09621mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 07:01:43 PM
3	0.3032	0.07143mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 07:03:47 PM
4	0.5004	0.1179mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 07:05:51 PM

Mean Area 0.3511
Mean Conc. 0.08272mg/L



Sample

Sample Name: TCL004WB
Sample ID: TCL003-05
Origin: TCL003.cal
Chk. Result

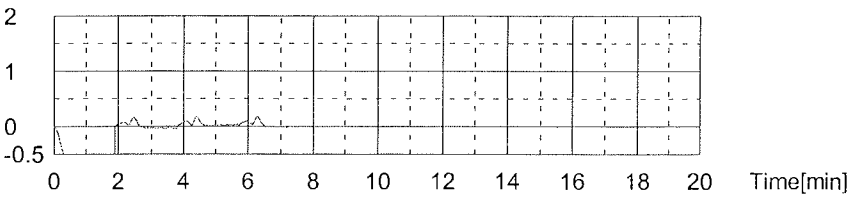
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.04503 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.09090	0.02141mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 07:27:19 PM
2	0.1381	0.03253mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 07:29:24 PM
3	0.2785	0.06561mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 07:31:28 PM
4	0.2570	0.06054mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 07:33:32 PM

Mean Area 0.1911
Mean Conc. 0.04503mg/L



Sample

Sample Name: TCL004WL
Sample ID: TCL003-06
Origin: TCL003.cal
Chk. Result

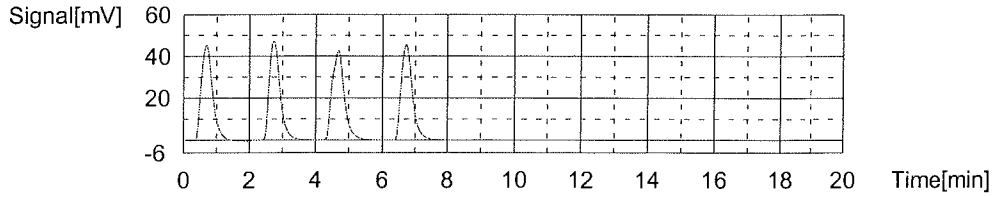
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:26.37 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	113.0	26.62mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 07:42:21 PM
2	112.2	26.43mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 07:44:26 PM
3	111.1	26.17mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 07:46:41 PM
4	111.4	26.24mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 07:48:56 PM

Mean Area 111.9
Mean Conc. 26.37mg/L



Sample

Sample Name: TCL004WC
Sample ID: TCL003-07
Origin: TCL003.cal
Chk. Result

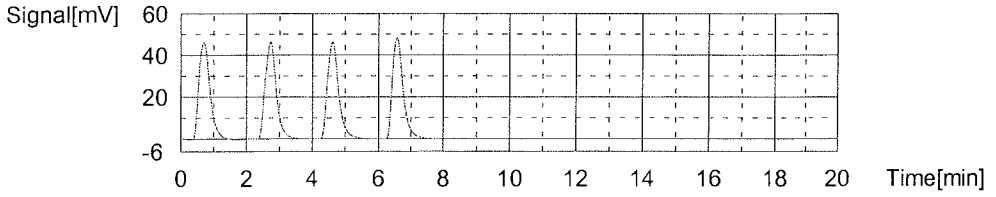
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:26.47 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	113.4	26.71mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 07:57:41 PM
2	112.7	26.55mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 07:59:46 PM
3	110.7	26.08mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 08:01:55 PM
4	112.6	26.53mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 08:04:02 PM

Mean Area 112.4
Mean Conc. 26.47mg/L



Sample

Sample Name: L014-011
Sample ID: TCL003-08
Origin: TCL003.cal
Chk. Result

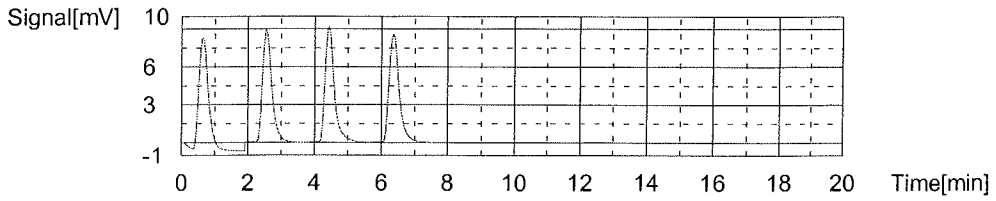
Type	Anal.	Dil.	Result
Unknown	NPOC	3.000	NPOC:12.49 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	17.45	12.33mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 08:12:41 PM
2	18.09	12.78mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 08:14:45 PM
3	17.58	12.42mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 08:16:50 PM
4	17.58	12.42mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 08:18:54 PM

Mean Area 17.68
Mean Conc. 12.49mg/L



Sample

Sample Name: L062-01
Sample ID: TCL003-09
Origin: TCL003.cal
Chk. Result

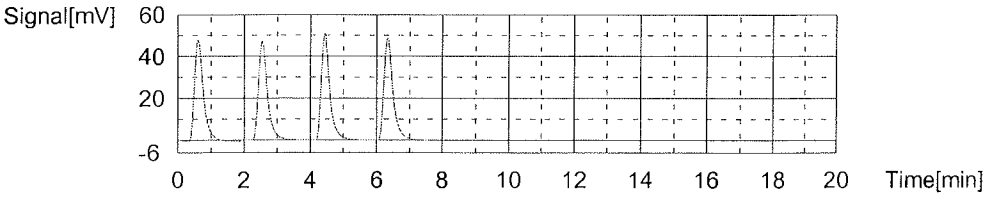
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:21.83 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	91.75	21.61mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 08:27:33 PM
2	91.81	21.63mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 08:29:37 PM
3	92.79	21.86mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 08:31:42 PM
4	94.23	22.20mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 08:33:46 PM

Mean Area 92.65
Mean Conc. 21.83mg/L



Sample

Sample Name: L062-03
Sample ID: TCL003-10
Origin: TCL003.cal
Chk. Result

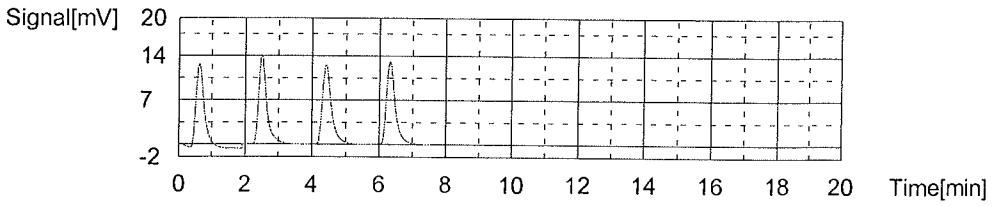
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:5.712 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	24.10	5.677mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 08:42:25 PM
2	24.59	5.793mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 08:44:29 PM
3	23.98	5.649mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 08:46:34 PM
4	24.32	5.729mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 08:48:38 PM

Mean Area 24.25
Mean Conc. 5.712mg/L



Sample

Sample Name: L062-04
Sample ID: TCL003-11
Origin: TCL003.cal
Chk. Result

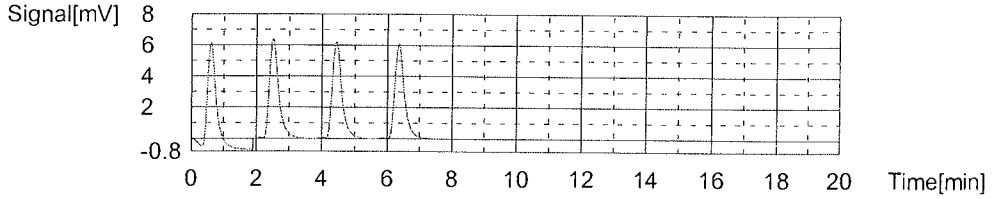
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:2.883 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	12.10	2.851mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 08:57:18 PM
2	12.34	2.907mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 08:59:22 PM
3	12.26	2.888mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 09:01:27 PM
4	12.26	2.888mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 09:03:31 PM

Mean Area 12.24
Mean Conc. 2.883mg/L



Sample

Sample Name: L062-05
Sample ID: TCL003-12
Origin: TCL003.cal
Chk. Result

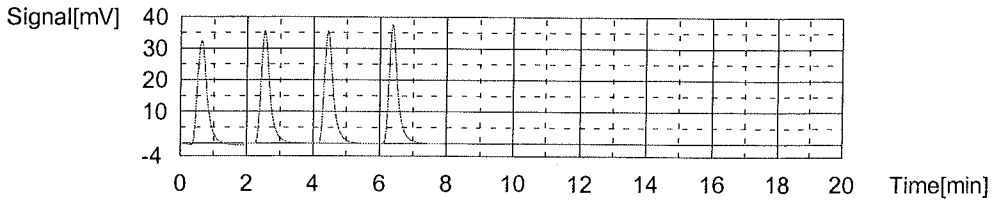
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:16.11 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	67.96	16.01mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 09:12:11 PM
2	68.29	16.09mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 09:14:15 PM
3	68.15	16.05mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 09:16:24 PM
4	69.17	16.30mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 09:18:47 PM

Mean Area 68.39
Mean Conc. 16.11mg/L



Sample

Sample Name: L062-06
Sample ID: TCL003-13
Origin: TCL003.cal
Chk. Result

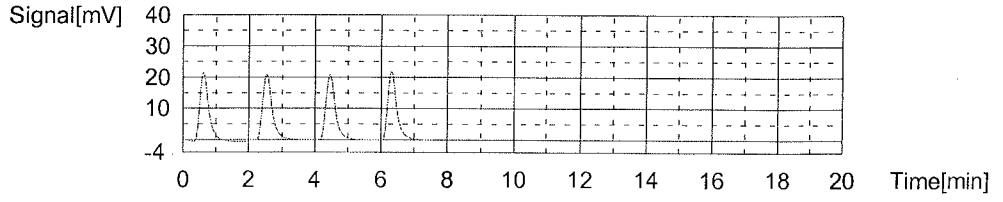
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:9.901 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	41.56	9.791mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 09:27:26 PM
2	42.27	9.958mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 09:29:30 PM
3	41.77	9.840mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 09:31:34 PM
4	42.51	10.01mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 09:33:39 PM

Mean Area 42.03
Mean Conc. 9.901mg/L



Control Sample

Sample Name: CCV1
Sample ID: TCL003-14
Method: TCL003.tpl
Chk. Result Control value: 24.95 / Control exceeds range!

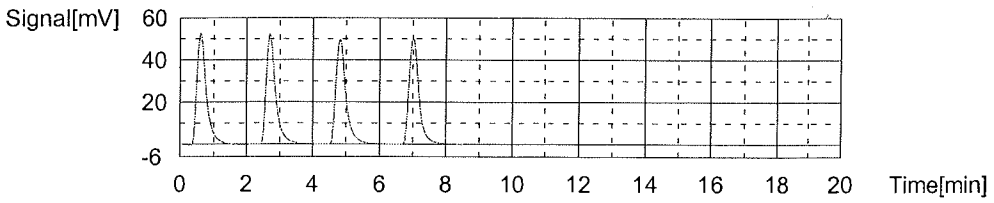
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.95 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	106.6	25.11mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 09:42:28 PM
2	107.2	25.25mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 09:44:45 PM
3	104.9	24.71mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 09:47:06 PM
4	105.0	24.74mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 09:49:25 PM

Mean Area 105.9
Mean Conc. 24.95mg/L



Sample

Sample Name: CCB1
Sample ID: TCL003-15
Origin: TCL003.cal
Chk. Result

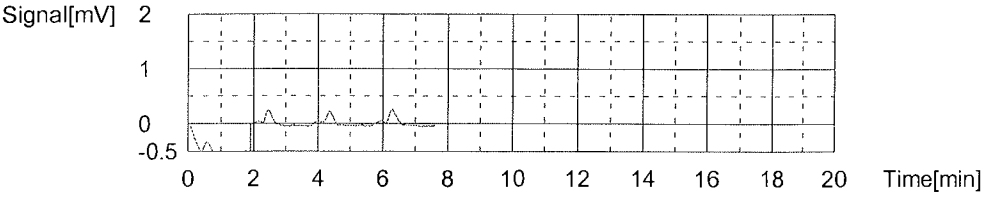
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.06482 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.2050	0.04829mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 09:58:11 PM
2	0.2802	0.06601mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 10:00:15 PM
3	0.2546	0.05998mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 10:02:19 PM
4	0.3608	0.08500mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 10:04:24 PM

Mean Area 0.2752
Mean Conc. 0.06482mg/L



Sample

Sample Name: L062-07
Sample ID: TCL003-16
Origin: TCL003.cal
Chk. Result

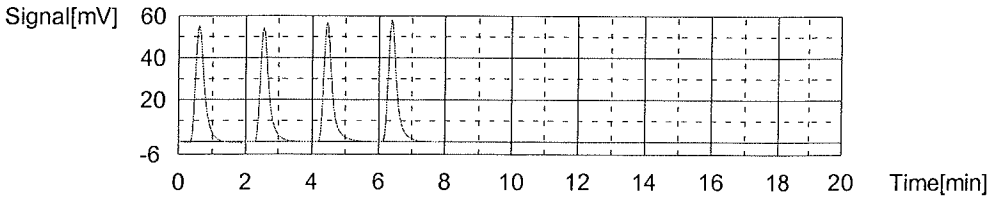
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:24.81 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	105.2	24.78mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 10:25:54 PM
2	104.9	24.71mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 10:27:59 PM
3	104.7	24.67mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 10:30:06 PM
4	106.4	25.07mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 10:32:17 PM

Mean Area 105.3
Mean Conc. 24.81mg/L



Sample

Sample Name: L062-07D
Sample ID: TCL003-17
Origin: TCL003.cal
Chk. Result

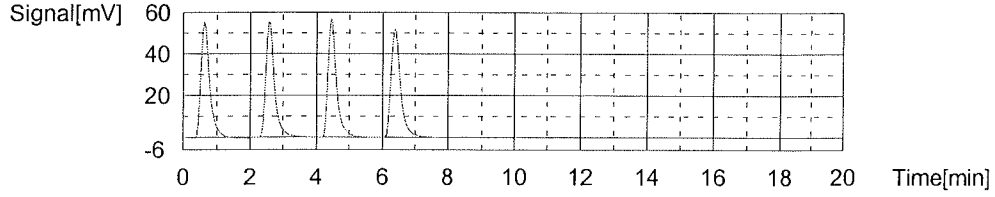
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:24.72 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	102.8	24.22mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 10:41:00 PM
2	106.3	25.04mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 10:43:04 PM
3	104.3	24.57mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 10:45:08 PM
4	106.4	25.07mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 10:47:16 PM

Mean Area 105.0
Mean Conc. 24.72mg/L



Sample

Sample Name: L062-07M
Sample ID: TCL003-18
Origin: TCL003.cal
Chk. Result

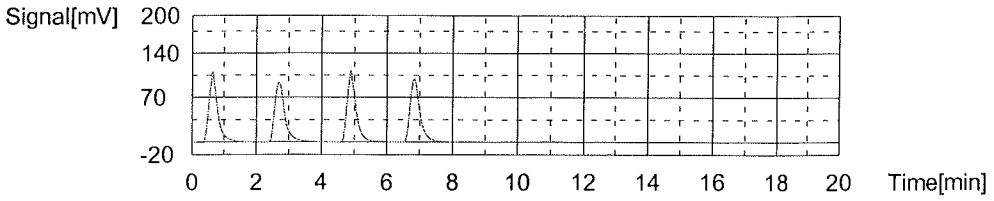
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:49.71 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	213.9	50.39mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 10:56:11 PM
2	209.0	49.24mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 10:58:34 PM
3	211.5	49.83mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 11:00:40 PM
4	209.7	49.40mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 11:02:51 PM

Mean Area 211.0
Mean Conc. 49.71mg/L



Sample

Sample Name: L062-07S
Sample ID: TCL003-19
Origin: TCL003.cal
Chk. Result

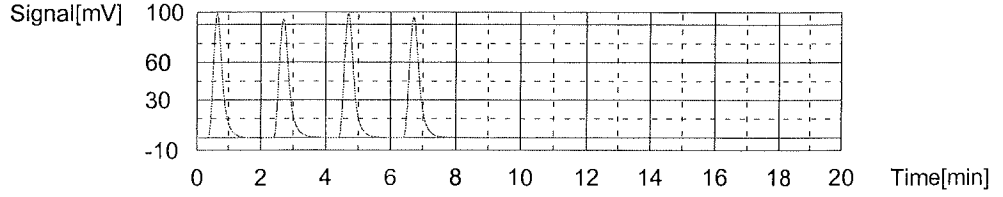
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:48.73 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	207.5	48.88mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 11:11:45 PM
2	207.9	48.98mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 11:13:56 PM
3	205.2	48.34mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 11:16:06 PM
4	206.8	48.72mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 11:18:15 PM

Mean Area 206.9
Mean Conc. 48.73mg/L



Sample

Sample Name: L064-01
Sample ID: TCL003-20
Origin: TCL003.cal
Chk. Result

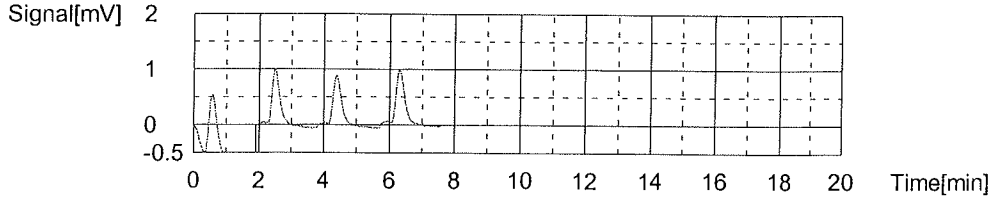
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.3829 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.691	0.3984mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 11:27:00 PM
2	1.620	0.3816mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 11:29:05 PM
3	1.488	0.3505mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 11:31:09 PM
4	1.703	0.4012mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 11:33:13 PM

Mean Area 1.625
Mean Conc. 0.3829mg/L



Sample

Sample Name: L064-02
Sample ID: TCL003-21
Origin: TCL003.cal
Chk. Result

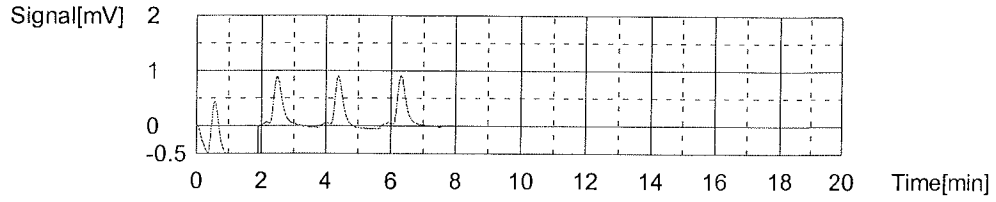
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.3444 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.341	0.3159mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 11:41:59 PM
2	1.531	0.3607mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 11:44:04 PM
3	1.418	0.3341mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 11:46:08 PM
4	1.558	0.3670mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 11:48:12 PM

Mean Area 1.462
Mean Conc. 0.3444mg/L



Sample

Sample Name: L064-03
Sample ID: TCL003-22
Origin: TCL003.cal
Chk. Result

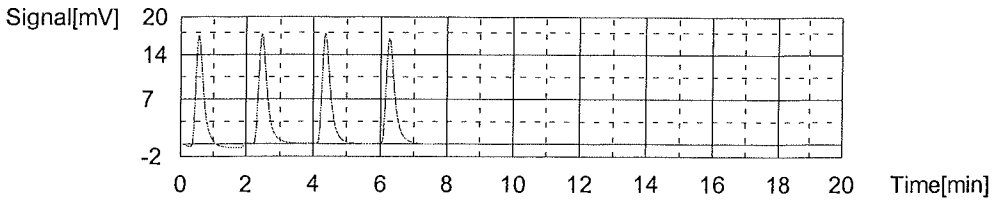
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:7.225 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	30.18	7.110mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 11:56:58 PM
2	30.88	7.275mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/17/19 11:59:03 PM
3	30.58	7.204mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 12:01:07 AM
4	31.03	7.310mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 12:03:11 AM

Mean Area 30.67
Mean Conc. 7.225mg/L



Sample

Sample Name: L064-04
Sample ID: TCL003-23
Origin: TCL003.cal
Chk. Result

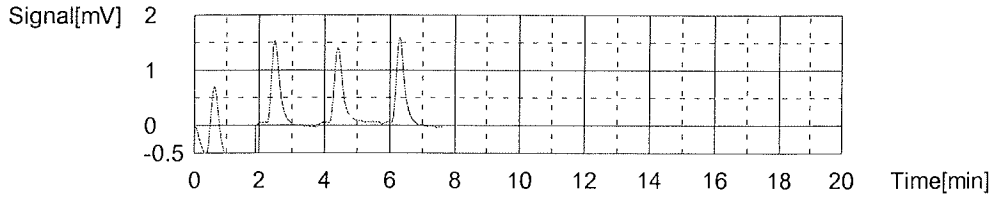
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.5732 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.131	0.5020mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 12:12:03 AM
2	2.478	0.5838mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 12:14:08 AM
3	2.408	0.5673mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 12:16:12 AM
4	2.716	0.6398mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 12:18:16 AM

Mean Area 2.433
Mean Conc. 0.5732mg/L



Sample

Sample Name: L064-06
Sample ID: TCL003-24
Origin: TCL003.cal
Chk. Result

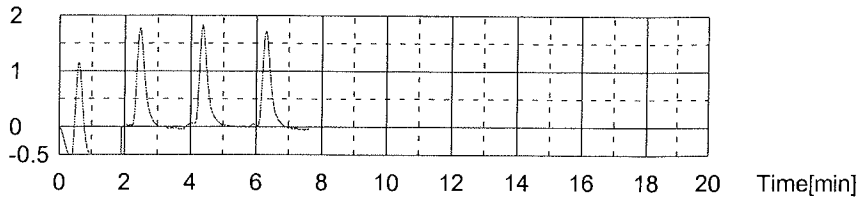
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.6819 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.530	0.5960mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 12:27:14 AM
2	2.908	0.6851mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 12:29:19 AM
3	3.133	0.7381mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 12:31:23 AM
4	3.007	0.7084mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 12:33:27 AM

Mean Area 2.895
Mean Conc. 0.6819mg/L



Sample

Sample Name: L064-07
Sample ID: TCL003-25
Origin: TCL003.cal
Chk. Result

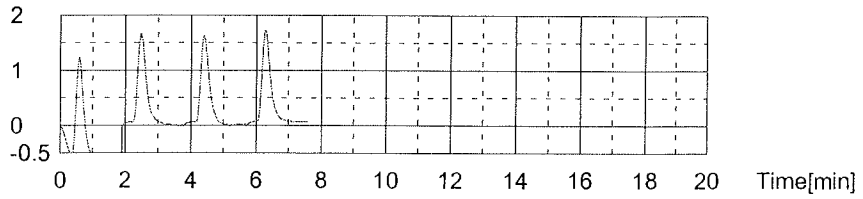
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.6646 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.676	0.6304mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 12:42:19 AM
2	2.850	0.6714mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 12:44:23 AM
3	2.817	0.6636mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 12:46:28 AM
4	2.942	0.6931mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 12:48:32 AM

Mean Area 2.821
Mean Conc. 0.6646mg/L



Control Sample

Sample Name: CCV2
Sample ID: TCL003-26
Method: TCL003.tpl
Chk. Result Control value: 25.08 / Control exceeds range!

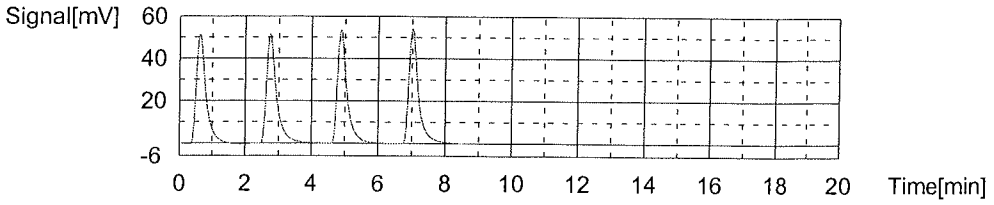
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:25.08 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	106.3	25.04mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 12:57:27 AM
2	107.3	25.28mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 12:59:45 AM
3	106.0	24.97mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 01:02:04 AM
4	106.2	25.02mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 01:04:21 AM

Mean Area 106.5
Mean Conc. 25.08mg/L



Sample

Sample Name: CCB2
Sample ID: TCL003-27
Origin: TCL003.cal
Chk. Result

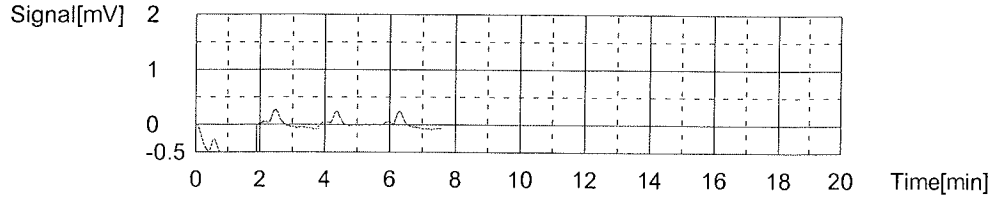
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.07275 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.2577	0.06071mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 01:12:56 AM
2	0.3947	0.09298mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 01:15:00 AM
3	0.2872	0.06766mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 01:17:05 AM
4	0.2956	0.06964mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 01:19:09 AM

Mean Area 0.3088
Mean Conc. 0.07275mg/L



Sample

Sample Name: L064-07D
Sample ID: TCL003-28
Origin: TCL003.cal
Chk. Result

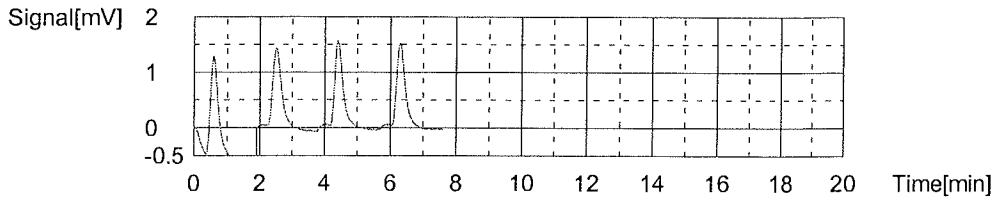
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.6298 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.625	0.6184mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 01:40:50 AM
2	2.667	0.6283mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 01:42:54 AM
3	2.694	0.6347mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 01:44:59 AM
4	2.707	0.6377mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 01:47:03 AM

Mean Area 2.673
Mean Conc. 0.6298mg/L



Sample

Sample Name: L064-07M
Sample ID: TCL003-29
Origin: TCL003.cal
Chk. Result

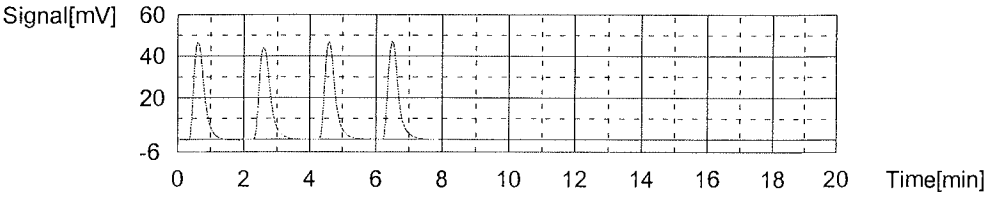
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:24.91 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	106.2	25.02mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 01:55:47 AM
2	105.9	24.95mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 01:57:56 AM
3	104.8	24.69mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 02:00:02 AM
4	106.0	24.97mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 02:02:13 AM

Mean Area 105.7
Mean Conc. 24.91mg/L



Sample

Sample Name: L064-07S
Sample ID: TCL003-30
Origin: TCL003.cal
Chk. Result

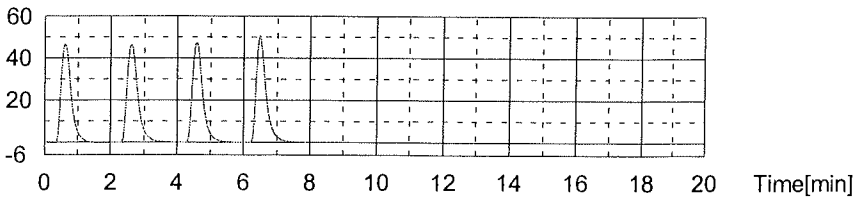
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:24.40 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	102.9	24.24mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 02:10:59 AM
2	104.7	24.67mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 02:13:07 AM
3	102.8	24.22mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 02:15:13 AM
4	103.9	24.48mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 02:17:21 AM

Mean Area 103.6
Mean Conc. 24.40mg/L



Sample

Sample Name: L064-08
Sample ID: TCL003-31
Origin: TCL003.cal
Chk. Result

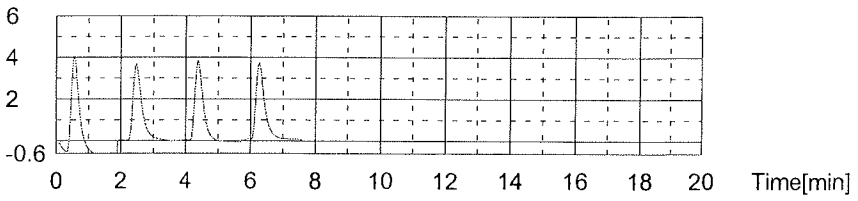
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.682 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.780	1.833mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 02:26:16 AM
2	6.883	1.621mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 02:28:20 AM
3	6.633	1.563mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 02:30:25 AM
4	7.266	1.712mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 02:32:29 AM

Mean Area 7.140
Mean Conc. 1.682mg/L



Sample

Sample Name: L064-09
Sample ID: TCL003-32
Origin: TCL003.cal
Chk. Result

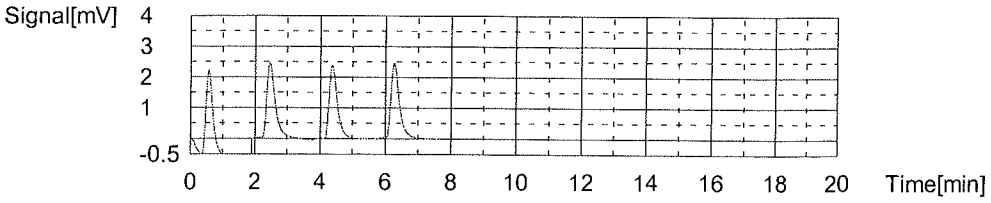
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.016 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4.141	0.9755mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 02:41:56 AM
2	4.515	1.064mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 02:44:00 AM
3	4.203	0.9901mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 02:46:04 AM
4	4.390	1.034mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 02:48:09 AM

Mean Area 4.312
Mean Conc. 1.016mg/L



Sample

Sample Name: L064-10
Sample ID: TCL003-33
Origin: TCL003.cal
Chk. Result

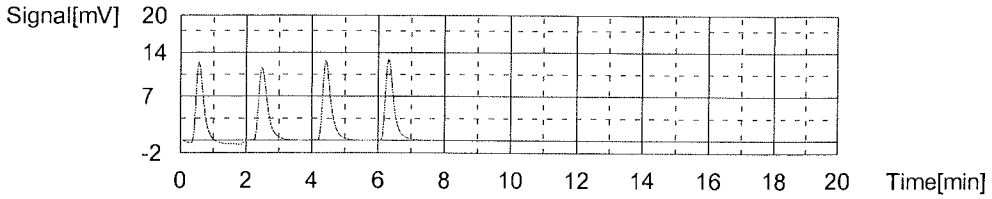
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:5.337 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	22.17	5.223mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 02:56:57 AM
2	22.79	5.369mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 02:59:04 AM
3	22.67	5.341mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 03:01:08 AM
4	22.99	5.416mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 03:03:14 AM

Mean Area 22.66
Mean Conc. 5.337mg/L



Sample

Sample Name: L064-11
Sample ID: TCL003-34
Origin: TCL003.cal
Chk. Result

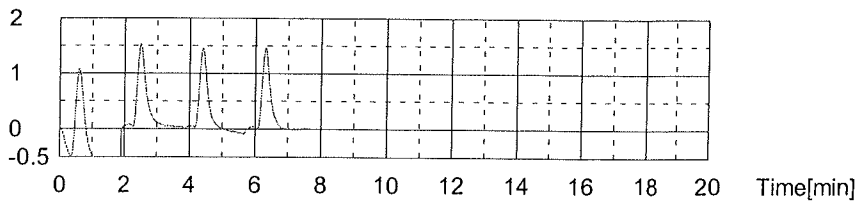
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.6059 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.698	0.6356mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 03:11:54 AM
2	2.733	0.6438mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 03:13:58 AM
3	2.430	0.5725mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 03:16:02 AM
4	2.427	0.5718mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 03:18:07 AM

Mean Area 2.572
Mean Conc. 0.6059mg/L



Sample

Sample Name: L064-12
Sample ID: TCL003-35
Origin: TCL003.cal
Chk. Result

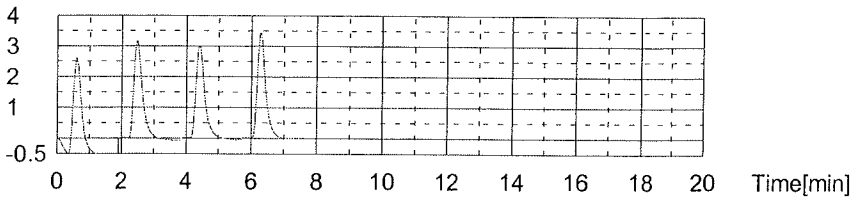
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:1.354 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5.549	1.307mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 03:26:47 AM
2	5.752	1.355mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 03:28:52 AM
3	5.777	1.361mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 03:30:56 AM
4	5.914	1.393mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 03:33:01 AM

Mean Area 5.748
Mean Conc. 1.354mg/L



Sample

Sample Name: L064-14
Sample ID: TCL003-36
Origin: TCL003.cal
Chk. Result

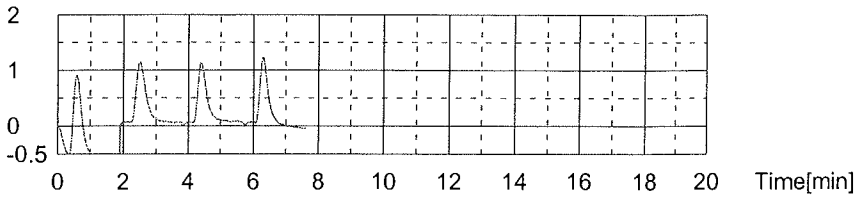
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.5069 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.475	0.5831mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 03:41:36 AM
2	2.141	0.5044mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 03:43:41 AM
3	1.961	0.4620mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 03:45:45 AM
4	2.030	0.4782mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 03:47:50 AM

Mean Area 2.152
Mean Conc. 0.5069mg/L



Sample

Sample Name: L064-15
Sample ID: TCL003-37
Origin: TCL003.cal
Chk. Result

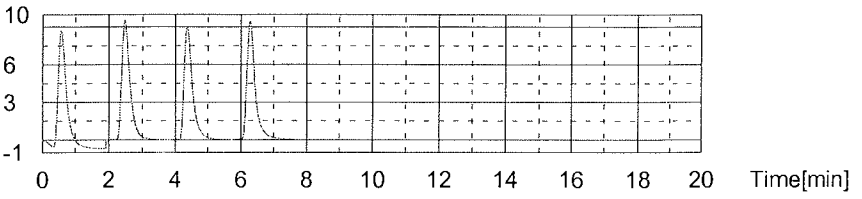
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:3.868 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	16.12	3.798mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 03:56:25 AM
2	16.80	3.958mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 03:58:30 AM
3	16.00	3.769mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 04:00:34 AM
4	16.76	3.948mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 04:02:39 AM

Mean Area 16.42
Mean Conc. 3.868mg/L



Control Sample

Sample Name: CCV3
Sample ID: TCL003-38
Method: TCL003.tpl
Chk. Result Control value: 24.87 / Control exceeds range!

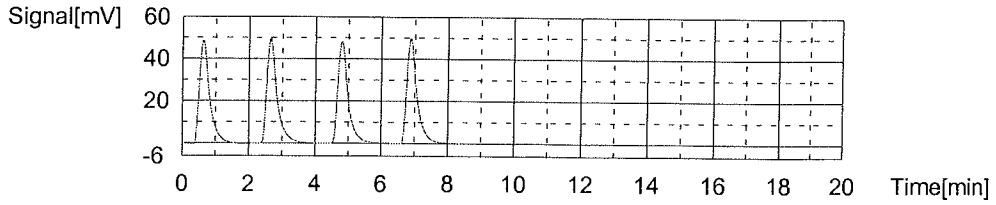
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.87 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	106.8	25.16mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 04:11:23 AM
2	105.8	24.92mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 04:13:41 AM
3	104.5	24.62mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 04:15:56 AM
4	105.1	24.76mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 04:18:14 AM

Mean Area 105.6
Mean Conc. 24.87mg/L



Sample

Sample Name: CCB3
Sample ID: TCL003-39
Origin: TCL003.cal
Chk. Result

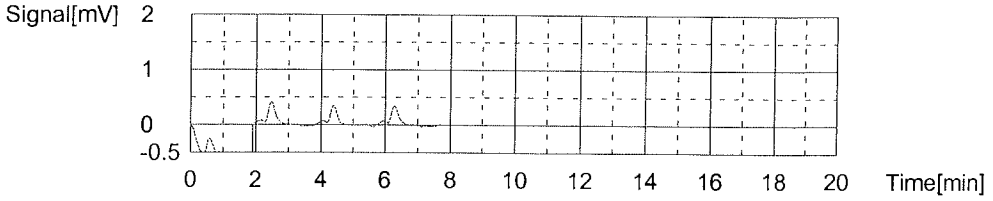
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.1232 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.4210	0.09918mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 04:26:50 AM
2	0.4967	0.1170mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 04:28:55 AM
3	0.5572	0.1313mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 04:30:59 AM
4	0.6172	0.1454mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 04:33:03 AM

Mean Area 0.5230
Mean Conc. 0.1232mg/L



Sample

Sample Name: TCL005WB
Sample ID: TCL003-40
Origin: TCL003.cal
Chk. Result

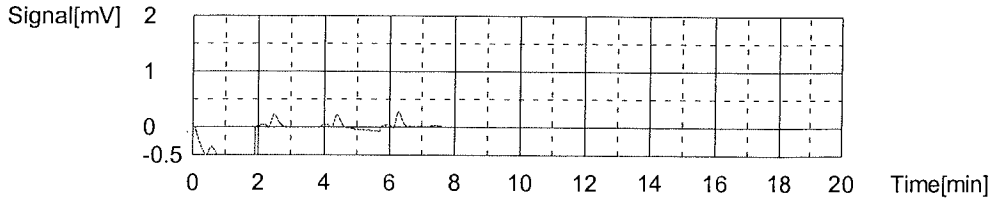
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.06125 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.1726	0.04066mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 04:54:30 AM
2	0.2978	0.07016mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 04:56:35 AM
3	0.2586	0.06092mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 04:58:39 AM
4	0.3110	0.07327mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 05:00:43 AM

Mean Area 0.2600
Mean Conc. 0.06125mg/L



Sample

Sample Name: TCL005WL
Sample ID: TCL003-41
Origin: TCL003.cal
Chk. Result

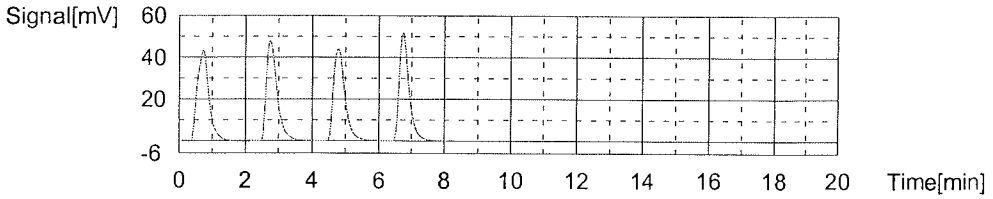
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:26.01 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	110.5	26.03mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 05:09:33 AM
2	110.9	26.13mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 05:11:43 AM
3	109.7	25.84mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 05:13:52 AM
4	110.5	26.03mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 05:16:00 AM

Mean Area 110.4
Mean Conc. 26.01mg/L



Sample

Sample Name: TCL005WC
Sample ID: TCL003-42
Origin: TCL003.cal
Chk. Result

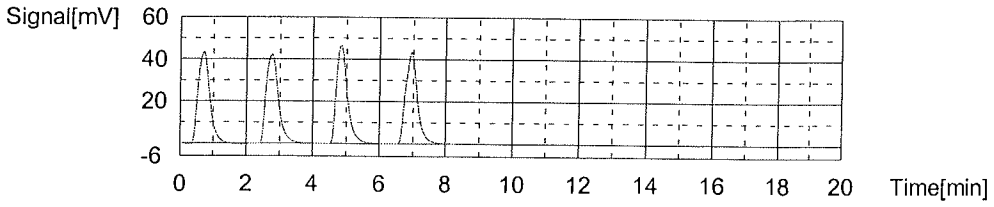
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:26.02 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	111.2	26.20mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 05:24:46 AM
2	110.7	26.08mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 05:27:03 AM
3	109.8	25.87mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 05:29:16 AM
4	110.1	25.94mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 05:31:28 AM

Mean Area 110.5
Mean Conc. 26.02mg/L



Sample

Sample Name: L064-17
Sample ID: TCL003-43
Origin: TCL003.cal
Chk. Result

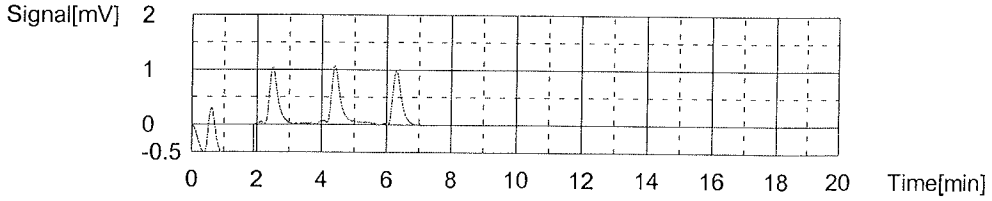
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.3853 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.266	0.2982mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 05:40:04 AM
2	1.780	0.4193mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 05:42:08 AM
3	1.711	0.4031mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 05:44:13 AM
4	1.785	0.4205mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 05:46:17 AM

Mean Area 1.636
Mean Conc. 0.3853mg/L



Sample

Sample Name: L064-18
Sample ID: TCL003-44
Origin: TCL003.cal
Chk. Result

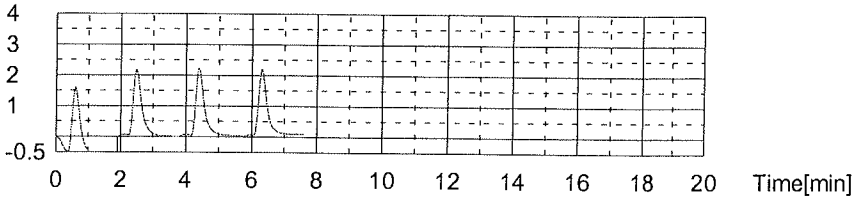
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.8686 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	3.413	0.8040mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 05:54:53 AM
2	3.722	0.8768mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 05:56:57 AM
3	3.758	0.8853mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 05:59:02 AM
4	3.855	0.9082mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 06:01:06 AM

Mean Area 3.687
Mean Conc. 0.8686mg/L



Sample

Sample Name: L064-20
Sample ID: TCL003-45
Origin: TCL003.cal
Chk. Result

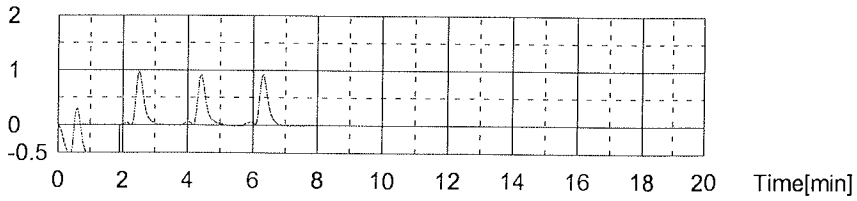
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.3512 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.340	0.3157mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 06:09:47 AM
2	1.558	0.3670mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 06:11:51 AM
3	1.495	0.3522mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 06:13:56 AM
4	1.571	0.3701mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 06:16:00 AM

Mean Area 1.491
Mean Conc. 0.3512mg/L



Sample

Sample Name: L064-21
Sample ID: TCL003-46
Origin: TCL003.cal
Chk. Result

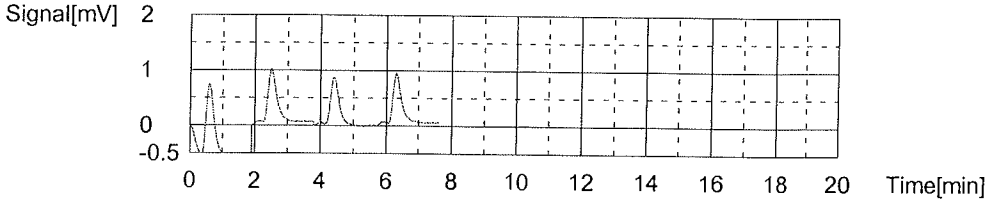
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.4001 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.146	0.5056mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 06:24:41 AM
2	1.703	0.4012mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 06:26:45 AM
3	1.444	0.3402mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 06:28:50 AM
4	1.501	0.3536mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 06:30:54 AM

Mean Area 1.699
Mean Conc. 0.4001mg/L



Sample

Sample Name: L073-01
Sample ID: TCL003-47
Origin: TCL003.cal
Chk. Result

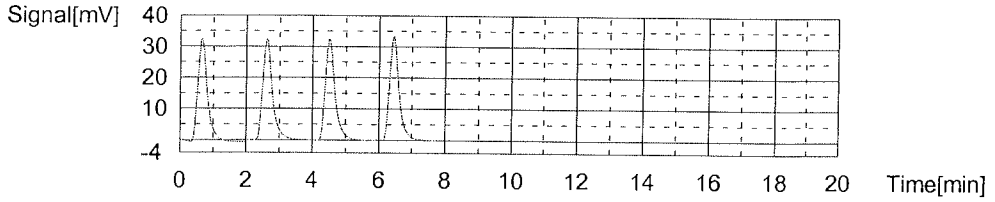
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:15.75 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	66.98	15.78mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 06:39:39 AM
2	66.51	15.67mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 06:41:43 AM
3	66.48	15.66mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 06:43:49 AM
4	67.41	15.88mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 06:45:57 AM

Mean Area 66.84
Mean Conc. 15.75mg/L



Sample

Sample Name: L073-01D
Sample ID: TCL003-48
Origin: TCL003.cal
Chk. Result

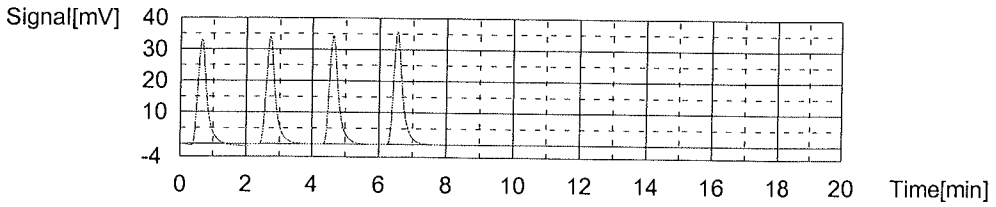
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:15.83 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	67.04	15.79mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 06:54:47 AM
2	66.96	15.77mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 06:56:54 AM
3	66.90	15.76mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 06:58:59 AM
4	67.94	16.01mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 07:01:03 AM

Mean Area 67.21
Mean Conc. 15.83mg/L



Sample

Sample Name: L073-01M
Sample ID: TCL003-49
Origin: TCL003.cal
Chk. Result

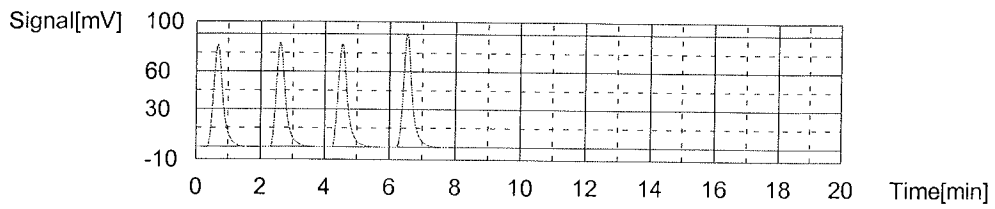
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:40.41 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	173.9	40.97mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 07:09:42 AM
2	170.6	40.19mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 07:11:48 AM
3	170.0	40.05mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 07:13:57 AM
4	171.6	40.43mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 07:16:03 AM

Mean Area 171.5
Mean Conc. 40.41mg/L



Control Sample

Sample Name: CCV4
Sample ID: TCL003-50
Method: TCL003.tpl
Chk. Result Control value: 24.71 / Control exceeds range!

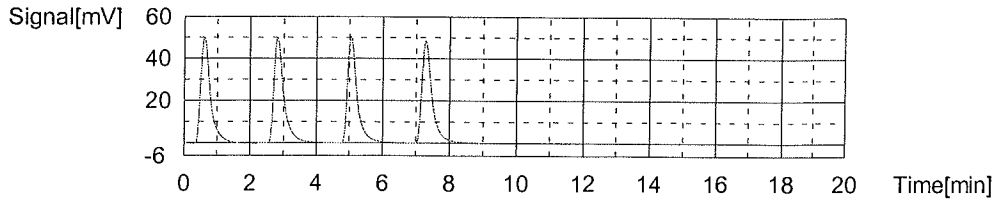
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.71 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	106.5	25.09mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 07:24:58 AM
2	105.5	24.85mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 07:27:21 AM
3	103.8	24.45mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 07:29:45 AM
4	103.8	24.45mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 07:32:11 AM

Mean Area 104.9
Mean Conc. 24.71mg/L



Sample

Sample Name: CCB4
Sample ID: TCL003-51
Origin: TCL003.cal
Chk. Result

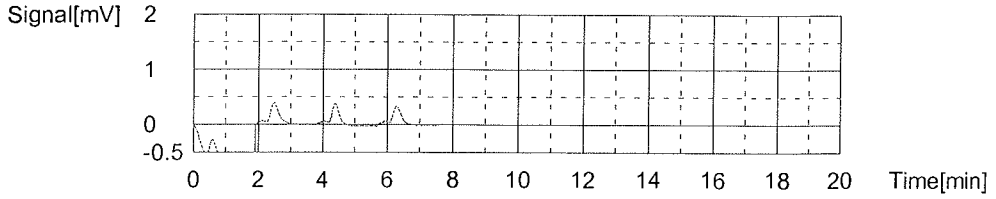
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.1184 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.3117	0.07343mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 07:40:46 AM
2	0.7078	0.1667mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 07:42:51 AM
3	0.5312	0.1251mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 07:44:55 AM
4	0.4596	0.1083mg/L	50uL	1		TCL003.2019_12_17_16_36_11.cal	12/18/19 07:47:00 AM

Mean Area 0.5026
Mean Conc. 0.1184mg/L



Sample

Sample Name: L073-01S
Sample ID: TCL003-52
Origin: TCL003.cal
Chk. Result

Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:40.06 mg/L

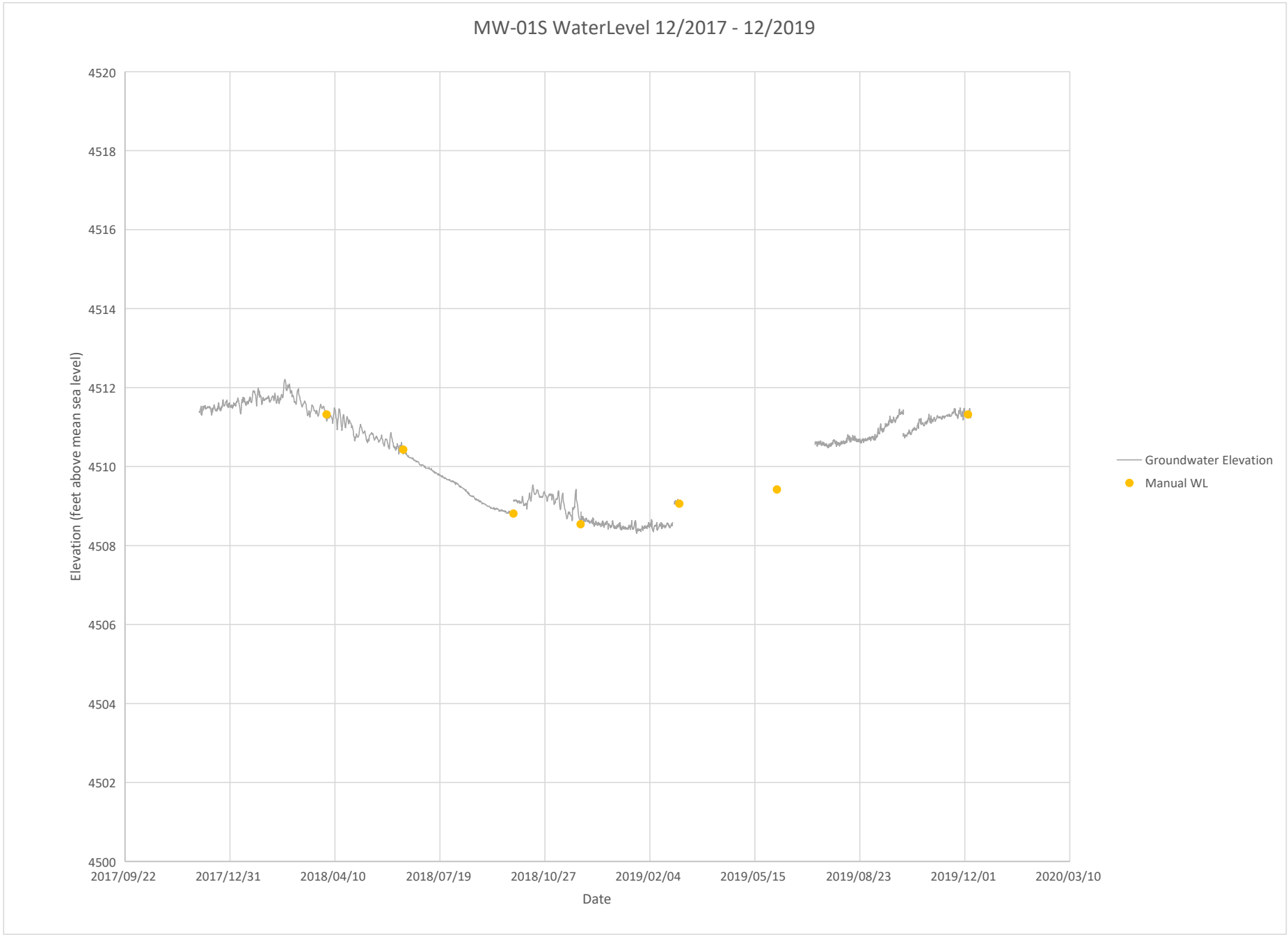
1. Det

Anal.: NPOC

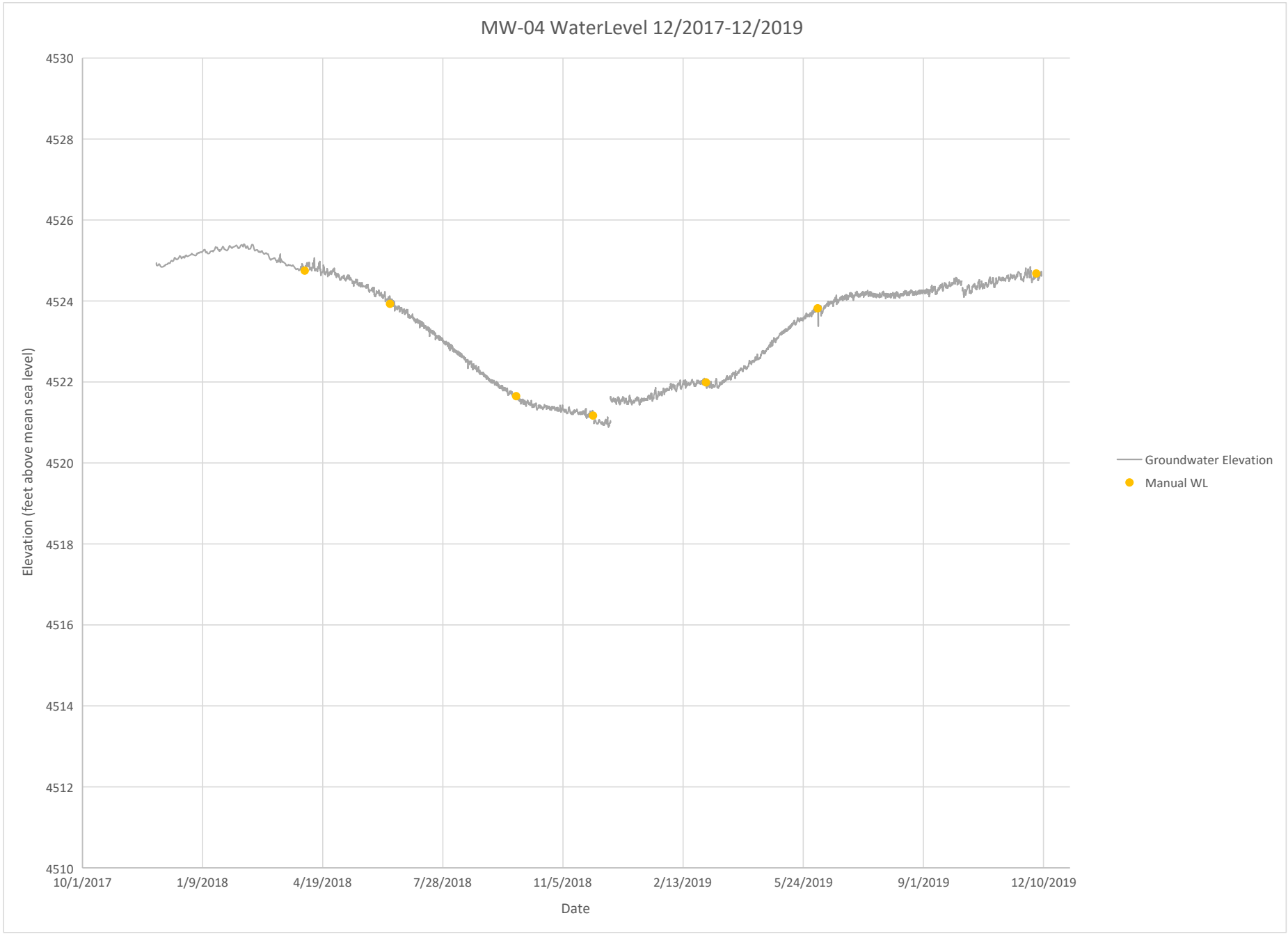
Appendix D

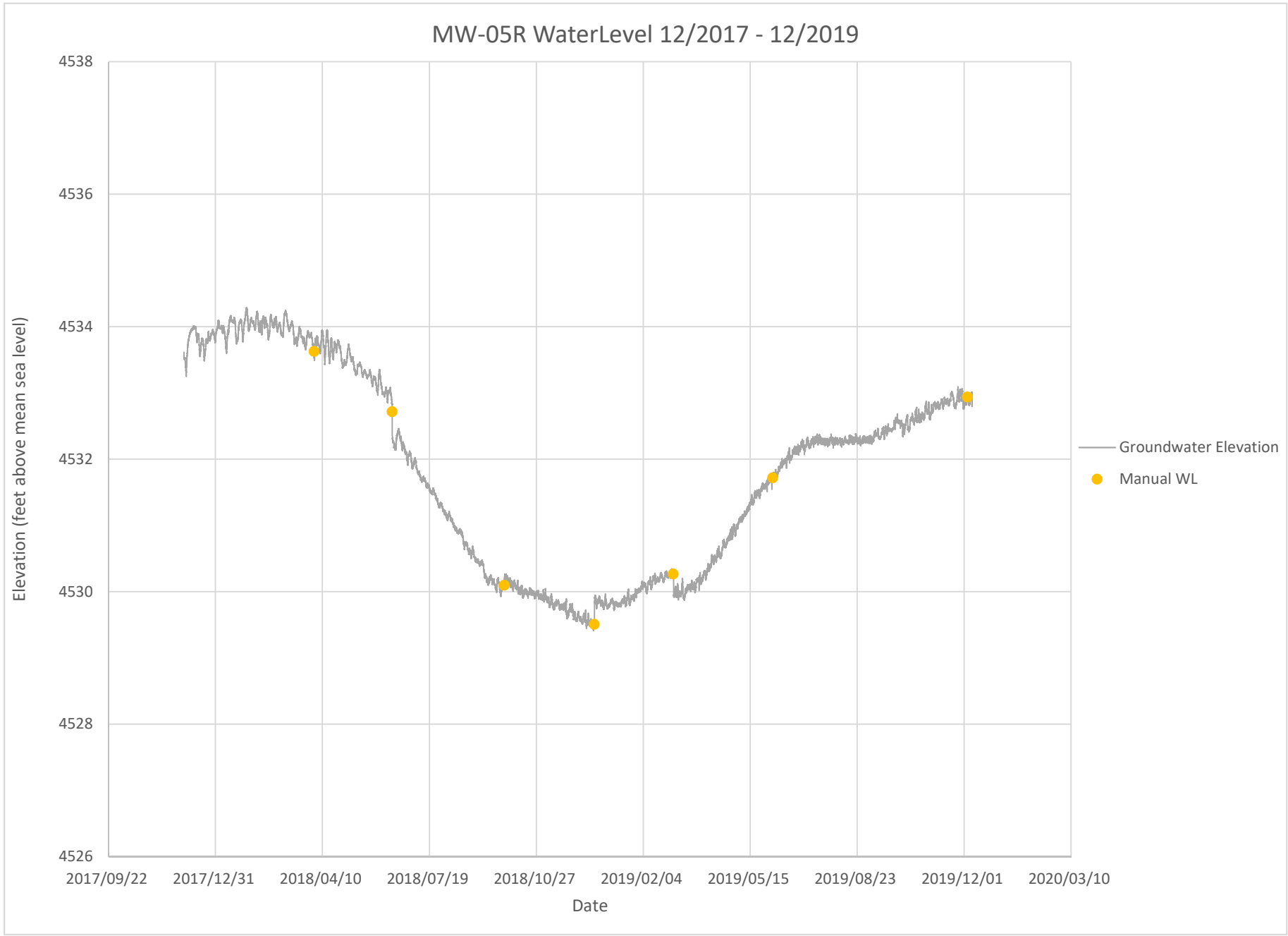
Transducer Hydrographs

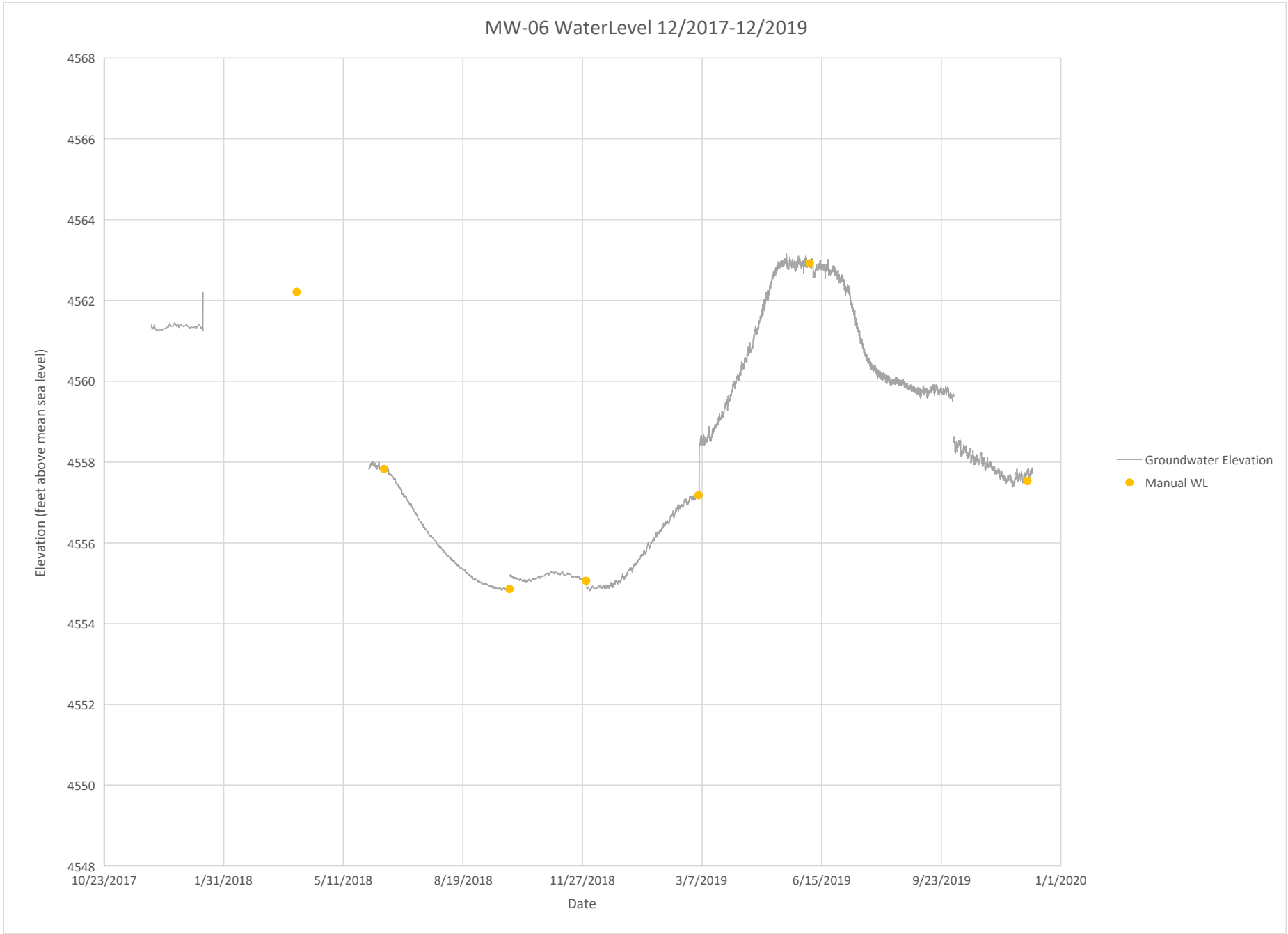

MW-01D WaterLevel 12/2017-12/2019
4500
4495
4490
4485
4480
4475
Elevation (feet above mean sea level)
2017/08/03
2017/11/11
2018/02/19
2018/05/30
2018/09/07
2018/12/16
2019/03/26
2019/07/04
2019/10/12
2020/01/20
Date
Elevation
Manual WL

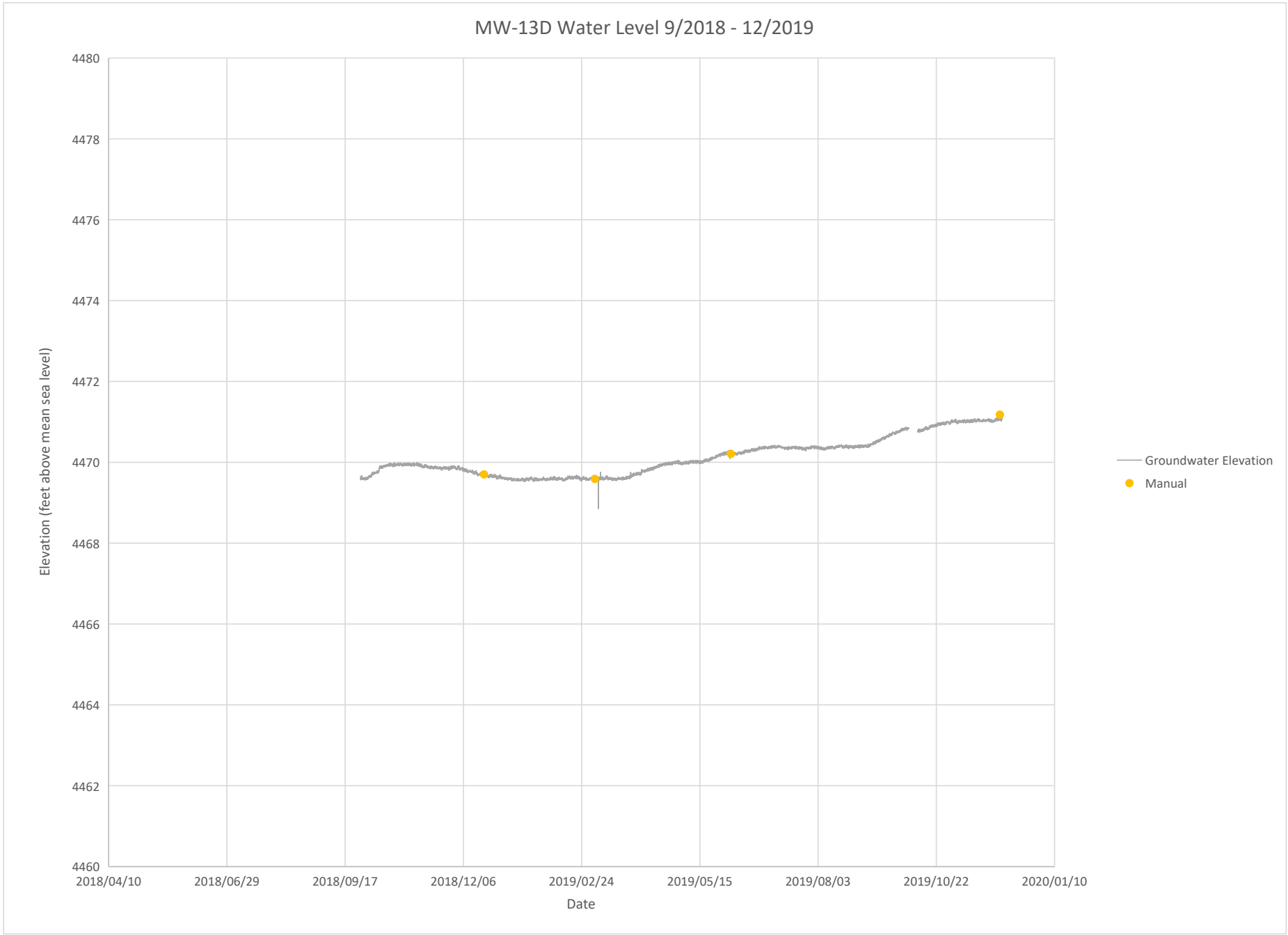

MW-01S WaterLevel 12/2017 - 12/2019
Elevation (feet above mean sea level)
4520
4518
4516
4514
4512
4510
4508
4506
4504
4502
4500
2017/09/22
2017/12/31
2018/04/10
2018/07/19
2018/10/27
2019/02/04
2019/05/15
2019/08/23
2019/12/01
2020/03/10
Date
Groundwater Elevation
Manual WL

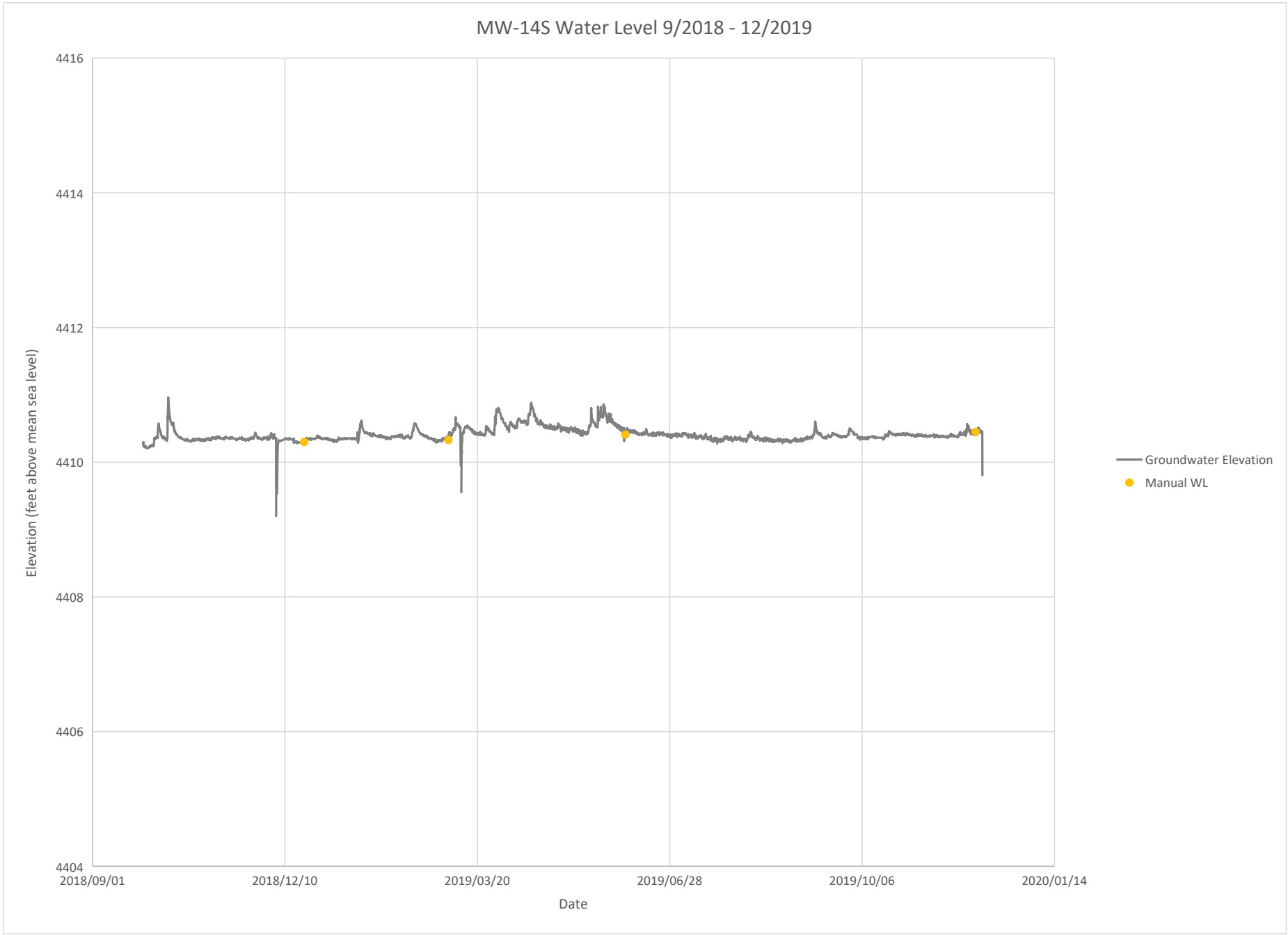

MW-02 WaterLevel 12/2017-12/2019
4520.00
4515.00
4510.00
4505.00
4500.00
4495.00
4490.00
Elevation (feet above mean sea level)
10/23/2017
1/31/2018
5/11/2018
8/19/2018
11/27/2018
3/7/2019
6/15/2019
9/23/2019
1/1/2020
Date
Groundwater Elevation
Manual WL

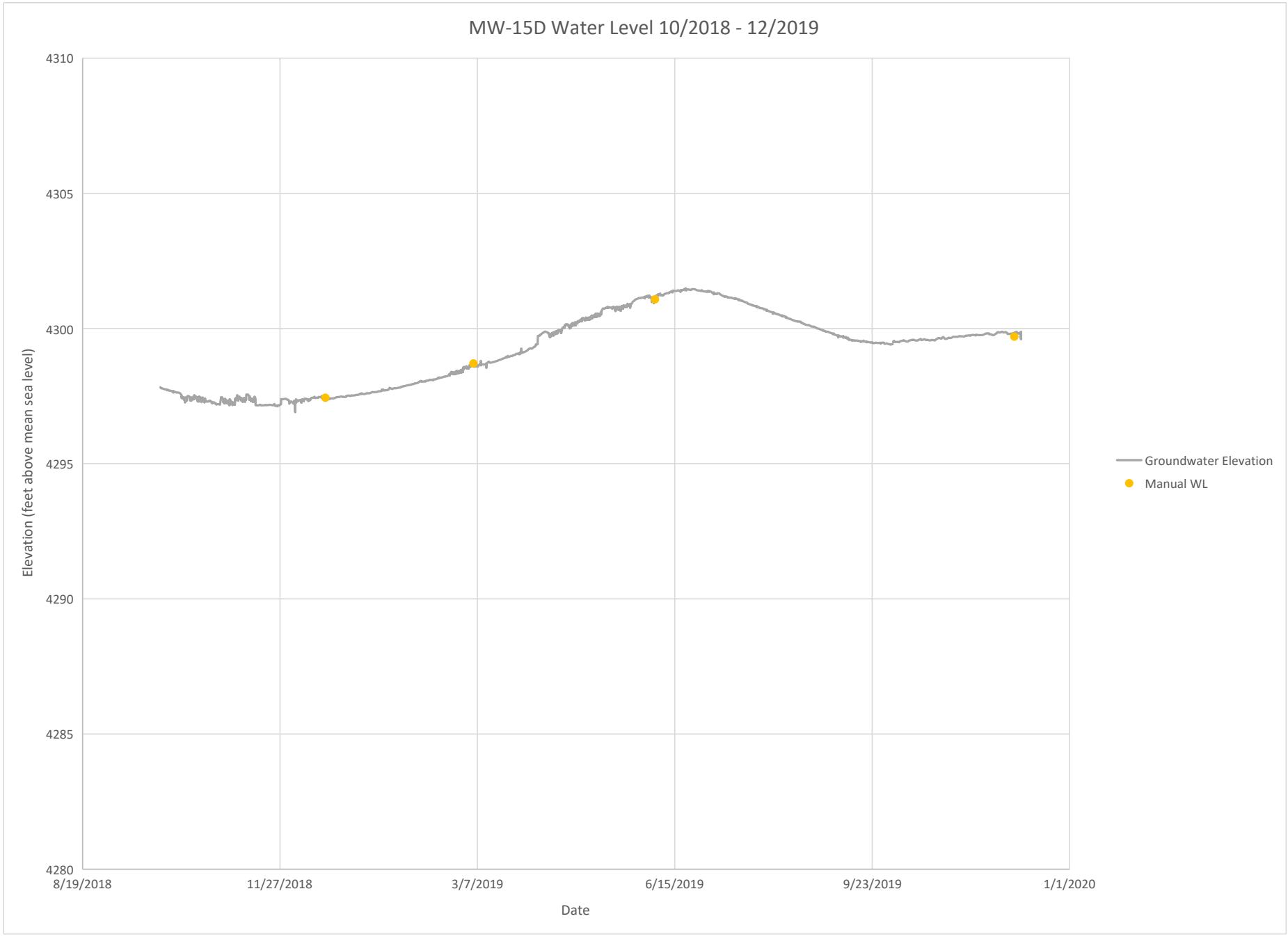

MW-04 WaterLevel 12/2017-12/2019
Elevation (feet above mean sea level)
4530
4528
4526
4524
4522
4520
4518
4516
4514
4512
4510
10/1/2017
1/9/2018
4/19/2018
7/28/2018
11/5/2018
2/13/2019
5/24/2019
9/1/2019
12/10/2019
Date
Groundwater Elevation
Manual WL

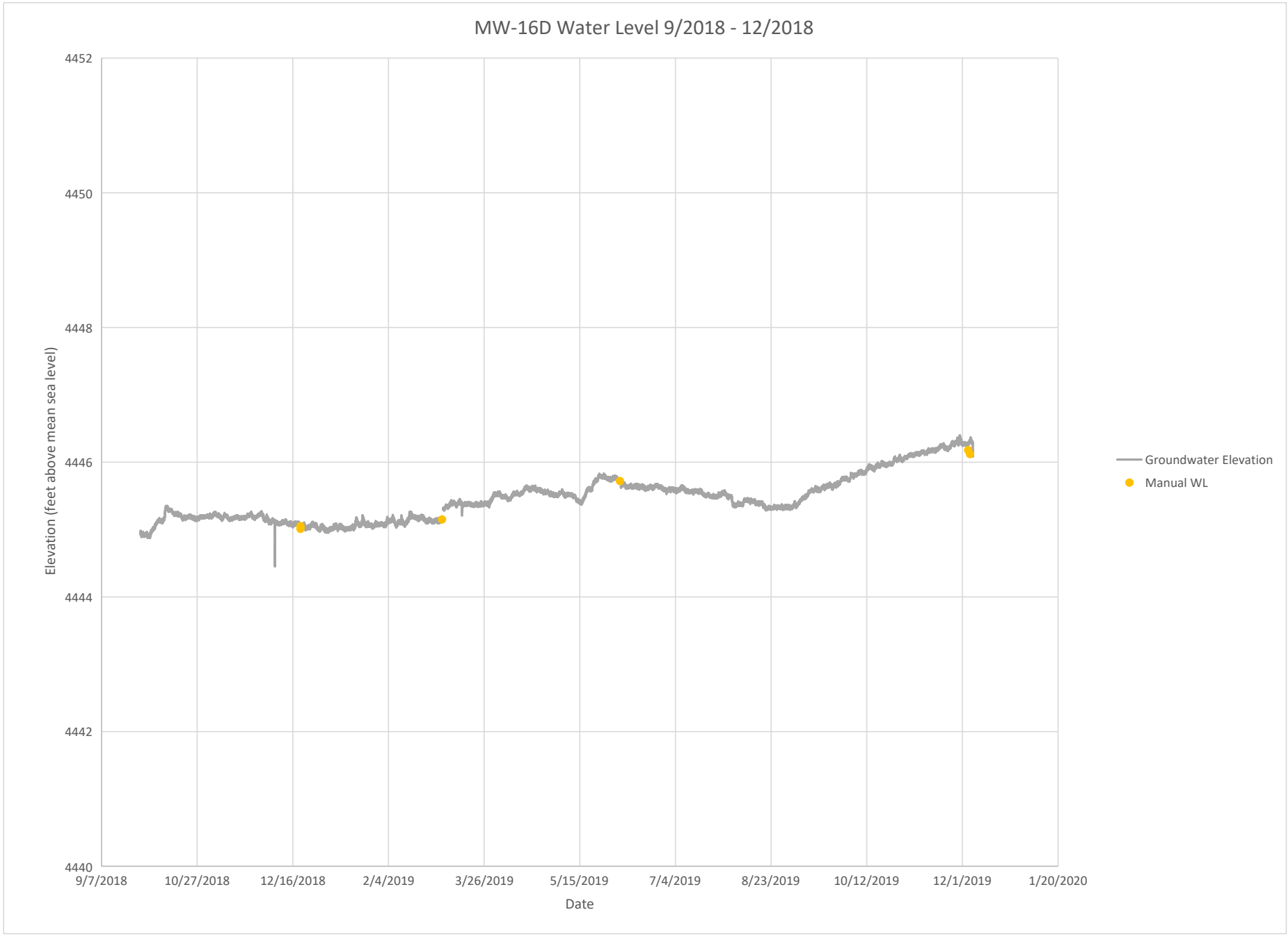

MW-05R WaterLevel 12/2017 - 12/2019
Elevation (feet above mean sea level)
4538
4536
4534
4532
4530
4528
4526
2017/09/22
2017/12/31
2018/04/10
2018/07/19
2018/10/27
2019/02/04
2019/05/15
2019/08/23
2019/12/01
2020/03/10
Date
Groundwater Elevation
Manual WL

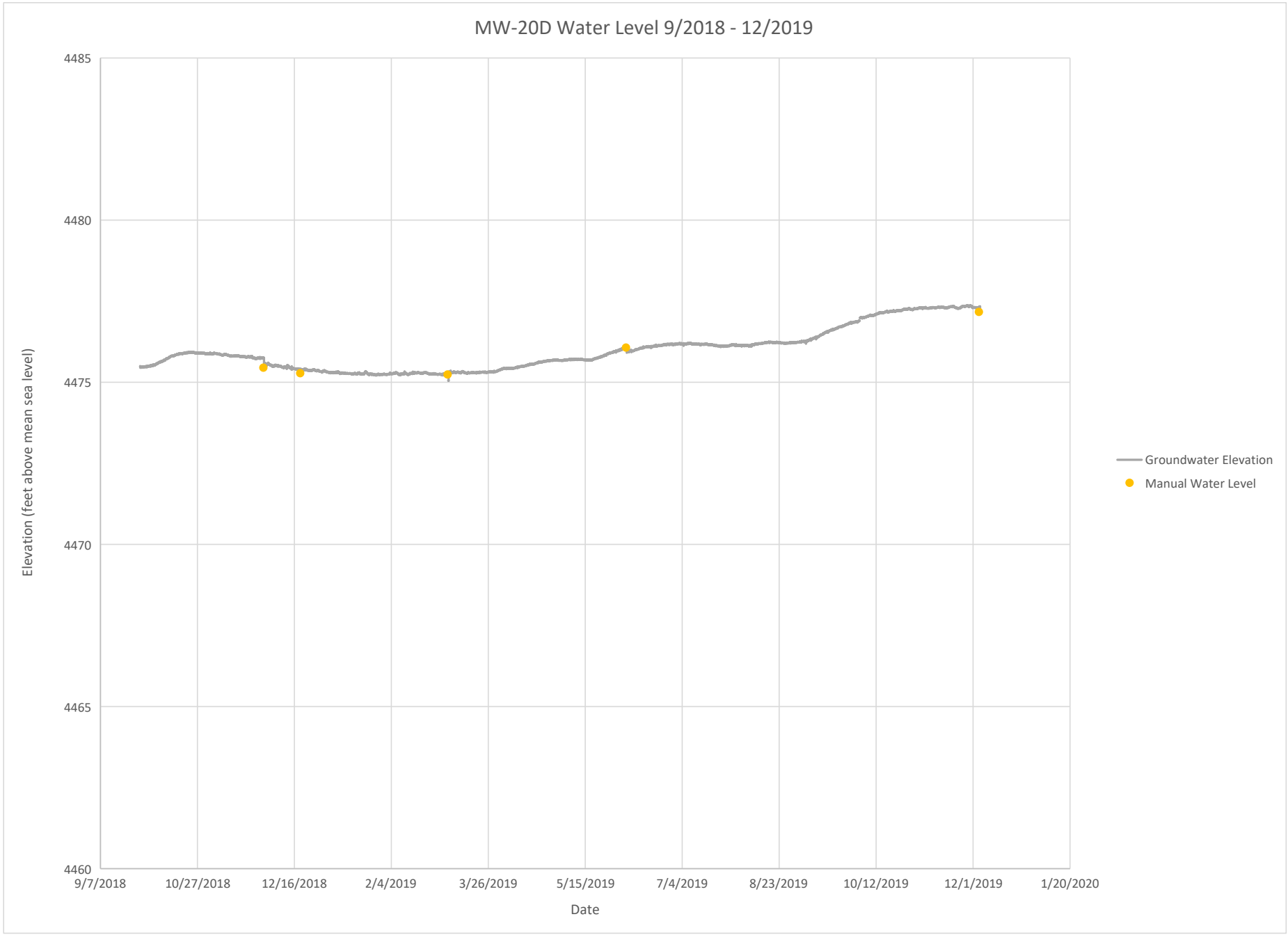

MW-06 WaterLevel 12/2017-12/2019
Elevation (feet above mean sea level)
4568
4566
4564
4562
4560
4558
4556
4554
4552
4550
4548
10/23/2017
1/31/2018
5/11/2018
8/19/2018
11/27/2018
3/7/2019
6/15/2019
9/23/2019
1/1/2020
Date
Groundwater Elevation
Manual WL

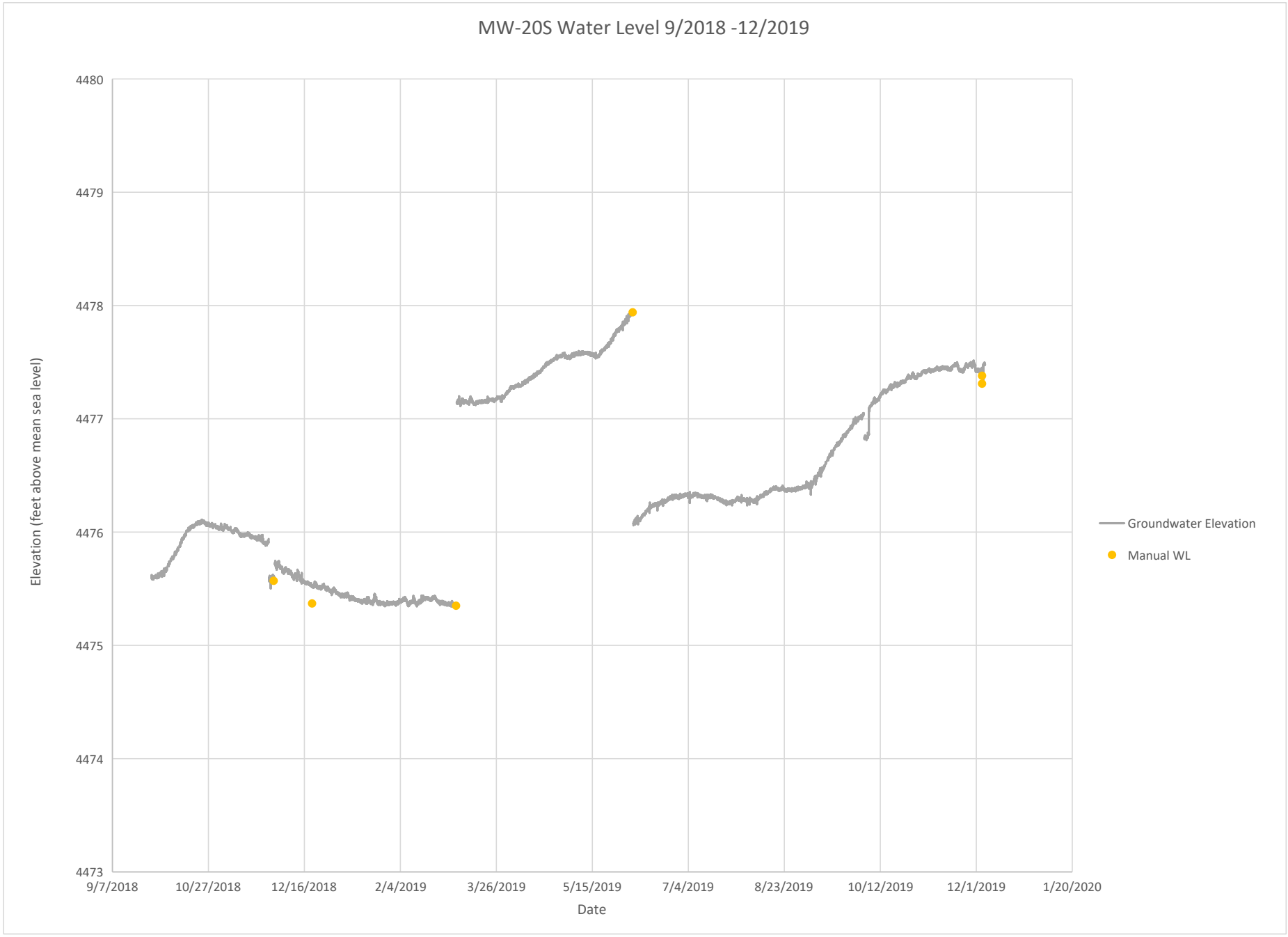

MW-13D Water Level 9/2018 - 12/2019
Elevation (feet above mean sea level)
4480
4478
4476
4474
4472
4470
4468
4466
4464
4462
4460
2018/04/10
2018/06/29
2018/09/17
2018/12/06
2019/02/24
2019/05/15
2019/08/03
2019/10/22
2020/01/10
Date
Groundwater Elevation
Manual

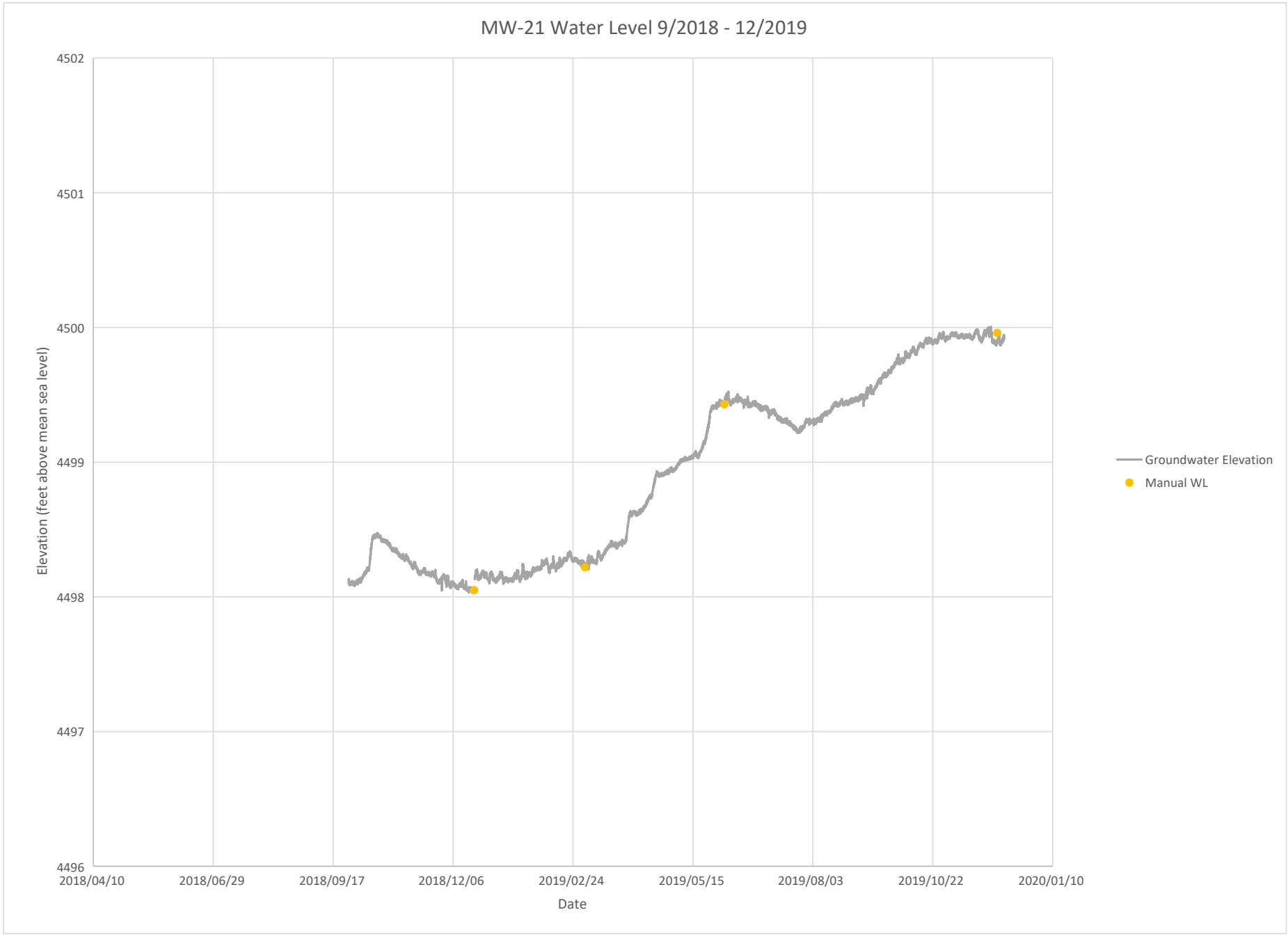

MW-14S Water Level 9/2018 - 12/2019
Elevation (feet above mean sea level)
4416
4414
4412
4410
4408
4406
4404
2018/09/01
2018/12/10
2019/03/20
2019/06/28
2019/10/06
2020/01/14
Date
Groundwater Elevation
Manual WL

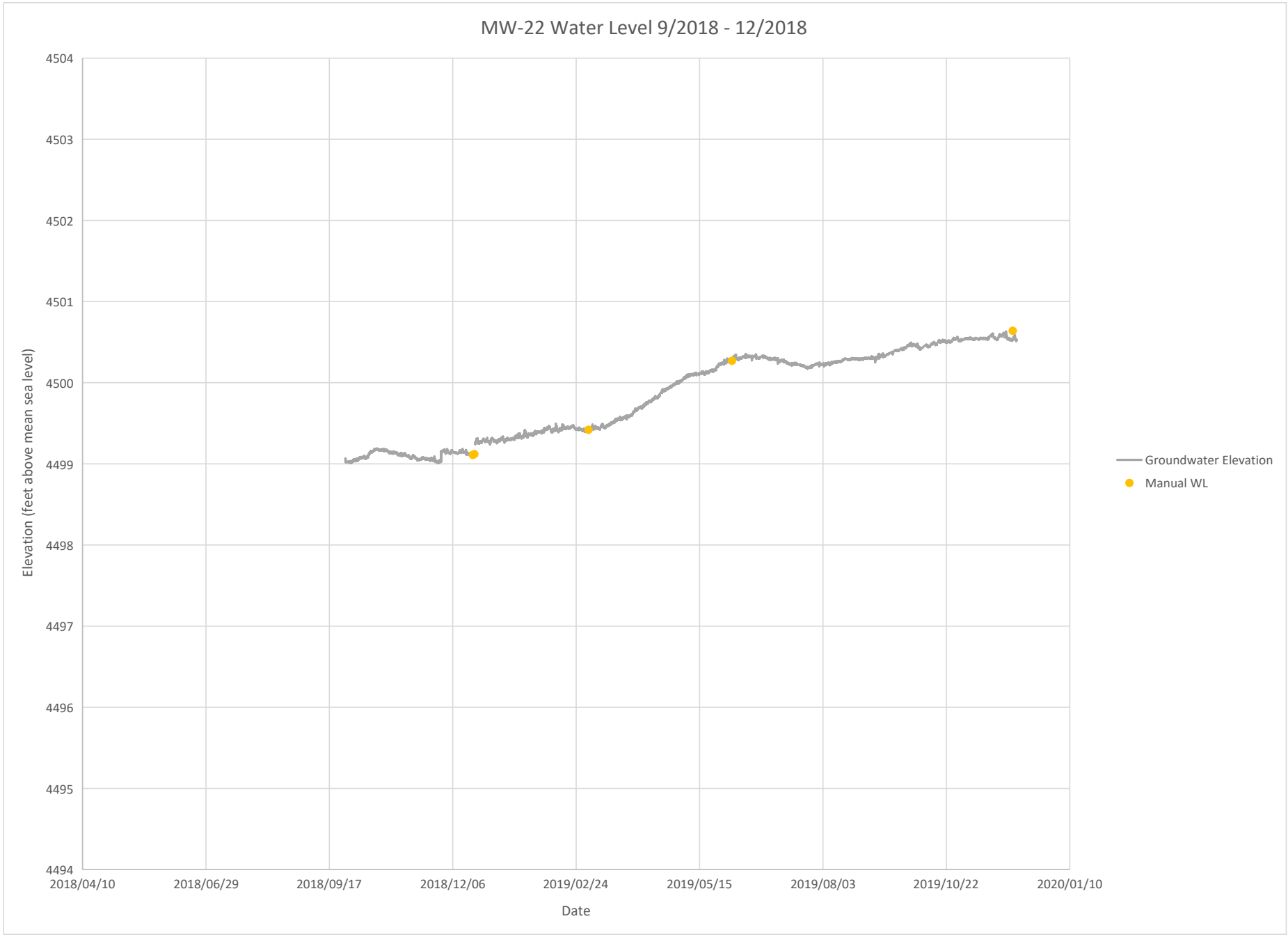

MW-15D Water Level 10/2018 - 12/2019
4310
4305
4300
4295
4290
4285
4280
Elevation (feet above mean sea level)
8/19/2018
11/27/2018
3/7/2019
6/15/2019
9/23/2019
1/1/2020
Date
Groundwater Elevation
Manual WL


MW-16D Water Level 9/2018 - 12/2018
4452
4450
4448
4446
4444
4442
4440
Elevation (feet above mean sea level)
9/7/2018
10/27/2018
12/16/2018
2/4/2019
3/26/2019
5/15/2019
7/4/2019
8/23/2019
10/12/2019
12/1/2019
1/20/2020
Date
Groundwater Elevation
Manual WL


MW-20D Water Level 9/2018 - 12/2019
Elevation (feet above mean sea level)
4485
4480
4475
4470
4465
4460
9/7/2018
10/27/2018
12/16/2018
2/4/2019
3/26/2019
5/15/2019
7/4/2019
8/23/2019
10/12/2019
12/1/2019
1/20/2020
Date
Groundwater Elevation
Manual Water Level


MW-20S Water Level 9/2018 -12/2019
Elevation (feet above mean sea level)
4480
4479
4478
4477
4476
4475
4474
4473
9/7/2018
10/27/2018
12/16/2018
2/4/2019
3/26/2019
5/15/2019
7/4/2019
8/23/2019
10/12/2019
12/1/2019
1/20/2020
Date
Groundwater Elevation
Manual WL


MW-21 Water Level 9/2018 - 12/2019
Elevation (feet above mean sea level)
4502
4501
4500
4499
4498
4497
4496
2018/04/10
2018/06/29
2018/09/17
2018/12/06
2019/02/24
2019/05/15
2019/08/03
2019/10/22
2020/01/10
Date
Groundwater Elevation
Manual WL


MW-22 Water Level 9/2018 - 12/2018
Elevation (feet above mean sea level)
4504
4503
4502
4501
4500
4499
4498
4497
4496
4495
4494
2018/04/10
2018/06/29
2018/09/17
2018/12/06
2019/02/24
2019/05/15
2019/08/03
2019/10/22
2020/01/10
Date
Groundwater Elevation
Manual WL